"RECRUITING FARMERS INTO CONSERVATION: AN ANALYSIS OF PARTICIPATION IN AGRI-ENVIRONMENTAL SCHEMES IN LOWLAND ENGLAND"

by Carol Morris

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ABSTRACT

The introduction of a range of agri-environmental incentive schemes in the 1980 s has enabled more farmers to participate in conservation than ever before. The implementation of these measures represents an evolution in policy away from the voluntarist approaches of the 1970 s, to a more interventionist approach, based on the provision of incentives for environmental management. This development in policy has lead to a change in the nature of conservation. It is becoming more 'agnostic', involving large numbers of farmers who may have no particular commitment to conservation, but who instead are responding to the incentive on offer.

The increasing sums of public money allocated to these environmental schemes means that policy administrators will increasingly be called on to demonstrate the effectiveness and efficiency of these measures. To do this, it is important to establish the extent to which financial incentives are actually bringing about changes in land-use behaviour that would otherwise not take place (an assessment of 'additionality'), but also the extent to which they are likely to secure long term, permanent changes in the conservation attitudes and behaviour of participating farmers, that will outlast the duration of schemes.

Existing analyses of the implementation of incentive schemes have only gone so far in contributing an understanding of their success and effectiveness when measured in these terms. Previous studies have tended to look rather narrowly at participation, concentrating on the numbers of farmers participating and describing the characteristics of the adopters and non-

adopters. This reflects prevailing policy priorities, which until now have emphasised the need to bring as many farms and as much land as possible into schemes, but also to look for ways of further increasing participation by removing obstacles facing the non-adopters.

The present research asserts that an in-depth analysis of adoption behaviour is required if the long-range impacts of schemes are to be properly assessed. Examining the motives and decision-making processes behind adoption and non-adoption, the approach focuses on the extent to which adopting farmers are still a self-selecting group, entering into agreements for altruistic rather than mercenary reasons. It also considers the psychological depth of resistance to schemes amongst the non-adopters, by the application of a model of innovation-adoption. This is tested through a survey of 101 farmers in two environmental schemes, the South Downs ESA and the Countryside Stewardship Scheme in the North Downs. The results of the survey suggest that schemes are appealing to a broad range of farmers and farm types. However a clear distinction emerged on the basis of motive for participation, where some farmers adopted for 'passive' reasons and those who adopted for 'active' reasons, suggesting that schemes are not always and everywhere acting as catalysts for long term shifts in attitude and behaviour. This is because a proportion of farmers who participate are passively responding to the incentive which in itself does not challenge pervasive beliefs and actions regarding land management, whilst other participants who are actively taking up the schemes are largely a self-selecting group who are already committed to changing land use practices and conservation.

In order for these schemes to encourage a sustained change in the land use attitudes and behaviour of participating farmers a case is made for re-emphasising a persuasive approach to advice provision, typical of the 1970's

conservation policy model. A better targeting of information and advice to the various farmer groups identified is proposed, together with the more imaginative use of active adopters or "demonstrators", in order to promote conservation-mindedness and the rooting of norms of good environmental practice amongst farmers.

As an approach to analysing the participation process in environmental schemes, the application of modified behavioural methodologies, including the use of an adoption model, is recommended in future research into understanding the changing nature of conservation practice on farms.

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CHAPTER 1 MAKING A PUBLIC USE OF PRIVATE INTEREST

1.1. Introduction

The practice of conservation on British farms is now more widespread than ever before and is due in no small part to the steady build-up in government financed incentive schemes which aim, as Schultz (1977, p.7) points out, "to make a public use of private interests". Indeed, the implementation of a range of agri-environmental schemes over the past 10 years, beginning with the Environmentally Sensitive Area (ESA) programme, and culminating more recently with the Ministry of Agriculture, Fisheries and Food (MAFF) consulting on a range of new measures (MAFF, 1993a), has meant that much has been learnt about the processes of integrating agriculture and conservation in general, and the operation of environmental schemes, piloted in this period, in particular.

Like many important innovations in public policy the origins, evolution, and rationale of the agri-environmental incentive scheme are far from straight-forward, though most commentators point to the early 1980's as the moment when the direct subsidisation of the countryside became inevitable and desirable, (e.g. Cox and Lowe, 1983). By this date it was clear that the existing structure of agricultural subsidies was inimical to the environment and was unsustainable economically, financially, and politically (see for instance, Bowers and Cheshire, 1983). This recognition is reflected in a large body of academic work, detailing the post-war history of European and British agricultural and conservation policy (e.g. Lowe et al, 1986, Tracy, 1989, Adams, 1986). Such reviews and analyses have been accompanied by mounting evidence of the environmentally destructive effects of post-war agricultural policy, this having been presented from a variety of viewpoints.

For example, Shoard (1980) approached the topic in an emotive and polemical fashion, whilst academics such as Bowers and Cheshire (1983) provided an economic analysis of how agricultural policy has acted as a disincentive for farmers to undertake conservation work and, by implication, has encouraged the active destruction of habitat and landscape features. In addition, conservation bodies such as the Nature Conservancy Council (NCC) and the Countryside Commission (CC) have carried out extensive field surveys of environmental change and habitat loss on agricultural land (e.g. NCC, 1984, Westmacott , 1974, Westmacott and Worthington, for the CC, 1984, Council for the Protection of Rural England (CPRE), 1989). More recently, academic attention has been directed to broader, structural forces influencing countryside change (e.g. Marsden et al, 1986a and 1986b, and Marsden, 1988), and specifically, at the impact and implementation of agri-environmental measures (e.g. Potter, 1988, Potter and Gasson, 1988, Gasson and Potter, 1988, Gasson and Hill, 1990, Brotherton, 1990,1991, and 1992, Colman et al, 1992, Hill et al, 1992).

Given the current state of agri-environmental policy, this introductory chapter sets out to: investigate the evolution of conservation policy in general and in relation to incentive schemes in particular; to examine what this suggests about the nature of property rights and policy entitlements; and to discuss some of the research and methodological implications of the general evolution in conservation policy, and more specifically, of a now detectable shift in emphasis away from immediate questions of policy design towards longer term questions connected with the sustainability of the schemes and programmes now being set up.

1.2. Tracing the Evolution of Policy: From Small-Scale Capital Grants to Large-Scale Incentives

A review of conservation policy over the last two decades reveals an important evolution in philosophy and approach that says much about the continuing re-negotiation of property rights and policy entitlements in the British countryside. Initially at least, those organisations responsible for the promotion of on-farm conservation had to rely, in the absence of adequate grants or incentives, or controls and regulations over the activities of farmers, on "the 'gentle' approach, based on promoting awareness, advice, co-operation and compromise, adopted by the Countryside Commission," (Cobham et al, 1984, p.119) and the Farming and Wildlife Advisory Group (FWAG). The CC's New Agricultural Landscapes (NAL)(Westmacott and Worthington, 1984) and Demonstration Farm projects (Cobham et al, 1984), together with the activities of the developing FWAGs (including the post Silsoe exercises) encapsulated the notions of voluntary co-operation, responsible stewardship, goodwill and good husbandry (promoted by advice, information and persuasion), for resolving the conflict between agriculture and conservation (Cox et al, 1985). This persuasive approach targeted innovators in conservation, on the assumption that the diffusion of conservation ideas would then spread by permissive means. Read (1987) has noted that the Agricultural Development and Advisory Service (ADAS) have also sought out innovators when disseminating agricultural advice, "the perceptive ones to try out new ideas and then others will follow"(Cox et al, 1985, p.180).

Incentives and state aids were few and far between at this time. Farmers wishing to carry out conservation work could only receive minimal state assistance. This was the case even in 1984, when it was observed that, "until recently few financial incentives have been made available to assist

landowners and farmers to conserve, and establish, where appropriate, such features as hedges and ...stone walls. The exceptions, of course, were amenity tree planting, farm woodland, Sites of Special Scientific Interest (SSSI's) and ancient monuments. Even then many would claim that, apart from the first item, the grants have been little more than token payments. Indeed grant aid for such items during the eight years (of the Demonstration Farms project) has had a chequered career...It was only in the past year that any significant moves were made to provide more positive incentives...Unfortunately, however, they appeared to be the result of totally independent rather than integrated planning"(Cobham et al, 1984, p.111). This policy was one that was always likely to favour those farmers who were already interested in, and willing to carry out conservation work and/or seek conservation advice. Critics like Potter (1986a) questioned whether the diffusion of good practice to a wider audience actually took place, or whether conservation activities were restricted to the most committed. For instance, in his work on investment styles he found that, "many FWAG members saw themselves as opinion leaders or early innovators...Certainly a process of diffusion from farmer to farmer can be identified...(but) it may be that a visible diffusion of conservation activity is nothing more than increasing numbers of farmers reaching a point of completion, or near completion, in conventional investment programmes. The conservation implications of this can only be guessed at"(Potter, 1986a, p.155-6).

Furthermore, it was found by the NAL studies that the attitudes of farmers were slow to change and that many projects undertaken were carried out by those already sympathetic to the idea of conservation. "Evidence suggests that to an extent, the NAL projects only capitalise upon an existing latent interest in conservation. Conversion of the unsympathetic to conservation was much more difficult to achieve"(Hamilton and Woolcock, 1984, p.68).

This idea was later developed in Potter and Gasson's work on set-aside and its potential for conservation. They noted the significance of the 'selectivity effect' in land diversion schemes, whereby farmers were being subsidised for conservation projects which they intended to undertake anyway. That is, such schemes had become naturally targeted towards those 'progressive' farmers attuned to environmental ideas. The implication of this was that these schemes were unlikely to initiate conservation investment on those farms with no history of such activity. An unfortunate aspect of this, is that in, "encouraging more and better conservation management through improved advice and grant aid simply makes the rich richer and the poor poorer in the sense that it is farmers who are already active conservation managers who tend to attract the most grant aid and be most responsive to advice"(Potter and Gasson, 1988, p.374). The same process happens with landscape itself, with, "the richer landscapes getting richer and the poor getting poorer. The farms with the most cover have the best maintenance and attract most planting and vice versa"(Westmacott and Worthington, 1984, p.74).

At the same time, many argued, this voluntary approach ignored the larger pressures that were encouraging anti-conservationist practices in the first place, diverting attention away from the need for broader policy reform and the integration of conservation with farm management. The FWAG voluntary approach was depicted by some commentators as one that, "keeps the problem soluble by keeping it small"(Potter, 1985a, p.6). The most compelling argument against the persuasive approach was that it neglected the need to reform policy, by focusing instead on the need to reform the individual (the 'conservative' approach to policy reform, identified by Potter (1985b). Support for a more radical 'reformist' position came from the Demonstration Farms project, which pointed to the acute need for incentives

and controls, in addition to co-ordinated advice and information (Cobham et al, 1984). The Wildlife and Countryside Act (WCA) 1981 reinforced and crystallised the voluntary approach adopted in the 1970's. This piece of legislation introduced only some compulsion over farming activities through management agreements on special sites (Cox et al, 1985). More importantly, because it was implemented against the grain of the CAP, it was regarded by many as an inefficient and expensive policy in fiscal terms (e.g. Cox and Lowe, 1983, Baldock et al, 1990).

It was this experience in implementing the WCA 1981, set against a largely countervailing farm policy, together with a number of changes in the broader policy environment, which led, in the mid 1980's, to the first serious steps towards a more interventionist approach to conservation policy making at the national level. A significant aspect of this was the formation of agri-environmental incentive schemes. A first move was the setting up of the Broads Grazing Marsh Scheme (BGMS), by the Broads Authority, in 1985, for an experimental 3 year period. This represented an attempt to create a system of incentives for environmentally friendly farming (O'Riordan, 1985) and in the event, "became the prototype for the ESAs and crucially included the principle of flat rate subsidies for traditional husbandry rather than the individual profits foregone arrangements enshrined in the 1981 Act"(Baldock et al, 1990, p.144). It was an important step: away from negative compensation made under SSSI management agreements, to flat rate payments for positive management. The new system operated by paying the landowner annually, on a per hectare basis, in exchange for their following a set of tiered management prescriptions. Typically, the more onerous the prescription (the higher the tier), the higher the rate of payment.

The BGMS was soon followed, in 1986 and 1987, by the first and second round of ESA designations. Nineteen ESAs had been designated in the UK by 1989. These were introduced after a fairly rapid consultation period with the NCC, CC, and English Heritage, once the enabling legislation of the 1986 Agriculture Act had been put into place. The broad criteria set by the agriculture departments in October 1985 were that the ESAs should be areas:
1. of national environmental significance:
2. whose conservation depends on the adoption, maintenance or extension of a particular form of farming practice:
3. in which there have occurred, or there is a likelihood of, changes in farming practices which pose a major threat to the environment:
4. which represent a discrete and coherent unit of environmental interest:
5. which would permit the economical administration of appropriate conservation aids (MAFF, 1989a).

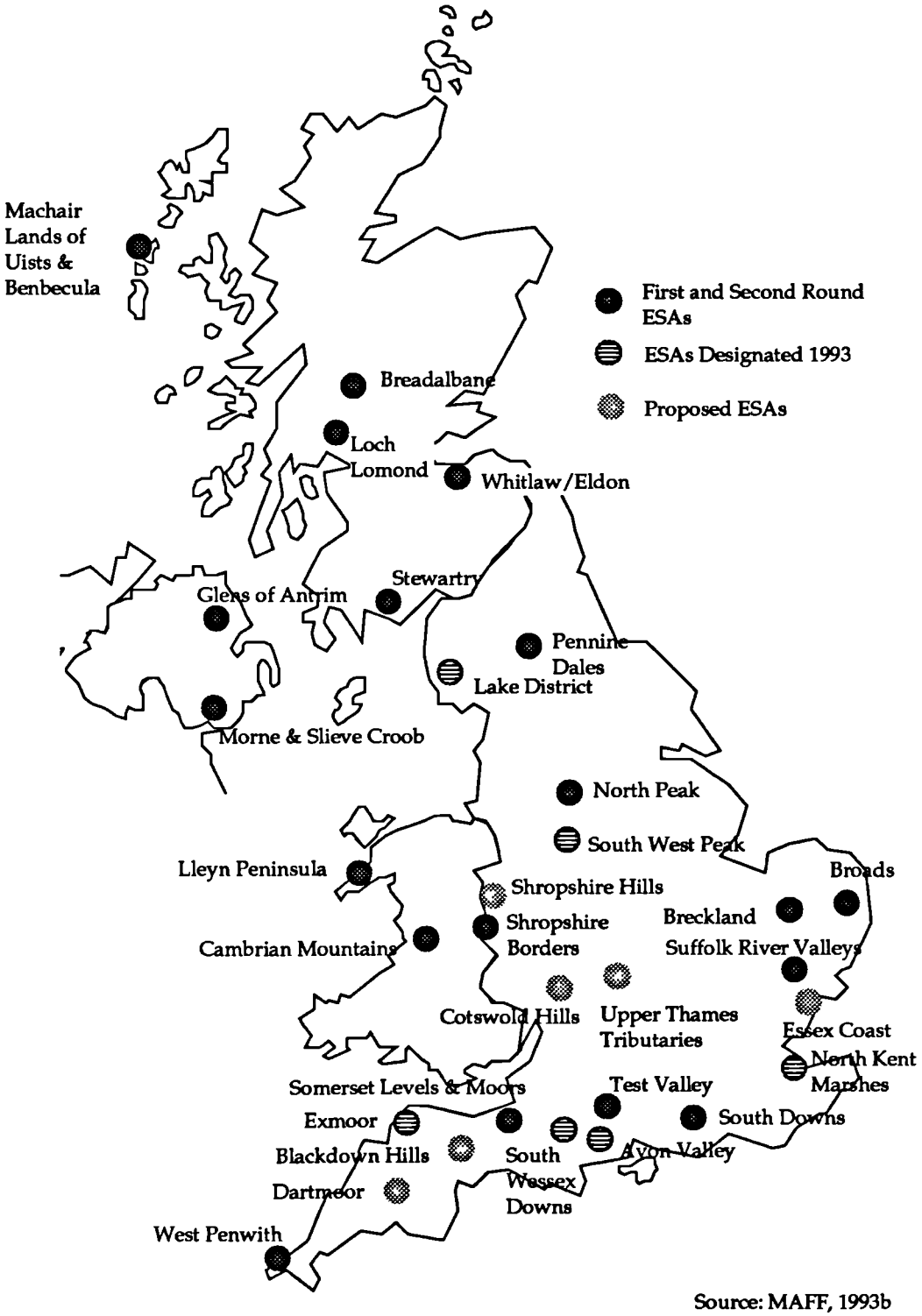
The designated areas cover an enormous range of habitat and landscape types, but what they have in common is, "a landscape and ecology critically dependent on the continuation of agricultural systems which are, typically, extensive and livestock based: though some are threatened more by decline and others more by improvement and intensification"(Baldock et al, 1990, p.145). ESAs marked a significant departure for agricultural policy because for the first time farmers were effectively being paid by the agriculture departments (as opposed to the conservation agencies) to 'produce' countryside, a principle enshrined in the 1986 Agriculture Act. The schemes themselves were favourably received by the farming and landowning community largely because of the positive management payments and because the 'voluntary principle' was maintained. The ESA programme was later revised and extended following the MAFF 1990/91 review, leading to some new options and payments in existing designations together with the

designation of 12 new ESAs, to be introduced in 1993 and 1994 (see Figure 1.1). The budget for this programme alone, initially £6 million in 1987, has been increased to £30.2 million in 1993/94 (MAFF, 1993a), and demonstrates MAFF's commitment to what has become a, "cause celebre" and a policy that is," often quoted by ministers as a vital contribution to conservation by the UK and the Conservative Government" (Baldock et al, 1990, p.145).

With ESAs in place, the stage was set for the introduction of further agri-environmental initiatives. Of particular interest and importance have been the following:

1. the CC's Countryside Premium Scheme (CPS), introduced in 1988, as a green 'top-up' for set-aside and available in 6 English counties (CC, 1991a);
2. MAFF/Forestry Authority's (FA) Farm Woodland Premium Scheme (FWPS) (initially piloted in 1988 as the Farm Woodland Scheme (FWS) to promote the planting of broad leaved species on arable land, which is available countrywide (MAFF, 1992a);
3. the pilot Nitrate Sensitive Areas Scheme (NSA) introduced in 1989 in areas vulnerable to the pollution of ground water by nitrates (MAFF, 1989b) ;
4. the CC's Hedgerow Incentive Scheme (HIS)(introduced in 1992 and available countrywide) represented an attempt to encourage management and recreation of the diminishing hedgerow resource (CC, 1992a);
5. the Country Landowners Association's (CLA) Environmental Land Management Scheme (ELMS) where instead of flat-rate payments being on offer for set management prescriptions, farmers negotiate the conditions of their own environmental contracts with grant-awarding bodies (CLA, 1989);
6. English Nature's (EN) Wildlife Enhancement Scheme, launched in 1992 as a pilot measure (in two areas with spatially extensive SSSI's) and representing a further attempt to move away from negative compensation, towards positive management payments on SSSI's and adjacent land (EN, 1992);

Figure 1.1. Existing and Proposed ESAs



Source: MAFF, 1993b

7. the CC's Countryside Stewardship Scheme (CSS), introduced in 1991 for six landscape types (CC, 1991b) and extended in 1992 to incorporate 2 more landscape types (CC, 1992b);
8. in addition to these national schemes, a variety of National Park (NP) schemes have been set up to promote the particular needs of conserving farmed landscapes in the National Parks, e.g. the North York Moors Farm Scheme, launched in 1990 (North York Moors NP, 1990). Whilst most of these have been introduced in the past five years, the National Parks had developed the idea of farm conservation schemes as long ago as the late 1960's, with the Upland Management Experiment (UMEX)(CC, 1974) in Snowdownia and the Lake District, and the Integrated Rural Development Scheme (early 1980's) in the Peak District (Parker, 1984).

The Countryside Stewardship Scheme is significant amongst these for a number of reasons. It is a landscape-based scheme operating along similar lines to the ESA programme, and offers farmers positive management payments for the maintenance and/or recreation of seven broad landscape types: upland; coastal; lowland heath; waterside; chalk and limestone grassland; historic park lands; and old meadows and pastures. This is to be achieved by sustaining or returning to traditional management practices that have created them, or by the adoption of practical modern equivalents (CC, 1991b). It therefore extends the ESA principle to broader areas of countryside of recognised value, but these areas are not spatially circumscribed.

The origins of the CSS policy lie in the CC's history of research and practical involvement with the conservation of farmed landscapes. The Demonstration Farms Project (1984), as reported above, recognised the need for positive incentives to maintain the countryside. This was later followed, in 1989, by the publication of 'Incentives for a New Direction in Farming'(CC,

1989). This document advanced the case for a countrywide system of payments for environmental works on farms, based on a 'menu' of options, and effectively acted as a forerunner to the CSS. Announced in 1991, the CSS was initially targeted at the first five of the landscape types outlined above, with a budget of £13.6 million, and extended in 1992 to include the other two landscape types and a further £7.8 million for 1992/93 (CC, 1993a). Also of note was the implementation of its' sister scheme, Tir Cymen, by the Countryside Council for Wales (CCW), in 1992.

Therefore, by the early 1990's, the number of schemes available to farmers to undertake conservation and environmental management had greatly increased. The money allocated to these schemes has also increased in line with the number on offer. The CC (1993b) calculate that the total spent on environmental schemes in England alone was £50m in 1991/92 . These schemes are detailed in Tables 1.1. to 1.5., which include a consideration of: enabling pieces of legislation and scheme administration, goals and duration of scheme, criteria for designation, areas of implementation, levels of uptake, budgets and payment levels. Nine national incentive schemes now exist (although some of these are only pilot schemes and are likely to be superseded by new initiatives). In addition there exist various Local Authority agreements, SSSI management agreements (NCC, 1988), the Farm Conservation Grant Scheme (MAFF, 1990a) introduced in 1988, which replaced the Agricultural Improvement Scheme and the Agricultural and Horticultural Grant Scheme, and also of note, the pilot Extensification Scheme (MAFF, 1990b) which is not strictly an agri-environmental scheme, but is implicitly environmental in its promotion of low input farming systems. Whilst it is difficult to assess the exact area they cover, agreements to date for all schemes in the tables amount to hundreds of thousands of hectares, and involve thousands of farmers.

Table 1.1. Environmental Incentive Schemes: Legislation and Administration

SCHEME TITLE	LEGISLATION and ADMINISTRATION
UPLAND MANAGEMENT EXPERIMENT	Countryside Commission initiative (with MAFF, NFU CLA, Treasury). Administered by MAFF project officers.
INTEGRATED RURAL DEVELOPMENT SCHEME	Peak District N.P. idea. Steering committee, large number of local and national organisations e.g. MAFF, National Farmers Union (NFU), NCC, Forestry Commission (FC), CLA.
ENVIRONMENTALLY SENSITIVE AREAS	1985 EC Structures Regulation (EC 797/85) Article 19. UK Agriculture Act 1986/ Section 18. EC Reg. 1760/87 - 25% FEOGA reimbursement for ESA's. 1987 - first round designation orders. 1988 - second round designation orders. 1990/91 - MAFF review of ESAs. 1992 - 12 new ESAs proposed (introduced 93/94). Administration: Agriculture departments.
FARM WOODLAND PREMIUM SCHEME	MAFF initiative (ALURE 1987) Initially FWS, introduced 1/10/1988. Became FWPS 4/1992. Administration MAFF/FA.
COUNTRYSIDE PREMIUM SCHEME	Offshoot UK Set-Aside (March 88). CPS implemented June '89 for farmers already in set-aside. May be extended nationally under CAP accompanying measures. Administration: CC/DoE/MAFF/NCC.
NITRATE SENSITIVE AREAS	EC Draft Directive 4136/89 - Nitrates in Water. UK - MAFF consultation document. May 1989 on NSAs. Water Bill 1989 - National Rivers Authority. 12 pilot water protection zones announced September 1989.
ENVIRONMENTAL LAND MANAGEMENT SCHEME	Publication of Greenwell Working Party Report April 1989 for CLA.
NORTH YORK MOORS NP FARM SCHEME	NY Moors NP idea with MAFF, FA, CC, NCC. Launched on target farms April 1990. Administration: NP Authority.
COUNTRYSIDE STEWARDSHIP SCHEME	CC initiative. Launched 1991, extended 1992. Administration: CC. (sister scheme Tir Cymen, launched July 1992 by CCW).
HEDGEROW INCENTIVE SCHEME	CC initiative, launched 1992. Administration: CC + MAFF hedgerow grants.
WILDLIFE ENHANCEMENT SCHEME	EN initiative, launched 1992. Administration: EN project officers

Table 1.2. Environmental Incentive Schemes: Goals of Scheme and Length of Contracts

SCHEME TITLE	GOALS OF SCHEME AND LENGTH OF CONTRACTS
UPLAND MANAGEMENT EXPERIMENT	Experimental scheme attempting to reconcile interests of farmers and visitors in the uplands and NP's. Farmers offered financial encouragement to carry out small schemes to improve landscape and recreation. 3 year scheme (1969-72)
INTEGRATED RURAL DEVELOPMENT SCHEME	Attempted to reverse population decline and improve job opportunities, whilst maintaining environmental quality of N.P. One subject area - harmonising community development and agricultural operations with conservation needs. 4 year scheme (1981-85)
ENVIRONMENTALLY SENSITIVE AREAS	Conservation of areas of high landscape and/or wildlife value through payments for maintenance or introduction of environmentally beneficial farming practices Initially 5 year contracts, 10 after review
FARM WOODLAND PREMIUM SCHEME	Landscape enhancement and creation of new habitat through incentives for planting broad leaved species. 3 year experimental scheme initially, contracts for 10/15 years.
COUNTRYSIDE PREMIUM SCHEME	To provide incentives for the positive environmental management of set-aside land. 5 year contracts.
NITRATE SENSITIVE AREAS	To provide incentives to change farming methods to reduce nitrate pollution. 5 year pilot scheme.
ENVIRONMENTAL LAND MANAGEMENT SCHEME	To enable farmers/landowners to draw up contracts with public/private organisations to provide an environmental service. Contract length negotiable.
NORTH YORK MOORS NP FARM SCHEME	To provide incentives for maintenance and management of landscape, wildlife and historic features. 10 year contracts.
COUNTRYSIDE STEWARDSHIP SCHEME	To provide incentives for the conservation, enhancement and recreation of 7 target landscapes. 10 year contracts.
HEDGEROW INCENTIVE SCHEME	To provide incentives for management and recreation of hedgerows. 10 year contracts.
WILDLIFE ENHANCEMENT SCHEME	Positive incentives for management on SSSI's and adjacent land. 3 year pilot scheme.

Table 1.3. Environmental Incentive Schemes: Criteria for Designation

SCHEME TITLE	CRITERIA FOR DESIGNATION
UPLAND MANAGEMENT EXPERIMENT	Areas of: 25,000-300,000 acres in N.P.; in multiple ownership; under moderate recreational pressure; typical upland country where agriculture is the main land use.
INTEGRATED RURAL DEVELOPMENT SCHEME	Upland (Less Favoured Area) dairy and sheep farms in Peak NP. Two contrasting parishes in terms of land quality, both of high conservation value.
ENVIRONMENTALLY SENSITIVE AREAS	Range of semi-natural and manmade landscape types, of national environmental significance, where conservation depends on maintaining/extending farming practices and discouraging modern farming practices.
FARM WOODLAND PREMIUM SCHEME	Countrywide, but those areas which could benefit most from tree-planting for landscape enhancement/habitat creation were targets for the experimental FWS.
COUNTRYSIDE PREMIUM SCHEME	Set-aside land in those areas where, the scope for environmental improvement seems greatest.
NITRATE SENSITIVE AREAS	Areas in which aquifer bore-holes/surface water exceed the EC 50 mg/L limit.
ENVIRONMENTAL LAND MANAGEMENT SCHEME	No specific criteria, scheme applies to all rural land.
NORTH YORK MOORS NP FARM SCHEME	Certain farms in NY Moors N.P. Two types of land within this with different management prescriptions: conservation grade and improved land.
COUNTRYSIDE STEWARDSHIP SCHEME	Value of target landscape types is recognised as having been created by traditional management practices which CC wish to maintain/reintroduce.
HEDGEROW INCENTIVE SCHEME	Hedgerows that would benefit from improvement.
WILDLIFE ENHANCEMENT SCHEME	Two pilot areas - spatially extensive SSSIs

Table 1.4. Environmental Incentive Schemes: Areas of Implementation

SCHEME TITLE	AREAS OF IMPLEMENTATION
UPLAND MANAGEMENT EXPERIMENT	Rhinogs in Merioneth - Snowdonia N.P. (30,000 acres). Martindale, Patterdale (Ullswater) Lake District N.P.
INTEGRATED RURAL DEVELOPMENT SCHEME	2 villages Monyash and Longnor in Peak N.P.
ENVIRONMENTALLY SENSITIVE AREAS	19 areas initially: The Broads, Somerset Levels and Moors, West Penwith, Pennine Dales, South Downs, Test Valley, Suffolk River Valleys, Shropshire Borders, North Peak, Breckland, Cambrian Mountains, Lleyn Peninsula, Machair Lands of Uists and Benbecula, Breadalbane, Loch Lomond, Stewartry, Glens of Antrim, Mourne and Slieve Croob, Whitlaw/Eildon. 12 new areas 1993/94: Lake District, South West Peak, Shropshire Hills, Cotswold Hills, Upper Thames Tributaries, Essex coast, North West Kent Coast, North Dorset/South Wilts Downs, Avon Valley, Exmoor, Blackdown Hills, Dartmoor.
FARM WOODLAND PREMIUM SCHEME	Countrywide, no target regions.
COUNTRYSIDE PREMIUM SCHEME	Bedfordshire, Cambridgeshire, Essex, Herts, Norfolk, Suffolk, Northamptonshire. (Possible availability countrywide in future).
NITRATE SENSITIVE AREAS	11 pilot areas in Yorks, Notts, Shropshire Lincolnshire, Staffs, Derbyshire, Gloucestershire, Wiltshire and South Avon. 9 candidate areas for advisory campaign
ENVIRONMENTAL LAND MANAGEMENT SCHEME	Countrywide.
NORTH YORK MOORS NP FARM SCHEME	3 Target areas: Upper Farndale, Middle Farndale and Upper Rosedale,+ 6 farms in various locations.
COUNTRYSIDE STEWARDSHIP SCHEME	5 Target landscapes initially: upland, coastal, waterside, chalk and limestone grassland, lowland heath + (1992) historic parklands and old meadows and pastures.
HEDGEROW INCENTIVE SCHEME	Countrywide.
WILDLIFE ENHANCEMENT SCHEME	2 pilot areas: Pevensey Levels and Culm Grasslands.

Table 1.5. Environmental Incentive Schemes: Budgets and Payment Levels and Levels of Uptake

SCHEME TITLE	BUDGETS AND PAYMENTS	LEVELS OF UPTAKE
UPLAND MANAGEMENT EXPERIMENT	Financed by CC.payments for work done Tot spent - £7659.	131 jobs in total
INTEGRATED RURAL DEVELOPMENT SCHEME	Financed by CC,DC, MAFF,DoE,NCC. payments for work done. Tot grant - £10,000	18 farms out of 44 eligible farms
ENVIRONMENTALLY SENSITIVE AREAS	MAFF and FEOGA finance, £11 m 1993 -> £43m over next 2 years. Payment range £10-£350/ha/year, + capital grants under revised scheme 1992.	3,100 agreements covering 113,000 ha in 1992 (=29% designated area)
FARM WOODLAND PREMIUM SCHEME	FA and MAFF funding: £2.1m 1991/92. Payment range £60-£250/ha/year.	7,500 ha entered into FWS 1990.
COUNTRYSIDE PREMIUM SCHEME	CC and MAFF funding. £650,000 (1990/91). Payment range £45-£120/ha + capital grants.	246 agreements, covering 708,065 ha.
NITRATE SENSITIVE AREAS	MAFF. £0.9m. Payment range £55-£95/ha basic scheme - £380/ha premium scheme.	87% eligible land entered by 80% of farmers, covering 9000 ha.
ENVIRONMENTAL LAND MANAGEMENT SCHEME	Devon CC - £200,000 1991/92. Range: £400-£16,000.	In Devon, 28 ELMS agreements in 1990/1991.
NORTH YORK MOORS NP FARM SCHEME	NP Authority, 1992 - £208,000. Range: £20-£280/ha/year + capital grants.	36 agreements (=98% eligible farmers) covering 2223 ha.
COUNTRYSIDE STEWARDSHIP SCHEME	CC, £13.6m first 3 years + £7.8m 1992/93 Range £15-£250/ha/year + £50/ha/year access + capital grants.	900 contracts in first year covering 30,000 ha (22% of this under access agreements).
HEDGEROW INCENTIVE SCHEME	MAFF, £3.5m 1992-95. Range, £1.50-£2.50/m/ yr + capital grants	NA
WILDLIFE ENHANCEMENT SCHEME	EN, budget unknown Range £12/ha/year	NA

The ESA and CSS schemes cover 113,000 and 30,000 ha, and involve 3,100 and 900 contracts respectively (1991/2 for England)(CC, 1992c). This demonstrates the ability of incentive schemes to involve large numbers of farmers in conservation.

Looking at these tables, it is apparent that there has there been an overall evolution in schemes, from the local 'precursor' Upland Management Experiment and Integrated Rural Development schemes, to the national, and hence much wider ranging, initiatives of ESAs and CSS. But there has also been an evolution within the schemes themselves, as monitoring and evaluation has taken place and objectives have been reformulated and reset (e.g. the MAFF monitoring of ESAs, 1990/91 and the revised outcome). One particularly important aspect of this process has been the move away from rigid prescriptions to a much more flexible approach, and also towards a discretionary means of setting up agreements. It is also obvious that the schemes, whilst sharing a similar conceptual base, involve a wide range of objectives, for example, the conservation of spatially delineated landscapes of specific importance under ESAs and CSS, contrasts with the water pollution control measures on the NSAs. All these initiatives involve potential changes in management regimes, and contrast with those incentives for the management and re-creation of linear or point features available under the HIS and FWPS. These factors relate to the impact that individual schemes have on property rights. Generally, the more onerous the scheme, i.e. the more it impacts upon the system of farming (rather than simply affecting farming activities on 'non-productive' areas of the farm), the greater the impact on property rights. A very important part of this evolution in incentive schemes is that whilst the early ones were very much tied up with production control (which was part of their legitimation), over time the schemes stand increasingly in their own right, as environmental payments

are increasingly justified as a means to maintain farmers on the land (e.g. Potter, 1990) and as the payments to farmers for agriculture and environmental management have become increasingly transparent and direct.

Nonetheless, while the 1980s witnessed the emergence of what might be seen as a wide ranging package of measures to combat the crises of over-production and environmental concern in the agricultural sector (with a concomitant redefinition of the role of the farmer away from that of food producer to encompass multi-purpose objectives) the underlying strategy is still far from clear. It has been noted recently that, "agri-environmental schemes, even ESAs, are still little more than bolted on to a CAP that is very far from being environmentally sensitive as a pricing policy."(Potter, 1992, p.1) Ilbery also refers to the 1980's package of conservation measures as 'bolt-on' rather than 'built-in' measures (Ilbery, 1992). Furthermore, although the number of incentive schemes has increased, together with money allocated to them, it should not be forgotten that the total agricultural budget is far in excess of the total budget allocated to environmental management. MAFF estimate that environmental schemes under their control have an annual budget of £24m for 1993, increasing to £100m in 1995/6 (MAFF, 1993a); this contrasts with the total agricultural support budget of £2,000m 1991/2 (CC, 1993b). As such, whilst the schemes are providing a whole range of new incentives for farmers, they should not be viewed as complete solutions to resolving the problem of integrating agriculture and environmental management. In addition, because of the production control emphasis of much policy making in the 1980's, the evolution of incentive schemes has been intimately bound up in this process. There has often been an implicit objective of production control in their formulation, particularly schemes introduced under the Alternative Land Use and the Rural Economy (ALURE) package such as the

FWS, but also NSA, Extensification and ESAs: "ALURE was born of a marriage between longer-term political concerns over the EC's CAP and short term expediency in the run up to the 1987 general election"(Cloke and Mclaughlin, 1989, p.236). Indeed it has frequently been assumed that agricultural surpluses offer environmental opportunities, although the logic of this argument has been challenged by a number of commentators, both in general (e.g. Buckwell, 1989, Robinson, 1991, Hodge, 1992), and in relation to ESAs in particular (Potter, 1988).

Even so, as an approach to policy based on widespread subsidisation of 'good practice', the environmental incentive scheme of the 1980's and 1990's is very different compared to the grant/advice mixture and management agreements which prevailed in the 1970s and early 1980s. This policy innovation has not been confined to the UK. In an assessment of environmental policies in three European countries, Nowiki points to a clear evolution, " from compensation for restrictions on land use, to compensation for lack of potential earnings and finally to payment for service rendered...In a way, society is redefining what is an agricultural product, in that there is a clear social value -in economic terms - associated with certain types of agricultural land use practices"(Nowiki, 1989, p.115). In retrospect, the significance of the environmental schemes discussed is threefold. First, they make available conservation incentives to a much larger body of farmers than any of the preceding measures designed to promote conservation activity amongst farmers. Second, they involve positive payments (typically using a standard payment system) to farmers for the production of conservation goods, and thereby recognise that farmers should be rewarded for the production of environmental goods which cannot be produced through the market place. This reflects the third feature of environmental schemes, which is that they entail the departments of agriculture selectively purchasing parts of farmers'

rights to property, where some loss of entitlements occurs in exchange for a payment on land entered into an agreement. That property rights have been re-defined in this context provides an explanation of the concept of 'making a public use of private interests'.

1.3. Environmental Incentive Schemes: Rethinking Property Rights

Farmers' entitlements have then been progressively redefined over the last decade in line with the evolution of policy. In simple terms, entitlements to price guarantees are being replaced with more circumscribed entitlements to grant aid and income support, subject to conditions, increasingly environmental in nature. Newby (quoted in Cobham et al, 1984) recognised that, "the fundamental problem of property rights cannot be evaded indefinitely. Although most farmland is privately owned, the landscape is publicly consumed". In general terms, "in the real world it matters very much who has property rights, since a property right gives the legal ability to ignore the wishes of those without such rights"(Hodge and Bromley, 1990, p.198). The fact that, "modern absolute property rights are unconditional upon the performance of any social function by property owners,"(Rose et al, 1976, p.704) has provided the justification for the environmental damage carried out by landowners. Prior to the introduction of management agreements under the WCA 1981, the structure of agricultural property rights went largely unquestioned, with the important exception of the operation of the war-time County Agricultural Committees, and the post-war 'birch in the cupboard' (Self and Storing, 1962) where private rights were enfringed and controls imposed. However, "submission to the direction of the County Agricultural Committees was seen as the price farmers would have to pay to retain guaranteed price levels"(Winter, 1985, p.207).

The fact that property rights have not been re-defined in the post-war period reflected, as much as anything, the Farming and Landowning Lobby's (FLL) advantageous corporatist bargaining position. "Farmers in the industrialised nations deal with their governments from a position of strength - such strength arising from unquestioned property 'rights' in land, with those property rights then successfully transmitted through the political process into a presumptive entitlement for favoured treatment at the hands of the policy makers...Any change in the status quo production domain of the farmer must inevitably be purchased by the state with bribes, subsidies or concessions at other places in the policy arena"(Hodge and Bromley, 1990, p.199-200). The introduction of management agreements under the WCA 1981 suggested that little had changed. Rather, it served to highlight the 'problem' of property rights in relation to conservation on agricultural land, where those without rights (the NCC) wishing to contravene the rights of landowners (by preventing damaging farming operations on SSSI's) had to initiate the bargaining process and to bear the majority of the transactions costs (through compensation for profits foregone) relating to the unacceptable activity (Bromley, 1982). The farming community have therefore vociferously fought off controls on the basis that they represent an enfringement of property rights without compensation. The imposition of controls has been deemed only acceptable if they guarantee the collective benefit (Cox et al, 1988) as in the war-time situation.

Not only did the voluntary approach in the 1970's reflect this political protection of rights, it was also complemented at ground level by certain ideologies of property which have been used to justify farmer's concerns over loss of entitlements. "In defending their property rights, landowning interests act within and upon a tradition of ideas and institutions that have shaped the social conception and practice of those rights. Such traditions are

crucial in understanding the expectations of landholding interests in response to demands that they manage their land according to the interest which the community in general may be deemed to have in it"(Cox et al, 1988, p.328). Prominent amongst these has been the emphasis on 'stewardship', where it is argued that land is held 'in trust' for the nation (Rose et al, 1976). The ambiguity inherent in the notion of stewardship, or 'responsible autonomy' (Cox et al, 1988) has become evident in recent years as it has increasingly been accompanied by reference to the significance of economic viability to the well being of the countryside (and, by implication, the environmentally disadvantageous outcomes this has led to). However, the emphasis on stewardship and the voluntary approach (and FWAG's) has been crucial at an ideological level for the farming community, where, "in seeking to resist demands for increased legislative intervention in the countryside, the farming and landowning community has to ensure that the highest ideals of 'stewardship' are effectively promulgated and adhered to and FWAG provides the obvious mechanism for doing this"(Cox et al, 1985, p.182). Certain commentators (e.g. Batie, 1984) recommend that concepts like 'stewardship' and 'farmers as natural caretakers of the environment' should be rejected in favour of seeing farmers as businessmen with an interest in/best position to 'look after' the land in the way that the public demands. Similarly, Barkley (1982) denies that the farmer holds land in public trust, rather, the individual holds land for himself. He claims that at best, farmers are 'reluctant stewards,' and any reference to deferring use to the future relates to: farmers interest in successors; an individual sense of stewardship; or as a response to a bribe or incentive.

The status quo property rights arrangements, justified largely on the basis of historically defined reasons and perpetuated by the power of the FLL (and their emphasis on notions of stewardship) have as yet only been subject to a

minor degree of attenuation. Environmental schemes, involving as they do some shifts in entitlements (away from the farmer to the state in exchange for compensation) have not redefined property rights in any great way, the majority of rights remaining with the land owner. Various commentators have advanced more radical shifts in the structure of property rights, e.g. through public ownership of land under the 'conservation estate' (Colman and O'Caroll, 1990) or collective ownership of land (Hodge and Bromley, 1990) but these alternative models have yet to be realised.

Nevertheless, the environmental incentive scheme could be seen to represent the initial stages of a much more extensive social contract between farmer and state and a more fundamental redefinition of rights which truly reflects changing tastes and perceptions and where the collective (environmental) good to be secured is pursued on behalf not of a single industry but of the whole community. As such, it is important to recognise that property rights do not exist in a social, political and economic vacuum, but can alter with changing public perceptions and demands. "In general, as public affairs change, rights are reconsidered and adjusted to suit new public purposes. Rights in agricultural land are not immune from this process"(Braden, 1982, p.22). To satisfy the demand for public goods (i.e. conservation and environmental management) from land which is under private ownership has necessarily involved a reallocation of rights away from the farmer to the state, as it has been realised that the present structure of entitlements is hardly, "pertinent and socially advantageous"(Hodge and Bromley, 1990, p.212). As Bromley (1982, p.231) points out, rights are decided by the collective, and as such, it is essential to remind the landowners that they are, after all, "contractors for us all. They have no particular economic rights to anything beyond what the collective chooses to grant them". Further shifts in entitlements may come about with changes in the concept of

'fairness', which affects what is regarded as 'normal', rather than that which is 'just'. The present constraints on property rights under environmental schemes have been introduced to control actions which are regarded as 'normal' e.g. environmentally damaging management practices. In this situation it has been seen as 'fair' to compensate for the controls. However, if the constraints come to be regarded as normal, especially where the level of environmental quality is still seen as sub-optimal, the rationale for compensation becomes weaker and may no longer be accepted (Hodge and Bromley, 1990). This could lead to increased controls under a system of newly defined rights where the state can demand more from the farmer for less. The success (or longevity) or failure of environmental schemes may go some way to determining such an outcome.

1.4. Looking Ahead: Environmental Incentive Schemes and CAP Reform

The preceding discussion indicates that a wide range of options are available to farmers seeking to undertake conservation and environmental management. Recent initiatives at the European level suggest that they will continue to grow in scale and application. Contained within the accompanying measures of the MacSharry reform agreement (CEC, 1992) the agri-environmental package will set the framework for future developments in conservation and environmental protection. The agri-environmental programme itself consists of a package of payments which Member States can make available to farmers in return for adopting a range of 'environmentally friendly' management practices. These payments are to be jointly funded by the Member States and the European Community (EC). Existing national schemes can be incorporated into the proposals which had to be made by Member States to the EC, for approval, by June 1993 (and may be eligible for part funding under the agri-environmental proposals). Measures identified

in the EC programme which will be grant aided include: reductions in the use of fertilisers and agro-chemicals, the introduction or continuation of organic farming methods, other forms of extensive crop production, the conversion of arable land into extensively used grassland, reductions in sheep and cattle stocking rates, other farming practices compatible with the protection of the environment, rearing rare local breeds of animals, maintaining abandoned farmland or woodland, setting aside land for a minimum of 20 years for an environmental use, managing land for public access and leisure activities, training of farmers in practices compatible with the environment, the propagation of useful plants adapted to local conditions and threatened by genetic erosion.

The potential of these measures has yet to be realised, indeed, their environmental value has already been questioned, e.g. CPRE (1992) and Potter (1993). Just as the existing national expenditure on environmental schemes is dwarfed by the total allocated to agricultural support, so the budget for the new EC accompanying measures (of which, about half will be spent on the agri-environmental programme) is estimated to be only about 1.25% of the anticipated total agricultural expenditure in 1997 (CEAS, 1993). Under this new regulation MAFF has produced consultation documents on a range of environmental schemes and measures which are outlined in Table 1.6.

Each of these proposals reflects the broad objective of encouraging farming practices which, "protect and enhance wildlife, habitat and natural resources; conserve and enhance our most attractive landscapes; and promote new opportunities for enjoyment of the countryside by the public"(MAFF, 1993a, p.11). The CAP reform package offers many new opportunities for farmers; however, "many of these will require substantial government investment, and the current climate of public expenditure is just about as bad a time to be

embarking on this regulation as is possible"(Dixon, p.19, 1992). The current state of policy therefore represents a dynamic situation and one which presents both opportunities to and constraints on farmers.

Table 1.6. Proposed Environmental Schemes

Name of Proposed Scheme	Objectives of Proposed Scheme
New ESAs	In the Blackdown Hills, Cotswold Hills, Dartmoor, Essex Coast, Shropshire Hills, Upper Thames Tributaries. An extension of the existing scheme,, increasing the area covered by ESAs from 832,000 ha to 1.17 million ha.
Public Access in ESAs	New incentives for public access of ESAs to enhance public enjoyment of the countryside.
New Nitrate Measures	Building on the pilot NSA scheme, to protect groundwater catchments affected by high nitrate levels.
Moorland Scheme	To reduce the number of livestock grazing on moorland in areas outside ESAs, complementing the environmental benefits of this scheme and CSS.
Set-Aside Management	To enhance the environmental value of lowland set-aside through a variety of new management options, including a meadowland scheme to open up set-aside land for public access.
Habitat Improvement Scheme	To encourage the long term set-aside of land in areas that would be suitable for the creation or improvement of a range of valuable wildlife habitats.
Organic Farming	To provide an incentive for conversion of conventional systems of production to organic methods and to encourage those who have already converted to remain in organic production.

Source: MAFF, 1993a.

1.5. Environmental Incentive Schemes and the Issue of Participation: Ensuring Scheme Effectiveness

With an increasing number of environmental schemes on offer, a substantial amount of public money already allocated to them, and increased levels of support in the future under the new EC measures outlined above, questions are now being raised about the value for money and effectiveness of environmental schemes. The era of invention and design has largely passed and we are now entering a period when attention will focus on effective implementation of such initiatives. "Against a backdrop of tight constraints on public expenditure, getting good value for money from environmental

payment schemes is especially important"(CC, 1993b, p.2). How can this be achieved? A key feature of environmental schemes is their voluntary nature. This fact indicates that participation remains a crucial area of research concern, and the means to achieve value for money and environmental effectiveness. In voluntary schemes, "an appropriate level of participation is essential if a scheme is to be successful in meeting its goals"(Brotherton, 1990, p.46). However, it is not only the level of participation that is important, i.e. the numbers of farmers participating and amounts and types of land entered into agreements. The figures on uptake in Table 1.5. above only tell us so much about the process of participation.

These schemes have the potential to initiate new attitudes and behaviour, to re-educate farmers and reorientate goals, and therefore the extent to which participation brings about positive and permanent changes in attitudes and behaviour (in addition to reinforcing existing conservation interest) that would otherwise not take place is a critical dimension in assessing scheme effectiveness. Of significance here is the duration of the contract: 40 years of entrenched productionist ideologies will require more than 5 or 10 years under a scheme to start changing attitudes. Simply increasing the number and budgets of incentive schemes on offer to farmers will not necessarily guarantee the optimum environmental outcomes (neither will an approach to scheme assessment that focuses on the level of uptake alone). This has begun to be addressed by organisations involved in their implementation (e.g. CC, 1993b). However, the important issue of changing (or reinforcing) environmental attitudes and behaviour, through the medium of incentive schemes, training and advice, has largely been ignored by research to date. For this reason the issue of participation in environmental schemes is not of interest in itself, but rather as a means to an end. Not only do we need to achieve sustainability in the context of land use, but also there needs to be a

sustained change in attitudes and behaviours in parallel to this, a process in which environmental schemes obviously have a crucial role to play.

The future challenge therefore, will be to foster a conservation ethic or norm amongst farmers in general, as well as in relation to conservation schemes. This is alluded to by Bowers (1987, p.19) who argues that the, "long term maintenance of habitats requires the creation of some criteria for success to the farmer, i.e. a demonstration of his efficiency which is not couched in traditional agricultural terms." Such a conservation ethic he notes, is not impossible as it exists on nature reserves with young wardens," this is not so for the farmer, success here means that conservation requirements are seen as a constraint on his enterprise, an obstacle to success and not a source of satisfaction in itself"(Bowers, op cit.).

If a conservation ethic, or norm, is to become widely held, farmers need to be able to score 'peer points' in being good countryside managers, as well as being successful food producers. That this process is already underway is reflected in the following observations by a variety of commentators. "The point is rapidly approaching, even if it has not yet been reached, where producing food in a way which minimises damage to the environment is an accepted part of farming culture and farmers who participate in environmentally friendly farming practices to actively produce environmental benefits are viewed as rational businessmen, rather than eccentrics"(Hill et al, 1992, p.58). Also, "that much has changed, notably at the level of attitudes and farming ideology, is evident....The way resistance to change manifests itself now is through a marked desire on the part of the young as well as older farmers to return to the dog and stick farming which can more easily be made environmentally benign"(Baldock et al, 1990, p.154). Furthermore, "in 1987, farmers were beginning to accept some of the

(National Park) authority's definitions of enhancement and conservation of environment when they entered into management agreements to alter farming practices or to repair walls and paint buildings, at a price...In turn, this provided the beginning of new constructions of farming and farmers themselves, though in the late 1980s this was still a highly contested area"(McEachern, 1992, p.169). That, "many (surveyed) farmers referred to the increased public profile of their land use decisions compared to a decade or even 5 years ago and the fact that disapproval from fellow farmers would be much more readily expressed where 'someone had gone too far'"(Potter, 1985a, p.8) is another indication of the gradual change in outlook amongst the farming community. However, that this general evolution is taking place is no indication of the extent of change within the context of incentive schemes.

In research terms, therefore, this suggests a rather deeper analysis of the motives behind, and effects of, participation in environmental schemes than has so far been attempted. As a House of Lords Select Committee on the European Communities recommended as long ago as 1986, there is a new research agenda emerging based on applied social science research which is able to examine the motives and behaviour of farmers in relation to environmental schemes, in addition to patterns of participation. More recently, Gilg and Harrand (1988) call for research into ESAs which examines the extent to which farmers' attitudes change during the scheme and an assessment of why these attitudes changed, in order to inform the methods to be employed in future ESAs. Analysis of this kind is essential if the maximum environmental and financial benefits are to be wrought from the schemes. In general terms, Potter (1986a, p.148) has argued that, "we have only a vague idea of the behavioural impact of policy instruments at farm level". Ilbery also calls for, "far more research on farmers attitudes and motivations, especially in relation to how and why they are reacting in

particular ways to changes in the agricultural industry"(Ilbery, 1991, p.216-217).

A number of key research topics follow from this, beginning with the question: who are the participants? Is there a recognisable participant in environmental schemes? Which farms and farmers are most likely to be participating in these schemes? How far are farmers responding to the incentives on offer alone, rather than to the conservation opportunities which schemes represent? In short, how successful are schemes in changing attitudes and behaviour towards land management and the system of farming on the part of the farmer receiving the payment. Or, are they largely unchallenging of existing pervasive beliefs regarding land management? Such questions, simple and transparent at first sight, are critical determinants of the "additionality effect" of scheme participation: itself a crucial factor in determining the success and effectiveness of environmental schemes of this nature. Additionality refers to desired processes and events (policy objectives) which can be attributed to the working of a scheme or policy (i.e. additional benefits that arise from the policy that would not otherwise have occurred). Identifying the variety of motives for participation may provide important indicators of the extent to which additional and lasting benefits are being derived from environmental schemes. Answers to these questions could also form the basis of a predictive model of behaviour based on a typology of farmers, enabling predictions to be made of those most/least likely to enter (and the extent to which they commit themselves to) conservation schemes and to thereby target the schemes more effectively, in order to achieve environmental and financial benefits.

1.6. Summary

In tracing the evolution in conservation policy over the last two decades, from the essentially local system of providing advice and grants for conservation to interested and committed individuals, to MAFF's recent consultation document on a range of new agri-environmental incentive schemes, a number of important issues (relating both to the practical implementation of policy and to the research outcomes of this) have been raised. The introduction of the agri-environmental incentive scheme in particular has been shown to be an interesting and critical policy development for a number of inter-related reasons. Firstly, it represents a radical change in policy thinking on the part of the agriculture departments, whose responsibilities now firmly lie in both the conservation of farm land and in agricultural production. Secondly, their development has begun a process of redefining farmers' property rights, previously unchallenged, but likely to be modified further as the policy environment continues to evolve and emphasises the 'public use of private interest'. Thirdly, for the farmers themselves, the range of new opportunities in conservation has greatly expanded. However, this is no indication that radical changes in attitudes and behaviour towards conservation and land management are an inevitable outcome of the introduction of an increase in environmental opportunities. As such, this points to the need for applied social science research which can inform the policy process, by fully investigating and understanding the participation process of environmental schemes. This is important to ensure that the environmental potential of these policy changes are realised, and the financial commitment to them is justified.

CHAPTER 2 THE ADOPTION OF CONSERVATION: A THEORETICAL DISCUSSION

2.1. Introduction

Conservation policy has now reached a stage where assessing and enhancing the effectiveness of voluntary incentives is critical if their environmental benefits are to be sustained. A basic requirement is a deeper understanding of scheme participation, based on an investigation of farmers' reasons and motives in taking up conservation and environmental schemes. The general literature on conservation investment provides some clues here, in its effort to explain why farmers undertake conservation activities on their farms (e.g. Newby et al, 1977, Westmacott and Worthington, 1984, Carr and Tait, 1991). Some of this effort has been directed towards the creation of predictive farmer typologies (e.g. Newby et al, 1977, Gasson and Potter, 1988). However, many of the causal relationships involved have not been investigated fully and there is significant scope for refinement in trying to understand farmer decision-making in relation to conservation investment, especially regarding participation in environmental schemes. Having said that, "merely identifying an abundance of factors associated with conservation behaviour is not enough, you need to rank and determine the efficiency among the many different factors in order that an effective conservation policy be established" (Nowak, 1982, p.195).

A research approach based on the innovation-adoption model may be an appropriate methodological tool which can be applied to the uptake of environmental schemes, as it has to the adoption of agricultural innovations. This approach has much to offer policy makers as they face the continuing challenge of successfully implementing environmental schemes, as it provides a rigorous analytical framework for examining and explaining the

processes behind the adoption of these schemes. It enables the researcher, therefore, to explain both present patterns of participation, and to predict future levels and patterns of adoption. Hodge (1986) recommends that this approach be researched in order to further the understanding of the reasons behind rural change in general and conservation investment in particular. Woods (1989) considers the application of an innovation-adoption model in relation to the uptake of conservation advice and practice. In doing so he provides a useful introduction to the use of adoption models in conservation research. "Previous explanations of farm conservation are limited by their tendency to view such behaviour as a function of attitudes and commercial viability, pertaining to the individual farmer. Innovation theory provides the framework through which a range of variables can be assessed, both as separate entities and as a grouping of interacting factors, some of which are connected with the nature of the innovation itself"(Woods, 1989, p.9-10).

In this chapter it will be argued that farmer participation in environmental schemes can best be understood and analysed within the framework of an innovation-adoption model, where enrolling land into a scheme agreement is analogous to making an innovation in farming practice. This model enables the researcher to consider the individual characteristics of the potential adopters, together with the macro level agricultural policies and programmes influencing the adoption behaviour of farmers (Swanson et al, 1986). Further, it entails a consideration of the attributes of the innovations themselves. These interact with the setting of the adoption to influence subsequent adoption processes (Nowak, 1987).

The aim of this chapter is to review the use of innovation-adoption models in previous research with a view to demonstrating their application to the analysis and prediction, and greater understanding of, participation in

environmental schemes. It will also set out to demonstrate the relative strengths of a behavioural approach through the use of adoption models.

2.2. The Application of an Innovation-Adoption Model in Agriculture and Conservation

The diffusion of agricultural innovations has long been a major focus of geographical research, and has been integral to the development of the behavioural approach in geography. Diffusionism in agricultural decision-making incorporates a number of different perspectives, the most widely developed of which has been the innovation-adoption approach, represented by the work of Rogers (1958), Hagerstrand (1967), Jones (1963), and Bowler (1979). Here, the emphasis is upon the decision-making processes by which adoption occurs ('the demand aspect of diffusion') and particularly the role of communications in that process (Ilbery, 1985a). The application of an innovation-adoption model to the uptake of conservation is a new area of research, however, at least in the British context.

Adoption is the act of accepting an innovation, but is not a simple, one step process. Rather, it is widely perceived to be the final stage of a mental process consisting of awareness, interest, evaluation, trial and adoption (Jones, 1963). Variations in the timing of adoption, it is argued, are related to the uneven spread of information and uneven distribution of 'resistance' factors amongst an adopting population (Bowler, 1979). These are resistances to information (information must originate from an acceptable source) and resistances to the innovation itself, both of which are influenced in turn by a wide range of behavioural, psychological and economic characteristics of individual farmers (Ilbery, 1985a). It has been demonstrated that farmers adopting at various stages in the diffusion process are characterised by their use of different information sources and their individual characteristics. Hence Rogers (1958)

categorisation of innovators, early adopters, early majority, late majority and laggards.

The various channels of communication (the dissemination of information about innovations) include, at the off-farm level, the mass media and advisory agencies and at the farm level, the local networks of communication, between individual farmers and local farming groups. These media of communication vary in their usefulness and importance at various points in the adoption and diffusion process. Typically, the mass media are initially important in the awareness and interest stages, whilst these sources become less important over time as neighbours and friends come to predominate (e.g. Fearne, 1989). Taylor and Miller (1978) make a further distinction as to the role of different information sources at various stages in the adoption process: that formal contact (i.e. between advisory agency and adopter) has the greatest influence on the knowledge of an innovation; whilst informal contact (i.e. between farming groups, other farmers and adopters) has the greatest influence on the farmer's predisposition towards the innovation. In addition, the use of different information sources is seen to vary between individuals at different positions in the diffusion process. For example, innovators ('change agents' and 'opinion leaders') are typically seen to actively seek out original sources of information (from specialist journals, advisory agencies etc.), whilst the late adopters and laggards tend to rely more heavily upon farming acquaintances, and agricultural merchants and salesmen, i.e. an 'information trickle-down'. This 2 stage process in the flow of information has been established by modern communications theory (Jones, 1963).

Whilst the role of communication, advice, and information (the sources and channels of) has been criticised in adoption theory, their role in the adoption

process is of undoubted significance, and a recent study carried out by Fearne (1989) indicates that little has changed in terms of the process of adoption and the role played by various sources of communication. Whether this process, and the various channels of communication will be mirrored in the adoption of environmental schemes is an important research question. This leads to a consideration of whether environmental schemes should be regarded as innovations. If so, how appropriate and useful is an innovation-adoption approach likely to be in analysing and predicting uptake?

2.3. Environmental Schemes as Innovations

An innovation has been described as, "any thought, behaviour or thing that is new because it is qualitatively different from existing forms. Strictly speaking every innovation is an idea, or a constellation of ideas, but some innovations by their nature must remain mental organisations only, whereas others may be given overt and tangible expression. (Barnett, 1953)...An innovation may not be a recent invention but the form in which it is perceived or in which it is made available is new to farmers of the present generation. The fate of an innovation, however, is as important as its invention. Unless it is widely adopted it will fail to make any effective social or economic impact"(Jones, 1963, p.387). In relation to this last point, it is important to note that the use of an innovation-adoption model implicitly assumes that adoption is a desirable thing. This is associated with the notion that to innovate means to progress, and in adopting an innovation, the situation of the adopter or others will benefit from it. These ideas are reflected in the literature on adoption which is dominated by the idea of advance, that is, technological change leading to the expansion of production and, by implication, greater participation on the technological treadmill.

With this research bias in mind, Gasson (1988) discusses whether the adoption of less intensive patterns of land use can be regarded as an innovation. It is assumed in this research that the adoption of conservation technologies (either in the form of grant funded conservation projects or environmental incentive schemes, which include less intensive patterns of land use) is a necessary and desirable thing, both in itself, and as a stage towards a more environmentally sustainable agriculture. The existence of environmental incentive schemes as a whole can therefore be viewed as innovative, both at the policy-making level (as described in the previous chapter) and, as Gasson argues, at the farm level where, "the behavioural change in question involves the uptake of incentive payments, which is both positive and novel" and which, "is being promoted by the policy makers as an opportunity to be grasped rather than as a constraint to stifle progress"(Gasson, 1988, p.11). The idea of a contractual payment for the production of conservation goods is indeed quite novel, so too is a positive payment in exchange for a shift in entitlements.

A good case can be made for viewing environmental schemes as innovations, but is it appropriate to apply the traditional model of innovation adoption (as it has been to agricultural innovations) to these schemes? Work carried out mainly in the US in relation to soil conservation practices suggests that the answer is 'yes', but with some qualifications. According to Pampel and Van Es (1977, p.69) for instance, in what must now be regarded as a classic contribution to adoption theory, the use of a diffusion research model which has concentrated on commercial practices, would appear to be, "a poor predictor of, and therefore a poor justification for, success of voluntary compliance strategies in the area of environmental quality". This is because public benefit-oriented practices, i.e. environmental ones (compared with private benefit-oriented practices) are not commercial and not 'profitable'.

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Pampel and Van Es went on to examine the theoretical and methodological differences involved in investigating environmentally innovative practices as opposed to agricultural innovations. In doing so, they made a distinction between profitable and less profitable innovations, and using these dimensions created a four-fold typology of innovations: profitable commercial; less profitable commercial; profitable environmental; and less profitable environmental. This was then used to question whether farmers adopting one type of innovation will display specific characteristics compared to those adopting other types. Whilst the results of their study were fairly inconclusive, they found that farmers tended to be innovative with respect to either commercial or environmental practices but not both. Admitting the findings were somewhat tentative, Pampel and Van Es nevertheless argued that, "the measurement of innovativeness is not unidimensional. Future users of innovativeness measures will need to specify the content of the innovativeness measures they use with more care" (Pampel and Van Es, 1977, p.69).

Taylor and Miller (1978) responding to Pampel and Van Es, argue that it should be possible to apply a universal model of adoption to both commercial and environmental practices. This is because the adoption decision process is essentially the same, but certain independent variables may differ reflecting the variety of motives for adoption. They tested Rogers' and Shoemakers' diffusion of innovations model for the adoption of environmental innovations, incorporating the findings of Pampel and Van Es. Taylor and Miller's conclusions indicated that a specific model of adoption can be used to predict the adoption of environmental innovations if the model is modified to include the orientation of the farmer towards farming and if the hypotheses are structured to reflect this. Their hypotheses, which altered some of the generalisations of the adoption model in the light of Pampel and

Van Es' findings were: that farmers whose orientation to farming as a way of life will be more likely to adopt environmental practices than those whose orientation is towards commercialism and profit; that farmers with a lower socio-economic status are more likely to adopt environmental practices, which reflects the non-commercial nature of such practices; and that environmental adopters are less cosmopolite (reflecting differences in urban and rural attitudes) than non-adopters.

In addition, Korcshing et al (1983) have argued that soil conservation technologies, far from being different to other innovations are simply 'preventive innovations', and therefore a model of adoption can still be used to study their uptake. Preventive innovations are ideas or technologies associated with changes in values, beliefs, attitudes or behaviours with the objective of reducing the probability of some anticipated future state of affairs (in the case of incentive schemes this would be further environmental degradation). These innovations have features which can have a negative effect on adoption rates, namely: high initial costs, low economic profitability, high perceived risk, low immediacy of rewards, and additional time and effort for implementation. Thus, they are not different as innovations, they are different to the extent that they are more difficult to accept by a population. Whilst schemes which encourage less intensive patterns of land use and conservation activities are different in their objectives (and in their implications for adoption) to soil conservation technologies, the idea of them being seen as a preventive innovation appears to be quite apposite.

On this evidence, it would appear that environmental schemes can be regarded as innovations and that adoption models seem well suited to understanding and predicting their uptake. Indeed, from a policy development point of view the advantages of this approach rests on its ability

to identify and distinguish between innovators, laggards and non-adopters in the adoption process. This is important for three reasons. Firstly, the identification of different adopter groups has implications for targeting these policies more effectively. Here, different strategies in the design, delivery and promotion of schemes may be required to recruit the various adopting groups into a scheme. Secondly, the information requirements of each of the adopting groups are likely to be different, as emphasised above. The type of information and the various channels by which it is disseminated will also need to be considered therefore, so that the various adopting groups are reached most effectively. Thirdly, the innovators in the process of environmental adoption have the potential to act as demonstrators to the rest in the process of diffusion of these innovations. In this last respect, there is some evidence in the UK context that policy makers have an innovation-adoption model in mind in their design of environmental schemes. Given that FWAG and also the NAL project (1984) have used innovators and opinion leaders to bring about a diffusion of good conservation practice amongst farmers, policy makers may be assuming that a similar process will take place with environmental schemes. The importance, in general terms, of examining, "the extent to which farmers act from the example of their neighbours and from visiting demonstration farms to assess whether these are as effective as they are assumed to be,"(Gilg and Harrand, 1988, p.4.25) has also been recognised.

It is also important to ask whether the innovators and potential change agents of environmental schemes will be those farmers who have previously been innovative in terms of agricultural technologies and conservation practice. It was relatively easy in the past to recognise the conservation innovators, those farmers found by Potter (1986b) who had been the most innovative in agriculture were typically those who sought to undertake

conservation on their farms. Westmacott and Worthington (1984) and Cobham et al (1984) also identified conservation innovators who were already the most interested and committed. The new schemes may not follow the same pattern in this respect. The innovative adopter of environmental schemes may not always be those who were the first to adopt conservation grants and undertake conservation work previously. Potter hypothesises for instance that under a 'farm survival policy', "sections of the farming community may be recruited into conservation for the first time, notably the laggards in the agricultural modernisation process. Laggards already probably make up a good proportion of participants in the ESA schemes and are arguably in the best position, precisely because of this laggardliness to take advantage of any other extensification-related measures that are introduced.... The recruitment of laggards into a new form of contract conservation which influences the way farmers farm means that conservation will become more widespread, positive and managerial than before"(Potter, 1990, p.6). It may be the laggards in an agricultural sense, already farming their land less intensively, who will become - by default -the innovators in environmental schemes. Lobley (1989) found this to be the case with farmers in the Broads ESA who took up the payments on offer not in terms of any recognised forms of innovativeness, but rather because they could receive payment for continuing to farm, in a traditional, less intensive manner. Jenkins (1990, p.28) like Potter, argues that in general, "many conservation policies are likely to attract less dynamic farmers who would in any extent be less likely to perform environmentally damaging operations." However, Moss and Chilton (1990/91) state quite unequivocally that participants in the Slieve Croob ESA were the least traditional and were utilising the most modern farming methods. Are some farmers innovative then in respect to all sorts of innovations, i.e. those farmers who will always have the ability and motivation to react quickly and seize new opportunities? (can these be

recognised and targeted in implementing environmental schemes?) Or, as Pampel and Van Es (1977) argued, are some farmers innovative with respect to environmental innovations and others innovative with respect to agricultural/commercial innovations? These points all relate to the issues of what it means to be innovative as a farmer, and what factors drives an innovator to adopt. They are important questions for policy makers to ask and to understand.

The concepts of 'innovation' and 'innovativeness' are loaded words relating very much to the research history of innovation adoption, a history concerned with the adoption of agricultural innovations. These innovations reflect, indeed are a product of, an agricultural industry and policy environment intent on fostering levels of production and individual gain. The policy environment has now changed, to a point where to innovate in relation to environmental schemes entails the adoption of measures which produce public goods in addition to private benefits. The application of these terms to a new policy environment and new research agenda therefore requires some considerable clarification of the issues at stake.

In addition to assessing the role and utility of an innovation model in policy terms, it is important to ask whether its use is appropriate in theoretical and methodological terms. In applying this model to the uptake of environmental schemes, it is assumed that farms remain the central decision-making structures in the countryside, the place where policy reforms are played out, and where countryside goods are produced and maintained. It is an approach which implicitly recognises the value of studying the decision-making processes of farmers, and it is one that has significant precedents within rural and agricultural geography (e.g. Wolpert 1964, Ilbery, 1978, 1979, 1983, 1984, 1985b, Gasson, 1973, 1974, Gillmor, 1986). However,

given that behavioural approaches to farmer decision-making have been criticised both in relation to the adoption model in particular, and more generally within agricultural geography research, it is important to recognise and respond to these criticisms. These will both be considered in turn.

2.4. Theoretical Constraints of the Innovation-Adoption Approach

The information-based models of innovation-adoption have been criticised because of their emphasis on the communication of information. Blaut (1977 and 1978), for instance, points to the limitations of regarding communication as an external, independent variable inducing change, and calls for the use of broader theories of culture change in explaining variations in the pattern of uptake of innovations. Other criticisms of information-based models have highlighted the assumption, inherent in them, that everyone has an equal opportunity to adopt, together with the implicit behavioural bias that individual characteristics alone account for the barriers or opportunities to change. For example, Blaikie argues that, "the preoccupation with communication, rather than structural variables depoliticises the process of change and directs attention away from structural inequalities"(Blaikie, 1978, p.275). Innovation adoption and diffusion therefore have to be considered within the context, "of the social and political economy. Public and private entities can significantly enable, inhibit or induce adoption. Institutional and other constraints to innovation are important as are differential access to resources and unequal benefits from adoption"(Brown, 1981, p.134). Agnew (1979) also points to the influence on the adoption decision of the system of innovation provision where communication, through information, education etc. are all dependent on the polity. Further, "in innovation diffusion research, constraints may explain the non-adoption of those without access to resources, while choice processes must be considered when

understanding the non-adoption of others. Adopters might be differentiated along a continuum from 'forced'(where adoption may not involve/imply 'acceptance' of an innovation) to 'unforced' (involving choice of expensive products where behavioural processes may be important)"(Brown, 1981, p.140).

These general criticisms of innovation-adoption are reinforced by criticisms regarding its use in relation to agricultural adoption specifically. For example, Van Es (1983) argued that the recent transformation of agriculture has removed or modified most of the factors that a generation ago were thought to determine adoption and thus the diffusion process. Rates of diffusion he believes are now largely determined by economic and structural factors, i.e. those beyond the scope of information-based adoption models, and those highlighted by the general critics of adoption above as being more important in the process of innovation-diffusion. Under these circumstances, it is argued, the diffusion model is not wrong but largely irrelevant in determining farmer behaviour. Also, Findlay and Mackennan (1978, p.314) in their work on the micro-scale diffusion of agricultural innovations, suggest that to assume that information about innovations is diffused solely through inter-personal channels of communication is invalid because, "it neither accounts for the economic decision-making process of farmers, nor for the structure of contemporary social networks of communication."

The notion of unequal access (both spatial and social) to information and resources, together with the provision of information, is integral to the critique of communication-based innovation-diffusion theory by the radical and development perspectives and the market/infrastructure perspectives, which were developed in response to the earlier approach (Ilbery, 1985a). These alternative perspectives have forced a recognition that the 'item-

communication-adoption paradigm' (Blaikie, 1978) does not exist in isolation but relates very much to the ability or non-ability of farmers to adopt, in terms of the whole range of structural, behavioural and personal variables. Adoption is clearly more than just a behavioural process, of learning, resulting from the communication of an idea, and also of the individual differences in attitude, personal constructs or many other psychological processes. It has to be considered within a broader context which encompasses both agency and structural factors.

The behavioural bias of information-based innovation-adoption theory has meant, therefore, that non-behavioural variables have been ignored, limiting the explanatory basis. The market/infrastructure perspective, meanwhile, recognises that innovation-adoption is very much tied up with the system (the state and other institutions) that implemented it, and that not enough questions are asked as to the reasons behind the implementation of the innovation, or how and why it diffuses. But this approach, in turn, runs the risk of rejecting the insights into adoption that can be provided by examining the psychological variables involved. Brown (1981) indicates that whilst a narrowly behavioural analysis of innovation adoption is undesirable, there are still promising areas of inquiry on the psychological front. For example, "resistance due to impermeable cognitive constructs is a behavioural aspect of change which has received little attention. What factors make a person more or less averse to change and risk-taking? The categorisation of innovators into early, late and laggards may not be a good surrogate measure in this respect. Innovators/early adopters are not necessarily less resistant to change in general, rather they may have received more promotional communications/been located near to a distributing outlet"(Brown, 1981, p.127). Given the different emphases and potentialities of the different approaches, "the complementary nature of the different perspectives needs to

be emphasised, for as Blaikie (1978 p.274) commented, 'it is only when information, resources and personal attributes (correlates of innovativeness) together coincide in a decision-maker that innovation will occur'"(Ilbery, 1985a, p.98).

2.5. Theoretical Constraints of Behavioural Methods in Rural and Agricultural Geography

These specific criticisms and conclusions regarding the use of an innovation adoption model, are reflected in a more general criticism of behavioural techniques and methodologies used in rural and agricultural geography. This criticism is illustrated by the noticeable shift in research focus in rural and agricultural geography, away from a concern with the agent and behavioural techniques, towards an in-depth study of the structures within which the agent operates. The reasons for this shift are twofold. Firstly, a methodological crisis within the discipline, reflecting a dissatisfaction with previous methods of inquiry which had failed to produce adequate explanations of rural change, that is, "a reaction to the theoretical impasse of earlier periods"(Marsden et al, 1986a, p.500). Secondly, and related to the first, a shift in research priorities as agendas have responded to, and developed in line with, changes in the agricultural policy environment and other macro-structural forces bringing about change. As it was realised that the economic and social dynamic of rural areas was increasingly originating from outside these areas so it was argued that, "an analysis of the sources of rural change must therefore embrace interests and institutions that are neither primarily concerned with rural areas or issues, nor even with the British countryside"(Lowe et al, 1990, p.3-4).

Bowler and Ilbery (1987, p.329) view this evolution in research as both necessary and desirable. "Traditional themes in agricultural geography

(location, regionalisation, resources and decision-making) are showing signs of diminishing returns, which could eventually render the field moribund"(p331)..."There is now a need for agricultural geography to extend its theoretical base to encompass the structuralist perspectives of political economy...The need for such a perspective stems from the growing awareness of the roles of non-farm capital and the state in the process of agricultural change and uneven regional development." Not only therefore, has previous research in this area been recognised as theoretically limited, but also the former areas of concern (for instance, farmer decision-making) are seen as no longer providing useful insights and explanations to the processes of agricultural and rural change. The outcome of such views has meant that since the mid to late 1980's a political economy perspective has increasingly dominated studies of rural change, with a concomitant shift away from the behaviouralist and positivist traditions that underscored the theoretical work in agricultural geography previously (Bowler and Ilbery, 1987).

Such traditions have been seen by political economy researchers as inadequate on the following fronts: positivist research (including behaviouralism) does not recognise the primacy of theory in its methods of analysis, rather, it bases its assumptions and hypotheses on empirical work alone; further, the concentration on the motives, attitudes and actions of individuals fails to provide adequate explanations of agricultural and rural change, because it does not recognise the primary importance of structures which constrain these actions. In contrast to this, advocates of a political economy perspective argue that it can provide broader, and hence more complete, explanations of rural change by accepting that structures are the ultimate determinants of change (hence 'restructuring'). In relation to the study of conservation on farms in particular, the political economy perspective has criticised previous studies such as that of Westmacott and

Worthington (1984) for failing to link landscape change directly to the farmers external relations with finance and industrial capital and the extent to which these determine whether farmers can pursue conservation oriented policies on their land (Marsden et al, 1986b). Therefore, in analysing part-time farming and its impact on the landscape Munton et al (1989) relate conservation activity to the degree of economic centrality on farms (i.e. the extent to which farm-based income is important to the family household).

There are valid and theoretically compelling reasons for taking a political economy perspective on agricultural and rural restructuring (or change) in general, which necessarily incorporates a consideration of the increasing importance of conservation on farms and how this in particular affects the restructuring process. This type of analysis emphasises the external structural factors which will influence participation in and likely effectiveness of conservation schemes, and a recognition of these off-farm influences and processes is crucial to our understanding of what factors affect the implementation of these schemes. It is also a perspective that has shown the importance of a theoretically grounded approach to analysing countryside change and the need, implicit in the theory, to look beyond the farmer and farm business at the broader forces for change. Specifically, it has contributed important analyses of the processes of landscape change (Marsden and Munton, 1991, and Munton and Marsden, 1991). That such a theoretical stance can provide a means of examining the macro economic and political structures which are transforming agricultural production does not mean, however, that the explanations are far reaching enough, or that they are adequate in elucidating all aspects of rural change.

Political economy as a body of theory downplays the role of the economic agent in an explanation of the processes of agricultural and rural change, of

which environmental schemes play a part. It ignores, therefore, the important motivational factors behind farm decision-making (aside from the desire to accumulate capital), and as such denies the role of active cognitive processes, and consciousness, which can provide effective explanations of decision-making. The neglect of social psychological variables leads to a humanist critique of political economy, that is, how structure dominates at the expense of action and agency and to the exclusion of the parts. Eyles, quoting Gouldner, calls this the 'silence' of structuralism (Eyles, 1981, p.1383). Structural, or political economy, analyses in this form result in an unsatisfactory model of people in the world because experience is seen as a determinate outcome of structural processes. Here, the conditions under which people act are seen as the real (or 'formal') causes, whereas people are merely the 'efficient' causes i.e. people are not really a true cause at all, they are simply the means of implementing the goals of the formal cause. Here, consciousness is often of no consequence in explanation, and thus serves to illustrate a fundamental epistemological gap in structural analysis. "Although individuals may not be free to transcend their social context, neither are they passive agents of a larger force such as 'culture', the 'logic of capitalism', or the 'mode of production'"(Duncan and Ley, 1982, p.32). Further, structural analysis, "obscures the true underlying processes by which the actions of individuals produce the structural conditions under which they act and through which these conditions may later become constraining or coercive. Although the broad social and economic context within which individuals act may not be directly traceable to specifiable actors, to suggest that it must then be determined by forces above and beyond men and women is a mystification"(Duncan and Ley, 1982, p.37).

However, a strong case has been made for a study of the motivations behind farmer decision-making (incorporating an understanding of cognition and

the role of cognitive processes), and this is recognised as being instrumental in providing insights into the participation process of environmental schemes. The political economy perspective sees the role of structural processes as ultimately determinant in initiating conservation activities. But to repeat what has just been said, this denies the importance of cognition and hence valuable sources of explanation are lost.

A recognition of these criticisms has meant that the political economy perspective has been modified to encompass the role and influence of agency. For example, Marsden et al (1987a, p.297) recognise that, "although the emphasis upon structural processes and class formation is refreshing, it has tended to divert attention from the role of human agency and the reasons for the diversity of forms and processes in productive and reproductive relations." Also, Whatmore et al (1987a, p.120-121) argue that it is important, "to analyse the family farm members as active participants in the form which the restructuring process takes on the ground, and not simply as passive subjects of an inevitable structural process." The political economy perspective has therefore begun to account for the agent, and has also incorporated an examination of the role of family processes (or 'social relations') on the farm in more recent analyses of agricultural change (e.g., Marsden et al 1992). However, whilst recognising that, "individuals are 'active' agents in the shaping of their own destinies," where, "the role of individual decision-makers is a central constituent in this internal (farm) environmental category," it is questionable whether this goes far enough in helping to, "alleviate one of the major weaknesses of a structuralist perspective"(Evans and Ilbery, 1989, p.259-260). A political economy framework which conceptualises individual behaviour as <u>constrained</u> by the political economy in which such actions occurs, and where the key processes in accounting for agricultural change are seen to be the concentration and

accumulation of capital, is not an approach that can accommodate cognitive processes in decision-making and how these affect rural change. The individual is not and cannot be seen as an active decision-maker within such a conceptual framework.

In order to achieve this an approach is required which, "emphasises human actors in the complex interacting system of human and physical systems,"(Golledge, 1981, p.1328) where explanation proceeds on the assumption that actions are mediated by cognitive processes, i.e. a recognition of the role of consciousness (Gold and Goodey, 1984). These processes can be investigated by adopting and modifying a behavioural perspective. This is an approach that most often works from the lowest level of aggregation - the acts of individual humans - but as Golledge points out this does not mean that it adopts a unique philosophy (or that it is limited to observing the idiosyncrasies of human behaviour), "the behavioural position is that aggregation should take place on a meaningful basis"(Golledge, 1981,p.1328). Within agriculture, a behavioural approach to decision-making means that, "particular emphasis is laid on the role of the individual farm as the basic decision-making unit and that agricultural patterns are the outcome of the many decisions made by a multiplicity of farmers, individually and collectively"(Gillmor, 1986, p.20). Here, the decisions themselves may be studied, and/or the resultant overt acts may be examined which may be of interest in themselves, or as a means of understanding decision-making processes.

Behaviouralism is an approach that allows the researcher to study the cognitive processes behind decision-making together with a consideration of overt behavioural acts. It is a theoretical approach that has been widely discussed within the discipline of geography in general (e.g. Wicker, 1969,

Golledge et al, 1972, Reiser, 1973, Cullen, 1976, Gold, 1980, Cox and Golledge, 1981, Gregory, 1981, Gold and Goodey, 1983 and 1985, Coucleilis and Golledge, 1983). Furthermore, an understanding of what motivates an individual and how an individual perceives their environment is of enormous importance if one is to predict future behaviours and decision-making. Behaviouralism therefore accepts, at an epistemological level, that each individual is an active decision-maker, this being influenced by the subjective and objective decision environment of the decision-maker. Such an approach enables the study of situational and personal and psychological variables as they affect decision-making behaviour, which political economy perspectives do not. Understanding these processes is critical if policy makers are to fully understand the reasons why and how farmers are responding to environmental schemes, and if their role is to be extended in the future.

Whilst the behavioural approach offers many useful insights, it is probably best utilised in combination with other approaches, as Blaikie (1978) argued in relation to adoption models, which examine the contexts within which farmers operate which impose limits, and opportunities, on their behaviour and decision-making. What is needed therefore are, "concepts...that enable experience and consciousness to be related to broader societal forces that also shape their production and reproduction"(Eyles, 1981, p.1383). This is an approach which would give full recognition to the agent and an in-depth study of the motives behind action, whilst at the same time incorporating the structures which both enable and constrain these active decision-making individuals. In attempting to unite the benefits of both analyses, Giddens' Theory of Structuration, or 'Enablement and Constraint' provides some apposite ideas. Here, "decisions within capitalist society are taken by knowing individuals. They do not change the structure of that society although they may deflect its trajectory slightly, hence Giddens' (1981) concept of

structuration. But they do produce its empirical realities. They are responsible for what is done where, and when and to explain such outcomes the Marxist theory is not irrelevant but insufficient: it is the framework - both enabling and constraining, according to Giddens - within which individuals act"(Johnston, 1983, p.26).

Giddens recognises the importance of structural contexts within which human action takes place, but also argues that the problem with structuralism it that it gives too little attention to the role of human agency Giddens (1979). He sets out to create a new theory of social action which in essence fuses structuralist approaches of society with their focus on the constraints to behaviour, to humanistic approaches, whose foci are the intentional acts of human agency. This fusion is achieved through his concept of structuration, whose emphasis is upon the 'duality of structure', which "expresses the mutual dependence of structure and agency"(Giddens, 1979, p.69). Here, structure is seen as being both enabling and constraining of action (i.e. imposes limits and opportunities on behaviour and decision-making) whilst at the same time it is being reproduced and transformed by the intentional acts of active decision-making individuals.

The model of environmental adoption presented in the following chapter incorporates both agency and structural factors, and as such the farmer is assumed to be both an enabled and constrained decision-maker, the outcome of these decision situations being the adoption of, and participation in an environmental scheme.

2.6. Summary

This chapter has examined, and made a case for, the application of a model of innovation adoption to the uptake of environmental schemes, its relevance to policy makers, and how its use can be justified in theoretical and methodological terms. Behavioural approaches in rural geographical research, including the use of innovation-adoption models, have been widely utilised in the past but have recently been criticised by researchers adopting a political economy perspective for failing to account for structural processes. However, it has been argued that the policy environment is now such that a modified behavioural perspective on participation in environmental schemes, through the application of a model of innovation adoption, will be critical if an in-depth understanding of the participation process is to be ensured and if policy makers are to be provided with meaningful information on the operation and effectiveness of schemes.

CHAPTER 3 THE ADOPTION OF CONSERVATION: A NEW MODEL OF ANALYSIS

3.1. Introduction

The model of innovation adoption explored in the previous chapter provides a systematic analytical framework within which to investigate a variety of questions of participation in environmental schemes. The strengths of this approach lie in its ability to enable the various push and pull factors leading to participation and non-participation to be examined, including the role of information provision and scheme promotion (and how these differ in their influence between the adopter groups) together with the innovation variables (i.e. the characteristics of the schemes themselves). It also allows an investigation of how far a demonstration effect from leader farms is operating. On the basis of these findings the application of a model of innovation adoption should enable policy makers to predict future participation levels and patterns. This chapter explores previous research into these various aspects of the adoption model and what it has shown in relation to the adoption of environmental innovations and conservation practice. It then goes on to present a new model of adoption applied to the uptake of environmental schemes and illustrates how this can build on and extend existing research.

3.2. Innovation Adoption Applied to Environmental Schemes - Identifying the Variables

The decision to adopt an environmental scheme represents an on-farm planning or policy making decision, i.e. that which is long term in nature, and affects the choice of enterprise and allocation of capital resources. These decisions contrast with organisational decisions made on a day-to-day, week to week basis relating to weather conditions and unforeseen problems and

involve snap judgements (Morgan and Munton, 1971). The policy making decision of adopting an (agricultural) innovation will be determined by a range of on-farm and off-farm characteristics. Jones (1975) classified these characteristics into five broad groups to include: situational and personal characteristics; psychological and sociological characteristics; and macro-economic characteristics. Given that the uptake of environmental schemes is expected to be influenced by similar processes to the adoption of agricultural innovations, Jones' classification provides a useful foundation for building the new model of environmental adoption. To these can be added the characteristics of the innovation, recognised as representing an important 'resistance' factor (Bowler, 1979) in addition to a number of other farm, farmer and farm family characteristics identified in the literature.

Table 3.1. presents a range of variables likely to influence the adoption of environmental schemes and which can be used to predict participation. These have been identified in both North American research on the adoption of soil conservation technologies and British research on farm conservation investment and practice. As such, this literature will be used as a basis for assessing the likely influences on participation in environmental schemes (i.e. extrapolating from related studies on farmer participation in conservation projects and technologies). As can be seen, the variables identified can be grouped into situational, personal, psychological, sociological, macro-environmental and scheme characteristics (after Jones, 1975).

Amongst these variables is the idea of the interaction between 'willingness' and 'ability' to adopt. Willingness to adopt comprises a combination of the psychological and sociological variables, particularly the attitudes of the

Table 3.1. Factors Affecting the Adoption of Environmental Innovations and Conservation Practice Among Farmers (Adapted from Jones, 1975)

Type of Adoption Characteristic	Adoption Characteristics (after Jones, 1975)	Adoption Characteristics (from rest of literature)
Situational Characteristics	1. Farm Size 2. Degree of specialisation 3. Capital availability	1.Farm Type. 2.Non-farming income and activities. 3.Previous habitat loss.
Personal Characteristics	1. Social Background. 2. Education. 3. Age. 4. Income/indebtedness.	1. Years in farming. 2. Other occupations 3. Family members working on farm. 4. Presence of successor.
Psychological Characteristics	1. Personality traits 2. Interests: - attitudes - motivations	1. Attitudes towards on-farm conservation
Sociological Characteristics	1. Community Norms. 2. Beliefs and Values: - goals 3. Social Status. 4. Social Participation. 5. Relative localiteness /cosmopoliteness. 6. Social Relations. 7. Receptivity to and competence in use of information channels.	1. Organisational membership. 2. Participation in farming groups. 3. Stewardship.
Macro-Environmental Characteristics	1. State of technological advance. 2. Government agriculture and finance policies. Economic situation etc.	Evolving policy environment discussed in chapter 1. Agricultural support continues to exceed conservation incentives.
Scheme Characteristics		See table 3.2 below.

N.B. All Characteristics interact to influence decision-making regarding the innovation, leading to adoption behaviour.

farmer towards on-farm conservation in general and the attitudes towards the scheme in particular, but would also entail a farmer's general belief system, value orientations and community norms relating to the innovation. Ability to adopt comprises a combination of the situational, personal and also macro-environmental variables, particularly the economic status of the farm. The interaction between willingness to adopt and ability to do so is an important concept and has received some research attention in relation to the

uptake of conservation and environmental schemes and will be discussed in greater depth below.

It will become clear in this discussion that the variables associated with adoption behaviour cannot be considered as independent influences, but rather that they interact in a complex manner. Furthermore, with so many likely variables involved, their degree of relative importance in the adoption process will vary greatly. Also, some relationships between adoption and adopter variables have been clearly established, for example, that between adoption and the economic status of an adopting farm and the relative age and education level of an adopting farmer, whilst the research is less clear on others, for example, the role of farm diversification and the farm family and the influence of sociological characteristics on adoption. As such this identifies areas for new research to investigate. Given the range of variables identified in the literature, this will enable the researcher of environmental schemes to thoroughly investigate the adoption decision, from an analysis of the farm firm, to a consideration of motives and attitudes. What follows is a discussion of some of these variables.

3.2.1. Situational Characteristics

Situational variables like larger farm size, lesser degrees of specialisation and a buoyant economic status (including the pattern of recent investment) have all been shown to have a bearing on the uptake of conservation practice. However, whilst it might be assumed that larger farms are often more economically stable, with more access to resources and less financially constrained, and have the ability/choice to adopt, Napier et al (1986) found that with increasing farm size, soil conservation practices were used less often. This is because other variables such as an increasing degree of specialisation and capital investment on such holdings worked against the

uptake of conservation. Economies of scale have been found to force efficiency on operators; subsequently, environmental concerns receive less priority in the decision-making process (Napier et al, 1986). Meanwhile, smaller farms with limited capital are only able to carry out piecemeal changes to the landscape, thereby resulting in less damage, i.e. 'conservationists' as an un-planned outcome of less agricultural change, or conservationists by default. These ideas are reflected in recent research by Potter and Lobley (1992a) which examined the assumption that smaller farm holdings have more potential for conservation. They conclude that, "there is little evidence to suggest that small farmers are any more conservation minded than their larger brethren, though the lower recorded levels of conservation activity on small farms may be the result of an inability to do so. A safer argument is that small farmers are conservationist by default, lacking the capital and other resources to carry out damaging operations and landscape change"(Potter and Lobley, 1992a, p.5).

It is reasonable to assume therefore that increasing levels of capital availability and income and lower levels of debt operating in tandem with larger size of farm do influence positively the decision to adopt conservation. This has been observed by Newby et al (1977), Earle et al (1979), and Korsching et al (1983). Similarly, a relationship has been found between the economic status of farms and awareness and use of conservation advice and grants (Marsden et al, 1987b). However, Mcdowell (1989a) concludes that whilst habitat conservation is akin to a luxury afforded only by the most wealthy, this wealth is a double-edged sword in that it can also provide the means for agricultural improvement and loss of habitat.

This paradox is also referred to by Westmacott and Worthington (1984, p.75) who argue that, "when farming is under intense economic pressure, it can be

the frills like hedges and tree management which suffer and hedges and trees may be removed to create more streamlined conditions for more efficient production. When farming is profitable, investment in new, larger and better machines and in drainage and building improvements, can result in the clearance of hedges and trees and the drainage of wet areas. Either way, the landscape loses, but only in the second case is there likely to be money to spare for conscious acts of landscape management". Related to this issue, it has been found that farms with less than 5% habitat remaining were most interested in conservation (MAFF, 1976). Potter (1986b) also found that farmers with the most systematic investment style ('programmers') who had undertaken the most extensive landscape change through agricultural improvement were most likely to invest in conservation once their agricultural investment programmes had been completed and indeed were found to have carried out the most conservation. In both cases environmental destruction becomes a necessary precondition for conservation investment. These results are reflected in the findings from American farms, where a positive relationship exists between effort expended on soil conservation practices and farms with a higher erosion potential (e.g. Ervin and Ervin, 1982, Lynne et al, 1988).

In addition to these situational characteristics, the influence of non-farming activities may provide additional monies for conservation and environmental management. This is suggested by Munton et al (1989) when analysing part-time farming and its impact on the landscape. They argue that

those farms who are less dependent on the farm for their main source of income will be the ones who are most able to concern themselves with the maintenance of landscape features. However, Ervin and Ervin (1982) have suggested that the need to look for alternative income sources may reflect on-farm economic constraints, and far from non-farm funds being put towards

conservation they may simply be used for basic survival. Whilst overall therefore this relationship is not well established, it may be anticipated that those farmers who are more willing to look beyond the farm gate may be more open to new activities such as conservation because they may include those farmers who have a background in a non-farming occupation, and/or those who have off-farm employment. These farmers may have goals and value orientations that may be different to those who have never left farming. These points demonstrate the importance of psychological and sociological characteristics of the farmer outlined below, and illustrates also how the different groups of characteristics interact to influence adoption.

3.2.2. Personal Characteristics

The relationship between farm business characteristics and adoption appears to be quite strongly established. The interaction between a farmer's age and education are also cited in the literature as positively influencing adoption. Younger and better educated farmers have been found to be the first to adopt soil conservation practices (e.g. Ervin and Ervin, 1982, Bultena and Hoiberg, 1983, Earle et al, 1979, Korshing et al, 1983). This relationship is thought to exist because younger farmers are more willing to try new things, and seek information to a greater degree, with older farmers seeking new information less, reflecting a more routine habit and pattern of behaviour (Ilbery, 1985a). Mcdowell (1989b) found that farmers, "lacking in basic cognitive ability (developed through basic education)" had difficulties obtaining and understanding, "ecologically related literature (helpful prerequisites for good conservation behaviour") (McDowell, 1989b,p.217). Interestingly, Mcdowell also found a positive relationship between parental education and conservation investment, in addition to a broad general relationship between years in, and type of, education and a farmer's interest in conservation. He

also noted that education (as with wealth) may be a double-edged sword, because it may encourage the use of modern and hence destructive farm technologies in addition to enabling farmers to be more aware of environmental issues.

A farmer's age is also likely to be a factor determining participation in environmental schemes. Bowers (1987) has argued that elderly farmers may be more likely to enter environmental schemes given that many did not jump on the technological treadmill to such an extent and as such are defacto conservationists (the 'laggards' in the traditional process of agricultural 'progress'). He suggests that the main reason for the survival of traditional hay meadows in the West Pennine Dales ESA is that many farmers were old and had learnt their farming practices in a different era and were consequently resistant to change. In addition, there is a possibility that some elderly farmers may be running down the farm/extensifying, cutting down on number of hours worked, and therefore may regard joining a conservation scheme as a means to aid this process and as a source of income. Obviously, this will relate to the type of scheme and the management demands being placed upon the farmer. Bowers (1987) also found that where older farmers had made improvements on the farm, this was found to relate to succession. The presence or absence of a successor, in combination with the age of farmer could also be a factor influencing participation. In this respect, Potter and Lobley (1992b) have investigated this relationship and found that the presence of a successor will influence a farmers decision to run down the farm, although how this process influences scheme participation is not clear. Similarly, Napier et al (1988), found an insignificant relationship between the transfer of ownership to children and propensity to adopt conservation. The role that a successor and other members of the farm family play, aside from that of influencing long term management decisions,

may also be important in influencing a farmer's decision to invest in conservation. This is because they may be able to offer alternative skills and may already be playing a role in farm diversification.

3.2.3. Psychological and Sociological Characteristics

In addition to these personal and situational variables, a farmer's system of attitudes and beliefs are known to be related to the adoption of environmental innovations and conservation practice, so that including these variables can improve the overall performance of the adoption model (Lynne et al, 1988). McDowell (1989a) found that the use of 'less tangible' variables broadened the analysis of conservation behaviour. However, whilst the psychological characteristics of the adopting farmer are important, it should be kept in mind that the context of attitude formation will influence attitudes. An unstable context will produce unstable attitudes (Barkley, 1982). This should be kept in mind when examining participation in environmental schemes, where the context of attitude formation is a rapidly changing policy environment. Research has shown that perception of a need for the conservation innovation, i.e. recognition of the erosion problem, and awareness of environmental problems are important in influencing a farmer's decision to adopt (e.g., Ervin and Ervin, 1982, Taylor and Miller, 1978, Lynne et al, 1988, Earle et al, 1979, Napier and Forster, 1982). Also, positive attitudes towards the innovation, i.e. willingness to adopt, and conservation attitudes and behaviour and environmental awareness in general have all been found to be important (McDowell, 1989a).

The general attitudes, goals and value orientations of a farmer will interact with the personal, situational and other sociological characteristics to influence adoption. Gasson (1973) makes a distinction between goals and

values, the latter, she believes to be a more permanent property of the individual, less liable to change with time and circumstances. This results in a certain regularity in behaviour. "Values are cultural products held by all members of a social system. They are not inborn, but learned. Values do not exist in isolation, but are organised in systems or value orientations. Since value orientations determine desired ends of behaviour and prescribe norms or socially acceptable means of attaining them, it follows that appreciation of value systems is necessary in order to predict behaviour. It is thought that most individuals subscribe to most of the dominant values most of the time, their behaviour being an expression of not one but all the value elements. People desire to achieve all valued ends but in situations where these are mutually exclusive, it is the relative ordering of values which determines how they decide to act"(Gasson, 1973, p.525). To actually identify those values may be a difficult task however, as the investigator often has to depend upon verbal expressions of values or observed behaviour. The former may not be a true expression of those values which form the basis of production decisions on the farm (due to the 'layering' of values) whilst the latter may be a reliable indicator of certain kind of value preference, but it may be less satisfactory where behaviour is strongly influenced by situational factors.

Despite these difficulties Gasson goes on to identify the dominant values likely to be associated with the farming occupation (and hence which are likely to form the basis of decision-making): instrumental; social; expressive and; intrinsic. It was found that economic and social considerations, in general, were subordinated to intrinsic values (Gasson, 1973 and 1974). However, value orientations do not exist in isolation, rather they relate to the socio-personal characteristics of the farmer identified above. Specifically, Gasson (1973) relates size of farm business to value orientation and identifies that larger farms tend to be more economically motivated (i.e. stress

instrumental values) whereas smaller farmers stress intrinsic aspects of work, particularly independence.

In relation to the adoption of environmental innovations, the research has identified a number of value orientations of farmers which reflect conservation innovativeness. For instance, the degree of urban influence has been shown to be positively related to innovativeness in general (Bowler, 1979) as a result of possibly superior communication links, reflecting the importance of locality (Ilbery, 1985a). Further, farmers who are less orientated to profit have been found to expend more effort on conservation (e.g. Lynne et al, 1988), also, those whose orientation to farming as a way of life (as opposed to commercialism) have been shown to be conservation innovators. This was seen as a key variable influencing uptake of conservation innovations, as opposed to commercial innovations by Pampel and Van Es (1977) and Taylor and Miller (1978). Also, orientation to risk is important in environmental adoption (the less risk averse the more likely a farmer is to adopt) e.g. Ervin and Ervin (1982), Lynne et al (1988), Bultena and Hoiberg (1983), Napier et al (1986).

The 'willingness' of a farmer to invest in conservation (i.e. attitude towards environmental investment incorporating all those goals and values cited above) has frequently been cited alongside financial ability to invest. From Newby et al's (1977) work on the creation of farmer typologies, factors such as size of farm, tenurial status etc. were found to be insufficient in explaining attitudes to conservation, where farmers with differing degrees of market orientation were found to have different attitudes to nature conservation. Rather, as Gasson identifies, "it is the interaction of financial status and interest that lead to conservation activity"(Gasson, 1988, p.32). These two elements are summed up in the statement, "the extent to which a farmer will

compromise his farming to satisfy his (conservation) interest is a personal decision, which will depend not only on the depth of his interest but also the cost. For conservation always costs something whether it is the cost of maintenance or the loss of profit. But this cost is one which some farmers are prepared to pay without question, but many are not"(Westmacott and Worthington, 1984, p.75).

From their work on land diversion and its use as a conservation tool, Gasson and Potter (1988) created a categorisation of farmers (based upon farmers' attitudes to conservation) according to the level of financial constraint and conservation orientation. This enabled a typology of farmers to be created which captures both willingness and ability to carry out conservation projects i.e. both personal (attitudinal) and economic factors are considered as being significant in influencing farmers' responses to incentives to divert productive land to other uses, although not necessarily to conservation. Their typology identifies a group of committed pro-conservationists on large farms who appear to be the most receptive to the idea of land diversion and who would be prepared to offer the most land, while asking for less than the average valuation in compensation. The idea that it is the 'enabled' farmers with favourable conservation attitudes that are most likely to carry out conservation investment was given a further dimension in Potter's own work on agricultural investment styles and countryside change (Potter, 1986b). This work emphasises the importance of integrating both structural (i.e. macro economic/policy forces which at present largely discourage conservation-minded farmers and are generally seen as destructive of the environment) and attitudinal variables (encompassing community, familial and individual level factors) in understanding conservation investment i.e. how structure and agency interact to produce investment decisions. This contrasts with the approaches taken by earlier studies which merely identified

those variables that may be responsible for initiating conservation investment.

The additional factor of stewardship, which Potter (1986a) refers to as an 'introspective' (personal/idiosyncratic) influence on farmers' conservation investment (complementary to 'extrovert' influences which operate at group level) may also be important, and part of those value orientations held by farmers adopting environmental schemes. The obvious contradictions in the stewardship argument were detailed in the previous chapter, but this provides a link between the farmer's psychological characteristics and Jones' sociological characteristics. Newby (1979) argues that the notion of stewardship has long been used as a hedge to fend off both further controls over farming and the intrusion of industry into the countryside. Through this, farmers have been able to gain support from the middle class, urban newcomers. However, it has been these newcomers who have alienated the farming community in many areas through a breakdown of the old farm-centred community or a lack of tact when approaching farmers about environmental issues. This loss of community may be one reason for a lack of conservation investment in the past because, "in addition to production concerns, some farmers see conservation as a consumption good. They like to see terraces and strip-cropping. Also, most farmers want to feel a part of their community. They want their community to be a nice place to live. They consider conservation as something they do for their community. Certain rewards and recognitions would help ensure long term maintenance of conservation systems"(Hoban et al, 1986, p.147). Similar arguments could be applied to the British context.

Farmers who perceive that the local community generally favours conservation (together with a perception of widespread local adoption) has

been found to distinguish adopters from non-adopters of conservation practices (Bultena and Hoiberg, 1983). They suggested that the eagerness with which neighbours and friends are perceived to embrace innovations may influence strongly the person to adopt themselves, especially when innovations challenge pervasive beliefs. The scepticism of neighbours towards a practice may therefore act as a barrier to its adoption. There is little British research which has investigated the importance of a community bond and social participation in affecting farmers' attitudes to conservation. Certainly with the pressure on farmers to be more environmentally sensitive, a supportive and understanding local community could do much to at least encourage farmers to be more receptive to advice and issues.

This leads us to consider the last of the sociological characteristics identified by Jones, that is, the farmer's receptivity to and competence in their use of information channels. Here it is important to realise that farmers assess/perceive and utilise information subjectively and personally. This will obviously relate to all the other farmer factors already discussed. This will relate in turn to the source of information about the environmental innovation and whether this is acceptable to the potential adopter. "Impartial and trusted advice is crucial if the gap between awareness and adoption is to be bridged"(Eldon, 1988,p.17). In this respect, the various organisations responsible for the schemes will have to promote them in an acceptable way and through the appropriate channels. As Jenkins (1990, p.30) has commented, "the marketing of an ESA scheme and the 'image' created for it among farmers is important if farmers' innate conservatism and unwillingness to be subject to outside restrictions on their farming activities are to be overcome. This is particularly the case in remoter areas where farmers may be less in tune with national trends in agricultural policy".

Will the various agents of communication in the traditional process of agricultural innovation adoption be the same in the uptake of environmental schemes? There are a number of issues here, including the provisioning of information about the environmental adoption (will this come from traditional advice and information sources, or more unconventional, and potentially less acceptable sources?), and the farmer's perception of the source and content of the information, and lastly their actual use of the information. In general terms, adoption research has pointed to the importance of membership of farming organisations (as a source of advice and information) as being important in influencing early adoption of environmental practices (Korshing et al, 1983, Napier et al, 1984). Also, contact with and membership of conservation groups (a potential source of advice) was identified by MAFF (1976) as being important to a farmer's interest in conservation.

The number of articles on conservation in general in the popular farming press has been shown to have increased significantly in recent years (CEAS, 1991). However, actual farm conservation advice has been found to fall, "far short of what is both desirable or possible"(Clark and O'Riordan, 1989, p.30). This relates more to the enormity and complexity of the task, rather than to the failure of the advisory services. In their farm survey, Clark and O'Riordan showed that only 29% had received any form of conservation advice and less than 20% made regular use of advice, with only 12% completely unaware of conservation advice. The obvious problem then is reaching the majority of uncommitted conservationists. If one considers FWAG here, its advisory effort can never match that of MAFF and the chemical and seed companies (Cox et al, 1984). Furthermore, not only is the conservation advice system limited in scope and effectiveness, it has been found that farmers receiving state sector (agricultural) advice are better

informed in terms of environmental advice and grants and are more receptive to them, compared with those receiving only private sector advice. Unfortunately, the private sector has been shown to have become increasingly important for on-farm advice since 1970. Private sector advice tends to encourage intensification not the adoption of conservation or lower input farming. "Few farms getting advice solely from the private sector were aware of environmental grants and hardly any had used them"(Eldon, 1988, p.17). Unless a conservation perspective is encouraged amongst those currently motivated by narrow commercial considerations (i.e. private advisory bodies) the implications for conservation advice and action are far from encouraging. All these points have implications for policy makers introducing environmental schemes.

3.2.4. Scheme/Innovation Characteristics

The final set of characteristics that influence adoption is the characteristics of the schemes themselves, the economic and technical characteristics of the innovation, in addition to the farmer characteristics has been identified as comprising 'resistances' to adoption. Findlay and Mackennan (1978) refer to 'innovation suitability' as a feature of agricultural innovations influencing adoption. A number of other variables have also been considered by Bowler (1979) and Jones (1963). For example, the cost of investment entailed by adoption (including whether adoption would overlap with existing investments which have not yet been paid off); the effect of adoption on income; the degree of risk involved; the divisibility of the practice (i.e. whether the nature of the innovation allows a personal trial before adoption); the conspicuousness of the practice (whether it is seen by the adopter to confer prestige upon them); and the compatibility of the innovation with existing techniques (both a cultural and a technical issue and one which is most

relevant to the notion of environmental schemes as innovations)(Jones, 1963). Obviously, these economic and technical characteristics cannot be considered as neutral facts, but are very much influenced by the perceptions held of them by the farmers (related in turn to personal farmer characteristics) particularly the degree of risk involved and all the technical attributes of the innovations. Further, environmental schemes can be seen to have economic and technical/managerial characteristics, together with 'social' characteristics. These are summarised in Table 3.2. which anticipates the creation of a model of environmental adoption as it applies to the uptake of environmental schemes.

This table suggests that, for some farmers, scheme participation may be relatively straightforward, where land may be easily entered and does not involve many additional costs (and by implication does not adversely affect income levels), does not conflict with previous investment decisions, and results in the production of environmental goods acceptable to the farmer. Whilst for other farmers, scheme restrictions (including access clauses) in combination with previously high levels of capital investment in conflicting technologies may make scheme entry more prohibitive.

Table 3.2. Characteristics of Environmental (Scheme) Innovations

Scheme Characteristic	Features
Economic Characteristics	1. Level of Annual Payment for Scheme. 2.Impact of Scheme on agricultural production and hence income levels: - on land remaining in production but requiring no change in management. - on land remaining in production but requiring changes in management. 3. Impact of Scheme on previous investment decisions: - where a previous investment has not run full term. - where existing fixed and mobile capital can be utilised. - where scheme entry creates new demands for capital investment. 4. Impact of scheme on variable costs, e.g. where use of chemicals may be less after scheme entry.
Technical/ Managerial Characteristics	1. Amount of land entered into a scheme agreement (e.g. whole/part farm). 2. Type of land entered into a scheme agreement, e.g. existing traditional grasslands, or reversion to grassland from arable. 3. Degree of correspondence between existing system of management and scheme: - minimal correspondence->high management demands. - high correspondence->low management demands. 4. Impact of scheme on level and type of production of conservation goods: - highly visible, e.g. woodlands. - low visibility, e.g. grassland management. - correspondence with existing conservation interests and management skills.
Social Characteristics	1. Impact on farm employment: - redundancies. - new demands on existing employees. 2. Impact of scheme on access, where access clause in agreement may not be favourably received. 3. Impact of scheme on property rights, where restrictions may not be acceptable.

3.3. A New Model of Environmental Adoption: Extending the Research Base

From this survey of the conservation investment and adoption literature it is possible to create a model of innovation adoption which can be applied to environmental schemes (see Figure 3.1.). In this model, the macro structures of political economy provide an important context for the micro structures or 'situational variables' of the immediate farm environment, including the system of advice and information provision. To these are added the personal,

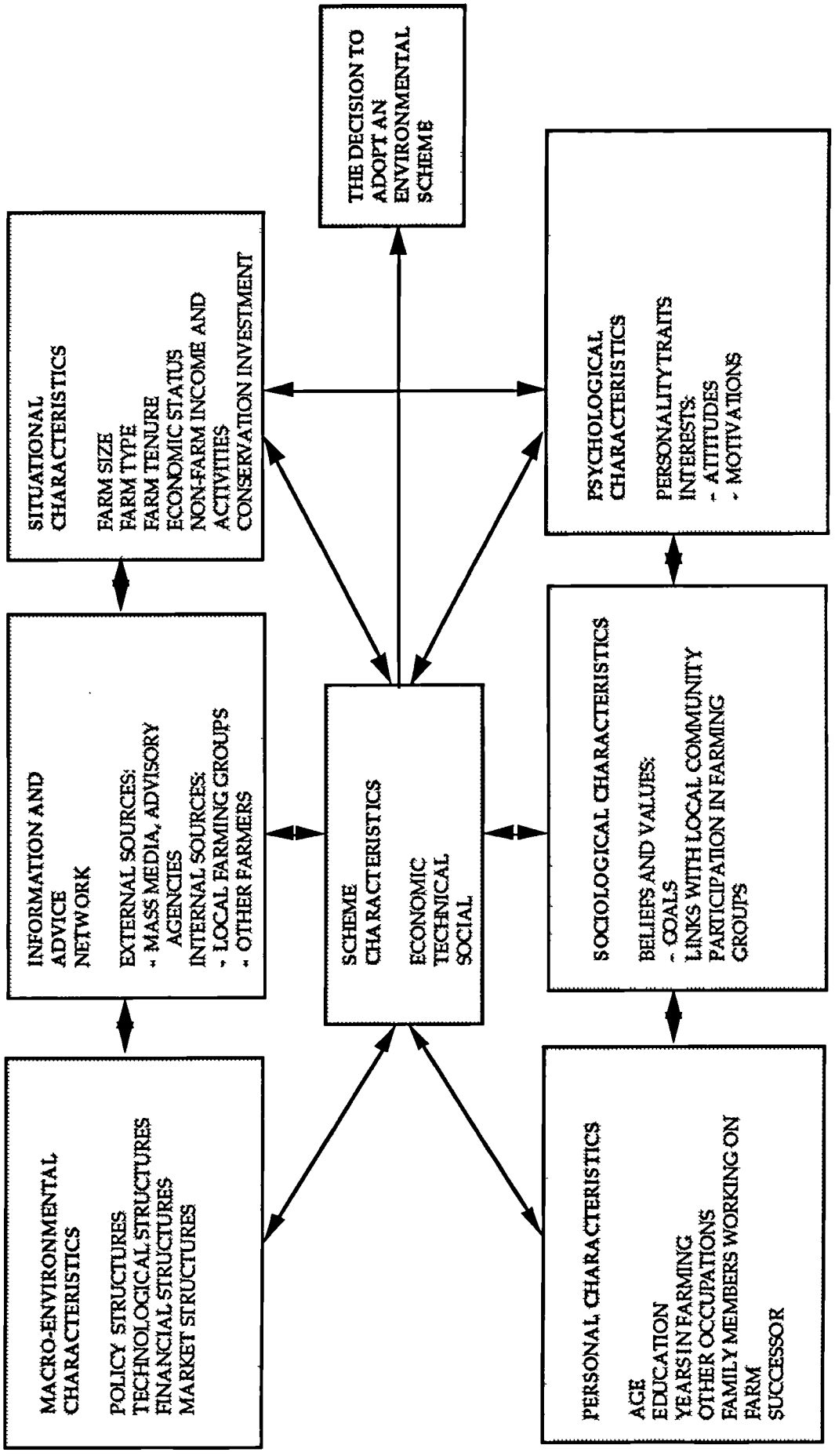


Figure 3.1 Model of Environmental Adoption Applied to the Uptake of Agri-Environmental Schemes

psychological and sociological factors affecting decision-making, together with the characteristics of the schemes themselves. Such a model allows the researcher, and in turn the policy maker, to assess adoption and participation on a number of different levels. This is because the situational and personal characteristics of the model can describe the types of adopting farm businesses and farmers on a formal, quantitative level, through a description of the farm size, farm type, age and education of farmers, and their use/non-use of particular advice sources. Whilst the psychological and sociological characteristics of the model, enable the more subtle and deeper, motivational and attitudinal aspects to scheme participation to be explored, particularly the extent to which the scheme represents an innovative change to the farmer. In this last respect the model can investigate whether adoption has involved an attitudinal and behavioural shift, or whether adoption has simply been accommodated alongside existing attitudes and value orientations.

Researchers have already begun to apply elements of this model to the study and evaluation of the new agri-environmental schemes. However, much of this policy-related research has tended to approach participation in a narrow way, by looking at the numbers and patterns of participation, and describing the characteristics of adopters and non-adopters, rather than examining the decision to adopt. Such an approach is as much a reflection of prevailing priorities at a particular stage in the evolution of the policy environment. The emphasis at this point was on encouraging as many farmers to participate in these schemes as possible; where there has been a concern to increase participation by removing the obstacles facing the non-participants the research has been directed to understanding their characteristics and resistances to adoption. This final section provides an overview of research to date on environmental schemes and indicates how the limitations of these approaches can be overcome, and the scope of the results extended, by

applying the new model of environmental innovation-adoption to their uptake.

Studies of participation in environmental schemes have explored the adoption process to varying extents. At the simplest level, this research has reported the numbers taking up the scheme and the amounts of land involved. Beyond this, the research describes the characteristics of the scheme participants. For example, in the ESA scheme, MAFF (1991a-d) in its socio-economic monitoring discussed farm size, business size, tenure and farm type, reporting that on average, the participant holdings were 40% larger than the non-participant holdings. Whilst there was much variation between ESA's in terms of the types of farms participating, the particular influence of the locality - the structure of farming systems and how these interrelate with the particular requirements of the scheme appear to be important. In the extensification scheme, Young and Williams (1992) reported that larger, owner occupied holdings, specialising in livestock production, operated by older farmers tended to characterise participating holdings. Meanwhile, other studies have undertaken a more rigorous statistical analysis of various adopter variables. For example, Gasson and Hill (1990) in their evaluation of the FWS, found a number of variables to be significantly related to adoption. Here, larger, cereal farms, with owner occupiers (who had typically inherited the holding), operated by younger and better educated farmers with a successor, alternative income sources, and managing their woodlands already were those most likely to take up the scheme. It would appear, therefore that woodland schemes appeal most to those with a long term interest in the land. Also, Moss and Chilton (1990/91) in a study of the Mourne Mountains ESA, found participating farmers to be younger, more likely to be farming full time, were utilising more modern farming techniques, were more receptive to advice and known by advisory

agencies, had been more involved in conservation type work in the past, and had a more positive attitude towards the schemes impact on the area.

In addition to examining these situational and personal variables, the studies go on to examine reasons for entry, emphasising particularly the importance of financial gain arising from participation, in combination with a number of other factors, of which 'environmental reasons' varied in their relative importance. All these reflect the interaction of adoption factors cited above, and particularly the interaction of farmer factors with the specific constraints and opportunities of the different schemes. As such, Gasson and Hill (1990) found that the objectives of participating farmers in FWS were centred around enhancing the landscape and providing habitat, and also providing a chance to achieve a long held ambition. Only 25% of the reasons given for joining the schemes were couched in financial and economic terms. Amongst the non-participants very low levels of awareness of the scheme was thought to be influencing lack of uptake. In the extensification scheme, financial reasons were cited as the most important for participation, with 'a chance to be better off with less work', 'the opportunity to spend more time on other farm enterprises and non-farming business', and 'an opportunity to be better off doing things they would have done anyway', given after that (Young and Williams, 1992). These reflect perhaps the older average age of participants in particular and the specialised nature of their farming systems.

In the ESAs, financial reasons were always found to be the most important, with environmental reasons of much less significance. This represented "a much stronger response to monetary motives than Gasson predicted" (Hill et al, 1992, p. 5). Income from less productive/marginal land for no change in management was also reported (Hill et al, 1992). Amongst the non-participants, typically, the low payments, restrictions and lack of interest were

the most common responses (MAFF, 1991a-d). Also, Friends of the Earth (FOE) found that, "despite an acceptance that wildlife and other environmental reasons are increasingly important, farmers join an ESA primarily for business reasons. Any altruistic motive is definitely a secondary consideration" (FOE, 1992, p.18). For comparison with these environmental schemes, the reasons for entry into the original 5 year set-aside scheme were: to take difficult/poor land out of production, source of additional income, to increase conservation investment on the farm (surprisingly rated third), expectations of cereal price cuts, and opportunity to diversify (Ansell and Tranter, 1992).

These aspects of the research have provided some useful insights into participation. In addition, some of the research has attempted to link willingness to adopt (including attitude towards the scheme) with the financial ability of the participant. The reasons for entry given above reflect this to a degree; however, some researchers have attempted to elaborate a more sophisticated analytical framework in which to explore the attitudinal aspects to participation. In the FWS therefore, it was found that only those farmers who could afford it would be in a position to participate (and the fact that participants had an alternative income source is interesting) but of those only those who have an interest in woodland would be likely to apply (Gasson and Hill, 1990). Here, the role of a forestry qualification, and a long term commitment to woodland planting and management were found to be important. Also, Brotherton (1990, 1991, 1992), in attempting to build theoretical models of participation in ESA's and Set-Aside, argues that it will be a combination of attitudes and willingness to adopt (reflecting the type and details of the scheme, i.e. the influence of different scheme types, but also the farmer's attitude towards profit) and a farmers financial ability to adopt that will influence participation. These studies adopt a similar approach to the

model of enablement and constraint created by Potter and Gasson, in their study of the uptake of hypothetical land diversion schemes reported above (Potter and Gasson, 1988).

The scope of research to date into participation in environmental schemes varies, therefore, from simple descriptions of the main personal and situational characteristics of participating farmers, to some insights into the reasons behind participation, i.e. a limited exploration of the motivational aspects of uptake. However, in this last respect, there has been a tendency to look at 'attitude towards the scheme' and 'willingness to adopt' only, rather than investigating other psychological aspects to the decision to participate in greater depth. As such, the extent to which participation has been explored, and the decision-making processes behind uptake explained, havebeen limited.

These studies have failed to address a number of important, and interrelated, issues of participation, including:

1. How effective are schemes in bringing about permanent shifts in attitudes and behaviour (particularly amongst the less committed participants) in relation to conservation and land use practices? Whilst the research to date has indicated some of the reasons behind participation, of which 'environmental' reasons are important, the extent to which motives for participation and non-participation have been explored and explained, has been limited. This, however, will be critical in ensuring the sustainability of the environmental benefits that the schemes produce, and by implication, the long term effectiveness of schemes.

2. To what are schemes appealing to and recruiting 'new' conservationist farmers? How far is a 'selectivity effect' operating i.e. do participating farmers already have an active history of conservation investment and

extensification? Are they as self-selecting as those farmers who, in the 1970's, adopted conservation practices on the farms because they were already committed? Furthermore, do some participants have no conservation history on their farms because of financial restrictions, and/or a lack of commitment to conservation, and if so are these participants attracted into the scheme because of mercenary/financial rather than altruistic and environmental reasons? If so, do these farmers with less commitment to conservation follow the conditions of a scheme agreement any less rigorously than those farmers who are already committed to conservation? Whilst Hill et al (1992) reported that most farmers adopting the ESA scheme were 'interested in conservation' this does not indicate whether these farmers are characterised by a certain type of conservation attitude and action e.g. are they conservation managers, protectors, or creators?

3. How much 'additionality' is being achieved? Existing studies have not adequately addressed this issue (although Gasson and Hill (1990) indicate that this is a feature of the FWS, appealing to those who already intended to undertake woodland planting). This can only be measured properly by an effective assessment of motives and attitudes behind entry. This includes a consideration of whether scheme participation has been incorporated as part of a long term process of change and adaptation (e.g. extensification and consolidation) on the farm that was occurring anyway.

4. To what extent is there a link between the amount of conservation carried out on the farm and the degree of involvement in the process of agricultural improvement (as illustrated by MAFF, 1976, and Potter, 1986b). Existing studies of participation in environmental schemes have not attempted to link previous adoption behaviour in agriculture to the uptake of environmental schemes. An important question is whether participants have a recent history of investment in agriculture and are trying to make amends for damage done. Alternatively, have they invested relatively little

in modern techniques and as such be in a relatively easy position to adopt, where scheme entry entails little or no change to existing farming systems? Are scheme participants laggards or innovators in the traditional process of agricultural change?

5. What are the characteristics of the non-adopters? Existing research into participation has largely ignored the non-participants who constitute an important group in the adoption process for research and policy makers. If the psychological depth of resistance to schemes by non-participants can be demonstrated, then schemes could be revised and targeted more effectively to overcome these resistances.

6. How important is the role of advice? Little attempt has been made to link participation with the farmers place in the information and advice network. It was demonstrated above that the source of information and advice is crucial both in terms of how a farmer perceives (and is receptive to) this source, and how appropriate the advice source is in disseminating conservation advice. Is the information and advice network being used effectively in informing farmers about the schemes, and are participants using different sources of information and advice, compared with the non-participants?

7. What are the goals and value orientations of participating farmers? Do schemes (and the sources of scheme information) conflict, for example with farmers' goals and values. In this respect, Hill et al (1992, p. 13) note that, "in ESA's the farm and farmer have become a focus of environmental attention which may have little bearing on the farmers own aspirations."

8. What is the role that other farmers play in the adoption process? This has been given little consideration by research to date, although Brotherton (1992) implies that this is important when he refers to opinion formers (at both a national and local level) being important in influencing attitudes towards a scheme.

9. To what extent do the processes of participation (the rates and patterns of adoption and the motives for adoption) vary between different environmental schemes? In his model of participation, Brotherton (1992) hypothesises that the type and detail of scheme will influence response.

These are all key questions, suggesting in sum a need for a more thorough investigation of these decision-making and motivational processes involved in participation. This is especially important as policy makers continue to support and develop environmental schemes, whose success in terms of lasting environmental benefits needs to be ensured politically and environmentally. The application of an adoption model, presented in this chapter, to the uptake of these schemes provides a means of approaching the issue of participation, and adding further insights into the participation process. Firstly, it enables the context within which farmers make decisions to be taken into account; a context that will be both enabling and constraining of action. Secondly, it enables a wide range of farm and farmer characteristics to be investigated which can highlight the differences between adopters and non-adopters of the scheme. This will enable policy makers to target the schemes at those who are most receptive, whilst generating an understanding of the resistances to adoption amongst those not currently participating. Thirdly, it is a model which enables a systematic examination to take place of the motives behind adoption, by which, the extent to which additionality is a feature of these schemes can be assessed. Fourthly, by applying a model of adoption, the extent to which other farmers are important in influencing the adoption decision can be investigated, i.e. whether a diffusion of good practice is taking place from demonstrator or leader farms to those who are participating but less committed, and those who have not yet adopted.

CHAPTER 4 THE ADOPTION MODEL APPLIED TO THE UPTAKE OF TWO ENVIRONMENTAL SCHEMES

4.1. Introduction

The previous two chapters presented a strong case for the application of an innovation adoption model to examine the uptake of environmental schemes, in both research and policy terms. The model has the potential to extend existing research on the adoption of environmental schemes which has tended to take a limited view of participation, concentrating on the analysis of the rates and levels of uptake rather than the motives behind the adoption decision. An adoption model can extend the depth of analysis and enable a fuller assessment of scheme effectiveness to take place. A number of issues and questions, arising from the existing research literature regarding the nature of participation in environmental schemes were advanced at the end of the previous chapter. In order to investigate these questions in more detail, a farm survey was carried out during 1991/92, with the overall objective of examining and assessing two recently implemented environmental schemes - ESAs and the CSS. The rationale behind the choice of these two schemes is elaborated below. The aims of the farm survey were:

1. to investigate the differences between the situational, personal, psychological and sociological characteristics of participants and non-participants of these environmental schemes, and to compare the differences in these two groups both within and between schemes operating in disparate geographical areas;
2. to examine the motives behind participation and non-participation of different schemes, in order to assess how effective schemes are in bringing about changes in environmental attitudes and behaviour and,by implication,

to assess the extent to which an additionality effect is a feature of the uptake of environmental schemes;

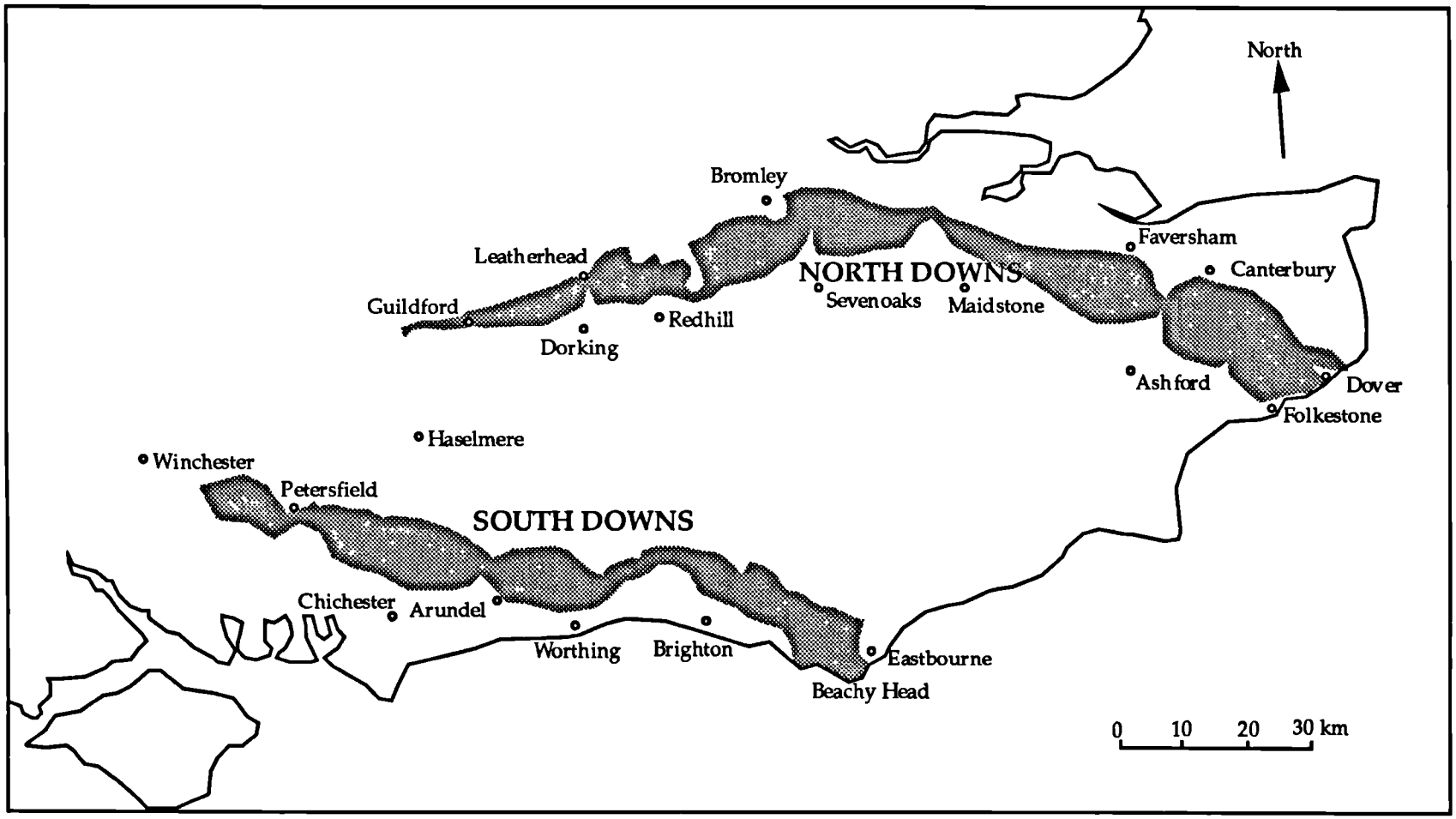
3. to investigate whether there is any evidence of a diffusion of good practice taking place amongst participating farmers, both through interpersonal channels of communication and the formal information and advice network.

The survey was designed, therefore, to collect both quantitative information and qualitative/behavioural information regarding the reasons and justifications for adopting and rejecting schemes. This chapter presents the survey procedure and the basic characteristics of the surveyed holdings.

4.2. Farm Survey: Characteristics of Environmental Schemes and Survey Areas

The farm survey was undertaken in the period September 1991 to February 1992 within two study areas where environmental schemes are operating (this followed a pilot survey of 10 farmers in the ESA in June 1991). The South Downs ESA, designated in two stages in 1987 and 1988, was chosen to represent an area where a conservation scheme was moderately well established, and distinct groups of participants and non-participants have emerged during the early years of its implementation. The North Downs (between Guildford in the west and Dover in the east) was chosen as it represents one of the target landscape types (an area of chalk grassland) under the Countryside Stewardship Scheme, established in 1991. Further, the demands placed upon farmers, and the opportunities offered under the scheme are similar to the ESA, thereby facilitating comparison between the two areas. A figurative map illustrating the two study areas is shown in Figure 4.1. Both schemes are concerned with maintaining and/or recreating chalk downland habitats and landscapes. The guidelines of the two schemes

Figure 4.1. Map of South East England Showing Study Areas: South and North Downs



are provided in appendices 1 and 2. A further criteria for choosing the study areas was that they were both in relatively close proximity to the researchers' home area, thereby minimising survey costs. The basic features of the two schemes are summarised in Table 4.1., which includes an outline of the management prescriptions and range of payments on offer. Notably, up to the 1991 review, farmers in the ESA had neither the option of preparing a conservation plan, nor did they have grants for capital works available to them under the scheme, unlike farmers participating in the CSS.

Table 4.1. Basic Features of the South Downs ESA and the CSS as it Applies in the North Downs

Scheme Feature	South Downs ESA	CSS in North Downs
Date of Implementation	1987 and 1988	1991
Habitat/ Landscape type	Chalk Downland	Chalk Downland
Prescriptions and Tiers of Payment	Tier 1: Management of existing chalk grassland, £35/ha/yr Tier 2: Reversion of arable land to chalk grassland, £160/ha/yr (Payments increased to £40/ha and £240/ha, and third tier added after 1990/91 review)	Tier 1: Improved management of existing chalk grassland, £50/ /ha/yr. Tier 2: Recreation of chalk grassland on arable or grass leys, £210/ha. Plus £50/ha/yr for land made available for access.
Conservation Plan	No (but optional under revised scheme on areas of farm covered by an ESA agreement)	Yes, optional, and grant available for plan preparation.
Capital Grants	No (but available under revised scheme)	Yes, £0.60/m (fencing)to £250/ha (scrub management).

Source: MAFF, 1987, and, 1992b, and CC, 1991b.

Although the CSS had been implemented at the time of surveying, it was in its very early stages of introduction and as such, in the North Downs, groups of potential, or hypothetical, participants and non-participants were identified. Such ex-ante studies have significant precedents in farming research, e.g. Potter and Gasson (1988) in their examination of farmers'

responses to a hypothetical land diversion scheme. Also, Potter and Lobley (1992b) tested farmers' responses to a hypothetical conservation scheme in the context of their study on elderly farmers. Whilst a comparison of responses to different schemes was the main intention of the farm survey, it was also recognised that by examining farmer responses in the North Downs, where no formal government incentive scheme has operated previously, this could act as a 'control' area. That is, where measurement and analysis of responses to government incentive schemes in the 'wider countryside', outside existing, designated ESA-type areas could take place. Here, publicity and established information and advice networks may well influence response.

4.2.1. Characteristics of Survey Areas

The two study areas are broadly similar in terms of their potential for agriculture. Both areas are predominantly grade 3 agricultural land ('moderate' limitations), interspersed with smaller areas of grade 4 land and some grade 2 in the river valleys. A mixture of farm types characterises both study areas. In the South Downs, much cereal and general cropping is present, with some dairy and livestock units. This area has experienced much conversion to arable farming (away from traditional livestock systems) particularly since the war under the benefits of cereal support prices. Many farmers in the survey referred to the 'reclamation' of poor, scrubby downland during the war, to 'productive' farmland. These areas have always been marginal for cereal production however, and with reform of the CAP price support system are likely to become increasingly unprofitable in this respect. The environmental consequences of cultivating thin downland soils is well documented (e.g. Boardman et al, 1990). However, apart from problems of soil erosion, the loss of traditional downland turf (through abandonment of traditional farming systems) has been the main motivation for the

designation of the South Downs as an ESA. Proximity to the South coast, together with the South Downs Way means that the Downs are under great pressure from recreational and leisure demands. All these factors has meant that various designations have been applied to the South Downs (e.g. SSSI's, AONB's, ESA, and in addition, recent attempts to attain National Park status) resulting in enormous complexity where these designations overlap.

The North Downs, meanwhile, is characterised by a mixture of farm types, and subject to a different set of pressures. The Surrey portion of the Downs, between London in the north and the M25 to the south, represents an area of urban fringe agriculture, with concomitant pressures from development, trespass and vandalism, and recreational demands (including the North Downs Way), but benefiting from proximity to markets for produce and diversification activities. This contrasts with those farms further along the Downs in Kent, where farming is under less pressure in some of these respects, but recreational and development (particularly from transport) demands represent important forces for change. Like the ESA, the North Downs are targets for Stewardship monies to retain the traditionally managed chalk grassland habitats, of which only a tiny proportion of the total remains (Herbstein, 1982).

4.3. Farm Survey: Methodological Considerations - Response Rate and Sampling Procedure

In total, 101 farmers were interviewed, 50 in the South Downs and 51 in the North Downs. Farmers were initially contacted by letter, where the objectives of the survey were explained (appendices 3 and 4). Respondents were then contacted by telephone 2-3 days later to ask whether they would be willing to participate and,if so, to arrange a time for an interview. Farm interviews were undertaken on a semi-structured basis, using a

questionnaire, and their length varied from 40 minutes to 3 hours. The questionnaire used a combination of closed (formal) questions and open (informal) questions to collect both quantitative and qualitative information (appendix 5).

The intention was to survey equal numbers of farmers from both the participating and non-participating populations in order to compare and contrast their characteristics. Both the MAFF project officer for the South Downs ESA and the local NFU were asked if they could provide lists of holdings for surveying, but neither were able to provide meaningful numbers of names and addresses for reasons of confidentiality and/or time and resources. Therefore, it was decided that the sample be drawn from the yellow page listings, in conjunction with Ordnance Survey 1:25 000 maps of the two survey areas. In the South Downs the boundary of the ESA was identified from an ADAS map provided in the ESA information pack (MAFF, 1987), and all the names and addresses of farmers within this area were drawn from the yellow pages. All of these farms were then contacted. As such, no formal sampling procedure was utilised as the initial population was quite restricted (i.e. within a spatially restricted area, where a certain number of farmers would be listed in the yellow pages) whilst at the same time a large enough sample had to be obtained to enable meaningful statistical analysis. Farms in the North Downs were identified in the same way, but here the boundary of the survey area was determined using geological and soil maps and drawn where the chalk comes to the surface. Countryside Stewardship, unlike ESAs, is not confined to circumscribed areas and therefore, farmers may well apply to participate in the scheme from outside the boundaries of this survey area. The limits of the survey area were set so as to encompass as much of the likely targeted area as possible. Again, all farmers falling within the survey area, identified in the yellow pages, were contacted.

It is widely accepted that the yellow pages provides an adequate sampling frame (often the only one available) for farm surveys. However, one should be aware of its limitations and potential sources of bias. For instance, "a commonly observed reaction to the proposed use of such a frame is that it is inadequate because particular types of farm and farmer tend to be excluded thus giving a biased sample of the entire population" (Errington,1985,p.252). Whilst Errington's review of the literature, together with his own tests of validity, indicated a number of problems with the yellow page listings, his conclusions were nevertheless favourable. For instance, whilst omissions from the sampling frame were found, Errington argues that this does not invalidate the use of yellow pages as a basis for surveys which seek to examine the relationships between various characteristics of the members of the population. Of greater significance is whether those units omitted from the sampling frame are randomly distributed among the population of units. For example, if smaller farms are not included in the listings then an important element of bias is introduced because these farms are under-represented. Therefore, Errington argues, where the object of study is, "the farm business rather than the holding ...yellow pages may provide a suitable sampling frame"(Errington, 1985, p.257). He points to another factor which may be more significant than the inadequacies of using the yellow pages as a sampling frame, in leading to unrepresentativeness in surveys of UK farm businesses, that of non-response bias, "which is systematically related to some of the variables under investigation"(Errington,p.257).

The response rate for the survey is shown in Table 4.2. A much lower response rate was recorded in the North Downs than in the South Downs and one reason for this is advanced below.

Table 4.2. Response Rate for Farm Survey

Sample Size and Response	South Downs	North Downs	Total Sample
Sample Size (no.s of farmers)	95	137	232
No.s Refused	45	86	131
No.s Accepted	50	51	101
Response Rate (%)	52.6	37.2	43.5

There is a recognised problem with non-response in surveys, which has been shown not to be a random process (e.g. Fowler, 1988, and Moser and Kalton, 1981, McNeill, 1985) and represents an important source of survey bias. Low response rates may (although not inevitably) lead to an unrepresentative sample. The nature of bias associated with non-response differs between different survey procedures (i.e. mail, telephone, personal interviews). Overall, there is a tendency within any 'social' sample towards self-selection and hence bias in non-response, that is, the most interested, aware, and those holding the strongest opinions about an issue will tend to agree to participate, whilst the least aware, most poorly informed, and possibly those not holding strong opinions will refuse. More specifically, with personal interviews the likely problems with non-response are less likely to relate to 'interest' in the survey and more likely to relate to the subject matter, particularly sensitive issues or topics (Fowler, 1988). Both of these points are relevant to the survey content and approach. Conservation and the environment remain highly charged issues for farmers, particularly in certain localities such as the South Downs which, because of its ESA status has received much research attention. Here, non-response may well relate to the subject matter of the survey with farmers having been approached once too often for interview. This was mentioned a number of times by farmers refusing to be interviewed in the present study. Whilst in the North Downs, the opposite scenario may have contributed to non-response, that is, where unfamiliarity

with the research topic may have lead farmers to think that they would be of little use or interest to the researcher. The most frequently cited reasons for not wanting to participate in the survey were: "too busy" and/or "not interested", and also, some respondents were simply not available for interview in the survey period, or were unable to be contacted. In addition, non-response in farm surveys which rely on yellow pages as a sampling frame, may arise from out of date entries e.g. change of ownership, and/or death of the owner . These problems were encountered in the present survey. "Non-response is a problematic, important source of error in surveys....it is potentially quite biasing. Yet although we can calculate a rate of response, we usually do not know the effect of non-response on the data because it is hard to learn much about non-respondents"(Fowler, 1988, p.58-59). In this last respect, it is difficult to predict exactly how different those farmers who failed to respond to the survey are in comparison to those interviewed. Moser and Kalton (1981) indicate that an idea of the characteristics of those not responding can be gained in a fairly systematic fashion when conducting house to house surveys. In the case of the present survey it was not possible to establish, over the telephone, an impression of the non-respondents. What is clear is that this group often expressed strong feelings of a lack of interest in the subject matter. This may indicate that they are a group that are resistant to change (possibly as a result of age, education, type of farming operation, lack of information and advice etc.) and therefore represent an important sector of the farming community to be targeted for behavioural change through policy implementation. All these potential sources of bias arising from the relatively low response rate in the survey need to be accounted for when interpreting the survey data.

4.4. Characteristics of Surveyed Holdings

The tendency for small farms to be omitted from the yellow page listings may go some way to account for their under-representation in the sample. Whilst the sample, as a whole, contained a good cross section of small, medium and large farms, overall it was heavily weighted towards larger farms (see Table 4.3.). Further, the farm size distribution in the two survey areas differed in that the South Downs contained a greater number of farms in the large farm size category, whilst the North Downs sample found a larger number of smaller farms, although these were still under-represented in terms of England as a whole. These differences may reflect the geographical localities of the two survey areas and the differing pressures and opportunities for agriculture in each. If one examines the farm size distribution at the county level however (where the MAFF county statistics are amalgamated for East and West Sussex and Hampshire which encompass the South Downs, and Kent and Surrey for the North Downs), the under-representation of smaller farms is not as extreme (see Table 4.4).

Table 4.3. Size Distribution of Survey Farms and All Farms England, 1989

Farm Size (ha)	South Downs	North Downs (%)	Total Sample	England 1989
< 99.9	12.2	29.5	21.0	83.3
100-299.9	44.9	40.0	47.0	13.7
> 300	42.9	21.5	32.0	3.0
All Farms	100.0	100.0	100.0	100.0
Numbers	50	51	101	157k

Source: Farm Survey and MAFF agricultural statistics UK, 1989 (MAFF, 1991e).

Table 4.4. Size Distribution of Survey Farms and All Farms Sussex, Hampshire, Kent and Surrey, 1989

Farm Size (ha)	South Downs (%)	E.Sussex W.Sussex Hants 1989	North Downs (%)	Kent Surrey 1989
<99.9	12.2	32.7	29.5	42.6
100-299.9	44.9	35.5	40.0	35.7
>300	42.9	31.8	21.5	21.8
All Farms	100.0	100.0	100.0	100.0
Numbers	50	8k	51	6k

Source: farm survey and MAFF agricultural statistics UK, 1989 (MAFF, 1991e).

As Table 4.5. indicates, patterns of land use in the two survey areas were broadly similar, with the most striking differences being the greater proportion of woodland in the North Downs vis a vis the South Downs, and the greater proportion of permanent grass in the South Downs. Also, the slighter greater proportion of set-aside in the North Downs is worth noting. The figures for the total sample compare reasonably well with the country as a whole, with a slight over-representation of tillage, temporary grass and woodland, and correspondingly less permanent pasture and rough grazing.

Table 4.5. Land Utilisation on Survey Farms (% of Total Agricultural Land)

Land Use	South Downs	North Downs	Total Sample	England 1989
Cereals	50.0	47.0	49.0	44.6
Set-Aside	2.2	5.1	3.4	-
Permanent grass	24.5	16.0	21.1	31.5
Leys	11.0	12.8	11.6	8.0
Rough Grazing	6.0	4.7	6.0	11.9
Woodland	4.9	14.2	6.6	2.2
Other	0.3	0.2	0.3	1.8
All Farms	100.0	100.0	100.0	100.0
Total Area (x1000 ha)	16.14	10.58	26.72	9.4m

Source: Farm survey and MAFF agricultural statistics 1989 (MAFF, 1991e).

The pattern of land tenure on survey farms (Table 4.6.) is quite different between the two study areas, where there is a higher proportion of both owner occupied and mixed tenure holdings in the North Downs, and a greater number of rented holdings in the South Downs. Similarly, there are marked differences in farm type (Table 4.7.) where farms in the South Downs are more likely to be mixed, mainly dairy, or general cropping, whilst the North Downs has a greater number of livestock only holdings.

Table 4.6. Pattern of Tenure on Survey Farms (% of All Farms)

Type of Tenure	South Downs	North Downs	Total Sample
Owner Occupied	20.0	29.4	24.7
Mixed Tenure	36.0	45.1	40 6
Wholly Rented	44.0	25.5	34.7
All Farms	100.0	100.0	100.0

Source: Farm Survey

Table 4.7. Type of Farm on Survey Farms (% of All Farms)

Farm Type	South Downs	North Downs	Total Sample
Mixed	30.0	29.4	29.7
Mainly Dairy	40.0	25.5	32.7
General Cropping	24.0	19.6	21.8
Livestock	6.0	25.5	15.8
All Farms	100.0	100.0	100.0

Source: Farm survey

4.4.1. Countryside Change in the Study Areas

An indication of the extent of countryside change (during the last 20 years) within and between the two study areas was established from the information collected on the amounts of land: drained; reclaimed from rough pasture; reseeded from old pasture; converted from rough grazing or pasture to arable;

converted from woods to grass or arable and; the amount of hedges removed (see Table 4.8.). Unfortunately, some farmers were unable to provide information on the exact areas involved in such changes, that is, they merely indicated that certain changes had taken place.

The most apparent differences between the two areas is the greater amount of drainage in the South Downs (which probably relates to the river valley areas which fall within the designated area); a higher proportion of reseeding in the North Downs and also a greater amount of conversion from woods to grass or arable in this study area. This greater tendency towards removal of habitat features in the North Downs is also illustrated by the greater, mean, length of hedges removed in this area (152.2m compared with 114.3m in the South Downs). It is tempting to speculate that the ESA status of the South Downs has both encouraged and enabled farmers to retain features that they might otherwise have removed, although there is no longitudinal survey data to prove this is the case, and the scheme, up to its 1990/91 review provided no capital grants for linear or point features. However, survey data on recent conservation investment in the two areas given below suggest that farmers in the South Downs, overall, are more inclined to undertake conservation work. Both areas have experienced similar amounts of reclamation and conversion out of rough grazing or pasture to arable.

Table 4.8. Land-Use Change on Survey Farms 1972-1992 (% Total Area Changed)

Nature of Change	South Downs	North Downs	Total Sample
Drained	36.9	12.4	26.7
Reclaimed from Rough Pasture	6.8	5.2	6.1
Reseeded from Old Pasture	22.0	44.8	31.5
Converted from Rough Grazing/ Pasture to Arable	32.9	31.1	32.2
Converted from Woods to Grass/Arable	1.4	6.5	3.5
All Farms	100.0	100.0	100.0
Total Area(x1000 ha)	1.15	0.8	1.98

Source: Farm Survey. N.B. Not all farms had experienced change in all categories, while some farms had undergone change, but the areas involved were not given ('missing' cases: for the total sample, 11; for the South Downs, 7; and for the North Downs, 4). Further, the total area that had undergone change represented only 7.4%, 7.2% and 7.8% respectively of the total agricultural area of the sample, the total agricultural area of the South Downs and the total agricultural area of the North Downs.

4.4.2. Conservation Investment on Survey Farms

The degree to which farmers had been involved in conservation projects in the past was used to indicate how much active conservation was presently taking place in and between the two study areas. Here, participation in the ESA or CSS was not included as conservation work, rather the intention was to establish the amount of conservation work carried out on farms prior to, and alongside, the availability of such incentives. Farmers were questioned about the conservation work they had carried out on their farms and this was categorised as: small scale creation, small scale management, small scale protection or; large scale creation, large scale management and large scale protection (see Table 4.9.). Here, small scale projects were those that had been carried out on an ad hoc basis over small (and distinct) areas of the farm, when money and time were available, and as such they tended to be unplanned and opportunistic. Examples of such projects included tree and hedge planting and pond clearance. Large scale projects tended to be part of a

planned programme of conservation investment covering larger areas of the farm and often spanning several years. For instance, woodland management, tree planting over large areas and maintaining traditional meadows. Other studies have examined conservation investment on farms in a similar way. For example, the New Agricultural Landscapes project looked at: numbers of trees planted; hedges planted and ponds dug; and amount of woodland management (Hamilton and Woolcock, 1984). Also, Potter, when questioning farmers on investment and management of the farmed landscape examined expenditure on tree planting, pond creation and hedgerow establishment (Potter, 1986b).

Table 4.9. indicates a distinct bias towards the creation of conservation features (both small and large scale) with much less emphasis on management or protection. A greater proportion of farmers in the South Downs, than in the North Downs, had been involved in work of this kind. When woodland management is examined separately, the same tendency emerges, with the majority of surveyed farms not managing the woodland resource (80% of farms in the South Downs, compared with 72.5% in the North Downs) and when management does occur, then it is carried out on a large scale as part of a programme of investment. The greater proportion of management on farms in the North Downs may be a reflection of the larger amounts of existing woodland on these farms. A lack of management can be as serious as an absolute loss of a habitat feature, through removal, for instance on chalk grassland in both study areas, where scrub encroachment has resulted in a loss of chalk flora.

Table 4.9. Active Conservation Work on Survey Farms 1982-1992 (No. and % No. of farmers)

Conservation Work	South Downs		North Downs		Total Sample	
Small Scale Creation	16	32.0	14	27.5	30	29.7
Small Scale Management	2	4.0	8	15.7	10	9.9
Small Scale Protection	4	8.0	4	7.8	8	7.9
Large Scale Creation	12	24.0	10	19.6	22	21.8
Large Scale Management	8	16.0	4	7.8	12	11.9
Large Scale Protection	1	2.0	0	0.0	1	1.0
All Farms	43	86.0	40	78.4	83	82.2

Source: Farm survey

Potter (1986b) found a similar bias in his study, where a distinction was made between 'enhancement' (tree planting and creation of ponds/lakes) and 'protection' (woodland management, appropriate hedgerow, grassland and ditch management, and 'sparing' of features). Here it was found that investment and management was generally biased towards the former (with 26% of farmers undertaking 'enhancing' activities, and only 11.5% undertaking protective work). "Conservation investment was found to be biased towards single projects of landscape enhancement with rather fewer cases of farmers acting to 'spare' features or areas of habitat by modifying land improvement schemes. Many respondents segregated activities in space by designating limited areas where conservation could be applied"(Potter, 1986b, p.193). This last point was also found to apply in the present study, where, despite some conservation work being carried out there was still the feeling that conservation had a definite and typically, peripheral place on the farm. For example, one farmer said, "conservation is definitely secondary for us. There is nowhere on the farm like rough, steep, wet or wooded areas that don't produce very much, that is, virtually every acre is producing an income, so there are no areas on the farm really suitable for conservation"(Large mixed farm on the North Downs). The New Agricultural Landscapes project (1984) also found that, "the conservation and

protection of existing features and habitats such as hedges, ditches, verges and meadows, wetland and riparian zones were considerably less attractive to farmers and landowners than planting trees, restoring ponds and to a lesser extent, managing woodland"(Hamilton and Woolcock, 1984, p.67).

In addition to recording the conservation of linear or point features on the surveyed farms, an attempt was made at examining the extent to which farm systems are becoming environmentally sensitive, by examining any changes in the intensity of the production system in the last 5-10 years (Table 4.10.). The basic environmental objective of incentive schemes is the maintenance or re-introduction of traditional management practices over broad areas of the farm. When examining the change in the intensity of the farming system, overall, a greater number of surveyed farms had reduced the intensity of production than had increased. Such a shift is encouraging, potentially, on environmental grounds, but the motives behind this shift may well be economic, rather than environmental. However, an interesting pattern can be seen between the two survey areas, where a greater number of farms in the North Downs had both increased and reduced farming intensity, whilst more farms in the South Downs had stayed the same. This result is somewhat surprising (and disappointing perhaps) because it might be anticipated that the ESA would be encouraging a reduction in farming intensity. However, this result may indicate that the scheme is stalling further increases in land-use intensity. Further, there is always the possibility that where the ESA agreement does not cover the whole farm, there is always a potential risk that farmers enter part of their holding and continue to improve on the rest of their ground. "Where this has happened, payments of public money made to farmers to subsidise environmental protection have, in some cases, been used, in effect, to damage the environmental interest of adjacent land"(FOE, 1992, p.21).

Table 4.10. Change in the Intensity of the Farming System on Survey Farms (% No. of Farms)

Change in Intensity	South Downs	North Downs	Total Sample
Increase	34.0	37.3	35.6
Same as Before	40.0	49.0	19.8
Decrease	40.0	49.0	44.6
All Farms	100.0	100.0	100.0

Source: Farm survey

Tables 4.2. to 4.10. have presented the broad characteristics of the surveyed holdings in terms of farm characteristics, land use change and conservation activity. Whilst the larger holdings are over-represented in the survey, this is recognised as a possible source of bias when analysing the results, and it is these that the next chapter will present.

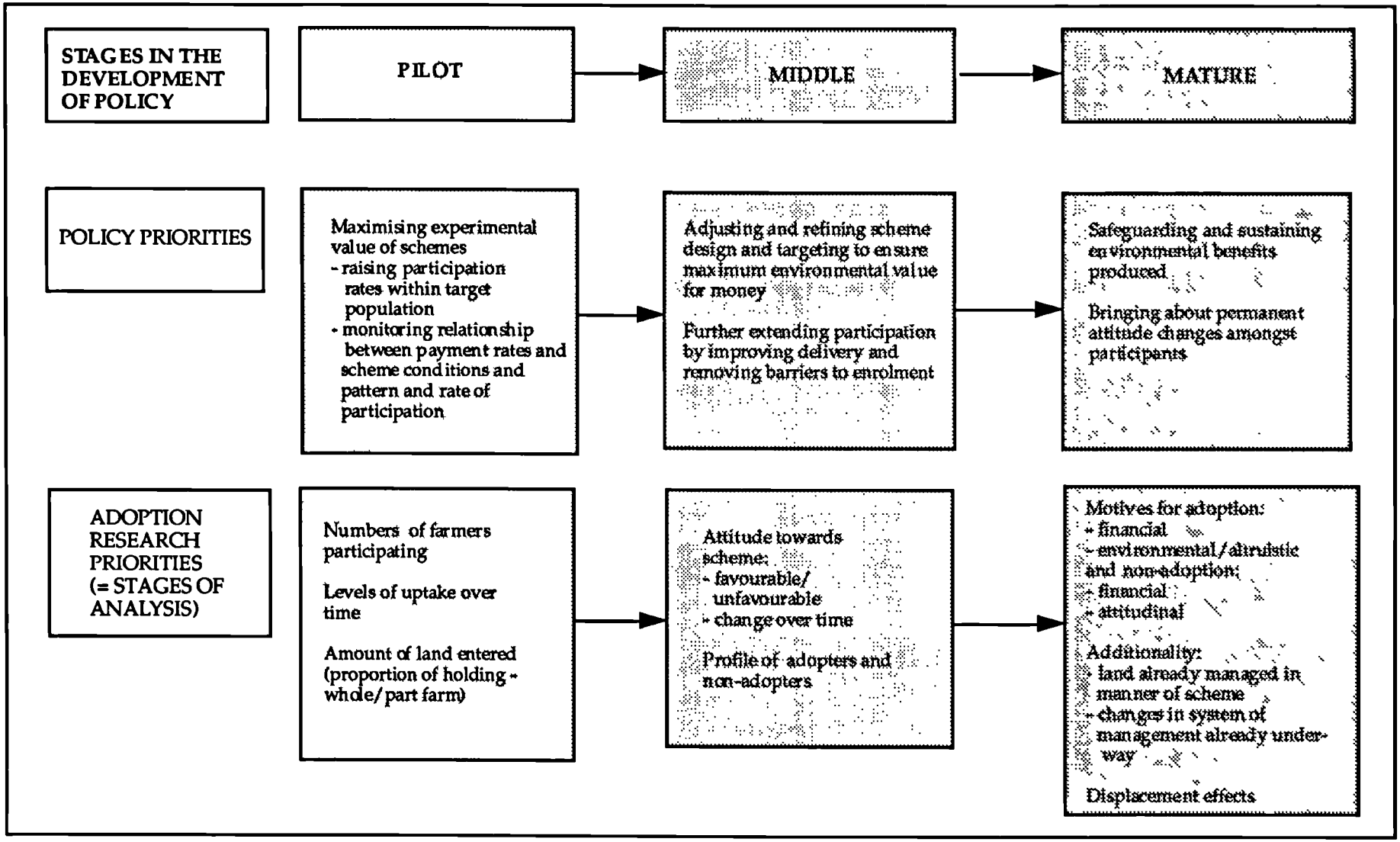
CHAPTER 5 PRESENTATION AND ANALYSIS OF RESULTS

5.1. Introduction

The model of environmental adoption presented in chapter 3 illustrated that four major factors, and their inter-relationship, will influence participation in, and the likely success of, environmental schemes: the general economic and policy context in which schemes are being implemented; the details of the schemes, their economic, technical and social attributes and their design; the effectiveness with which schemes are promoted and 'delivered' to farmers via the information and advice network; and the socio-economic characteristics of the farmers themselves. Chapter four introduced the farm survey undertaken to examine the participation process of two environmental schemes. This chapter draws on an analysis of the survey data to investigate in detail the processes behind farmers' decisions to adopt and reject environmental schemes and to link this to an assessment of policy effectiveness.

In order to do this, a progressive and staged analysis of the survey data will be undertaken, one that will initially take a shallow and restricted approach to examining participation, becoming progressively deeper as more aspects of the adoption process are investigated. Each stage in this analysis is likely to provide policy makers with different information and answers regarding the effectiveness and success of schemes. The model presented in figure 5.1. demonstrates how a link has been interpreted between the various stages of analysis, or research priorities, (factors that are recognised by research as influencing scheme success) and the stages in the development of policy, and the corresponding policy priorities. This figure represents a simplified model

Figure 5.1. Factors Influencing the Success of Agri-Environmental Schemes



of the policy process which has been set up to aid the analysis of the survey data.

The model demonstrates that in the early years of scheme implementation (the pilot stage), policy administrators have measured scheme success by the recruitment of as many farmers as possible in order to justify their introduction in financial and environmental terms. This explains the approach adopted by previous research and official post-hoc evaluations of environmental schemes outlined in chapter 3, which emphasised the quantitative aspects of adoption, i.e. this was an outcome of the stage in the development of policy. At this stage the policy approach has used environmental incentives to achieve stated objectives. As policy developed it became important to examine the objective characteristics of the adopting and non-adopting groups and their attitudes towards the scheme (the middle stage of development). This was necessary in order to adjust the schemes to match the predisposed population of adopters more closely, and to remove the barriers to adoption amongst the non-adopters, so as to increase the rates and levels of participation. These stages of policy development suggest an initial analysis of the survey data to look at the numbers of farmers participating in the ESA and CSS, the timing of entry, and the amount of land entered into agreements. Once these basic patterns have been established, the second stage can then go on to analyse the situational and personal, similarities and differences between participants and non-participants, including their use of information and advice.

Agri-environmental policy, particularly where ESAs are concerned, has arguably already gone beyond the piloting stage. Indeed, judging by the sums of money now allocated to ESAs under the new agri-environmental package, there is clearly a policy commitment to their continued implementation

and development (the mature stage in the model). The longevity of schemes and the sustainability of the environmental benefits they have produced will be an increasing concern, and in this respect, developing an understanding of the range of farmer motives for participating and not participating in the schemes will be critical. If it can be demonstrated that farmers are participating for financial reasons alone, then if the incentive is removed, any benefits arising from their participation may disappear. It is necessary therefore to establish the variety of motives for participation and non-participation in the schemes to assess: the extent to which farmers are already committed to conservation when they enter a scheme and the extent to which they maintain and extend this commitment; and the extent to which farmers enter for financial reasons but change (or do not change) their attitude and behaviour during scheme participation. As such, this suggests a final stage of survey analysis, which would look beyond quantitative characteristics to one that examines the qualitative differences between the adopters and non-adopters in terms of their motives and decision-making processes relating to participation and non-participation.

This chapter falls into three main parts. The first section presents a 'conventional' analysis of the pattern and level of participation in environmental schemes in the study areas. This is followed by a more detailed analysis of the quantitative, personal and situational characteristics of the participants and non-participants. A final section then examines the motives and reasons behind the decision to adopt or reject the two schemes, i.e. the qualitative, psychological and sociological characteristics of the adoption model.

5.2. The Pattern of Participation in Environmental Schemes

In each study area the aim was to survey equal numbers of participants and non-participants in the two schemes, in order to examine the differences and similarities between them. This study did not set out to establish the rate of participation in each of the study areas, this having already been recorded by the organisations administering the scheme, see below. Table 5.1. indicates that a reasonable representation of each of these groups was obtained, although the number of participants is slightly over-represented.

Table 5.1. Numbers of Surveyed Farmers in Environmental Schemes (Numbers and % Number of Farmers)

Participants/ Non-Participants	South Downs ESA		North Downs CSS		Total Sample	
Participants	27	54.0	28	54.9	55	54.5
Non-Participants	23	46.0	23	45.1	46	45.5
All Farmers	50	100.0	51	100.0	101	100.0

Source: Farm survey. N.B. In the North Downs, participants and non-participants were discriminated on the strength of their response to questions regarding their likely future participation. This was a subjective assessment, but given that the numbers of likely participants reflects closely the pattern in the ESA it is arguably an accurate assessment.

The amount of land entered into the ESA, and offered for Countryside Stewardship, by survey participants is shown in Table 5.2. In the CSS, farmers were asked what proportion of their holding they would be willing to enter into the scheme under existing rates of payment, and if these were unacceptable, the proportion of land they would enter under a higher rate of payment. As might be anticipated, most scheme land occupies less than a quarter of the total holding area, although a not insignificant amount occupies up to 50% of the holding in the ESA. The relatively large mean area enrolled in the ESA (67% of holding), vis a vis the mean area (26.0%) offered in the CSS is important to note.

Table 5.2. Proportion of Surveyed Holdings Enrolled in/Offered for Enrolment in Environmental Schemes (% of Holding Area)

% Area of Holding Enrolled	South Downs ESA	North Downs CSS	Total
0%	0.0	39.3 (60.7)	19.7
< 10%	29.6	25.9 (17.9)	27.8
10-25%	37.0	21.4 (3.6)	29.2
25-50%	22.2	7.1 (7.1)	14.7
50-75%	7.4	0.0 (0.0)	3.7
75-100%	3.7	7.1 (7.1)	5.4
Missing		(3.6)	
All Farms	100.0	100.0	100.0
Total Area (x1000ha)	1.83	0.72	1.27
Mean Area	67.7	26.0	46.9

N.B. In the North Downs the figures represent amounts of land offered by hypothetical participants in the CSS under existing rates of payment, whilst the figures in parentheses represent amounts offered by those who were demanding a higher rate of payment for participation (these ranged from £100/ha/year to £617/ha, although a number of farmers were unable to give an exact figure).

At the time of surveying, both the schemes had two tiers of payment, where entry into the second tier, whilst offering a higher rate of payment, is more demanding of the farmer in terms of management. Also, Tier 2 payments have the potential for the recreation of habitat, not simply maintenance of the status quo. The level of participation in each of these tiers should be considered therefore as this will indicate, to an extent, the effectiveness of the scheme in bringing about change. Table 5.3. demonstrates that similar proportions of land were offered for both tiers, in both study areas, although one should note the mean areas offered for each tier, in each area, where farmers in the North Downs were offering smaller amounts of their holdings overall. This probably relates to caution amongst farmers in responding to a new and unfamiliar scheme. Table 5.4.shows the proportion of ESA land entered into Tier 2. This indicates that farmers have been willing to enter significant portions of their ESA land into this recreational tier.

Table 5.3. Areas of Land Enrolled/Offered under Tier 1 and Tier 2 in Environmental Schemes (% of all Scheme Land)

Scheme Tier	South Downs ESA	North Downs CSS	Total Sample
Tier 1	55.3	58.5	56.9
Tier 2	44.7	41.5	43.1
All Farms	100.0	100.0	100.0
Numbers	27	28	55

Source: Farm Survey
N.B. Mean areas for Tier 1: 37.5 ha and 15.2 ha(South and North Downs)
Mean areas for Tier 2: 30.2 ha and 13.6 ha(South and North Downs)

Table 5.4. ESA Land under Tier 2 (% of all ESA land)

Area under Tier 2	% of All ESA Land
0%	48.1
1-24.9%	7.4
25-49.9%	14.8
50-74.9%	11.1
75-100%	18.5
All Adopters	100.0
Numbers	27

Source: Farm survey

The MAFF figures for participation in the South Downs ESA are: Tier 1, 61.3% and; Tier 2, 38.7% of the total hectarage entered into agreements (this compares reasonably well with the surveyed holdings). Most farms with agreements in the South Downs have land entered into both tiers (MAFF, 1991c). These figures represent 26% of the eligible area of 26,600 ha (woodland, scrub, reedbed and non-agricultural areas are ineligible for payments), and involve 183 agreements (MAFF, 1991c). When analysing the figures on participation, it is important to remember that the eligible area represents only a small proportion of the total designated area of 53,343 ha (where only 16% of the total area is entered into an agreement, FOE, 1992). The South Downs has one of the lowest participation rates of all the ESA's in England and Wales, after the Lleyn Peninsula and the Test Valley; the highest

participation rates have been recorded in West Penwith, Shropshire Borders and Pennine Dales. Overall, the ESA scheme in England and Wales involves 2,500 farmers, covering 333,474 ha, or 87% of the designated (eligible) area (Baldock et al, 1990). For the CSS, 900 contracts were drawn up in the first year 1991-1992, covering 30,000 ha. This represents 30 % more applications than expected, and 22% of the area includes access provisions, (CC, 1992c). In the South East Region, for chalk and limestone grassland, applications covered 2212 ha (tier 1 and tier 2) with an additional 1013 ha for access. This represents 25% of the total ha applied for and 42% of the total area for access in this region (CC, 1992c). In the second year of the scheme, 1,300 contracts were agreed, covering 32,698 ha (CC, 1993a). Of these agreements, 17% included access provisions.

The date of entry into a scheme, or timing of adoption, has been given little consideration by other research and monitoring, but as theories of adoption set out, the timing of uptake relates directly to the type of adopter. The majority of participants entered in the very early stages of scheme implementation (see Table 5.5.) both in the farm survey and in the actual number of agreements drawn up by MAFF (1991c).

Table 5.5. Number of Years in ESA

Years in Scheme	% No. of Farmers	% No. of Total Agreements
1 (1992)	3.7	0.0
2	0.0	0.0
3	18.5	12.6
4	25.9	20.2
5	48.1	35.5
6 (1987)	3.7	31.7
All Adopters	100.0	100.0
Numbers	27	183

Source: Farm survey and MAFF monitoring report 1991c.

5.3 Looking Beyond Basic Patterns: Characteristics of Participants and Non-Participants

The rates and levels of participation recorded by the farm survey correspond reasonably well with those recorded by official monitoring organisations and other researchers. However, as FOE (1992) have commented, to simply look at the numbers entering is a deceptive means of evaluating a scheme's success because it neither takes account of the extent to which any farmer enters into an agreement (the amount and type of land) and their specific (and often highly idiosyncratic) reasons for doing so. Having established the amount of participation, a closer evaluation of scheme effectiveness (the second stage of the analysis) requires information about the characteristics of the participants, and any differences between these farmers and those who are still not participating in a scheme. Describing the profile of participating farms is important from a policy point of view because it allows policy makers to judge the breadth of a scheme's appeal and its success in recruiting target or key farms in an area. Comparisons of participating and non-participating farms, meanwhile, may indicate whether a scheme is appealing to farmers of a particular type or those in specific situations. Indeed, an analysis of non-adopters could prove especially enlightening because as a group they have received relatively little attention in previous research because adoption theory implicitly assumes that complete adoption will eventually take place. Non-adopters should be given equal consideration as they represent a distinct group, and it should not be assumed that they will automatically become adopters over time. Ilbery (1991) highlights this point in his study of the uptake and non-adoption of farm diversification.

An analysis of this sort can either be shallow or deep; it can focus on the externally apparent differences between adopters and non-adopters (stage 2 of the analysis), or it can look more closely at the differences in motives,

attitudes and outlooks between the various groups (stage 3 of the analysis). In order to undertake the first part of this deeper analysis, a wide range of independent variables, the situational, personal and sociological characteristics identified in the adoption model, were chosen by reference to the literature. These variables were cross-tabulated with the dependent variable (whether or not a respondent had entered into a scheme agreement) in each of the study areas, and it was decided to carry out simple statistical tests (chi-square test of association, and two tailed t-tests) to establish whether any significant differences existed between the two groups (Clegg, 1982). With two different schemes under examination, it might be anticipated that certain independent variables characterising participants in one scheme might well be different in another. This represents the interaction of scheme characteristics with those of the individual respondent and their location.

5.3.1. Situational Characteristics

The results from the present survey suggest that differences between the adopting and non-adopting farms are much less distinct than the adoption literature would lead us to expect. The survey data illustrates that there are few significant associations (at the 5% level) between the situational characteristics (farm size, type and tenure, economic status variables, non-agricultural income and activities) and the participants and non-participants, however, the following trends are worth noting. In both study areas, adopters were found to have larger, mean, farm sizes, this difference being noticeably greater in the South Downs (see Table 5.6). This reflects the findings in the adoption literature that larger farms tend to be the first to adopt. MAFF (1991c) also reported that their surveyed participant holdings tended to have large average areas.

Table 5.6. Mean Area Farmed (ha) on Adopter and Non-Adopter Holdings

Study Area	Adopters	Non-Adopters	Total Sample
South Downs	409.0	272.1	340.6
North Downs	217.7	217.6	217.3

Difference in total area insignificant at the 5% level using the t-test, two tailed.

The relationship with tenure is not as straightforward between the two areas (see Table 5.7.). Here, a greater proportion of adopters in the South Downs were found to be owner occupiers than the non-adopters, contradicting the MAFF monitoring of the ESA which found a higher proportion of owner occupied land in the non-participant sample (MAFF,1991c). This pattern is reversed in the North Downs, where adopters were much less likely to be tenants than either of the other two tenure groups. This may corroborate other adoption research which has indicated that farmers who rent land may be less willing to commit themselves to environmental innovations.

Table 5.7. Tenurial Arrangements (% No. of Farms) on Adopter and Non-Adopter Holdings

Tenure	South Downs		North Downs		Total Sample
	Adopters	Non-Adopters	Adopters	Non-Adopters	
Owner Occupied	22.0	17.4	28.6	30.4	24.7
Tenant	37.0	52.2	21.4	30.4	34.7
Mixed Tenure	41.0	30.4	50.0	39.1	40.6

Association between type of tenure and category of farmer insignificant at the 5% level using chi-square.

Where arable and dairy systems are not immediately compatible with both schemes under investigation, the role of farm type and enterprise structure needs to be considered (see Table 5.8). In the ESA, adopters were found to have a greater proportion of mixed and all livestock farms, and the non-adopters a greater proportion of dairy and general cropping farms. This represents the enterprise structure of participant holdings as it stands after

participation has occurred and overlooks the important issue of enterprise change which may have occurred as a result of entry. Even so, the pattern is an important one to note and suggests that these farmers do tend to have farm types compatible with the scheme. However, on their survey of participant holdings, MAFF (1991c) demonstrated that the majority were predominantly arable operations with dairying practically insignificant, whilst on the non-participant holdings these were geared more towards dairying and livestock production, but arable cropping accounted for the majority of this group.

Table 5.8. Farm Type (% of All Farms) - Adopter and Non-Adopter Holdings

Farm Type	South Downs		North Downs		Total Sample
	Adopters	Non-Adopters	Adopters	Non-Adopters	
Mixed	40.7	17.4	28.6	30.4	29.3
Mainly Dairy	33.3	47.8	25.0	26.1	33.1
General Cropping	14.8	34.8	21.4	17.4	22.1
Live-stock	11.1	0.0	25.0	26.1	15.5

Association between farm type and category of farmer insignificant at the 5% level using chi-square.

Participants in the ESA were also significantly more likely to have cattle on their holdings than non-adopters (65.7% of adopters compared with 34.3% of non-adopters: chi-square 6.44506, degrees of freedom (df) 1, significance .01113). Whether this result is a cause or a result of participation is difficult to judge. The pattern is different in the North Downs where non-adopters had more mixed, dairy and livestock farms, and were less likely to have general cropping farms. This is an interesting result and may indicate that hypothetical participants in the CSS are viewing the scheme as an opportunity to remove poor arable land from production. Farm type will reflect land use. The exceptional result here was that adopters in the ESA were found to have larger mean areas of rough grazing on their land

(significant at 5% level using t-test, 2 tailed). This may be an indication that where farms have larger rough areas, farmers are less averse to the idea of extending the area of 'poorer' pasture under a conservation scheme. Alternatively, it could be an indication that these farms have a greater number of livestock to graze on these rough areas, and as such could more easily accommodate and/or benefit from larger areas of grazing on the farm. This could therefore be an issue of perception on the part of the farmer, or a technical/managerial issue relating to the details of the scheme.

The economic status of respondents farms was established using a number of 'surrogate' measures, including change in farm area, investment levels in buildings, machinery and equipment over the past 10 years, non-agricultural income, and use of agricultural improvement grants over the last 15 years. No direct indicators of income levels or levels of indebtedness were obtained from the survey. It was thought that this was too sensitive an area on which to pose questions. Further, some studies have indicated that even where farmers are questioned about income not all are prepared to respond and others give false answers. Individual adoption studies have also used surrogate measures.

Participation in a conservation scheme is likely to have an impact on income levels, and hence the economic status of the farm, although whether this is a positive or negative impact is very much related to the individual circumstances of the farm (together with the attitudes of the farmer towards the scheme). One of the reasons behind the introduction of ESA's was to support farm incomes at a time of falling agricultural support, the scheme payment enabling farmers to remain on the land and manage it accordingly. The influence of payment level (and hence income) on the uptake of ESA's has been examined (Brotherton, 1991). MAFF monitoring of the South

Downs ESA examined the effects of participation on income on their surveyed participant holdings. For the 1988/89 season, it was found that entering into an ESA agreement increased the overall income of the sample by £70,000, or an average of £1,630 per holding. Farmers who entered land into tier 1 benefited the most because the prescriptions had had no significant impact on production (MAFF 1991c). For the whole ESA, MAFF estimate that the average increase in income, before finance charges, per holding, is £1,360 or £29 per hectare entered (MAFF, op cit.). Whether farmers actually calculate the financial costs and benefits of entering the scheme before they make an adoption decision was not established in the survey; however, there was an impression that farmers tended to estimate the financial impact of the scheme on the farm in an arbitrary fashion.

The economic indicator results from the survey are summarised in Tables 5.9. and 5.10.

Table 5.9. The Economic Status of Adopter and Non-Adopter Holdings

Economic Indicator	South Downs		North Downs		Total Sample
	Adopters	Non-Adopters	Adopters	Non-Adopters	
Mean ha Land Disposed Since 1980	43.2	7.2	18.8	16.8	21.5
Mean ha Land Acquired Since 1980	22.4	26.2	11.8	17.9	19.6
% With Non-Agricultural Income	70.4	69.6	53.6	56.5	62.5
% Received Agricultural Improvement Grants	51.9	45.5	50.0	56.5	50.9

Difference between individual means insignificant at 5% level using t-test, 2 tailed. Association between category of farmer and those with a non-agricultural income, and those receiving grant aid insignificant at 5% level using chi-square.

Table 5.10. The Economic Status of Adopter and Non-Adopter Holdings

Economic Indicator	South Downs		North Downs		Total Sample
	Adopters	Non-Adopters	Adopters	Non-Adopters	
Mean amounts (%) of machinery <5 years old	32.2	37.8	23.6	32.5	31.6
Mean amounts (%) of machinery > 10 years old	25.3	23.5	42.7	35.2	31.8
Mean amounts (%) of buildings < 5 years old	3.5	5.9	5.8	11.5	26.7
Mean amounts (%) of buildings > 10 years old	89.0	75.9	85.5	80.5	82.7

Difference between individual means insignificant at 5% level using t-test 2 tailed.

Adopters (in the ESA) experienced a greater overall change in the mean area of the farm over the last 10 years, compared with the non-adopters. However, the mean area (added) in such changes was greater for the non-adopters, and the mean area (reduced) was greater for the adopters. A similar pattern was observed in the North Downs.

Also, adopters in both groups were found to have smaller (mean amounts) of recent investment in machinery and buildings and larger mean amounts of older machinery and buildings. Whilst these results suggest that adopters are less likely to have recently been expanding and investing in the agricultural side of the business, levels of non-agricultural income on adopter farms suggest a greater proportion of adopters in the ESA with a non-agricultural income, although this was not a significant difference, whilst a slightly greater proportion of the non-adopting group in the North Downs had a non-agricultural income. Adopters in both study areas were more likely to want to extend their non-farming enterprises in the future than the non-adopters, although again, this was not a significant difference.

It could be argued that simply looking at whether a farmer has a non-agricultural income, or not, disguises important factors which may give some other indicators of adoption/non-adoption of government schemes. For example: the type of non-farm income, i.e. whether it is derived from on-farm 'intrusive' activities, or off-farm 'non-intrusive' activities; whether farmers have applied for grants to undertake these activities; and the reasons why they don't seek out non-farm income sources. All may be more useful indicators, or may give some other clues to the differences between adopters and non-adopters. When these variables are cross-tabulated with adoption, some significant results emerge, indicating that a simple analysis by presence of non-farm income alone is inadequate when trying to understand complex, and idiosyncratic, adoption decisions. In the North Downs for example, non-adopters were significantly more likely to give 'no interest' as a reason for not diversifying, whilst adopters are significantly more likely to have considered schemes but not yet found anything appropriate. Also, adopters in both areas are more likely to have used grants for non-agricultural activities (although very small numbers are involved) - a significant difference in the North Downs where none of the non-adopters had utilised diversification grants.

The uptake of general improvement grants is assumed to influence adoption because it could indicate that farmers are generally innovative in respect to government incentives. Their uptake over the last 10 to 15 years differed little between the adopters and non-adopters, however, with slightly greater number of adopters applying for grant aid in the South Downs, and the reverse in the North Downs. That there was no significance in this variable may indicate that it is wrong to assume that a relationship exists between uptake of agricultural grants and innovative behaviour in respect to conservation schemes. In terms of non-agricultural activities meanwhile,

there may well be a suggestive relationship here, as farmers who are willing (and able perhaps) to try non-farming activities, may be more innovative with respect to new ideas such as conservation schemes.

In addition to examining the current economic status of the farm, the future intentions of the farmer towards the business may provide further clues as to their propensity to join conservation schemes. For example, if a farmer intended to run down the business, reduce profitability on existing enterprises, or was looking to alternative methods of income generation, it is possible that they would view entry into conservation schemes in a more favourable way, when compared with those who intended to expand the business and increase profitability on existing and planned agricultural enterprises. A typical response from farmers when questioned about the future was general uncertainty about agriculture and about their farms in particular. Responses about future plans fell into a few broad categories: to stay as the farm is now and/or consolidation; to reduce costs/inputs and cutting out unprofitable enterprises; to increase profitability on existing enterprises or introduce new enterprises; to extend existing non-agricultural enterprises or search for and introduce such enterprises and; to look to participate in or to extend participation in a government scheme. None of these variables were found to be significant in the South Downs, although interestingly, more non-adopters expressed a desire or intention to expand the business than the adopters. However, in the North Downs some significant results emerged. Here, potential adopters were significantly more likely to want to enter a government scheme, and were also more likely to want to increase output from existing enterprises. Non-adopters meanwhile were significantly more likely to intend to carry on as before.

5.3.2. Personal Characteristics

The results of cross-tabulating a range of personal characteristics with adoption are presented in Tables 5.11. and 5.12. As with the situational variables above, the majority of these associations were found to be insignificant at the 5% level.

Table 5.11. Age Distribution of Adopters and Non-Adopters

Age Group	South Downs		North Downs		Total Sample
	Adopters	Non-Adopters	Adopters	Non-Adopters	
< 35	22.2	21.7	14.3	8.7	16.8
35-44	29.6	8.7	21.4	21.7	20.3
45-54	18.5	34.8	21.4	30.4	26.2
55-64	22.2	17.4	28.6	17.4	21.5
> 65	7.4	17.4	14.3	21.7	15.2

Association between age and category of farmer insignificant at the 5% level using chi-square.

Table 5.12. Other Personal Characteristics of Adopters and Non-Adopters

Farmer Characteristic	South Downs		North Downs		Total Sample
	Adopters	Non-Adopters	Adopters	Non-Adopters	
Mean years in farming	26.4	32.6	29.9	30.7	29.9
Mean years in other occupations	2.5	0.9	2.6	6.0	3.0
% no. with other occupations	25.9	21.7	28.6	30.4	26.7
% no. with agricultural training	66.7	52.2	53.6	52.2	56.2
% no. with other education	11.1	26.1	28.6	26.1	23.0

All associations and differences insignificant at 5% level using t-tests and chi-square.

The greater proportion of non-adopters found in the oldest age bracket (65 and over), and a greater number of adopters in the younger age groups (44 and under) in both study areas is worth noting. Further, adopters in the ESA were more likely to have had other non-farming occupations (as well as getting involved in non-agricultural projects), and to have had agricultural

training (although the reverse is true of other, non-agricultural education), in both areas, although the differences between groups are small. In the CSS, adopters were less likely to have had other occupations, and to have spent less time in these other occupations, whilst they were more likely to have had both agricultural and other education than the non-adopters. These patterns would appear to reflect that found in the adoption literature, that a relationship exists between early adoption, or innovativeness, and younger and better educated farmers.

As farmers and farming diversify and move away from simply the production of food, to encompass a range of other activities, so the role of other family members on the farm has become of increasing importance (this is not to belittle their previous role, where farmers' wives and children are often highly integrated in the management of the farm). As these new activities may demand new skills/knowledge that the farmer himself does not possess, so the role of other family members may come to the fore and assume hitherto unrealised importance. These new activities may include conservation work and/or schemes, although where conservation as part of contractual schemes is so integrated with farm management, the role of other family members (with interest in and/or skills in conservation) may be questionable and may not reflect the role they play in other non-farm activities.

Respondents were asked if their family was involved on the farm and if so, in what role. The results were rather inconclusive however. The only significant difference that emerged between the two groups was in the South Downs, where significantly more adopters had children playing an 'active' role on the farm (either full or part time on the farm or involved in diversification, rather than a passive, 'sleeping partner' role). This may go

some way to support the idea that 'new knowledge' may influence a farmer's decision to enter a scheme. The role of a successor may be a more telling factor here, and the influence of succession on adoption was tested.

Table 5.13. The Presence and Absence of a Successor on Adopter and Non-Adopter Holdings (% of All Respondents)

Presence/ Absence of Successor	South Downs		North Downs		Total Sample
	Adopters	Non-Adopters	Adopters	Non-Adopter	
No Successor	29.6	47.9	32.1	43.5	38.3
Successor	26.0	39.1	14.3	21.7	25.3
Probably/ Unsure	44.4	13.0	53.6	34.8	36.4

Association between presence/absence of successor and category of farmer insignificant at the 5% level using chi-square.

As Table 5.13. demonstrates, no significant results emerged here in terms of the presence or absence of a likely successor. However, a greater proportion of non-adopters in both study areas felt that they had no successor but more of this group said that they did have a successor while adopters were more unsure. Farm family factors on the whole therefore provided no direct, or significant indicators of adoption.

5.3.3. Participation in the Information and Advice Network

The differences between adopting and non-adopting farms may be related to factors other than those to do with the farm and farm family however, and the extent to which a farmer is integrated into the information and advice network may be of more importance. Their participation in the state sector agricultural and conservation advice network may be particularly important as this is thought to have a positive influence on the adoption of environmental schemes. Effective means of disseminating information and advice about the schemes by the agencies involved in their implementation may be crucial to

assisting the policy approach of this stage of implementation and evaluation if the desired level of participation is to be achieved. Information and education are also relevant to the policy approach described by the third stage of the analysis, where its role is to persuade and change attitudes.

Respondents w ere questioned as to their original source of knowledge about the scheme and the specific advice sources consulted in the adoption decision. Both adopters and non-adopters (in both study areas) became aware of the scheme through similar channels (notably, the farming press and ADAS, with 'other information sources', such as the local press/radio, being important in the North Downs), with neighbouring farmers being of practically no importance in this respect. No significant differences emerged in either the source of original awareness or the date of first awareness in both study areas. The influence of neighbouring farmers on adoption is worth looking at in greater detail as it is assumed that a demonstration effect may be important in both research (the diffusion of an innovation) and policy terms (diffusion of good practice from demonstration farms). Early models of innovation adoption placed much emphasis on the 'neighbourhood effect'. Later studies showed that interpersonal channels of communication at a local level were not as important in the adoption and diffusion process as was first thought (e.g. Findlay and Mackennan, 1978, and Bowler, 1979). Adopters and non-adopters in the ESA were asked whether they had had contact with participating farmers and whether this had influenced their decision to join the scheme. The majority of farmers in both groups admitted that contact had taken place, but that this contact had no influence on the adoption decision. These results would appear to give some support to the findings that the neighbourhood effect is essentially invalid in explaining the adoption process. It was interesting however that a number of 'high profile' adopters of the ESA scheme were frequently referred to during the interviews by a number of respondents. These findings suggest that a

demonstration/ diffusion effect may exist, though it is difficult to measure. It may be that farmers do not want to admit to its importance if they remain sceptical about the possible benefits of the scheme.

Also important at the local level is participation in farming groups. Whilst the role of such groups has not been investigated in terms of how effective they are in passing on knowledge and information about incentive schemes, on a general level it could be assumed that the more involvement a farmer has with such groups, the more exposure they will have to information on conservation schemes, and potentially more likely to view schemes in a favourable light. Brotherton (1992) has noted that opinion formers, such as farming groups and farming press, will influence a scheme's reception by the farming community depending on whether the scheme is seen by these groups to benefit a few, or benefit the majority. Respondents were asked to which farming groups they belonged, how regularly they attended meetings, the degree of involvement in the group, and also how often they attended agricultural shows. No particular patterns emerge in the data here, with the only significant result recorded in the North Downs, where adopters of the CSS were significantly more likely to be members of the NFU. This result may give some support to the hypothesis that involvement in farming groups positively influences the adoption process, although more research would appear to be needed into this link.

When the sources of advice used in making the adoption decision are examined (relevant in the ESA only) some important differences appear to emerge (see Table 5.14.). Here, a greater number of non-adopters made their own decision to not participate (and correspondingly sought less advice from external sources) whereas amongst the adopters, fewer made their own decision to participate and sought more advice from both ADAS and other agricultural sources - a reflection perhaps of a greater willingness to participate in the advice network.

Table 5.14. Adopters and Non-Adopters in ESA (% No. of Farmers) - Sources of Advice Consulted about the Adoption Decision

Advice Source	Adopter	Non-Adopter	Total Sample
Self/Family	14.8	34.8	24.8
Neighbouring Farmers	0.0	8.7	4.4
ADAS	74.1	34.8	54.5
NFU/CLA	0.0	0.0	0.0
Other Agricultural	11.1	4.3	7.7
Other Conservation	0.0	4.3	2.2
None Sought	7.4	30.4	18.9

Association between source of advice and farmer category insignificant at the 5% level using chi-square.

Respondents were asked if they had ever used a range of advice and information sources about agricultural matters, and more specifically, who their first advice contact would be for various aspects of farm management (crop and livestock husbandry, machinery/technical issues, and finance and planning). They were also questioned about the frequency at which they sought advice and any recent changes in their use of advice sources. In terms of the general sources of agricultural advice and information used by respondents, no significant differences emerged (in the South Downs) regarding a range of advice and information sources ever used by farmers, the frequency of advice contacts and changes in the sources of advice. In this last respect, (see Table 5.15.) adopters were found to be less likely to have changed their agricultural advice sources than the non-adopters, and less likely to be using different sources. In the North Downs, no significant differences were recorded between adopters and non-adopters in the sources of advice ever used with the exception of 'other' advice sources, and also with the use of 'other' information sources. Here, a greater proportion of adopters were found to consult these sources. Also, a significant difference was observed in terms of changes in the sources of advice. Here, non-adopters were significantly more likely to have increased their use of existing sources of advice, whilst more adopters had changed their advice sources (Table 5.15). Whilst it may be anticipated that participants in environmental schemes

would be more willing to seek a range of different advice sources (i.e. a general indication of innovativeness in adoption behaviour), these results do not reflect this. One explanation is that an examination of the range of agricultural advice and information sources used may be a poor surrogate measure of innovativeness regarding environmental matters.

Table 5.15. Adopters and Non-Adopters (% No. of Farmers) - Changes in Use of Advice Sources in the Last 5 Years

Type of Change in Advice Sources	South Downs		North Downs		Total Sample
	Adopters	Non-Adopters	Adopters	Non-Adopters	
No Change	70.4	60.9	60.7	56.5	62.1
Increased Use of Existing Sources	14.8	17.4	0.0	21.7	13.5
ADAS to Private Sources	3.7	4.3	17.9	17.4	10.8
Using Different Sources	11.1	17.4	21.4	4.3	13.6

Association between nature of change in advice source and category of farmer insignificant at 5% level in South Downs, significant in North Downs using chi-square

Recent research on farm advice has recorded a shift away from government advice sources towards commercial sources (Eldon, 1988) with a concomitant effect on farmer knowledge of conservation issues (including grants and schemes). This was not observed in the present study, although a difference did emerge between the two study areas, with more farmers in the North Downs making such a move. It might have been anticipated that adopter groups would be making more use of ADAS or government-based advice, which would be disseminating positive advice on conservation schemes, or that this group would be generally more open to a wide variety of advice sources (vis a vis non-adopters). Whilst it was noted that a greater proportion of adopters than non-adopters, in both study areas, did consult ADAS for advice on machinery, agronomy, livestock husbandry and farm planning, on the whole it would appear that the adopting and non-adopting groups are consulting similar advice and information sources.

In addition to general agricultural advice, the role of conservation advice should be examined. Respondents were asked whether they belonged to a conservation/environmental group, whether they had received conservation advice in the past, and if so, from which source, and whether they had acted upon the advice taken. Whilst a greater proportion of adopters in the ESA were found to be members of a conservation group, to have received conservation advice, to have actively sought out the advice and acted upon it, these trends did not emerge as being significantly different. The pattern was similar in the North Downs (see Table 5.16). The only significant result was in the North Downs, where adopters were found to be significantly more likely to receive conservation advice from FWAG.

Table 5.16. Adopters and Non-Adopters (% No. of Farmers)- Membership of Conservation Groups and Receipt of Conservation Advice.

Membership of Conservation Group/Receipt of Conservation Advice	South Downs		North Downs		Total Sample
	Adopters	Non-Adopters	Adopters	Non-Adopters	
Member of conservation group	18.5	4.3	17.4	25.0	16.4
Received conservation advice	63.0	43.5	46.4	30.4	46.1

Association between membership of conservation group, farmers receiving conservation advice and category of farmer insignificant at the 5% level using chi-square.

These results suggest that environmental schemes have most appeal to 'the converted', i.e. those with an active interest in conservation work and integrated into the conservation advice network as a consequence. This idea is given some support when the nature of conservation work undertaken on the farm is examined (both change in the intensity of the farm system and the nature of conservation work carried out). As Table 5.17. demonstrates, in the ESA, more of the adopters than non-adopters had decreased the intensity of their farm system, although this may be related in part to entry into the scheme (in addition,

adopters were found to have reduced the overall level of production on the farm over the last 5-10 years). MAFF (1991c) also found that on the whole non-participants were operating smaller, more intensive units. However, more potential adopters in the North Downs had increased the intensity of their farm system in recent years. This may give support to research which has found that farmers are often most likely to conserve after undertaking damaging operations on the farm (e.g. Potter, 1986b). It is possible, therefore, that the potential adopters of the scheme viewed it as an opportunity to make up for undertaking these operations.

Table 5.17. Conservation Behaviour of Adopters and Non-Adopters

Conservation Behaviour	South Downs		North Downs		Total Sample
	Adopters	Non-Adopters	Adopters	Non-Adopters	
More Intensive	22.2	47.8	42.9	30.4	35.9
Less Intensive	44.4	34.8	42.9	56.5	44.5
Small Scale Creation	32.1	42.6	39.3 *	13.0 *	35.4
Small Scale Management	3.6	6.7	17.9	13.0	12.5
Small Scale Protection	3.6	20.0	3.6	13.0	11.7
Large Scale Creation	35.7 *	13.3 *	17.9	21.7	25.2
Large Scale Management	25.0 *	6.7 *	10.7	4.3	12.7
Large Scale Protection	0.0	6.7	0.0	0.0	2.0

* Association between type of conservation work and farmer category at the 5% level using chi-square.

In the ESA larger numbers of non-adopters had undertaken small scale conservation creation, management and protection, whilst the adopters had undertaken significantly more large scale creation and management. Further, adopters were also found to have applied for (significantly) more conservation grants in the past than non-adopters, and they were also more likely to have SSSI agreements. All these results suggest, as hypothesised earlier, that it is those farmers who have been innovative in the past in respect to conservation are now those who are innovative in respect to conservation schemes. However, in

the North Downs, adopters were found to have undertaken more small scale creation and management and more large scale management, whilst non-adopters have been more involved with protection and creation on a large scale. The overall tendency towards creation and management rather than protection amongst the adopters is an interesting one. It has been observed elsewhere that initial conservation interest amongst farmers is often focused upon the creation of habitat, notably tree planting, as opposed to the protection or management of existing habitats (e.g. Westmacott and Worthington, 1984, Cox et al, 1990). Given the greater amount of protection amongst the non-adopters, perhaps this is an indication of a different type of conservation mind set, i.e. one that is happy to protect (as opposed to being seen to be doing anything more active vis a vis their non-adopting counterparts) without the aid, formality and/or restrictions of conservation schemes.

5.3.4. Summary of Second Stage of Analysis

The results from the survey indicate that the participants and non-participants of environmental schemes cannot be precisely defined on the basis of quantifiable, objective characteristics as might be expected from the findings of previous adoption research. Rather, the results merely suggest that certain farm and farmer variables and on-farm processes may characterise the two groups. Given the insignificance of the results using basic statistical tests, it was decided not to perform any more detailed analysis on the data describing levels of participation.

A number of possible reasons can be advanced to explain this outcome. Methodological explanations for the insignificance of most of the statistical tests would include the small sample size corrupting the statistical analysis, together with non-response bias which may have resulted in a certain homogeneity of the sample, as hypothesised in chapter 4. Further, the design of the questionnaire

may have been inadequate in its measurement of the various independent variables (particularly the measurement of the economic status of the farm by the use of proxy variables).

On the other hand, other, more substantive explanations also need to be considered. That the schemes are appealing to a broad range of farmers and farm situations cannot be denied. As opportunities within agriculture are shrinking it may be that environmental schemes now have a more universal appeal, where a whole variety of farmers are responding to incentives on offer. Distinct types of participant and non-participant may not be identifiable, therefore, on the basis of the situational and personal variables, including the use of information and advice sources, examined above. This points to a further issue which may have influenced the results. There would appear to be a high level of exposure to schemes amongst all farmers, possibly as a result of farmers being better informed about general issues today than in the past (noted by Fearne, 1989), and this may go some way to explain the lack of distinctiveness between the two groups. Environmental schemes are widely publicised, with the general farming press regularly reporting such issues. A substantial increase in the number of general articles on conservation in Farmers Weekly in recent years has been noted (CEAS, 1991). As such, farmers may well be 'saturated' with information about schemes, meaning that factors beyond simple information variables are needed to explain the pattern of adoption.

Four main themes arise from this stage of the analysis:

1. That investigating the present structure and agricultural histories (which includes a history of agricultural advice use) of participant and non-participant holdings does not produce any clear indicators of involvement with environmental schemes. However, it would appear that the participants have been investing less in their businesses in recent years and are not intending to

invest heavily in the agricultural side of the business in the near future. Related to this, participants were more likely to be involved in non-agricultural activities, or at least, intending to be involved, which may reflect different value orientations to those held by the non-participants. These results would seem to suggest that other measures of innovativeness seem to be needed, as Pampel and Van Es (1977) argued;

2. Having said that, the results strongly suggest that participants in environmental schemes do have a more extensive history of involvement with conservation on their farms, both in terms of conservation activities carried out, the intensity of the production system, and in their use of conservation grants and advice. To investigate the type and extent of this activity is probably more important in elucidating the differences between participants and non-participants;

3. There appear to be differences in the two groups between study areas, although these differences cannot be easily accounted for. This suggests that the type of scheme on offer, together with its interaction with the characteristics of respondents, and its length and location of implementation, lead to differences in the pattern of adoption;

4. That the influence of neighbouring farmers/other farmers participating in the scheme does not appear to be important in the process of participation.

These results provide some information about the process of adoption. However, this stage of analysis can only go so far in describing the adoption process and in evaluating the impact and success of schemes, and by extension, recommending future changes in policy. A deeper analysis appears to be required which focuses on the motives behind adoption and the adoption process itself. As already discussed, this may have particular value at the present stage in the development of policy, highlighting the extent to which schemes are appealing to those farmers who are attracted by the incentive alone and are not

committed to the environmental nature of the scheme, or those who are already committed (and are prepared to extend this commitment) to conservation. Here, the use of attitudinal variables needs to be incorporated into scheme analysis.

Previous evaluations of environmental schemes, reviewed in chapter 3, included a 'willingness to adopt', or 'persuasion/attitude towards the project' variable in their analysis, but did not go further in trying to establish the range of motives and attitudes involved. These studies can arguably be seen to represent the 'middle ground' between the second or quantitative stage of this analysis and the third or behavioural/qualitative stage of analysis and assessment. Table 5.18. shows that adopters are more favourably disposed toward the scheme than non-adopters (who are also more indifferent), but the insignificance of this variable illustrates perhaps that a 'quantitative' measurement of attitude factors alone only tells us so much about the likely success of a scheme.

Table 5.18. Adopters and Non-Adopters - Attitude towards Environmental Schemes

Attitude Towards Scheme	South Downs		North Downs		Total Sample
	Adopter	Non-Adopter	Adopter	Non-Adopter	
% No. in favour	74.1	47.8	64.3	34.8	55.5
% No. indifferent	18.5	30.4	28.6	47.8	31.2
% No. not in favour	7.4	21.7	7.1	17.4	13.3

Association between category of farmer and attitude towards scheme insignificant at the 5% level using chi-square.

5.4. Motives and Reasons for Participation and Non-Participation

The third stage of the analysis therefore penetrates the adoption process still further by looking at the motives and decision-making processes behind the uptake or rejection of schemes; the 'psychological characteristics' of the adoption model. Given the differences between previous government incentives for conservation and the current package of environmental schemes (described in chapter 1), it is anticipated that different motives for the adoption of these new schemes, compared to the old style conservation grants, will emerge. It is also hypothesised that a complex variety of motives for adoption (and rejection) will exist amongst farmers taking up environmental schemes like ESA's, and that these motives might differ between different schemes. In the past, the farmers who took up conservation grants, and their motives for doing so, could be easily identified, that is, they tended to have selective appeal. The new range of environmental schemes will obviously attract some farmers and not others, and the second stage of the analysis indicated that although the schemes do not appear to have selective appeal on the basis of objective participant and non-participant characteristics, including the use of information and advice, they do appear to be attracting those farmers whose existing commitment to conservation is greater than those farmers who are not yet participating.

Whether schemes elicit strong reactions in farmers, in addition to having a selective appeal, is also questionable. Brotherton has suggested that by their nature, schemes like ESA's do not elicit a strong response in farmers, that is, they neither strongly support, nor strongly oppose the idea of a scheme which enables them to continue farming, but in a restrained way. "Attitudes to the scheme type are then neutral or weakly held. In this situation, farmers' views are likely to develop in relation to the scheme details, that is, the requirements and constraints that entry entails, and importantly, the

payment rate offered"(Brotherton, 1992, p108-109). Brotherton makes a distinction between 'high' and 'low' entry schemes. ESAs, he argues, are designed as 'high entry' schemes, i.e. where the package of measures is attractive to the majority of farmers, and as such is likely to be viewed favourably by opinion leaders. Schemes such as CSS meanwhile, are likely to suffer as 'low entry' schemes, because they are billed as attractive to relatively few farmers, leading to the development of unfavourable attitudes. This view may well add weight to the argument advanced above, that different motives for adoption may emerge between different schemes. Brotherton also suggests that the design, promotion and delivery of schemes may be important in determining farmers' participation. This is particularly important to the new stage of policy development, where the design and delivery of the scheme will be crucial if they are to continue to attract a certain level of participants, and if they are to secure positive and lasting attitude and behaviour change and long term environmental benefits from these participants. The third stage of the analysis therefore sets out to investigate whether scheme participants are characterised by particular motives, attitudes, value orientations and behaviour.

Using qualitative information collected by open questions in the survey, data from attitude scales, and other remarks arising in the course of the interview, the reasons and justifications for entry and rejection of the two schemes were investigated. In particular, it became apparent that while some farmers took up the schemes for active reasons, others did so much more passively, largely in response to the incentive on offer or from a lack of alternatives. This basic distinction held in both study areas under different schemes, although some subtle differences did emerge (see discussion below). In examining motives in the North Downs CSS one should remember that farmers were being offered a 'hypothetical' scheme and were being asked what might influence

their decision to join at some point in the future, i.e. their motives for adopting (or rejecting) are hypothetical as well, e.g. they may well be favourably disposed to the scheme and could see an opportunity for participation, but they may not actually do so.

5.4.1. Active Motives for Adoption

Active participants in the ESA are typically farmers attracted to the scheme because of its environmental purpose. An active participant is someone with a history of interest in conservation, although there had often been a change in conservation behaviour or attitude as a direct consequence of scheme entry. One farmer, initially sceptical about the scheme, now feels that it is a way of getting conservation moving, and as a result of entry now feels more inclined to conserve:

> "because you can see money becoming available for conservation and you can see that you are moving towards, or doing something for conservation" (mainly cropping with beef farm, where a reduction in intensity of land use has occurred on scheme and non-scheme ground).

Hill et al (1992) also found more positive environmental attitudes arising as a result of participation amongst all participants, largely as a result of attending meetings etc. Further, and of great importance to scheme success, the ESA was found to influence conservation activities on the non scheme ground as well:

> "The very fact that the ESA land is there, makes you more aware of what you're doing on the rest of the land....Five years ago it didn't enter your head. You weren't really bothered about what went on. Now I'm more bothered about conservation"(mixed farm, where all ESA land is under Tier 2, where the farmer has an SSSI agreement, and has undertaken much woodland planting).

In addition, this group of adopters viewed the scheme conditions in a positive way, believing that it was encouraging a change in attitude towards conservation and management (an opportunity to recreate as well as to conserve existing features), enabling farming to readjust, to return land to how it was farmed previously, and by retaining farmers on the land. Furthermore, the scheme conditions were seen as more positive than alternatives such as set-aside, both in terms of managing land 'productively' and in terms of positive funding for conservation.

This group were also found to be characterised by farm businesses undergoing change and adaptation. Here, the scheme had typically been seen as an opportunity to restructure the farm system, by playing an integral part in such broader processes as consolidation, extensification, or diversification, at a time of agricultural uncertainty (termed here: 'active restructuring for survival and adaptation'). As such, land offered by the active adopters tended to be integral to the production system. For instance, one farmer recognised that the future for agriculture was one of diversifying out of food production as a means of survival. He intended to become less intensive (and his conservation history on the farm had already included a move towards extensive production), reducing his labour input, and becoming more tourist orientated, with the ESA playing an integral part of this process (where further entry into Tier 2 was anticipated as this fitted in with cropping patterns). Some farmers in the ESA went as far as to say that the scheme represented a step to liberating them from the treadmill of intensive farming, recognising it to be government support for extensive farming. Farmers were often found to be moving toward a more extensive system (or moving out of arable into grassland) where the ESA became an integral part of this process. In other words, the scheme was often positively being used as a means to maintain/readjust the business. This is illustrated by one farmer who was

linked into the general system of grants and incentives, had recognised them as an opportunity to be grasped, and was utilising them as a means to maintain the business:

> "We'll be taking advantage of set-aside, ESA's etc. in the future - whatever the EC throws at us....We should be doing this (ESA) rather than providing subsidies on production. This is also better financially, because it is a set income per annum, you can plan around this and it offers the opportunity to become more extensive. It's better to keep land in production, in this way, than setting it aside...Also, it is good to maintain farmers and keep land in farming"(mixed, mainly dairy farmer with land in both tiers of the scheme).

In addition to the structural/physical changes in the farm business, made as a part of scheme entry, farmers in this category were also more likely to have changed their attitudes towards themselves as farmers, and to have different concepts of themselves as farmers, compared with their attitudes towards their role in the countryside in general and in relation to the management of their farm system in particular, that they held prior to scheme entry. This probably related to the fact that the scheme has been a part of a broader process of changing the farming system, which in itself has demanded a change in thinking and direction. These active adopters are illustrated by the following case studies.

Case Study 1. Active Adopter, ESA

The extreme end of the 'Active' scale of adoption (i.e. where all ESA land is under Tier 2, where the scheme has been fully incorporated in farm restructuring, and where the scheme has had a positive impact on the farmer's attitude to conservation), is illustrated by a livestock farmer who has been undertaking a programme of extensification in beef and poultry production, to produce low input, welfare and consumer friendly products for

sale in the farm shop. Here, the ESA enabled the farmer to undertake this process as fully as possible.

> "The ESA scheme came at the right time for us, it was the right bias for us. We've entered into it lock, stock and barrel. It has also made us very much more aware of our role for the public and for the countryside....The ESA for us was a way of extending and supporting out interest in wildlife, rather than just an additional income opportunity. It has allowed me to still produce from my land and have an interest in conservation, compared with set-aside which is very negative....The scheme represents a very important step forward for both readjusting farming and for conservation. But if the government is going to encourage farming to change course it must give it time to happen."

This farmer believed in the idea of extensive farming, and the ESA had enabled him to pursue this.

Case Study 2. Active Adopter, ESA

An ageing livestock farmer with an active interest in conservation, whose future intentions are to enhance the conservation and amenity value of the farm by running it on a "semi-parkland" basis. He believed that:

> "Intensive farming is inappropriate here, we need to go back to a more simple form of agriculture. Here in the valleys, this means grassland and amenity."

Although entry into the scheme was relatively easy in the sense that the farm was already stocked and run on an extensive basis, entry has contributed to his plans to run the farm on an alternative footing in later life:

> "It's better for MAFF to do this than to do nothing in a time of agricultural depression. The scheme is a good idea to compensate farmers for conserving land so it does not go derelict. People like to see 'nice' countryside, not derelict farm land. Such schemes ought to continue for quite a long while and they may have to become a permanency for marginal land and land in a particular area."

Case Study 3. Active Adopter, ESA

Another farmer was grazing sheep on an extensive basis on the majority of his land, so entry into the scheme was straightforward, but his positive interest and attitude towards the scheme indicated that whilst it may be easy to approve of something that is easy to enter, some may not approve, but enter simply because it is easy and profitable to do so (as demonstrated by some Passive adopters in the discussion below):

> " The ESA and schemes like it have proved to me that things can be done for conservation.... In general, these schemes are a good idea. State intervention in farming is a good thing - we need manipulation of farming if it is to be done in the right way. It is right and crucial that we rethink the way we manage our scarce resource."

Case Study 4. Active Adopter, CSS

As was noted above, farmers in the North Downs study area exhibited a similar range of active motives for adoption as in the ESA. However, fewer farmers than those in the ESA appeared to be moving towards extensive systems of production, or intending to do so, through the scheme or otherwise. Meanwhile, a larger number of farmers appeared to recognise the opportunities within the CSS as a means of restructuring for survival - this theme arises again and again. A local factor, which may influence responses is the National Trust's 'Conservation Grazing Scheme', to which a number of farmers, along the Surrey section of the Downs, had been exposed. It is likely that because of this, farmers were attuned to the idea of grazing to conserve chalk grassland under Stewardship.

One farmer who has 3-400 acres of National Trust Conservation Grazing land had already looked into Countryside Stewardship ("we're all geared up to join," but admitted that he was slightly sceptical of the way conservationists

went about doing things, and also questioned the level of payment at present). He was operating a low input, livestock system and was eager to, "maintain the ecological balance." His belief:

> "It is good to return ground that was previously farmed, back to what it was, and it means we are doing our bit for conservation, and surpluses, these are all good ideas.....This scheme is better than set-aside, because it maintains the land in good heart and they're utilising the land. Countryside Stewardship is trying to create a rare breeds trust for plants, that is, things that farming has put paid to. It's good that they're encouraging this."

Case Study 5. Active Adopter, CSS

Further along the Downs in Kent, a livestock farmer with an annual grazing agreement with a National Nature Reserve, recognised the potential of Stewardship on parts of his farm. With neither his nor his brother's children interested in coming into the farm, a series of heavily-used footpaths crossing their land, and an interest in conservation constrained by lack of time and resources, these factors all contributed to his interest, and possible participation, in the scheme:

> "This scheme is well worth looking into a bit more....The whole idea is good, and I'm very much in favour of it, because we are very conservation-minded. It's especially a great improvement on set-aside. However, I don't see why I should be worse off under it. Although the level of payment is not really enough now, I feel that we might regret it in five years time if we don't go into it now."

Case Study 6. Active Adopter, CSS

A significant number of farmers in the Active adopting group perceived the scheme as a valuable component of future plans, especially in relation to the development of non-agricultural enterprises. This is illustrated by the following:

> "I would definitely consider this scheme in the near future as I have already been thinking about set-aside. This scheme has more

> potential however and more money - it would give us more income per acre than we're getting from cereals.....The payment and the additional payment for access is of interest, given my diversification activities, this would fit in nicely....Another good thing is the money available for putting trees back in, I would go in for tree conservation under the scheme...I can see the potential for 60 acres under the scheme which would fit in nicely with existing diversification enterprises and allow us to concentrate arable production on the best land at the bottom of the farm, off the chalk"(mixed farm with an expanding farm visitor centre).

Case Study 7. Active Adopter, CSS

A mixed farm in Kent, where the farmer is managing Stewardship land for his landlord (but is not receiving the payments), has considered the scheme on his own land, particularly as the farm adjusts and develops on the non-agricultural side:

> "Basically, I'm in favour of the principle, and I think the scheme is pretty fair in terms of actual conditions....It's an opportunity not just to improve but to recreate. I can see these schemes playing a larger part on the farm in the future, as staff numbers are reduced along with fixed costs. Income from these schemes will be better than farming, and their use will be tied in with expanding the non-agricultural side....These schemes are a good idea in terms of additional income for farmers, and it's basically preferable to pay for this sort of scheme than growing products that are not wanted."

Case Study 8, Active Adopter, CSS

Another farmer, who has recently diversified out of dairy and into a variety of non-agricultural activities, has taken on some set-aside and other grant schemes and has already applied for a Stewardship grant as part of this overall process of change and adjustment:

> "This scheme has confirmed and encouraged what we are doing already on that land....It's a good idea for conservation, and also, the way farming looks at present this is the only way families will be able to continue to live on the land"(Livestock farm with set-aside).

5.4.2. Passive Motives for Adoption

Distinct from this group of Active adopters were those who adopted for 'passive' reasons, taking an opportunistic attitude towards participation and tending (or intending) to enrol land that was essentially peripheral to their production system. These adopters made a distinction (both in their way of thinking and in actuality) between scheme land farmed in a 'traditional' fashion already because of its location in the production system (typically steep, rough land), and intensively farmed land that constituted the bulk of the production system. Less positive in their attitude towards the scheme's role in general, that is, its contribution to conservation and encouraging a move away from intensive farming, and to reducing surpluses, these passive adopters emerge as a distinct category, as the following illustrate:

Table 5.19. Active and Passive Adopters in ESA (% No. of Farmers): Change in Attitude Towards On-Farm Conservation During Scheme Participation

Inclination to Conserve	Passive Adopter	Active Adopter
Same as Before Scheme	75.0	36.4
More Inclined than Before Scheme	25.0	63.6
All Farmers	100.0	100.0

Association between motive for entry and attitude to conservation significant at the 5% level using chi-square (4.03047, df 1, significance 0.04469)

Unlike their actively adopting counterparts, amongst the passive adopters there was less of a tendency for scheme entry to influence land use intensity on non-scheme land:

Table 5.20. Active and Passive Adopters (% No. of Farmers): Change in Land-Use Intensity on Non-ESA Land

Change in Land-Use Intensity	Passive Adopter	Active Adopter
More Intensive	6.3	9.1
No Change	93.8	63.6
Less Intensive	0.0	27.3
All Farmers	100.0	100.0

Association between motive for entry and new activities insignificant at the 5% level using chi-square.

A mixed farmer, whose tier 1 ESA land was on a hillside, admitted that entry had made little difference to the rest of his production system (the scheme simply represented, 'money for old rope'), and also made no difference in terms of conservation:

> "The conservation side doesn't come into it, we're too busy and there are not enough financial resources for conservation."

This farmer did not anticipate further entry unless the payments are increased. Also:

> "whilst massive acreage payments exist there's no point in doing more ESA as there is just no comparison."

Overall, he views the scheme as, "a bit of a joke"(having known a farmer who had been breaking the rules of the scheme and had not been caught):

> "They're for bad farmers, people who go into them don't really care about the land, they're the ones who have an alternative income source and are not farming properly."

The following quotes provide further illustrations of those participants who were questioning the scheme's environmental role:

> "The scheme has not affected my attitude to conservation because farmers manage the land in a conservationist way anyway. These schemes are a downhill way for farming, they're not an

improvement, they're a way out, not a way up"(mixed farmer, with land under both tiers).

"I don't see the ESA as a good way of achieving conservation. I don't think they're achieving what they set out to do. It's a nonsense about the re-establishment of natural grasses because of weeds and mess taking over....The scheme represents do-gooders trying to do something they don't know anything about. The scheme upsets the balance achieved by fertilisers"(dairy farmer, where entry into tier 1 made no difference, and tier 2 was a piece of infested ground that "needed a rest").

A slightly different view was expressed by an active FWAG member who described himself as a 'committed conservationist', but saw the 5 year scheme as:

"absurd. It has made no difference on the land we've put in - scrubby rough grazing on steep banks. The payments in the scheme are completely irrelevant to us. If the payments had been higher I would have been quite willing to put the whole farm under grass."

This farmer is not doing anything new under the scheme and the constraints have made no difference. Further he views the conservation value of the scheme as:

"irrelevant. I have such a low opinion of these schemes, that what conservation I have done is what I've wanted to do off my own back. If the government really wanted us to conserve, it needs real money thrown at it."

His belief is that higher payments and a longer scheme period are required if the scheme is to be meaningful in terms of farm planning and conservation. Under these conditions he would not hesitate in putting all his farm under grass as he would prefer to be more extensive (mainly cereals farm, with expanding non-agricultural enterprises).

Passive Adopters were also found to be taking ESA money on land that already had SSSI restrictions, where they has previously been constrained

without 'compensation'. Passive adopters were significantly more likely to have an SSSI on their land (75% of all passive adopters) than either non-adopters (17.4%) or active adopters (36.4%). (It is interesting that one government agency should in effect be subsidising the objectives of another and illustrates the inconsistency and overlap in countryside designations and available incentives). This tendency is highlighted by the following quotes:

> "It's made no difference at all. We weren't fertilising this land because it's a steep hill and we couldn't use it for much else. I don't feel constrained by the scheme and I've not changed my attitude toward myself as a result of entering. If you really want to cut production and move towards environment, to be given this level of payment is a bit of an insult. But we don't refuse money offered to us. I disagreed with not being paid for the SSSI, so I was glad to get a payment under the ESA"(dairy farmer)

> "It's nice to look after the countryside, but only if money is available for it. Land in the ESA was previously in SSSI and was receiving no payment , so we were glad to get a payment....Schemes like this are perfectly alright, as long as they designate appropriate areas and as long as it doesn't impede farming systems"(dairy farmer, diversifying through corporate entertainment)

> "ESA land was SSSI land and it wasn't getting any money for not doing things, so the ESA scheme, where you had a choice for entry (and it wasn't slapped on you unconditionally) seemed a good thing. As such I would have accepted a lower payment because its better than nothing under the SSSI." However, "I couldn't really envisage entering any more land, that is, outside the SSSI, because it's too alien to us and it would mean getting rid of long employed staff which is unacceptable"(a dairy farmer who had not changed his attitude towards himself under the scheme largely because he couldn't push this land anyway, so he was not facing any new constraints on the land and not undertaking any new activities.)

Also, passive adopters were found to be 'using' Tier 2 ESA payments to rest poor arable land or were taking poor land out of production to cope with falling corn prices - 'passive restructuring for survival'. In all these groups, entry was largely motivated by economic/financial factors. Further, participation did not entail great changes to the farm system, as with the active adopters, and also the rewas little association between scheme entry and

the development of non-agricultural activities or restructuring as in the former group. In respect to diversification, a greater proportion of active adopters, than passive adopters and non-adopters, in both study areas were found to be involved in a non-agricultural activity (but this was not a statistically significant difference). This result would appear to reinforce the broader changes taking place on the active holdings. Also, there was little evidence to suggest that passive entrants to the schemes had changed their attitudes to themselves as farmers. These points are illustrated by Tables 5.21, and 5.22.

Table 5.21. Active and Passive Adopters (% No. of Farmers): Changes in Management Demanded as a Result of ESA Entry

Extent of Change in Management	Passive Adopters	Active Adopters
Nothing New	50.0	18.2
Small Changes	50.0	54.5
Large Changes	0.0	27.3
All Farmers	100.0	100.0

Association between motive for entry and new activities significant at 5% level using chi-square (6.17143, df 2 significance, 0.04570)

Table 5.22. Active and Passive Adopters in ESA (% No. of Farmers): Change in Attitude Toward the Self as Farmer Following Entry

Change in Self	Passive Adopter	Active Adopter
No Change	100.0	45.5
Change in Attitude	0.0	54.5
All Farmers	100.0	100.0

Association between motive for entry and change in attitude significant at the 5% level using chi-square (11.22078 df 1 significance 0.00081)

In the North Downs, as in the ESA, most passive adopters viewed the scheme as an easy option on difficult areas of the farm, or on existing SSSIs. The

following examples illustrate the range of farm types and situations demonstrated by those farmers who could be termed passive adopters:

> "There are some areas of the farm where this could apply.... particularly useful on steep downland. We can't earn money on this land, so we might as well do this scheme on these areas....Whilst I think that schemes will probably come into farming more in the future, I see myself as carrying on farming as before, and the general situation will be like this, rather than schemes being more significant within this"(mixed farm in Kent).
>
> "In a nutshell, there is one part of the farm, but it's difficult to say because I don't have alot of land that would be suitable....I'm looking at it from a sensible economic basis. I do have 10 poor, arable acres that might come into a scheme like this, but that's a maximum....If the government want to get conservation going and are serious about it, this is one way to achieve it, but payments must be attractive enough. If they want areas that are not farmed this is the only way they'll get it, apart from busting people"(business orientated, cereal farmer).
>
> "I can see two 10 acre areas on the farm - steep chalky banks, which are rarely fertilised - that could easily go into the scheme. It may be appropriate to join such a scheme under Macsharry demands for alternative uses of land....Basically, it's attractive because you're getting paid for what we're already doing"(organic farmer, who felt he could not offer a larger proportion of chalk land into the scheme because these areas are integral to the organic rotations).
>
> "This is probably a good idea where we don't get much production out of the land anyway, and it may be a benefit to put lower production land into the scheme"(mainly dairy farmer who would consider the scheme as an option, depending on the Macsharry reforms).
>
> "I would be silly not to go into the scheme. I could almost fit into it as I am now. If they're going to pay me it wouldn't take any effort to come in line with these guidelines"(ageing livestock farmer who has always run a low intensity system).

In addition to the information on adoption provided by statements arising in response to specific questions, further insights into the differences between active and passive adoption was provided by an analysis of a series of statements relating to factors which influenced their decision to adopt the

ESA scheme. This technique - point-score analysis - has been widely used in decision-making research in agriculture (e.g. Ilbery, 1977). Here, "farmers are asked whether, in their opinion, each factor in a pre-selected....list of decision-making factors is in general relevant, and whether it has influenced....a decision. (If) the factors....are believed to be relevant, the farmers are asked to indicate how important they are - on a graduated scale from 1, for not really important, to 4, for essential - in influencing their decision to adopt the enterprise(s) in question....The overall importance of each factor can be measured by totalling the point scores for all the farmers interviewed, for each factor in turn. From this the factors can be ranked in order of importance to the decision-making process"(Ilbery, 1985a, p.66-67). From this information various indices and analyses can be carried out to give greater depth of understanding of the decision-making process.

Adopters in the ESA, were presented with a series of statements and they were requested to say how important each of them had been in influencing their decision to join (from 1 - irrelevant to 5 - essential). The total score for each statement was then ranked in order of importance to the decision-making process, then the total percentage score was calculated (the total score, expressed as a percentage of the maximum possible score for all cases investigated.) The results of this procedure are presented in Table 5.23.

Overall, the active adopters in the ESA give a greater weighting to all the factors, that is, the total percentage scores are greater for all statements. Payment is considered the most important factor in influencing the decision to join, or reject, by all groups, in both schemes. This result is to be expected, and economic factors have been shown to rank the most highly in general decision-making research in agriculture (e.g. Ilbery, 1991, Gasson, 1973 and

Table 5.23. Ranking and Total Percentage Score of Decision-Making Factors Influencing Adoption of ESA: Active and Passive Adopters

Factors Influencing Decision to Adopt ESA	Rank		T%	
	Passive Adopter	Active Adopter	Passive Adopter	Active Adopter
Level of Payment	1	1	63.8	78.2
Conditions	5	2	55.0	72.7
Period of scheme	7	5	50.0	67.3
Presentation and Marketing	9	9	43.8	54.5
It enables me to continue farming as before	4	10	56.3	50.9
It allows me to cut costs by concentrating production on my best land	8	6	47.5	65.5
It easily fits into my existing farming system	2	4	61.3	70.9
It enables me to introduce a new enterprise	14	11	27.5	47.3
Neighbouring farmers were participating and found it OK	13	14	30.0	27.3
It provides a useful additional income source	3	6	60.0	65.5
It provides an opportunity to move towards a less intensive system	10	2	40.0	72.7
A useful stop-gap at a time of agricultural uncertainty	6	8	51.3	58.2
It enables me to undertake conservation work that I would have been unable to do previously	10	12	40.0	45.5
It enables me to extend conservation work already being carried out on the farm	12	13	32.5	41.8

Source: Farm Survey

1974) and in terms of the adoption of ESA payments as indicated above (MAFF, 1991c). It is the ranking of other factors that is particularly interesting here. The passive adopters rank 'easily fits into farming system' second to payment (reflecting the qualitative categorisation of this group) whilst active adopters rank 'conditions' and 'opportunity to move to a less intensive system' as most important after payment.

Most of the factors suggested as being characteristic of a passive adopter in the qualitative analysis are ranked most highly in this analysis, i.e. 'the scheme easily fits into my existing farming system', 'the scheme represents an additional income opportunity', 'it enables me to continue farming as before' (given a much lower ranking by active adopters underlining the fact that it is

these adopters who have made the most changes and have not just carried on as before), ' the scheme is a useful stop-gap at a time of agricultural uncertainty'. These statements suggest that the scheme has been perceived as a relatively easy option, additional money for no extra effort, and passive restructuring. All these factors were given a higher ranking than by the active adopters. Whilst 'enables me to introduce a new enterprise' is ranked as being relatively unimportant with both groups, it is given a much higher ranking by active adopters, again pointing to the fact that the scheme has enabled/been perceived by active adopters as an opportunity to move into non-agricultural enterprises. The surprising result here is that passive adopters rank the conservation statements more highly than active adopters (although, the active adopters still have higher total percentage scores for these statements). This suggests that the conservation aspect of the scheme, in relation to economic factors still has relatively little importance overall.

5.4.3. Motives for Non-Adoption

The spectrum of motives for not taking-up the schemes was narrower than that for adopters. Here, the financial aspect of the scheme was foremost in the majority of responses, with some division between those who were positive about the scheme and its role and objectives, and were considering entry in the future, and those who tended to view the scheme cynically - as simply a short term, political measure for controlling production (where land would be needed again in the future). This latter group tended not to consider entry a possibility at any point in the future. As such there was little recognition of the schemes' conservation value. Such farmers also tended to see the schemes as contrary to the rules of good husbandry (with entry leading to a deterioration in land quality); many felt the scheme simply did not apply to their farm situation, and there were also strong feelings expressed about the

imposition of external controls and restrictions, and specifically the length of contract. In addition, a few farmers felt that the scheme would result in (further) problems with the public, especially where there were many existing and heavily-used footpaths, such as the South Downs Way.

The following quotes illustrate the position of those farmers who felt the scheme did not suit their situation (a mixture of positive and negative attitudes):

> "I find the level of payment off-putting, and also I don't have livestock, and I'm not keen to convert back to them. Also, I like to do things my own way - I don't want restrictions, unless I was paid more....I wouldn't think twice about it if offered alot more, but it wouldn't be farming to me"(cropping only farm).
>
> "I'm just not interested, because the land that would come into the scheme is put down to good grass, on which we rear heifer replacements. Thirty to forty years ago we reclaimed this from scrub and it would revert to this under the ESA. I would only join if the scheme would fit into my system of farming, that is, if I could still graze and fertilise....These schemes are fine if a farmer is interested, I'm pretty disinterested, and fine if this is a way they want to do it, but they will have to increase the amount of money, or it's just not on"(dairy farm).
>
> "It's merely a matter of not having a farming system that can accommodate the scheme: it would be too expensive to re-fence and employ more labour to put land back under cattle. If I still had cattle, I might have thought about it. The hill and brook land here make more money out of arable than livestock....Schemes like this really don't apply to my situation"(cereal farm with poultry).
>
> "These schemes are not designed for arable farmers to produce livestock purely to enter the ESA, the government would not want to encourage this as it would put pressure on other sectors....I'm not really averse to the scheme at all, but in my particular situation where I have no livestock, and I don't intend to get any, the ESA is inappropriate.....I'm always looking for ways to participate, ways to get involved in schemes. There is certainly a possibility of future entry, other economic situations allowing, that is, if income could be secured from elsewhere." Overall, "they're a good idea. As things stand at present, with public awareness, and the need to manage land, these schemes provide farmers with the financial help to carry this out"(mainly cropping farm).

"To introduce a scheme would mean changing my system of management drastically, including retiring men and machinery, when I'm quite happy with the way things are. This and the payment put me off. Hopefully, we can continue to farm and produce more money from this than government schemes. Whether this is right I don't know. I would consider the scheme if grain prices fell, but while they remain reasonable, I would want to make money from this and not from schemes"(mainly dairy farm).

The following group of situations illustrate the responses of those non-adopters whose motives for rejection centred upon the restrictions and details of the scheme, particularly, the non-use of Potassium and Phosphorus, which would reduce fertility. These farmers were often against the idea of external controls in general, not just in relation to schemes, and often expressed a desire to abolish subsidies and free agricultural markets. Such feelings were often expressed alongside those that related to the financial unattractiveness of the scheme. However, many farmers were prepared to keep an open mind about future entry, that is, if their financial circumstances changed, or if the scheme became more financially attractive:

"The main off-putting feature is the restrictions on using elements vital to maintain fertility....As a farmer, you hate seeing land go backwards and this scheme is contrary to what I have been taught....As far as the government is concerned it is a good scheme because they are keeping production down effectively. I have a terrible feeling the land will be needed in the future and therefore it should be kept at a reasonable tick-over. In the ESA, this isn't happening - it represents the law of diminishing returns"(mixed farm).

"On downland, you can't grow nothing for nothing....I don't like the imposing of the scheme and the lack of consultation. Every farm is different and they're trying to introduce a sweeping policy....I know a farmer nearby and his sheep are in trouble on non-fertilised downland....I feel we have enough nice landscapes around here anyway....Schemes like this are no good for conservation. This has to be developed by consent, not by the imposing of these schemes. These schemes are totally political and politicians don't know what they're doing....Leave it up to farmers to produce nice countryside on their own terms"(mixed, mainly dairy farm).

"I don't like the idea of not using P, K and N, as this would lead to deterioration of the grasslands. Also my sums indicate that it is not financially worthwhile....I would prefer a situation of no subsidies or grants to achieve conservation, rather than the idea of giving out payments to be 'a good boy' as in the ESA"(mixed farm).

"I don't like being told what to do, that's the most off-putting feature. Also, we're in farming too deep, and if we start to reduce fertilisers, this will reduce stocking rates and lead to reduced yields, and we can't afford to do this unless prices go up. We can't afford to de-intensify. To maintain our income and standard of living we would have to continue farming as we are. I would only enter if paid a more realistic price for reducing our farming ability." This farmer views schemes as, "the way government is trying to reduce production levels and they are trying to pander to the general public. To be honest, I don't think they're working very well. However, there will always be a role for schemes, for farmers who don't have to earn a living out of farming alone"(mixed, mainly dairy farm).

"Schemes are only really applicable to those areas which need to be maintained as they are, that is, beauty spots...It's definitely not financially viable in the face of diminishing farm income. We're already under financial pressure as it is and the ESA would further threaten income.....I can't really see the point of schemes. It's best if the farmer is left to look after the land himself within the business of farming and if farm income is enough, he wouldn't need support, only advice"(dairy and livestock farm).

A similar analysis, using point score analysis, to that performed above with the adopting group, was applied to a series of statements probing the reasons why farmers had rejected the ESA scheme (see Table 5.24.). Again, the level of payment was ranked most highly, with scheme conditions, 'the previous pattern of investment makes participation inappropriate' and 'the scheme doesn't fit in with my existing farming system' ranked close behind, together with dislike of farming to imposed guidelines.

Table 5.24. Ranking and Total Percentage Score of Decision-Making Factors Influencing Rejection of ESA

Statement	Rank	T%
Level of Payment	1	88.7
Conditions	2	75.6
Period of scheme	6	56.5
Presentation and Marketing	10	42.6
I dislike farming to imposed guidelines	5	61.7
The previous pattern of investment makes participation inappropriate	3	67.8
I feel that the farm has nothing to offer such a scheme	7	51.3
The scheme doesn't fit in with my existing farm system	3	67.8
I would prefer an extensification scheme	8	47.8
I have insufficient information about the scheme	11	39.1
The scheme is unpopular amongst my neighbours	13	34.8
I am not interested in conservation	12	37.4
Inappropriate opportunities for conservation offered under the scheme	9	46.9
I don't perceive any environmental problems associated with agriculture	14	33.0

Source: Farm Survey

In the North Downs, where the details of the scheme included access considerations, this became more of an issue for farmers rejecting the scheme, than in the South Downs, where the ESA contract has no specific access clause. Also, restrictions from landlords and/or tenancy agreements appeared to act as more of a barrier to adoption than in the South Downs, but this may relate to insufficient information about the scheme (and as a result, respondents being unsure about the implications for landlord/tenant relations) in its early stages of introduction. As in the ESA, objections to entry centred upon the following issues: level of payment; unsuited to farm situation; details of scheme; external controls; tenancy agreement; access considerations, or a combination of these factors. Non-adopters typically viewed the conservation opportunity of the scheme as minimal. The following quotes illustrate these attitudes:

"It all boils down to cash and £50 per hectare isn't enough. I would only join if no alternatives existed....This is preservation and it goes against the grain. I'm a conservationist, in other words, I believe in giving nature a helping hand by managing and maintaining grasslands properly, this scheme will lead to messy and poor fields. I'd want to be able to do something about the field if there's a problem"(livestock farmer, diversified into horses).

"This is financially ridiculous....The idea of going less intensive is off-putting, because on this sort of ground you have to push it because otherwise you don't get results. There's nothing attractive about it....All this place could be turned to arable so there are no areas really suitable for this sort of thing"(mixed farmer).

"I'm a bloke who doesn't like to be told what to do, so I don't tend to go for grants because these have restrictions....The light grazing is off-putting and the non-application of chemicals, also you need re-seeding sometimes. The payment is obviously off-putting. Also, I don't like the public, so the access thing is a problem for me. I know we've got to put up with the public here, but once you've got em on your farm you can't get rid of them!....I just don't think much of it because it's government interference. Really, we ought to stand on our own two feet and get rid of grants and subsidies. This would eventually put things right"(mainly dairy farmer).

"With this degree of control, it wouldn't allow you to breathe, especially at this level of financial remuneration. It's not at all attractive, you're basically giving up farming under this scheme....Also, in our circumstances, I would worry about public access, we've 4 or 5 footpaths here, and the North Downs Way, and people are irresponsible....With a few exceptions farmers are pretty good for the countryside, I'm not against conservation, but I want to do it on my own terms.....Most of the farm isn't worth farming under present financial conditions, but under this scheme you'd probably be left with nothing....Frankly, we're talking about inadequate payments, a man losing his job, altering the rest of the farm management-wise and at the moment this is a non-starter.....I think that the government should butt-out; they keep changing their minds....It's not the schemes per se, it's the princip le of interference"(mixed farm).

"I wouldn't join because I couldn't make money out of it, compared with what I can make out of farming. If I was an owner-occupier I would definitely do it, but as a tenant I don't feel I can take the scheme on board because of the levels of fixed costs....I'm very much in favour of maintaining a proportion of traditional chalk grassland. This is one way, particularly for owner-occupiers, to do it. I can't think of a much better way of doing conservation; I've seen the ESA working well on the east coast....It's also infinitely

better than set-aside because we can be seen to be actively doing something to conserve the countryside"(mainly dairy farmer).

"My problem is I'm a tenant, and the landlords wouldn't take this at all. It's not in the tenancy agreement for this sort of farming. I would prefer to be paid to get off the farm....Also, the minute we do nothing the farm will be full of people. I'm staff conscious as well, I would prefer to do alternatives and keep staff. I don't believe in being paid to do nothing, so I find it quite difficult." However, "it's a very good idea - the only way forward for keeping the countryside as we know and love it. It's cheaper to keep farmers doing this, rather than someone else."

In addition to the findings detailed above, some further aspects to adoption in the North Downs were elucidated in the course of the interviews (see Table 5.25). Where farmers were asked to comment freely about features of the scheme that were attractive and off-putting some significant differences emerged between the potentially non-adopting, and the passive and active adopting groups, which serves to highlight the differences between farmers as expressed by motive for entry/rejection.

Table 5.25. Features of CSS that Attract or Repel Farmers: Active, Passive and Non-Adopters

Scheme Features	Active Adopter	Passive Adopter	Non-Adopter
* Scheme would entail too great a change in farm system	0.0	0.0	21.7
* Attractive features overall	93.8	83.8	45.1
* Money for nothing	6.3	41.7	4.3
* Fits into plans in farm system	18.8	0.0	0.0
Fits into non agricultural plans	12.5	0.0	0.0
* Positive benefit for conservation	56.3	33.3	17.4
* Prepared to enter Tier 2 and have access agreement	37.5	25.0	4.3

* indicates a significant association, at the 5% level using chi-square, between category of farmer and response to scheme.

These results, together with the quotes given above indicate that the situation appears to be quite similar in both study areas in terms of the reasons why farmers chose to accept or reject a scheme. This is so despite some differences in the schemes (in terms of constraints and opportunities) and in the characteristics of the sample population. Such results bode well for ex-ante studies which set out to examine the potential response to incentives.

5.4.4. An Overview of Passive and Active Motives for Adoption

Tables 5.26 and 5.27 summarise the characteristics of Active and Passive adopters both in terms of the proportions of the adopting group falling into each of these categories, the amounts and types of land entered, and attitudinal factors influencing their motives for entry. Table 5.26 shows that the active group in both study areas enrolled a greater mean area of their holding into the scheme, and also, a greater mean area under Tier 2. Also, the proportion of the holding entered into the scheme, and the proportion of ESA land in Tier 2, was greater for the active adopters than the passive. It might be anticipated that this would be so, as Tier 2 entry requires greater changes in management, and as such is more likely to influence attitude.
In terms of other features of the farm business: active adopters in the ESA were significantly more likely to have mixed and livestock farms (this group accounts for all the livestock only farms of the total ESA sample) and less likely to have dairy or general cropping units. In the CSS a similar pattern was found, although no significant association was recorded. Mean farm size in both study areas was greater for the active than passive adopters and non-adopters. Also, in the ESA, passive adopters were found to have larger mean areas of rough grazing than the active adopters - a reflection that passive entrants to the scheme tended to enter poor and difficult land that was easy to enter.

Table 5.26. Amount and Type of Land Entered/Offered by Active and Passive Adopters

Amount and Type of Land Entered/Offered	Passive Adopter	Active Adopter
No. & (%) No. of Adopters ESA	16 (59.0)	11 (41.0)
No. & (%) No. of Adopters CSS	12 (42.9)	16 (57.1)
* Mean area enrolled in scheme ESA	14.8 ha	34.6 ha
Mean area offered for scheme CSS	18.0 ha	32.1 ha
Mean area enrolled under Tier 2 ESA	19.3 ha	47.1 ha
Mean area offered under Tier 2 CSS	11.8 ha	15.0 ha
% of all Adopters with Tier 2 land ESA	37.5	72.7
% of all Adopters with Tier 2 land CSS	63.6	68.8
Type of land entered/offered	Poor arable land. Peripheral grasslands. Existing traditional grasslands.	Arable or grasslands at core of farm system, or comprising significant proportion of holding.

* Significant difference at the 5% level using t-test, 2 tailed. A significant association was also found between motive for entry and proportion of holding offered under existing payment levels in the CSS.

Table 5.27. Classification of Passive and Active Adopters (ESA and CSS) by Attitudinal and Motivational Factors

Motives and Attitudes towards Scheme Entry	Passive Adopter	Active Adopter
Main motive for entry	Economic/Financial 'Passive restructuring'.	Environmental. Altruistic. 'Active restructuring for survival'.
Change in attitude towards self	Minimal change/ little reorientation in thinking.	Significant change/reorientation in thinking.
Perceived conservation value of scheme	Minimal. Motive for entry largely un-related to environmental factors.	Significant. Motive for entry based on recognition of positive environmental benefit of scheme.
Impact of scheme on attitude to conservation	No change in attitude to conservation or landuse.	Rethinking of attitudes on ESA and non-ESA land.
Conservation history	More likely to have carried out small scale creative conservation works, less likely to have reduced production intensity, to have sought conservation grants and advice.	More likely to have carried out large scale conservation works, to have reduced production intensity, to have sought conservation grants and advice.

5.5. Active and Passive Motives for Adoption: Previous Conservation Behaviour and Notions of the Self

The previous discussion raises some interesting points that require further consideration and discussion, notably, the impact that scheme entry has on conservation thinking (which needs to be related to previous conservation attitudes and behaviours), and the influence of participation in environmental schemes on the farmers' 'notions of the self'. When examining the conservation histories of farms (as distinct from environmental works undertaken as part of the scheme) some very important and enlightening results appear, which explain in part why active adopters may be more positive about the schemes environmental benefit. Some interesting differences emerge between the study areas as well.

Taking the ESA first (see Table 5.28.), a significant association was found between motive for entry and change in the intensity of the farm system, where active adopters were much more likely to have reduced the intensity of the farm system, and the non-adopters much more likely to have increased the intensity. Further, passive adopters were significantly more likely to have undertaken small-scale creative conservation work than either the non-adopters or active adopters, whereas active adopters were significantly more likely to have undertaken large-scale creative or management works, and to have utilised conservation grants, than the passive adopters and non-adopters.

Table 5.28. Conservation Behaviour of Adopters and Non-Adopters in the ESA

Conservation Behaviour (% no. involved)	Active Adopter	Passive Adopter	Non-Adopter
* Increased intensity of system	0.0	37.5	47.8
* Decreased intensity of system	90.9	12.5	34.8
Small Scale Creation	9.1	50.0	30.4
Small Scale Protection	0.0	6.3	13.0
* Large Scale Creation	54.5	25.0	8.7
* Large Scale Management	45.5	12.5	4.3
Large Scale Protection	0.0	0.0	4.3
* Received conservation grant	72.7	46.7	13.0
Received conservation advice	72.7	56.3	43.5
Membership of conservation group	18.2	18.8	4.3
* SSSI agreement	36.4	75.0	17.4

* indicates significant association, at the 5% level using chi-square, between conservation activity and category of farmer.

Interestingly, more non-adopters were found to have undertaken small and large scale works involving the protection of features than either of the other groups; an indication perhaps of their reluctance to participate in works of a more active/creative type which are more demanding of time/resources. Whilst active adopters more than passive and non-adopters are more likely to have received conservation advice there was no significant difference in this respect.

Some of these patterns were repeated in the North Downs, but the picture is not as straightforward as the other results may suggest (see Table 5.29.). The fact that the ESA has been much publicised amongst the farming community, compared with the more recent CSS,will undoubtedly influence these results, and the North Downs experience may indicate what may happen in other areas where incentive schemes become available where they previously did not exist.

Table 5.29. Conservation Behaviour of Adopters and Non-Adopters in the CSS

Conservation Behaviour (% no. involved)	Active Adopter	Passive Adopter	Non-Adopter
Increased intensity of system	31.3	58.3	30.4
Decreased intensity of system	50.0	33.3	56.5
* Small Scale Creation	12.5	58.3	13.0
Small Scale Management`	12.5	25.0	13.0
Small Scale Protection	6.3	0.0	13.0
Large Scale Creation	31.3	0.0	21.7
Large Scale Management	12.5	8.3	4.3
Received conservation grant	31.3	0.0	17.4
Received conservation advice	56.3	33.5	30.4
Membership of conservation group	37.5	8.3	17.4
SSSI agreement	18.8	8.3	17.4

*Significant association between category of farmer and conservation activity, at the 5 % level using chi-square.

Table 5.29 shows that, overall for instance, more non-adopters than either passive or active adopters had reduced the intensity of the farm system, whilst passive adopters were most likely to have raised the level of intensity. This result may not be as confusing as it would first appear. Non-adopters may well have reduced production intensity for economic reasons i.e. they may be more constrained, and as a result, feel unable/more reluctant to consider scheme entry. However, further research would be needed to confirm this hypothesis. Passive adopters were more likely than the other two groups to have undertaken small scale creation/management works, as in the ESA, whereas active adopters were more likely to have undertaken large scale creative/management works. Active adopters were also more likely to have used conservation grants, to have SSSI agreements, to be members of a conservation group, and to have received conservation advice, than the other two groups. Of these four factors, except receipt of conservation advice, non-adopters were more likely than passive adopters to have used grants, to have SSSI's, on their land and be members of conservation groups. This may be an indication of the fact that passive adopters are intending to participate because

it is an easy option, and not necessarily because they feel positively about the scheme's conservation value. Non-adopters meanwhile, may reject the scheme for a variety of reasons, some having carried out conservation work in their own time, but still objecting to the restrictions of the scheme itself. The adoption literature has demonstrated that conservation attitudes and behaviours are often positively correlated with adoption behaviour relating to environmental innovations.

The more extensive conservation histories amongst the active adopters may go some way to explain a further characteristic of this group in that they tended to view environmental schemes in altruistic terms. That is, they recognised that such schemes are an acceptable (indeed valuable/integral for them) way of dealing with the farm crisis (both in terms of production control and environment) and as such, a means of taking responsibility for the problem. Newby et al (1977) found altruistic reasons for undertaking conservation work amongst farmers, i.e. passing land on to the next generation in good heart, and also preserving the national heritage. Could the uptake of schemes be viewed as a new form of altruism? It was the intention of the ESA policy to achieve a range of objectives: environmental; income support and production control. It is interesting then that the range of motives for entry should reflect each of these objectives.

The analysis of adoption by motive indicated that active adopters often perceived that the rehad been a change in self image as a result of adoption. This raises the question of what the general self image, attitudes and value orientations amongst the adopting and non-adopting groups might be The literature on adoption refers to a number of qualitative, or less tangible factors that attempt to measure self image, and that have been shown to influence the decision to adopt environmental innovations. These include:

'farm/business orientation', where orientation towards farming as a way of life, as opposed to a business orientation has been seen as a key factor discriminating between adopters and non-adopters of environmental innovations; 'orientation towards profit', where those who are less concerned to maximise profit tend to be the environmental innovators; 'risk orientation', where those farmers who are less risk averse have been found to adopt first; and 'attitude towards community', which is hypothesised to be suggestive of adoption, as if the farmer is integrated with, and values the wishes of the local community, then they are more likely to participate in schemes which benefit the local community as well as themselves.

In order to measure a range of psychological attributes of farmers, the theory of the Self Concept was employed as a methodological tool. Burns (1979) demonstrates that three aspects of the Self exist which can be measured: the Ideal Self (how farmers would like to be), the Other Self (how farmers perceive what other farmers think of them), and the Cognised Self (how farmers perceive themselves). In their consideration of the Self Concept as a factor influencing farming flexibility, and determining farmer behaviour, Higgins and Seabrook (1986) and Seabrook and Higgins (1988) identify dimensions or scales of the Self Concept which can be used to measure the three aspects of the Self. They created a set of dimensions which were presented to farmers as a semantic differential scale which enabled differentiation between farmers with different concepts of the Self. This technique was utilised by presenting the survey respondents with a series of semantic differentials upon which they placed themselves according to how they were orientated towards one or the other end of the scale (a measure of their Cognised Selves, how they perceived themselves). It was hypothesised that adopters and non-adopters would have different concepts of the Self and that this would be a useful indication of how incentives could be targeted to

match the Self Concepts more accurately. Point score analysis (total percentage scores) was utilised to interpret the data on the Self Concept. The scales were also tested for their association (using chi-square) with adoption to investigate whether there was any significant relationship here.

The point score analysis indicates that there are differences between the adopting and non-adopting groups (and also between the passive and active adopting groups) in terms of the way the farmers view themselves, and that differences emerge between study areas. Analysis of these variables also confirms certain results obtained in the earlier stages of the analysis. Tables 5.30. and 5.31. present the results of the point score analysis of the Self Concept.

In the ESA adopters were found to be more likely than non-adopters to view themselves as extensive and traditional farmers, as risk takers, as consolidators (a significant association at the 5% level), as followers rather than innovators, as businessmen, as income maximisers, and more community orientated (significant at the 5% level). When the analysis is taken a stage further and examined in terms of active and passive motives, the picture is even more interesting. Here, active adopters are most likely to view themselves as extensive and traditional farmers, and passive adopters the least likely after non-adopters as well. Active adopters were also found to be the most likely to be risk takers and passive adopters the least likely. These three results reflect and confirm those found in the analysis of motives above, that passive adopters enter land that is peripheral to an often intensive system and is easy to enter (i.e. does not challenge existing notions of the self, or value orientations), whilst active adopters are prepared to try new things and make radical changes to their farm system.

Table 5.30. Scales of the Self Concept: Adopters and Non-Adopters in the ESA Compared by Total Percentage Score

Scales of the Self Concepts	All Adopters	Active Adopters	Passive Adopters	Non-Adopters
Extensive/Intensive	55.6	43.6	67.5	65.2
Risk Avoider/Risk Taker	60.0	63.6	56.3	58.3
Consolidator/Expander	47.2	45.5	48.8	66.9
Follower/ Innovator	65.2	69.1	61.3	72.2
Farms as Way of Life/Farms as Business	62.3	52.7	71.8	57.4
Income Satisfier/ Income Maximiser	62.6	56.4	68.8	75.7
Farm Orientated/ Community Orientated	47.6	52.7	42.5	43.5

N.B. The higher the score, the greater the orientation towards the second of the two differentials shown in the left hand column.

The passive entrants to the scheme are also the least likely to view themselves as innovators, whilst the non-adopters are the most likely. This is an interesting result and may indicate that farmers who perceive themselves as being generally innovative, probably in agricultural terms, do not think of the schemes as a reflection of their self image or value orientations (and probably conflicts with these). This would seem to confirm the findings by Pampel and Van Es (1977) that farmers are innovative with respect to environmental or agricultural innovations but not both. Further, the passive entrants are the most business orientated, and the active adopters the most orientated to farming as a way of life, with non-adopters in between. However, non-adopters appear to be the most orientated to profit maximisation (reflecting the case study quotes and point score analysis above perhaps, that non-adopters express the most concern about payment level in scheme) and active adopters the least likely. Lastly, active adopters were found to be most orientated towards community, with passive adopters the least likely. This reinforces the argument above that scheme entry, at least by active adopters, can be viewed as a new form of altruism.

In the CSS area, the results of the self concept analysis present a different picture (see Table 5.31.). The adopters in this scheme were more likely to view themselves as intensive and modern farmers, as risk takers, as consolidators (significant association at the 5% level), as innovators, as businessmen, as income maximisers, and more community orientated (significant association at the 5% level). Once again, analysis by motive for entry alters the picture. Here, the passive adopters are found to perceive themselves as the most intensive, with the active adopters and non-adopters about the same.

Table 5.31. Scales of the Self Concept: Adopters and Non-Adopters in the CSS Compared by Total Percentage Score

Scales of the Self Concept	All Adopters	Active Adopters	Passive Adopters	Non-Adopters
Extensive/ Intensive	61.5	56.3	66.7	56.5
Risk Avoider/ Risk Taker	52.8	48.8	56.7	49.6
Consolidator/Expander	53.4	50.0	56.7	54.8
Follower/ Innovator	70.0	71.3	70.0	66.1
Farms as Way of Life/Farms as Business	59.4	53.8	65.0	49.6
Income Satisfier/ Income Maximiser	62.9	62.5	63.3	59.1
Farm Orientated/ Community Orientated	51.7	60.0	43.3	40.9

N.B. The higher the score, the greater the orientation towards the second of the two differentials shown in the left hand column.

Similarly, the passive entrants are the most modern, and also the most profit orientated, and non-adopters the most traditional and the least likely to be profit maximisers; this group are also the most orientated to risk taking, and active adopters the least likely. Whilst the active adopters like those in the ESA are most likely to perceive themselves as consolidators (reinforcing the analysis by motive where active adopters were found to be restructuring their businesses), the passive group are most likely to see themselves as expanders.

In contrast to the ESA, the two adopting groups are most likely to perceive themselves as innovators, the active group being the most likely. The non-adopters here, unlike those in the ESA, are the most likely to be orientated to the farm, with the passive entrants being the most business orientated. However, the active adopters, as in the ESA, are most likely to be orientated towards the local community, and non-adopters the least likely.

These results are interesting in several respects. Firstly, previous research has demonstrated that orientation to farming as a way of life is an important indicator of adoption in respect to conservation (e.g. Pampel and Van Es, 1977, Woods, 1989). This is not reflected in a straightforward breakdown by adoption/non-adoption alone in this research, where the adopters, overall, in both study areas were found to be more orientated to farming as a business as opposed to farming as a way of life. Similarly, a study of the Mourne Mountains and Slieve Croob ESA's in Northern Ireland found that participants in this scheme were more likely to be 'modern', business and profit orientated farmers (Moss and Chilton, 1990/91). However, when the different kinds of adoption are analysed, the idea that it is those farmers who are traditional, non-commercial operators who are innovative with respect to environmental initiatives may be more valid, at least in terms of the actively adopting group in the ESA. However, the very characteristics of this group would seem to be quite the opposite to the traditional, conservative and non-change orientated group suggested by other adoption research. Rather, they may perceive themselves to be extensive and traditional, but their justifications for entry suggest that it is this group which is responding most quickly and with the greatest adjustments to new policy initiatives. This serves to highlight that the manner in which the dependent variable is measured matters a great deal.

Secondly, the results suggest that the particular locality of the study, the details of the scheme on offer and the exact relative dates of implementation of schemes may go some way to describe the patterns found here. For instance, the very different images of the self portrayed by the different groups in the two study areas may be due to the stage in the adoption process, where adopters (particularly the active group) may well have changed their self image during scheme participation (the analysis of motives for adoption uncovered a change in outlook particularly amongst the active adopters as a result of scheme entry). This group has almost become more 'laggardly' in the traditional, agricultural sense, matching more closely the non-adopters in the North Downs who in contrast to the two adopting groups on most variables seem to be, at this stage, the most 'traditional'.

Thirdly, orientation to local community appears to be highly suggestive of adoption, both in the analysis of motives for adoption (altruism) and in the analysis of the Self Concept. Benefiting the local community is, after all, the essence of conservation schemes, especially CSS where access considerations explicitly indicate that the scheme is geared towards public benefit. The community orientation of farmers in the North Downs is surprising in some respects, given that many farmers in this area provided much anecdotal evidence of problems of vandalism and trespass in the green belt of London. However, the result is given verification when respondents were asked directly about their involvement with the local community (formal links past and present). Here, significantly more potential adopters were involved locally in the North Downs, with active adopters the most likely to be involved. In the South Downs, however, greater numbers of non-adopters were found to have had more formal links than either of the adopting groups. This may be partly explained by the qualification, expressed by some

farmers, that a community link is important largely because it protects their own interests locally.

These value orientations of the adopting and non-adopting populations indicate that the subtle psychological and sociological aspects of participation need to be examined to enable a fuller picture of participation to be drawn, one that adds to and extends the analysis of personal and situational characteristics.

5.6. Summary of Analysis and Conclusions

The various stages of analysis were designed to progressively investigate the processes of participation in environmental schemes by examining the various groups of characteristics identified in the model of environmental adoption. This model was designed to enable a wide range of variables to be tested that were likely to be important in the participation process, and included some variables investigated by other research into environmental schemes, and also a range of other (behavioural) variables given less attention by researchers to date. Each stage of the analysis mirrored a policy approach to the development of schemes. The first two stages examined the levels of participation and attempted to identify the objective characteristics of the adopting and non-adopting populations in order to demonstrate whether they were characterised by distinct farm and farmer types, to aid the process of scheme targeting and hence to increase participation levels. The third stage uncovered the motives for adoption in order to assess the likely long term effectiveness of schemes in bringing about shifts in the outlook and behaviour of those they recruit, as policy makers dedicate more funds to their continued implementation.

The results from the first stages of the survey analysis indicate that, unlike other studies of environmental adoption, the participants and non-participants of environmental schemes cannot be neatly categorised on the basis of objective characteristics alone (i.e. the personal and situational variables of the adoption model) although certain trends were discernible in the data. Typically, most of the observed differences between the various groups were too small to explain these patterns, or to demonstrate the relative importance of particular variables in the adoption process. Furthermore, the differences that were noted between the adopting and non-adopting groups between the two study areas are difficult to explain; for example, the fact that more adopters in the South Downs had a non-agricultural income, whilst the reverse is true in the North Downs is not easily accounted for. Given that no consistency or systematic patterns emerged in the data between study areas, it is only possible to suggest that different schemes are likely to attract different adopters, but how they differ is hard to predict on the basis of 'objective' farm and farmer characteristics. These results suggest that in the future, specific variables may be worth looking at in more depth, to assess their significance to the adoption process of environmental schemes, rather than looking at a whole gamut of variables.

The first stages of survey analysis also showed that the adopters and non-adopters were utilising a similar range, and amount, of (agricultural) information and advice sources, and that there was no particular differences as to the extent to which adopters and non-adopters were participating in farming groups. This is a surprising result, because the role of state sector advice is often regarded as crucial in positively influencing the adoption decision, i.e. that adopters would be more likely to use state sector advice. Further, both had similar levels of awareness about environmental schemes

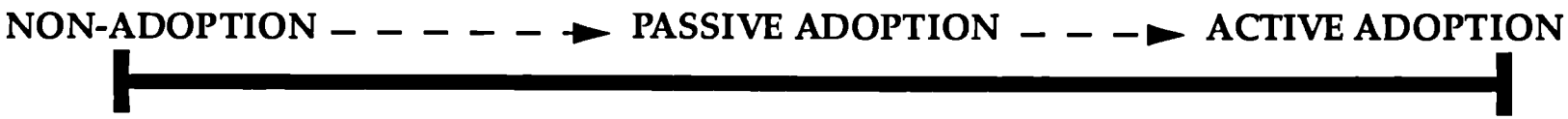
(both in the timing of original awareness and the source of awareness). Also, the fact that other farmers appeared not to play a significant role in influencing the adoption process (at least in terms of oral evidence) has implications for the use of a model of adoption and a policy approach which assumes that a diffusion of good practice will take place. These are all findings which need to be taken into account when considering the marketing and promotion of schemes in the future (variables found to be fairly unimportant in the adoption decision overall, although more so in the North Downs where unfamiliarity with the scheme in its early stages of implementation, and the consequent need for more information, probably influenced response). There is indirect evidence to suggest that awareness about environmental schemes amongst the farming community is already at a high level, and MAFF and the CC at least are adequately promoting their respective schemes. Whilst the role of agricultural advice did not appear to be important in distinguishing the adopters and non-adopters, the previous conservation behaviour and attitudes and use of conservation advice of the two groups did suggest that this may be of more importance. Here, whilst both groups had invested in conservation projects in the past (although a difference emerged in the type of conservation work likely to have been undertaken by these two groups) the adopters were more likely to have sought out conservation advice and to have used conservation grants than non-adopters.

A plausible interpretation of the first set of survey results, therefore, is that environmental schemes are appealing to a wide range of farmers, and that conservation (in the form of scheme uptake) is becoming more "agnostic" than ever before. However, this does not imply that all farmers are adopting to the same extent, or for the same reasons, and the third stage of the analysis clearly indicates that this is not the case. This shows that the psychological

and sociological characteristics of the adoption model are extremely useful in indicating exactly how committed the participants are to the scheme and to conservation and environmental management in general, and the nature and extent of the resistance to uptake amongst the non-adopters. This is particularly important in demonstrating to policy makers the level of participant commitment as schemes are further extended and developed.

The motives for adoption and non-adoption were similar between the two schemes, although the relative numbers of adopters falling into the two categories of adoption differed. Here, farmers were found to be either passively taking up incentives (where mind sets and behaviour did not appear to be changing over time) or actively responding to them (where attitudes and behaviour were changing over time and/or involved those farmers who were already committed to conservation and environmental management). It is useful to think of the nature/process of adoption by viewing it as a spectrum (see Figure 5.2.), ranging from the non-adopters who are unlikely to enter the scheme under any circumstances because they strongly oppose the scheme restrictions and conditions and/or because they feel financially constrained and the non-adopters who might consider entering the scheme if their farm or farm family circumstances changed, through to the passive adopters, entering for chiefly financial reasons on land farmed in a traditional fashion already that is peripheral to the production system, and culminating with the active adopters, incorporating the scheme into the farm system and viewing it as a positive alternative for agriculture and an opportunity for conservation. The following chapter will investigate how movement along this spectrum could be facilitated.

Figure 5.2. Spectrum of Participation in Agri-Environmental Schemes



Resistant Non-Adopters:	Conditional Non-Adopters:	Passive Adopters:	Active Adopters:
Non-Adoption under any circumstances: 'residual' group	Non-Adoption under existing farm/farmer circumstances	Those adopting for financial reasons, typically on peripheral areas of the farm	Committed conservationists and those already extensifying

The third stage of analysis, the motives behind adoption, showed that the process of participation and rejection is a very individual process relating to the particular value orientations, outlooks, attitudes (particularly conservation behaviours and attitudes) of the farmer and also particular farm and farm family situations. How value orientations and notions of the self match up with perceptions of the scheme has been shown to be important in influencing adoption. Further, reassessment of the self over time also appears to be worth investigating, i.e. whether any discrepancy between notions of the self and scheme demands becomes less over time. Differences in the value orientations and self concepts of adopters and non-adopters between the two study areas suggest that this may well be happening, and is an issue for future research to investigate in more depth.

The implications of these results both in terms of policy - the future success of incentive schemes and the manner in which they are promoted - and in terms of theory and methodology - the relevance and value of applying an adoption model and behavioural techniques - needs to be investigated and discussed, and it is these issues that the next two chapters will address.

CHAPTER 6 EVALUATING INCENTIVE SCHEMES: THE IMPLICATIONS FOR POLICY

6.1. Introduction

Environmental incentive schemes such as ESAs and CSS have, in large measure, provided the focus for the redirection of UK agricultural and conservation policy in the late 1980's. These schemes have enabled a greater number of farmers to participate in conservation than ever before. Their effectiveness can be judged in various ways. In the short term, the focus has been simply to count up the numbers of farmers entering into agreements and the amount of land enrolled and to point to the implied environmental benefits of this. But with schemes now being extended, the need to assess effectiveness and value for money more precisely is widely acknowledged. The increasing sums of public money already allocated to such initiatives, and the substantial amounts now committed for the future under the new agri-environmental programme (see Table 6.1.), together with the growing 'transparency' of these payments, means that the need for rigorous evaluation in such matters is of real political significance. As Dixon (1992, p.15) argues, "there is now a need for a debate on a wide range of administrative and technical questions which arise from the experience of conservation incentive schemes. There is a need to analyse critically how much has been achieved for conservation and rural communities, why there are blockages to the continuing expansion of schemes and what are the next moves in developing a comprehensive and coherent government approach to conservation incentives in farming".

Table 6.1. Current and Predicted Spending on Environmental Incentive Schemes in England (£ million)

Name of Scheme	Forecast Payments in 1992/3	Forecast Payments in 1993/4	Forecast Payments in 1994/5	Forecast Payments in 1995/6
Environmentally Sensitive Areas	10.8	30.2	31.0	31.7
Countryside Stewardship Scheme	3.5	7.5	9.1	9.6
Nitrate Sensitive Areas	1.5	1.6	1.6	1.6
SSSI/NNR Management Agreements (inc. Wildlife Enhancement Scheme)	8.2	8.2	8.1	9.0
Farm Woodland Scheme	1.5	2.9	4.5	5.7
Total	25.5	50.4	54.3	57.6

Source: MAFF, 1993a. N.B. The total annual budget for payments under environmental incentive schemes (which will include the new range of measures proposed under the agri-environment regulation) will be over £100m in 1995/96.

An analysis of farmer participation will be critical in answering questions about the effectiveness of existing measures (i.e. how successful they have been in recruiting farmers in sufficient numbers and of the right type to achieve scheme objectives) and in providing information about how incentive schemes can be made more effective in the future. This chapter sets out to evaluate incentive schemes in the light of the survey results and to argue for a more long-range assessment and evaluation of the environmental benefits generated by such schemes.

6.2. A Framework for Scheme Evaluation

It was suggested in the previous chapter that policies can be evaluated on a number of different levels, reflecting different research priorities at the various stages of policy development. The approach to evaluation depends very much on whether policies have short or long-term objectives. In designing incentive schemes, policy makers typically think in the short term (5 to 10 years) and as such, have tended to emphasise the importance of

recruiting as many farmers and as much land as possible in order to demonstrate their success. It is argued here that in evaluating schemes, it is necessary to emphasise their long-term objectives as the key to their success and effectiveness as policy measures. These long-term objectives should focus on sustaining the environmental benefits and changes in land use brought about by the (short-term) implementation of schemes. In nature conservation terms this is critical, for, as Webster and Felton (1993) report, the re-creation of valued, semi-natural habitats can take as long as 150 years.

Policy evaluation has become steadily better defined and understood as various pilot schemes have run their course, and as objectives have become more clearly defined. In setting up a framework for evaluating policies, Hill et al (1989, p.118) state that the specification of objectives of the policy programme, and how these relate to other aims of the government service and its agencies, "represents the most important part of any assessment exercise...The importance of a clear set of ultimate and intermediate objectives cannot be overemphasised." Furthermore,"if the objectives are not clear and consistent with other parallel or higher aims, then the policy performance will be seriously constrained"(Hill et al, 1989, p.164). The meeting of policy objectives (typically, a hierarchy of objectives exists) will be determined as much by external factors as the specifics of the policy itself. This is of great importance in evaluating conservation schemes, where the external environment or context is a dynamic and rapidly changing general policy environment, and continued (although declining) high levels of agricultural support. All of these have implications for the meeting of scheme objectives.

Various commentators (e.g. CC, 1993b, Webster and Felton, 1993) have pointed to the need for the objectives of agri-environmental policies to be

more clearly stated and understood in order that the optimal habitat and landscape benefits can be realised. In the past objectives have been less than clearly stated and as a consequence, opportunities for maximising participation and environmental gain have been missed. "There is a need for clear goals about what payments are being made for. Administrators, farmers, consultees and public agencies all need to know what a scheme, designation or specific prescription is actually for"(Dixon, 1992, p.19). Similarly, the CC report that administrators and advisors of existing schemes have only gone some way to defining the "products" which the schemes seek to produce. "At the strategic level, target areas and features are identified, and overall scheme objectives are defined, (but) at the farm level...these targets and end results rarely become the focus of the agreement, and because they are not explicitly stated, they may be relatively easily forgotten by the land manager, once the scheme agreement is signed"(CC, 1993b, p.9-10). This illustrates the hierarchy of objectives and targets identified above. It is recommended therefore, that, "more effort is needed on the part of policy makers in specifying the desired environmental outputs from farming. This will entail setting environmental objectives that are more specific and are clearly linked to farming practice rather than to climatic fluctuations, for example, and which can be measured"(Webster and Felton, 1993, p.80).

In addition to a clear statement of scheme objectives, Hill et al (1989) also point to the need to recognise additionality and displacement effects as key issues to be addressed by policy evaluation. Additionality was described in Chapter one. Displacement refers to undesirable processes which occur as a result of scheme implementation on those areas of the farm which are unaffected by the policy. Additionality is of particular relevance to an evaluation of environmental schemes that have the potential to encourage a rethinking of conservation attitudes, in addition to securing environmental

protection and enhancement. However, that farmers can enter marginal land peripheral to the production system under tier 1 agreements implies that non-additionality may be a feature of participation, and therefore the opportunity for environmental gains and attitudinal shifts may not be realised.

In the initial stages of their implementation, the broad aim of the two conservation schemes examined in the survey was to encourage a certain number of farmers to participate in order that stated objectives be achieved. These objectives were broadly similar for the two schemes considered here, but it should not be forgotten that the two organisations concerned with their implementation (MAFF and CC) have quite different jurisdictions and commitments. The scheme objectives were:

1. Environmental - maintenance of traditional farming practices to ensure the conservation and enhancement of valued landscapes and habitats.
2. Income support.
3. Production control.

The second and third of these objectives were never explicitly stated by either policy, but as Potter has noted, part of MAFF's enthusiasm for ESA's must relate to the provision of income support to groups of farmers who may be vulnerable to reduced levels of farm support (Potter, 1988). Furthermore, the maintenance of farmers on the land for social and environmental reasons is now implicit in the provision of environmental payments, through conservation schemes or otherwise (Potter, 1990). As with most policies, the aim was never to encourage all farmers to join a scheme, rather to encourage enough farmers (the 'target population' (Hill et al, 1989) to participate to justify expenditure and to ensure results in environmental, economic and social terms. This still remains important in the development of incentive schemes where it has been recognised that, "payment levels for

environmental products should be related to market conditions and should be set to stimulate an adequate take up of schemes to achieve these products"(CC, 1993b, p.4). Have the scheme objectives been met? Are they achieving all that they set out to do?

Agri-environmental schemes have been successful in recruiting a certain number of farmers (i.e. their short-term objectives have been realised), but, as suggested above, in evaluating schemes it is important to examine their ability to sustain any environmental benefits and improvements which may flow from land being in a scheme. This is a function, not only of any changes in land management practices produced but also of the extent to which schemes bring about permanent shifts in farmers' attitudes and behaviour towards conservation and land management. Though not a stated objective of schemes at present, bringing about a change in attitudes towards conservation should be recognised as an implicit policy goal and the key to long term success. To think about and ensure the success of incentive schemes in this way is arguably part of a longer term and more complex process involving both better education and the embedding of a conservation ethic, or norm, within the farming community.

Other researchers have also recognised this, notably, Colman et al (1992, p.69) who argue that, "policy measures which encourage positive attitudes to conservation will in the long term be more effective than those that do not, since a positive shift in attitudes will increase the output of conservation goods at any specified level of budgetary cost. The alternative is continued 'green dependency', with conservation achieved through continuing exchequer support." Also, Hill et al (1992, p.4) who recognise that, "farmer s' attitudes and the choices they make will be crucial to the success of the various schemes designed to promote environmentally friendly farming

practices." Further, Jenkins (1990, p. 30) alludes to this issue when he states that policies such as SSSI management agreements fail to integrate agricultural and environmental objectives, unlike ESA type initiatives, and where, "this will in the long term fail to elicit the necessary change in farmers' attitudes to their activities."

Previous evaluations of incentive schemes, reported in chapter 3, have arguably failed to investigate the uptake of schemes in adequate depth to truly assess effectiveness in this long range sense. The approach adopted by these studies reflected the situation in the initial stages of scheme implementation. In line with the second and third stages of the analytical model discussed previously, the farm survey was undertaken to examine the extent to which farmers were participating in environmental schemes, their degree of commitment to the scheme, by investigating their motives behind the adoption decision. The results of the present research support the findings of other evaluations, but also provide more information on the nature of the adoption decision and the extent to which schemes are facilitating attitudinal and behavioural change amongst the participating and non-participating groups. As such, it provides the basis for making recommendations for adjusting schemes in order that the range of participation can be extended (i.e. numbers participating and the extent of participation - the amount and type of land entered and their reasons for participating) thereby providing value for money and value for the environment.

6.3. Scheme Evaluation by Survey

The first stages of the analysis of the results of the farm survey demonstrated that schemes are appealing to a wide spectrum of farmers in terms of the situational (farm business) and personal (farmer and farm family)

characteristics of the adoption model. However, scheme adopters did tend to be in the younger age groups and had farm businesses that were being consolidated on the agricultural front, and were being expanded in relation to their non-agricultural enterprises. Also, this stage of the analysis indicated that both adopters and non-adopters were utilising a similar range of advice and information sources. A deeper analysis of the survey results nevertheless identified significant differences between participating farmers on the basis of passive and active motives for adopting schemes. The characteristics of these groups suggest a possible lack of additionality amongst both the passive and, to a lesser extent, the active entrants. Consider first the passive adopters, who had a strong tendency to do very little (or plan to do very little in the CSS) in terms of changing existing attitudes, outlooks and behaviours in relation to conservation and land use. These people appeared to be responding largely to the incentive on offer, where scheme entry represented an easy option on marginal and difficult land. This group tended, therefore, to enrol land mostly into tier 1 agreements only (i.e. maintenance of the status quo). Part of this mind-set meant that these passive adopters had no intention of doing anything different with the land that they had entered into the scheme. However, the incentive payment may act as a sufficient deterrent to their undertaking any damaging operations and/or inappropriate management. Non-additionality has also been reported by other researchers of ESAs, e.g. a survey undertaken by the Welsh Agriculture Department, reviewed by FOE (1992), found that 63% of farmers had no intention of improving the land they entered into the Cambrian Mountains ESA. Schemes also appeared to be having little impact on the rest of the passive adopters farming operations (in terms of encouraging these farmers to adopt environmentally friendly practices and conservation activities over broader areas of the farm). Rather, 'displacement' is more

likely to be a feature of passive adoption, where an increased intensity of production on non-scheme land is an outcome of this type of participation.

Meanwhile, among the active adopters the tendency was to incorporate the scheme into a general process of restructuring on the farm (entailing land use change) that was already underway, or to use the payments to extend an already established conservation interest. As such, this group tended to enrol land into tier 1 of the schemes and also had a higher proportion of scheme land entered into tier 2 agreements than the passive adopters (entailing the re-creation of chalk grasslands - a more demanding management tier). Furthermore, the existing conservation attitudes and behaviour of this group suggest that they would undertake ESA type actions anyway (although the case studies indicated that the ESA was encouraging them to reconsider further their patterns of land use and management for conservation).

Amongst the non-adopters, there were farm, or situational, economic and attitudinal barriers to adoption, though analysis of the motives for non-adoption indicated that some may well adopt if one, or a combination of these present barriers could be overcome, while others remain adamantly against participating in grant schemes on principle. The former group at least may be brought into schemes once circumstances change. Having said that, the survey evidence suggested that this group are at present less committed on the whole to conservation, and as such, will require more persuasion to alter their land management practices. There may be some other, more appropriate vehicle therefore for facilitating a change in the outlooks of non-adopters - an interesting policy question.

6.4. Policy Implications of Survey Results

These results have a number of important implications for the long term effectiveness of schemes. Various commentators have argued that the priority for nature conservation is the prevention of further losses of treasured landscapes and the maintenance of existing semi-natural habitats, rather than the recreation of new habitat (e.g. Cox et al, 1990, Webster and Felton, 1993). Given the characteristics of the 'passive' participants in the schemes examined here, this long-term objective may be in doubt if conservation practices are abandoned if schemes expire and no further incentive payments are forthcoming. On this basis, environmental incentive schemes may not, therefore, be acting as the catalysts for the long-term and permanent environmental and attitude change that many would like. To be precise, they appear to be recruiting both active participants who have a genuine, if often embryonic, interest in conservation, and passive participants who are attracted for more narrow, mercenary reasons. While superficially they get results by bringing large numbers of farms into the 'green box' which an ESA or CSS agreement represents, and appear to be quite successful in bringing about environmental improvements on enrolled land (e.g. MAFF, 1991a-d) these benefits may be short-lived and could be cancelled out by subsequent actions if the incentives are removed, particularly where the passive adopters are concerned. Schemes do not appear to be laying the foundations for the benefits of participation to be sustained amongst all participants. One reading of this is that the impact of ESAs, and Countryside Stewardship, may be less radical in their effect than is commonly thought because much of the participation appears to be of a short term nature. There is certainly evidence to suggest that many scheme participants (particularly the actively adopting group who are undertaking the most change) are just as self-selecting as the FWAG farmers of old. This bears out Potter's hypothesis that, "the uptake of more restrictive management agreements to earn top tier

payments could have a more selective and limited appeal, biasing participation in favour of farms where there is a history of alternative land use"(Potter,1990, p.6).

The provision of an incentive alone, it would appear, does not necessarily bring about changes in the attitudes and behaviours of all the farmers who take up the payment. In a sense, this is the inevitable result of a policy which aims to recruit farmers into conservation by offering them monetary bribes. The challenge for policy makers, in ensuring the future success of schemes like ESA s, would appear to depend upon (in general terms) a better definition of the objectives and goals of ESA and CSS schemes within longer time frames, focusing particularly on training and educational needs, as well as the things farmers actually have to do under an agreement. Specifically, it would appear desirable to continue to attract and retain active participants. However, it is the future actions of the passive participants (i.e. those who are typically attracted to a scheme by the money on offer but who are not necessarily changed by the experience of participation itself) which will actually determine how far schemes like ESA's and CSS have a widespread and lasting impact. Their ability to recruit people 'further away' from conservation at present, either by inclination or force of circumstance, and then to push them along the 'participation spectrum' (see Figure 6.1), is particularly important. Non-adopters, are also obviously significant, particularly those identified by the analysis as potential participants, as being likely to adopt at some point in the future. The question then is how to achieve these long-term objectives.

6.5. Towards a Long-Range Agri-Environmental Policy: Changing the Emphasis of Advice Provision

Mechanisms need to be found which will increase the conservation-mindedness of the Passive Adopters, locking them into ESA type practices on a long term basis. Good quality advice and on-going education and training are likely to be key factors here. Concerning advice, there is now a growing recognition that incentives need to be combined with effective advice if they are to reach their target. Colman et al (1992) for instance, recognise that to instil a sense of conservation-mindedness in farmers, the policy instruments should be a vehicle for advice. It has also been recognised elsewhere that in general, "with different priorities for rural areas in the 1990's, advice to farmers once again has a vital role to play, this time to foster good conservation practice that is essential if farmers are to be effective in producing an agreeable rural environment as well as food," and specifically, in relation to incentive schemes that, "demand for conservation advice is likely to continue to expand as more farmers enrol in conservation schemes and policy makers come to recognise the value of giving advice to participating farmers if they are to ensure that scheme objectives are fulfilled"(CEAS, 1991, p.1-2).

Realising the long term potential of incentive schemes requires therefore carefully designed schemes and the provision of effective, and sensitively targeted, information and advice. These two factors should be mutually reinforcing. Webster and Felton (1993) argue that advice, incentives, green modulation, regulation and cross-compliance represent the range of mechanisms available for achieving targeting for nature conservation, of which, "advice is a crucial ingredient...without good advice, it is impossible to achieve value for money and there is even a danger that 'environmental' monies might be directed towards activities that are damaging. But advice on

its own will rarely be sufficient to secure positive management, it needs to be linked to positive incentives or regulation, e.g. cross-compliance" (Webster and Felton, 1993, p.73). This complementarity between mechanisms, and the specific role that improved advisory and information services play, has also been recognised by the CC (1993b) as critical to achieving the maximum benefits from limited funds. Similarly, adoption research in America (e.g. Swanson et al, 1986) has shown the importance of a combination of economic incentives and information to bring about the adoption of conservation practices.

It is important to be clear at the outset about the differences between advice, information, education, persuasion and training. Clarke and O'Riordan (1989) make the distinction between advice which is active and persuasive, and information which is inactive, passive and involves awareness raising and educational programmes. It is the persuasive aspects of information and advice provision that arguably need to be emphasised, i.e. persuading the farmer to extend their commitment to conservation and to carry out more conservation and environmental management under a scheme, that lasts beyond the agreement.

In all of this, the FWAG approach can provide a useful model, illustrating what is required if sympathetically orientated farmers are to act as 'multipliers' of agri-environmental scheme benefits. "FWAG's identity is arguably of greater importance now than ever before as farmers adjust their perceptions of their commitments and actively seek to produce conservation"(Cox et al, 1990, p,189). It would appear that policy has now evolved to such a position where the FWAG model (utilised in the context of advice provision in environmental schemes) can be taken out of its previous 'policy vacuum' (identified by Potter, 1985a) and utilised in a way in which

the previous policy context denied, i.e. where FWAG could only be seen as a counter-weight to a reform approach. Cox et al (1990, p.177) argue that where farmers carry out conservation activities after improvement on the farm has run its course (after Potter), "FWAG's role must be to channel such impulses into constructive effort and a deeper perception and commitment"(emphasis added).

One simple mechanism for increasing the advice component of agreements is to make all payments conditional on the preparation of a conservation plan. This is an idea with some precedents and has widespread support amongst conservation groups and agencies. It has been tested in relation to the management of farms with SSSIs, with good results (CEAS, 1993). Here, owners were often found to be interested in managing the SSSI and the surrounding land but lacked basic information (including management objectives from EN) as to how they should proceed. It has been recommended that much could be achieved for relatively little cost by the provision of technical guidelines and advice and regular 'hand-holding' following the implementation of a whole farm conservation plan (CEAS, 1993). Colman et al were unable to find, "unequivocal evidence...for positive attitudinal effects from the ESA or CPS schemes. The conservation plan in Breadalbane ESA however, offered enhanced opportunities for changing attitudes, particularly when compared with tier 1 arrangements in English ESA s"(Colman et al, 1992, p.70). The drawing-up of a conservation plan with follow up advisory visits would enable initial entry ESA/CSS land (typically tier 1) to be placed in the context of the whole farm and enable participants to recognise the possibilities of further entry, and how their actions on the rest of the farm relate to the scheme land. In this sense, the conservation plan option of the new round of ESA *s* holds some potential for enhancing the benefits of scheme participation (although more could have been made of

this opportunity as the plan option applies only to that land entered into an agreement). CSS already has a plan option within it. FOE (1991) recommend that whole farm entry into ESA's be made compulsory, to avoid displacement effects, but recognise also that this is likely to reduce levels of participation. Encouraging a participating farmer to prepare a whole farm plan (as yet, not available as an option for farmers) could be a useful half-way house in this respect, and some other organisations, e.g. EN take the view that a whole farm plan be made a condition of entry for all ESA agreements in the future (Potter, 1993).

Meanwhile, the frequency and intensity of advisory visits to actual or potential participants could be increased. Under existing agreements, information and advice provision is predominantly reactive, rather than proactive in its approach to follow-up advice (responding to individual queries relating to the on-going management of scheme land rather than actively encouraging a greater degree of participation overall)(Norris, 1993 and Manning, 1993). Information and advice is also provided initially when an agreement is drawn up and its role is recognised as crucial in that the advisor can suggest that areas of the farm be included in an agreement that the farmer may not have considered. Participating farmers in the ESA are obliged to obtain written advice on scrub and woodland management within two years of signing an ESA agreement, whereas obligatory advice is not a part of the CSS package, with the CC taking a more flexible approach putting together a relevant package and programme at the outset, as part of the initial application with scope for adding things in future years if the need arises and if money is available. Overall, the advisory approach of these two schemes is broadly similar; the main limitations and gaps in the delivery of advice are probably related to resourcing (with very few advisory staff responsible for very large geographical areas). The results of the survey suggests ways in

which this advice can be made more effective in the promotion and extension of conservation-mindedness amongst participants in environmental schemes. This is reflected in Clarke and O'Riordan's (1989, p.31-32) general observation that, "the present level of advice is by no means optimal, in terms of generating long-lasting and purposeful farm-management response."

In general terms, in the provision of conservation information and advice, McDowell (1989b, p.217) has argued that, "personal interaction has far greater potential for persuading individual subjects than any other medium". Similarly, "one on one is the most effective way to motivate. Newsletters, field days, educational meetings, demos and similar events all do some good. They all have the advantage of reaching more than one producer at a time. But such events are rarely attended by people who really need to attend. You need therefore, one on one... Co-operators tend to identify with people not programs. People motivate people. Few programs motivate people to do anything"(Davies, 1985, p.402). The interaction (rapport) between conservation advisor/motivator and individual farmer/landowner is emphasised by both these researchers and partly holds the key to encouraging farmers to rethink their land-use practices. This has also been recognised as integral to the success of the UMEX project which was, "hinged on establishing a good rapport with farmers through informal, personal contact" (CEAS, 1991, p.1).

The need to build relationships and mutual confidence, given that conservation ideas take time to be taken on board,is also important. "Little information is accepted on first contact. Conservation practice, an attitude or idea will be accepted on two/three contacts. Producers usually adopt a few low risk procedures first and only after these have proved successful will they

take on other recommendations"(Davies, 1985, p.402). It has been noted that the rate of adoption will relate, in part, to the divisibility of the innovation. Conservation innovations (i.e. environmental schemes) should not be any different in this respect. Many farmers entering conservation schemes may wish to try the scheme out on a portion of their land first (typically, the most steep or difficult) and may then be persuaded to enter more land at a later date, (including recreation under tier 2). This was identified by research on ESA s carried out by FOE (1992). Here, a 'wait and see' factor, i.e. where some land was put into the scheme as a trial, was one of the major factors influencing the decision to put a certain amount into the scheme where this was an option. Clarke (1987) also refers to this as 'sequential' conservation practice, i.e. trial schemes becoming the basis for more imaginative investments following successful experimentation and supportive back-up visits. Here, sustained advice is seen as critical. The role adopted by ESA project officers has been well received by the farming community (NFU, 1990, FOE, 1992). Ensuring continuity in personnel and regularity of contact could do much to extend, and build upon this favourable position in ESA's. An enhanced role for the project officer is recommended in providing more scheme meetings, demonstrations and open days (enabling farmers to meet and discuss the scheme, in addition to fostering relationships between farmers and advisors) In CSS areas it remains to be seen how effective the advisors are, but the same principles should apply.

What then are the specific information and advice requirements of the various farmer groups identified? In the case of many passive adopters, regular advisory visits after the initial application (particularly in conjunction with the use of a whole farm plan) together with the opportunity to attend training courses on environmental management, could do much to bring about enhanced conservation effort to extend their participation and achieve

lasting environmental benefits. Whilst the schemes are obviously providing some follow-up advisory visits, the results of the survey indicate that this could usefully be targeted at the passive adopters. Such groups could be identified by their applications to enter tier 1, marginal/peripheral farmland, together with the initial discussion that takes place between advisor and potential applicant. A discretionary element to participation (already established practice with CSS entrants) would also ensure that planned and potentially damaging operations elsewhere on the farm which may work against any benefits brought about through the scheme could be minimised amongst this group of participants in particular. It has been recognised by other commentators that an increased element of discretion could do much to increase the conservation potential of standard payment schemes (e.g. Colman et al, 1992, Webster and Felton, 1993, CC, 1993b).

Active adopters also need good quality and sustained conservation advice to reinforce and extend notions of 'best practice'. However, this group of adopters have another role as demonstration farms and conservation innovators. The CC (1993b) argue that an information exchange should occur between land managers as part of the promotion of high quality advice provision for scheme participants. One of the research questions focused on the idea of conservation scheme innovators who act as disseminators of conservation/good practice ideas. This is fundamental to the adoption-diffusion model, where innovators in the adoption process are important sources of information to later adopters (as opposed to more formal advice sources). It has been noted that advisory bodies typically target local agricultural innovators, who then act as opinion formers for the rest (Read, 1987). However, the survey results suggest that far from consulting with other farmers about scheme entry, ESA participants (and non-participants) believed that this was rarely significant in the adoption or rejection decision.

Having said this, some farmers who had been known to have undertaken the scheme wholeheartedly were often mentioned (in an uncritical way), in the ESA (and in the North Downs), so the potential for opinion leaders in environmental schemes does exist and needs to be capitalised upon.

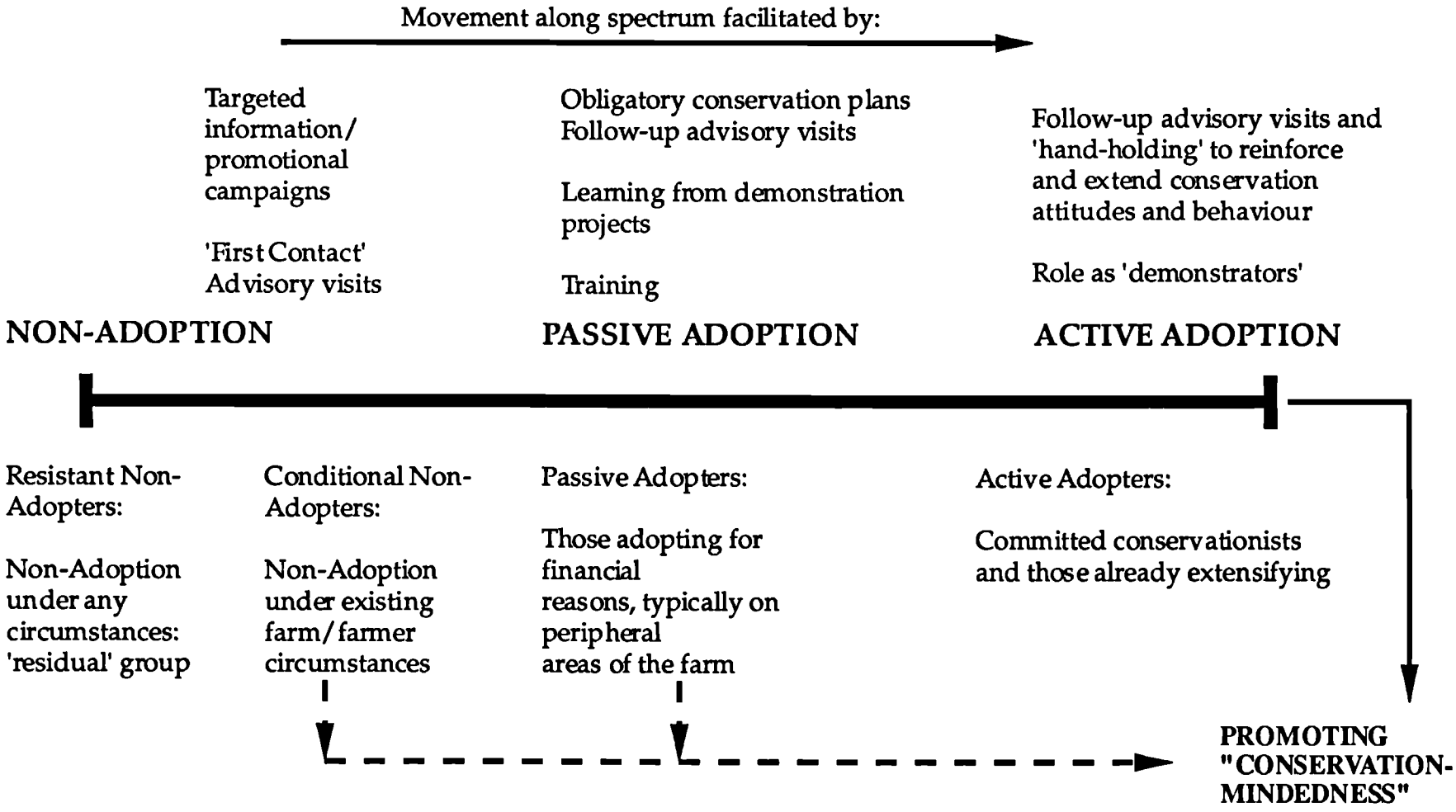
For the non-adopters who are likely to enter at some point in the future, it is recommended that special information and advice (including "one on one" visits) is required where the scheme details are explained in both agricultural and environmental terms and where the managerial aspect of the scheme is highlighted i.e. where scheme guidelines are not just presented as a series of 'constraints'. McDowell (1989b) recommends that advisors emphasise the value of the existing conservation resource on the farm (however small), and demonstrates that even the most resistant farmers will protect sites once their value had been explained to them in a helpful way. An advisor, or project officer could follow this approach on both participant and non-participant holdings in relation to environmental schemes, generating interest and hopefully action on the part of the uncommitted and disinterested non-adopters, and extending interest and action amongst those who are already participating to an extent. Even where farmers are never likely to adopt, 'first contact' advisory visits may still be of use because some farmers may be willing to try scheme ideas in their own time without the restrictions of a contract.

An increase in the amount and type of information and advice will obviously entail increased costs of scheme administration and delivery (although it would appear that much could be achieved for relatively little, e.g. CEAS, 1993). However, it has been suggested that a more adequate provision of advice through existing policy instruments has been a missed opportunity: "the promotion of conservation-mindedness through

information and advice is not without cost if this involves contact over and above that essential to the delivery of policy. Increased advice implies reduced cost-effectiveness in the short term and while we were unable to obtain clear evidence on this issue, it clearly merits further investigation"(Colman et al, 1992, p.70). It is recommended here that such additional costs would be worthwhile to guarantee long-lasting environmental benefits. That the CAP agri-environmental measures specifically make provision for the education and training of farmers indicates that the type of recommendations being made here could receive EC support. However, MAFF have failed to build in a training component in the new agri-environmental measures and have been criticised for this omission in their proposals: "MAFF may seriously have underestimated the growing need for advice (and training) which the new schemes will generate"(Potter, 1993, p.3). The provision of environmental training in conjunction with a scheme agreement (be this discretionary or compulsory) should be reinforced and reflected in the general agricultural training of farmers and land managers which has been found to be seriously lacking (e.g. Waterhouse, 1987).

The evaluation of incentive schemes here and elsewhere, together with the comments above, demonstrate that a reassertion of the persuasive approach, through a change in emphasis in the information and advice structure could do much to extend participation, facilitating movement along the participation spectrum. These ideas are presented in diagramatic form in Figure 6.1. From a methodological and theoretical point of view it can be argued that this is important as a renewed focus on the agent has enabled the recognition that attitude formation and change (brought about in part by targeted advice) is crucial to the success of conservation policies.

Figure 6.1. Means of Facilitating Movement Along the Participation Spectrum



6.6. Broader Issues: Bringing About Attitude and Behaviour Change Beyond Incentive Schemes

ESAs and CSS cover only part of the countryside and represent only two (if highly significant) attempts at reforming the conservation attitudes of farmers. The limits of these types of policy in terms of changing attitudes and developing sound conservation norms need to be recognised and assessed. This final section aims to put the role of the incentive scheme in context and to examine the options for the wider countryside.

There is at present a wide range of incentive schemes on offer to farmers; this is potentially confusing, but it is argued that, "choice is a good thing and perhaps the answer is to strengthen the advisory services"(Dixon, 1992, p.19). This is supported by the survey findings. Any one of these other schemes, or new initiatives likely to be introduced in the future (possibly as part of the new agri-environmental measures), could be made to realise their full potential by the sorts of recommendations made above in relation to two specific schemes, and by commentators like Colman et al (1992), FOE (1991), NCC (1990) who argue for increased flexibility, extending the length of scheme contracts, discretion, capital grants and conservation plans, and integrated advice in scheme design. The new agri-environmental measures of the CAP reform package offer the possibility of a range of new options for fostering new attitudes and behaviours, but the member states must decide how to implement the options. "Environmentally sensitive incentive schemes should continue to expand and prosper. A more coherent strategy is needed, but political reality is that over the next 10 years we will continue to see an evolution of incentives. The new agri-environmental regulation sets a framework for this and introduces some valuable new concepts. But it does not fully address the issue of targets, proper funding, nor of making environmentally sensitive farming more understandable for farmers and

taxpayers. New regulation makes explicit reference to the need for the objectives of measures to relate to EC environmental priorities...(where) environment is the purpose of policy rather than an incidental by product" (Dixon, 1992, p.19).

Various commentators, building on the initial success of the ESA scheme, have suggested it be extended, e.g. the Royal Society for the Protection of Birds (RSPB)(1991) recommend an environmentally sensitive farming scheme covering the whole country, but geographically tiered to reflect a diverse countryside of varying conservation needs. These are interesting ideas and the results of the present survey indicate how such an approach can be made to realise its full potential. Colman et al (1992) conclude, in their comparison of the effectiveness of various conservation policy instruments, that the, "voluntary ESA standard payment instrument is the most effective for direct conservation of the wider countryside under private management,"(Colman et al, op cit.)(with the qualification that this system could be improved) but even so it is clear that ESA and CSS-type incentives only reach a certain portion of the farming population. As Potter (1990, p.6) says, whilst ESA's, compared with an extensification scheme, are good because here farming systems are tailored to the production of CARE goods, the problem is that, "such a policy can only realistically be adopted by small numbers of farmers in particular localities." Also, where only 4% of England and Wales are designated as ESA s, and less than 2% of the land area is covered by an agreement, "it is difficult to see how a balance between conservation and other aspects of rural land use can be achieved through a scheme which is so limited in its area of influence"(Ilbery, 1992, p.138-139). It is "likely that ESA's will prove reasonably effective in maintaining specific landscape features over limited areas for a limited period. But the ESA approach is not readily applicable to the countryside as a whole, or even to more extensive areas. At

best it is probably only a partial solution to the problems of landscape change because designation and subsequent monitoring are related to landscape features that are commonly perceived to be under threat rather than on the analysis of local agricultural systems"(Gaskell and Tanner, 1991, p.89). Whilst MAFF have now committed funding to the extension of the ESA policy, this is expected to be the limit of this policy, and whilst the CSS has been extended this policy has budgetary limits (applications for entry already exceed available funds). The continued existence of these schemes is set within a political context which threatens all public spending. "In public expenditure round discussions...environmental issues as a whole fail to score highly. Issues as byzantinely complex as environmentally sensitive farming remain difficult for the public to grasp"(Dixon, 1992, p,17).

Given these constraints and limitations and uncertainties it is suggested that incentive schemes should act as an intermediate step on the way to a more widely held conservation norm/ethic amongst the farming community. Where initial conservation effort has been focused upon the field margin (typically under FWAG style tree-planting projects etc.), the incentive scheme has extended conservation activities over broader areas of the farm by challenging systems of farm management, not just the non-productive margins. The action of scheme participation to encompass these broader areas has been shown not necessarily to reflect positive environmental attitudes, but lasting benefits of initial entry can be built upon through changing the emphasis of advice provision. The same process may be achieved in geographically targeted schemes elsewhere. "For those favouring the development of farming systems more in harmony with the environment, the aim must be for 'production for use and permanence' rather than for 'profit and power', though whether this means an extension of organic farming or other forms of less intensive production is not

clear"(Robinson, p.1991,p.107). It is clear that a broader process of re-thinking across the wider countryside must take place, so schemes can only realistically play one part in this process, the final outcome of which will be a changed, more environmentally sensitive, farming philosophy.

The wider countryside cannot be forgotten, but at present is left untouched by ESA-type incentives. In this situation, the opportunities for the development of a new conservation norm amongst farmers will be even harder to achieve than under an incentive system (information alone, it has been concluded is an insufficient condition to achieve this end, a careful balance of incentive and information is required). Arguably, ESA and CSS participants could act as the conservation leaders for the wider countryside. Given the results of the survey and suggestions for extending the benefits of incentive schemes, one could argue that a resuscitation of the persuasive, FWAG, approach across the broader countryside could do much to instil a norm of good conservation practice amongst the majority of farmers. As Cox et al argue, "it is clear that the promotion of conservation policy will require a pro-active, innovative and proselytising approach if it is to reach the majority rather than the minority of farmers, and if it is to affect everywhere the generality of farming practices"(Cox et al,1990, p.184). What are the options for fostering a sense of conservation-mindedness in those areas of the countryside which have not yet been the targets for conservation policy measures?

The increasingly clear guidelines being laid down by MAFF and the conservation agencies as to what constitutes good environmental practice on farms provides a clear indication that, "government policy is now firmly committed to promoting good environmental practice on the nation's farms"(Clarke and O'Riordan, 1989, p.30). Just as the 1947 Agriculture Act laid down codes of good agricultural practice, widely and successfully adopted by

the farming community, so there needs to be new codes of environmental practice adopted. The provision of sound advice will be integral to this process, as recognised by the CC (1993b, p.17): "the provision of technically competent advice was an essential component of the post-war improvement in agricultural production. In the same way, the management changes now sought through environmental schemes require a cadre of advisors skilled in environmental and land management techniques, to see that best practice is used and value for public money is maintained". Basic environmental standards in agriculture have been set out in a number of measures by the European Community e.g. MAFF Code of Practice for the safe use of pesticides, 1990c, MAFF Codes of Good Agricultural Practice for the protection of water 1991f, air 1992c and soil 1992d, and the FWAG Guidelines for Environmentally Responsible Farming, 1991. It is believed that these, "new advisory codes of practice have raised land managers' awareness of the environmental effects of their activities"(CC, 1993b, p.5). The various mechanisms which are available and have been proposed to enhance environmental protection on farms are regarded as creating/raising 'baselines' in environmental practice. For example, the CC, "believe that regulation has an important role to play in 'raising the base line', and thus ensuring certain minimum environmental standards in agriculture and other rural economic activities. Regulation can be used to set down those measurable standards which the government regards as essential to ensure people's quality of life." whilst, cross-compliance, "can promote what is considered as 'good environmental practice' for land managers, without imposing unrealistic additional management burdens upon them"(CC, 1993b, p. 7). Ilbery (1992) also calls for a baseline code of good environmental practice to be built in to a UK environmental policy strategy in agriculture.

Whilst it is encouraging that policy-makers and countryside commentators are making clearer statements on what they want of farmers in terms of good environmental practice, this will only be meaningful if these notions of good practice become established in the farmer's mind; conservation norms need to act as reference points for farmers when they make decisions relating to conservation and environmental management. This is also important if farmers are to become increasingly autonomous in their role as stewards, where a less rigorous framework is imposed on farmers, not in the form of management prescriptions, but instead, by a more flexible system where payments for results are available, as suggested by the CC, 1993b. What is required here is a new norm of behaviour; conservation as a professional way to manage land. This approach will be contingent upon farmers being able to make their own conservation judgements in what environmental work they chose to do because they have a sound knowledge of best practice, but for this to happen farmers need better knowledge and education, to have a sense of conservation-mindedness and to hold a conservation norm.

This is obviously a bottom-up process, and as such, a more radical approach, and can only take place once there has been a change in attitudes. A different advisory approach is likely to play a part in this. Clarke and O'Riordan (1990, p.27) recognise and sum up both the top-down and bottom-up aspects to instilling conservation-mindedness and codes of best practice into the farmer: "Effective advice depends on steady education and awareness building. The structural control of agricultural financing, policy promotion and effective management advice, coupled to the socialisation of what constitutes good agricultural practice through farmer education and peer group influences, play a profound part in determining the receptivity to conservation advice. The degree of on-farm conservation will not be improved unless these

structures and social influences reflect a new environmental morality." How might this new environmental morality be brought about?

It is clear that amongst those farmers who do not have the opportunity to participate in a conservation scheme the widespread adoption of a norm of good conservation practice is needed, and that specific sorts of persuasive advice can play an important role in bringing this about. Opp's (1982) 'model of evolutionary norm formation' (appendix 6) provides clues as to the necessary changes in advice provision to be brought about in order to facilitate the emergence of a conservation norm (i.e. where conservation activities on the farm are an integral part of day to day farm management decisions) amongst farmers in the wider countryside. Just as notions of property rights can change in relation to shifting social norms and concepts of fairness, so norms of behaviour can change in relation to experiences and changing cultural attitudes. McEachern (1992, p.161-2) recognises that this process of change is highly relevant to conservation policy making. "The level at which various practices and logics are so culturally embedded that they seem 'natural' to farmers is a very important one, particularly if...we wish to understand farmers as social agents rather than mere victims of deterministic policies and forces. The knowledge that these taken for granted meanings can also change with new circumstances is also an important aspect of...environmental politics".

This process could entail greater emphasis being placed (in advice provision) on the altruistic role of farmers. It was found that many farmers had strong feelings that conservation and scheme participation was important for themselves and others. The I/We paradigm suggests that people are not only motivated to fulfil their own needs, but decisions often have a strong moral dimension as well i.e. a normative component (Etzioni, 1968). In persuading

farmers to adopt conservation initiatives this also could be emphasised, and could become part of norm enforcement (i.e. where farmers do not conform to a conservation norm that benefits themselves, other farmers and the public). Etzioni refers to the policy implications of adopting an I/We paradigm. He uses debt as an example, but his conclusions can be used equally well with reference to environmentally sensitive farming. He argues that policy should emphasise that (adopting/ perpetuating environmentally damaging farming systems) is socially undesirable behaviour, one that undermines our collective well-being and threatens our future, and that the government, opinion formers and educators should all play a role in changing the (farming) community's perspective.

6.7. Summary and Conclusions

The long term effectiveness and impact of incentive schemes hinges on their ability to bring about a general reorientation of farmers' attitudes and behaviours towards conservation and land management. The extent to which this is a permanent change will determine how far any resulting environmental improvement is likely to be sustained into the future. The results of the farm survey strongly suggest that this process was already underway, to an extent, amongst those participants in ESA's and CSS who are actively adopting the schemes. A significant proportion of the rest of the participants appear to be responding simply to the financial incentive and, at present, are doing little to change their attitudes and actions towards their systems of management. For these passive adopters, conservation (including scheme participation) remains a spatially peripheral activity, one confined to the unproductive margins of the farm. Furthermore, significant numbers of farms have yet to participate (and some probably never will) due to a combination of financial and attitudinal constraints.

To promote a deeper commitment to scheme participation, to facilitate movement along the participation spectrum and extend and sustain the environmental benefits of scheme participation requires a more persuasive approach to advice provision. The various steps that would be involved in this process can be summarised as follows. Firstly, there is a case to be made for scheme payments to be made conditional on the preparation of a whole farm plan that encompasses not only the scheme land but the rest of the holding (and as such is distinct from the new round of ESAs where a conservation plan is an option on areas of the farm covered by an agreement). Secondly, amongst the active adopters, the provision of high quality follow-up advice would ensure that existing conservation attitudes and behaviours are reinforced and extended; this would also be money well invested as these farmers could act as key demonstration projects to the less committed and uncertain participants and non-participants. For the passive adopters, a coherent programme of follow-up advice and hand-holding, and targeted environmental management training programmes to ensure that environmental benefits are sustained after the main reason for their participation (i.e. the incentive) is removed. This group should be encouraged to visit and establish links with demonstration/leader farms amongst the actively adopting group. Meanwhile, the least resistant non-adopters should be targeted by information and advice programmes, couched in sensible terms, that will enable them to see the benefits and opportunities of participating when they feel able/willing to do so.

The continuing evolution in the policy and farm environment will continue to demand changes in research methodology and research needs. From a descriptive and behavioural approach in the 1970 s, rural geographical research adopted a political economy approach in the 1980 s as policy makers intervened to influence the direction of agriculture. Now, in the early 1990 s

a shift back towards a behavioural and agent orientated approach looks increasingly desirable as the reasons for taking up environmental initiatives need to be explored and understood, providing policy makers with information for the redirection of policy measures in the future. In evaluating the effectiveness of incentive schemes, an agent-centred approach which can examine decision-making processes, through the use of an adoption model has proved useful.

The future research needs arising from this evaluation will be addressed in the final chapter.

CHAPTER 7 CONCLUSIONS

7.1. Summary of Research

This research has looked at the opportunities which agri-environmental incentive schemes create to bring about environmental improvement on farms through the recruitment of farmers into conservation. Viewing this issue in adoption terms has shed new light on the factors ultimately determining their effectiveness and success. These schemes represent an innovative approach to policy making, whose implementation has been welcomed by conservationists and farmers alike. The agri-environmental incentive scheme represents one attempt by government (responding to public pressure, in turn responding to increasing evidence of the environmentally destructive effects of modern agriculture) to intervene in the production process, to positively influence land-use practices (over broader areas of the farm, not just the field corner) in order to preserve valued habitats and landscapes. The role of these schemes has also been to influence, indirectly, the levels of agricultural production and to provide 'social payments' to maintain farmers on the land. The context of their genesis has been, and continues to be influenced by, the broader process of agricultural reform, which has opened up opportunities for the conservation of farm land but which continues to favour traditional forms of agricultural support. The 'reformist' approach to resolving the conflict between agriculture and conservation, advocated by Potter (1985b) is therefore well underway and one in which incentive schemes are playing a central role. It is also an approach which continues to evolve as existing environmental schemes develop and attract increased levels of financial commitment by policy makers and as the new CAP reform measures (CEC, 1992) offer new opportunities for environmental enhancement and protection.

The way in which incentive schemes have developed as part of this broader policy process was described in chapter one, where emphasis was placed on the evolution of policy from the previous approach to on-farm conservation (grant-based and involving a self-selecting group of interested and motivated individuals) to the revised and extended incentive scheme of the 1990s (operating on a prescriptive basis, typically in spatially designated areas), which has recruited many more farmers into conservation than ever before. The idea that the nature and practice of on-farm conservation is changing because of the design of incentive schemes (where farmers are likely to respond to the incentive on offer and not through any prior commitment to conservation) was discussed as an important feature of their implementation and consequent uptake. The challenge posed by these schemes to existing and strongly held notions of property rights, reflecting a change in what society is demanding from farmers, is still a contended area. The research has suggested that, whilst for many farmers this challenge to entitlements is being accepted and accommodated, for many it remains a barrier to change.

An investigation of the patterns of participation in incentive schemes has provided a central research theme, and this thesis has emphasised the importance of measuring their success in terms of attracting farmers of sufficient numbers and of the right type. It has also demonstrated the need to establish the extent to which these schemes are bringing about sustained changes in land-use attitudes and behaviour amongst those adopting these schemes. Indeed, it is this aspect of scheme implementation which deserves particular emphasis when evaluating their long term effectiveness, and is an aspect of their delivery that has yet to be fully addressed by policy makers.

Building on a research tradition in rural geography which has utilised behavioural methodologies (including innovation-adoption) in investigating farmer decision-making, chapters 2 and 3 set out to build a model of environmental adoption that could be applied to the uptake of incentive schemes. The objective of creating the model was to examine whether the participants and non-participants were characterised by particular farm and farmer factors and by their attitudes towards schemes and their motives for adoption. The use of an adoption model in relation to conservation is a previously unexplored methodology in UK research. However, a case was made for regarding environmental schemes as innovations whose adoption was predicted to entail similar patterns and processes to other innovations. Previous analyses of participation in environmental schemes were believed to be inadequate in providing information as to their effectiveness as policy measures because they had not probed the decision-making process in enough depth.

Whilst the theoretical emphasis of research in rural and agricultural geography has shifted in recent years, away from the agent, to concentrate on the political economy of countryside change, this research has made a strong case for re-emphasising the role of agency in research which attempts to provide information to policy makers about the reasons farmers give for choosing to adopt or reject environmental schemes. Structuralist analyses, at least in an unmodified form, cannot provide adequate explanations in this respect because such an approach denies an active role for decision-makers. It was recognised that a tension exists between structural/ political economy explanations and behavioural interpretations (themselves limited in scope because they typically deny the context in which decisions are made) of on-farm change. To address this methodological difficulty a working definition of Giddens' Theory of Structuration was utilised. This presents the farmer as

a conditioned and yet also knowledgeable subject, able to problem-solve in a purposeful way within a framework influenced by policy and technological change. The model of environmental adoption therefore included the influence of macro-environmental characteristics (the broader forces for change, particularly the farm policy environment) and the role of individual consciousness in decision-making. The application of this model has extended the scope of existing research into environmental schemes, by further explaining the processes of participation and non-participation (taking into account and investigating behavioural factors), but also in making predictions as to the likely effectiveness of schemes in the future.

To test the model of adoption, a farm survey of participant and non-participant farmers was carried out (chapters 4 and 5). This indicated that schemes are appealing to a wide range of farmer and farm situations (and that these in turn are likely to vary between schemes operating in different areas). It also indicated that hypotheses concerning the motives of farmers responding to these schemes were borne out to a large extent and provided clear empirical evidence of the extent to which participating farmers are committed to these measures and also the depth of resistance amongst those currently not taking up the schemes. The survey results suggested that the nature of adoption of environmental schemes is either one of farmers passively responding to incentives, or actively taking them up. Both of these responses have different implications for the future development and long term effectiveness of incentive schemes. In this last respect, Chapter 6 discussed how the environmental benefits of schemes might be sustained, suggesting that adjustments in the nature of advice delivery in the context of a scheme package (towards a more proactive and persuasive approach) could do much to extend existing benefits arising from passive participation. In

addition, the potential role that active adopters could play as demonstration and leader farms was discussed.

The survey findings provide empirical support for a subtle balance of policy mechanisms (suggested, in theoretical terms by a variety of countryside commentators) to secure conservation and environmental management on farms. To simply provide incentives does not guarantee a positive and long term behavioural response amongst farmers. Incentives, regulation and advice are all needed, in appropriate combinations to ensure the success of policy measures. Research which reports exactly how farmers are adapting to new measures is important so that policy makers can make informed decisions regarding the future design and promotion of incentive schemes.

The promotion of a deeper commitment to conservation once participation in an environmental scheme has been initially secured reflects what is required in the wider countryside, where incentives for environmental management are currently lacking. The promotion of a conservation norm amongst these farmers, by the establishment of codes of environmental practice, is arguably as important as the promotion of greater conservation-mindedness amongst those taking up incentives, if the wider countryside is to be conserved and sustained in the same manner as in designated areas.

On the basis of these conclusions a number of predictions can be made. Firstly, the introduction of a new range of incentive schemes and other, complementary conservation measures means that farmer awareness of environmental issues will continue to grow as it has done since the CAP reform process began and the first incentive schemes were introduced in the early 1980's. However, this increasing awareness will not necessarily be translated into action (despite the fact that the research indicates that

incentive schemes do have potential to act as vehicles for attitudinal and behavioural change) unless the balance of incentives and advice is right. To allocate increasing sums of money to the agriculture conservation problem will not necessarily deliver the results many expect. Secondly, farmer participation in incentive schemesis likely to increase as more opportunities for doing so are opened up under the new agri-environment package (i.e. this will target more farmers in new areas) but also as the opportunities within agriculture in general further diminish and as an incentive payment becomes more attractive as a result. The need to secure commitment to conservation under this scenario is obviously important from the perspective of accounting for the use of public funds, but also, if the emphasis of incentive provision changes to one of 'payment for results' as advocated by the CC (1993b) in their latest policy document.

7.2. Future Research Needs

Just as this research has been the outcome of questions raised by previous studies, so the results of this work raise further questions to be addressed by future research. The following discussion makes suggestions for further research.

This research has approached the analysis of the effectiveness of agri-environmental schemes by adopting a modified behavioural approach to the investigation of the reasons why farmers are responding to these initiatives. It is an approach that is being adopted (if sometimes tentatively) by rural researchers elsewhere (e.g. Shucksmith and Smith, 1990, Shucksmith 1993, Marsden et al, 1992) and advocated by various countryside commentators, e.g. Gilg and Harrand, 1989, p.4.9 who argue that the, "idiosyncratic and unpredictable nature of farmers as decision makers," needs to be accounted

for in conservation research. This indicates that a new field of research is opening up with a theoretical underpinning which is placing greater emphasis on the agent. This research can therefore be placed within this broader trend towards a more agent-oriented analysis.

What does this shift in research philosophy mean in policy terms? With an increasing number of policy signals coming from above, entailing a range of new incentive schemes under the agri-environment programme, together with other policy signals arising from further reform of the CAP, farmers face a steadily more complex array of programmes and schemes from which to chose. Given this likely future policy scenario, it is important that the approach to research is able to provide meaningful information to policy makers as to how farmers are responding to this range of new measures. As such, there will be a need for continual behavioural research into the participation process of agri-environmental schemes. This is particularly important in assessing the extent to which additionality is a feature of the existing and new policy measures. Socio-economic monitoring of the type adopted by MAFF (1991a-d) does not say enough in behavioural terms; assessing, "attitude towards a scheme" is an inadequate analysis if this attitude is not translated into sustained, behavioural change. More consideration should be given therefore to those behavioural and psychological processes that have started to be explored in this research. For example, an in-depth examination of how farmers' concepts of the self reflect or conflict with new incentives and policy measures (and how these alter over time in relation to policy changes) is an interesting area, and one that this research has only started to address. To provide more information of this type may prove particularly useful for the way in which schemes are designed and promoted. On the whole there is still scope for more detailed empirical research into the behavioural and psychological processes behind the

adoption and non-adoption decision. For example, the extent to which participating farmers have different goals and values compared with their non-participating counterparts and with those who are adopting different incentive schemes has only begun to be explored by this research.

A comparison between participation in two schemes of a similar nature was another aspect of this research. The results suggested that in terms of decision-making and motives for adoption, the patterns are likely to be similar. However, in terms of farm and farmer variables, the influence of the locale (particularly, the structure of land ownership and the particular nature of the environmental resource which is the target for environmental monies) in determining who responds to incentives might well be important in leading to differences in the pattern of participation. Further behavioural research into how farmers respond to different schemes may indicate the relevance and effectiveness of different measures to policy makers, i.e. further cross-scheme comparisons would be useful.

Whilst some research has already been attempted into the influence of specific variables on the conservation performance on farms, e.g. small farms (Potter and Lobley, 1992a), elderly farmers (Potter and Lobley, 1992b), in relation to conservation schemes little of this type of research has been attempted. The role of specific adoption variables in the model in influencing participation may provide more answers and insights than the current research has done. To investigate the link between specific variables and participation in conservation schemes may be worthwhile (instead of investigating a whole range of variables contained within the adoption model applied in this research) in order that particular farms/farmers could be the targets of future schemes, and for these to act as leader farms. This may also be valuable as policies become more discretionary in their approach to

the provision of incentives. For example, this research has suggested that many participating farmers, particularly amongst the actively adopting group, were undergoing structural change in the farm business. Future research could examine the link between stages in the investment cycle (including investment in the non-agricultural side of the business) and participation in incentive schemes, i.e. are some businesses more geared up to join schemes because of the stage at which they are at in the investment cycle? Also, the link between family processes and participation may be a profitable route of enquiry (a process that has already received some research attention, e.g. Marsden et al, 1992)

The link between the role of different sorts of information and advice on participation also needs to be pursued, particularly, the different demands in terms of the nature and delivery of information and advice between areas where incentive schemes operate and the wider countryside needs to be investigated.

As Chapter 6 stated, incentive schemes are one option for bringing about changes in farmers' attitudes and behaviour towards environmental management. The variety of methods to achieve this in non-designated areas needs to be considered (clearly, CAP reform will influence the direction of research in these areas), both in terms of desk research and further empirical research of the sort suggested above.

These future research suggestions can build on existing studies to provide an increasingly detailed picture of the nature of on-farm change. On the whole, the emphasis of future social science research into agriculture and the environment needs to emphasise the sustainability of land-use practices (recognised by Hodge and Dunn, 1992), of which, agri-environmental

incentive schemes provide a starting point for addressing this issue. This will only be a meaningful process if farmers everywhere adopt land use practices that are sustainable (i.e. environmentally sound, economically viable and socially just) in order to preserve valued habitats and landscapes but also to conserve the food-producing resource. These processes must reflect changed attitudes and behaviours, and tracing the evolution of this change presents an interesting and challenging research agenda.

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Appendix 1: South Downs ESA - Management Guidelines for Farmers

TIER 1

* Maintain grassland and do not plough, level or re-seed the land.

* Cultivate only with a chain harrow or roller.

* Graze with cattle or sheep at an average stocking rate not exceeding 0.4 livestock units per acre (1.0 livestock units/hectare) per year. But avoid poaching, undergrazing or overgrazing.

* Do not cut grass for hay or silage or top the grass before 16 June.

* Do not apply organic or inorganic fertiliser.

* Do no use pesticides (fungicides and insecticides).

* Herbicides may only be used to control nettles, spear thistle, creeping or field thistle, curled dock, broad-leaved dock or ragwort or for stump treatment of cleared scrub. Apply herbicides by weed wiper or spot treatment.

* Do not install any new drainage system or substantially modify any existing drainage system.

* Maintain existing ditches by mechanical means, not sprays.

* Where ditch water levels are within your controls:
(i) Between 31 March and 1 October ensure that ditches contain at least 12 inches of water and that the water level is not more than 24 inches below grassland level;
(ii)Ensure that ditches at no time dry out completely.

* On chalk grassland only, restrict supplementary feeding of livestock to areas agreed in advance with the project officer.

* On chalk grassland only, do not apply lime, slag or any other substance to reduce the acidity of the soil.

* Protect and maintain dewponds and reedbeds.

* Maintain stockproof walls and hedges in a stockproof condition using traditional materials.

* Any weatherproof field barns which you own or are responsible for must be maintained in a weatherproof condition using traditional materials.

* Do not damage or destroy any feature of historic interest.

* Obtain written advice on siting and materials from the Project Officer before constructing buildings, roads or any other engineering operations that do not require planning permission.

* Within two years of the start of the agreement you must obtain written advice on the management of woodland or scrub within the area covered by your ESA agreement.

TIER 2

* Cease arable production and establish a grass sward within twelve months of the start of the agreement.

* During the first twelve months of the agreement consult the Project Officer if you wish to apply any of the following in order to assist the establishment of the grassland sward:

(i) organic or inorganic fertiliser;

(ii) lime, slag or any other substance to reduce the acidity of the soil;

(iii) pesticides;

* From the start of your agreement you must follow all the Tier 1 guidelines from maintenance of dewponds and reedbeds onwards.

* After the twelve month period you must also follow the remaining guidelines in Tier 1.

(MAFF, 1987)

Appendix 2: Countryside Stewardship Scheme - Management Guidelines for Farmers (Showcard for Survey Respondents)

CONDITIONS OF COUNTRYSIDE STEWARDSHIP SCHEME IN AREAS OF CHALK AND LIMESTONE GRASSLAND

There are 2 levels of payment on offer reflecting different management demands.

TIER 1 Management of Existing Permanent Grasslands by:-

a) Light grazing for at least 10 weeks of the year.

b) Non-application of fertilizers, herbicides and pesticides.

c) No ploughing, cultivation, reseeding, rolling or chain harrowing.

d) No new drainage.

e) Avoidance of supplementary feeding of livestock where possible.

f) Scrub management.

g) Protect and maintain all traditional walls, woodlands, hedges, hedgerow trees, ponds, historical or archaeological features.

PAYMENT Annual payments of **£50/hectare** + Supplementary Payments of **£40/h** in first year for initial work needed to establish/reintroduce grazing.

TIER 2 Re-creation of Permanent Chalk and Limestone Grassland on Arable Land and Ley Grassland by:-

a) Using an appropriate mix of grasses.

b) Non-application of fertilisers, herbicides and pesticides.

c) Following the same management guidelines as Tier 1.

PAYMENT Annual payments of **£210/hectare** + Supplementary Payments of **£40/ha** in first year for additional work to help recreate chalk and limestone grassland.

ADDITIONAL PAYMENTS FOR BOTH TIERS:

Annual Payments of **£50/hectare** on land made available for public access.
Capital Payments available for additional work e.g. scrub clearance, tree/hedge planting, maintenance of access routes (CC, 1991b)

Appendix 3: Letter to Farmers in the South Downs ESA

Dear

I am writing to ask for your help with a research project I am carrying out as a post-graduate student at Wye College. The broad aim of the research is to investigate how farmers are responding to new government incentives for environmentally sensitive farming. This study will involve interviews with individual farmers, within the South Downs ESA, using a simple questionnaire.

I am therefore writing to ask whether you would be willing to take part in such a study. I must stress that any information given will be treated in the strictest confidence and that any publications arising from the research will not cite individual farmers. I must also point out that I am not concerned (primarily) with financial/economic factors, rather, the intention is to uncover motive and attitude differences amongst farmers, and how decisions are made on the farm.

I hope this gives you some idea of what the survey aims to achieve. I estimate that the interview will take 50 minutes to 1 hour. I do hope that you will be willing to participate, and will be contacting you shortly to inquire as to whether you can spare the time.

Yours sincerely,

Carol Morris
(Research Student)

Appendix 4: Letter to Farmers on the North Downs

Dear

I am writing to ask for your help with a research project I am carrying out as a post-graduate student at Wye College. The broad aim of the research is to investigate changes in agricultural policy over the last 10 years, and more specifically, how farmers are responding to a variety of government schemes, introduced in this period, which aim to reduce production and also which encourage more 'environmentally friendly' farming. This study will involve interviews with individual farmers, within the North Downs, using a simple questionnaire.

I am therefore writing to ask whether you would be willing to take part in such a study. I must stress that any information given will be treated in the strictest confidence and that any publications arising from the research will not cite individual farmers. I must also point out that I am not concerned (primarily) with financial/economic factors, rather, the intention is to uncover motive and attitude differences amongst farmers, and how decisions are made on the farm.

I hope this gives you some idea of what the survey aims to achieve. I estimate that the interview will take 50 minutes to 1 hour. I do hope that you will be willing to participate, and will be contacting you shortly to inquire as to whether you can spare the time.

Yours sincerely,

Carol Morris
(Research Student)

Appendix 5: Farm Questionnaire

Interviewee ..... Address .....
Date of Interview ....
Length of Interview ..... Telephone No.....

THE FARM

1. What is the total area of this holding? hectares___

2. Is this the total area farmed by you? YES/NO
If NO, what is the total area farmed? hectares___

3. How is the land held? hectares
owner-occupied___
tenanted___
short term lease___
share farmed___

4. What are your main enterprises?
(In order of importance: re total farm income)

1._____ 2._____
3._____ 4._____
5._____ 6._____
Farm Type:_____

5. How is the land used at present? hectares
Arable___
Permanent Pasture___
Temporary Grass___
Rough Grazing___
Woodland___

6. Can you give a breakdown of the labour employed on this holding?

	No. of People Family	Other (Inc. farmer)
Full time		
Part time		
Casual		
Contract		

THE FARMER AND FARM HOUSEHOLD

7. Who is responsible for the day to day management of the of the business? Interviewee/Interviewee + Other/Other
If not interviewee, then who?
Ascertain interviewee's level of involvement:
Managerial___
Specific Manual Tasks___
Anything Needed___
Other/Not Known___

8. What is your age?
Under 35
35-44
45-54
55-64
>65

9. How many years have you been in farming? No. of years___

10. How many years have you been farming here? No. of years___

11. Have you ever worked outside farming? YES/NO
If Yes, in what occupation did you work,
when, and for how long?

12. Is it possible that you may leave farming YES/NO
in the future to pursue another occupation?
If YES, what would prompt you into making such a move, and is there a specific occupation/ general area of interest you would like to move into?

If NO, why? (PROMPT: would perhaps like to, but feels there are no opportunities given age, lack of appropriate skills, low salvage value of tenants capital etc.)

13. Do you have any formal training in agriculture? YES/NO
If YES, please specify. Agriculture Diploma OND/HND
Agriculture Degree
Other Agricultural

14. Do you have any further education in any other field? YES/NO
If YES, please specify. Degree
Diploma
Other

15. Please can you indicate which members of the family are living on the farm?

Relationship to farmer	sex (M/F)	age (Code)*

* a.<17 b.17-24 c.25-44 d.45-64 e.65+

16. In what capacity are family members employed on the farm?

Family member	Role on the farm

17. Do you have a successor willing and able YES/NO/PROBABLY
to take over the farm?
If YES, what is their age? Age of Successor___
Has the presence/absence of a successor had an influence on the management decisions taken about the farm?

The following 2 questions aim to establish how you see yourself as a farmer the kinds of beliefs you have about farming, the factors that drive you to make decisions, and how you see yourself as part of a farming community. (Present farmer with the first scale) For each of the scales, the idea is that you place a mark at that point which best reflects you.
For instance, if you feel that the word/phrase very closely relates to you, place a mark on one end of the scale. If it is only quite closely related to you, place a mark nearer the middle. If you consider the word/phrase to be neutral, or if you feel both sides of the scale are equally important, then place your mark in the middle.

18. How do you see yourself as a farmer? Or, 'This is Me'.

19. How would you (ideally) like to be?

Scales for questions 18 & 19:

Intensive ____ . ____ . ____ . ____ . ____ Extensive
Modern ____ . ____ . ____ . ____ . ____ Traditional
An Inexperienced Farmer ____ . ____ . ____ . ____ . ____ An Experienced Farmer
A Risk Minimiser ____ . ____ . ____ . ____ . ____ A Risk Taker
An Expander ____ . ____ . ____ . ____ . ____ A Consolidator
A Planner ____ . ____ . ____ . ____ . ____ An Opportunist
An Innovator ____ . ____ . ____ . ____ . ____ A Follower
Someone who Farms as a way of life ____ . ____ . ____ . ____ . ____ Someone who farms as a business
Less Well Informed than my Neighbours ____ . ____ . ____ . ____ . ____ Better Informed than my Neighbours
Someone who tries to Maximise Income ____ . ____ . ____ . ____ . ____ Someone who tries to make a satisfactory income
Always Open and Interested in New Ideas ____ . ____ . ____ . ____ . ____ Always Sceptical About New Ideas
Farm Orientated ____ . ____ . ____ . ____ . ____ Community Orientated

20. Do you think that the way you think about yourself as farmer has changed over the last 5-10 years?
(PROMPT:Changes in family circumstances, changes in agricultural policy, changes in public opinion)

CHANGE ON THE FARM, INNOVATIVENESS AND ADOPTION BEHAVIOUR

21. Has the total area of this farm changed in the last 10 years or since you started farming here, if later than 1985? YES/NO
If YES, how much has been added, hectares____
and/or how much has been disposed of? hectares____
Reasons:
Economies of Scale____
Opportunistic____
Tax Avoidance____
Change, progress____
Technical____
Inheritance, succession____
Other____

22. Have you made any (agricultural) capital investments, apart from land in a) machinery; b) equipment; c) buildings over the last 10 years? YES/NO
If YES, please give details.

23. Please can you indicate what proportion of your machinery and building floor space is:

	Percentage	
	Machinery	Building Flr Sp
< 5 years old		
5-10 years old		
> 10 years old		

24. Have you ever received any grant aid, eg under the AHDS/FHDS schemes, to help undertake any of the above (or other) investments, over the last 10/15 years? YES/NO
If YES, please give details.

25. Have you undertaken and/or are undertaking at present any:
On-farm, non-agricultural activities? YES/NO
If Yes, what is the activity?
Farm accomodation___
Farm Shop___
PYO___
War Games___
Nature Trails___
Other (specify)___

How long has this been operating? No. of years___

Do you receive a grant for doing this, eg FDS? YES/NO
If YES, please specify.

What are the main reasons for developing such an enterprise?
(PROMPT: additional income, interest, family factors)

Off-farm, non-agricultural activities? YES/NO
If YES, please give details.

How long have these been operating? No. of Years___

What are the main reasons for developing such an enterprise?

If YES to one/both of the above, what is the proportion of your income derived from non-agricultural activities?
<10%___
10-24%___
25-49%___
50-74%___
>75%___

Has this proportion changed over the last 10 years? YES/NO
If YES, has their been an increase or decrease? INCREASE/DECREASE

If No to one/both of the above, can you indicate the main reasons for not diversifying on/off the farm?

26. Can you give an example of what you regard as the most significant innovation that you have adopted on the farm in recent years?
(PROMPT: new crop, change in farming practice/ system of management, new enterprise, new piece of machinery etc)

Please can you indicate the main reasons for its adoption, where the idea came from, and any information and advice you received about it.

Do you think that the adoption of this innovation has changed the way you manage this farm?

INTEGRATION INTO THE ADVICE NETWORK

27. Where/to whom would you go first, to obtain advice on specific aspects of farming and agricultural practice, namely:
Machinery/other Equipment

Agronomy and Livestock Husbandry

Farm Planning and Finance

28. Which of the following sources of advice have you made use of in the past?
ADAS____ Machinery Dealers____ Spray Specialists____Other Farmers____ Self____
Family____ NIAB____ Journals____ MMB____ Vet____ Ind. Agronomist____
Accountant____ Bank____ Ind. Management Advisors____Feed Dealers____
Other(specify)____

29. On average, how many times would you seek advice in a year? No. of Contacts p.a.____

30. On average, would you say that the advice you receive affects:

	Every Time/	Some of the Time/	Never
Your decision to go ahead with a project.	X	X	X
The nature/scale of a project.	X	X	X
The timing of a project.	X	X	X

31. Which sources of information about farming and agricultural practice do you tend to consult?

General Farming Press____
Specialist Farming Journals____
TV____
Radio____
ADAS____
Agrochemical Companies____
Other Farmers____
Other (Specify)____

32. Do you tend to consult different sources of information and advice now than say, 5 years ago? YES/NO
If YES, please give details.

33. Are you a member of any farming group? YES/NO
If YES, which ones? NFU___
CLA___
Other___

34. How often do you attend meetings? Regularly/Sometimes/Never

35. Can you indicate your level of involvement in the farming group of which you are a member eg Committee Member, attender at meetings etc.

36. How often do you attend Farming Demonstrations and Agricultural Shows? Regularly/Sometimes/Never

37. As farming is a highly visible occupation do you think that the activities (and opinions) of other farmers have any bearing on the decisions that you take regarding your own farm?

Strongly Agree/ Agree/ Uncertain/ Disagree/ Strongly Disagree

Would you have answered differently 10 years ago? YES/NO
Why?

38. Have you had any formal links with the village community either now or in the past? YES/NO
If Yes, please give details.
(PROMPT: Parish Council, School etc. Try to ascertain why these links are important to the farmer)

39. Are you more/less inclined to get involved with the local community than say, 10 years ago? MORE/LESS/THE SAME
Why?

CONSERVATION BEHAVIOUR AND CONSERVATION ORIENTATION

40. Over the last 15-20 years, how may hectares have been:

Drained___
Reclaimed from Rough Pasture___
Reseeded from Old Pasture___
Converted from RG/Pasture to Arable___
Converted from Woodland___ to Grass/Arable

Please can you indicate the main reasons for these changes.

41. Have you removed any internal field boundaries (excluding fences) in the last 15-20 years? YES/NO
If YES, what length, and what were the main reasons for their removal?

42. How much of your woodland is currently managed? hectares___
% of Total Woodland___

43. What type of management is your woodland under?

44. Would you say your farming system has become more/less intensive in recent years? MORE/LESS/STAYED THE SAME
If MORE/LESS, has this change been a result of:
An increase or decrease in inputs___
An increase or decrease in stocking densities___
The adoption of an organic/low input system___
Other changes (please specify)___

45. Do you have any plans to further intensify or de-intensify your system of management in the future? INTENSIFY/DE-INTENSIFY/ STAY THE SAME
What are the reasons behind such possible moves?

46. Have their been any changes in the overall level of production on the farm over the last 5-10 years? MORE/LESS/SAME
Please give details.

47. Have you undertaken, in the past 5-10 years any form of conservation activity/investment on the farm? YES/NO
Please give details.
(PROMPT: Creation of new habitat or landscape features, eg tree planting, hedgerow planting, extending headlands, creation of ponds/lakes, other. Management of existing features in a positive way for conservation, eg woodlands, hedgerows, headlands, other. Protection of existing features from destruction)

Did you receive a grant for carrying out any of these activities? YES/NO
If Yes, please specify.

If NO (to undertaking conservation) can you indicate the main reasons for not doing so. (PROMPT: lack of money, lack of interest in conservation, lack of information/advice)

48. Have you applied/are likely to apply for a grant to carry out any conservation/environmental investment under the FCGS? YES/NO
Please give details.

49. Do you have any land in an SSSI agreement? YES/NO
If YES, please give details.

50. Are you a member of any conservation group? YES/NO
If Yes, which one?

What is the extent of your involvement in the groups activities?

51. Have you received any advice on conservation in the past? YES/NO
If YES, from what sources have you received conservation advice?

ADAS___
FWAG___
Other Agricultural (specify)___
Other Conservation (specify)___
Other (specify)___

Did you actively seek out this advice? YES/NO
Details

Did you act on this advice in order to undertake any conservation activity? YES/NO

If NO, are you aware that information and advice on conservation is available?

52. How important would each of the following actions be in increasing the conservation value of your farm? (Show farmers card)

	Category of Importance				
	Essential	Very Important	Important	Not Really Important	Irrelevant
a. Reducing the use of farm chemicals.	X	X	X	X	X
b. Reducing stocking densities.	X	X	X	X	X
c. Introducing an Organic System.	X	X	X	X	X
d. Planting Trees.	X	X	X	X	X
e. Coppicing Woodland.	X	X	X	X	X
f. Planting Shelter Belts.	X	X	X	X	X
g. Planting Hedgerows.	X	X	X	X	X
h. Extending and Managing Headlands.	X	X	X	X	X
i. Creating Ponds.	X	X	X	X	X

AWARENESS AND KNOWLEDGE OF CONSERVATION SCHEMES: ABILITY AND WILLINGNESS TO ENROL AND ADOPT

To All Farmers

53. For each of the following schemes please can you indicate: If you are aware of their existence and; If you have read/received any published literature about the scheme. (Show card)

54. Is your farm located within the South Downs ESA? YES/NO
If NO/don't know, go to qu. 84.

55. Do you have any land enrolled in the scheme? YES/NO
If NO, go to qu. 74.
If YES, how much land have you enrolled? Area____ % of Holding____

56. When did you enrol your land? Date of Entry____

57. How did you first learn about the scheme?

Neighbouring Farmers____
NFU/CLA____
Farming Press____
ADAS____
Promotional Literature____
Other____

58. When did you first learn about the scheme?

59. To what extent did each of the following factors influence your decision to join the scheme? (Present qu. to farmers on separate sheet)

	Category of Importance				
	Essential	Very Important	Important	Not Really Important	Irrelevant
a. Level of payment on offer.	X	X	X	X	X
b. Scheme Conditions.	X	X	X	X	X
c. Length of period of Scheme.	X	X	X	X	X
d. Presentation and marketing. of Scheme.	X	X	X	X	X
e. It allows me to continue farming as before.	X	X	X	X	X
f. It enables me to cut costs by concentrating production on my best land.	X	X	X	X	X
g. It easily fitted into my existing farming system.	X	X	X	X	X
h. It enables me to introduce a new enterprise.	X	X	X	X	X
i. Neighbouring farmers were participating and found it OK.	X	X	X	X	X
j. It provides a useful additional income source.	X	X	X	X	X
k. It provides an opportunity to move to a less intensive system.	X	X	X	X	X
l. It provides a useful stop-gap/element of security at a time of agricultural uncertainty.	X	X	X	X	X
M. It will allow me to under-take conservation work on the farm which I would have been unable to do previously.	X	X	X	X	X
N. It will allow me to carry on/extend conservation work already being carried out on the farm.	X	X	X	X	X

60. Do you have any land entered under tier 2 payments? YES/NO
If YES, how much land have you entered? Area____ % of ESA land____

61. Would you have joined if the payments were lower? YES/NO
If YES, what would have been the minimum level of payment £/ha___
that would have been acceptable?

62. What sources of information and advice do you/have you consulted in deciding to participate?

63. What are you doing under the scheme that you would otherwise not do?

64. On that land which you have not entered into the scheme, are you farming this any differently from before? YES/NO
If YES, please give details.

65. Are you conscious of feeling constrained by the scheme guidelines or is this acceptable in terms of the payment you are receiving?

66. Thinking back to your answers to qu.18 and 19, has participation:-
a) Meant that you have had to change the way you see yourself as a farmer?

b) Meant that you have had to change your goals/long term objectives as a farmer?

67. Since you have entered the scheme, do you feel more, or less, inclined to undertake conservation activities on the farm than:-
- before you entered the scheme. MORE/LESS/ABOUT THE SAME
- when you first entered the scheme. MORE/LESS/ABOUT THE SAME
Please give reasons.

68. Have you applied for any conservation grant aid, in addition to the scheme payments, <u>after</u> joining the scheme? YES/NO
If YES, please give details.

69. Do you feel sufficiently informed about the scheme and its objectives? YES/NO

70. Are you in contact with other participating farmers? YES/NO
If YES, has this contact influenced any decisions taken about participation?

71. Do you intend to enter any more land at a later date? YES/NO
Please give details.

72. Would you rejoin the scheme after the initial period? YES/NO
Please give reasons.

73. Would you consider entering your whole farm into the scheme? YES/NO
Under what circumstances would this become an attractive option?

For Farmers who Have Not Enrolled Land

74. How did you first learn about the scheme?

Neighbouring farmers____
NFU/CLA____
Farming Press____
ADAS____
Promotional literature____
Other____

75. When did you first learn about the scheme?

76. To what extent did each of the following factors influence your decision to not join the scheme?
(Present qu. to farmers on separate sheets)

	Category of Importance				
	Essential	Very Important	Important	Not Really Important	Irrelevant
a. Level of payment on offer.	X	X	X	X	X
b. Scheme conditions.	X	X	X	X	X
c. Length of period of Scheme.	X	X	X	X	X
d. Presentation and Marketing of Scheme.	X	X	X	X	X
e. Because I do not like farming to imposed guidelines.	X	X	X	X	X
f. The previous pattern of investment on this farm makes participation innappropriate.	X	X	X	X	X
g. I feel that the farm has nothing to offer such a scheme.	X	X	X	X	X
h. The scheme does not easily fit into my existing farming system.	X	X	X	X	X
i. Would prefer an extensification type scheme.	X	X	X	X	X
j. Insufficient information about the scheme.	X	X	X	X	X
k. Scheme is unpopular amongst neighbours.	X	X	X	X	X
l. Not interested in conservation.	X	X	X	X	X
m. Interested in conservation but feels the opportunities offered under the scheme are innappropriate and could do better conservation work using grants.	X	X	X	X	X
n. Does not perceive any environmental problems associated with agriculture.	X	X	X	X	X

77. Are there any features of the scheme that you find particularly off-putting? YES/NO
If YES, please give details.

78. What sources of information and advice do you/have you consulted in deciding not to participate?

79. Are you in contact with any participating farmers? YES/NO
If YES, has this contact influenced any decisions taken about not participating?

80. Do you intend to enter land in the future? YES/NO
Please give details.

81. Under what circumstances might you consider joining?

For both Participants and Non-Participants

82. What do you feel about the government offering contracts to farmers in this manner to farm land according to certain conservation guidelines?

83. What role do you see for these schemes in the future of farming?

For Farmers in the North Downs

84. Are you aware that the government has introduced a scheme called The Countryside Stewardship Scheme that may eventually be made available countrywide? This offers farmers (in areas typified by one of five distinctive landscape types: chalk and limestone grassland; lowland heath; waterside landscapes; coastal landscapes; and upland landscapes) the opportunity to enter into voluntary contracts to farm land according to certain conservation and agricultural guidelines. These contracts will run for 10 years, will involve annual payments and a contribution towards relevant capital costs, and also a supplementary payment for enhanced access. YES/NO

If YES, how did you learn about this?

Neighbouring Farmers___
NFU/CLA___
Farming Press___
ADAS___
Promotional literature___
Other___

Here is an outline of the things that you would be requested to do/not do under the scheme where the main objective is to maintain and reintroduce traditional management of chalk grasslands (Present farmers with sheet).

85. Would you consider joining such a scheme either now or in the future? YES/NO

86. Under what circumstances would you consider joining such a scheme?

87. How important do you think each of the following factors would be in influencing your decision to join such a scheme? (Present farmers with sheet).

	Category of Importance				
	Essential	Very Important	Important	Not Really Important	Irrelevant
a. Level of Payment on offer.	X	X	X	X	X
b. Scheme Conditions.	X	X	X	X	X
c. Length of period of Scheme.	X	X	X	X	X
d. Presentation and Marketing of Scheme.	X	X	X	X	X
e. It would allow me to continue farming as I am now.	X	X	X	X	X
f. It would enable me to cut costs by concentrating production on my best land.	X	X	X	X	X
g. It would easily fit into my existing farming system.	X	X	X	X	X
h. It would enable me to ntroduce a new enterprise.	X	X	X	X	X
i. It would provide a useful additional income source.	X	X	X	X	X
j. It would provide an opportunity to move to a less intensive system.	X	X	X	X	X
k. It would provide a useful stop-gap/element of security at a time of agricultural uncertainty.	X	X	X	X	X
l. It would allow me to under-take conservation work on the farm which I cannot do at present.	X	X	X	X	X
m. It would allow me to carry on/extend conservation work already being carried out on the farm.	X	X	X	X	X

88. Are there any features of the scheme which you find particularly off-putting? YES/NO
If YES, please indicate which.

89. Are there any features of the scheme you find particularly attractive/innovative? YES/NO
If YES, please indicate which.

90. Would you be prepared to enter any of your land under the payments on offer? YES/NO
if YES, what proportion of your holding would you be prepared to enter into such a scheme under this rate of payment?

<10%
10-25%
25-50%
50-75%
75-100%

If NO, what would be the minimum level of payment that you would be prepared to accept for entry into the scheme? £/ha___

What proportion of your holding would you be prepared to enter into such a scheme under this rate of payment?
<10%
10-25%
25-50%
50-75%
75-100%

91. Which options within the scheme would you be willing to undertake?

To all Farmers

92. Do you have any land in the set-aside scheme? YES/NO

If YES, how much land have you enrolled? Area___ % of Holding___

Under which option?
Permanent Fallow___
Rotational Fallow___
Woodland___
Non-agricultural Use___

When did you enter your land? Date of Entry___

What were your main reasons for entry?

Farmers with no set-aside land.

What are your main reasons for not entering?

Have you registered an interest in participating? YES/NO

93. Do you have any land planted under the FWS/WGS? YES/NO

If YES, when did you enrol your land? Date of Entry___

How much of your land have you enrolled? hectares___

What were your main reasons for enrolling?

If NO, what are your main reasons for not enrolling?

For Participants in Set-Aside/FWS/WGS

94. Do you think that you have changed the way you think about farming your land since you have joined the scheme? YES/NO

If YES, please give details.

THE FUTURE

96. How do you see <u>your</u> business developing over the next 5-10 years?

(PROMPT: Changes in family circumstances, changes in farm support, plans to make any general changes to the way of farming eg cost-cutting, expansion to cover costs, adoption of low input/organic system, plans to make any new capital investments in agricultural/non-agricultural activities, plans to buy/rent any more land)

(The following were presented to farmer to fill in)

18. How do you see yourself as a Farmer, or, 'This is Me'?

Intensive ____ . ____ . ____ . ____ . ____ Extensive

Modern ____ . ____ . ____ . ____ . ____ Traditional

An Inexperienced Farmer ____ . ____ . ____ . ____ . ____ An Experienced Farmer

A Risk Minimiser ____ . ____ . ____ . ____ . ____ A Risk Taker

An Expander ____ . ____ . ____ . ____ . ____ A Consolidator

A Planner ____ . ____ . ____ . ____ . ____ An Opportunist

An Innovator ____ . ____ . ____ . ____ . ____ A Follower

Someone who Farms as a way of life ____ . ____ . ____ . ____ . ____ Someone who Farms as a Business

Less well Informed than my neighbours ____ . ____ . ____ . ____ . ____ Better Informed than my neighbours

Someone who tries to maximise income ____ . ____ . ____ . ____ . ____ Someone who tries to make a satisfactory income

Always Open and Interested in new ideas ____ . ____ . ____ . ____ . ____ Always Cautious/ Sceptical about new ideas

Farm Orientated ____ . ____ . ____ . ____ . ____ Community Orientated

19. How would you (ideally) like to be?

Intensive ___ . ___ . ___ . ___ . ___ Extensive

Modern ___ . ___ . ___ . ___ . ___ Traditional

An Inexperienced Farmer ___ . ___ . ___ . ___ . ___ An Experienced Farmer

A Risk Minimiser ___ . ___ . ___ . ___ . ___ A Risk Taker

An Expander ___ . ___ . ___ . ___ . ___ A Consolidator

A Planner ___ . ___ . ___ . ___ . ___ An Opportunist

An Innovator ___ . ___ . ___ . ___ . ___ A Follower

Someone who Farms as a way of life ___ . ___ . ___ . ___ . ___ Someone who Farms as a Business

Less well Informed than my neighbours ___ . ___ . ___ . ___ . ___ Better Informed than my neighbours

Someone who tries to maximise income ___ . ___ . ___ . ___ . ___ Someone who tries to make a satisfactory income

Always Open and Interested in new ideas ___ . ___ . ___ . ___ . ___ Always Cautious/ Sceptical about new ideas

Farm Orientated ___ . ___ . ___ . ___ . ___ Community Orientated

52. How important would each of the following actions be in increasing the conservation value of your farm?

	Category of Importance				
	Essential	Very Important	Important	Not Really Important	Irrelevant
a. Reducing the use of farm chemicals.	X	X	X	X	X
b. Reducing stocking densities.	X	X	X	X	X
c. Introducing an Organic system.	X	X	X	X	X
d. Planting Trees.	X	X	X	X	X
e. Coppicing Woodland.	X	X	X	X	X
f. Planting Shelter Belts.	X	X	X	X	X
g. Planting Hedgerows.	X	X	X	X	X
h. Extending and Managing Headlands.	X	X	X	X	X
i. Creating Ponds.	X	X	X	X	X

53. For each of the following schemes, please indicate: if you are aware of their existence and; if you have read/received any published literature about the scheme.

	Aware of Scheme	Read about/Received Details of Scheme
ENVIRONMENTALLY SENSITIVE AREAS		
FARM WOODLAND SCHEME		
COUNTRYSIDE PREMIUM SCHEME		
NITRATE SENSITIVE AREAS		
EXTENSIFICATION SCHEME		

59. To what extent did each of the following factors influence your decision to join the scheme?

	Category of Importance				
	Essential	Very Important	Important	Not Really Important	Irrelevant
a. Level of payment on offer.	X	X	X	X	X
b. Scheme Conditions.	X	X	X	X	X
c. Length of period of Scheme.	X	X	X	X	X
d. Presentation and marketing of Scheme.	X	X	X	X	X
e. It allows me to continue farming as before.	X	X	X	X	X
f. It enables me to cut costs by concentrating production on my best land.	X	X	X	X	X
g. It easily fitted into my existing farming system.	X	X	X	X	X
h. It enables me to introduce a new enterprise.	X	X	X	X	X
i. Neighbouring farmers were participating and found it OK.	X	X	X	X	X
j. It provides a useful additional income source.	X	X	X	X	X
k. It provides an opportunity to move to a less intensive system.	X	X	X	X	X
l. It provides a useful stop-gap/element of security at a time of agricultural uncertainty.	X	X	X	X	X
M. It will allow me to under-ake conservation work on the farm which I would have been unable to do previously.	X	X	X	X	X
N. It will allow me to carry on/extend conservation work already being carried out on the farm.	X	X	X	X	X

76. To what extent did each of the following factors influence your decision not to join the scheme?

	Category of Importance				
	Essential	Very Important	Important	Not Really Important	Irrelevant
a. Level of payment on offer.	X	X	X	X	X
b. Scheme conditions.	X	X	X	X	X
c. Length of period of Scheme.	X	X	X	X	X
d. Presentation and Marketing of Scheme.	X	X	X	X	X
e. Because I do not like farming to imposed guidelines.	X	X	X	X	X
f. The previous pattern of investment on this farm makes participation innappropriate.	X	X	X	X	X
g. I feel that the farm has nothing to offer such a scheme.	X	X	X	X	X
h. The scheme does not easily fit into my existing farming system.	X	X	X	X	X
i. Would prefer an extensification type scheme.	X	X	X	X	X
j. Insufficient information about the scheme.	X	X	X	X	X
k. Scheme is unpopular amongst neighbours.	X	X	X	X	X
l. Not interested in conservation.	X	X	X	X	X
m. Interested in conservation but feels the opportunities offered under the scheme are innappropriate and could do better conservation work using grants.	X	X	X	X	X
n. Does not perceive any environmental problems associated with agriculture.	X	X	X	X	X

87. How important do you think each of the following factors would be in influencing your decision to join such a scheme?

	Category of Importance				
	Essential	Very Important	Important	Not Really Important	Irrelevant
a. Level of Payment on offer.	X	X	X	X	X
b. Scheme Conditions.	X	X	X	X	X
c. Length of period of Scheme.	X	X	X	X	X
d. Presentation and Marketing of Scheme.	X	X	X	X	X
e. It would allow me to continue farming as I am now.	X	X	X	X	X
f. It would enable me to cut costs by concentrating production on my best land.	X	X	X	X	X
g. It would easily fit into my existing farming system.	X	X	X	X	X
h. It would enable me to introduce a new enterprise.	X	X	X	X	X
i. It would provide a useful additional income source.	X	X	X	X	X
j. It would provide an opportunity to move to a less intensive system.	X	X	X	X	X
k. It would provide a useful stop-gap/element of security at a time of agricultural uncertainty.	X	X	X	X	X
l. It would allow me to undertake conservation work on the farm which I cannot do at present.	X	X	X	X	X
m. It would allow me to carry on/extend conservation work already being carried out on the farm.	X	X	X	X	X

Appendix 6 Diagram Relating Opp's Model of Evolutionary Norm Formation to Practical Measures to Assist the Formation of a Norm of Good Conservation Practice Amongst Farmers

