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FARM EXTENSIFICATION: IMPLICATIONS OF EC REGULATION 1760/87

Edited by

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paper 1

Introduction and Commentary on
Regulation 1760/87

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WORKSHOP ON FARM EXTENSIFICATION

INTRODUCTION AND COMMENTARY ON REGULATION 1760

N.R. JENKINS & M. BELL

A workshop was held on the 27th November, 1987 at Grange-over-Sands under the aegis of the Institute of Terrestrial Ecology (ITE) to debate the economic, social and environmental implications of schemes to either take land out of agricultural production or to persuade farmers to reduce their output. The multi-disciplinary nature of these issues requires a wide range of expertise and the views of economists, agriculturalists, ecologists, sociologists, geographers and others were heard. Present also were representatives from the Ministry of Agriculture, Fisheries and Food (MAFF), Department of the Environment (DoE), National Farmers Union (NFU), Country Landowners Association (CLA), Countryside Commission (CC), Nature Conservancy Council (NCC), Council for the Protection of Rural England (CPRE) and Royal Society for the Protection of Birds (RSPB).

The workshop was a rare event in that it allowed researchers to feed in ideas on these issues before Ministers had decided on policy and before they had been defined by legislation. This R & D symposium has been produced in order for us to respond quickly to these policy changes, though as a result it has had to be restricted to a collection of the unedited draft papers given at the workshop. A more formal publication is to follow in due course.

EC Regulation no. 1760/87 of the 15th June, 1987 (Official Journal of the European Communities, 26/6/87) amends Regulation 797/85 (of the 12/3/85) on

improving the efficiency of agricultural structures. That Regulation in itself provided a major consolidated update on long-standing policy measures promulgated in both the classic series of Directives in 1972 (especially 72/159 which introduced farm plans) and in 1975 (Directive 268) which set the framework for Less Favoured Areas support. As this publication spans disciplinary boundaries, it may be worth clarifying that 'structures' in this sense pertains to the nature of farm holdings, and in particular their size, consolidation, labour and capital efficiency. It may equally be viewed in the context of the division between aspects of FEOGA (Fonds European d'Orientation et Guidance Agricole) ie between "orientation" funds available for grants aimed at "guiding" the nature of farming, and funds paid to underwrite commodity price support arrangements. Although at one time structural spending was expected to be perhaps 25% of the overall CAP budget, it has recently been a minor part of spending (some 7 or 8%) compared to the amounts spent on intervention buying, export restitutions and the other costs of price guarantees.

Regulation 1760 is particularly notable because it introduces Article 1a which provides for schemes designed to encourage the conversion and extensification of agricultural production. The immediately stated aim of such schemes is to adjust production sectors to market requirements, and particularly those in which there is a surplus. Article 1a provides a framework of rules for both the conversion of surplus production capacity to the output of non-surplus products, and the extensification of production of farm outputs which are in surplus. Further details will be prescribed by the commission in legislation which they are still preparing. The schemes will run for 5 years subject to a mid-term review by the Council of Ministers.

Member states have 9 months to determine the details of their own schemes,

and details of the proposed UK scheme has been released in the Ministry of Agriculture, Fisheries and Food (MAFF) consultation document "An Extensification Scheme" (December, 1987). This states that the principal aim of extensification is to reduce surplus agricultural production, though it may also be used to free land for the growing of trees, conservation and amenity and new farm enterprises.

The extensification of products will initially only apply to cereals, beef and veal, and wine sectors. The EC has defined the extensification of cereals to mean a reduction in a farmer's cereals area of at least 20%, for a period of at least 5 years, this reduction to be achieved without a concommitant increase in the production capacity for other surplus products. This definition is effectively that of set-aside, as crops will still be grown intensively, but the total intensive area will be reduced in extent. MAFF have indicated that under this scheme there are only 3 realistic alternative uses for set-aside land:

i. fallowing. MAFF intend to draw up a Code of Practice to describe those management practices that will achieve the best environmental impacts eg no application of fertilizers. EC Regulation 1760 does not allow for the grazing of livestock on fallowed land. MAFF may also exclude rotational fallow on the basis that this will reduce nitrate leaching. Broad strips left around the edges of fields will also count as fallow areas;

ii. afforestation;

iii. non-agricultural use eg for tourism, sport, conservation or energy coppice.

MAFF may also impose a minimum set-aside area per farm for the scheme.

The extensification of beef has been defined by the EC to mean a reduction in the number of livestock units by at least 20%, again with no

concommitant increase in production capacity for other surplus products. MAFF have proposed that certified records of stock sold will be required as well as obligations not to increase the number of livestock kept on the holding, obligations not to increase any arable area and suitable constraints on the use of any land freed from grazing.

Member states are given scope by the Regulation to suggest their own mechanisms for reducing production provided the necessary 20% reduction can be achieved, though all such schemes have to be approved by the Commission. In this category, MAFF have suggested a proposal based on payments to farmers for switching from cereals to organic production.

Although implementation of the extensification scheme is mandatory for Member States, participation by individual producers will be voluntary. Compensation is to be decided by Member States on the basis of the undertaking entered into by the beneficiary and on the basis of income losses. This will be 25% funded by FEOGA up to a maximum still to be determined by the Commission. MAFF have suggested two alternative proposals by which payments for cereal set-aside could be implemented:

i. a single flat rate of about 150-200 pounds per ha. per yr;

ii. farmers lodging tenders with the Agricultural Departments stating the payments they would accept for taking a certain area out of production. The Government would then accept tenders working from the lowest tender upwards.

MAFF have suggested that an application to join the scheme should be accompanied by a map of the farm showing the proposed changes in cropping pattern as well as evidence that the land to be in set-aside was in the 1986/7 crop rotation.

Some aspects of these proposals, and particularly those relating to the

encouragement of diversification, overlap with existing or proposed alternative schemes such as the Farm Diversification scheme and the Farm Woodlands scheme. There is also overlap with ESA's in that criteria laid down for the agricultural management of such areas may involve a reduction in surplus products (and indeed Regulation 1760 deals with grant rates in ESA's and LFA's in Parts 4 to 8; as amended Article 19b). The MAFF view is that applicants can take part in more than one scheme provided they can satisfy the Agriculture Department that there is no conflicting objectives and no double funding is involved. MAFF also suggest that the extensification scheme may be more formally linked with the farm woodlands scheme.

Regulation 1760 also deals with other subjects, not being covered by the workshop, on agricultural advisory schemes, on producer groups and on the marketing, and processing, of agricultural and fishery products.

paper 2

Likely farmer response in the hills and uplands: results of a survey based on the ITE sample framework

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WORKSHOP ON FARM EXTENSIFICATION

LIKELY FARMER RESPONSE IN THE HILLS AND UPLANDS: Results of a survey based on the ITE sample framework

Steven Warnock & Malcolm Bell

INTRODUCTION

During 1986 and 1987 a series of detailed farm interviews were carried out in parts of the hills and uplands of the British Isles. Locations ranged from Exmoor to the Hebrides. The work was one aspect of the first joint ESRC/NERC Fellowship and utilised the Merlewood Land Classification System.

Until this present work little or no attempt had been made to examine the nature of the human sample involved in the ITE squares. In 1984, surveyors had made field notes regarding what was described as land ownership. In general this was in fact occupation of the land without regard to tenure type.

The idea of using this information and undertaking a desk study cross relating it to other available social, planning and economic data was considered. After considerable thought, however, it was decided that a field work element was required, as the former could not necessarily be expected to pick up the many socio-economic factors which influence land use practice; for example:

- tenancy conditions precluding land use change;
- other special tenures or ownerships by conservation-oriented landlords;
- part-time farms or those engaged in non-agricultural activities;
- large, especially sporting, estates purchased with no intention of ever showing a profit;
- the importance of production quotas;
- aims and objectives of the farmers.

This paper presents a first view of the results, especially of some specific questions regarding potential uptake of schemes for extensifying land use, or otherwise farming with environmental sensitivity under agreement. The computing has been organised by the ESRC Rural Data Archive and the authors are particularly grateful to Ms A Hockey and Dr N Walford for their work in this regard. The visual presentation of the 5 land classes were compiled by C.B. Benefield (Benefield & Bunce 1982).

LAND CLASSIFICATION

The land classification system developed at the Institute of Terrestrial Ecology's Merlewood Research Station provides a unified sampling framework for land use and ecological survey at both national and regional levels. The system is based on 32 'land classes' derived from computer analysis of environmental characteristics - climate, physiography, geology and human artefacts - in 1228 (one in 225) 1 km squares from the National Grid. The ecological worth of the land classes has subsequently been verified by field survey which involved detailed recording of the vegetation, soils and land use of 8 squares from each land class. Comparison with other, independently derived, figures from censuses or surveys using larger samples has shown the system to be remarkably robust. For a more detailed

description of the system see Bunce et al. 1981, 1982; Heal & Bunce 1984.

Although there are frequent outliers, most of the 32 land classes have well-defined patterns of distribution within Britain indicating the existence of continuous environmental gradients. Figure 1 gives a breakdown of the major land class groupings.

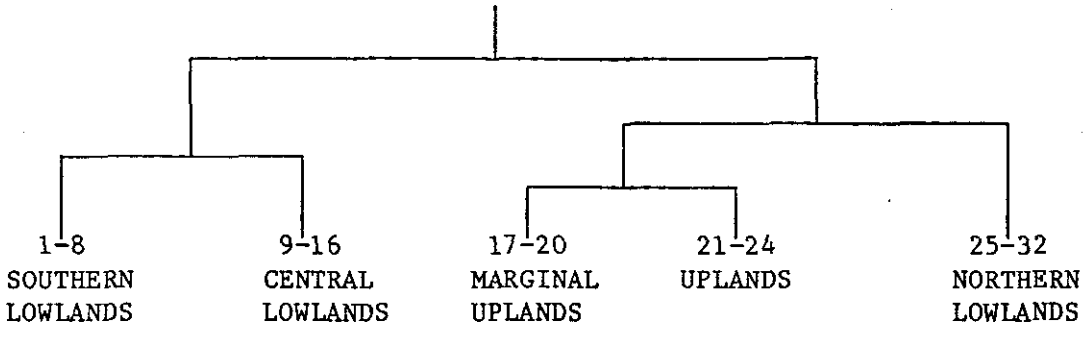
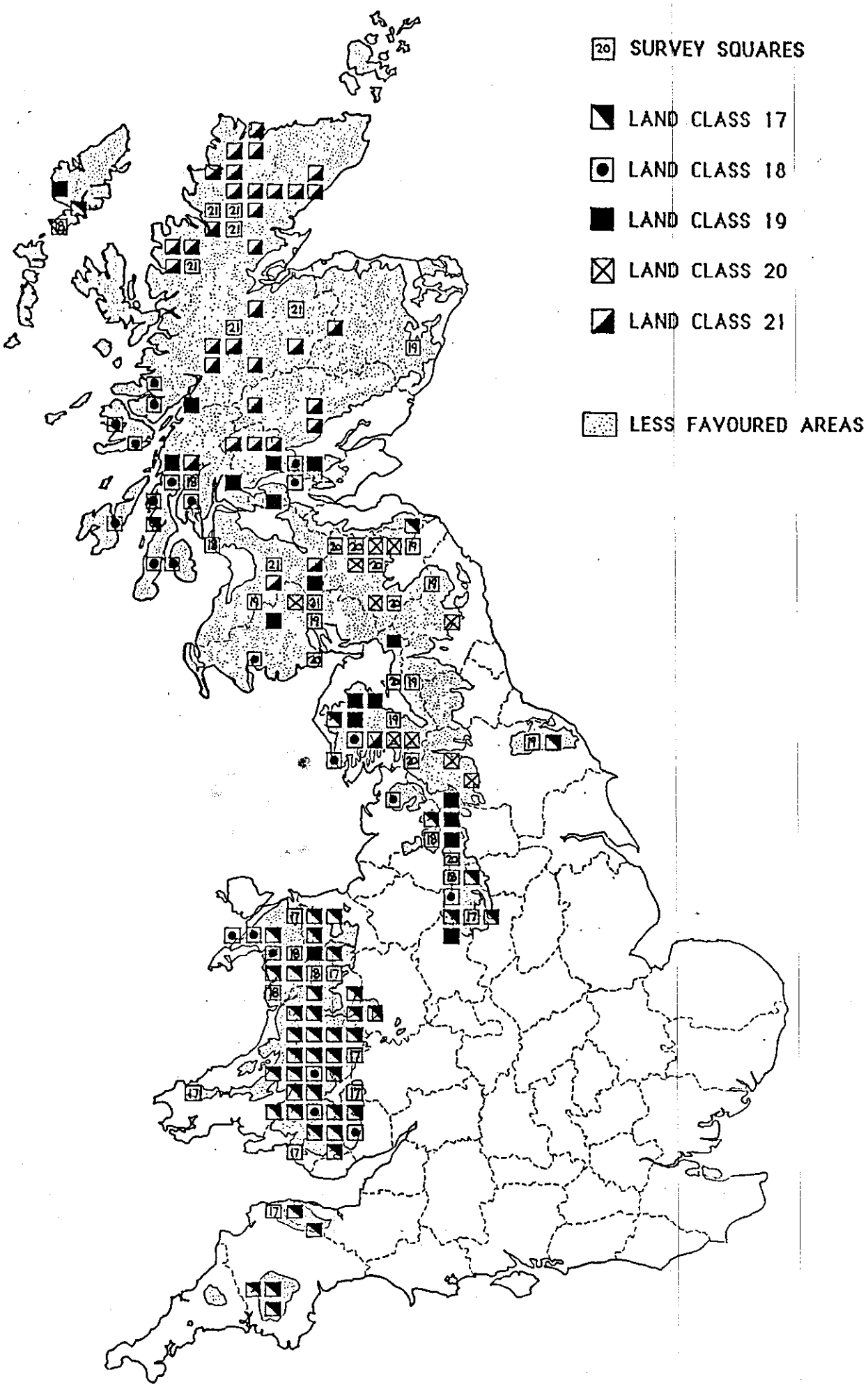


FIG. 1 LAND CLASSES IN BRITAIN

Selection of the study area was initially based on the hill and upland land classes (17-24) which lie more or less within the Less Favoured Area (LFA). After closer examination of the available information, however, it was decided to concentrate primarily on land classes 17-20 as these covered most of the farmed uplands. Land class 21, which includes the large Highland sporting estates, was also included as this important upland land use was not adequately covered in the other land classes. Farms were selected for further study from 8 sample squares in each land class. Figure 2 shows the location of the sample squares together with the general distribution of the five land classes.

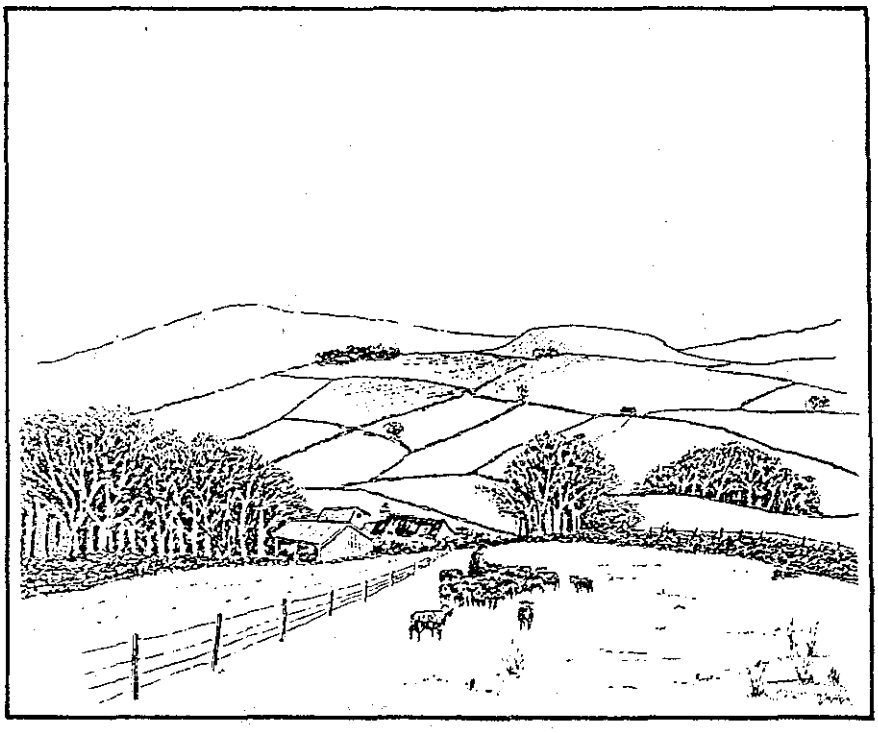
FIG. 2 UPLAND LAND CLASSES FOR FARM SURVEY



A brief description and visual presentation of the main topographic and land use characteristics of each of the five land classes is given below. These descriptions are not definitive, but rather indicative of general characteristics.

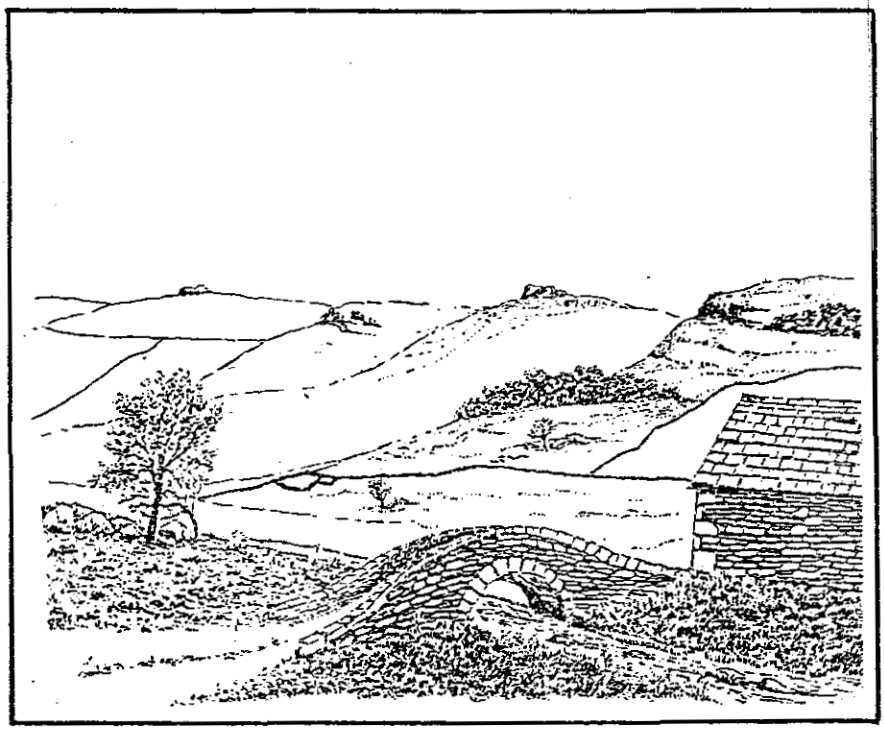
LAND CLASS 17 Wales central Uplands

Gently undulating hills with moderate relief within which there is a wide range of variation in farming pattern depending upon the degree of land improvement and local conditions. Mainly pastoral with few hedges and with some arable for animal feed. The unenclosed land, where it occurs, is variable in nature.



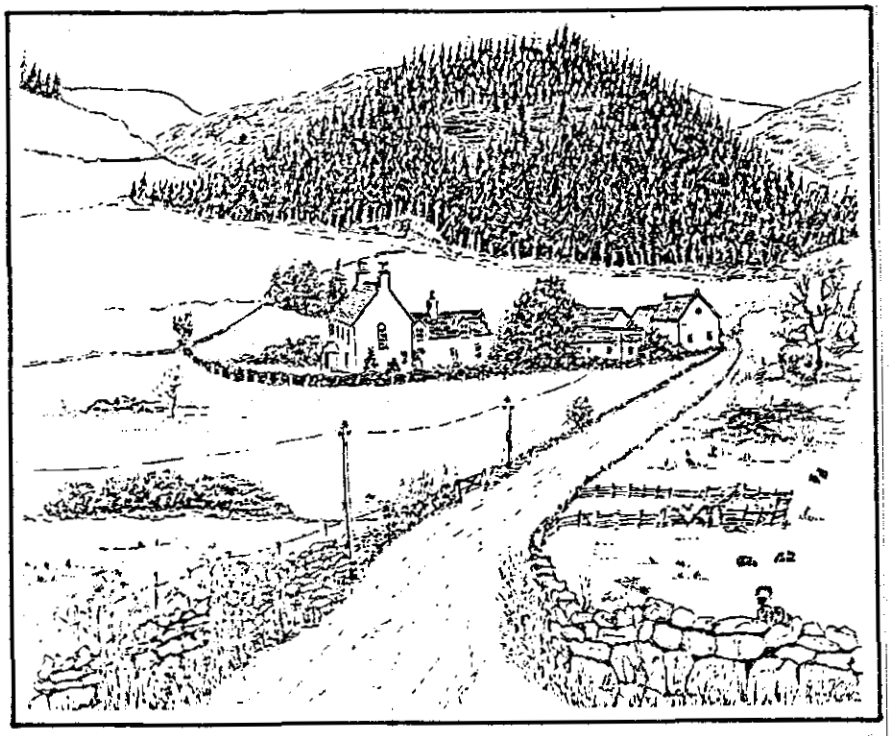
LAND CLASS 18 Western Uplands

Broad, rounded hills often with steep slopes, but with some areas transitional to enclosed land. Some limited land improvement but predominantly rough grazing often dominated by heather or mat grass. Few trees, hedges or lowland features.



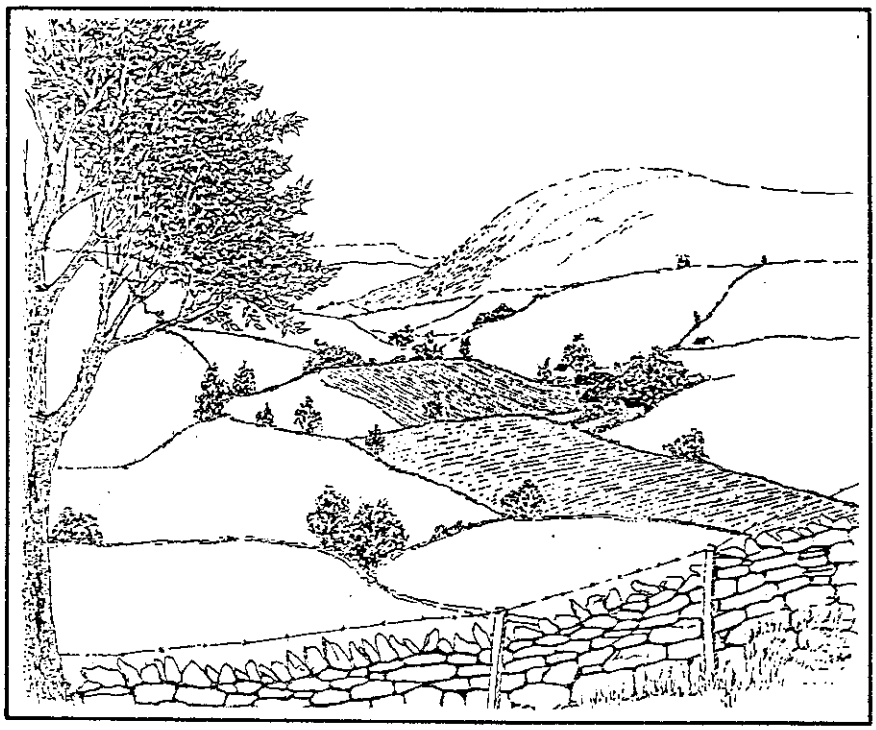
LAND CLASS 19 Central Uplands

Broad, rounded hills often at higher altitude than 18. Variable land use pattern ranging from enclosed farmland to open summits and slopes which are often afforested.



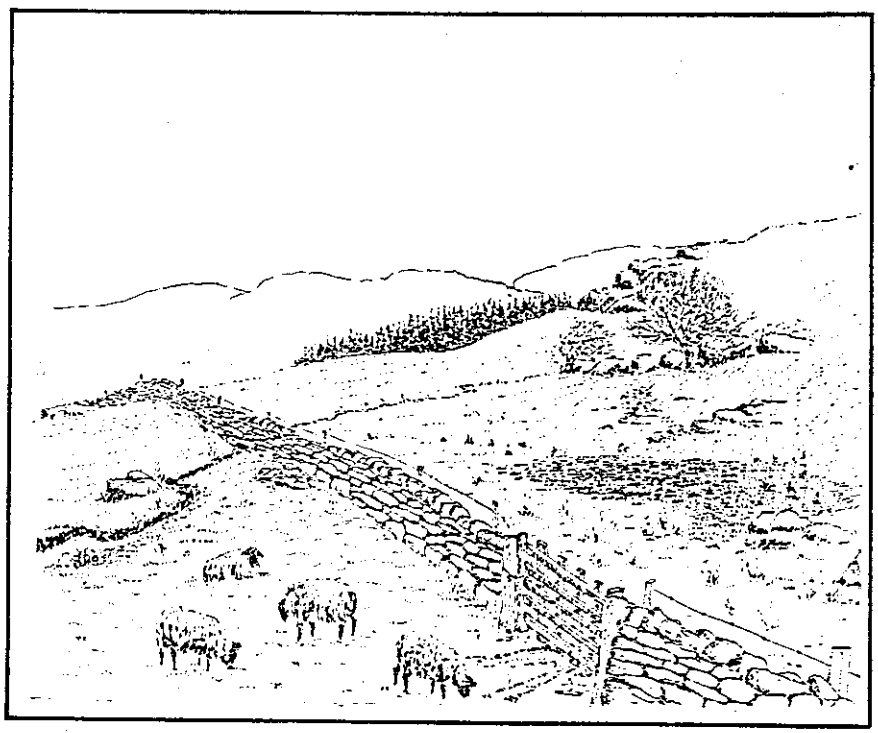
LAND CLASS 20 Central marginal Uplands

Marginal lowlands and mid-valley slopes backing onto rounded hills. A very variable and diverse land class with mixtures of both lowland and upland features. Mainly improved pasture with some arable, but also much rough grazing.



LAND CLASS 21 Scottish Highlands

Upper valley slopes and broad ridges with indistinct summits. Predominantly open moorland or peatland, with some rough grassland; often afforested.



THE FIELD SURVEY

The interviewing programme was largely successful and virtually all difficulties had their origin in the same source; the need to contact and meet people in sample areas at great distances from each other, and from the research base, within constraints of time and sensible use of resources.

The approach adopted by ITE in previous field surveys was to seek out occupiers and request consent to observe and survey without making prior approaches in writing. This procedure proved successful in the context of a land use appraisal requiring little or no input from the land owner or occupier. From the point of view of this study, which sought to specifically probe for human-based data a more formal approach was required. It was necessary to identify, contact and win the confidence of potential interviewees before information often thought of as confidential could be discussed. There were no 'refusals', although a number of interviews were unobtained and in some cases circumstances militated against a full interview. Once the occupiers of the square had been identified, letters were sent out explaining the purpose of the survey. After suitable time to read, digest, but not forget the letter, a follow-up telephone call was made to arrange a suitable time to visit.

During the visit itself, a friendly semi-formal interview style was pursued. Questions were asked on a range of topics relating to different aspects of the farming enterprise. The main sections in the questionnaire included:

TENURE - size of holding; nature of tenure and a brief summary of the land use pattern on the farm/estate.

CROPS - information on the cropping pattern, including rotations, yield, crop use, etc.

LIVESTOCK - information on dairy, beef, sheep or pigs/poultry enterprises, including numbers and type of stock, management regime and impact of quota/LFA support on this.

SPORTING (estates only) - information on any sporting activities such as deer stalking, grouse shooting, etc.

LABOUR - brief details of all personnel employed on the holding, including contracted labour and machinery.

INVESTMENT PATTERN - investigation of the importance of agricultural support and grants to the farm enterprise, including details of any new farm buildings or land improvements (ie field drainage). The current financial situation and pattern of likely future investment, including any funds from outside farming, were also explored.

FIELD BOUNDARIES - information on the condition and management of field boundaries and the response to increased levels of grant for planting/ management.

GRASSLAND MANAGEMENT - details of any recent grassland improvements, including the use of fertilisers and herbicides. The response to extensification contracts was also discussed.

FARM WOODLANDS - information on management of existing woodland and any recent planting carried out. Future intentions were also explored, particularly in view of proposed Farm Woodlands Scheme.

DIVERSIFICATION - assessment of interviewee response to current changes in agricultural support and how these are likely to affect the existing farm enterprise. Ideas for alternative land use/income sources and the response to extensification, management agreements and pre-pension schemes were also discussed.

OWNERSHIP AND CONTROL - personal details on inteviewee/landlord background and family structure.

SUMMARY OF FARMER RESPONSE

Analysis of the survey data is being undertaken in conjunction with the ESRC supported Rural Areas Database (RAD) at Essex University, and it is intended that it will be accessible via RAD in due course. The preliminary findings look encouraging and it is hoped that a final report will be published after more detailed analysis of the results. The following is therefore only a brief summary of the observations made by the researchers during the survey.

Preliminary work correlating the land use, tenure and farm types to the land classes suggests that most of the farms, cultivated land and improved grassland lie in classes 17 and 20. This is illustrated in Tables 1 and 2.

TABLE 1 Analysis of holdings

LAND CLASS	TOTAL NO. OF HOLDINGS	AVERAGE SIZE (ha)	NO. OF FARMS	AVERAGE SIZE (ha)
17	38	118	38	118
20	32	395	32	395
18	16	*352	14	*272
19	16	*601	13	601
21	10	10,858	3	275

*these figures do not include several large estates not covered in the survey.

These areas occupy the marginal uplands, where because of better soils and only moderate physical limitations, considerable land improvement has occurred in the last 40 years. Consequently the farm structure remains relatively robust and commercial forestry has made little impact, as can be seen from the figures in Table 2.

In contrast land classes 18 and 19 have considerably fewer farms. These are often larger and in some areas the farm structure is similar to that in classes 17 and 20. Physical limitations are more severe, however and the marginal nature of the farming pattern is reflected in the land use figures (Table 2). As a result afforestation has been more prevalent and other land uses, particularly water supply are more common.

TABLE 2 Summary of principal land uses (% area)

LAND CLASS	IMPROVED FARMLAND	ROUGH GRAZING	WOODLAND	SPORTING	COMMERCIAL FORESTRY	OTHER
17	61	21	3	-	14	1
18	7	54	1	8	16	14
19	26	19	4	12	28	11
20	44	48	4	-	-	4
21	1	10	2	50	37	-

There are few purely agricultural holdings in land class 21, where most of the land is owned by large sporting estates. Some of these estates have a sheep enterprise but this is always secondary to the main sporting interest. The impact of commercial forestry activities is particularly marked and one gets the impression that the estates are the only factor preventing further afforestation of the remaining land.

A first analysis of farmer response to questions on grassland management and extensification is shown in tables 3-6. Because of the small sample size and since agricultural schemes are largely irrelevant, land class 21 has been omitted.

The results highlight a number of interesting trends although it does not appear that these are related to land class. There was a fairly mixed response to extensification and grassland management schemes with the majority showing some interest. Most of those who were undecided, expressed concern about the precise terms of any agreement. Grassland reversion schemes, on the other hand, were not very popular. This

TABLE 3 EXTENSIFICATION CONTRACTS

LAND CLASS - % of respondents

RESPONSE	17	18	19	20	TOTAL
Likely	36	50	25	50	38
Possibly	28	-	25	22	26
Unlikely	36	50	50	28	36
Number of Respondents	14	2	8	14	

TABLE 4 GRASSLAND MANAGEMENT SCHEME

LAND CLASS - % of respondents

RESPONSE	17	18	19	20	TOTAL
Likely	47	40	30	29	36
Possibly	41	60	40	38	42
Unlikely	12	-	30	33	22
Number of Respondents	17	5	10	21	

TABLE 5 GRASSLAND REVERSION SCHEME

LAND CLASS - % of respondents

RESPONSE	17	18	19	20	TOTAL
Likely	21	20	10	12	15
Possibly	14	40	20	24	22
Unlikely	65	40	70	64	63
Number of Respondents	14	5	10	17	

highlights an important point, borne out in other studies (Warnock 1986), that most farmers would be unhappy to actively encourage land that they had reclaimed and spent much time and money on, reverting back to its original state. One wonders how many are aware that this will happen anyway, albeit more slowly and to a lesser extent, under a lower input management regime.

Although there appears to be little correlation of response with land class a very different picture emerges when the analysis is carried out using a socio-economic factor like farmer age. Table 6 shows clearly that the older farmer is much more likely to be interested in extensification, than his younger colleague. This suggests that the latter are still more production orientated and see such schemes as a hinderance to this goal.

TABLE 6 EXTENSIFICATION CONTRACTS

	AGE - % respondents				
RESPONSE	40	40-50	50-60	60	TOTAL
Likely	14	43	50	66	38
Possibly	29	14	33	17	26
Unlikely	57	43	17	17	36
Number of Respondents	14	7	12	6	

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paper 3

Ecological changes resulting from a less-intensive agriculture

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ECOLOGICAL CHANGES RESULTING FROM A LESS-INTENSIVE AGRICULTURE

by N.R. JENKINS
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1. Introduction

There are those conservationists who would argue that agriculture and wildlife are diametrically opposed and that therefore any reduction in, or the abandonment of, agricultural activity would be a good result for conservation. This paper aims to illustrate that this view on its own is far too simplistic, and that it needs to be balanced against the need for those agricultural operations, and particularly grazing operations, that are beneficial to wildlife.

Examples of some of the general environmental responses that can be expected from less-intensive agricultural operations are given in Table 1. These show that the major impacts on ecology are likely to arise from the extensification of beef areas (as a reduction in stock numbers) and from the knock-on effects of cereal set-aside. The direct effects of cereal set-aside have relatively little or no conservation value.

From a policy viewpoint, this paper looks at the problem ecologists have in predicting the general ecological response to the extensification scheme, particularly if it is not targetted to specific regions or farm types.

2. Implications of Reduced Grazing Intensity

Two agricultural operations are used to illustrate the likely consequences of reduced stocking rates. Firstly, reduced nitrogen application may be

Table 1. RELATIONSHIP OF FARM EXTENSIFICATION TO ECOLOGY

FARM EXTENSIFICATION OPTIONS	: EXAMPLES OF ECOLOGICAL IMPACTS
i. Set-aside of cereal areas	
- New fallowed areas	- Opportunities for pioneer species - Importance of seed banks & refuges eg slow regeneration is likely in East Anglia
- Marginal farm areas brought into scheme	- Loss of marginal farm habitats
ii. Extensification of beef areas	
- Rotational to ranged grazing	- Changes in grassland species
- Reduced grazing pressure	- Grass converting to heather/ bracken in uplands
- Less re-seeding	- Greater reversion of grassland
- Less nitrogen	- Increase in slower growing species
- Increase in sheep	- Deleterious changes are likely in upland and wetland species due to a decrease in cattle grazing
iii. Increase in farm diversification	
- New farm enterprises	- Potential for new habitats
- Farm woodlands	- New woodland areas

associated with reduced stocking levels and is largely synonymous with productivity, though it is as important in this discussion for developing the general underlying ecological principles. Secondly, the effects of reduced grazing pressure is considered.

Long term experiments on the effects of different agricultural practices, and particularly fertilizer, on grassland species have been carried out in the Park Grass Trials (Thurston et al, 1976), the Welsh Hills Experiments (Milton, 1940,1947) and in other studies (eg Smith et al, 1971). These all show that inorganic nitrogen application produces marked changes in vegetation and that high species diversity is only obtained over a small range of productivity (Grime, 1979). The effect of reducing nitrogen application on more productive soils (and particularly rich lowland soils) will be to move productivity down towards this range and therefore increase conservation value. On soils of low productivity (and particularly highly stressed upland soils) a reduction in nitrogen use could move vegetation away from this range and could decrease conservation value.

Grazing affects grassland species composition by preventing succession (required for all but the most nutrient-starved or highly disturbed/ stressed vegetation) and by counteracting productivity effects (by reducing dominance). Difficulties in characterising grazing effects arise because grazing systems need to be considered as a whole. A simplified representation of the ecological changes associated with different grazing systems is given in Figure 1. This shows that the highest species diversity is associated with those agricultural practices that reduce dominance (eg high grazing pressure), allow species to flower and seed (eg recovery periods from grazing or else haymaking) and allow species to establish (eg as arising from the disturbance associated with heavy grazing pressure, from hay cutting, and particularly from cattle)(Duffy et al, 1974; Davies, 1967; Kydd, 1964). These all support the conclusion that high grazing pressure under a rotational grazing regime together with winter grazing achieves the highest level of species diversity. It should

FIGURE 1. Relationship between grazing systems and grassland species.

	summer rotational grazing	summer ranged grazing	winter grazing
abandoned	reversion to scrub (lowlands) heather/ bracken /scrub (uplands)		
low grazing pressure	results in dense rank, species-poor vegetation	results in dense, rank, unpalatable, species-poor vegetation. To heather/bracken in uplands	
high grazing pressure	results in species-rich vegetation. This allows seeding, establishment and a reduction in dominance	results in short, close vegetation. Local disturbance opens up the vegetation, allowing establishment. Localised recovery and some seeding occurs under cattle dung	lack of winter grazing results in denser, closer vegetation in spring
very high grazing pressure (reliance on bought in feed)	depends on the balance between recovery and disturbance. Over-disturbed sites results in arable-type weeds	species of disturbed sites eg arable type weeds	

be stressed that these operations are associated with more intensive agriculture and that ranged grazing systems are associated with agricultural decline (MAFF, 1966).

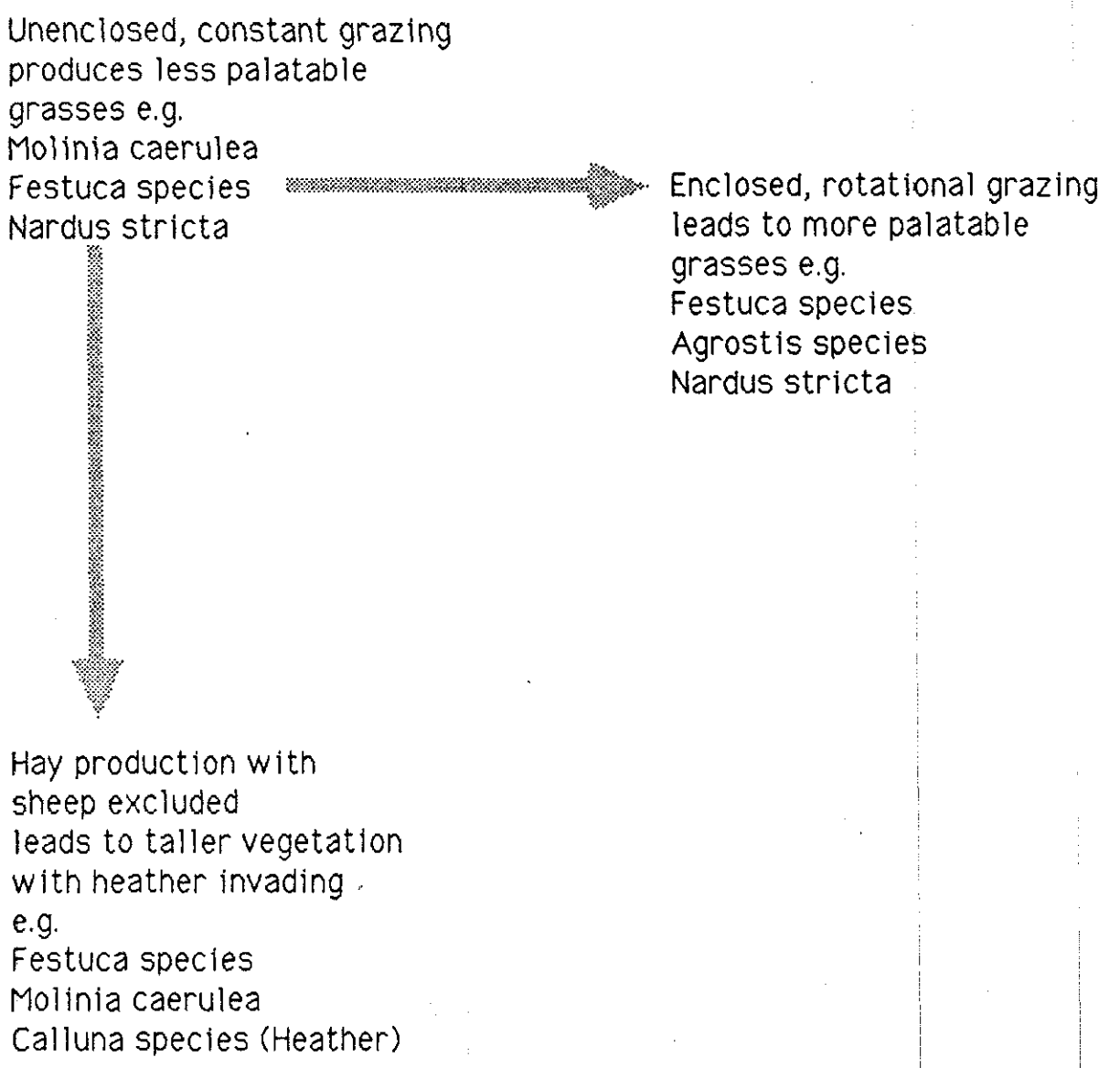
However, regional differences in ecological response to grazing further confound this relationship. On richer chalk soils, recovery periods seem not to be as important as heavy grazing pressure in maintaining species diversity, and lax rotational grazing has been shown to reduce species diversity (Kydd, 1964). In particular, species seem to be able to seed during very short recovery periods, or even under heavy grazing pressure (Wells, 1969). By contrast on poorer, acid upland soils (eg the Welsh Hill Experiments of Milton, 1940, 1947) rotational grazing is more important than heavy grazing pressure in maintaining species rich grassland. The important process here seems to be the reduction in stress on the vegetation offered by the recovery periods. Changes in vegetation on Welsh uplands under different grazing regimes are shown in Figure 2. This Figure also shows how heather can invade under reduced grazing pressure in uplands.

3. Implications of a Fallow Set-aside

The conservation value of fallowed set-aside land from the arable sector is likely to be limited, with the only species benefiting from short term rotations being arable-type weeds. Such areas will have greater conservation value if they are left to revert, if they are managed (eg cut or grazed), and if not sprayed with herbicides/ pesticides.

It is useful to consider the time scale over which such set-aside areas would have to be left in order to attain any conservation potential. Vegetation takes a long time to stabilise, and as an example, some grassland species at the Park Grass plots took up to 80 years to achieve dominance (Thurston et al, 1976). This data taken as a whole suggests a time scale for grasslands in the order of 100 years for dominant species

Figure 2. Changes in the vegetation under different grazing and cutting regimes over 14 years in the Welsh Uplands (after Milton, 1940, 1947). Species given are those over 10% by weight of the sward.



conservation.

These general prescriptions should be mitigated by the fact that there is marked variation in the ecological response of different regions and in the value to conservation of these changes. This has been illustrated by the differences in management required for calcareous and neutral lowland grasslands, and for the difference between lowland grasslands generally, which tend to revert to scrub, and upland grasslands, which tend to revert to heather or bracken. While the reversion to some types of vegetation eg heather, is generally considered desirable from a conservation point of view, other types of vegetation eg bracken, is generally considered undesirable. Marked variation in the ecological response to extensification, and wide differences of opinion as to their resulting value to conservation, makes it difficult to present any coordinated or coherant view of what the more specific ecological impacts will be.

From a policy perspective, the over-riding consideration for the ecologist is the lack of any simple relationship between production and ecological response at a national level. Confounding factors such as the difference between uplands and lowlands, between calcareous and acid soils and between different regional conservation priorities means that the ecologist is limited to recommendations based on regional, or even local, scales. Further, the likelihood that the ecological 'knock-on' effects will be greater than the direct effects suggests that the ecologist should be dealing with a farm scale response, rather than one based on changes to one enterprise, and affecting only part of the farm.

It should therefore not be surprising if the favoured policy options of ecologists are based on targetted areas and on farm plans. These are the scales at which an ecologist can make the most useful contribution. They also readily suggest the type of policy mechanisms on which the manipulation of ecological impacts could be based.

and species numbers to equilibriate, with less common species less able to travel taking longer to appear. The time taken to reach some equilibrium woodland vegetation is likely to be much longer, as reversion is required to a later successional stage, and because tree species live longer. The availability of a source of species will also be important, with reversion in areas such as East Anglia likely to be slow due to the lack of suitable reserviours of species. Even if set-aside areas are managed, it will be a long time before they become of conservation value, and certainly not within the 5 - 10 years of the extensification scheme.

Possibly of more importance than the set-aside areas themselves, are the implications of the scheme for adjacent areas. Particularly important will be the implications for any permanent pasture outside the set-aside area being brought into the fallow system. Similarly, important ecological impacts may result from any release of capital/ labour being spent on intensifying marginal farm areas. It is also possible that the scheme could initiate the conversion of grassland into arable in the short term.

4. Summary

Some examples of the likely ecological changes resulting from set-aside and less-intensive grazing have been presented. The extensification of beef by a reduction of stock numbers per farm will enhance wildlife conservation on lowland grasslands as far as lower nitrogen inputs, lower pesticide/ herbicide applications and increased hay are concerned. However it conflicts with wildlife conservation where there is a need to maintain heavy or rotational grazing activity.

The direct effects of cereals set-aside is unlikely to have much, if any, wildlife conservation value, but such as there is would be enhanced by low pesticide/ herbicide applications, long fallow periods, and the presence of some cutting/ management regime. However the indirect, knock-on effects of cereal set-aside could result in serious negative impacts on wildlife

conservation.

These general prescriptions should be mitigated by the fact that there is marked variation in the ecological response of different regions and in the value to conservation of these changes. This has been illustrated by the differences in management required for calcareous and neutral lowland grasslands, and for the difference between lowland grasslands generally, which tend to revert to scrub, and upland grasslands, which tend to revert to heather or bracken. While the reversion to some types of vegetation eg heather, is generally considered desirable from a conservation point of view, other types of vegetation eg bracken, is generally considered undesirable. Marked variation in the ecological response to extensification, and wide differences of opinion as to their resulting value to conservation, makes it difficult to present any coordinated or coherant view of what the more specific ecological impacts will be.

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paper 4

Extensification -
can we keep farmers on the land?

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National Farmers' Union

PAPER FOR ITE WORKSHOP NOVEMBER 27TH 1987

Extensification - "Can we keep farmers on the land?"

INTRODUCTION

As the NFU contributor to this workshop you will expect me to look at our subject from the farmers' standpoint. What is there in extensification for the farmer? Will it help him to survive financially at a time when the accustomed structure of support is becoming rapidly less supportive. Will it accord with, or conflict with the fundamental motivations and aspirations of farmers? How feasible is it as a policy at farm level? In comparison with other new ideas in agricultural policy does extensification offer a better prospect of keeping farmers on the land?

As an introduction to my theme I will briefly review the main policy options to see where extensification fits in; then consider extensification in relation to farm management constraints; suggest ways in which it might be promoted; and, finally, speculate about the contribution it will make to the resolution of our problems.

POLICY BACKGROUND

The central problem of the CAP is how to support a numerous and, for the most part, poor farming population in the EC when the main products of agriculture are in actual or threatened surplus and the cost of maintaining price guarantees for these products has become unacceptably high. To restore a balance between EC production and market requirements means making a substantial cut in production, equivalent to millions of hectares of land at present yields. The problem moreover, is progressive because average yields will continue to rise for some years in response to the current productivity dynamic.

There are three main responses to this challenge. The first is a simple reduction in support prices. This will relieve EC and national Exchequers at the expense of farmers' incomes but will only gradually reduce surplus production and the waste of resources that that entails. The more competitive producers - generally those with larger holdings, better land and unencumbered capital - will produce more in an attempt to beat the squeeze, while the less competitive will be impoverished and forced out. The total land area utilised by surplus product enterprises will contract further and become concentrated on fewer and larger holdings.

The second response is to limit the global quantities of products which benefit from price support and to share those out more or less fairly between all producers under quota systems. This involves an retreat from the concepts of free competition which underly the Rome Treaty and the CAP; a complex and costly administration and, probably, a gradual collective loss of efficiency. Nor does it entirely prevent the trend towards the concentration of production if quotas can be traded or otherwise transferred between enterprises. Nevertheless, when weighed in the balance, these drawbacks are likely to be judged less important than those attached to other solutions and we may see a further utilisation of quota arrangements.

The third response is to encourage farmers voluntarily to reduce their production of surplus commodities by taking land out of production (set aside), by utilising land for other purposes (diversification) or by reducing yields on the existing production area (extensification).

The NFU favours compulsory annual set-aside as a speedy and effective means of reducing the cereal surplus but, as such, it is really a price guarantee limitation mechanism - a flexible form of quota - and should not be confused with the voluntary approaches we are considering.

Given the diversity of farming each of the voluntary methods has a part to play and deserves encouragement. However extensification is of special significance, at least in UK circumstances, because, as well as helping to reduce surpluses it offers a better prospect of preserving the countryside and sustaining the farming community in an urbanised country than most other approaches.

The important thing to realise is that extensification, like any other voluntary guidance scheme, can only be a supplementary measure in agricultural policy, not a substitute for price and market support. There are those who think that production can be disciplined by stringent pricing policy and that the damaging effects of this upon the farming community and upon the countryside generally, can be sufficiently mitigated by offering a few voluntary schemes (with small budgets) such as the Farm Woodland Scheme and Extensification. Unless policy makers accept the need to make up through other means the farm income lost as a lost as a result of cuts in support prices then schemes such as extensification must remain interesting but peripheral. Up to the present the farming community us unconvinced that there is any substitute for effective levels of guaranteed prices for the main products of farming even if these have to be limited quantitatively in some way.

FARM MANAGEMENT ASPECTS

Extensification, and by this I mean farming land less intensively, not merely reducing the size of product enterprises, has a number of advantages to offer the policy maker. Potentially it offers a means both of reducing the volume of surplus productions and of protecting the environment/enhancing the quality of the countryside. To these may be added a third potential advantage that of helping to maintain our farm structure and population.

Let me explain that. Insofar as production is spread over more acres than is technologically necessary; insofar as the conflicting priorities for land use and enjoyment are reconciled on the same acres rather than being segregated on different acres; and insofar as the secular decline in the real prices of food is reduced by the slowing down of productivity growth; then the structural concentration and scale growth in farming should also be slowed down.

These are the advantages seen by interested observers and to some they no doubt hold out the prospect of resolving all our problems and of reverting to the happy days of yesteryear! But how do farmers view it? Farmers, by and large, see themselves and their activities as being dedicated to the skilled and demanding business of food production. For a very long time their attention has been engaged in improving their performance as food producers and that performance has been measured usually in terms of higher yields. Consequently it is difficult for most farmers to accept the idea that producing less per unit of capacity is sensible or feasible.

The questions they have to ask themselves if they think closely about this include:

1) What would be the effect on the profitability of this crop or livestock enterprise if I were to reduce yields by cutting variable inputs?

2) Could I maintain the value of output by switching to lower yielding higher priced varieties or breeds, or to "organic" production?

3) What would be the detailed effect of making such a switch on my cost structure? In particular can my fixed costs be written down fast enough to make sense of the changed strategy?

4) What cash benefit would I derive from any environmental spin-off of extensification?

5) Would extensification facilitate other plans I might have for developing or diversifying my business?

6) Supposing market situations and agricultural policies change again in future as they have before - shall I have sacrificed my opportunity, or my son's, to return to full scale food production by running down my capital equipment or by adopting irreversible changes in land management?

Supposing farm quotas are adopted for one of my main commodity enterprises in future - shall I have reduced my eligibility for a quota by cutting production?

7) Will the annual payment per hectare for extensification be large enough to offset the losses and risks involved? Am I on my own after five years?

It is apparent that the answers to those questions and the final judgement that will be made by farmers will vary enormously according to their individual circumstances - size of holding, type of land and farming, capital structure of business, age of farmer, labour force, proximity to markets, environmental quality, etc. In general it seems likely that a significant number of factors must point towards extensification before many will be prepared to take the plunge. Not the least important of these factors is the nature of the scheme and of the financial inducements offered.

HOW TO ENCOURAGE EXTENSIFICATION

There has been a flurry of activity in the Guidance Policy area this year with a variety of new schemes emerging both from Brussels and London. This is due to the tardy recognition that, perhaps, what we usually call structural measures have a part to play in resuming agricultural policy from the disarray on the prices and markets front. If this is to be no more than a smoke screen, however, there has to be an equal recognition that Guidance Policy cannot bear the main brunt of farm income support and that even to perform a secondary role effectively it must be given far greater resources than anyone has yet proposed to allocate to it. One may sympathise with the embarrassment of the E.C. Commission. Their heart is in the right place but then pockets are empty and with large holes in them. There is an implication that once the costs of market support have been cut there will be more funds for Guidance activity. However that implication is not echoed by national governments and even if it were, vague promises butter no parsnips.

It is obvious that if the new Guidance activity is to play any worthwhile role in pre-empting a catastrophic fall in farm incomes, sensible measures adequately financed must be in place before the price cutting bites too deeply.

The situation is further complicated by the Commission's plans, which are part of the strategy to achieve full Community coherence by 1992, increasingly to

divert the resources of the three structural funds (ERDF, SF, AgGuid F) to development in the poorest Member States. This means, inevitably, that the UK like other richer Member States, will itself have to find nearly all the resources necessary for agricultural guidance. Given the political will, this situation does have the advantage of allowing more national autonomy in designing schemes to meet national curcumstances.

The new Guidance measures include aids for "conversion" and "extensification", for farm forestry in the LFAs, and for environmental protection/conservation. Currently, proposed aids for early retirement/cessation of farming and direct income aids are before EC Agricultural Ministers. HMG has also initiated a Farm Woodlands Scheme, investment aids for farm business diversification and aids for on-farm product marketing developments. At the same time Environmentally Sensitive Areas have been identified in the UK which will attract annual payments. This is a confusing array for farmers, particularly as each scheme has its own rules and limitations. Being wise after the event, it would clearly have been preferable for there to have been one compendium scheme, covering a number of optional activities, which would have provided for most farm circumstances. Perhaps it is not too late to achieve this if all the interests agree it to be desirable.

Whether we are considering one of the schemes on offer e.g. extensification, or a compendium of schemes, it seems to me that the only sensible approach is via management agreements between the farmers concerned and the administering authority and a set of rules which, while it requires certain targets to be met and enables the authorities to monitor performance in this respect, is sufficiently flexible to meet a wide variety of farm management circumstances. It is my belief that the great majority of farmers will abide by their undertakings if they voluntarily adopt a management agreement which makes sense in relation to their own farming. Thus, for example, the extensification scheme rules stipulated in Regulation 1760/87 require a minimum reduction of 20% in cereals production (area or volume), the land released being diverted to non-farming purposes. In the case of beef, cattle numbers must be reduced by at least 20% with no change in the grazing/forage area. Surely it would have been sensible if a cereals and beef farm could have grassed down at least 20% of the cereals area without increasing cattle numbers, thus extensifying both cereals and beef? Again would it not have been more sensible to have allowed beef cattle and sheep to have been treated as interchangeable in extensification, given that they use the same forage area? Thus a livestock farmer would be obliged to reduce the number of grazing livestock units by 20% minimum but have the choice as to how this reduction was shared out between beef cattle and sheep. Such examples can obviously be multiplied.

The flexible management agreement approach could also help the pursuit of environmental objectives. Existing legislation requires the Government to schedule specific areas of the country as "environmentally sensitive" and to confine schemes to encourage appropriate arrangement practices to these areas. Everyone know however that while particular selected landscapes or wildlife habitats may be important to the enthusiast, the great majority of people are more concerned with the quality of the "ordinary" countryside which they frequent. There is probably no farm in the country which could not be made more attractive and more interesting with some sensitive conservation. Partly this is a matter of tidying man-made rubbish and messes, partly the avoidance of new eyesores, partly the maintenance of traditional buildings, woods, hedgerows, ponds, etc, and partly the pursuit of husbandry and land management methods which respect the landscape and wildlife.

If farmers, as part of a management agreement based on extensification, were able to earn appropriate additional payments for adopting modest programmes of

environmental improvement this would make for a more coherent and effective policy.

Will It Work?

The question "Will extensification make a material contribution to solving the problems of agricultural policy and help to keep farmers on the land?" can only be answered conditionally. A half-hearted and underfunded extensification scheme such as that outlined in Reg 1760/87 will not make a material contribution and, if a harsh pricing policy is pursued, many farmers will leave the land. On the other hand, an extensification scheme which is comprehensive, flexible and financially attractive could work.

The challenge is there for policy makers. Do they, or the public who pay taxes, buy food and enjoy the countryside, believe it is in their best interests to divert considerable resources into a long term programme designed to reduce surplus production, diversify the farming economy, enhance the rural environment and maintain the farming population. That belief probably exists, though it may be expressed differently, in France and Germany. Does it exist in the UK?

2nd November, 1987

paper 5

Landowners and farm extensification:
who will take it up? how fares the tenant?

Ms. S. Bell
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Paper for ITE Workshop on Farm Extensification: 27th November 1987

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LANDOWNERS AND FARM EXTENSIFICATION: WHO WILL TAKE IT UP?

HOW FARES THE TENANT?

Introduction

A landowner who farms his land, or whose land is farmed, has at least two major concerns in contemplating whether or not to opt for an extensification scheme: the short and medium term earning capacity of that land and the longer term capital value of the holding or estate. Like the rest of us he is in the realm of the unknown. His uncertainty is heightened, at present, by the lack of concrete proposals from the UK Ministry of Agriculture, the speculative demands of a fearful environmental lobby and (for those of wider vision) the competitive edge that may be seized by his European neighbours in a differentially or inefficiently imposed system in the other EEC member states. It would be simplest, and probably most honest, therefore, to answer the first question posed in the title with a straight don't know, or, it all depends. However, there is obviously a number of widely differing factors which will play an influential role, in varying proportions, in the decision of any particular landowner. These broadly fall into three categories: economic, psychological and political.

Economic constraints and opportunities

Landownership does not equate to wealth. The land itself may well represent, by most standards, a significant asset but one that can only be realised by sale - an option that may be unthinkable to some and impossible for others. In many cases that land may represent a family's sole source of income or at the other extreme an outside source of income may be the

only reason why a family can own the land in the first place. Clearly the position on that spectrum, the economic investment committed to the land and the farming business, and the intrinsic capabilities of both the land and the farmer are all going to govern an owner's ability and willingness to opt for any particular strategy.

The size, type and geographic location of a farm will have far less to do with the uptake of any particular scheme than the individual circumstances of the owner or farmer himself. For many the choices have run out. While admonishing the industry for talking itself into a decline, the head of Lloyds Bank's agricultural finance unit recently declared that some 10% of farm businesses, about 10,000 families, would probably have to quit. He went on to say that 40% should have no financial problems and that 50% would have quite severe ones but have room for manoeuvre provided they take action.

So, for those with some freedom of economic choice left, what does the extensification scheme have to offer?

The EEC Regulation 1760/87, does not state the amount payable but it does ordain that member states should calculate the amount based on the income loss that would result from taking the land out of production. To date the only guide we have as to UK Government thinking stems from MAFF's proposals for a voluntary cereals set-aside scheme issued in September 1986 "to stimulate discussion on this subject within the community". Based on more marginal growers with yields about 80% of the average, the MAFF paper estimated that an aid of about 300 Ecu's (£203) per hectare would seem appropriate for wheat.

The industry was pessimistic that any but those with the most marginal land would be attracted by such payments. The experience in Lower Saxony, where a set-aside scheme is in its second year, would seem to confirm that view. The area in question is in the heart of West Germany's cereal growing country, producing more than 20% of Germany's cereals. In an attempt to get 115,000 hectares or 7% of the state's arable land taken out of production, the compensation was set at some £400 a hectare. Only some 7,400 farmers put 33,800 hectares up for set-aside last year and these were on the poorest soils. Compensation levels, and the amount of land that

could be submitted was increased this year and while not many more farmers participated the amount of land in the scheme increased to 55,000 hectares.

In a voluntary system, it is clear that the level of payment is going to prove the key to the participation of the majority of farmers. The other half of the equation will be the level of prices and the squeeze that the EEC can persuade itself to impose. Landowners will do their sums looking to their gross margins and fixed and input costs. They will take into account their personal circumstances, reckon the alternatives and then look again at the rules of the scheme. For few landowners are wholly governed by economic rationale; their receptiveness will be affected by their own psychology and their perceptions of the political consequences of uptake.

Psychological qualms

Undoubtedly, to many farmers geared to maximising yields and taking a pride in so doing, the idea of allowing productive land to lie fallow or diverting it to non-agricultural use, would be anathema. There will be others to whom the scheme will simply not seem to have any relevance. Some will continue to farm as they always have in the belief or hope that the situation will sort itself out in due course. Others will even try to beat the system arguing that enough other farmers will reduce production, one way or another, to enable the efficient producer to maintain his income through market forces.

It remains to be seen how stringent the rules aplicable in the UK will be but, apart from requiring any scheme to last for at least five years, the conditions laid down in the regulation are few. The basic terms of the Regulation have been fully described in other papers and are not repeated here. However, it is worth saying in the context of this particular paper, that the conditions are going to be highly influential on take-up.

With so little known about the implementation of the scheme, the Government is already being lobbied hard to inject an environmental component. Many landowners will be deeply suspicious if they feel that onerous restrictions, or undue interferences, now or in the future, from statutory and non-statutory conservation bodies, will result from their entering the scheme. The CLA has promoted a more positive approach whereby a basic payment would be made for taking the land out of agricultural production

and then clip-on land use options with appropriate incentives should be introduced. These could include forestry, with the Farm Woodland Scheme, recreational or amenity uses or the management of the land for enhancing wildlife habitats.

There are many landowners who find it hard to reconcile themselves to the idea of "being paid for producing nothing", and fear the political vulnerability it would bring in its wake. They are, of course, all too aware of the catastrophic concequences for the countryside if effective and rapid price restraints are unaccompanied by structural supports, but would still find positive management payments more tenable than straight compensation.

For this, and other reasons, it seems likely that landowners, wearing that rather than their farmers' hat, will be attracted to the Farm Woodland Scheme. Not only does it involve a positive land use diversification, but carried out well, it should also enhance the capital value of the property as a whole. They may well also prefer to be paid for lower input farming i.e. keeping the entire area in production but achieving lower yield by limiting, for example, nitrogen inputs. The take-up in Environmentally Sensitive Areas is an encouraging sign.

Political uncertainties

For many decades the agricultural industry has been virtually "nationalised" in the old-fashioned sense of being economically managed by Government. Agriculture operates in a market highly distorted by national and EEC policies and the availability of capital grants, subsidies and technical advice combined with fiscal incentives or penalties. Nevertheless the British landowner and farmer still regards himself as staunchly independent and with the power and responsibility to make the best decisions for the land he owns and manages. Having responded once, with enthusiasm and success, to the siren call of Government incentives to produce or bust, farmers have been taken aback at the tirade of accusations and ad hoc restrictions that came in times of plenty. Some may feel it would be better to avoid such hostages to fortune by taking their chances outside Government schemes. They may fear the application of a tourniquet that can be tightened at any point in the future. Others, of course, may be so immured that another scheme carries no such threats.

Another inhibitory factor is the current uncertainty about future policies to curb production. The possibility of the imposition of quotas may prevent owners from taking land out of cereals, for example.

Then there is simply the sheer confusion of schemes, designations and procedures with which to contend. Which are national and which EEC? Which carry what benefits and what restrictions? Which are mutually exclusive? How do they affect the taxation or rating position? All questions the landowner might fairly ask and having studied the answers, would probably proceed with extreme caution.

What about the tenant?

With approximately 40% of holdings in England and Wales wholly or partly rented (and some 38% of land rented), the position of the agricultural tenant in relation to the extensification scheme is clearly important, as indeed is that of his landlord who may well be subject to much greater political risks. It is crucial that no undue strains are put on the landlord/tenant system by the imposition of unnecessarily restrictive or binding regulations. Inevitably if the system is to work, there must be a substantial measure of co-operation between the landlord and his tenant.

It is the CLA view that with the precedents of management agreements and Environmentally Sensitive Areas, the landlord/tenant aspects need not be too worrisome. Rental levels should not be affected and it has been readily agreed by all parties that a landlord's consent would be necessary if a substantial proportion of the farm is to be taken out of agricultural production or diverted to a non-agricultural purpose. Conversion to woodlands warranted special attention and the CLA, NFU and RICS have got together to resolve the potential problems by agreeing model clauses for attaching to an agricultural tenancy agreement or for a separate forestry lease.

In the case of the set-aside scheme, we are told that there will be a measure of protection for the landlord in that it is proposed that its conditions should only be binding on the existing occupier and not on his successor should there be a change in occupation during the currency of a set-aside scheme. Again model clauses might be a useful mechanism for reassuring landlord and tenant alike without recourse to new legislation or amendment to the existing agricultural holdings law.

Conclusions

Although the level of payments will be the key to the uptake of the extensification scheme, in whatever guise it eventually takes, other highly influential factors will be at work. These relate more to the individual landowner's financial and personal circumstances and his abilities and ambitions than to the size, type, land quality or location of his farm. Uptake will be inhibited if the scheme is too restrictive in nature or if it carries the threat of further outside interference either now or in the future.

Although the scheme may well help those close to retiring and with no view to succession, it is more likely to be taken up by those who see it as part of a strategic re-think for their holding as a whole. These are likely to be landowners who would anyway have been thinking along the lines of developing or changing the use of their resources and will now be able to use the scheme to assist the process. Just who they are, where they are located and how many of them there are remains to be seen.

Susan Bell
24th November 1987

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paper 6

How to gain landscape and recreation benefits from Regulation 1760/87

Mr. M.E. Taylor
Countryside Commission

WORKSHOP ON EEC FARM EXTENSIFICATION PROPOSALS

How to gain landscape and recreational benefits from Regulation 1760

M E Taylor, Countryside Commission

The amendments to the Structures Regulation proposed in Regulation 1760 are potentially very positive for the conservation of the countryside and the development of its enjoyment by the general public. However this potential will only be realised if member states introduce measures which are designed to achieve more than the bare minimum required by the European Commission in order to discharge their legal obligations.

The Countryside Commission is primarily concerned with conserving the natural beauty of the countryside which encompasses a concern for natural history and cultural as well as landscape interests.The Commission is also involved in promoting measures to help people enjoy the countryside whether they be residents or visitors.It is with this remit in mind that the Commission has pressed Government to implement Regulation 1760 with the following principles in mind.

(a).There should be opportunities for farmers to set land aside as well as extensify production.The two approaches are not mutually exclusive.

b) Farmers should be encouraged to extensify production over the whole of their holdings through a reduction in the use of fertilizers and pesticides in addition to areas subject to specific management regimes which attract public subsidies.

c)Where extensification is achieved through set-aside of specific areas there should be:

i) well considered after-use and management of the land set-aside with emphasis on long term objectives rather than one or two year fallowing

ii) assessment of the potential value of land for amenity purposes should be a factor in determining which cropped or grazed land is to relinquished

iii) special incentives should be offered to encourage land on ajoining holdings to be located in such a way that it is possible to create complimentary and mutually reinforcing landscape features and wildlife reserves, rather than isolated features

iv) opportunities for farmers to join the scheme by creating wide field margins.These will not only offer potential for increasing the natural history of the area but also improve access and the management of public rights of way

d)There should be explicit conservation objectives set out for the national scheme alongside requirements to reduce production. This will ensure that all applicants are aware of the need to build a awareness of conservation management into their own proposals rather than them being imposed as a °small print'condition at a later stage in the

administrative process.

e)Conditions will need to be attached to any extensification agreements to prevent the conversion of broadleaved woodland and other areas of conservation interest into more productive land in order to make up any loss of output from the holding

f)The reference period against which extensification targets are set need to be fixed at an early stage and preferably refer to a date prior to the announcement of the scheme

g)MAFF needs to encourage the preparation of whole farm plans which encompass conservation objectives where farmers consider significant changes to their enterprises as a result of participation in an extensification scheme.The scheme may need to offer specific incentives for the whole farm planapproach if worthwhile plans are to be produced and implemented

h)If the extensification proposals are linked to any of the schemes designed to encourage farmers to convert land to woodland there should be strong incentives ,possibly through constraints or qualifying conditions,for the creation and long term management of broadleaved woodland.The management objectives should refect the multiple use of the woodlands encompassing recreation conservatio and timber production objectives

Whilst the proposals and opportunities of Regulation 1760 are substantial for both recrational and conservation improvements within agricultural policy, it would be wrong to believe that this the only way open to the Government to acheive a major realignment of current incentives and policies .Apart from the new regulation, the existing Capital Grants scheme and the Less Favoured Areas policies offer considerable scope for encouraging farmers to persue conservation orientated management practices.

In many upland areas the problems of both over and undergrazing are a result of incentives tied almost exclusively to product outputs whether these be sheep or beef.The extensification proposals seem unlikely to be able to deal adequately with these problems.In many of the cases looked at by the Countryside Commission the conservation issues as well as access and recreation ones would be better tackled through changes to existing schemes such as HLCA payments related to prescribed stock management or the use of direct payments for conservation management through Environmentally Sensitive Area schemes.

In other parts of the country both recreational and conservation interests may be better served by concentrating on the opportunities to influence farmers through the use of farm capital grants and the Agricultural Improvement Schemes.Through these mechanisms farmers could be encouraged to mantain rights of way, realign footpaths and bridleways to maximise their recreational use whilst minimising their impact on agricultural activities.Farmers should also be encouraged to develop small scale visitor facilities which might produce small additions to the farm income although this should not be an overriding consideration.Farmers should be able to obtain finacial help with the cost of maintaining those features of the landscape which the public values but which by and large have little ofr now agricultural role. Clear candidates in this latter group are wall maintenance and rebuilding , hedge and bank maintenance,pond clearance and creation,the care and maitenance of unproductive areas of land such as bogs, marshes, heaths etc.

To some extent the current AIS scheme does accomodate many of these but to a lesser rather than greater extent. In some instances the grant levels are unattractive e.g stonewalling at £7.50 per metre,in others the rules discourage farmers from carrying out small scale works because of current expenditure floors i.e farmers have to be able to claim at least £750 which is far more than most conservation works would cost in any one year.

In summary the Commissions thinking on the value of Regulation 1760 is that it could be made useful if implemented with clear conservation and recreational objectives in mind.However it is not the only devise available to the government .Other mechanisms need to be used if we are to suceed in marrying agricultural ,conservation and recreational management of the countryside.

paper 7

How to gain wildlife benefits from Regulation 1760/87: can economics and ecology combine?

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HOW TO GAIN WILDLIFE BENEFITS FROM 1760/87: CAN ECONOMICS AND ECOLOGY COMBINE?

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The views expressed below are fictional and any similarity to the views held by the NCC is accidental and unintentional unless otherwise indicated.

Introduction

The NCC published "Nature conservation in Great Britain" in 1984 as a contribution to the United Kingdom's response to the World Conservation Strategy (IUCN, UNEP and WWF, 1980). This identified agricultural development as "overwhelmingly the most important" cause of decline in nature conservation interest. This is because agriculture is the dominant land use; other land uses have also caused problems to nature conservation but on a more restricted scale.

The main objective of nature conservation is to ensure that the "national heritage of wild flora and fauna and geological and physiographical features remains as large and diverse as possible so that society may use and appreciate its value to the fullest extent" (NCC 1984). This is reflected in the Corporate Plan 1987/88 where the main aims of maintaining and managing the SSSI system and the network of National Nature Reserves, carrying out relevant survey and research work and supporting the private sector conservation movement are complemented by the aim "to promote the conservation of nature, through scientific and technical advice, as an activity integral to the social and economic life of rural and urban areas" (NCC 1987). The key concepts are "large", "diverse", "heritage" and "integral".

The mechanisms used have so far been site related. Over the last two decades the conservation movement has concentrated on resource survey and on identifying, notifying and managing an "adequate" series of NNRs and SSSIs. This was understandable given the scale and rate of loss of habitat at the time, and given the Wildlife and Countryside Act 1981 under which all SSSIs had to be re-notified.

Most of the nature conservation resource lies outside the designated sites, in the "wider countryside". This is important because it is the most accessible part of the resource for most of the population. It is also important for the success of the site safeguard programme. Some species are wide-ranging and site based approaches cannot offer

complete protection. Further, some sites can act as reservoirs of species which could populate a more hospitable wider environment.

The importance of the wider environment has been recognised in recent legislation and Government policy announcements (Agriculture Departments 1987). The stated aim is to encourage farmers to continue as the natural custodians and trustees of the rural environment. There is also an assurance that environmental considerations will be taken into account where afforestation occurs. Various activities and initiatives are under way to realise these aims, including support for conservation advice, both through ADAS and through FWAGs, and encouragement for its adoption through enhanced rates of grant for environmentally positive investments.

Environmentally Sensitive Areas are a new mechanism that allows farmers to resist commercial pressures that could lead to environmental damage. The Governments environmental advisers, the NCC and the Countryside Commissions, are involved in the Environmentally Sensitive Areas programme both in recommending where these should be and in the formulation of management guidelines. (Agriculture Act 1986 S.18 (2)).

An indication of the increased environmental concern is the "balance" clauses which now require that other interests endeavour to achieve a reasonable balance between conservation, enjoyment of the countryside, the economic and social interests of rural areas and the development of agriculture, forestry or water resources (Agriculture Act 1986 S.17 Wildlife and Countryside (Amendment) Act 1985 S.4 and Wildlife and Countryside Act 1981 S.48). As NCC has a duty to advise Government on the development and implementation of policies for or affecting nature conservation, the balance clauses mean that NCC must now advise on how nature conservation concerns can be incorporated into agricultural and forestry policy in general.

This raises the question of what are reasonable objectives for nature conservation in most of the countryside and what interpretation should be given to the term "balance". The next section of this paper explores some approaches to setting objectives for nature conservation. This is followed by a section that considers Council Regulation (EEC) No. 1760/87 in light of the approaches to objective setting previously discussed. The paper concludes with a discussion of the issues raised and of requirements that seem essential to realise conservation benefits.

Nature conservation objectives for the wider environment

Most of the activity of the NCC over recent decades has focussed on sites of special scientific interest (SSSIs). This has involved survey work to establish the extent and nature of the conservation resource, the use of guidelines (the SSSI Selection Guidelines) to identify qualifying sites, their notification and monitoring to assure appropriate management. Since 1981 all sites have been re-notified according to the new legislation and further work has been done negotiating management agreements to compensate owners for lost opportunities to develop the sites. The Guidelines ensure adequate representation of the full range of variation of the major habitats across Great Britain. It must be stressed that the SSSI Selection Guidelines are designed to evaluate areas of habitat already identified as having above average conservation interest to determine whether the interest is sufficiently high to justify notification as of special scientific interest. This is based on the **intrinsic** interest of the habitat. The SSSI system is designed to form "a network of protected areas representing in total the part of this country in which the features of nature, and especially the most threatened, are most highly concentrated" (NCC 1986). The definition of **intrinsic** interest is rather different for animal species and communities, but is still based on the significance of particular sites based on the concentrations of the species concerned. The mobility of animals means that the protection of these key sites is often inadequate if it the sole basis for the conservation of the species concerned.

We need methods for evaluating the entire wildlife resource in a region or district. This includes the high quality semi-natural habitat present, and also incorporates the contribution made by the wider environment. An example of the sort of situation that needs to be incorporated into such an evaluation system is provided by the Game Conservancy's work on "conservation headlands" as part of the Cereal and Gamebirds Project. The modification of the treatments given to part of a standard cereal field leads to gains to the wildlife resource as a whole in the area. The habitat so created would in general not be regarded as particularly interesting **intrinsically** except where rare arable weeds happened to occur. However the contribution to the overall wildlife resource, both in abundance and diversity, is well estabished (Rands and Sotherton 1986). We need a way of estimating this **extrinsic** value of particular areas of land.

The Game Conservancy's work also shows how interactions between different components of the countryside affect wildlife. Their work on hedgerows shows how the length and management of these affects gamebird populations (Sotherton and Rands 1987).

The benefits from managing field margins as conservation headlands will be affected by the nature and extent of the associated hedgerows. The type of hedgerow (with long grass areas within the hedgerow) suitable for gamebirds is different from that required for encouraging woodland birds. There are conflicts between different wildlife outcomes, all of which may be superior to the standard management that would occur if wildlife was not considered. This raises the question of how to choose between different options for improving the wildlife resource in the generality of the countryside.

The NCC has stated three conservation principles which are used to inform policy development for the wider environment (NCC 1987a). These are:-

1. The protection of all remaining areas of semi-natural habitat from further losses.

2. The protection and enhancement of existing good wildlife habitat where possible.

3. The re-creation of wildlife habitats on land of low current conservation value.

These principles are in order of priority. Re-creation is no substitute for the conservation of existing habitats, and in general it is cheaper to improve an existing good wildlife habitat than it is to start from scratch. To the extent that the first two priorities are not considered as part of the proposals in Regulation No 1760/87, the regulation fails to provide the means for a balanced conservation programme as part of agricultural adjustment.

However, the Regulation does provide opportunities for changing the use of cereal and grass areas, and for changing the intensity of use of grassland. How should one decide what the best use of the areas that do change would be better for wildlife? One approach is to define some target wildlife resource for given areas and use the gap between the current resource and the target to indicate priority actions to improve matters. The target should represent a wildlife resource that is in some way "characteristic", "representative" and "typical" of the area in question.

One possible model for this approach is the "River Communities Project" that the Freshwater Biological Association (FBA) are carrying out. This has considered the unpolluted state to be the standard against which other conditions should be assessed. Unpolluted sites on 61 river systems were sampled to establish the characteristics of the macro-invertebrate communities present. The sites were classified using TWINSPAN to 30 end groups. The physical and chemical characteristics of the river system at the sites were also recorded. These environmental characteristics were then

used to allow prediction of the probabilities of individual species occurrence at sites of known characteristics on the assumption that the site is unpolluted. This system was shown to be a reasonable predictor of species occurrence even where only five environmental characteristics are known. The FBA see the initial major use to be "the provision of a "target" macro-invertebrate community to act as a standard for a given site" against which the "difference between the actual fauna observed and the target gives a measure of the loss of biological quality" and the "nature of the perturbation .. may also be indicated by the taxa which are absent". (Moss et al 1987, Wright 1987).

The FBA used invertebrates because there is a large number of species with a wide range of environmental requirements. The invertebrate community is therefore a good indicator of environmental quality in river systems. Conservation in the wider countryside could be guided in a similar way if a target species list for each ecological zone could be drawn up. This would have to represent some "ideal" or "potential" list given that the best practicable practices in commercial land use are adopted. As there are essentially no "unpolluted" sites left, particularly in the lowlands, the target species list could not realistically be established by the same survey method used by the FBA. Attempts are being made to construct ecological regions based on bird distributions. The bird community could then become a measure of the quality of the wider environment for nature conservation overall. There may be a need for other indicators in certain areas, especially mammals and possibly invertebrates, to ensure an adequate range of indicators. Too few indicators can lead to distortions in the conservation priorities. Gaps in the indicator species could be interpreted in terms of habitat features that are missing or not present on a sufficient scale to allow the species to be present. This would set the conservation priorities for the area. This approach might meet the plea by Buckwell for the development of summary indices of environmental quality (Buckwell 1985).

This approach would allow broad definition of the type of habitat mix needed to support the target indicator species. Different species lists would be appropriate for different scales of concern; wide ranging and dispersed species would be suitable for large areas, and more localised species with specialist habitat requirements would be appropriate for smaller scale planning. These could then be related to commercial practice as a set of "standards" that are required to ensure the regional wildlife resource is adequately catered for. If the indicator species list was accompanied by statements of expected densities, breeding success rates and other demographic characteristics then the approach suggested could be used to assess the effect on nature conservation of incremental changes to the habitats in an area. At present such an approach would have to be based on associations between habitat features and the species concerned rather

than on an understanding of the ecological processes at work. Research to understand these processes would allow more reliable predictions of the wildlife effects of land use change. Given clear targets it should be possible to identify "ecologically optimal pathways" of land use and management adjustment.

Adjustments to agricultural policy are currently assessed in terms of the budgetary impact to the UK Treasury, and secondarily to the EEC. The usual objective is to maximise budgetary savings. To achieve environmental benefits this objective needs to be changed to one which maximises both the budgetary savings and the environmental benefits. In the absence of valuations of the environmental benefits this can only be approached by arbitrary variations in the target level of net savings to the budget associated with some given degree of environmental benefit.

To a large extent wildlife benefits are joint products of other land use patterns and management systems. Amenity and recreational opportunities can be achieved in a way that produces high wildlife benefits, or in ways that are less beneficial. This presumably means valuation of the wildlife resource needs to be carried out jointly with valuations of other environmental outputs.

The demand for opportunities to enjoy wildlife is generally taken to be responsive to income levels. It is not clear whether it is responsive to price or not, though some say that demand for such goods may not be responsive to price (McInerney 1986). The nature conservation resource has the series of high quality sites at its core. The loss of these sites, or their impoverishment due to negative effects from external land uses, is essentially irreversible. The valuation procedure needs to take this into account explicitly, especially if the demand for conservation goods is indeed price inelastic and income elastic. The demand schedule derived from current data may be a poor estimate of future demand schedules given future changes in income levels. It would be easy to underestimate the future value of conservation to society.

We need a programme to provide consistent values for environmental goods and services for use in policy work. Such values are needed to determine how far along the ecologically optimal path of land use and management adjustment it is justifiable to go. I end this section with a plea for the development of ecological models that can be used as indicators or to set targets. These can then be integrated with land use models and costed. A pseudo-supply function of conservation outputs could be generated from this.

Does Regulation 1760/87 provide opportunities for conservation?

The Regulation covers investment schemes, HLCAs, support for on farm forestry, training and the incorporation of the ESA scheme into Community legislation as well as the conversion and extensification of production. Clearly the ESA Scheme does provide opportunities for conservation even though the limited premium eligible for refund may restrict the attraction of such Schemes. The ESA system is a good example of a scheme which is tailored to the local environmental priorities, defines management requirements and offers payments for fulfilling them. Such a system could be adapted to allow Regional and local environmental targets to be met within a unified national system.

The HLCA system interacts with the support systems for the major farm enterprises in the Less Favoured Areas, leading to changes in the balance and intensity of enterprises. This has deleterious ecological effects. Without widespread adoption of ESA-type mechanisms the **entire** support system would have to be overhauled to prevent these problems. The main new opportunity presented by this Regulation concerns Title 01 on Conversion and extensification of production. This is what the rest of this section primarily addresses.

NCC has produced its preliminary advice in advance of the details of how the Regulation will be implemented in the UK (NCC 1987). Recognition should be given to the losses of wildlife habitat already suffered, mainly as a result of agricultural development, when measures designed to encourage agricultural adjustment are introduced. This is in accord with the duty of Agriculture Ministers to balance the needs of agriculture with conservation. The NCC paper concentrates on the compulsory part of the Regulation; reduction of cereal **area** by 20% and of beef cattle **numbers** by the same amount with no increase in other production capacity on the holding. This is seen as protecting other farmers in other areas, particularly the LFA, from knock on effects due to adjustment on the holdings entering the schemes of extensification. It is essential to stress again that **creating new habitat is no substitute for protecting what remains.**

NCC then considers the opportunities for conservation set-aside on a whole farm, field and field margin scale. Some of the whole farm/field options suggested are specific to certain areas and others are more general such as the planting of native woodland and the establishment of "wilderness" areas. Even the general suggestions would have to be carefully located with respect to existing features of conservation value and amenity considerations would have an influence. Fallowing is seen as relatively undesirable,

especially if it is a rotational bare earth fallow. Longer term fallow with a volunteer vegetation cover has more value in conservation terms. There is a risk of low productivity, high conservation value grasslands being planted with trees as part of a beef extensification scheme. The aim should be to reduce inputs to pastures that are still related to semi-natural grassland communities, thus encouraging their improvement, rather than reducing inputs to improved pastures.

Implementation should ideally be through a farm plan, which should include a basic map of the conservation resources on the farm. This would be used to show how existing areas of conservation value were going to be protected, and how the use of the set-aside land would complement the existing resource. There is no reason why such maps should not include information on amenity and recreational resources on the farm, such as footpaths and archaeological sites. Payments under the extensification scheme will be related to the achievement of a farm plan to reduce production of cereals or beef in specified ways with no compensating increases in other agricultural output. These payments should also be conditional on the protection of the existing conservation resource.

Uptake of the scheme will depend on the level of payments, and the expectation of how these payments will change over the period of the agreement compared to changes in the relevant enterprise margins. To achieve conservation benefits on farms other than those already interested in carrying out the necessary management, payment levels will have to reflect the differences in costs between conservation and commercial set-aside systems. There will have to be some recognition of the relative value of different environmental benefits. Advice alone will not ensure environmental benefits; there will have to be incentive payments.

Conclusion

The extensification scheme will probably be implemented in the UK with a single level of payment in return for removing the required area from production. It will be accompanied by a considerable volume of advice on the opportunities for using the land that is affected by the scheme. This advice will include material on methods to achieve environmental benefits, to which the NCC and others will have contributed. To the extent that rotational bare fallow is cheaper to implement at the farm level, and makes it easier for the farmer to bring the land back into the arable rotation at the end of the five year agreement, this is the system that will dominate the practice amongst the participants. It is also likely to be more efficient in terms of actual reductions in output achieved. More permanent options will be concentrated on the least productive areas that are eligible on a farm.

Conservation benefits will occur, particularly on farms that are already interested, or where sporting rights are managed. In these cases the extensification proposals could be used to fund further investments in land use change that could not be funded from the general farm profits. This may bring forward proposed investments of this sort rather than result in new investments.

To optimise these benefits Regional and local conservation priorities must be set. For example areas neighbouring SSSIs might be managed to enhance the SSSI. The payments available would then have to reflect these priorities and to offer incentives for their adoption over and above the payments offered for simply reducing production. The farming community should also be offered payments for existing habitat of conservation value, especially the more vulnerable habitats such as semi-natural grassland and wetland areas.

The farm plan should form the basis of a balanced approach to agricultural adjustment accounting for environmental objectives. It will not do this unless the value that society places on the environment is reflected in tangible incentives for the farmer.

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paper 8

Social, agricultural and environmental needs: does the extensification proposal fit them, and could it be optimised?

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EXTENSIFICATION: REGULATION 1760/87

Paper to the Merlewood Workshop by Fiona Reynolds, CPRE

Social, agricultural and environmental needs: does the extensification proposal fit them, and could it be optimised?

Introduction

1. The 'extensification' regulation 1760/87 is significant as the first direct means of surplus control for cereals and beef in the European Community.

2. Its timing is crucially important, since it coincides with a period when public concern about the huge costs of surplus storage and disposal has reached a peak, when farmers' own disenchantment with the lack of direction and leadership from both official sources and within their own ranks has heightened, and it is due to be implemented just as the next round of EEC and GATT price and trade negotiations take place.

3. Indeed, such is the strategic importance of the regulation that it is likely to provide the focal point for a much wider debate about the future of the CAP and agricultural support regimes than such an apparently modest measure would normally justify. In particular, public expectations about the extent to which agriculture can in future satisfy wider demands will have to be addressed.

4. The aim of this paper is to identify the broad social, economic and environmental needs which need to be satisfied by any adjustments to the agricultural structural support regime, and to assess whether regulation 1760/87 will - or could - satisfy them.

5. The paper tackles this subject in three sections:

(a) social, economic and environmental needs: the broad requirements of an adjusting agriculture

(b) the provisions of regulation 1760/87 and their relevance to the above needs

(c) likely implementation in the UK: can such needs be optimised?

(A) Social, economic and environmental needs

6. It is now widely accepted that the pattern of agricultural support within both the EEC and UK must and will be changed. Most - including national and EEC leaders - now accept in principle that any future agricultural support regime must deliver wider social, economic and environmental goals. Such goals are increasingly being used by the EEC to justify the continuing high levels of agricultural support in the Community.

7. Drawing on contemporary EEC statements, these can be broadly described as follows:-

(i) socio-economic

- measures which sustain farm incomes at levels comparable with other sectors of the economy

- measures which provide supports to those who need it most

- measures which help stem rural depopulation and encourage employment on farms, thereby helping to sustain rural communities

- measures which encourage diverse and economically sound agricultural enterprises

- measures which are capable of targeting particular groups of farmers - eg old farmers, small farmers - within the Community.

(ii) environmental

- measures which prevent further destruction of wildlife habitats and landscape features on farms

- measures which encourage farmers to farm their land in an environmentally sensitive manner, regardless of location

- measures which protect and conserve the natural resources of agriculture.

8. All these objectives form part of the EEC's own policy framework and are entirely consistent with the Treaty of Rome. However, it is now widely accepted that the practical effect of CAP policy and incentives in the past has in many cases been precisely the reverse.

(B) Provisions of regulation 1760/87

9. The key question is whether regulation 1760/87 is capable in theory or in practice of delivering results which are compatible with these objectives.

10. The regulation's broad aims indicate a high degree of conformity. They are fourfold: to restore equilibrium between production and market capacity; to help improve the efficiency of farms by contributing to their reorganisation and restructuring; to maintain a viable agricultural community, especially in the hills and uplands; and to contribute to the protection of the environment and the lasting conservation of the natural resources of agriculture.

11. For the purposes of UK implementation, these objectives should be read alongside MAFF's own statutory responsibility under the 1986 Agriculture Act to balance agricultural aims with social, economic and environmental objectives.

12. These requirements place on both the regulation and its implementation in the UK a wider responsibility than reducing production - important though this is. Thus, production reducing goals should not only not be at the expense of the environment and rural communities, they should seek to enhance them.

13. As with all EEC Regulations, these broad requirements are sharply coloured by its more precise objectives, and the extent to which the UK Government has discretion in its implementation. An important next step is to separate the **requirements** of the regulation from the **scope for national discretion.**

(i) requirements

14. Members States are required:-

- to introduce a voluntary extensification scheme within 9 months of the European Parliament's ratification of the regulation (July 1987)

- to apply it at least to cereals, beef, veal and wine in the period up to 31 December 1989

- to secure a 20% reduction in output of the products to which it is applied, without resulting in an increase of production of other products in surplus

- to determine conditions under which the scheme will operate, including arrangements for achieving the target 20% reduction, verification, and payments to participating farmers calculated on the basis of the extent of their commitment and on income losses.

(ii) the scope for national discretion

15. Member States may:-

- apply extensification to other products in surplus

- exclude areas or regions where, because of natural conditions or the danger of depopulation, production should not be reduced

- introduce arrangements for reducing production **other than** those in Artice 1(b) 1(a), which specify a **reduction in the area** of cereal production by 20%, and of the **numbers** in the beef herd by 20%. Where reduction is effected by the withdrawal of land from agricultural production, such land may be left fallow, afforested or used for non-agricultural purposes.

16. These elements of national discretion are key to the role which regulation 1760/87 can play in meeting social, economic and environmental needs. It is CPRE's view that unless the UK Government exercises such discretion the regulation is more likely to stimulate new socio-economic and environmental conflicts than to meet their needs.

(C) Implementation in the UK

17. All indications to date suggest that MAFF propose not to accept the permitted extent of national discretion in implementing the regulation. It proposes instead what amounts to a 'set-aside' scheme, requiring farmers to withdraw 20% of their cereal land from production, or to reduce their beef herds by 20%. In return, they would receive 'lost-profits' compensation (presumably on the model of the 1981 Wildlife and Countryside Act financial guidelines) and would undertake not to use the land

'set-aside' for productive purposes.

18. Participating farmers would be offered a choice of three alternatives on the land 'set-aside' - fallowing, forestry, or non-agricultural uses. The Farm Woodlands Scheme, Forestry Commission grant schemes and the Farm Diversification Scheme would be available to help farmers make the appropriate choice.

19. MAFF appear to propose no controls on inputs or management of the land not set-aside, and indicate that the scheme will be targeted (in terms of financial incentives etc) at marginal cereal and beef producers. It is therefore unlikely to impinge much on the major grain-producing areas of the country.

20. CPRE fear that MAFF's proposals for implementation are unlikely, at best, to meet environmental and socio-economic objectives, and at worst may lead to further damage to them.

21. On the land set-aside all three options could, unless very sensitively applied, lead to new environmental conflicts. Fallowing could result in the heavy use of fertilisers and pesticides to keep weeds down and off the adjacent crop; forestry could mean insensitively designed and planted new plantations unless there are strict environmental controls; and other uses could lead to pressures for new built development on farms - new buildings, sale of land for housing development etc. And while these latter options might include opportunities for rural employment, within the context of the scheme as a whole are more threatening than of value to long term farm viability.

22. On the land not set-aside, the problems could be even more acute. Unless strict, enforceable controls are introduced, all experience of 'set-aside' elsewhere suggests that the poorer land will be taken out, and (in the absence of wider surplus control measures) production will intensify on the remaining land. This could have consequential environmental dangers as restructuring and commodity substitution take place within the rest of the farm. Although the 'lost-profits' basis of compensation would appear to hold advantages for farm incomes, these are short term and could lead to a further decline in public support for agriculture.

23. The scheme could therefore have little impact on overall production levels, farmers will apparently be paid 'to do nothing', and further environmental losses could take place. Far from contributing to agriculture's adjustment, the scheme could increase public disaffection with agriculture and its costs, further confuse and isolate the farming community, and add to environmental and socio-economic problems in the countryside

24. By contrast, if national discretion is exercised, CPRE believes that regulation 1760/87 offers an important opportunity for the countryside. It appears that MAFF is considering introducing its own scheme for aiding farmers' conversion to organic farming - a welcome if limited step forward. CPRE is urging MAFF to offer - indeed actively encourage farmers to take up - a 'de-intensification' option ie a lower input/lower output system for the whole farm.

25. Under such an option, farmers entering the scheme would be required to demonstrate reduced output of cereals and beef (as appropriate to their farm) by 20%, but would do so within a farm plan providing for de-intensification of production across the farm as a whole.

26. This could be achieved by a combination of input reduction (experts have calculated that in order to reduce cereal outputs by 20%, inputs must decease by the order of 50%); and environmentally sensitive management across the whole farm. This need not be incompatible with a limited version of environmental set-aside in the form of wider field margins, new hedgerows and small, broadleaf woodlands etc. The Environmentally Sensitive Area agreements provide a possible model for such a scheme.

27. Payments would be calculated on the basis of the farmers' positive contribution to output reduction and environmental achievement. Far from being a payment to do nothing, it would be a payment for adjusting to a new, environmentally-sensitive pattern of farming. Any farmer should be able to participate.

28. The scheme could be monitored by means of a farmer's declaration of output, through agricultural returns, and by adherence to an agreed farm plan.

29. In contrast to the 'set-aside' option, the above proposal could make a positive contribution to farm incomes, employment and the environment. Further, it offers the prospect of a longer term, more viable future for farmers, which could attract considerable public support. In addition, many farmers have already indicated their enthusiasm in principle for such a scheme, preferring to adjust their whole farm to a new regime, rather than remaining on the treadmill of intensification on most of their land, and having to seek quite new uses for the remainder.

Conclusion

30. Regulation 1760/87 offers an important opportunity for helping farmers to make adjustments to farm management in ways which could enhance socio-economic and environmental objectives. Indeed, its own broad objectives suggest that this is precisely its intention. However, if the 'set-aside' route is chosen, the results are more likely to create new countryside conflicts than to resolve agriculture's current crisis.

Fiona Reynolds
November 1987

paper 9

Integrating extensification

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INTEGRATING EXTENSIFICATION DRAFT

Merlewood Seminar: 27 November 1987

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Introduction

1. This paper sets out the views of the authors on the 'extensification' scheme proposed in Regulation (EEC) No 1760/87. The views expressed are not necessarily those of the RSPB. Three main areas of concern are considered: protecting existing wildlife habitats; encouraging the creation of new wildlife habitats, and less-intensive farming; and integrating the scheme with other schemes of assistance in rural areas. Throughout, we are as much concerned to identify the economic and social implications of the extensification scheme, as to outline its implications for wildlife.

2. It is important to stress at the outset that the extensification scheme contains elements of both 'extensification' (ie less-intensive, more-extensive, lower-input farming) and 'set-aside' (ie the removal of land from production). It can be argued that the greatest benefits for wildlife would be realised by mixing these two elements, rather than by relying on one or the other alone. The Regulation provides for both approaches to be taken, but the extent to which an integrated approach will be adopted in practice remains unclear. Certainly it appears that for cereals the UK Agriculture Departments currently favour the set-aside option only.

1. Protecting existing wildlife habitats

3. The introduction of an extensification scheme could lead to more intensive farming in some circumstances. This would be inconsistent with the need to cut the production of surplus products, and could also have worrying implications for wildlife habitats on farmland. Some of the possible situations in which intensification might occur are briefly considered below. In many cases, the ambiguous wording of the Regulation, and its lack of clarity, make it difficult to predict the extent of the problems which might arise.

4. First, the scheme is to be voluntary, and there is therefore nothing to prevent farmers who do not join the scheme from continuing to intensify their activities and damaging wildlife habitats in the process. The European Commission might argue that like all the measures which it is currently proposing for the reform of the Common Agricultural Policy (CAP), this one will be introduced against the background of severe downward pressure on prices, and that this in itself will tend to discourage intensification. However, as Mansholt (1986) has shown, the assumption that price pressure will encourage a fall in production may be questioned on several counts.

5. Secondly, it appears that farmers who do join the extensification scheme for beef or cereals might be able to intensify other enterprises on their

farms, with potentially-damaging environmental consequences. The Regulation requires 'a reduction in the output of the product concerned by at least 20% without other production capacity within the meaning of paragraph 1 being increased' (Article 1a paragraph 2). It is easy to see how this applies to cereals and beef: cereal farmers who withdraw land from production should not intensify cereal production elsewhere on their farms, and beef producers who reduce stock numbers should not intensify the management of their remaining cattle, as it would otherwise be impossible to achieve the minimum 20% fall in production. However, the extent to which the requirement not to increase 'other production capacity' applies to other farm products is unclear.

6. 'The production capacity' referred to in paragraph 1 of the Regulation is that of the surplus products, defined as 'products for which, consistently at Community level, there are no normal unsubsidized outlets' (Regulation 1760/87 Article 1a paragraph 1(b)). The Regulation does not say whether this definition covers only those products such as beef, cereals and butter which are sold onto world markets at subsidized prices, or all products which are supported by the CAP. If the former definition applies, then farmers with sheep and cattle enterprises could join the beef extensification scheme and intensify their sheep systems. Similarly, cereal farmers could move into horticulture, or various forms of livestock fattening. Such changes might raise the overall intensity of farming, and lead to the loss of the remaining semi-natural habitats on farms, with obvious consequences for wildlife.

7. A third area where there is cause for concern over intensification is in the use of land which is withdrawn from production. Although the Regulation also allows for production to be reduced through reductions in inputs (Article 1b paragraph 1(a)), frequent references to the withdrawal of land from production indicate that for cereals this is the favoured approach. The Regulation suggests that 'where the reduction in output is effected by the withdrawal from agricultural production of farmland, such land may be left fallow with the possibility of rotation, afforested or used for non-agricultural purposes' (Article 1a paragraph 2). While existing arable fields may be of little value for wildlife, it is possible that intensive fallowing systems would be just as inhospitable, and in some circumstances worse for wildlife. Intensive conifer forestry or built development would also bring few benefits, and make it difficult to return intensively-managed farmland to some less-intensive farmed use in the future.

8. The application of extensification schemes to low-intensity farming systems which are in harmony with conservation requirements could also be damaging for wildlife. For example, a reduction in cattle grazing intensity, or the replacement of cattle by sheep (particularly at excessive densities), or the conversion of grazing land to root crops or forestry, could lead to the loss of important grassland and moorland habitats in areas such as the Western Isles and County Fermanagh. These provide crucial breeding areas for important populations of wading birds. A general decline in store cattle production in the uplands as a result of the extensification scheme could also reduce the numbers of cattle available to graze lowland wetlands, both inland and on the coast, with similar damaging implications for wildlife.

9. Serious economic and social consequences could also arise if the scheme led to a widespread reduction in activity rates on farms, or if it encouraged farmers to respond to other incentives to give up farming

altogether. Small reductions on many farms in the demand for labour, machinery, and other inputs such as seed, fertilizer and pesticides, could have significant knock-on effects on employment, the profitability of ancillary industries, and rural communities in general. The impact of a decline in activity rates could be most severely felt in the Less Favoured Areas of the UK (areas designated under Directive 75/268/EEC in order to conserve the countryside and to stem rural depopulation). This concern is to some extent recognised in the Regulation, as it enables the European Commission to authorise Member States 'not to apply the arrangements in regions or areas in which production should not, because of natural conditions or the danger of depopulation, be reduced' (Article 1a paragraph 3). UK Agriculture Departments have so far indicated that they do not wish to apply this provision to the Less Favoured Areas, or to more localised areas such as the Western Isles, on the grounds that it would be wrong to deny specific groups of farmers the opportunity to benefit from the scheme. The only area specifically exempted by the Regulation from the scheme is Portugal, during the first stage of accession (Article 1a paragraph 4).

2. Encouraging the creation of new habitats and less-intensive farming

10. While the focus of the Regulation is on cereals, beef, veal and wine, it is important to note that 'Member States may also grant these aids for the "extensification" of other products' (Article 1a paragraph 1(b)). The Regulation allows for reductions in production to be achieved by removing land from production, reducing the number of head of livestock, or by adopting other measures (with the authority of the Commission). The potential scope and nature of the extensification scheme is therefore very large. For the purposes of discussing opportunities to encourage the creation of new wildlife habitats and less-intensive farming, attention will be focused on two sectors only: cereals and beef. Attention is first given to the opportunities presented by the removal of land from production, and secondly to the opportunities for encouraging less-intensive farming.

2.1 Encouraging the creation of new habitats

11. The Regulation envisages three options for the removal of land from production: fallowing, with the possibility of rotation (in the cereals sector only), afforestation (in the cereals and beef sectors), and use for non-agricultural purposes (again in both sectors). All three provide opportunities to create new habitats for wildlife on farms, although, as described below, the value of these habitats, and their attached social and economic costs and benefits, vary greatly. It is important to stress that it is difficult to re-create habitats such as wetland, heathland and chalk grassland once they have been lost: it should not be thought that the losses of the last 40 years can simply be replaced overnight through the judicious management of land removed from intensive production. This places a high premium on the remaining semi-natural sites, and emphasises the need to protect them. There is, however, scope to create habitats which are better for wildlife than those which now exist on intensively-managed farmland. This section examines some of the options.

12. Increased fallowing of arable land could bring a variety of benefits for birds and other wildlife, but much depends on the time of year at which the land is fallowed, and the way in which the fallowed land is managed. For example, cultivating land immediately after harvest, leaving it bare until the following autumn, and treating it with herbicides to control weed growth, would probably provide minimal benefits for wildlife, and would also tend to encourage rapid leaching of nitrates. Planting a cover crop would help to control leaching, but leaving bare stubble throughout the winter

would probably bring more benefits for birds, as would controlling weeds by cultivation, rather then by herbicides. However, a major problem with one-year rotational fallows of this sort is that fertility would rise during the fallow period, and thus tend to offset the effects of taking the land out of production in the first place. For these reasons, long-term fallowing of the same land, rather than rotational fallowing, is probably to be preferred.

13. The longer the period for which land is removed from production, the greater the scope for positive management explicitly designed to bring conservation benefits. If arable land is left fallow without cultivation, and perhaps only minimal control of noxious weeds, then it will develop naturally into rough grassland and eventually into scrub. Similarly, grassland formerly grazed by cattle will also develop into scrub. The composition of these habitats, and their value for wildlife, will vary geographically, and with their extent and species composition. Thus, allowing hedges to grow tall, wide and thick would bring some benefits, especially if adjacent field margins were allowed to scrub over, and where necessary fenced against livestock. In general, scrub can provide important habitats for wildlife, and should not be regarded as worthless wasteland. For example, thrushes will feed on berries, finches will find weed seeds to eat in the grassland, warblers will find insect food in the bushes, and kestrels and barn owls will benefit from an increased small mammal population. Creating scrub habitats would generally entail little cost to the farmer, although secure fencing may be needed in stock rearing areas. A corollary is that scrub would provide relatively little income, and that marketable quantities of wood would not become available for some years using natural regeneration alone.

14. Left to its own devices, scrub will in time succeed to woodland, as new species of tree invade. If it is desired from the outset to remove land from production permanently, then a planned approach to the establishment of woodland would help to ensure that a marketable crop would be produced over as short a time scale as possible. Coppices would provide the most rapid economic return, perhaps within 10-15 years, depending on species. Coniferous woodland would provide some return within 20-30 years, and broadleaved woodland within 30-50 years. Woodlands varied in structure and tree species would provide an acceptable compromise between the need to provide both income and conservation benefits. Keeping the woodland as part of the farm unit would help to ensure the farmer's continued involvement in the land through labour inputs, and would help to maintain and complement other sources of on-farm employment.

15. Apart from scrub and woodland, many other opportunities to create valuable wildlife habitats could arise through the introduction of extensification schemes for cereals and beef. These could perhaps be grouped under the heading 'non-agricultural uses', although it is usually the case that some form of agricultural management is needed in order to arrest the processes of natural succession, and to maintain the interest of specific types of wildlife habitats. For example, reducing drainage standards on arable land, and establishing grassland could improve habitats for breeding wading birds, but these habitats would not survive in the absence of low-intensity grazing by livestock , preferably beef cattle. Similar arguments apply to the creation of chalk grassland, heathland and coastal grazing marsh habitats.

16. A problem in these circumstances is the extent to which alternative agricultural use of the land released from production is allowed under the Regulation. Can land taken out of cereal production be used to provide grazing for livestock, or for the production of hay or silage? If such use is possible, can sheep, cattle, goats or pigs graze the land, or only some of these? Similarly, on a mixed farm, can a farmer cut his cereal area and let his cattle graze more extensively over the land removed from cereal production? Is it necessary for a farmer in this situation to join both the cereal and beef extensification schemes at the same time? UK Agriculture Departments appear to believe that it will not be possible to bring livestock onto a farm to graze land removed from cereal production, or to let cattle or sheep on a mixed farm graze more extensively over the area removed from cereal production, nor to use that area to provide livestock fodder for use on the farm or elsewhere. If this is the case, then the range of possible habitat types to be created on land removed from production will be limited to scrub or woodland. In contrast, the Danish Government appears to believe that it will be possible to graze sheep, at least, on land withdrawn from cereal production. Given the importance of grazing livestock in the management of land withdrawn from arable production and devoted to conservation purposes, this point should be clarified urgently.

17. The creation of mixed livestock and arable systems on farms participating in the cereals extensification scheme merits particular consideration. Significant economic, social and environmental benefits could accrue through such a course of action. The creation of new grassland habitats on land removed from cereal production would bring major benefits where the grassland area has been markedly reduced in recent years, particularly if this were coupled with a reduction in drainage standards, or positive attempts to create heathland and chalk grassland habitats. As livestock units are more intensive users of labour than arable units, starting-up new livestock units could have a beneficial impact on farm employment. Ancillary industries related to livestock could also receive a significant boost from investment in livestock systems in areas where arable crops now predominate.

18. In addition to the environmental benefits of managing land for conservation purposes, it should also be possible to realise other benefits, eg for recreation. The creation of grass strips along field edges where public footpaths already exist could greatly improve access and add to the enjoyment of walking in the countryside. In time, new woodland areas could also become major recreation attractions. There is scope for farm nature trails and recreational footpaths to contribute to farm income, if not directly, at least in encouraging visitors to farms, and therefore providing a market for farm shops and other attractions with explicit money-making goals (RSPB 1987b).

2.2 Encouraging less-intensive farming

19. Article 1b of Regulation 1760/87 sets out the conditions to be applied in implementing the extensification scheme, including the requirement to reduce the cropped area (for cereals), or to reduce the number of stock (for beef). However, it also enables the Commission to 'authorize a Member State to apply other arrangements for reducing production'. This provision opens up the prospect of many different changes in management practices, in both cereals and beef production, which could bring a variety of environmental benefits with accompanying social and economic implications. Some examples of these are given below. At the moment it is not known whether the UK

Agriculture Departments are seriously considering implementing the extensification scheme in this way, or whether they will simply rely on the withdrawal of land from production, and reductions in stock numbers.

20. For example, yields of spring cereals are generally lower than those of winter cereals. In addition, cereals sown in the spring are often of higher quality than those sown in the autumn: spring wheat is often of bread-making quality, and spring barley is often of malting quality. Autumn cereals are mainly used as animal feed. Thus a switch to spring cereals could bring a reduction in yields and higher-quality products. The benefits for wildlife of such a change are difficult to assess. Much would depend on the management of the land over the winter, between harvesting and sowing. If stubbles were left unploughed, this could provide useful food sources for finches, and also help to reduce the leaching of nitrates. Ground-nesting birds such as lapwing could benefit from the availability of bare ground for nesting sites in the spring.

21. It has also been suggested that aid for conversion to organic farming could be provided under the extensification scheme, for both crops and livestock. Indeed, given the dependence of organic crop farming on inputs of animal manure, promoting organic farming could be a good way of fostering the return to mixed farming systems discussed earlier. The adoption of organic methods is not an easy option, because it involves a major transformation in systems of production: for example, replacing artificial fertilizers with animal manure, introducing planned crop rotations and fallowing, and returning to the use of cultivations for weed control, rather than herbicides. These changes cannot be made overnight. For example, the requirement for animal manure may mean introducing livestock to a wholly arable farm , with all the capital investment and added labour inputs which this involves. Aid during the process of conversion, which could be up to three years, would need to be provided to offset the loss in yields and in income, and also to assist with the capital costs of investment in buildings, equipment and livestock, where necessary.

22. Regulation 1760/87 specifies that in the application of the extensification scheme to the beef sector, the reduction in production may be achieved by a reduction in the number of stock, rather than in the area of land devoted to their production. Such a reduction in stock numbers effectively entails a drop in the intensity of farming, as fewer animals will be dependent on the same farm area. However, the social, economic and environmental implications of the beef extensification scheme could vary widely, depending on the stages in the beef production process at which the scheme is applied, and its precise impact on the particular systems adopted by individual farmers in rearing store cattle or in producing finished fat animals.

23. Applying the scheme to livestock rearing systems could enable less emphasis to be placed on the conservation of grass as silage, and more on its conservation as hay. This could bring benefits in terms of reduced fertiliser and pesticide use on grassland, reduced pollution from silage effluent, and safer nesting habitats for a variety of ground-nesting birds. Farmers would need to ensure that inputs were reduced to allow a smaller number of cattle to graze a larger area without themselves becoming heavier: this could help to ease slurry disposal problems. Reducing numbers would tend to reduce the demand for labour, although it might conversely allow for closer supervision of the stock, and thus encourage an increase in quality.

24. Applying the extensification scheme to beef fattening regimes by allowing a decrease in the number of head, could lead to reductions in the use of bought-in feed, and possibly also to reduced use of silage. Much depends on the precise nature of the fattening system being adopted. One problem in applying the beef extensification to the fattening stage, is that vast amounts of cereals are consumed at this stage in the production process. Thus the successful introduction of the beef extensification scheme could lead to a reduction in the demand for cereals for animal feed: this provides a clear example of the lack of integration in the thinking behind the extensification scheme.

3. Integrating the extensification scheme

25. A major problem is that the scheme is being applied sector by sector: little consideration appears to have been given to the knock-on effects on other sectors. As noted earlier (paragraphs 5-6), it is possible that farmers could intensify enterprises other than those covered by the scheme. Thus sheep production could be expanded in the lowlands. Apart from the more-intensive land management which might result, and which might be damaging, sheep producers in the LFAs could find it difficult to compete in producing store and finished lambs. This indeed is the situation which arose when quotas were introduced on milk production, and dairy farmers gave added emphasis to sheep enterprises.

26. One way to avert distortion in the market for products which are not yet in surplus, would be to take an integrated approach to the problem, and to introduce extensification schemes for the main products which cereal and beef farmers might consider to be alternatives, eg sheep. As noted in paragraph 10 above, the Regulation does not prevent the introduction of extensification schemes for products other than cereals, beef and veal, and wine. In addition to its possible value in safeguarding the interests of sheep producers in the LFAs, against increased competition from producers in the lowlands, it has also been suggested that the introduction of an extensification scheme for sheep could help to combat the problem of overgrazing on heather moorland in the uplands (RSPB 1987c).

3.1 Relationship with the Agriculture Improvement Scheme

27. The relationship between the extensification scheme and both the national and EEC elements of the Agriculture Improvement Scheme (AIS) is often unclear. For example, is it possible to get a grant under the AIS to reduce output? It appears that the conditions of the AIS require that the capital investment which is made must contribute to farm income. Thus can it be argued that investment in fencing to exclude stock from a field margin is contributing to farm income, because it is a condition of the extensification scheme that the field margin is ungrazed? There are many other circumstances in which AIS grants might be needed to complement payments made under the extensification scheme.

3.2 Relationship with the Farm Woodland Scheme

28. Government decisions on the content of a Farm Woodland Scheme (FWS) are awaited, following the publication of a consultation paper in March (MAFF 1987a). The UK Agriculture Departments have already indicated that they see the extensification scheme and the FWS working very closely together. Where for example, a cereal farmer takes an appropriate amount of land out of production under the extensification scheme, annual payments will be made over a five-year period. In addition, if the land is afforested, the farmer will become eligible for payments under the FWS, and thus receive grants towards planting costs, and annual maintenance payments thereafter.

3.3 Relationship with the Farm Diversification Scheme

29. The UK Government is shortly expected to confirm its intentions on the introduction of a Farm Diversification Scheme (FDS), following consultation on proposals issued in May (MAFF 1987b). There are a number of areas where the FDS and the extensification scheme could inter-relate. For example, could a farmer obtain payments under the extensification scheme to take land out of production, and then grants under the FDS to create nature trails, recreational footpaths, wildlife attractions such as ponds, and observation facilities such as hides? It is not known whether the need to realise these opportunities has yet been addressed by UK Agriculture Departments.

3.4 Relationship with the conversion scheme

30. So far, little mention has been made of the scheme which Member States are required to introduce under Regulation 1760/87 for the conversion of production (Article 1a paragraph 1(a)). This scheme will provide for 'aid for the conversion of products to non-surplus products', with the surplus products defined as under the provisions of Article 1a relating to the extensification scheme. The Article requires that the Council 'shall adopt, before 31 December 1987, a list of products towards which conversion can be accepted, with the conditions and procedures for the granting of the aid'. It is not currently known what proposals are being discussed for this scheme. Similar uncertainty attaches to wider proposals for the alternative use of land (which are currently being examined by the Commission), or to wider proposals for a set-aside scheme for cereals, perhaps based around the proposals put forward by the UK last year (MAFF 1986). It is not known whether any future conversion, alternative land use or set-aside schemes will parallel, complement or absorb the extensification scheme.

3.5 Integration in implementation

31. Other questions raised by the extensification scheme include its administration and policing. Agriculture Departments have established procedures for checking that money awarded in grant-aid has been lawfully invested in improvements, and that subsidies paid on livestock have been claimed legally. But it is not known what additional burden the extensification scheme would place on these arrangements. The UK Agriculture Departments already appear to be worried about the manpower implications of the scheme, and therefore wish to establish a simple scheme that can be readily implemented, monitored and enforced. Given that this is a five-year scheme, it is important that farmers understand the action required from them in each year. It has been suggested that, as with investments made under the EEC element of the AIS, farmers should produce a farm plan demonstrating the action to be taken in return for payments under the scheme. Such farm plans would also present an opportunity to tie in investments under the AIS, FWS and FDS, to produce a composite integrated plan. It is not known whether the Agriculture Departments will accept the logic of this proposal: rejecting it could lead to great confusion amongst the farming community, and hinder the success of the schemes on all counts.

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paper 10

The Wye setaside project:
predicted farmer reaction to the extensification scheme

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WORKSHOP ON EEC FARM EXTENSIFICATION PROPOSALS

The Wye Set-aside Project: predicted farmer reaction to the extensification scheme

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In common with other socio-structural measures, the extensification and conversion scheme will operate on a voluntary basis. Assuming that agriculture departments opt for land diversion as the means of achieving the target reduction in output, success in reducing aggregate output of surplus commodities will obviously depend on sufficient numbers of farmers choosing to enrol productive land into the scheme. Matters become more complicated when other socio-structural and environmental goals are introduced. Research conducted at Wye College investigating farmer participation in a number of hypothetical land diversion schemes suggests that leaving aside various implementation conditions which can be attached to schemes, the optimisation of these several objectives depends on:

a) the rate and pattern of participation;
b) the identity of the participants and non-participants;
c) their motives in participating or not participating.

Hence, achieving supply control goals depends on both how much land is enrolled and on its average productivity. The pattern of enrolment will determine how much slippage occurs; it might be expected to be greatest where many farmers are allowed to enrol small parcels of land (selecting the most marginal land first). A scattered pattern of diversion might be less useful on conservation grounds if an objective is to restore or recreate ecologically viable blocks of habitat. The identity of the participants becomes important when land diversion schemes are being used to give income-support to particular farmer groups (as with the set-aside element under the proposed pre-pension scheme). 'Resistance factors' (Bowler, 1979) associated with target groups could mean that uptake is actually lower here than for other non-targetted groups, for instance. Farmers' motives in participating in a voluntary scheme are clearly important, not only in explaining uptake but also in determining the success of schemes; the American literature suggests that participants are often farmers who use land diversion payments to

subsidise a change in land use which they had already intended to carry out. The operation of this 'selectivity effect' (Brandow, 1977) means that voluntary schemes, especially when not too restrictive, are less successful in instigating land use changes on participating farmers and tend to favour farmers already engaged in restructuring enterprises and making husbandry adjustments. This effect has implications for both the supply control and environmental objectives of land diversion schemes in the UK.

The Wye researchers were interested in making some predictions about participation in three hypothetical land diversion schemes based on farm survey and contingent valuation data. The schemes investigated were: a one or two year fallow of cereal land; a five year conversion of cereal land to permanent pasture and the planting of broadleaved woodland on land presently in a productive farming use. Respondents to a survey of farmers in the South Downs, the Suffolk Sandlings and in a scatter of sample 1 km squares representing two land classes under the Institute of Terrestrial Ecology's land classification system, were required to indicate an acceptable level of payment or 'bid' which would secure their participation in each of the schemes and then to estimate how much land, if any, they would be prepared to enrol in these schemes at this rate of payment. (For a discussion of survey design and the sample, see Potter and Gasson, 1987). The decision to participate was then analysed in relation to a number of behavioural and socio-economic variables.

The level and pattern of participation:

Most of the bids were in the £100-£200 per acre range, with the greatest number of high bids under the woodland scheme. Mean bids under the cereal, grassland and woodland schemes were £135, £141 and £177 per acre respectively. As a group the farmers interviewed were prepared to offer some 10.4 per cent of their combined cereal acreage or 5.9 per cent of the total farmed sample area into the least restrictive cereal fallow scheme of 5.2 per cent of the total farmed area into the Grassland Scheme and just over 1 per cent into the Woodland Scheme. Underlying these

Table 1. Numbers of bids and acres offered by level of bid

Bid	Number of bids		Acres offered		Acres as per cent total area farmed
£/acre	No.	per cent	No.	per cent	
Cereal scheme					
No bid	26	17.9	-	-	-
Under 100	20	13.8	1305	28.9	1.7
100 - 200	69	47.6	2178	48.2	2.8
200 and over	30	20.7	1031	22.9	1.3
Total	145	100.0	4514	100.0	5.9
Grassland scheme					
No bid	45	31.0	630	15.7	0.8
Under 100	30	20.7	1757	43.9	2.3
100 - 200	42	29.0	887	22.2	1.2
200 and over	28	19.3	724	18.2	0.9
Total	145	100.0	3998	100.0	5.2
Woodland scheme					
No bid	75	51.7	450	37.1	0.6
Under 100	11	7.6	232	19.1	0.3
100 - 200	21	14.5	190	15.7	0.3
200 and over	38	26.2	340	28.1	0.4
Total	145	100.0	1212	100.0	1.6

averages the picture which emerged was one of large numbers of farmers agreeing to enrol relatively small proportions of their holdings under each scheme, with a few indicating that they would divert their entire cereal acreage if the price were right. A further analysis of willingness to participate reveals a clearer ranking of schemes, with a much more categorical rejection of the woodland scheme compared to the other two. There were some significant differences in the level of bids and

participation rates between study areas, reflecting systematic variations in the likely level of resistance to or active adoption of schemes by farmers. Suffolk farmers tended to ask for most money to enrol fewest acres, while by comparison South Downs farmers were more prepared to offer a larger mean acreage in return for a low payment (Table 2).

Table 2. Mean bids and acres offered by study area

Scheme	ITE	Suffolk	South Downs	Total sample
		mean bids in £/acre		
Cereal	139.7	147.7	130.0	140.5
Grassland	106.8*	171.5**	93.9*	135.9
Woodland	157.4	212.9*	65.5**	176.8
		mean acres offered		
Cereal	41.4	15.7***	84.5**	40.3
Grassland	38.9	16.1***	86.8*	39.2
Woodland	9.7	9.2	65.9	17.6

Note: Differences between individual and overall means were tested using the t-test, two-tailed.
* significant at 5 per cent level
** significant at 1 per cent level
*** significant at 0.1 per cent level.

Who are the participants?

An analysis of participation by key farmer characteristics such as farm types and farmer's age and educational background revealed few significant variations with respect to participation, though it was discovered that stage in family cycle and succession plans were often good predictors of the number of acres a farmer might be prepared to enrol.

Farmers over 55 who had no successors were on average prepared to accept below average payments to enrol land into the cereal and grassland schemes, for instance. A classification of farmers according to how enabled or constrained the farm business was by physical, financial, economic, educational or family circumstances, proved a particularly useful way of characterising the participants (see appendix for classification). Enabled farmers consistently submitted the most acres under all three schemes, a result which is partly explained by the correlation between enablement and farm size. However, further analysis also shows that enabled farmers were also more willing participants than their more constrained brethren (Table 3). Farmers constrained by debts or problems of succession tended to associate participation in land diversion with reduced flexibility and increased bureaucracy. In every sense they would be among the most grudging participants in a land diversion scheme. Enabled farmers, on the other hand, were often active adopters of land diversion schemes.

Table 3 Acres offered and willingness to participate in schemes by level of constraint

Scheme	Severe constraint	Moderate constraint	Enabled	Total sample
	mean acres offered			
Cereal	25.3	27.6	65.9	40.3***
Grassland	17.2	24.5	73.5	39.2***
Woodland	4.8	6.5	38.2	17.6***
	per cent willing or neutral towards schemes			
Cereal	56.5	69.4	76.0	67.6 ns
Grassland	56.5	49.0	60.0	55.2 ns
Woodland	13.0	16.3	26.0	18.6 ns

Note: for each scheme, the association between enabled/constrained categories and mean acres offered was significant beyond the 0.1 per cent level, using one way analysis of variance.

the association between enabled/constrained categories and willingness/reluctance to participate in each scheme was not significant at the 5 per cent level using Chi-square.

The Motives of Participants

Support for this view came from the survey of farmers' reasons and motives for participation. Enabled farmers tended to be more conservation-orientated than constrained individuals and would typically regard participation in land diversion as a useful way of furthering their activities in this area. Participation in the woodland scheme was particularly prone to this selectivity effect, with most acres being offered by farmers with woodland on their farm and/or a history of active management (Table 4).

Table 4. Participation in woodland scheme by existing woodland practice

Woodland practice	No. respondents	Mean acres offered
No woodland on farm	27	4.7
Woodland on farm	42	25.8
No woodland management	44	8.2
Woodland actively managed	25	34.0
All participants	69	17.5

Note: the association between existence of woodland on the farm and woodland acres offered was significant at the 6 per cent level; the association between woodland management and acres offered was significant at the 2 per cent level, using one way analysis of variance.

Implications for the extensification scheme:

These findings provide some pointers about uptake and participation under the extensification scheme. Slippage is likely to be a problem if the level and pattern of uptake reported here is reproduced in practice. The tendency of survey farmers to offer only the most marginal land supports this conclusion. Requiring participants to achieve the target 20

per cent reduction in output of surplus commodities over a specified period should however ease this difficulty, though with farmers being paid on a hectarage basis the incentive to enrol a large number of marginal acres rather than a few productive ones will remain strong. The operation of the selectivity effect under the extensification scheme is difficult to predict. For possible land diversion into forestry and conservation uses it will almost certainly be important, posing some difficult questions about the effectiveness of voluntary schemes in effecting land use changes on farms which lack a history of woodland and conservation management. Some farmers might also use the extensification scheme to subsidise husbandry adjustments (reducing the cereal acreage in response to price reductions?) which are already planned. On a narrow supply control interpretation, the extensification scheme clearly has a role to play in speeding an adjustment process which is set in motion by market policy changes.

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APPENDIX

Enabled/constrained score

Farm businesses were sorted into groups on the basis of such characteristics as size, profitability, level of fixed charges, indebtedness and other sources of family income. These small groups were combined to make three groups of roughly equal size representing severe, moderate and minimal constraints. This was a highly subjective exercise which involved making a number of judgements, for instance on the equivalence of farm and non-farm income or of high-input and low-input farming systems. The final composition of the groups was as follows:

Severely constrained: very small farms; farms facing heavy charges; farms suffering from a series of recent losses; farms with too few acres to support dependants; farms where the operator is mainly occupied elsewhere; very small extensive livestock farms.

Moderately constrained: middle-sized farms of medium profitability; farms facing average charges and with a small non-farm income; small farms with low charges and reasonable profits; larger farms undergoing reorganisation and restructuring.

Enabled: very large profitable farms; high input arable farms of over 100 ha; farms with major sources of non-farm income.

paper 11

Extensification schemes and agricultural economics: who will take them up?

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Extensification Schemes and Agricultural Economics: Who will take them up?

Paper to Workshop on Farm Extensification,
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I. Introduction.

Since, at the time of writing, the precise details of the present extensification scheme had only just become available, and since there has been no time, or as yet resources, to research the question of which farms and farmers are likely to take up this particular scheme, or variants of it, this paper will confine itself to a theoretical discussion of the isssues and a brief overview of some aggregate results of a preliminary analysis which may throw some light on the issues. Other papers in this workshop are dealing with recent survey work which throws some light on the possible response of farmers to such schemes.

Some may regard economic theory as a waste of time. However, without a 'theory' of some sort, whether formalised or subconscious, it is not possible to say anything about the possible effects of new policies (or market conditions). Even surveys, for all the insights they provide about the particular responses suggested by the respondents, require some theoretical background if these results are to be generalised, whether or not the theory is formalised or simply a set of beliefs that the survey sample is both entirely representative and unbiased. In fact, many of those who are inclined to dismiss economic theory and its predictions are really saying that their own theories of farm behaviour predict consequences of policy and market changes which are different from, and better than the economists' predictions. This paper reviews the major predictions of economic theory for farm behaviour in order to provide a basis for discussion of possible competing theories.

The review of the theory casts considerable doubt on the description of the European Commission's regualtions for extensification being able to achieve results in terms of reducing the intensity of agricultural production, although it may well be successful in increasing the diversification of the industry, including the increase in set-aside land. Following this review, the paper briefly examines some estimates of the amount of "surplus land". In the context of historical changes in agricultural land use, most of these estimates are huge and less than likely to occur. Similar estimates of the amount of surplus labour and capital suggest that the release of labour and capital are much more likely. Finally, the paper outlines the preliminary results of a study of the countryside implications of possible changes in the CAP, which provides some indication of the areas of the country and the enterprises most likely to release land, labour and capital under various possible policy options.

II. Economic Theory of Farm Behaviour.

The theory is based on the idea of a known relationship betweeen inputs and resources used in agricultural production and the outputs produced by the various production processes - known as the *production function* expressing output as determined by (a function of) the inputs and resurces used. Of course, in the real world, this function is not necessarily very well known: it takes trial and error for any individual farmer to discover the function which applies to his own particular business and

circumstances. In addition, the function can never be known with cetainty, since there are extraneous events, particularly weather conditions and disease, which will alter the relationship between inputs and outputs but are beyond the farmer's control. However, both of these realities can be taken into account in the more sophisticated versions of the theory and do not substantially alter the prediciton of the simpler versions of the theory.

Associated with this physical relationship is the motive for farming, or any other business activity. The formal economic theory takes the motive as being to *maximise profits*. Often this is criticised as being unnecessarily restictive. Not only is it apparent that many farmers do not manage to maximise profits; some are reported as saying that they do not even try. No-one would deny that there are other motives which are equally plausible and relevant for farmers. But it is a cold and often uncomfortable fact of commercial life that no business can survive indefinitely unless its revenues consistently exceed its costs by a sufficent amount to persuade the operators and their sucessors to keep their labour, management and capital employed in the firm rather than taking them elsewhere. The logic following from this indisputable fact is that farmers are obliged to try to run their businesses as profitably as possible, given that they are also trying to do other things in their farming operations as well. Any theory must involve some abstraction and simplification - otherwise we simply end up with a highly complex and confusing description of the real world, capable only of providing a taxonomy of farms, but incapable of providing any indication of how the farming community might react to changes in circumstances. It is difficult to provide a more fundamental motive than (business) survival, and survival, in the limit, implies profit maximisation. This is <u>not</u> to say that all farms actually manage to maximise their profits all the time, nor is it to deny that under some circumstances farms can survive quite well without maximising profits. In addition, it should be emphasised that the equivalence (in the limit) of profit maximisation with survival means that profits in the short run at the expense of commercial viability in the longer run is inconsistent with a properly defined objective of profit maximisation, which must take account of the longer term. All the objective says is that firms which do not manage to maximise their profits are potentially, and often actually vulnerable to changing economic conditions, and that for this reason, if no other, we should expect farmers to try to maximise profits within the limits of their own operations and abilities.

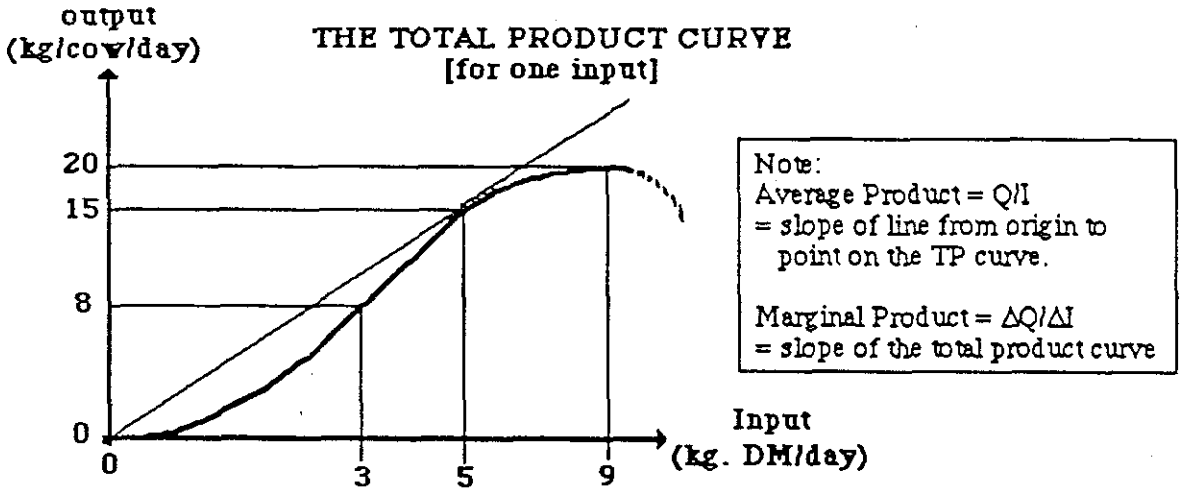
This leads to a third principle component of the theory: the notion of *opportunity cost*. If a farmer does not have any pratical alternative to farming (because of skills, experience, training or preference) then the logical implication is that he is willing (if not entirely happy) to remain a farmer more or less regardless of the income he can earn in the business. If all the alternatives are worse, then he will remain in farming. The notion of opportunity cost is a reflection of the income (including any non-monetary rewards or penalties) which could be earned elsewhere. If farmers cannot earn at least their *opportunity cost* in farming, then we would expect them to move out of the industry, either partially or completely. If they remain in the business, then we can infer that they do believe that they are doing and will continue to do better than they could elsewhere, all things considered, in spite of the fact that they will wish they could do even better. The notion of opportunity cost also applies to the capital equity the farmer and his family have in the business. If the capital does not earn at least its opportunity cost in farming, then we would expect the farmer to reduce the capital investment in the industry and try to find alternative uses

for his capital.

What are the implications of these hypotheses?

1. By concentrating attention on a single input (regarding all the others as being held constant at some fixed level) we can picture the relationship between inputs and outputs as in Figure 1. This picture illustrates the proposition of *diminishing returns.* Successive additions of a single input to a production process (concentrates fed to dairy cows in this example, or fertiliser applied to cereals etc.), while holding all others at some fixed level, will not always yield the same increase in output (milk or cereals). After some level of *intensity*, extra units of input applied will result in successively smaller additions to output.

Figure 1. An example of the production function for one variable input (concentrate feed for dairy production)



[The slope of the total product curve reaches a maximum at an input use of 3 kg. DM/day in this illustration, at which point the contribution of an additional unit of input to the production of extra output reaches a maximum. This is known as the ***marginal product*** *of the input. The average 'productivity' of the input is at a maximum at an input use of 5 kg. DM/day in this example. The maximum total production is achieved at an input use of 9 kg. DM/day, at which point the marginal productivity of the input is zero, ie the last unit of input contributes nothing in terms of extra output and is therefore not worth using unless the input is free.]*

2. It follows that it will not always, or even usually, pay to try and maximise yields or outputs. If the last bag of cake or fertiliser does not pay for itself in terms of additional output, then it does not pay to use that bag. Decisions on input use are appropriately taken at the *margin.* The implication of this relationship is that increases in output prices are likely to increase the amount of inputs which it is profitable to use and vice versa. Similarly, increases in input costs are likely to reduce the level of input use which are profitable.

3. Improvements in technology (new, higher yielding cereal varieties, BST etc.) will shift this production function downwards (and often to the right). This will encourage greater levels of ouput and more efficient input use, which may or may not involve greater levels of input use (or greater intensity).

Profit maximisation implies that farmers will try to improve their businesses continually, adopting new technologies as and when they are expected to improve the commercial performance of the farm. Since this is a continual process, it is easy to confuse the consequences of new technologies and improved practices (in the past often associated with increased output levels) with responses to changes in product prices or production costs. Economic theory provides a basis for making the important distinction between these two effects. In the following paragraphs, it will be assumed that technology is constant. This allows us to examine the consequences of changes in prices and costs independently of the ongoing changes in technology.

4. The logic of the single variable input case extends to more realistic situations in which several inputs are regarded as variable. So long as the principle of diminishing returns continues to hold when several inputs are considered variable, then it remains true that additional units of output will require successively more and more inputs to obtain. It follows that the cost of obtaining extra units of output increases as the level of output is increased. In economists' jargon, the *marginal cost* of output increases as output levels are increased. Since the additional units of inputs will produce succesively smaller quantities of extra output, it also follows that higher output prices are necessary to justify higher input use. If output prices fall relative to input costs, then one would expect farmers to cut back on input use and produce less. The opposite argument, that falling output prices encourages farmers to produce more to maintain income may have some superficial plausibility, but is inconsistent with profit maximisation - since if it pays to use the extra inputs at lower output prices then it must have paid to use them at higher output prices. On the other hand, if it only just paid to use the last bag of cake or fertiliser at the higher product prices, it cannot pay to use those last bags at lower prices. If the inputs do not earn their keep, then profits and incomes cannot be improved by increasing input levels and output in response to lower prices.

5. It could be argued that farmers (and other businessmen) are only profit maximisers when they are forced to be. At high output prices, it may not be necessary to maximise profits to obtain a satisfactory income. But as output prices fall, so it becomes necessary to pay more attention to the business in order to maintain income. In these cases, farmers might increase input levels (and therefore increase output) in response to falling output prices, implying that they were economically inefficient (using insufficient inputs and producing too little) at the higher prices. While this may apply to some farmers, there is no evidence that the industry as a whole responds in this fashion. The introduction of milk quotas provides evidence of the counter argument. As dairy farmers reduced concentrate feeding to comply with the quota restrictions, so many discovered that their margins over variable costs actually improved rather than declining - ie. they were feeding too much cake prior to the introduction of quotas, rather than too little.

6. It can also be argued that farmers will try harder to improve their businesses by adopting new technologies and practices when the profitability of the farm is threatened. In this case, cost/price pressure could result in increases rather than reductions in production. However, the adoption of new practices and techniques requires time and effort, and often additional capital investment. The 'rapid adopters' of new technologies are usually well established and successful farmers, or new entrants to the industry - not those about to 'go under'. This suggests that profitabilty is a precondition to adoption

rather than the lack of profitabilty being the spur for greater effort. Although the understanding of the relationship between adoption rates and profitabilty is not well established, there is evidence that it is positive rather than inverse - that is that adoption of new technologies is more rapid when farming is generally profitable and reasonably secure.

7. There are two relatively trivial extensions to the predictions of profit maximisation at the farm level. First, farmers will tend to substitute cheaper inputs for those which are more expensive. If fertilisers and chemicals are taxed, which increases their costs, then farmers will tend to substitute other inputs for chemicals and artificial fertilisers, such as manure and different cultivation practices. Second, farmers will tend to switch their resources and effort away from less profitable enterprises towards those which are more profitable. If, as has been the case in the recent past, cereal farming becomes more profitable than other forms of farming (because of rapid improvements in cereal varieties as well as favourable markets, supported by policy), then we would expect farmers to increase their cereal operations at the expense of other forms of agriculture. We would also expect that the resources attracted into the cereals sector as a result of this improvement would be less suitable to cereals than those which were already engaged in cereal growing. Both of these expectations are borne out by the recent UK experience.

8. The production functions underlying the farming activity may be such that larger operations are able to operate more efficently than smaller businesses. Evidence from Dawson and Hubbard (1986) for instance, suggests that the most efficent size of dairy enterprise, on average, is about 130 - 140 dairy cows. The existence of *economies of scale* (the technical term for this phenomenon) encourages firms to expand to their own optimum scale. This optimum will be different for each farm, since the ability and capability of resources (land, labour, capital and management) will differ between farms, and therefore so will the production functions applying to these farms. In the past, economies of scale have also tended to increase with technological change. Both the first agricultural revolution (the mechanical) and to a lesser extent the second (the chemical) have been associated with increases in the optimum scale for most farms. Whether or not this also applies to the third revolution (the biological, biochemical and genetic) is a matter for debate, since there are some indications that this revolution may enable smaller scale operations to compete effectively with larger ones. This tendency for farms to expand (or, in the future perhaps contract) to their optimum scale, however, should not be confused with their response to outside stimuli.

9. Economies of scale, however, are not the only or even probably the most important reason for expansion of the farm business. Profitable farmers will make more money than they wish to use for purely consumption purposes. Both personal preferences and the operation of tax incentives and penalties encourage these farmers to re-invest surplus returns in the business. Profitable farms would be expected to get bigger, and, at least in capital terms, more intensive. Conversely, reductions in profitablity would be expected to reduce this tendency.

10. There is one further complication to consider before turning to the implications of this theory for extensification. The preceding paragraphs have dealt with the individual farm, but the combined effect of farmers' responses is also important. If farming is profitable, then more people will want to be farmers and more farmers will want to expand. The total demand for agricultural resources will increase,

especially for land. Since the total supply of land is more or less fixed, this increase in demand will increase rents and land values. As a result, farming profitability (having taken account of the opportunity cost of owning or using land) will decrease. This is the theoretical analogue of the old adage that farmers are their own worst enemies. In trying to expand, all they succeed in doing is driving up their costs, thus choking off the incentive to expand. However, as land values increase it becomes more attractive to improve land, through drainage and clearance of woodlands and hedgerows, for instance. Again, the recent UK experience is perfectly consistent with this prediction. There is no reason to suppose that this logic is not reversible. As profitabilty falls, so land prices and rents will fall, as has been happening since the late 70s, and the incentives to improve land will also be reduced. In addition, capital investment will also tend to fall as machinery and equipment are replaced less frequently, again amply borne out by the recent experience in the industry.

11. Because of the strictly limited supply of agricultural land, the principle of diminishing returns applies at the aggregate level for agriculture. High product prices or low input costs encourage greater output levels and input use on the same area of land, in other words, the intensity of agriculture will tend to increase. The reverse also applies - as the cost/price squeeze intensifies, so profits are reduced and intensity would be expected to fall. While this conclusion may seem to fly in the face of common sense, the logic is as follows. Fewer people, either as workers, farmers or owners of capital involved in the industry, will be able to earn a full-time living from farming and will either be forced out or will find it necessary to supplement or replace their farming income with income from other activites and sources. Returns to resources (labour and capital) staying in the industry will fall, so that return per unit (£ or hour) can only be maintained if some of those units leave the industry. Capital plant and equipment will be replaced less frequently, so costing less in depreciation, though perhaps more in maintenance, providing greater employment for local blacksmiths and engineering shops. The value of capital assets will fall, and the capital charges associated with the investment will fall. Labour (both farmers' own and hired) will seek alternative employment either in the local areas or elsewhere. Buildings and redundant cottages will leave agriculture and be used for other purposes, so that investment charges associated with this stock to be paid for by agricultural production will also fall. Land, however, will only leave the industry if there are equally profitable alternative uses. If the demand for land for alternative uses is limited, then rents and the value of land in agriculture will fall, and the costs associated with this investment will also fall. New entrants into farming will be able to set up practice with lower investment and lower capital charges. Existing farmers will either reduce their own investment or borrowings, or be forced/encouraged out of the industry. In other words, the fixed costs of the industry will tend to fall. Farming will become less intensive. Whether or not this is also associated with actual reductions in output will depend on what else is happening in the industry. So long as there is no technological change, then output will tend to fall. None of these tendencies are in conflict with trends already apparent in the industry as returns fall.

12. The discussion so far has avoided an exact definition of intensity. By implication, however, the theory suggests that intensity has to do with the concentration of inputs and resources on the land base. The more inputs and resources are applied to land the greater the level of output per hectare and the more intensive is agriculture. The less inputs and resources are used, given the state of technology and the structure of the industry in terms of farm sizes, the less intensive is agriculture. Greater intensification

implies diminishing returns to all inputs and resources other than land, and increasing returns to land. Rents and land prices are logically associated with intensity of agriculture. Falling rents and land prices suggest reductions in intensity. In the limit, at the so called extensive margin, land would become a free good as far as agriculture is concerned. Land would only be used for agriculture at this extensive margin if it could be farmed so as to pay the other costs of production, leaving nothing left over as a return to the land. If returns to agriculture are insufficent to pay for the non-land inputs and resources, then land will be left idle, essentially there for the asking. While such a state of affairs is not uncommon in 'land-rich' countries such as North America, it is rather unlikley in land-poor countries (densely populated) such as the UK. Increasing demand for land for other uses raises the extensive margin to the level at which agriculture can earn sufficent returns to the land to attract it away from alternative uses. In the uplands, this does not need to be very much. In the lowland areas round large conurbations, it needs to be rather greater. Increasing demands for land for leisure, recreation, amenity, extensions of living space etc. will tend to raise the extensive margin for agriculture.

13. Recent trends in land prices and rents imply a reduced intensity of agriculture. Whether or not the environmental implications of this reduced intensity are either discernable yet, or are exactly what are expected or required to improve the environment is another matter. This reduction in intensity is consistent with the theory. It follows a reduction in the returns to agriculture brought about by falling product prices in real terms. To the extent that falling product prices also lead to falling input and resource costs, then the extensification of agriculture will be reduced. There is reason to suppose that falling returns to agriculture will lead to falling input and resource costs. Input suppliers find that their markets are no longer expanding, competition becomes more intense and farmers become more cost-conscious, and input prices are reduced. The fertiliser, chemical and machinery sectors provide evidence of this tendency. As for the capital and labour resources, falling returns will tend to lead to those with the highest opportunity costs or actual costs leaving the industry first. Hired labour is replaced by family or own labour, borrowed capital is reduced before equity capital, smart and flexible managers leave for other activities (often on a part-time basis). The returns necessary to retain the remainder in the industry fall, and the associated costs fall too.

14. The implications of the theory so far can be summarised as the necessary changes for a reduction in the intensity of agriculture. These are:

i. reductions in the prices of agricultural products;

ii. increases in the prices of agricultural inputs;

iii. increases in the returns to be earned by capital and labour in non-agricultural activites, particularly for those resources which will not otherwise leave the industry, ie those with few alternatives elsewhere.

While it is tempting to seek technological fixes to the problem of excess intensity, by proposing new technologies which enable farmers to survive at lower levels of intensity, these will be ineffective unless the incentives (as above) for the adoption of less intensive systems are introduced. By the same token, taking land out of agriculture will, other things being equal, increase the intensity of the land remaining in agriculture.

15. The short answer to the question posed in the title of this paper (who will take up the

extensification schemes) is 'nobody' unless the accompanying economic signals are sufficient to warrent their consideration. If the extensification schemes are not either associated with or do not explicitly include the above signals then they will be ineffective in reducing intensity, as defined above. If the signals are sufficient, then there are two answers: those who 'can afford to' and those who 'can't afford not to'. Those who 'can afford to' will use the schemes to do things which they could have done anyway and will thus cost the treasury and taxpayers money which need not have been spent. Those who 'can't afford not to' will be able to remain in the industry because of the schemes when otherwise they would have been forced out. In this case, the extensification schemes will be a disguised form of welfare or adjustment payment, though without any of the conditions or objectives which are normally associated with such schemes.

16. Nevertheless, the Community regulations (OJ No. L167, 26.6.87, p 2-3) do not correspond to this definition of extensification, since they make provision for the "withdrawal from agricultural production of farmland" in order to reduce production by the required 20% (para 2, Article 1a), so long as this withdrawn land is "left fallow with the possibility of rotation, afforested or used for non-agricultural purposes". Furthermore the provisions go on to define extensification of cereal production as the reduction in cereal area of at least 20%, while the definition for beef is a reduction in livestock units of at least 20%. In the context of the above discussion, these measures do not represent extensification necessarily, in the sense that the remaining production is likely to be carried out with similar, if not more inputs per unit compared with current practices. This will be the case unless the prices of the products are reduced or the costs of the inputs are increased. It would be better if these provisions were interpreted as meaning "set-aside", which has rather different environmental implications and different implications for farm business re-organisation.

17. *Set-aside schemes are a form of quota mechanism, since there is either a compulsory or* voluntary limiting of the quantities produced, albeit indirect since it is the area which is controlled and not the yield. Buckwell (1986) explores the arguments about set-asides for cereals which need not be repeated here. Limits on the amount which can be produced, if effective as actual constraints on behaviour, become in effect licences to produce at support prices. As such, they become valuable (witness milk quotas). If the total returns to production are reduced by the introduction of quotas, as they were for milk and as they must be for quotas to be effective, then the only way that quotas can become valuable is for other costs of production to fall. Reduced returns can only pay reduced bills, and if the quota is a new requirement for production and is now costly, then other costs must fall. So long as the quota is freely tradeable, then the reduction in other costs is equivalent to a reduction in intensity, however it manifests itself. In the case of the dairy industry, it has frequently resulted in the substitution of grass for cereal based milk production, which is a less intensive form of dairy production, though often is associated with a more intensive use of the grass-land. However, if restrictions are put on the transfer of quota (as would be the case with a set-aside scheme which is, by definition, tied to the land base), then the logic works rather differently.

18. Under a system of land-based set-aside, the farm is faced with what amounts to an additional product which it can produce - the set-aside. The uptake of this new product, in favour of existing products, will depend on its relative profitability and the ease with which it can be fitted into the existing

farm practice. Clearly, if there are no production-related conditions to the set-aside scheme, so that any land can be taken out of production and devoted to set-aside regardless of its productive potential, then it will be most profitable to remove the least productive land on the farm. The proportion of land removed will seriously overestimate the reduction in production resulting from the scheme. Farms which are currently operating at their optimum scale, in terms of capital, labour and other inputs in conjunction with the land base, will not find it particularly attractive to reduce their land areas by producing set-aside, since this will alter the balance between their resources and inputs and tend to increase the costs of the remaining production. In order for these farms to take up the scheme, either the incentives to produce set-aside must be particularly attractive or these farms will have to release capital, labour and other inputs. Those farms with hired labour and significant borrowed capital may find that the possibility of producing set-aside rather than capital and labour using crops is attractive, though this will depend on the extent to which the set-aside land is surrounded with conditions of use which entail the continued use of these resources. For those farms operating with their own labour and capital, the production of set-aside allows for the release of some labour and capital to other uses, including leisure.

19. Those with overcapacity in machinery & labour are likely to find set-aside even less attractive, unless the terms of payment for the set-aside are very generous. The most likely adopters of a set-aside regime are those with insufficent capital and labour for their present land area. Without more detailed data than is presently available, it is not possible to say how large a proportion of farms might fall into this category, but it does not seem likely to be a particularly large fraction of farms. In any event, the take up of set-aside schemes will clearly be heavily dependent on the terms and conditions associated with the scheme, but none of them should be seen as a way of reducing intensity of production on the land which remains in production. In fact, there is reason to suppose that the set-aside will encourage farmers to become even more intensive on their remaining acreage. This will be a sensible and profitable response if the capital and labour released as a result of the set-aside acreage has a low "scrap value" to the farm, or entails a substantial adjustment cost (such as redundancy payments or extensive job search costs). Under these circumstances it will pay the farm to retain this capacity and use it on the remaining acreage.

20. From the budgetary perspective, with wheat at about £105/tonne on the domestic market and about £60/tonne on the international market, it costs the Community in the order of £45/tonne to dispose of the surplus production, ignoring the additional costs associated with any intervening intevention storage, which translates at average yields in the UK to £300/ha. It would appear to make budgetary sense to spend up to £300/ha. for a set-aside scheme, so long as the set-aside land actually yields at the average level. If the set-aside land only yields half the average, though, the 'break-even' level for set-aside payments falls to £150/ha. With gross margins on wheat production at anything from £230/ha. upwards, such payment levels do not seem likely to encourage substantial uptake. If set-aside payments are to be set at levels sufficent to encourage a significant reduction in production, they may well end up costing the budget more than current surplus disposal costs. This can only be justified if the set-aside scheme produces social benefits in terms of an improved environment which outweigh the increased expenditure.

However, it would be a mistake to judge the European Commission's intentions purely on the Extensification regulations. Both the Commission's proposals to the Uraguay Round (Marcussen, 1987)

and the policy of agricultural stabilisers (European Commission, 1987) make it perfectly clear that the Commission, if not the Council of Ministers, is determined to reduce the support prices of those products in surplus, and furthermore to reduce prices more severely the greater is the surplus production. If this policy is successful, then this will have more effect on the genuine extensification of agriculture in the Community than the so-called extensification regulations and their implimentation.

III. Estimates of "Surplus Land"

There is a number of studies which have translated the present and projected future surpluses of production, variously defined, into estimates of "surplus agricultural land". The arithmetic of such estimates is fairly straightforward. However, the underlying logic is a good deal more questionable.

In its simplest terms, the arithmetic is as follows. The surplus production of each commodity can be defined with reference to current domestic consumption in the EC. Although this definition is subject to dispute, since the economic surplus depends on the prices which are set for the community and which result in the rest of the world. At current (supported) prices, then the surplus is appropriately defined as above. However, if the reference policy is one of free trade with the rest of the world and the removal of market support in the EC, then community prices would be lower and world prices would be higher than at present, and the production and consumption levels in the EC would alter as a result, the former decreasing and the latter increasing. Under these circumstances, with markets clearing with no government intervention, there would be no surpluses, and the appropriate definition of the present surplus production is then the difference between current production levels and those which would pertain under a free trade scenario.. There is no necessary presumption that this definition would produce either a higher or lower estimate of surplus production.

Given a measure of surplus production, average yields per hectare can then be used to translate this surplus into area equivalents and the result is then an estimate of the surplus land area. Refinements include projecting future surplus quantities under different EC policy and market conditions, including projections of the disposal or world price levels, and considering different yield levels to take account of future technological change and farmer response to the implied changes in policy or market conditions.

Table 2 summarises some of the estimates which have been made recently. The implication of these estimates is that between 0.7 and 3 million hectares of land will become surplus to farm production requirements over the course of the next 15 years or so. To put these figures in perspective, the 1985 areas and the changes since 1975 are shown in Table 1.

Table 1. Current (1985) UK Land Use, and changes since 1975 (An. Abs. Stats, 1987)

Land Use (m. ha)	1975	1985	m ha. change
Total Tillage	4.82	5.265	+0.455
+ grass < 5 years	2.138	1.796	-0.342
= Total Arable	6.954	7.061	+0.107
+ grass > 5 years	5.074	5.019	-0.055
= Total Crops & Grass	12.028	12.08	+0.052
+ Rough Grazings	6.555	6.088	-0.467
+ woodland on farms	.225	.312	+0.087
+ other land on farms	.171	.223	+0.052
= Total Farm Land	18.978	18.703	-0.275

It can be seen that total tillage (all land under crops) has only increased by 0.45 m. ha, while the area under temporary and permanent grass has declined by almost the same amount. As a result, the total area under crops and grass has increased by a very modest amount (52,000 ha.). Nearly 1/2 m. ha of rough grazings have been lost, mostly to forestry, while there have been very slight increases in farm woodland and other uses (including such things as camping sites etc.). Changes in land use over the longer term have been equally unremarkable, though generally in the opposite direction. The total arable area, for instance, has declined by only 0.6 m. ha. in the forty years since the war. Given the enormous effort to increase domestic production during the war, and the continual erosion of the agricultural land area since then to provide for building, roads etc., this does not represent a particularly large area.

Table 2. Estimates of "Surplus Agricultural Land"

Source	Area Studied	Definition	Date	Range (m. ha.)	Main Estimate (m. ha.)
Wye College	UK	area available for other uses:	2000	1 - 6	3 - 4
Laurence Gould	GB	Surplus to needs	1990 2000	0.9 - 1.25 2.4 - 2.9	1.1 2.6
Gretton Report	GB		2000		2.6
NFU	GB	area available for other uses:	1990 1995		0.7 1.3
CAS, Reading	E&W	Low gross margin (area equivalent of reduction in production intensity)	5 years forward	0.2 - 2.2	1.3 (free trade) 1.9 (EC quotas)

In the context of the historic changes, briefly outlined above, these suggestions of surplus land conjure up a period of remarkable change in the countryside, if they are to be taken as a reliable projection for the future. Can they be regarded as reliable? The most recent discussion of future land use changes (Agriculture EDC, 1987) is careful not to present estimates of 'surplus land'. Rather, it takes the view that land would leave cereal production and return to other agricultural uses, especially grass. It suggests that around 720,000 ha could leave cereal production, and concludes that, whilst significant changes of use are likely, the overall pattern of land use will not be dramatically different in the mid 90s from the mid 80s. Nevertheless, there are likely to be substantial changes on individual farms, since the future pattern will be made up of individual decisions and these will differ according to circumstance. The Minister of Agriculture, however, in his speech at the opening of the conference (Ag. EDC, 1987), reflected more popular opinion when he said "there can be no doubt that considerable areas of the countryside will be looking for uses other than conventional agriculture in the years ahead. I looked with eager expectation to see what specific overall figure for the number of hectares likely to become available this report came to, but was not too surprised to discover that even this well qualified group of experts shied away from giving one".

Similar calculations could equally well be done with the labour force or with the capital investment in agriculture, although for some reason this does not seem to be done with any frequency or high visibility.

As an example, however, suppose that the reductions in output necessary for the sustainability of the CAP or the countryside is of the order of 20% (which is the 'target' reduction in production specified in the European Commission's regulations, and is approximately equivalent to a "land surplus" estimate of about 3.7m ha. for the UK). For the sake of simplicity, it can be assumed that this reduction could be achieved through the release of either labour or capital from the industry, rather than land. In the context of historical changes in the agricultural industry, changes of 20% in the labour and capital employment in the industry are commonplace over relatively short time horizons. The full-time hired labour force has declined by more than 30% in the last ten years, while the total labour force in agriculture has declined by 18% in the same time (HMSO, 1987). Capital investment in the industry, measured as total assets in agriculture in real terms, has declined by 18% over the same period, after a significant rise during the last half of the 70s (Johnson, 1986). In other words, in the context of previous patterns of change in the agricultural industry, the release of labour and capital from the industry seems a much more likely response that the release of land. It follows that attempts to release land from agricultural production are likely to be both more difficult and more expensive than attempts to release more capital and labour. There is no reason to suppose that relesing capital and labour would be any less effective than releasing land as far as curtailing production levels are concerned.

IV. Some Preliminary results with Implications for extensification

The Centre for Agricultural Strategy, Reading, in conjunction with the ITE, Merlewood, has recently carried out a study of the Countryside Implications of Possible Changes in the Common Agricultural Policy for the Department of the Environment (Harvey, ey. al. 1986). The specification of the policy scenarios examined in this study, and their impacts at the aggregate level on farm prices, are summarised in Table 3.

Table 3 Summary of policy scenarios

Policy Scenario	Price Changes (to the farmer)	Quota Limits	Other Changes
Fundamentalist:	None, other than trend changes	Milk only, as '85	None
New Libertarian:	European Free Trade eg. cereals -22% L'stock prods. -40% Milk -32%	None	None
Pragmatic: (Co-responsibility levies)	Cereals -15% Beef -5%	Milk only, as '85	None
Crisis:	None @ EC Consumption levels (+ Milk)	Cereals & Beef	None

The Impacts of the Scenarios on Land Use. The effects of these policy scenarios on land use decisions and farm production activities, as well as on employment within and related to the agricultural industry

form the major part of this study. The identification of the likely production responses within the farm sector, and the relationships between production decisions and the associated land-use and employment outcomes are pivotal to the rest of the analysis. It has to be said the the 'state of the art' in this area is not very firmly established. There is room for considerable debate about the likely farm production responses to changes in policy settings, and also about the implications of these responses for land use and employment.

i. Aggregate Farm production response to policy changes specified under the four scenarios is estimated in this study at the aggregate, national level by using an existing model of the CAP developed by Buckwell, Harvey, Thomson and others at Newcastle University. This model makes use of previous research on commodity production response at the aggregate level, and provides estimates of production and consumption changes (inter-alia) resulting from policy and price changes. These estimates are regarded as being the 'best' available at present, but it is recognised that much more work is necessary to elaborate and validate such response coefficients. In particular, the work being carried out at Manchester (Burton, 1987) on modelling the Departmental Net Income Calculation, should provide more robust estimates of supply response and associated input and resource use for the UK than has been possible to include in the Newcastle CAP model.

ii. Implied Land Use changes These estimates do not include the underlying changes in land-use (and hence the regional distribution of production changes) and production intensity which would be associated with aggregate output changes. In order to estimate these, a land allocation model has been developed specifically for this project (the 'Reading' model). This analysis relates the aggregate production levels to the underlying land base, specified as the amounts of land of particular production characteristics and possibilities available in England and Wales. The model 'allocates' the production levels specified at the aggregate level to the various land classes (and thus to regions etc.) on the basis of maximising the 'gross margins' (as total returns less variable costs of production, eg fertilisers and chemicals, fuel and repairs). In addition, the Reading model is used to verify and calibrate the land classification system and the associated land uses (cereal production, livestock numbers etc.) to the aggregate production and financial statistics provided by the MAFF (eg in the Annual Review White Papers under the "Departmental Net Income Calculation").

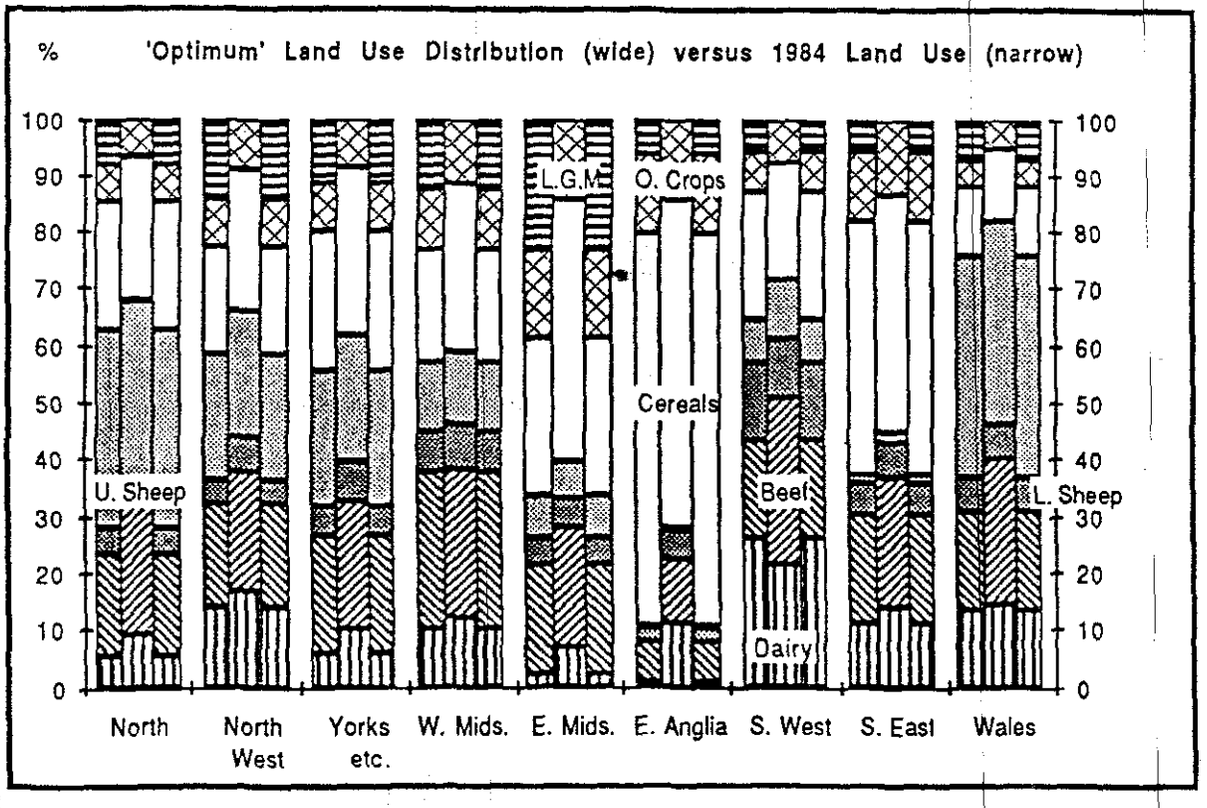
iii. The Land Classification System. The description of the land base used in this study is provided by the Land Classification system developed by the Institute of Terrestrial Ecology (ITE). This classification system has the advantage of being explicitly related to the landscape, wildlife and natural resource characteristics of the countryside, detailed on the basis of intensive surveys of a statistical sample of the total land area, so that at least in principle changes in land use associated with changes in agricultural policies can be traced through explicitly to changes in the countryside down to the field level. It has the additional advantage of being based on the (kilometre) grid square of the whole country, so that the results can be aggregated or disaggregated to any level, though the statistical reliability of the results for the smaller areas (a single National Park for instance) would not, at present, be sufficient to be useful. For the purposes of this study, however, it does allow for the presentation of the results at the regional level.

The production characteristics and financial consequences of agricultural land use are already

identified with the physical and ecological data on the land classes in the ITE system. In principle, it should be possible to use this information to analyse the consequences of changing product prices etc. on land use. To do this, some rules or relationships determining how land use would change in response to changes in policy and product prices are needed. The Reading land allocation model provides such a set of rules or criteria which determine the re-allocation of land between enterprises in response to changes in gross margins (ie the difference between the total receipts from farm production and the variable costs (fertilisers, chemicals, etc.) of that production).

Figure 2 shows the actual 1984 situation in terms of the distribution of land uses by DoE standard regions in comparison with the distribution which the 'Reading' model suggests would maximise the total gross margins earned by these farming activities (the 'optimum'). The actual 1984 situation is shown as the central overlaid narrow columns in each case, while the 'optimum' allocation (shown as the wide, background columns in each case) is determined assuming no change in prices, costs or aggregate production levels, but merely through the reallocation of land types among the competing enterprises. It will be seen that the model suggests that there is already some scope for the release of agricultural land (identified in the graph as 'LGM', or 'low gross margin' land and amounting to some 1m. hectares in total, 9.5% of the current agricultural land area).

Figure 2. 'Optimum' Land Use Distribution (wide) versus 1984 Land Use (narrow)



Source: Harvey et. al. (1986)

The proper interpretation of this result is that it is an indication of the inaccuracy and simplicity of the current model. There is little sign that anything like this amount of land is currently 'looking' for alternative uses. It is true that there are some areas of land in all regions which are being turned over to alternative uses such as leisure, housing, recreation, environmental 'reserves' under management

agreements, increased living space, forestry and woodlands and so on, but not on this scale. As an indication of the meaning of the the release of land suggested by the model, the total gross margin for England and Wales as a whole is only improved by 1.7% as a result of the reallocation and release of land under the 'optimum' result. This minimal improvement is not likely to provide a sufficient return to warrant the adjustment and capital investment costs associated with the re-allocation and the implied additional intensification of the remaining land area. In the terms of the theoretical discussion above, the fact that the prototype model ignors the fixed cost elements of the farm decisions is critical.

However, the relative tendencies may be valid and the results may be taken as providing an initial indication of the sorts of land use which are "under threat", in the sense that these areas could be among the most likely to be transferred to alternative uses, since they have the lowest value in agriculture. It appears that the East Midlands region as a whole is the region most likely to see some significant transfer of land under the 'status quo' option, with lowland livestock and cereal areas being reduced in favour of some other use. Following this region, the North West, Yorkshire and South Humberside, and the West Midlands regions also show signs of some release of farm land, concentrated in the lowland livestock farms and in the cereals area. Lowland livestock use is also under some threat in the Northern region, while the non-dairy lowland livestock uses are the 'marginal' activities in the South West and Wales.

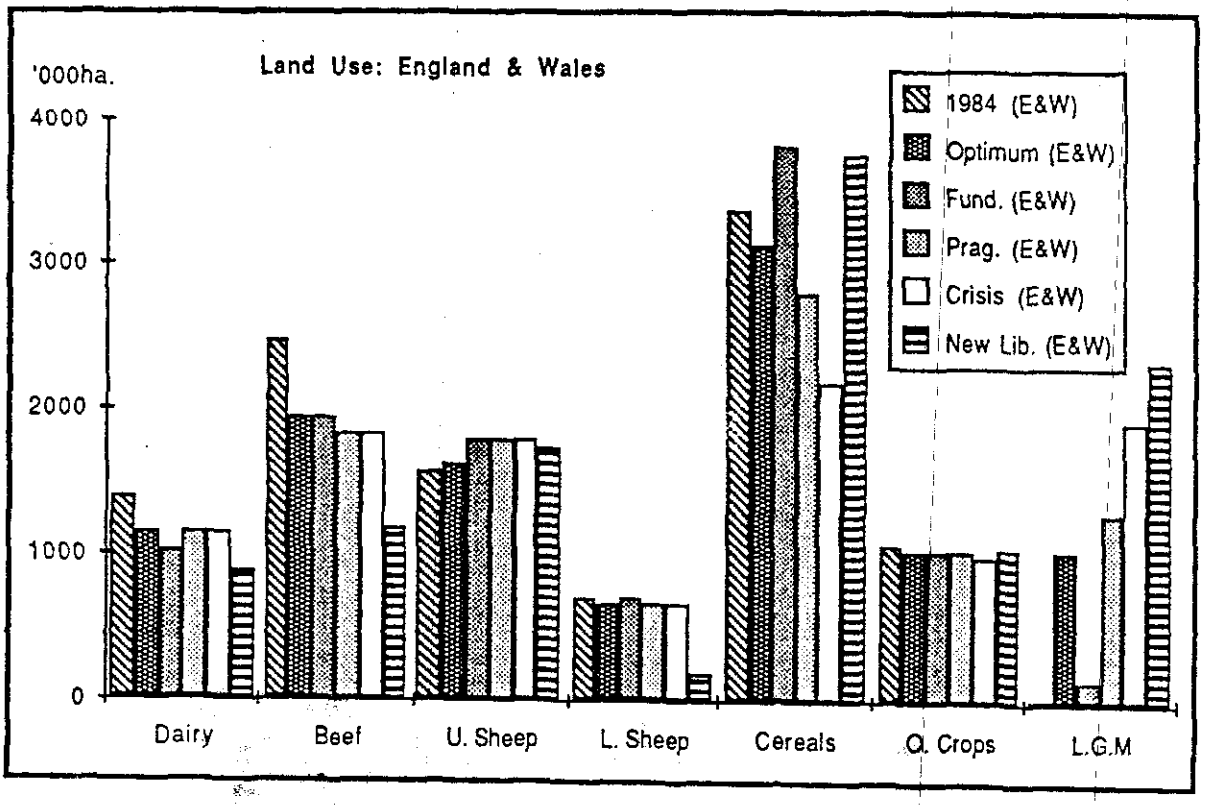
There are clearly many more factors which determine land use than the few very simple factors included in this prototype model, and it is not possible in this study to decide how important these omitted factors might be. There are two major omissions: the model does not include the fixed costs associated with livestock, plant, machinery and equipment or buildings; no non-agricultural land uses (eg. woodlands, tourism and leisure uses, building and living-space land uses) are included in the model. As a consequence, all of these results must be taken as preliminary, tentative indications rather than hard and fast projections. In view of the fact that the model does show some substantial land use changes even before the policy scenario changes are introduced, the 'policy run' results are shown in comparison with the 'optimum' land uses rather than the actual '84 distribution. This allows the separate effects of the policy changes themselves to be isolated from the internal behaviour of the model.

Figure 3 shows the aggregate results of the model for the principle land using agricultural activities dealt with in the modeling exercise for each of the scenarios identified in this study, including the 'optimum' identified above. The most obvious and important feature of these results is that the lowland livestock activities, especially beef and dairy, but also lowland sheep in the New Libertarian case, suffer the major reductions, while the upland sheep activities (perhaps often associated with the 'marginal' land in the public mind) remain remarkably stable regardless of the policy scenario considered, even in the case of the New Libertarian scenario which is the one case in which all Less Favoured Area (LFA) payments are assumed to be removed. The total gross margins earned on upland sheep would clearly suffer considerably, but the model shows that there is some economic advantage to be gained by continuing to use this 'marginal' land even in the 'worst' agricultural scenario imaginable. It is to be expected that the market place would reflect this economic advantage in time, though the ability of existing farmers to survive the economic storm would depend on their current asset and wealth situation, as well as their ability to draw on non-agricultural earnings. In many cases the survival of the upland sheep activity would depend on new farmers taking over from the existing shepherds and their families.

The second implication to be drawn from Figure 3 is that the cereals area (perhaps identified by many as the major culprit in the apparent deterioration of the rural environment in recent years) would tend to increase under both the Fundamentalist and the New Libertarian scenarios. The latter result is largely a consequence of the improved prices and margins to be earned on cereals relative to livestock in this scenario, in spite of the general reduction in all margins and prices. This relative change may be exaggerated in this case because of the particular prices used to define the New Libertarian scenario. Nevertheless, the economic logic of the New Libertarian scenario does suggest that this change in relative prices would be maintained, if to a smaller extent, under different world market conditions. In this sense, then, it may well be inappropriate to blame the existence of the CAP for the increase in the cereal area, since the removal of the CAP could well increase, rather than reduce, the cereals area (although perhaps at generally lower levels of intensity and thus cost, to be consistent with the lower prices for cereals).

This conclusion is further exemplified by the result that the 'optimum' solution indicates that the cereal area would be reduced, albeit with some increase in the intensity with which the remaining cereal acreage is used. An interpretation of this result is that the major growth in the cereal area is already past, in the sense that if current conditions were expected to persist indefinitely some tendency for the overall area of cereals to be reduced, and intensity increased, might be expected. It is, perhaps, encouraging that the Pragmatic and the Crisis scenarios both result in some reduction in the cereals area, though not obviously in favour of lowland livestock (ie not generally towards a more mixed agriculture often associated in the public mind with a more desirable rural environment).

Figure 3. Land Use in England and Wales under various policy scenarios



Source: Harvey et. al., 1986

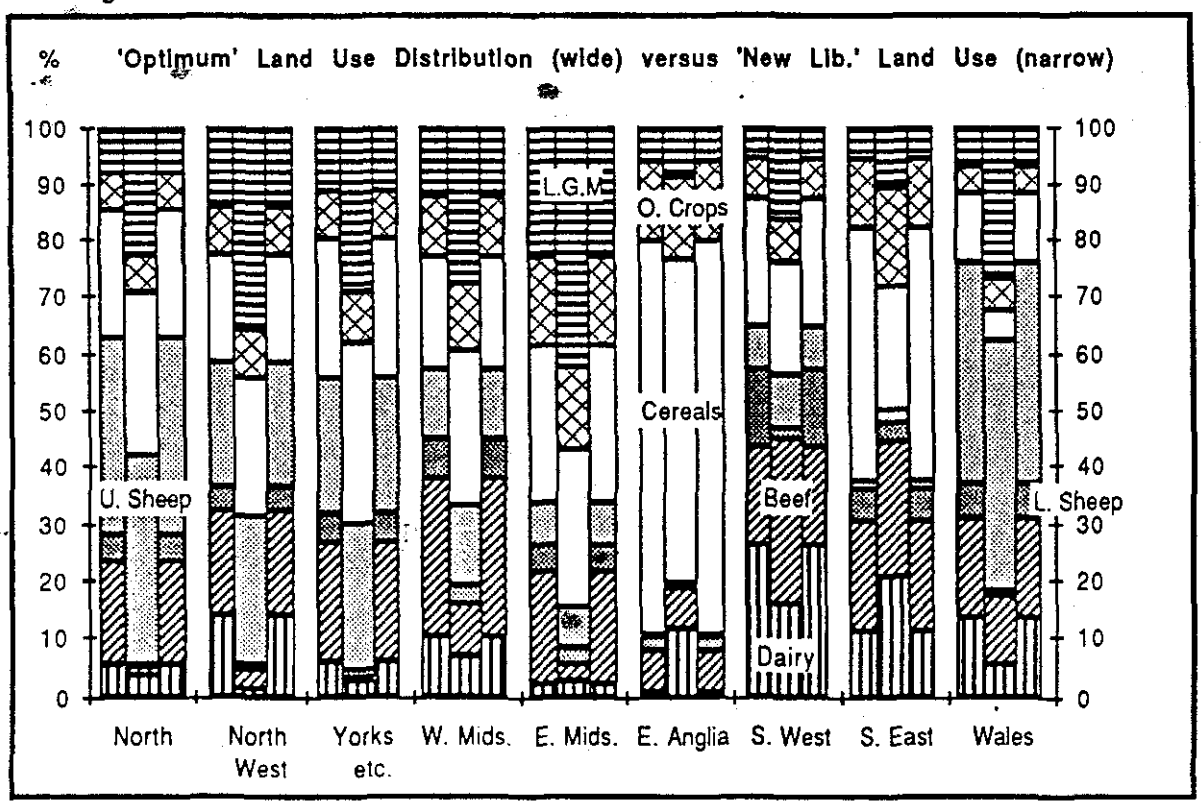
The third implication of the aggregate results is that under all but the Fundamentalist scenario there is an increase in the area of land which can be described as "gross marginal", that is the 'low gross margin' land. The model identifies this land as "surplus" in the sense that using it, given existing

technologies as reflected in the definition of the production activities through yields, stocking rates etc., detracts from rather than adding to the total gross margin to be earned from the land. However, it is not gross margins which provide incomes and savings (to be invested in land purchase for instance), but net margins, ie net of fixed costs. As the industry adjusts to a situation of reduced gross margins, so one would expect that these fixed costs would also be reduced as investment is reduced and labour is released. The level of intensity would also be expected to fall in these circumstances, and while some land might be released to alternative uses (not included in this preliminary analysis), this LGM land might be better thought of as the "hectare equivalent of the potential reduction in intensity which could occur over the whole land base". The consequences of this potential reduction in intensity are obviously likely to be significant for the environment and wildlife, but this aspect of possible changes in land use has not been properly explored in this preliminary study.

An indication of the scope for intensification and extensification is provided by the gross margins computed by the model. The results show that the total gross margin for England and Wales changes by the following proportions compared with the 1984 situation: Fundamentalist +9.9%; Pragmatic -10.8%; Crisis -10.0%; New Libertarian -40.9%; New Libertarian (with the added restraint that all the land should be used and none released) -43.6%. It is clear that an improvement of less than 3% in total gross margin associated with 'allowing' the model to release land in the New Libertarian scenario is unlikely to provide an adequate return on the additional capital and fixed costs associated with the implied more intensive use of the land remaining in agriculture. In other words, the result provided by the model for the release of land is likely to be a consequence of the simplified model structure rather than a reliable indication of the probable consequences of the scenario itself, though the result can be taken as an indication of the potential for more extensive systems to be employed, as already noted.

Figure 4 shows the results of the Free Trade policy scenario in comparison with the 'optimum'.

Figure 4



The region which shows the most dramatic increase in LGM land is the East Midlands, followed by the North West, Yorkshire etc. and the West Midlands, while the South East, East Anglia and the South West do not show such marked tendencies to 'release' land. Since the model ignores non-agricultural uses entirely, these results are to be expected. In practice, one would imagine that recreational and amenity uses of land would tend to take over from agriculture, as farm margins are reduced, in those areas close to the major urban concentrations and in those areas which are already heavily involved in tourism and recreation, including country cottages and holiday homes. If so, then one would expect the South East, East Anglia, and the South West to 'lose' rather more land than shown here, and the other regions correspondingly less.

Given the price and margin changes under Free Trade, it is not surprising that the lowland livestock areas are under the most pressure, while there is a general tendency for the cereal areas to increase, except in Wales and, surprisingly, East Anglia. The model finds that the margins to be earned on livestock production in the land classes and types which predominate in East Anglia are sufficient in relative terms to devote more land to these activities than elsewhere. However, it should be remembered that the 'optimum' solution itself indicates a reduction in the lowland livestock activities in East Anglia, and to a large extent the New Libertarian solution simply re-instates these activities, though there is some reduction compared with the present distribution. A comparison of the 1984 actual distribution with Free Trade also shows the general result that lowland livestock activities are under most pressure from the removal of the CAP in even more dramatic fashion that the comparison with the 'optimum' solution.

V. Conclusions.

There is considerable room for doubting that the European Commission's regulations for extensification, on their own, will allow an significant reduction in the intensity of agriculture without substantial changes in the support prices for agricultural products. Furthermore, the schemes seem likely to involve considerable expense and a major risk of "double spending" - paying for agricultural changes which would happen anyway. The uptake of the schemes is highly dependent on the levels of compensation payment established for set-aside, while simple budgetary calculations suggest that any effective set-aside payment may well end up cosyting more than the current surplus disposal costs.

The notion that agricultural surpluses can be simply translated into surplus land in production is subject to serious theoretical criticism and appears to contradict historical trends and relationships. Schemes to encourage the transfer of land out of production are an attempt to push the agricultural system in an 'unnatural' direction, and for this reason if no other are likley to be both expensive and less than fully effective.

There is, however, considerable scope for extensification within agriculture, which would result from a sustained and substantial cost-price squeeze on the industry. Some form of compensation or adjustment programme would be necessary to persuade the farming community to accept this policy, but it would be more consistent with the general thrust of Commission policy than the extensification programme. The conditions uder which the industry could be expected to reduce intensity of production are:

i. reductions in the prices of agricultural products;

ii. increases in the prices of agricultural inputs;

iii. increases in the returns to be earned by capital and labour in non-agricultural activites, particularly for those resources which will not otherwise leave the industry, ie those with few alternatives elsewhere.

Given these conditions, one would expect the development of the industry, and in particular the uptake of new technology, to reflect the changed commercial reality and to produce more extensive, though also more efficient production practices. The corrollary is that such a scenario would allow fewer people to earn a full-time living from agriculture, and there would be an increased release of capital and labour (and some land) from agriculture to other occupations, either on a full-time or part-time basis.

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paper 12

The potential impact of extensification schemes on rural employment

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THE POTENTIAL IMPACT OF EXTENSIFICATION SCHEMES ON RURAL EMPLOYMENT

by

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(A Paper for the Merlewood Conference on Farm Extensification Scheme)

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THE POTENTIAL IMPACT OF EXTENSIFICATION SCHEMES ON RURAL EMPLOYMENT

Abstract

This paper explores the potential impact of the Scheme on employment in agriculture and other industries. It first reviews the structure of rural labour markets and then approaches the problem using multiplier coefficients derived from other studies.

The Structure of Rural Labour Markets

For the first time, the structure of rural labour markets can now be inferred from population census data (OPCS, 1984). This source of information is unique in that it has assembled key statistics for rural areas, defined as the "non-urban" part of the country. The data were generated by first defining urban areas in terms of land use and then identifying them cartographically. The data for the "rural" remainder were then aggregated to county level (regions in Scotland).

The result allows aggregate comparisons between urban and rural labour markets for the first time, although there is no prospect of time series analysis until another census (1991?) has been analysed on the same basis. The data provide a broad descriptive view of labour markets which becomes more revealing on an urban-rural comparative basis. Several comparisons are possible. The national average might be the obvious starting point, but data for the old Metropolitan counties are also available. Since the latter are currently the focus of policy-makers' attention, they are also included here to indicate the range of variability. The relevant data to summarise rural labour markets are displayed in the table below. These data show that 10% of the G.B. population is rural (as defined), and 33% is in the Metrolopolitan counties. Moreover, whilst the rural population is deficient in youths and overendowed with the middle aged and elderly, compared with Great Britain as a whole, for the Metropolitan counties the position is reversed. Naturally, agriculture is a major employer in rural areas, but it is less important than manufacturing, distribution and other services. In the Metropolitan counties agriculture has a minute share of employment but that of manufacturing, transport and other services exceeds the Great Britain average. The results of such comparisons are partly determined by the industrial categories identified and the data reported are indeed highly aggregated, covering only seven groups.

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1. I am grateful to my colleague Lionel Hubbard for useful comments on an earlier draft of this paper.

TABLE I - The Structure of Rural Labour Markets

	GB	Metropolitan Counties	Rural GB	Metropolitan Counties	Rural GB
	Number or %			% of total or Index, GB = 100	
Total Population (thousands)	53,557	17,765	5,630	33.2	10.5
of which % aged: 16-24	14.1	14.7	12.8	104.3	90.8
25-44	26.3	26.2	26.3	100.0	100.0
45-pensionable age	19.7	19.9	20.7	96.1	105.1
pensionable age	17.7	17.4	18.4	98.3	104.0
Per cent Employed in -					
agriculture	2.2	0.3	15.2	13.6	690.9
manufacturing	27.0	27.8	18.7	103.0	69.3
distribution and catering	19.2	19.0	17.7	99.0	92.2
transport	6.5	7.3	5.0	112.3	76.9
other services	34.0	35.2	31.9	103.5	93.8
Per cent of Economically active -					
men	90.4	90.1	89.9	99.7	99.4
married women	56.9	59.3	48.6	104.2	85.4
single, widowed & divorced women	69.5	71.4	64.2	102.7	92.4
Per cent Unemployed -					
men	10.5	12.3	7.0	117.1	66.7
married women	2.7	3.0	2.0	111.1	74.1
single, widowed & divorced women	9.0	9.7	7.8	l07.8	86.7

Source: OPCS (1984)

Economic activity rates are important indicators of the pressure of demand for labour markets, expressng the relationship between those in the labour market and those in the demographic group available for work. For men there is little divergence of the rural from the national mean, but rural married women are substantially less likely to be economically active although there is a smaller divergence for the more active single, widowed and divorced women. By contrast, the Metropolitan counties show much higher average male activity rates. Registered unemployment is substantially lower amongst rural men than the Great Britain average and somewhat lower amongst both categories of women. Again, the Metropolitan counties diverge from the average but in the opposite direction, with higher registered unemployment in all categories. However, the apparently tighter than average rural labour market portrayed by the unemployment data is not the complete picture. The level of unemployment may also be explained by the smaller proportion of youths (who dominate the unemployed nationally) in the rural population, by the extent to which those who become unemployed in rural areas may respond by migrating to urban areas in search of employment, and, of course, by lower economic activity rates for all categories of worker.

Multipliers ; a simple exposition

Multipliers may be used to summarise the relationships between the different sectors of an economy. They are a convenient predictive tool where changes in the pattern of final demand (mainly consumer expenditure) are proposed.

Multipliers are ratios, between the direct effect of a change in demand and the total effects on the economy. These effects may be expressed in terms of output, income or employment. Various different types of multiplier may be used to trace the economic ripples from a particular event further through the economy. These ratios are defined as follows:

$$\text{Type I Output Multipliers} = \frac{\text{Direct Effect + Indirect Effect on Output}}{\text{Direct Effect on Output}}$$

$$\text{Type II Output Multipliers} = \frac{\text{Direct + Indirect + Induced Effects on Output}}{\text{Direct Effect on Output}}$$

Direct effects are changes in an industry's output required to supply a unit increase in the final demand for its product.

Indirect effects include the changes in the output of other industries in response to a unit change in the final demand for the products of the industry in question.

Induced effects include the impact of demand changes on the household sector through expenditure of the factor incomes (wages, rents and profits) generated by the change in demand, and indirect effects.

Type I and Type II multipliers are generally estimated from Input-Output tables. (In this paper I ignore the Keynesian multipliers which may be calculated from a more limited set of information, but which are not industry-specific.)

We would expect Type II multipliers to exceed Type I multipliers in virtually all contexts. We would also expect multipliers to grow as the size of a regional economy increases. This will be so to the extent that diversity, i.e. the range of interactions between industries increases with size of economy.

Some Estimates

The procedures for estimating Input-Output multipliers for regions are now available at both Newcastle and Aberdeen. The first study, including a detailed account of the method of estimation, was by Hubbard (1982), and related to West Durham. A selection of the multipliers for that small sub-regional economy is displayed in Table I.

TABLE 2 - Selected Multipliers for West Durham

	Agriculture	Lodging & Catering
Output Multipliers		
Type I	1.20 -	1.43
Type II	1.43	1.83
Income Multipliers		
Type I	1.45	1.63
Type II	1.92	2.17
Employment Multipliers		
Type I	1.40	1.49
Type II	1.86	1.87

SOURCE: Hubbard (1982).

These confirm the general comments above, indicating that, in virtually every case, Type II multipliers exceed Type I multipliers. They also show that in this region, the multipliers for lodging and catering are generally larger than those for agriculture.

These multipliers indicate the extent of the 'knock-on' effects, in West Durham, from a change in final demand. Thus, if we consier only Type I effects, the appropriate employment multiplier tells us that one direct job created in agriculture would also generate 0.40 jobs in related up- and down-stream industries. If we shift the focus to include expenditure through households, then a further 0.46 jobs would arise (1.86 - 1.40) from the initial disturbance.

However, the analysis could further be extended to compare the effect in West Durham with the impact on the national economy. Type II employment multipliers for agriculture on the national economy amount to 3.06. This implies that a unit increase in agricultural demand in West Durham generates a further 0.86 indirect and induced jobs in the sub-region and an additional 1.20 direct and induced jobs in the rest of the national economy.

A Cautionary Note

There are two major reasons why these results cannot be taken at full face value. First, the estimation technique used for the local multipliers is known to overestimate because of the unavoidable assumptions it makes. There have been some attempts to estimate the extent of bias, in other contexts Hubbard (1982) quotes various examples and Willis (1987) has carefully reassessed the extent of bias using this technique in mid-Wales. This source of bias does not, however, apply to the national multipliers. This would suggest that the extra-regional effects of change in agricultural employment (1.20 in the example above) are underestimated compared with the intra-regional impact (0.86). Secondly, only under highly restrictive assumptions can I-O multipliers be taken as indicating the final situation after a demand disturbance has worked through the economy. Hubbard details these assumptions and, since they are unlikely to apply in full we must accept that the I-O multipliers, even if unbiassed, represent an upper limit to the extent of adjustment following from a change in demand. This second problem applies to both regional and national multipliers: leaving us with the conclusion that regional multipliers are more likely to overstate impacts than national ones.

Multipliers are, nevertheless a convenient way of stating the degree of interdependence of the sectors in a regional economy. Even if they are over-estimates, the conclusion they offer that the indirect and induced effects of a change in demand in West Durham, following a unit change in demand for agricultural output, will be less than the impact of such a change on the rest of the UK economy, is undoubtedly more robust than the ratio estimates themselves.

Farm Extensification Multipliers

Taking the essence of the Farm Extensification Scheme to be a reduction in the use of particular farm inputs without a corresponding reduction in farm income, what can we say about its regional impacts? The interesting contrast here is between the cut in inputs and hence output, on the one hand, and the maintenance of income on the other. Thus an input-output table might predict the relationship between inputs and outputs and the Type I multipliers would tell us the size of such 'knock-on' effects, following the conventional assumptions regarding fixed factor proportions.

The Type II multipliers would show their effect, taking households into the argument as well. Since the Scheme implies a reduction in output, which is made good by a direct income transfer, we could compare the cut in the output of the regional economy with the multiplied-up expansion due to the injected compensation.

However, we could go further than that, though, on the basis of the scheme detail. For example, a reduction in the cereal acreage on individual farms would involve them in using less fertilizer, less machinery (fuel, contract charges, repairs), less chemical sprays and less seed. The most immediate impact would thus be on the chemical industry and its industry linkages. The machinery effects might take some time to be felt, in farmers replacement purchases or be more rapidly absorbed by contractors. To the extent that arable farmers have already absorbed price cuts by reducing their repair bills by hiring their own mechanics, they may now have to bear more of this impact themselves. That is, having 'integrated' upstream into the machinery sector, they will now be affected by reduced demand for machinery services! But the other element of the Scheme, the direct income supplement, must be treated separately. It would amount to a direct income transfer to the farming community independent of production. This could have obvious Type II effects which will be reflected in household expenditure. The possibility that the Scheme might fail to prevent some other lucrative land-using activity would, of course, change the multiplier arithmetic here.

The Net Impact of Farm Extensification

In the context of the regional economy, the Extensification Scheme will seek to reduce output of cereals, beef, veal and wine (and other products as necessary). It will achieve this using direct payments as an incentive.

The regional economic impact will thus be given by:

$$dO_r = d\,Y_a\,(k_{II}/k_I) - d\,O_a.\,k_{II} \qquad (I)$$

where O_r = output/income in region r

O_a = output from agriculture

Y_a = compensating income supplement to aagriculture

d denotes a small change in the variables

k_I = the type I multiplier for agriculture

k_{II} = the type II multiplier for agriculture

This identity tells us that the change in regional output (or income) will be equal to the compensation, multiplied up through the household sector alone (k_{II}/k_I) minus the product of the change in agricultural output and the type II multiplier. Furthermore, we would expect some relationship to exist between $d\,Y_a$ and $d\,O_a$, because the intent is to provide farmers with an incentive. Thus policymakers might aim for: $d\,Y_a > d\,O_a$. Nevertheless, farmers would settle for less than this because the insstrument allows them to save variable inputs. Perhaps the relationship would then be: $d\,(O_a - I_a)$ where I_a is the value of variable inputs used in agriculture.

Whether or not the region gains or loses from the Scheme may thus be calculated from the compensation, (d Y), the gross margin $d\ (O_a - I_a)$ and the relevant multipliers.

An Example

Suppose the multipliers above for West Durham also apply in an arable area and that the change in output realised through the Scheme is £1m. The required minimum compensation would then be obtained from:

$$d\,Y_a = d\,(O_a - I_a) \qquad (2)$$

Setting $I_a/O_a = 0.20$

would indicate $d\,Y_a$ = £0.8m

substituting these values in (I) then gives:

$dO_r = (0.8 \times 1.43/1.20) - (1.0 \times 1.43)$

$= 0.953 - 1.43$

$= -0.477$

This fall in regional income implies a corresponding decline in employment, depending on the prevailing relevant wage rates in the region. An alternative calculation would be to translate $d O_a$ and $d Y_a$ into equivalent numbers of jobs and estimate the net employment impact of these changes using employment multipliers.

Such examples are useful as indicators of the potential contribution of schemes such as this to further rural (and urban) decline. But they would require much more precise specification of schemes, rates of uptake by type of farm and before their regional impact can be predicted. There also remain the problems of bias referred to above.

Further work on impacts making different assumptions about the relationship between $d Y_a$ and $d O_a$ would be revealing. It also remains to be seen whether any economic activity can be pursued on the land under extensification schemes. That could further bridge any gap between regional losses due to falling output and gains from compensation. Although the availability of cheap by estimated multipliers is made possible through GRIT, further data are required if the appropriate multiplicands are to be accurately measured.

The main conclusion to be drawn from this preliminary examination of the Extensification proposals is that their impact on employment is likely to be greater in urban areas, where it may do more damage, than in the rural areas. That conclusion is likely to be more clearly established the more tightly the rural boundary is drawn and the smaller the regions under consideration. The vulnerability of the rural economy is compared with that of the Metropolitan Counties in Table I.

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paper 13

Geographical research into farm diversification: lessons for the extensification proposals

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Geographical research into farm diversification : lessons for the extensification proposals

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Geographical research into farm diversification : lessons for the extensification proposals

The post-war restructuring of western agriculture has led to agricultural overproduction, destruction of the rural environment, a polarisation of farm incomes (between large and small farms and 'core' and 'peripheral' areas) and a relative decline in farm incomes (Healey and Ilbery, 1985; Marsden et al. 1986a). The latter reflects a 'treadmill' upon which farmers have been placed, where inflation and a decline in the demand for food relative to income levels have caused the costs of production to increase at a greater rate than the price of foodstuffs (price-cost squeeze). Many farmers have attempted to circumvent this problem by obtaining greater economies of scale, through farm enlargement or by increasing the intensity and/or specialisation of production (Bowler, 1986). However, this option is becoming less viable as agricultural policies begin to constrain the freedom of farmers to continuously expand production. It is clear, therefore, that other ways of boosting farm incomes will have to be found. One commonly discussed option is the development of alternative farm enterprises, or farm diversification.

Farm diversification

Although a buzz word in the popular press, the term farm diversification has rarely been defined or conceptualised (Griffiths, 1987a and b; Ilbery, 1987a). This creates obvious problems when attempting to assess the extent of farm diversification and compare the results of different case studies. The most comprehensive definition is that given by Slee (1986 p2):

> "Those enterprises taking place on predominantly agricultural proprietal units which (a) are not based on the primary production of food and fibre and/or (b) fall outside the price support mechanisms of the CAP."

On this basis, different groups of 'alternatives' can be differentiated, ranging from farm-based tourism and recreation to unconventional crop and livestock enterprises (Table 1). The list excludes off-farm sources of income, from other economic activities, although it is recognised that they may provide the necessary capital for on-farm diversification. This creates an immediate conceptual problem regarding part-time farming, for in a major research project covering 30 areas in England and Wales (Gasson, 1983, 1986 and 1987) farms where any member of the farm family had either an on-farm (ie diversification) or off-farm OGA (other gainful activity) were classed as part-time. As this is an obvious 'grey area', geographical work on part-time farming will be included in this review; it could have important implications for the extensification scheme and future land-use patterns.

Geographical research on farm diversification

Farm diversification is not a new phenomenon in the United Kingdom (Slee, 1987), although it has increased in intensity in recent years. Little is known about the full extent and distribution of farm diversification as past research tended to concentrate upon individual elements of the topic, notably tourism and recreation, rather than on all the categories in table 1. As farmers are receiving more encouragement to diversify (for example, the Alternative Land Uses for the Rural Economy package - ALURE - and MAFFs Farm Diversification Scheme), research needs to be conducted into the diffusion of farm diversification, the spatial uptake of grants, the range of diversified projects encouraged and the types of farm and farmer involved. Some geographers are already researching the development of alternative sources of farm income in different areas, but this is not of a strictly comparative nature. Griffiths (1987a and b) and other geographers at Exeter University are examining farm diversification in

three different parts of Devon (urban fringe, marginal fringe and agricultural heartland), albeit on a restricted definition of farm diversification (farm tourism and recreation, and value added processing and marketing). Ilbery (1987a and b) is investigating the growth of alternative farm enterprises on the urban fringe in the West Midlands and Marsden et al. (1986a and b) are conducting a much wider project on the capital restructuring of British agriculture, in which they have used the concept of economic centrality (financial importance of farm-based income to the family household) to produce a valuable typology of farm businesses.

The following review focuses upon individual aspects of farm diversification. Emphasis is placed upon both the spatial manifestations of diversification, using Coleman's (1969) model of urban fringe, farmscape (prosperous lowland areas) and marginal fringe as a basis for discussion, and the types of farm and farmer involved. Unconventional crop and livestock products (table 1) have not been the subject of geographical research, except for a survey of organic farming by Vine and Bateman (1981), and will be excluded from the analysis. A detailed assessment of their economic potential and natural geographical requirements (climate and soils) has been provided by Carruthers (1986).

1. Part-time farming. Within the definitional problems already mentioned, geographers have been active in examining the growth and distribution of part-time farming, developing typologies of the farms and farmers involved and emphasizing the need for more theoretical and conceptual work on the topic (Fuller, 1975; Fuller and Mage, 1976; Mage, 1979; Layton, 1981; Aitchison and Aubrey, 1982; Mage, 1982; Buttel, 1982; Bollman, 1982; Daniels, 1986). The myriad of studies have emphasized the complexity of part-time farming, in terms of structures, organizations, motives and attitudes. It is an established and stable feature of physically marginal areas, where farming is often combined with other forms of primary activity,

and common within commuting distances of larger urban-industrial areas. In Britain, part-time farming is heavily concentrated in the prosperous south-east region (Gasson, 1987), indicating that it owes more to the regional economy than to the concentration of low income farms. The unique influence of London has long been recognised and Harrison (1975) estimated that up to 37 per cent of England's part-time farmers (but only 23 per cent of its farms) were within a 60 miles radius of London. However, the phenomenon has also been expanding in agricultural lowland areas, where improved technology and assured markets have created a more specialised agriculture and given farmers the opportunity to develop off-farm work. In Canada, Mage (1982) noted the tendency for regional differences in the intensity of part-time farming to decline over time, implying that some kind of regional threshold is eventually reached.

While Aitchison and Aubrey (1982) used four variables - scale, commitment, dependency and career context - to produce a sixfold classification of part-time farming in Wales, Mage (1976) attempted to incorporate spatial diversity and both stability and mobility into the following fivefold typology:

1. Small-scale hobby, in the urban fringe.
2. Large-scale hobby, in the urban fringe.
3. Persistent, in both physically marginal and urban fringe areas.
4. Aspiring, in prosperous agricultural areas, where young part-time farmers aspire to become full-time.
5. Sporadic, in prosperous agricultural areas, where depending upon the agricultural situation, farmers can take on occasional off-farm work.

Mage (1982) and Gasson (1986 and 1987) both refute the generally held notion that part-time farming is a withdrawal from full-time farming. For many it is an entry into farming, with the OGA remaining the main activity. In Gasson's sample, 52 per cent entered farming from another career and 70

per cent were self-employed in their OGA. She showed that over a 40 year period, part-time farming (relying most on agriculture) declined in absolute and relative terms, whereas spare-time farming (relying most on other occupation) experienced an absolute decline but relative increase, and hobby farming (land for convenience and leisure) an absolute and relative increase.

Farmers with an OGA tend to favour the very small and large farm sizes; such a U-shaped distribution has been identified in the USA (Buttel, 1982) and England and Wales (Gasson, 1986). Part-time farming also appears to relate most to farms with lower labour requirements (cereals, permanent crops, grazing of livestock); it tends to avoid intensive dairy, pig/poultry and horticultural enterprises, even though these provide opportunities for adding value by processing and direct marketing (Ilbery, 1987a).

It has not been established whether part-time farming has a positive or negative effect on rural development (Persson, 1983; Bowler, 1984). Although it may lead to structural rigidity in farm sizes and lower land-use intensities (a good thing in view of the extensification proposals?), part-time farming can help to maintain a network of small, varied farm units and rural population densities and foster greater rural-urban integration. The importance of part-time farming would seem to vary between peripheral (positive) and urban fringe (negative) locations (Bowler, 1984), although this and the implications of part-time farming developments for agricultural policy have not been fully explored. Robson (1987) is of the opinion that part-time farming could provide a possible solution to production surpluses and low farm incomes, as well as reducing the impact of modern farming systems.

2. Farm-based tourism and recreation. Geographers have become increasingly interested in tourism and recreation in rural areas (see Pacione, 1984; Gilg, 1985). However, it is disappointing that a major recent review of

rural leisure and recreation (Owens, 1984) failed to discuss farm-based activities. The importance of farm-based tourism and recreation has long been recognised in the USA (Edminster, 1962; US Department of Agriculture, 1962), but growth in the United Kingdom did not occur until the early-1970s (DART/Rural Planning Services, 1974). Estimates of the number of farms involved in tourist and recreational enterprises vary widely, from 10 per cent (Maude and van Rest, 1985) and 12,000 in England (Rural Voice, 1985) to 20,000 (Carruthers, 1986) and 4,500 in tourist activities and 3,000 in sport and recreation (Gasson, 1987).

A spatial mismatch appears to exist between supply and demand, in that the demand for outdoor recreation is highest in some of the most populated lowland areas, whereas the greatest supply of, for example, national parks is in northern and western marginal areas. Not surprisingly, therefore, most studies have examined farm-based tourism and recreation in upland areas (Capstick, 1972; Denman, 1978; Davies, 1983; Hart, 1987). A rare study in lowland areas is that by Bull and Wibberley (1976) for Surrey, Kent and Sussex, although Frater (1982) and Ilbery (1987a) have examined its development in Herefordshire and the West Midlands urban fringe respectively.

Farm tourism and recreation is having an increasing impact on farming systems in the more scenically attractive and marginal farming areas (Gilg, 1985). In Scotland, Denman (1978) suggested that up to 20 per cent of farms were involved in tourist and recreational pursuits, accounting for as much as 10 per cent of total net income. A similar percentage (4,200 farms) was found in the Less Favoured Areas (LFAs) of England and Wales (Davies, 1983) and in Harrogate district (Hart, 1987), although the amount of money generated was rarely sufficient to affect the farm system. Over 70 and 40 per cent of farmers in the LFAs and Herefordshire respectively earned less than five per cent of their total income in this way (Davies, 1983; Frater,

1982). Ascoli (1985) has similarly commented upon the low income from farm tourism. The main reason for this is that tourism and recreation are usually supplementary to, rather than fully integrated into, the farm business; they are often operated by farmers' wives (Winter, 1984). Income, although important is not the only factor involved and studies have shown how the availability of resources and personal and philanthropic reasons are also significant in the decision to diversify into farm-based tourism and recreation (Bull and Wibberley, 1976; Frater, 1982; Davies, 1983; Ilbery, 1987b).

Bull and Wibberley's (1976) study in south-east England showed that in 1972/3 approximately 10 per cent were engaged in tourist and recreational activities, especially horse-riding, camping and caravan sites and shooting (but little farmhouse accommodation or fishing). A clear spatial difference existed between tourist and recreational activities, with the former favouring the rural areas and the latter being more urban-based. Location has been shown to be important in other studies too, influencing the number of farmers involved and the type of activity. However, the information is too fragmentary for clear-cut patterns to be discerned.

One would expect tourist and especially recreational activities to favour the larger farms, especially those with livestock enterprises. Gasson's (1987) national estimates confirm that alternative farm enterprises generally are more characteristic of larger holdings, whereas off-farm employment and home businesses are more typical of smaller farms. She found that only five per cent of farms under 100 smd's with an OGA provided tourist accommodation, compared to 20 per cent of those over 500 smd's. Davies (1983) came to similar conclusions, as did Bull and Wibberley (1976) in relation to farm-based recreation. In contrast, Frater (1982) found that tourism and recreation favoured the smaller farmers in Herefordshire and Ilbery (1987a) failed to identify a significant trend, possibly reflecting

the large range of farm sizes, including hobby farms, on the urban fringe. Farm-based tourism and recreation appears to be biased towards livestock farms (beef/sheep)(Bull and Wibberley, 1976; Davies, 1983: Ilbery, 1987a), although there is little evidence to suggest that 'future recreational developments will be seriously affected by the type of agriculture carried out' (Bull and Wibberley, 1976 p.55).

Little evidence exists on the type of farmer involved in farm-based tourism and recreation, although it has been suggested that owner-occupiers are most interested and young and old farmers least interested. Frater (1982) found that farmers with young children were less likely to participate, as were farmers with elderly parents in the LFAs (Davies, 1983). Farm tourism in the LFAs was found mainly on family farms with older children; three-quarters of the 116 farms examined in detail comprised only family labour (Davies 1983; Winter, 1984).

Farm-based tourism and recreation is clearly a complex phenomenon and as the Farm Holiday Bureau (1986) explained, much depends upon the location of the farm, the facilities of the farm and, most important of all, the personality and commitment of the farmer, his wife and the family.

3. Farm woodland. Few rural geographers have been directly involved in forestry research (see Watkins and Wheeler, 1981; Mather, 1978 and 1987). Most work has concentrated upon rates of afforestation over space and time. Tree planting has occurred principally in the uplands, where the main competitive land-use has been hill sheep and cattle farming. Over 50 per cent has occurred in Scotland and while the Forestry Commission has confined its activities to poorer quality land in the crofting counties of the Scottish highlands, private forestry has favoured the more southern parts (Mather, 1978).

Farm woodland specifically has received even less attention (Cox et al., 1986; Essex, 1987), although DART (1983) estimated that there were

340,000 ha. of small woods in England and Wales, mainly of less than 10 ha each and on farmland. This is considerably higher than MAFF's (1983) total of 206,000 ha on 36,000 holdings. Within England and Wales, over three-quarters of the total is lowland woodland, predominantly of the broadleaved type, with 60 per cent of the 28,000 holdings having woods of less than 3 ha. Much of this woodland is on land unsuitable for agriculture and is derelict or neglected.

With Britain a major timber importer, there is a strong case for expanding farm woodland in lowland areas. However, a number of problems will have to be resolved first. Most farm woods are old, small and poorly managed; there is little management expertise and tradition. A lack of information and advice has been characteristic until recently (MAFF, 1984; Forestry Commission, 1985) and there is little financial incentive to diversify into woodland. Farm woodland is possibly a viable alternative to farming in marginal upland areas, but far greater incentives are needed to encourage farm woodland in lowland areas. Only the larger landowners are able to achieve economies of scale and exploit the tax concessions that make forestry profitable (Cox et al., 1986). Many farmers are simply not interested and see farming and forestry as separate activities (unlike on the European mainland, where the two have been more fully integrated).

Woodland is increasingly being seen as a place for sport, recreation, tourism and wildlife conservation. Farmers can boost their incomes from these associated activities and the necessary management of the woodlands can help to utilize labour at quiet times for agriculture. Lowland afforestation has important implications for the extensification proposals, but the problems already outlined will have to be given serious consideration.

4. Adding value to conventional enterprises. Although rarely involving a lowering of inputs, incomes can be increased substantially by adding value to farm products through either direct marketing or on-farm processing. The

pros and cons of the different forms of 'adding value' have been admirably discussed by Slee (1987) and in her work on OGAs, Gasson (1987) estimated that over 3,800 farms were adding value to their farm enterprises.

Geographers have been slow to research the distribution of direct marketing and processing on British farms and the type(s) of farm and farmer involved. Some work on farm shops in the West Midlands and north-east England was undertaken by Barker (1979) and the expansion of PYO schemes, from a handful in 1970 to approximately 1000 in 1985 (Slee, 1987) has been examined by Bowler (1981 and 1982). An uneven spatial distribution of PYO schemes exist, with an expected concentration near major conurbations in south-east England (Surrey, Kent and Sussex) and the West Midlands (Vale of Evesham), areas traditionally associated with the production of top fruit, soft fruit and vegetables. A combination of favourable physical conditions for horticulture and proximity to urban markets was seen to be the crucial factor affecting the location of PYO schemes (Bowler, 1982). This helped to explain the paucity of such schemes in many eastern and northern areas. The field-scale production of vegetables in eastern areas also favoured contract and co-operative marketing rather than PYO (Hart, 1978). The importance of an urban-based location for direct marketing was emphasized in the West Midlands study (Ilbery, 1987a and b), where over two-thirds of the farms with alternative enterprises participated in these activities. This was more in the form of farm gate sales (54) and farm shops (24) than PYO schemes (10); the latter is rarely popular on the immediate urban fringe because of the loss of income from such problems as vandalism and theft.

Compared with all holdings in England and Wales, Bowler found that a higher proportion of PYO farms were owner-occupied (79 per cent against 61). This could reflect restrictive tenancy agreements, although more research is needed here. Similarly, PYO schemes favour the larger farms, with 30 per cent of the 684 examined being over 122 ha. (national figure is

10 per cent). Clearly, such farms are in a better position to innovate (as in many other forms of diversification), while the smaller farmers are either unwilling or unable to take advantage. Some of the better educated and/or business-oriented farmers are beginning to integrate their PYO schemes with other diversification activities (such as farm shops, children's play areas, cafés, nature trails and craft centres). This encourages customers to combine fruit and vegetable picking with a recreational trip to the countryside.

As with direct marketing, a lack of official statistics means that the number and distribution of farms adding value by processing their products is unknown. The pattern will, in part, reflect the agricultural geography of different areas, but more work, along the lines of that by Bowler (1982), is required. With greater emphasis on marketing in MAFF's (1987) Farm Diversification Scheme, adding value activities could expand considerably.

Farm diversification and extensification

Farm diversification is a complex and expanding phenomenon. The lack of a satisfactory data base inhibits the identification of clear patterns, but the development of farm diversification is related to a range of farm and farmer characteristics and geographical location (although these are not the cause of its growth). Farm diversification appears to be biased towards larger, owner-occupied farms with livestock enterprises (beef/sheep). This suggests that those most in need of diversifying (smaller farms in areas of low agricultural or diversification potential) are either unable or unwilling. A possible solution to the problems associated with these farms is direct income aids, but only if they are linked to desired management practices (Bell, 1986). Important spatial differences, in the types of diversification undertaken, have been shown to exist between the three categories of area identified.

The extensification proposals advocate a reduction in output of different agricultural products by at least 20 per cent, with the land withdrawn from production left fallow, afforested or used for non-agricultural purposes. This is to apply to all regions, although it is possible not to enforce the arrangements in regions where, because of natural conditions or the dangers of depopulation, production should not be reduced. With these ideas in mind and the findings of the previous section, it is possible to theorise about the links between farm diversification and extensification in the three different types of area:

i) The prosperous agricultural lowlands, where the extensification scheme is, or should be, directed. Farmers have relatively little diversification experience and the only real alternative use of large tracts of cereal land is farm woodland or afforestation. This would benefit from 20 rather than five years of compensatory allowance, although better advice and financial incentives will have to be offered.

ii) The marginal fringe, where the extensification scheme should not be applied, but where farm tourism should continue to be developed. Although farmers can at present augment their income in this way, very few earn a large proportion of total income from tourism. Thus, to play an important future part in the agricultural economy of such areas there must be more government assistance, through the Farm Diversification Scheme, Tourist Board, COSIRA and the LFA directive.

iii) The urban fringe, where the extensification proposals will do little to solve surplus production or the urban 'problems' and intense land-use competition found in this area (unless a radical system of land acquisition is adopted, as in the Netherlands). Emphasis in this zone should be based upon adding value to conventional enterprises and farm-based recreation. The two could often be combined and, with proper marketing, daily trippers from the inner city and suburbs, as well as local residents (Ferguson and Munton, 1979), could be attracted into the immediate countryside.

The three groups are not mutually exclusive and a complete spatial segregation of farm diversification types is certainly not being advocated. There will, for example, be opportunities for the agricultural lowlands in terms of farm-based tourism and recreation and direct marketing. Too little is known about unconventional enterprises to incorporate them into the suggested schema.

Reality is, of course, different and the link between farm diversification and extensification is not a straightforward one. Apart from the practical and technical difficulties of implementing the extensification proposals, the development of farm diversification has, and is being, constrained by a range of 'resistances'. These will have to be given serious consideration if the surplus land from extensification is to be put to alternative uses (much depends on the list of products towards which conversion will be accepted; this will be known by the end of 1987):

1. Lack of finance. With declining farm incomes, only certain groups of farmers will have the necessary resources (land, labour and capital) to invest in farm diversification projects. Far greater financial support is needed than that earmarked for forestry, farm woodland and diversification in the government's ALURE package. Similarly, while MAFF's Farm Diversification Scheme (1987) advocates capital grants of 25 per cent (up to maximum of £24,000) and feasibility/market research grants of 50 per cent (maximum of £5,000), and hopes to target most assistance on small and medium holdings, the sums of money involved are small when compared with the large amounts used to subsidise overproduction. It is vital, therefore, that farmers are fully compensated for agreeing to cut production by 20 per cent, so that in combination with other schemes they will have the necessary capital to diversify.

2. Rural planning controls. Most significant diversification projects require planning permission and a modification of policy, within the urban

and marginal fringes in particular (i.e. Green Belts and National Parks), will be required. However, it will not be easy to change a policy that has successfully contained urban sprawl and protected agriculture and forestry. The ALURE package has eased planning controls, except in Green Belt areas and on grade one and two land. Yet it is within these areas that diversification and extensification respectively are needed (unless one advocates that 'the best agricultural land must be exploited as intensively as possible without any amenity controls so that low grade land can be set-aside for amenity (recreation and conservation)' (Green, 1981)). The present inconsistency of planning legislation, where farmers are being both encouraged and prevented from diversifying (ie. in green belt areas), must be resolved. Before allowing alternative land uses, planners also have to consider the scale of proposed schemes and their effect upon the rural infrastructure, noise levels and the 'perceived image' of the countryside.

3. Lack of marketing skills and advice. Farm diversification necessitates a change from a production orientation to one which emphasizes marketing skills (Slee, 1987), but many farmers remain unhappy about receiving visitors onto their farms. Success depends on factors like location and good business skills, where imagination and innovation are important. This again implies that those most in need of diversifying will be the least able. The majority of farmers, therefore, require sound advice (ie. on health and safety regulations) and market research is needed to identify the most viable 'alternatives' for a particular location. A large number of private and public agencies are offering such services (ADAS is giving free general advice on diversification, but charges for other services), but there is little co-ordination or inter-agency cooperation. The result is confusion among farmers, possibly restricting the uptake of the extensification scheme to a small group of larger farmers who have the skills and capital to develop 'alternatives' on the land set-aside.

4. Tenancy restrictions. 'Although more tenant farmers are beginning to diversify, most tenancy agreements do not cover activities outside mainstream food supply. Much depends on the flexibility of landlord/tenant relationships, which requires detailed research. With over 35 per cent of farms in England and Wales classed as tenant farms, this could have important implications for the extensification proposals and the use to which the vacated land can be put. Few tenant farmers in the lowlands, for example, will be interested in a simple fallowing of land.

5. Farmers' attitudes. The success of any diversification or extensification scheme depends very much upon the farmers themselves; whilst they are being increasingly constrained, farmers still have choices. Much more information is required on what Griffiths (1987a) called the what, where and why (and why not) of farm diversification. Available evidence suggests that farmers still perceive diversification as being supplementary to the main farm business, often providing employment and 'pin-money' for farmers' wives. If anything, farm diversification has led to an intensification rather than extensification of production (i.e. increase horticultural production for direct marketing opportunities). Consequently, the extensification proposals provide an ideal opportunity to help change farmers' attitudes towards diversification and encourage a more integrated farm production and marketing business.

The term set-aside has been used in this section and one could be forgiven for interpreting the extensification of cereals, for example, as crop-specific set-aside (Buckwell, 1986; Potter, 1987). Set-aside as an environmental and agricultural policy instrument is being examined in an ESRC funded project at Wye. Although the American experience is not encouraging (Potter, 1986), it would appear that environmental set-aside is more relevant to marginal areas and agricultural set-aside to lowland areas. One has sympathy, therefore, with Buckwell's (1986 p8) view that

'surplus production would be better served by crop-based set-aside, determined annually, operated voluntarily with full income compensation and a requirement to fallow the land'. However, if the extensification proposals are to succeed farmers must be given every encouragement to use the vacated land for different types of farm diversification. With the United Kingdom lagging behind her EEC partners in terms of farms with OGAs (25 per cent compared to 43 in West Germany and 40 in Greece), there is considerable scope for further development of farm diversification.

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Table 1. A classification of farm diversification options

1. Tourism and recreation

- farmhouse accommodation
- holiday cottages
- camping and caravan sites
- farmhouse teas/catering
- horse-riding/livery and pony trekking
- demonstration farms/open days
- farm zoo/children's farm
- nature trail/reserves
- country/wildlife parks
- picnic sites/informal recreation
- water/land based farm sports
- war games
- farm craft centres

2. Adding value to conventional enterprises

(a) by direct marketing

- farm gate sales
- farm shop
- delivery rounds
- PYO schemes

(b) by processing

- cheese
- ice cream/yogurt
- cider/wine
- jam/preserves
- potato packing
- flour milling

(c) by selling skins/wool/hides

3. Unconventional enterprises

(a) crop products

- linseed
- teasels
- evening primrose
- borage
- triticale
- fennel
- durum wheat

(b) animal products

- sheep milk
- fish
- deer
- goats
- horses
- lamoids

(c) organic farming

4. Farm woodland

- for timber
- energy forestry
- for amenity/recreation
- for wildlife conservation

Source:- Based on Carruthers (1986), Ilbery (1987a) and Slee (1987)

paper 14

Farm diversification in the South West:
short term reaction to milk quotas and longer term plans

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Farm diversification in the South West
Short term Reaction to milk quotas and longer term plans

Andrew W. Gilg, University of Exeter

The purpose of this paper is to report on the published results of one study, and the preliminary results of another study, carried out in the Department of Geography, at the University of Exeter in order to throw some light on to three basic questions surrounding farm diversification and extensification. First, how many farmers have diversified and might diversify: second; which farmers are most likely to diversify and what are their motives or the pressures behind their change; and third, what areas have farmers diversified into or are likely to diversify into. If some of these answers can be at least partly answered then policy makers will have a clearer idea of which policies might be likely to achieve certain policy aims.

In order to answer some of these questions this paper reports on recent and current research in Devon. First, on the recently published (October 1987) study by Joyce Halliday, the Devon Research Fellow at the University of Exeter, and second on the preliminary results of Andrew Griffiths' work, a research student in the Department of Geography at the University of Exeter. In due course it is hoped to extend this work further with research into farm diversification in Cornwall funded by various agencies in that County.

The Devon Research Fellow's Study into the effect of Milk Quotas on Devon farmers

The Devon Research Fellow is funded by Devon County Council and housed in the Department of Geography at the University of Exeter. The incumbent is Joyce Halliday, and when she began her work in January 1986, the Steering Committee (of which I am a member) asked her to conduct a study into the effect of milk quotas on the dairy farmers of Devon. This study was published in October 1987 (Halliday, 1987) and some of the results are reproduced in this paper.

The study interviewed a 10% sample of dairy farmers obtained from the Milk Marketing Board's register of dairy farmers in the Honiton Creamery Area (a mixed farming area on well drained fertile land with a good climate) and the Torrington Creamery Area (a pastoral farming area with cold wet soils and a poor climate). The 10% sample with an 87% response rate produced a usable

survey of 103 farmers which was stratified by milk production in litres to provide a spectrum of opinion across the whole range of dairy farmers.

The general findings of the study are that production at the time of the interviews (1986) was very similar to pre-quota (1983-84) production. In other words there had not been a cut in actual production, but there had been a cut in the planned expansion of production. There are two reasons for the continued level of production. First, the areas include a large number of small farms (with quotas of less than 200,000 litres or 40 cows) for which quotas were allocated at the same rate as pre-quota production. Second, many farmers had increased quota by claiming a secondary quota or by trading in quota. Indeed, farmers who had actually ended up with a quota that was smaller than their 1983/84 production were the ones most likely to be running over quota. These overall findings cast doubt on the claim that farmers have responded well to the new regime.

Turning to a more detailed analysis, Table 1 shows some of the short term (over the first two years) responses made to the imposition of quotas in 1984. The most common response was to change the use of concentrates, notably to reduce their use and so reduce yields in the short term. Another short term response was to feed milk to calves that would otherwise have been sold, but of the 52 per cent of farmers adopting this practice, 60 per cent did not maintain it for long, particularly once it became clear that a levy would not be payable as overall UK production fell to below quota levels. The next most frequent change was the introduction of other livestock, most notably beef cattle. A less common but still important response was to decrease the dairy herd, even though 60 per cent did not do this. Finally, in the area of grassland management the majority of those 35% of farmers who had changed their management by changing fertiliser use (39% of the 35%) had actually increased fertiliser use to increase grass yields for conservation and thus increase self-sufficiency. Less frequent changes encompassed changes in, for instance, fodder crops, breeding policy, labour requirements and machinery and building programmes.

The overall conclusion is that only about a half of all farmers collectively made any major changes towards a different type of farming as a response to milk quotas, although most had made management changes within dairying, rather than changing the wider farming system. In summary, these changes have lead to an increase in self-sufficiency on farms and a partial return to mixed farming. However, it should be pointed out that though these

Table 1

Dairy farmers short term response to milk quotas in Devon

Type of change	% farmers making change	Type of change made
Concentrate usage	69	92% reduced usage 25% changed type used
Change in dairy herd	39	97% reduced herd 3% increased herd
Grassland management	35	39% changed fertiliser 29% changed hay or silage making operations
Introduction of other livestock	49	68% introduced beef cattle 29% introduced sheep 3% introduced pigs

Source: Halliday, J., The effect of milk quotas on milk producing farms, Devon County Council and the University of Exeter, 1987.

changes were attributed to quotas they cannot realistically be considered in complete isolation from the wider agricultural environment.

Turning to longer term changes planned over the next five years (1986-1991) Table 2 shows the changes envisaged by those farmers planning some sort of change. It should be emphasised at this stage that 40 per cent planned to make no change, only 42 per cent definitely planned to make a change, and 18 per cent did not know.

So in Table 2, 36% of all farmers planned to change their farming system, and out of the total sample of 103 farmers, 24% planned to make livestock changes only and 12% livestock and crops changes. The remainder of the table (the two right hand columns) shows the percentage of these 37 farmers (36% of 103) who intended to make a change and the direction of that change. The most notable features are a switch to beef, a decrease in the dairy herd and quota size, and a minor switch to other livestock, mainly sheep and pigs, which is basically a continuation of the changes already induced by quotas.

From Table 3, it can be seen that only 18 per cent of the sample intended to make changes in their cropping patterns, either in addition to changes in livestock (12%) or to crops only (6%). Out of this 18 per cent the main planned change was one to cereals, with other arable crops a poor second. No other change was really significant and involved only very small numbers of farmers, for example, only 2 farmers planned to increase milling and mixing activities.

So far the results have concentrated on broad patterns and for those who see extensification as an easy option, the results make fairly bleak reading since they portray a picture of: a 'wait and see attitude'; a conflicting pattern of extensification e.g. lower concentrate usage but some increased use of fertiliser; and, some evidence of the effect of quotas being avoided by trading. In other words quotas do not seem to have had a radical effect on the ground, and farmers appear to be searching for alternatives in a very narrow framework.

However, these results have so far lumped all the farmers together, it is now time to see if there is any difference by the type of farmer studied, for example, by age, farm size, education and so on.

Using correlation matrixes and correlation flow diagrams linking various attributes of farming and farmers, and other analyses of the data, Halliday came to the following broad but rather conflicting generalisations with regard to their propensity to diversify. In the short term nearly all types of

Table 2

Changes planned by Devon dairy farmers over the next five years, in livestock and livestock plus crops (36% of sample)

Type of farming to be changed			% of farmers changing livestock within the 36% sample		Direction of change in sub-group	
Livestock only	24%	36%	Size dairy herd	57%	Increase	38%
					Decrease	57%
			Beef	75%	Increase	75%
					Decrease	25%
			Quota	24%	Increase	44%
					Decrease	66%
Livestock + crops	12%		Sheep	14%	Increase	100%
			Pigs	14%	Increase	100%
			Alternative livestock	3%	Increase	100%

Source: Joyce Halliday as in Table 1

Table 3

Changes planned by Devon dairy farmers over the next five years in livestock plus crops and crops only (18% of sample)

Type of farming to be changed			% of farms changing crops within the 18% sample		Direction of change in sub-group	
Livestock + crops	12%	18%	Cereals	50%	Increase	78%
					Decrease	22%
			Other arable	28%	Increase	80%
					Decrease	20%
			Silage	17%	Increase	100%
Crops only	6%		Other cash crops	11%	Decrease	100%
			Milling and mixing	11%	Increase	100%

Source: Joyce Halliday as in Table 1

farmers made some sort of changes in a random and panicky response to the imposition of quotas. This reflects the considerable confusion amongst the farming community as to what quotas would actually entail, introduced as they were almost overnight. As the situation became clearer: the larger farmers; relative newcomers to farming; and those with agricultural training were found to be those most likely to implement changes to deal with quotas.

In the longer term: younger farmers; those with agricultural training; those with above average borrowings; those with larger than average dairy herds; and those with plans for diversification into alternative non-agricultural enterprises were the ones most likely to be contemplating or planning longer term alternatives to dairying.

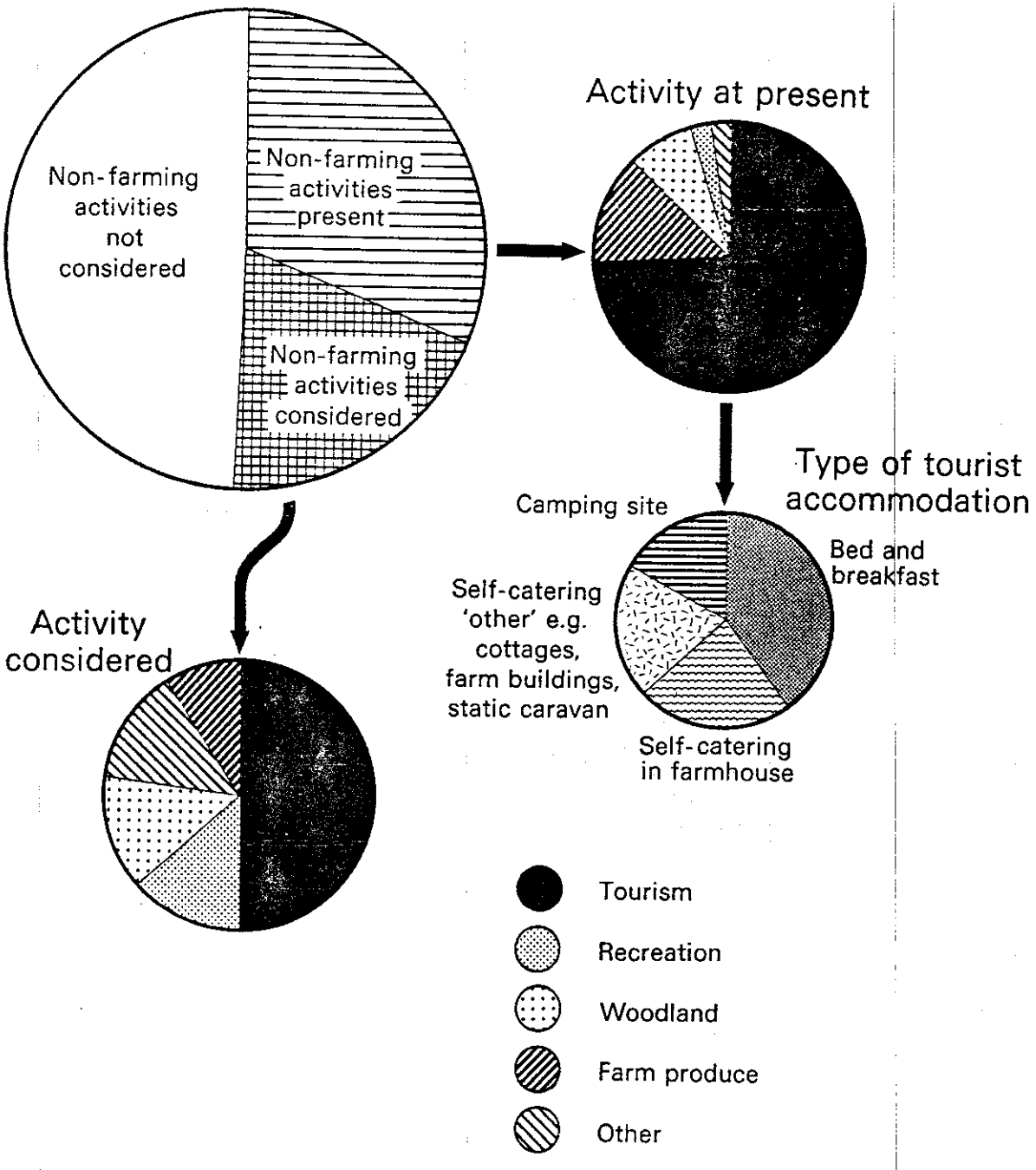
However, many respondents noted the limited range of options open to them, when the size of their farm, and their family situation, notably the role of women in farm tourism, were taken into account. Indeed most of the alternatives were seen to be marginal or peripheral, were perceived as being able to provide only a limited contribution to income, and many enterprises not directly related to farming were often not even included in the search for solutions.

In summary, Halliday concludes that: 'Farmers planning/considering changes in the next 5 years are more likely than average to: a) want to increase quota; b) have a large dairy herd; c) have large borrowings; d) have received training; e) be younger; f) be considering diversification into non-farming activities; and g) have made changes in the short term. They are less likely than average to have to make radical responses to further quota cuts' (p. 78).

In other words the farmers most likely to change their enterprises or to diversify are just the sort of dynamic farmers who have caused surpluses in the first place. It is perhaps unlikely then that they will be happy to concur with proposals to extensify their production by 20% as in Article 1b (a) in Regulation 1760/87.

Furthermore, Halliday has found that 50 per cent of her sample had not considered non-farming activities as shown in Figure 1. Of the remainder, 30 per cent were already engaged in non-farming activities, and 20 per cent were considering such activities. Out of the actual activities diversified into, tourism is by far and away the most common activity, divided fairly equally among all the [illegible]ibilities. These percentages could be seen as fairly low considering that Devon is a tourist county, but it must be pointed out

The Alternative Farm



here that the Torrington area accounts for only around 1 per cent of all tourism in Devon, and even the Honiton area is not in the main tourism area. In terms of potential activity, tourism drops to account for half of all proposals. Woodland and farm produce are clearly not seen as popular activities and this perhaps shows that there remains a great chasm between Ministers who may see woodland as a great panacea and farmers who do not see themselves as 'farmer-foresters' on the alpine or Scandinavian mould.

Even when the possibility of further quota cuts were posed (in fact they materialised in 1987) the majority of respondents still envisaged no change as shown in Figure 2, and alternative enterprises only registered a reasonable response when the scenario of most change being needed was mooted.

In conclusion, Joyce Halliday's work has shown that: 'Quota-induced diversification, in terms of the development of such non-agricultural enterprises as farm-based tourism, recreation, or value added processing is limited' (p. 113). Halliday then argues that the reason for this is a range of constraints on diversification, particularly size, whether this be measured in terms of size of quota, size of dairy herd or acreage, and indeed she argues that size is a key explanatory variable. Indeed, the small farmer emerges as a particular problem area, and one who has no reasonable alternative to farming unless the wider rural economy is stimulated.

ESRC sponsored research into farm diversification

Joyce Halliday's work does not start with diversification as its main focus of course, and so in 1986 it was a major bonus to research work at Exeter, when Andrew Griffiths, a graduate of Reading University, began a 3 year research studentship with ESRC funds, into farmer's possible motives for farm diversification under my supervision.

His research is planned to fall into 2 distinct, but related, sections. The first, is a postal questionnaire of over 600 farmers in 4 areas of Devon. The second is a follow up interview of a smaller number of farmers to explore and probe their economic and psychological motivations.

The first piece of research is under way and so far nearly 400 questionnaires have been returned. A preliminary analysis of the first 245 returns reveals, as shown in Table 4, that 37 per cent of farmers are involved in some form of structural diversification, and some 29 per cent in agricultural diversification. However, this varies spatially, with structural diversification being most popular in the urban fringe, but least popular in

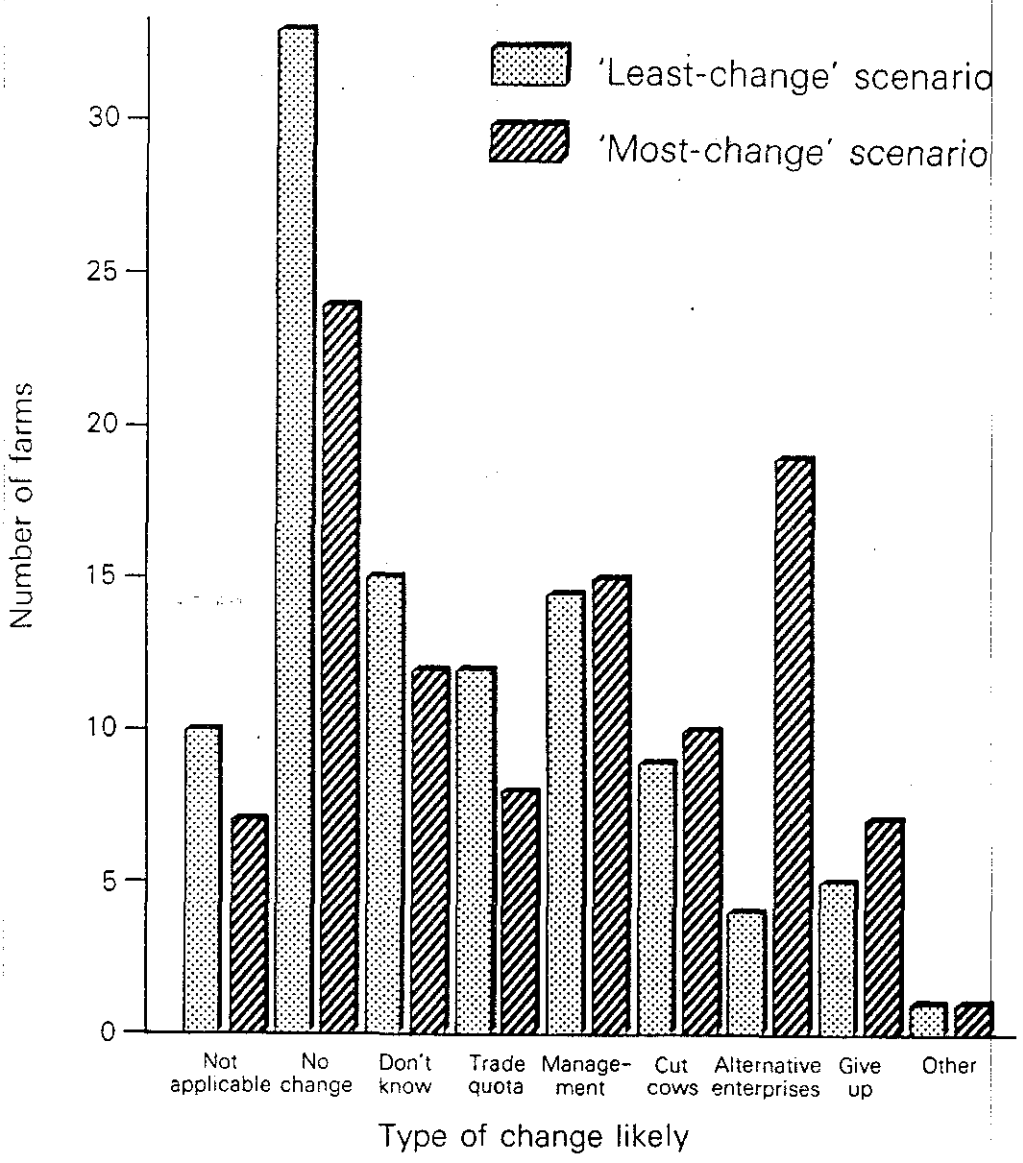

'Least-change' scenario
'Most-change' scenario
Number of farms
0
5
10
15
20
25
30
Not applicable
No change
Don't know
Trade quota
Manage-ment
Cut cows
Alternative enterprises
Give up
Other
Type of change likely

Table 4

Farmers and diversification in 3 areas of Devon

Involvement in diversification	Urban fringe*	Upland fringe*	Heartland*	All areas
Structural diversification+ %				
Involved in structural diversification	54	38	22	37
Only considered structural diversification	31	31	41	35
Never even considered structural diversification	15	31	36	28
Agricultural diversification+ %				
Involved in agricultural diversification	28	23	35	29
Not involved in agricultural diversification	72	77	65	71

* Urban fringe : Torbay
Upland fringe: East-central Dartmoor
Heartland : Between Tiverton and Crediton

\+ Structural diversification: non-agricultural, crops or livestock are not primarily involved, but takes place mainly on the farm

\+ Agricultural diversification: agricultural production, but of a type not experienced before

Source: Andrew Griffiths

the farm heartland of mid-Devon. The situation is nearly reversed though for agricultural diversification.

In terms of the type of diversification, Table 5 shows that bed and breakfast is the most popular, both actual and potential, with outdoor sports a clear third, behind camping and caravanning sites. The potential for diversification is thus enormous for as the foot of Table 5 shows, 63 per cent of farms still have no structural diversification enterprise, and only 13 per cent have 2 or more. But once again as with Joyce Halliday's work, Andrew Griffiths' early work confirms a majority of farmers either totally disinterested in change or only considering it.

It is hoped that his second piece of research will throw more light on the behavioural and psychological reasons why farmers wish to remain farmers. It is also hoped that Andrew Griffiths or another worker can extend the work to Cornwall as there is a possibility of funding from various agencies in Cornwall.

Conclusion

The overriding conclusion from the work at Exeter so far is that farmers remain either indifferent to policy signals or price changes in the hope that they will go away, or that they respond in an unexpected way by actually increasing production in the hope that enough of their colleagues will react in the expected way to leave enough unused quota for them to expand into. In other words, the meek majority, namely: small; less educated; and older farmers cut back production, while those responsible for the surplus in the first place, the young and the larger farmers, merely expand again to fill in the gaps in production thus created.

In another example, what is the point of Regulation 1760/87 asking for a cut in livestock numbers of 20 per cent (Article 1b (a)) when a new hormone like BST can raise yields by 25 per cent. In other words, productive farmers will continue to be productive, and so extensification will probably be self defeating. It would therefore seem to be the case that only draconian changes in CAP policy, either massive and I mean massive price cuts, or severe and I mean severe reductions in quota will reduce surpluses and the cost of the CAP. The resultant damage to farmers will be enormous, but then the steel and coal industries were only brought under financial control by such severe measures. Our present mistake is in thinking that we can manage countryside change in a slow planned way, since until farmers are taken to the precipice and even over

Table 5

Type of diversification practised

Structural diversification %	Involved	Considered
Craft products	1	2
Food products	4	3
Pick your own	6	11
Bed and breakfast	18	26
Caravan/camp site	5	24
Farm visitors	3	11
Indoor sports etc.	-	2
Outdoor sports	9	18
Leasing land/buildings	9	17
Other	2	2

Agricultural diversification %		
Contracting	11	-
Organic farming	3	-
Woodland	15	-
'New' crops/livestock	5	-

	Farms	No.	%
Structural diversification enterprises per farm	155	0	63
	58	1	24
	21	2	9
	11	3+	4

Source: Andrew Griffiths

it as the miners were, they will not seriously respond to the extensification proposals currently under offer. Until this is done, farmers will continue to treat attempts to change their habits in the rather cavalier fashion they have so far adopted.

Reference

HALLIDAY, J. (1987) The effect of milk quotas on milk producing farms: A study of registed milk producers in the Honiton and Torrington Areas of Devon, Devon County Council and University of Exeter, 118 pages and Appendices.

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paper 15

Locational aspects of Council Regulation (EEC) no. 1760/87

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Locational aspects of Council Regulation (EEC) No. 1760/87

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The international literature on agricultural policy tends to be dominated by two spatial scales of analysis: the macro or national aggregate and the micro or farm business (Bowler, 1979). Indeed most of the contributions to this publication follow the general classification. The purpose of this paper, therefore, is to broaden the base of analysis by exploring some of the meso or regional implications of Council Regulation (EEC) No. 1760/87 (hereafter also referred to as 'The Regulation'); attention is directed to locational aspects of agricultural 'conversion' and 'extensification' as regards changes in farm enterprises and land use. This approach is in accordance with both the growing emphasis on the heterogeneity of agriculture in policy making for the European Community's (EC) Common Agricultural Policy (CAP) (Commission of the European Communities, 1987), and the recognition given to the spatially varying impact of most agricultural policy measures (Bowler, 1985; Henry, 1981).

The National Framework

The member states of the EC comprise an initial spatial framework for consideration, while a distinction must also be drawn at the outset between Titles OI and V. Title V of The Regulation concerns the relationship between agriculture and the rural environment in specially designated areas; Title OI, in contrast, is aimed at any agricultural area with a view to converting existing production to non-surplus products (a list of which has yet to be agreed), or reducing by 20 per cent the production of cereals, beef/veal and wine. Member states may well add other products to this second list. From the outset, therefore, there appears to be a separation between the environmental and production objectives of The Regulation. If this is the case, it seems axiomatic that individual national responses to the latter aspect of The

Regulation will be determined by the ratio of the financial compensation to the potential monetary return on production foregone under extensification such as of cereals and beef (lost profits compensation), or on alternative products under conversion. Given its voluntary nature, farmers are unlikely to respond altruistically to The Regulation. Although the Community-wide level of compensation has yet to be announced, inevitably the financial attractiveness will vary from country to country. For example, the relatively high returns enjoyed by cereal producers in the UK will make the compensation less attractive compared with producers in Italy where gross returns per hectare tend to be inferior. In addition, and in common with many other aspects of agricultural policy, the response to Regulation 1760/87 will depend also on how other policy measures are implemented for those products eligible for 'extensification', especially price levels under the CAP and the quantity of production taken into intervention. Only rigorous control over intervention will prevent the production savings of one country being taken up by increased output from another, thereby altering national market shares. Indeed, faced with uncertainty in policy, most farmers are unlikely to change their farming systems in relation to The Regulation. Nevertheless, the effective level of support prices will vary from country to country because of the continued operation of monetary compensatory amounts (MCA)(Ritson and Tangerman,1979). Until they are completely withdrawn, each country will retain the ability to manipulate, within limits, national levels of institutional price support under the CAP. Consequently, the financial incentives for farm conversion and extensification will be varied by national ratios between payments under The Regulation and support prices under the CAP.

National views on Regulation 1760/87 are likely to be conditioned in part by the projected budgetary cost of the CAP, both in aggregate and in terms of the net costs and benefits to the Member State. It will be recalled that Title OI of The Regulation is primarily an attempt by the EC to reduce the output of farm produce surplus to market demand, not for its own sake but in order to limit or reduce the escalating financial cost of the CAP. Thus reducing farm

output of some products by 20 per cent (Article 1b) without reducing the financial demands of agriculture in the Budget of the EC would not meet the overall objective of current policy. Regulation 1760/87, therefore, shifts some of the costs of supporting farm incomes from Community price policy to the national budgets of the Member States. For example, under The Regulation only 25 per cent of national expenditure will be reimbursed from the European Agricultural Guidance and Guarantee Fund (EAGGF) - 50 per cent for expenditure in some less-favoured areas as defined in Title V, Article 26 - the remainder coming from the national purse. Any financial savings from reduced output would accrue to EAGGF. Since Member States already vary considerably in terms of the net costs and benefits of present budgetary arrangements, so the financial consequences of implementing The Regulation will also vary. Ultimately the extent to which national interests on net costs of the CAP are placed ahead of the Community interest in limiting expenditure will shape individual national priorities in promoting The Regulation. This takes the argument into the relative strengths of rural/agricultural political lobbies within Member States, and national views on funding the CAP, both of which are taken up elsewhere in this publication.

Other sources of inter-country variation exist in the likely response to The Regulation. For example, previous experience with 'structural' Directives and Regulations shows that Member States react with varying degrees of enthusiasm (Revell,1985); in part this depends on how much finance comes from the EC Budget rather than the national Budget, and in part how well the national administrative organisation can cope. If past experience is repeated, we can expect governments in countries such as the United Kingdom, France, Belgium and Luxembourg to react relatively speedily and with enthusiasm to The Regulation,whereas the opposite appears likely in Greece, Italy, and West Germany, together with Spain and Portugal. Indeed, the failure of Italy to respond adequately to previous initiatives on the development of agricultural advisory services has resulted in special conditions being attached to that country under Title V, Article 8.

Table 1 shows, for beef and cereals, how the measures for extensification are likely to have a varied relevance within the Member States. On cereals, Ireland, the Netherlands, Belgium and Greece are not likely to be greatly influenced because of the small area of cereals on individual farms and/or the small contribution made to EC or national agricultural production. On the other hand, governments in countries with the highest levels of self-sufficiency (surplus) - France, Denmark and the United Kingdom - may take the view that they hold an economic advantage in the production of cereals and expect adjustment to be made in these other countries. Similar arguments apply to the production of beef where Ireland and Denmark are the main countries in 'surplus', but most EC output comes from West Germany and France. Some interesting, but as yet unresolved and unpredictable, national divergences of interest have yet to be worked out in terms of where adjustment is to take place in resolving the problem of Community surpluses.

Table 1. **Cereals and beef in national agricultural sectors**

Country	Beef and Veal				Cereals			
	Ave. cattle per farm (A)	% EC output (B)	% national agric. output (C)	% self sufficiency (D)	A (ave. ha. per farm)	B	C	D
West Germany	34	28.3	16.8	115	7.2	16.2	9.4	95
France	40	15.2	15.8	117	12.0	34.5	18.9	192
Italy	18	12.2	9.9	64	3.3	10.7	9.2	82
Netherlands	69	14.8	10.6	184	6.8	0.7	1.3	30
Belgium/Lux.	56	6.5	24.3	121	7.3	1.4	5.8	55
United Kingdom	80	9.3	15.0	88	32.0	13.8	18.7	118
Ireland	33	1.2	37.7	614	4.0	1.4	4.9	89
Denmark	57	10.8	10.5	362	15.0	5.0	15.2	117
Greece	8	1.7	3.9	36	1.7	2.7	9.1	105
Portugal	-	-	-	-	-	0.8	-	26
Spain	-	-	6.7	90	-	12.8	13.4	66
(EC 10)	36	100	14.1	108	7.6	100	12.2	116

Source: Commission of the EC 1987 The agricultural situation in the Community. 1986 Report, Brussels.

The Regional Context

A broad concensus now exists on the explanation of how and why the CAP has reached its present critical financial state, although there remains some variation in emphasis. Summarising, technology-driven agricultural modernisation has increased the output per hectare of farm production; over-generous levels of price-support under the CAP have stimulated that output faster and further than warranted by market demand for farm products. The latter process can be interpreted as a function of 'non-market' or political failure, the extensive literature being reviewed elsewhere (Bowler,1987). What has not been fully appreciated until recently, however, is the locationally selective nature of the agricultural modernisation process. Some recent research (Bowler, in press) has examined three dimensions in the process of agricultural modernisation during the 1960s and 1970s (intensification, concentration and specialisation of production) using the administrative regions of the EC as a framework of analysis. Table 2 summarises the sets of variables that were found to be associated with regional variations in the pace of agricultural modernisation. The process of intensification of production, for example, appears to have progressed faster in regions with high levels of expenditure from EAGGF, high proportions of tenant farms, low levels of environmental quality, and large business sizes. On concentration, regions in countries with positive MCA, having low initial levels of intensification but with high expenditure from EAGGF exhibit the greatest rates of increase. Regional variation in the rate of product specialisation, on the other hand, has been a function of the location of food processors, poor environmental quality, large farm (area) sizes and the region being within one of the first six countries to join the EC. The analysis found no support for the urban-industrial hypothesis of regional agricultural development.

Table 2. Regional variations in the process of farm modernisation

Dimension: Intensification of production	Concentration of production	Specialisation of production
Process variables (rank order of importance):		
(1) Expenditure from EAGGF[a]	(1) MCA[b]	(1) Workforce in food processing
(2) Owner occupation[c]	(2) 1968 intensification level[c]	(2) Environmental quality
(3) Environmental quality[c]	(3) Expenditure from EAGGF	(3) Farm area size
(4) Farm business size		(4) Membership of the Six

a: European Agricultural Guidance and Guarantee Fund; b: monetary compensatory amounts; c: inverse relationship

(Source : Bowler, in press)

Policy measures such as Regulation 1760/87 are thus attempting to slow down if not reverse a process that varies in intensity from region to region. Table 2 suggests that some progress could be made by changing the levels of expenditure under EAGGF and MCA through price policy, but regionally varying structural variables, such as farm size and type of occupancy, would be important in mediating the impact of price policy. More significantly, the dynamism of regions with poor environmental quality (hills, uplands, poorly-drained lowlands) suggests that The Regulation need not have its greatest impact in areas of economically marginal agriculture. Such areas have their own momentum in terms of increasing production as attempts are made to close the existing gap in farm incomes between 'rich' and 'poor' agricultural regions. In addition, Member States are authorised not to apply The Regulation in such areas (Article 1a, 3).

On the other hand, experience in the United States with 'set-aside' programmes, of which Regulation 1760/87 appears a variant, indicates that economically marginal land is the first to be affected. Economic theory points to the same conclusion (Hill and Ray, 1987, pp.151-155), while previous retrospective studies on the impact of 'structural' measures suggest that they are most often used to finance farm changes that would have occurred anyway

(Bowler, 1979). But alternatives in the use of marginal land will also determine the regional response to a programme of farm conversion and extensification. Hart (1968,1980) has shown how marginal land has been reallocated to alternative uses in a variety of ways within the United States: in some regions part-time farming based on poultry has been a development; in others, farms have been amalgamated with the land put down to pasture for beef; commercial forestry has been developed in some regions while in others, such as the north-eastern states, land has been abandoned to scrub. Hart's research was based on 'market-induced' rather than 'set-aside' land use changes, but it serves to demonstrate that within the EC a varied regional land-use response to The Regulation is to be expected. However, only a region-by-region analysis of the economic viability of alternative land uses, for example forestry, will enable a detailed estimate to be made of the outcome for the Community.

The role of institutional networks in the regional response

In much analytical work on agricultural policy there is an assumption that policy measures, once enacted, pass directly to individual farmers who then react independently and in a variety of ways; their behaviour in aggregate produces the regionally varied responses alluded to earlier. An increasing recognition is now given to the role of institutions in mediating between policy makers and agricultural producers in terms of how policy measures and their objectives are interpreted, and guidance on what the farmer-response should be (Clark,1982). It cannot be assumed, for example, that all institutions will be supportive of central government action or, in the present case, of action promoted by the European Commission and sanctioned by the Council of Ministers. Consequently, institutions will also play a role in any agricultural response to Regulation 1760/87.

In examining the regional implication of this contention, it is useful to define an institution as an organisation having an internal hierarchical structure of power and responsibility, with stated objectives and possessing

resources enabling it to reach those objectives. Thus defined, institutions can be cultural, social, economic or political in character, although here only the last two categories have relevance. In the field of agriculture, institutions can be categorised as: providers of capital, information and advice; agents for research and experimentation in agriculture; organisers of agricultural prices and marketing; providers of technology to the farm sector; and defenders of the agricultural interest. Thus an institution may be a private company, a nationalised industry, a non-profit organisation, a central or local government department or a quasi-autonomous non-governmental organisation. Each Member State and agricultural region has evolved a distinctive combination of institutions, many of which have been active in promoting and facilitating the process of farm modernisation discussed earlier. However, not all institutions act in support of similar objectives, and those which defend the agricultural interest in a region are often in opposition to those institutions which implement central-government policy by attempting to change farming, for example its size structure. Now institutions do not operate in isolation but form a complex regional web of interaction, sometimes by exchanging information, on other occasions by sharing key personnel who serve on the committees of several institutions simultaneously. Through this process of regional interaction, centrally-defined institutional positions become reinterpreted for producers on an area-by-area basis.

These general points are best illustrated by an example for the wine sector - one of the products directly affected by The Regulation - drawing upon research by Jones (1986) on the Languedoc-Roussillon region of production. Within the region nineteen relevant institutions can be identified, while Figure 1 shows how a subset of the institutions interacted in the context of Regulations 1163/76 and 627/78 (later Regulation 456/80) for the grubbing-up of vines (prime d'arrachage) and the restructuring of vineyards. In this context, the local wine co-operatives, the regional federation of wine co-operatives and the groupement de producteurs all acted as resistances to the implementation of the Regulations in terms of the advice

and support offered to growers, while institutions such as the Société d'Aménagement Foncier et d'Établissement Rural (SAFER) and the Office Nationale Interprofessionnel des Vins de Table (ONIVIT) actively promoted and facilitated the policy measures. The result was a relatively low level of response to the grubbing-up premiums compared with other regions.

The regional networks of institutions, therefore, are likely to interpret Regulation 1760/87 differently; to understand potential regional responses it will be necessary to monitor how different institutional networks react to The Regulation just as much as economic considerations like the agricultural production structures of each Member State. It is almost certain that institutions will take different positions on The Regulation (in the context of the United Kingdom, for example, The Ministry of Agriculture, Fisheries and Food, The National Farmers Union, The Nature Conservancy Council and the Countryside Commission), while any centrally-defined institutional view will be reinterpreted within each regional network in differing ways (for example, in northern as compared with southern England; in Wales compared with Scotland). Since little research has been carried out on regional institutional networks, however, only these general observations can be made.

The case of the English counties

The agricultural response to The Regulation will also vary according to the position of different farm enterprises (such as cereals and beef) within the larger farming system of each region. So as to gain some insight into the likely response in Britain, attention is turned to the English counties for which data can be obtained on changes in the number of different types of farm between 1976 and 1985. Focusing first on beef, both 'mainly beef' and 'beef with sheep' farms have been declining in number since 1976, often as a result of developments in the sheep enterprise. Using the technique of Shift-Share Analysis, counties can be identified which are losing these two types of farm at a rate significantly above the national level (Bowler and Ilbery, forthcoming). They can be interpreted as having a relatively weak

'competitive' ability in beef production. Conversely, 'mainly cereal' farms have been increasing in number over the last decade, mainly in areas previously noted for dairying. Here, a recent high rate of increase in the number of cereal farms has been interpreted as indicating a county with an underlying weakness in 'competitive' ability in cereals compared with long-established regions of production. Table 3 lists the least competitive counties for beef and cereal production signifying those most likely to be involved in a programme of farm conversion and extensification under Regulation 1760/87.

Table 3. **Counties with (A) a low and (B) a high competitive ability by farm type**

Type of Farm:				
A: Beef	**A: Beef with sheep**	**A: Cereals**	**B: Mixed**	**B: Part-time**
Northumberland	Suffolk	Cornwall	Avon	West Sussex
Kent	Cambridgeshire	Devon	Warwickshire	Surrey
Durham	Lincolnshire	Cheshire	East Sussex	East Sussex
Humberside	Bedfordshire	Dorset	Cheshire	Dorset
Shropshire	Humberside	Somerset	Somerset	Hampshire
Hertfordshire	Northamptonshire	East Sussex		Berkshire
		West Yorkshire		Bedfordshire

(Source : Bowler and Ilbery, forthcoming)

But the agricultural response to The Regulation, as previously argued, will also be influenced by the availability of economically viable alternative land uses. Areas retaining a strong element of mixed farms, and those with a significant stratum of part-time farms, may also be viewed as having potential for entering land into a programme of conversion and extensification. Counties with a strong 'competitive component' in these farm types are also listed in Table 3. Taken together, three regional groupings of counties can be seen:

south-west, south-east and east-central England. These three broad regions appear to offer most promise in the curtailment of the production of cereals and beef within England, while similar analyses for Wales, Scotland and Northern Ireland would allow other candidate regions to be identified. Nevertheless, these areas are unlikely to be those prefered for environmental conservation, thereby lending support to a divergence between the policy objectives of surplus control and environmental improvement as identified by several observers, including Buckwell (1986).

Conclusion

The main purpose of this paper has been to draw attention to the regional implications of Regulation 1760/87 since it is a dimension often overlooked. A number of factors have been identified which are likely to make the response to The Regulation very uneven between regions within both the EC and the United Kingdom itself. However, the regional modelling of likely outcomes cannot begin until a number of unknown factors are resolved, for example the effective level of price support offered under the CAP in each Member State on products such as cereals and beef. Other factors needing consideration include the potential of each region for alternative farm enterprises (conversion), the existing momentum of agricultural modernisation in the region, the farm-size and occupancy structure of each region, and the character of the institutional network in the different regions. Given this complexity, together with the quite novel policy of halting rather than promoting the process of agricultural modernisation under the CAP, it is difficult at present to provide anything but the most general outline of the potential regional impact of The Regulation within the EC. Some preliminary, and only indicative, calculations for the English counties show three possible regions where the response to The Regulation might be greatest; these are located in southern rather than northern areas of Britain. Clearly, further analyses at a sub-regional level would reveal localities where farm conversion and extensification might be favoured, for example in the urban fringe of large

cities and conurbations where the potential for non-farm enterprises is greater than elsewhere.

Quite deliberately, very little has been mentioned in this paper about the uses to which 'converted' or 'extensified' land might be put, including the environmental dimensions of Title V of The Regulation. A great deal has already been written about farm diversification and environmental conservation in general, and the United Kingdom government's policy on ALURE (Alternative Land Use and the Rural Economy) in particular (for example, Agra Europe,1986; Murer,1986; Potter,1986). While these issues are taken up by other papers in this publication, much more consideration is needed on the regional rather than aggregate or farm-level nature of the uses to which rural land might be put.

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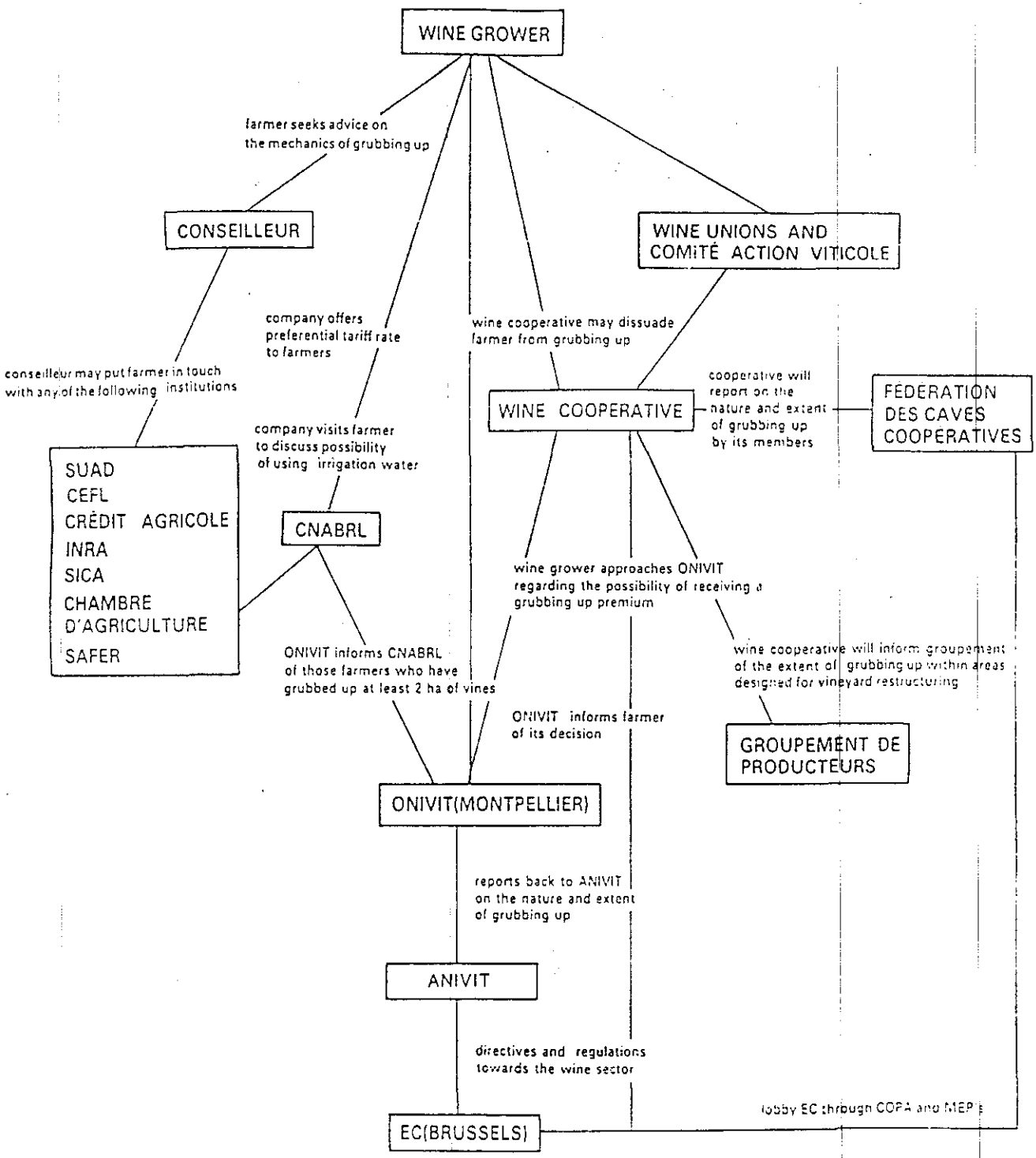

Fig.1 The institutional network for Regulation 1163/76 - vineyard grubbing up premiums.
(Source: Jones, 1986)

paper 16

Alternative perspectives on the
alternative land-use debate

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ALTERNATIVE PERSPECTIVES ON THE ALTERNATIVE LAND USE DEBATE.

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INTRODUCTION.

For two or three years after the enactment of the 1981 Wildlife & Countryside Act, agriculture in the UK seemed to be very much on the defensive. An unlikely coalition of nature conservationists, free-market monetarist economists, and critics, from left and right, of the European food surlpuses combined in a powerful critique of British agriculture's economic and environmental record. Calls for reform became strident. The agricucltural lobby seemed impotent. Its traditional defences - the provision of a secure and cheap food supply and the custodianship of the nation's countryside- rang hollow as evidence mounted concerning the way in which the CAP gave rise to higher food prices than on the world market and on the destructive impact of modern agricultural technology on traditional countryside. But the prospect of an easy passage towards a free-market agriculture with tough environmental safeguards was not to be realised. In a quite remarkable way the agricultural lobby has managed to re-define the field of debate. No longer is it primarily a farming and conservation debate; rather it has been re-cast as an alternative land use debate. British agricultural interests discovered an overwhelming political and ideological attraction in unconventional land uses. This paper attempts to explain this political phenomenon within the context of the economic forces in which such political discourse is grounded.

A LAND SURPLUS?

Forecasting future land requirements is a perilous occupation, and we do

not intend to attempt any kind of detailed statistical prediction of future land use in Britain, except in a very general manner. One lesson from a political science approach is surely that accurate forecasting of social or economic change is an unattainable goal. The variables are too numerous and interdependent, and there are too many that are unpredictable to allow the degree of statistical accuracy necessary in model building. Moreover, if predictive models have a political or societal impact (and this is usually the intention) then they are likely to encourage adaptive behaviour to minimise any predicted 'bads' and maximise any predicted 'goods', thus circumventing the projected 'future'. Social forecasting is thus often intentionally self-defeating. In this sense, it is the modern equivalent of a prophecy or a morality play, imploring people to mend their ways, to choose the correct path, or otherwise face certain doom. For reasons that will become clear, the spectre of millions of acres falling into dereliction is of just such a prophetic hue. The future, at least as far as rural land use is concerned, is not some predetermined state shaped by autonomous forces but is a matter of social choice. Many opportunities and potentialities are being opened up and how these are to be used must be the subject of the widest possible debate concerning not only what is feasible but also what is desirable.

There has long been an interest in future demands on land use in the UK, but the concern - and considerable academic debate - since the 1960s has centred on the extent and consequences of urban uses of agricultural land against a background of concern that urban expansion might lead to a land shortage (see Best, 1981). Early estimates concerning the UK carried out at Wye College (Edwards and Wibberley, 1971) did not go as

far as predicting surplus land but it was suggested that improvements in food production technologies would more than keep pace with the loss of agricultural land to urban uses, and moreover that production could eventually be curtailed on land for environmental purposes. The main flaw of these early studies proved to be exaggerated expectations for UK population and economic growth and conservative estimates regarding the growth in agricultural productivity.

Only since 1985 has land use concern emerged in a new guise attracting the attention of the national press, cabinet discussions, and in February 1987 being the occasion of a row between agriculture and environment ministers over who held responsibility for rural land use policy. A number of studies have been undertaken(North, 1986; Edwards, 1986; Gould et al, 1985), and these are in close agreement that if massive surpluses are to be avoided new uses will have to be found for considerable areas of agricultural land, of the order of several million hectares. Early in its own internal discussions MAFF is known to have opted for a likely figure of between one and two million hectares. It has seemingly gradually increased the figure during the relatively short period during which the topic has become a matter for debate, such that by September 1986 it was recommending a reduction of three million hectares in the UK cereal acreage alone (MAFF, 1986).

If we were following conventional analysis we would now proceed to assess the possibilities for new uses. It is a task we have performed elsewhere (Cox et al 1987; Winter, 1987), but it is essentially misplaced. Instead it is important to mention some provisos. Most importantly it would be entirely erroneous to assume that these

theoretical levels of surplus land will automatically result in land going out of production. Indeed, as Edwards points out, we already have a theoretical 'land surplus' reflected in the commodity surplus and there are no signs yet of a withdrawl of land from production. On the contrary there is every indication that fresh land is coming into production (Countryside Commission, 1986). The reasons for this revolve around the politics of the Common Agricultural Policy and its continued price support. But more significantly even if supports were withdrawn from commodities in surplus so that world market prices prevailed, it is unlikely that two, three, four, or five million hectares would be released from production. Each individual farmer would vary in his reaction. While some marginal land might tumble out of production, especially where bankruptcies forced farmers to cease trading even without a buyer for their land, other land might be farmed less intensively. This would be especially the case for those farmers owning their holdings outright and in a position to buy other land very cheaply.

Support for these arguments can be found in the report from the Centre for Agricultural Strategy on the implications of a number of alternative scenarios for the future of the Common Agricultural Policy (Harvey et al, 1986). Through the use of a computer model incorporating both economic and land classification data the team of researchers investigated the likely outcome of different policy scenarios. The report identifies one million hectares in England and Wales which is already Low Gross Margin land and therefore liable to transfer to other use should such an option be available. Under all the scenarios, except for the continuation of Current trends, there is an increase in the

proportion of Low Gross Margin land. However in the absence of obvious alternative uses for this land the most likely consequence is a general de-intensification. The CAS linear programming model identifies this land as surplus only in the sense that, given existing technologies, its continued use will reduce rather than increase total gross margins. However, the report continues:

> It is not gross margins which provide incomes and savings, but net margins, ie. net of fixed costs. As the industry adjusts to a situation of reduced gross margins, so one would expect that these fixed costs would also be reduced as investment is reduced and labour is released. The level of intensity would also be expected to fall in these circumstances, and while some land might be released to alternative uses this LGM land might be better thought of as the "hectare equivalent of the potential reduction in intensity which could occur over the whole land base. (Harvey, et al, 1986)

The envisaged increase in the Low Gross Margin land is a consequence of the possible policy changes to reduce commodity surpluses. However as the report emphasises the land is likely to be farmed at a lower intensity with a corresponding lowering of intensity across the spectrum. Incidentally, a matter not considered by the CAS study, is that some of the possible new uses for land are only feasible in just such a less intensive and capitalised agriculture. For example an expansion of UK fine wool production would become viable if land prices dropped as under a free market scenario. If the CAS assumptions are correct here is a 'solution' to the alternative land use question, but it is obviously a solution with enormous social and economic consequences for rural areas. For example modelling the employment consequences of the scenarios shows a change in the whole-time farm work force of about -3% under the quotas or prices scenarios and -19% under free trade. In addition farms run primarily by family labour are likely to experience an increase in "disguised unemployment" (see Errington,

1986). The upstream and downstream effects on employment could be of even greater significance.

With these socio-economic consequences in mind it is not hard to understand the eagerness with which the agricultural community has embraced the alternative land use issue. Essentially it is not a debate about finding uses for land that would otherwise be redundant. Rather it concerns the maintenance of farm incomes and landed interests (cf. Cox et al 1986). Key factors have been the continued legitimation of a productionist ideology in agricultural policy and research and the legitimation of agricultural property rights. The degree to which the agricultural and landowning lobby will ultimately succeed in sustaining its definition of the terms of the alternative land uses debate is open to question.

CULTURAL DETERMINANTS AND IDEOLOGICAL BIAS IN THE ALTERNATIVE LAND USE DEBATE.

In the light of the economic evidence provided by the CAS study, and indeed the evidence of previous agricultural depressions when farm adaptation did not involve a massive reduction of the agricultural land area, we know need a clearer understanding of how the agricultural crisis has come to be dominated by land use concerns. What are the cultural determinants and ideological biases in the alternative land use debate?

First, despite the novelty of some of the specific options for

alternative land uses the debate is rooted in a long established agricultural fundamentalism in policy. The primary orientation is towards agriculture and the agricultural sector's land requirements. The land use needs of other sectors of the society and the economy are treated as exogenous and secondary factors, wheeled in at the end of the analysis as possible solutions to agriculture's perceived surplus land problem. Recommended use of land for recreation, as a boost to farm incomes and surplus land problems, is an obvious example. In one respect this reverses a major bias in the way in which the rural land use debate has been construed since the 1930s - namely that other demands for land and space placed pressures upon agriculture's use of rural land and that they must be constrained in the interests of a vigorous farm sector. But the fundamental bias remains for, although other uses are now seen as potential solutions rather than potential threats they are still treated as exogenous factors. Agriculture has a prescriptive claim on the use of rural land. Recreation, conservation, housing must dovetail into the needs of the agricultural industry to find newuses for surplus land. Such thinking was, of course, embodied in the 1947 Town and Country Planning Act which gave farming and forestry a pre-emptive claim over all other rural land uses.

Secondly, another remarkable feature is the manner in which a crisis in rural adjustment and development whose esssential features are socio-economic has, in the British context, been redefined as essentially a problem of land use. Notwithstanding the growth of environmental awareness the farm crisis in Britain is seen as primarily one of over-production and the mounting costs of farm support. These twin elements are given different emphasis by different authorities and

interests. The focus of the UK Treasury, forexample, is on the need to reduce public expenditure on agriculture, whereas farming interests are more preoccupied with the embarrassing question of food surpluses. The solution to these twin concerns is seen to lie in farm diversification linked, if necessary, to production controls and various inducements to encourage farmers to switch land out of surplus commodities. Though this is becoming the accepted wisdom in Britain, the farm crisis is perceived differently in some other EEC countries.

French authorities, for example, are more inclined to see the problem of surpluses as one of under-consumption rather than over-production, and to look not for novel land use alternatives but to the opening up of new markets for traditional commodities both domestically and overseas, even at the risk of provoking international trade wars. The notion of set-aside, widely canvassed in Britain, is particularly unacceptable to French policy makers. Arguably, in the form of rural desertification, it has been a major feature of parts of the French countryside, particularly the Massif Central, for many years. Significantly, though, this process of land abandonment is considered to be one of the most serious countryside problems in France because of its associations with rural depopulation and landscape dereliction. Therefore, set-aside is certainly not regarded as offering a solution to the farm crisis, rather it is a manifestation of the crisis. Contrasts with the French response help us to realise how little regard there is within the alternative land use debate in Britain for questions of social welfare. Wholesale land abandonment is not acceptable in Britain either, but here the argument revolves around the need for positive land management - the ideology espoused by representatives of landed capital. Managed land

abandonment, as in set-aside, with compensatory payments (although not to displaced workers) is perceived by many as an exciting challenge to traditional British land management expertise. The way the debate has been constructed deflects attention from the distributional consequences of various policy options, which even in scholarly research are almost routinely ignored.

There is interesting evidence of this neglect of questions of distribution in relation to milk quotas. The worst fears of the farmers' groups concerning the economic consequences of quotas have proved to be unfounded, although further rounds of cuts in quota might have more drastic effects. For one thing, producers have shown some alacrity in implementing the changes in farm management necessary to cope with quotas. The special cases procedure, established by MAFF in consultation with the farming unions, notwithstanading an element of rough justice, ensured some additional quota allocation for a number of really hard-pressed producers. Moreover the EEC's Outgoers Scheme offered relatively generous compensation. None of these ameliorative arrangements was available either for hired farm workers or for businesses and their employees in the ancillary sectors. To cope with quotas farmers were encouraged to limit their inputs of bought-in feedstuffs and to take a careful look at all their costs, including labour. As a consequence, dairy profitability actually rose in the first year of quotas and has been reasonable ever since, as indicated by the considerable premium attached to land sold with quota. However, farm workers, the manufacturers of compound feed and milking machinery, and workers in the dairy processing industry all suffered. A survey of over 2,000 dairy farms carried out by the MMB showed that the number of

full-time hired farm workers declined by 7% between 1983/84 and 1985/6. There was no change in the number of full-time farmers and family workers, although the survey did not cover dairy producers who had gone out of dairying. To some extent then, the crisis was diverted away from the farmers to other sectors of the rural economy or class groupings in agriculture. Michael Jopling was continually and unsuccessfully pressed by Labour members of the House of Commons Agriculture Committee to provide compensation for workers in these other sectors.

Construing the farm crisis in terms of alternative land uses inclines policy choices towards the redeployment of landed capital. These include capital grants to promote the re-use of redundant farm buildings and alternative uses of agricultural land; and the relaxation of of various planning constraints on changing the use of land and buildings. As we have seen, milk quotas have involved payments to agrarian and landed capital - in the form of outgoer schemes, the value of quota or guaranteed prices - and the displacement of rural labour. Other schemes to limit the growth of output are likely to have a similar impact, including payments to farmers not to destroy Sites of Special Scientific Interest and the landscapes of National Parks, to set-aside cereal land, and to plant farm woodland. It is arguable that such payments to encourage farmers to switch capital from one economically unproductive sphere to another are neither equitable nor rational. They do little to face up to the fundamental cause of structural surpluses, which is not an abundance of land but of capital, and in tying up capital in unproductive activities and displacing employment they make no sense in terms of the major problems facing the national economy. To construe the crisis as a land use one is to miss the centrality of capital deployment

and the support of incomes in the political equation. Studies which project massive land surpluses only do so by assuming the continuation of capital intensive agriculture. But the capitalisation of agriculture in the post-war period dependend on policies of state support based on premises regarding the relative shortage of land and labour that patently no longer prevail.

Environmental policy for agriculture has been drawn into the same net, with nearly all initiatives over the last few years requiring an injection of direct payments which are competitive with agricultural returns - Sites of Special Scientific Interest, Environmentally Sensitive Areas, and the Farm Woodland Scheme currently before parliament. This has been pursued by the farming lobby in two ways, both of which testify to the peculiar role of land in British polity and culture. First, the spectre of large-scale and unmanaged land abandonment has been deployed by some as a warning against an uncared for countryside. Secondly, and more significantly, has been the proprietorial possessiveness of the farming interests regarding an assured income guaranteed by the state. Increasingly farmers' interests in state support have been asserted as property rights. For example, the 1981 Wildlife & Countryside Act introduced a requirement whereby, if farmers were denied agricultural grants on environmental grounds they must be recompensed. As one observer commented at the time, "it gives legal expression to the surprising notion that a farmer has a right to grant aid from the tax-payer: if he is denied it in the wider public interest, he must be compensated for the resulting, entirely hypothetical 'losses' (Robin Grove-White in the Times). The somewhat surprising consequence is that land bearing a conservation designation

may now be regarded as a property value entitling its owner to an income from the conservation authorities. To this extent conservation may be presented as one alternative in the debate on new uses for land. But outside such designated areas other alternatives are sought and the possible (and much cheaper) conservation benefits of allowing a market led reduction in farming intensity are eschewed. The phrenatic search for new crops, new market outlets, and so forth continues.

Other efforts to curb agricultural output, likewise refracted through the interests of agrarian and landed capital, have also involved the creative reassertion of property rights. Thus milk quotas are regarded as a right to future flows of protected income. Quotas are traded, as a property right, separately from the holding to which they were originally allocated and are often of greater value than the land with which they are associated Such measures, therefore, continue tounderpin the over-capitalisation of agriculture.

We would argue that the ideology of property rights is legitimated through the equation of the agricultural with the rural. Thus agriculture is the main beneficiary of pervasive anti-urban sentiments which idealise rural society, and the vitality and welfare of rural regions is seen to be far more tightly bound up with the fortunes of agriculture than an objective economic anlaysis of rural regions would suggest. Successively in the post-war period, the development of a national welfare state, counterurbanisation, and industrial restructuring have introduced into rural regions people and jobs that are not related to agriculture or other primary activities. At the same time, employment in agriculture has fallen sharply and an ever

increasing proportion of the value added within the food chain has been captured by non-agrarian andoften non-rurally based capitals (including finance capital, agro-industrial capital, and food processing and retailing capital). In consequence, agriculture has made an ever decreasing contribution, in terms of income and employment, to rural economies.

Nevertheless, conceptions of the rural are still dominated by agriculture. One consequence is that other social and economic activities are eclipsed in public thinking. Non-agricultural interests are also delegitimated. Significantly, many discussions, including academic studies, of rural land use refer to all non-agricultural and forestry uses as urban uses. Such perceptions underpin the political hegemony of agricultural and landed interests in rural regions. They also undepin state support for agriculture, which exceeds that of any other industry. Agriculture is the only industry with its own Ministry and it remains one of the main conduits ofpublic funds to rural regions even though much of this quickly flows out of rural areas to the non-agricultural capitals in the food chain.

Much of the debate over the response to the farm crisis has been cast in terms of the need to protect agriculture in order to protect rural economies. This has involved some topsyturvy logic. For example, the case for farm diversification has been argued in terms of the need to strengthen rural economies when the evidence suggests that the opportunities for farm diversification depend on the buoyancy of the (extra agricultural) regional economy. Certainly, it is unlikely that an industry which at the height of its post-war prosperity was shedding

labour at 3-4% p.a. can offer any significant prospects to those concerned with an expansion of rural employment opportunities when its fortunes are reversed. Likewise, most attention on the social and economic problems of rural areas is focussed on the hardships of farmers, and the plight of the rural poor is eclipsed. And, as we have seen, official responses to the farm crisis, such as milk quotas, have offered safeguards to farmers while exacerbating rural deprivation.

CONCLUSIONS.

In conclusion given the inevitable socio-economic costs associated with structural change in agricuculture it is not hard to understand the eagerness with which the agricultural policy community has both seized upon and stimulated the alternative land use debate. The overwhelming emphasis of the debate is upon maintaining land in production. It is frequently maintained that in matters of agricultural land-use there is a major choice to be confronted. Either farmers and landowners will be obliged to adjust to the market, with fairly dramatic social and local economic consequences or policy measures must be devised to support farmers in ways that do not lead to surpluses. The alternative land uses advocates offer a scenario which seemingly covers both options. Special policy measures - grants for diversification, R&D programmes for new crops, the development of new markets, etc - are needed, but only in order to allow for adjustment to the market - the prophesied new markets for new crops and products. But there is every likelihood that such adjustment policies will lead to the assertion of new property rights, as the market fails to respond, necessitating a new cycle of support and

dependency. Meanwhile environmental conservation finds itself relegated to the periphery of debate except where it too can be transformed into a right to income. The danger is that conservationists become content with gains on the periphery. By default conservationists seem to be allowing the agricultural lobby to reassert its authority in determining the policy agenda. Traditionally conservationists in Britain have been conservative, concentrating on visual amenity and the designation or protection of particular habitats rather than on overall environmental impacts such as agricultural pollution. The assertion of public environmental rights in the form of land reform, public control, and so forth is as foreign to most conservationists as the notion that agricultural policy should be directed away from support for landed capital to stimulating rural employment and aiding the rural poor, whether on farms or not. Re-defining the political agenda in these ways is far from being an immediate prospect.

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paper 17

The extensification scheme:
money well spent?

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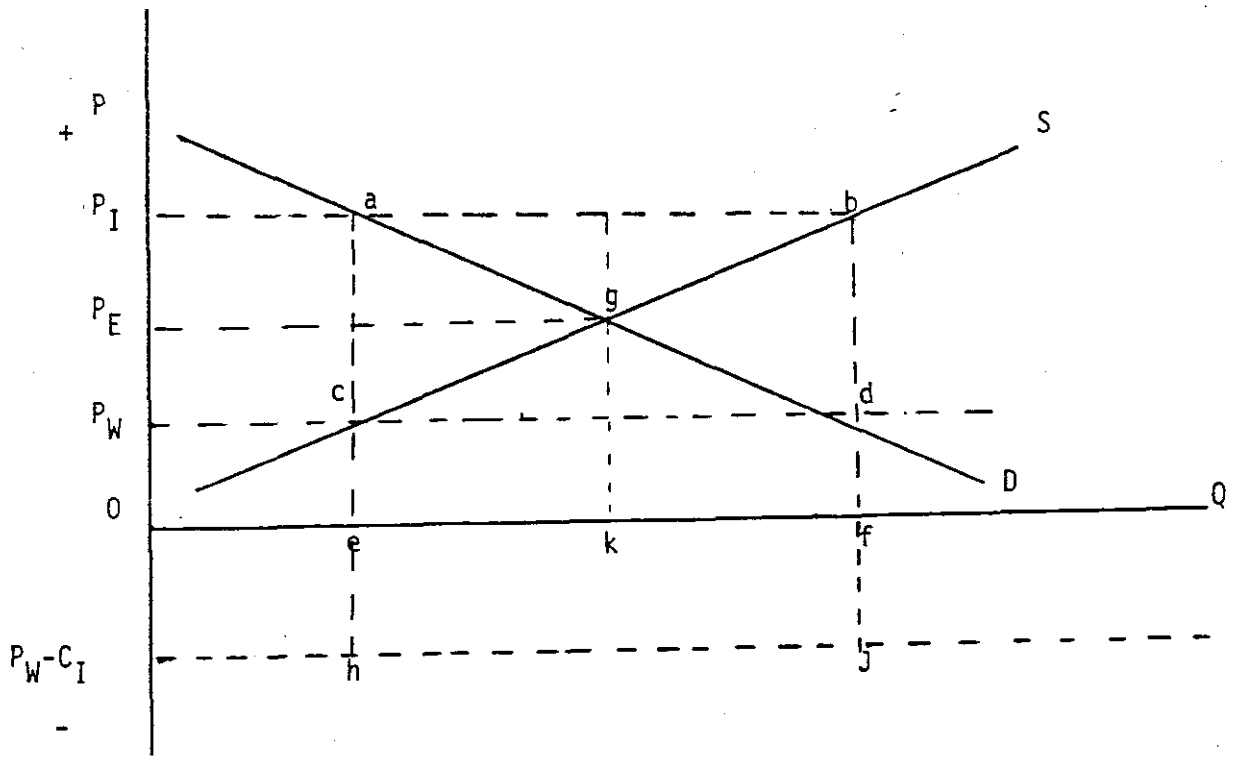
THE EXTENSIFICATION SCHEME: MONEY WELL SPENT?

The above is the question I have been asked to address myself to. It is useful to start with a simple diagram.



Consider the internal (EC) market for an agricultural commodity. S and D are domestic supply and demand schedules respectively. The Intervention authority by a range of measures including intervention buying maintains the domestic price at P_I. Intervention stocks may be disposed on the world market at P_W. Imports are blockaded by the levying of a premium 'α' such that $P_W + \alpha > P_I$.

In the initial situation the Authority purchases a quantity ab and, if for the present we ignore administration and storage costs, then net of sales expenditure on intervention is abcd. The Authority decides to impose a quota to make domestic supply equal to demand at P_I but commits itself to maintaining farm incomes at the pre-quota level. Consumer and producer welfare are thus unaffected. The farm income constraint means that total

Authority expenditure rises by the value of interventions sales cdfe. The taxpayer is thus worse off. A quota will only increase welfare in two circumstances:

(i) Intervention costs (administration plus storage per unit quantity) exceed the residual disposal price P_W. This situation is shown in the diagram. $P_W - C_I$ (<0) is the net proceeds from intervention buying and disposal. Pre-quota the authority's expenditure is abjh; post-quota thus falls by $(P_W - C_I)$ hj.

(ii) Expenditure post-quota yields external benefits (environmental gains) which exceed the net cost of meeting the income constraint. Whether $P_W - C_I \lesseqgtr 0$ the value of environmental benefits achieved must be $> (P_W - C_I)$ ef. Thus if $P_W - C_I < 0$ the scheme may be worthwhile even if the environmental effects are negative.

Consider now the consequences of an alternative policy of lowering the price to P_E so as to clear the domestic market. The farm income constraint is still in operation.

Domestic consumption rises by ek and the consumers experience a suplus P_EP_Iag. The income constraint requires Authority expenditure of P_IbfkgP_E. Foregone Authority revenue is as before $(P_W - C_I)$ ef and the net change is the difference between these two magnitudes.

For the present ignore the environmental effects of the alternative stratagems. Since farm income is the same under both the quota and the price strategies and $(P_W - C_I)$ef is common, the difference in welfare effects is the net sum of the difference in Authority expenditure on income support and the differences in consumer surpluses. Thus (price strategy minus quota strategy) it is:

$$(P_I-P_E)\ oe - P_E\ ek - (P_I-P_E)\ oe - 1/2\ (P_I-P_E)\ ek$$

Authority saving Consumer surplus

$$= - [P_E\ ek + 1/2\ (P_I-P_E)\ ek]$$

(n.b. this assumes the demand curve is linear).

Thus in welfare terms the price strategy dominates the quota strategy. This is a familiar result and versions of it can be found in many text-books. If the authority is indifferent to the consumers' surplus, concentrating upon the effects on its own budget then only the first two terms above are relevant and the preferred outcome from its viewpoint is determined by the price elasticities of demand and supply and nothing may be said a priori. Results are standard and in general Authority expenditure will fall provided that $|e_d| > |e_s|$ where 'e_d', 'e_s' are the elasticities of demand and supply.

But a final judgement on the alternative strategies depends additionally on their environmental consequences. Maintaining our level of generality we could consider three factors that determine the environmental outcome. Putting these as hypotheses we have:

(i) environmental quality is a negative function of output;

(ii) environmental quality is a function (positive or negative) of income compensatory expenditure;

(iii) environmental quality is a negative function of intensity of production.

Council Regulation 1760/87 contains a number of provisions for other environmentally relevant expenditure - e.g. changes to investment grants under article 16 (4), to headage payments under 16 (b), for farm forestry and of course amendments to Title V on aids in environmentally sensitive areas. There is no presumption, however, that EC revenues are strictly hypothecated so that we cannot assume that if, say, our alternative price strategy yielded budgetary savings on income compensatory payments those savings would have been used to increase the rates of payment or extend the scope of other environmentally relevant schemes under the Regulation. Budgetary savings are thus simply assumed to be put to some beneficial use which may include reductions in taxation.

Hypothesis (i) is valid with regard to chemical pollution. Reduced output of arable crops means reductions in quantities of nitrates and of pesticides released to the

environment. Reduced output of livestock means reduced volumes of animal wastes to the environment. The other facet of output reduction concerns the alternative use of any land released from production. Here the quota scheme places limits on the options – the land must be either fallowed, forested or put to some non-agricultural use. The price reduction alternative places no such restrictions and the presumption would be that it would largely go to other agricultural enterprises, that were not in surplus. Essentially this means sheep production on the livestock side (assuming that mustelids, yaks and the other alternatives considered in the CAS study of alternative agricultural enterprises are insignificant) and non quota controlled non-cereal crops on the arable. Field vegetables, legumes, oilseed rape and other oil crops would seem the main alternatives. As a first approximation we may treat the shifts to alternative agricultural crops as environmentally neutral. There is, I think, a concensus that no environmental benefits follow from fallowing. The environmental impact of farm forestry depends on the exact nature of the forestry and thus on conditions imposed under the scheme. Farm forestry and the ESA schemes, where applicable, are available under either the quota alternative or the price option and again as a first approximation given income compensation there would seem no reason why their attractiveness should vary between the two schemes. However, given that alternative cropping is an option under a price cut we might expect a greater take-up of ESA and Farmforestry schemes under the quota approach. On balance then the judgement is that hypothesis (i) leads to a preference for the quota option because it yields greater reduction in chemical and farm waste run-off and because if the schemes are designed to benefit the environment, the likely take-up of farm forestry should be greater.

The environmental consequences under hypothesis (ii) depend on the uses to which the compensating income is put. It could be used in part to increase the earning power of enterprises on the farm – i.e. to increase the intensity of production of within quota and non-quota enterprises (or of those subject and not subject to support price cuts), to on-farm consumption (e.g. by increasing sporting provision), or production (forestry, recreational provision) or it may be either consumed or invested altogether outside the

agricultural sector. Intensification is discussed below under hypothesis (iii). For the rest perhaps the only point that can be made is that under the quota option, the compensatory income is received when land is taken out of production so that the apparent incentive to invest in alternative uses is greater. Whether this is a pro or con depends on your judgement.

Turning to hypothesis (iii) I think there is little doubt as to its truth and here the balance of advantage is plainly in favour of price cuts. On the normal arguments about quota 'slippage' one might expect the response of increases in intensity of production of both within quota and non-quota crops. Falling prices on the other hand reduce gross margins hence marginal value products of chemical and capital inputs. Hence they reduce the return on investment to increase intensity and on traditional arguments should cause retreat at both the intensive and extensive margins. There is a view which holds that the short-term impact is perverse leading to increased intensity of exploitation. Those who hold that view do not draw the conclusion that intensity is reduced by raising price so that argument rests on a supply function that is disjunct. I know of no evidence in its favour and am not inclined to give it much credence. In any case, given falling returns from investment, the medium to longer term effect must be towards reduced exploitation of the land mediated through falling rents and reduced rates of return on capital.

A qualification must be made to this conclusion. What was said above about the quota option is true for cereals. For beef and veal, however, the requirement of 1760/87 is for a reduction in livestock units. This could be met by a reduction in L.U.'s/ha with no loss of area: i.e. reduced intensity is an option under the Regulation. The balance of probability (although the balance is crucially dependent on the nature of the production function) is that a greater reduction in intensity would be achieved by the price cut.

The answer to the question I have been asked is thus unclear. The alternative of price cuts with income compensation has the advantage of benefitting the consumer

through lower prices of surplus products and yields additional environmental benefits through reductions in intensity of production of surplus cereals. It will also lead to reduced intensity for beef and veal production. Quotas on the other hand require a larger reduction in output with consequently less pollution. Pollution of course will fall with reduced intensity although the trade-off is less than one for one. They may also lead to a greater take-up of environmentally beneficial non-agricultural uses and some but probably not so great a reduction in intensity for beef and veal. One final point concerns the issue of income compensation. Its nature is clear, although states have discretion on the detail under 1760/87. With the alternative of price cuts compensation is by no means so straightforward and certainly the option exists of tying it to environmentally beneficial practices e.g. by generalising the ESA provisions: providing deficiency payments related to production techniques. My package giving value for money would be along those lines: price cuts coupled with schemes for extra payments for environmentally sound farming for the generality of farmers. Special schemes for ESA's and LFA's would be on top of this, but a sound environment should be a responsibility of all holders of the land.

As a postscript I have confined myself to the extensification proposals strictly and have avoided comment on other matters in the regulation. I have views on them and some worries about their impact particularly in the UK. I have recently written on the problems with respect to the Pennine Dales and can supply copies of the paper on request.

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paper 18

Extensification:
opportunity or diversion?

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EXTENSIFICATION: OPPORTUNITY OR DIVERSION?

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1. This very brief paper is an attempt to sketch some of the history of the current extensification proposals and put them in the context of the CAP structures policy. It ends with some more speculative comments on future developments.

2. The original extensification proposals in COM(86)199 were to apply only to younger farmers and, optionally, within LFAs. They formed part of a larger package of adjustment measures which included a pre-pension scheme, aids to younger farmers, extensive changes to the LFA support system, FEOGA aid for ESAs, afforestation incentives and other measures concerning training, capital grants, etc. Younger farmers were to be given incentives to improve product quality or to diversify away from surplus products or to proceed to a "significantly extensified system of farming" (Article 1(2)). Extensification thus was only one item in a small arsenal of structural measures which the Commission was offering in an attempt to sweeten the pill of price restraint.

3. In the event the proposed socio-structural measures were not unveiled until April 1986 and then became contentious in their own right and so contributed rather little to the price fixing negotiations in 1986. In the protracted negotiations which followed sharp differences of view emerged over the value of the different proposals. The pre-pension scheme, potentially the most costly item in the package, had to be dropped altogether, although the Commission subsequently has reintroduced it in a revised form.

4. In the package which was agreed (Regulation 1760/87), extensification emerged as a more prominent item in a reduced collection of measures, apparently one of the few approaches to find favour with agricultural ministers. However, the earlier scheme had been recast almost totally. In the new version an extensification scheme is to be compulsory in all Member States except Portugal, farmers of all ages will be eligible and no longer are LFAs to be positively selected for a scheme. In fact, there are provisions for excluding such areas at the request of the Member State concerned and with the consent of the Commission. The precise means of achieving extensification proved difficult to agree and have been left vague, mostly to be determined by Member States within certain restrictions contained in the Regulation.

5. The limitations of the extensification scheme are readily apparent. It is on a small scale, is initially confined

to a three year period, covers a limited range of products and is unlikely to make a great impact on the output of surplus commodities. Coupled to a "conversion" scheme which is not yet operational and other modest changes introduced by Regulation 1760/87, it falls a long way short of the bold and ambitious initiative which many believe to be essential if the structures policy is to play a significant role in the reform of the CAP.

6. It is too early to judge how the scheme will be implemented by the eleven Member States but there are indications that the interest of some northern European countries is not echoed throughout the Community. This is not surprising. Only a quarter of the cost of the scheme can be reclaimed from FEOGA and the difficulties of implementation are likely to be considerable in countries where very small farms predominate. Furthermore there are several countries which are anxious to maintain or enlarge their share of Community production rather than encourage a fall in output.

7. Nonetheless, the scheme is a potentially important development in agricultural policy and should not be dismissed out of hand. "Extensification" is a distinctly novel concept for the CAP structures policy, albeit one which will need further refinement and development. Even if it is interpreted as simply a voluntary set-aside policy it is a significant experiment with ideas which proved wholly unacceptable when advanced by Mansholt nearly two decades ago.

8. It is not only the set-aside proposals which are novel; the Regulation also introduces the idea of using contracts with individual farmers to curtail production, reversing the previous thrust of "development plans" and similar structural measures. It is an attempt to reward production systems which meet contemporary social and budgetary requirements, including those which provide significant environmental benefits. The Regulation is not wholly explicit about the environment, but a recent Commission newsletter, "Green Europe" 219, contained an unamibguous, if simplistic, account of the prospects:

"It is obvious that production cuts can be obtained only by a reduction in the quantities of fertilizer and pesticide used and by a lower livestock density. The threats from over-farming will therefore be reduced. Provided it allows of a minimum of maintenance of the countryside, the incentive to 'extensify' farming will promote the quality of the environment."

9. Timorous though it may be, the extensification scheme thus can be presented as a step towards a more appropriate form of structures policy. It is a first attempt to regulate surplus production and intensive agriculture. It is concerned with structural adjustments

in the more productive areas, unlike so many structures policies which still aim at increasing investment and productivity in less favoured areas in the hope that they will somehow become more competitive with the lowlands. Looking ahead, it opens up the prospect of further policies more concerned with the distribution of production than the enlargement of farm incomes.

10. How then should we assess the extensification proposal as an item of EC policy? Is it a valuable prototype, the forebear of larger and commercially more significant models? Or is it the under-nourished survivor of an ill-fated brood, destined for further afflictions and an early demise?

11. At first sight the prospects for a new structures policy of this kind are not very encouraging. The Regulation does not provide very clear guidance on designing practical schemes and not many Member States seem to have well advanced plans for implementation in 1988. The role of structures policies in general is rather uncertain at present, since funds remain tightly constrained and a major reorganisation is planned. The Commission's latest proposals for the reform of the EC structural Funds as a whole envisage a greater concentration of effort and expenditure on the poorest regions of the Community, notably in southern Europe. This suggests that the availability of FEOGA Guidance Section funds for the more affluent farming regions may be reduced.

12. More imminently, the likelihood of a full-scale EC set-aside scheme for cereals seems to have increased in the last few months. In recent discussions it appears that France has joined Germany in advocating a compulsory set-aside scheme for cereals, a marked change of position. If a set-aside scheme is introduced as part of the current package of reforms associated with the Commission's stabiliser proposals, there are likely to be important implications for the cereals' component of the extensification scheme. Indeed, the whole scheme may have to be suspended. It would be difficult to introduce compulsory and voluntary schemes in parallel without very careful preparation.

13. If the reform of the main CAP commodity regimes now proceeds at anything like the pace intended by the Commission, or HMG, key decisions about supply controls for cereals are likely to be made long before the extensification experiment has run its course. Consequently, we cannot look to the scheme either for a significant cut in output or for a model for set-aside. Events have overtaken the scheme as first proposed.

14. In these circumstances, extensification is of marginal relevance to the immediate targets of supply control. It is, however, much more useful as an experimental measure for structural adjustment. It allows Member States to

employ voluntary contracts for new purposes. As such it could be used as a tool for exploring some very pertinent policy questions. For example:

- Can we define low-input systems in practical ways which are administratively workable?
- Can we regulate predominantly biological systems by reference to hard and fast production targets (eg - 20 per cent)?
- Which low input systems provide environmental benefits?
- Are these compatible with specific production targets?
- How do we achieve environmental benefits without complex incentive systems?
- How can we target voluntary schemes of this kind?
- Which farmers will be attracted to such schemes?
- How can we control slippage, intensification of other enterprises and similar problems?
- How do we design production control schemes in the lowlands so as to support policy goals for the uplands?
- What is a workable whole farm plan in British (or French or...) conditions?

15. Seen in this light, extensification does offer real opportunities, not least in the UK, which has prided itself in promoting the agriculture/environment issue in Europe. It is quite clear that the British public has a keen interest in countryside management and this is an opportunity to utilise EC funds in some timely experimental schemes. Furthermore, the initiative comes at precisely the time that the need to try out low input farming systems over vulnerable groundwater catchments is being recognised more clearly. On another front, it offers the opportunity to provide some help to farmers considering switching to organic methods. If extensification is treated simply as a narrowly conceived exercise in supply control it will be a lost opportunity not only for environmental policy but for agricultural policy as well.

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paper 19

The extensification scheme and structural policy: the lessons of previous experience

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WORKSHOP ON EEC FARM EXTENSIFICATION PROPOSALS

The Extensification Scheme and Structural Policy: the Lessons of Previous Experience

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Introduction

The Common Agricultural Policy has reached a major turning point in its development. It has been beset by problems of persistent surpluses of products such as cereals, milk, beef and wine, the storage and depreciation of which has proved exceedingly costly, and the disposal of which has created considerable acrimony in international markets. A budgetary crisis in 1988 is imminent. The sustained growth in the costs of agricultural support together with increased demands on the Community's resources by new members Spain and Portugal will push expenditure above the permitted VAT ceiling for securing own resources. Hence budgetary and international pressures for policy reform, the latter being expressed in the current Uruguay Round of GATT talks, have been the principal stimuli for change.

The Commission has recognised that the changed composition of the Community will necessitate a re-orientation of policies. With its now more evident Mediterranean element which benefits less from commodity support measures directed largely towards temperate crop and livestock products, policies will require to be more closely aligned to meet the specific rural and agricultural conditions in such countries. Furthermore, there has also been a growing consumer/conservation interest in formulating policy objectives. This lobby has questioned both the relevance and success in supporting farm incomes of the commodity-oriented regimes on which the bulk of agricultural spending is based, together with the detrimental consequences modern agricultural practices are perceived to have on the amenity and quality of the environment.

The Commission has sought to moderate production and expenditure growth through an ever-increasing array of measures:- prudent pricing policies, co-responsibility levies, guarantee thresholds, tighter controls on intervention, milk quotas, and now the concept of budget stabilisers. The present Extensification Regulation No 1760/87, whilst ostensibly part of the structural policy package, is nevertheless also designed to cut production ("the adjustment of agriculture to the new market situation"), whilst satisfying environmental objectives ("the preservation of the countryside"). It is therefore, something of a hybrid between price and structures policy. However, in order to appreciate how it differs in approach from structures policies hitherto, it would be helpful to outline briefly the objectives and development of structures policies in the EEC.

The Evolution of EEC Agricultural Structures Policy

Structures policy, like price policy, aims to increase farm incomes. It attempts to do so by assisting the agricultural sector to adjust to changing economic circumstances. In its narrowest sense, it is designed to encourage the outflow of labour from agriculture and to increase farm size, thereby raising the share of industry income amongst those remaining. Policies have also been implemented to raise incomes through affecting both factor/resource endowment of holdings, the resource mix eg through capital- labour substitution, and through enhancing the productivity of resources. The two former has tended to result from various capital grant schemes, and the latter through land improvement. Investment in human capital through training or incentives for entry for younger farmers has also been encouraged. Finally, measures to improve the efficiency of marketing and market organisation have also been developed.

Until recently, the EEC approach to structural problems showed few signs of any coherent strategy. To some extent, the great diversity of factors such as the organisation of production, farming systems, size and numbers of holdings made this inevitable [Revell 1985]. It was originally envisaged that structural policy funded from the Guidance Section of the European Agricultural Guarantee and Guidance Fund (EAGGF) should account for one-third of total spending on agriculture. In fact, in 1985 its share was lower than in 1980, constituting only 2 percent of total EEC expenditure, compared with 4% in 1980, and with a guarantee expenditure share of 71% in 1985 (Figure 1).

The EEC structural programme dates back to 1964, with Regulation 17/64 on the improvement of agricultural production and marketing. The Commission's own assessment of this scheme was that assistance tended to go to better farming areas. This was superseded in 1977 by Regulation 355/77 on the improvement in marketing and processing, extended subsequently as Regulation 1932/84. Projects here must form part of a regional or national investment programme. In the UK, they have included for example, slaughterhouse improvement, grain storage, and pigmeat processing facilities.

Present policies stem from a series of Directives in 1972. Directive 72/159 aimed at farm modernisation through development plans, and also permitted national aids for farms which could not meet qualifying criteria for EEC approved plans. Directive 72/160 encouraged the cessation of farming and reallocation of land, whilst Directive 72/161 provided for socio-economic guidance and training in occupational skills in agriculture. During a period of economic growth, the non-farm economies could absorb outflows of agricultural labour. But by the mid 1970's, recession following the oil shocks, rising inflation and interest rates made it difficult for farms, particularly in disadvantaged regions, to meet "comparable income" targets set out in development plans.

By 1975, it was acknowledged that a regional dimension to policy was needed. Directive 75/268 on Mountain and Hill Farming in Certain Less Favoured Areas set out to compensate for physical and locational disadvantage. It represented a shift in emphasis away from enhancing incomes through improving resource productivity, and towards direct compensation through Livestock Compensatory

Allowances. There were also relaxations in eligibility criteria (relating to share of income and labour from farming) for farm development plans, assistance for the development of tourist and craft industries (a precursor of the present Diversification Scheme), and enhanced grant rates.

Since 1978, the Community has focused increasingly on packages for specific regions, most notably the Mediterranean Programme of 1978/79, A series of Integrated Development Programmes, such as those for the Lozere region in France and the W Isles, aimed at improving and diversifying the local economy, infrastructure and agriculture were also launched in 1981. More limited Agricultural Development Programmes for W Ireland and N Ireland were introduced in 1982 [Commission of the European Communities 1986].

The Impact of EEC Structures Policy

It is difficult to assess the specific impact of structural policy measures on agriculture, because they form only a small part of the total set of economic forces acting on farm businesses. Of greater importance are the influences of commodity price support policies, inflation rates, technological change and fiscal policies, together with socio-demographic factors such as age of farmer and location of holding.

By the end of 1984, some 217,500 development plans had been approved, but as economic circumstances tightened, the rate of applications virtually halved between 1979 and 1984. The Commission estimated that Directive 72/160 on Cessation of Farming had very little impact on land mobility for structural reform purposes [Commission of the European Communities 1987]. Indeed, often the criteria for success has been measured as rate of uptake of schemes, or disbursement of budgeted expenditure, as opposed to impact on enterprise profitability, or enhancement of economic benefits. Studies on the incidence of uptake and distribution of expenditure by region /type of farm in both Great Britain [Revell 1985] and the Irish Republic [Cox 1985] illustrate that larger holdings receive proportionately more on-farm benefits from investment grants and headage premiums. This is by virtue of the larger capital base from which such businesses can contribute to investment, and the larger herd/flock sizes on such holdings.

When looking at aggregate trends Table 1 shows that there has been a continued contraction in numbers of holdings in the EEC10, and in the agricultural area with the exception of arable land. Whilst livestock numbers have risen in general, there are fewer holdings with livestock. Table 2 illustrates the concentration and of production onto larger holdings, and into bigger enterprises. Since production has also been rising, we can assume that intensity of production has increased.

It is also interesting to note that in general, the EEC10 is adjusting more rapidly than the UK, which by virtue of having undergone substantial structural adjustment in the 1960's and 1970's, now has less scope for rationalisation than in Continental EEC.

Clearly, structural adjustment has taken place. As Figures, 2 and 3 illustrate, whilst aggregate EEC real farm income as measured by net value added has been on a falling trend, the out-migration of labour has enabled income per head to be maintained. No doubt some of this can be attributed to the incentives of structural policy encouraging capital for labour substitution through capital grants, but it is equally likely to be due to the impact of fiscal considerations and changes in the relative prices of capital to labour.

Structural Policy Since 1985

In 1985, a complex new structures policy was drafted against a background of changing economic and political circumstances, and in particular those issues raised in the Introduction. Regulation 797/85 aimed to promote technical progress through increased productivity; to promote development of processing and marketing; to contribute to the maintenance of agricultural activity in areas where alternatives are lacking, and in the interests of environmental conservation; and to contribute to the improvement of regional economic conditions.

Some of the key features of the policy are outlined briefly. Again, investment aids though an EEC Improvement Schemes and National Grant Schemes have been the main features implemented to date. Special aids for Young Farmers to facilitate entry into farming were introduced. Provision was made at UK prompting for the designation of Environmentally Sensitive Areas under national schemes. There were enhanced investment ceilings for diversification into tourism and crafts in LFA's, enhancement of HLCAs and provision was made for specific regional aid measures, of which the Skye ADP is an example. An EEC farm woodland scheme was also included, But, the UK has been a non-adopter of this scheme, preferring instead its own Farm Woodlands Scheme.

In 1986, the Commission felt it necessary to modify 797/85 to help producers adjust to new conditions created by price and market policy, particularly those in marginal areas. To this effect it proposed a Pre-Pension Scheme to encourage farmers to leave farming, with either transfer or withdrawal of land from production; further aids to young farmers including incentives for less intensive production; and the extension of compensatory allowances to afforested land, and enhanced rates of Compensatory Allowance where production is re-oriented in line with market demand. Systems of direct aids to agricultural incomes have also been proposed.

Many parts of these proposals have passed through several versions of draft regulations yet still remain unresolved in the Council of Ministers. However, they do echo some features of the "Extensification Proposal" 1760/87. What is clear, is that since 797/85, the deteriorating budgetary position of the EEC, and the shift in emphasis towards environmentally sensitive and market-oriented production, have produced ramifications for structural policies. [redacted] are now in a highly piecemeal state with many loose ends.

Extensification

The extensification approach represents a complete reversal of the raison d'etre of former structural policies, which aimed to raise productivity, reduce unit costs or raise output. It can draw few lessons from the past. Structural policies have until now attempted to encourage resource mobility as a more general response to the problem of income, and to compensate where socio-economic considerations are over-riding. The extensification approach is a response to a problem of overproduction, not of structural deficiencies in resource productivity or endowments. Whilst it may be conceived as having environmentally desirable ramifications, this is not at all clearly the case.

There still remain many apparent conflicts of policy objectives. Regulation 1760/87 which aims to reduce production (for cereals and beef in the UK context) will run parallel to Improvement Schemes which may still increase productivity and output of cereals and beef, though presumably not on the same holdings.

The extensification/set aside scheme may prove very discriminatory in its impact both locationally and by type of holding. Much will depend on the precise details for implementing the regulation in the UK. If we adopt a restrictive interpretation of alternatives or "non-surplus" products, as those which require no EEC support, then essentially only fallow, trees or non-agricultural uses (including horses) remain. In Scotland, it has been estimated under assumptions of a flat rate of payment of £200-220/ha with the option of fallowing, that lower yielding areas of feed barley and oat production would be most likely to be affected. Indeed, Scotland as a whole, which has a proportionately greater area of barley in its cereals area could bear a disproportionately higher share of total UK set-aside [Crabtree and Entwistle 1987]. To the extent that the more marginal cereal producing areas are likely to find suckler cow or sheep production the most suitable alternatives, (if indeed they already do not have such enterprises in conjunction with some cereals) then the scheme would appear to bear heavily on less favoured and almost less favoured areas.

It is unlikely that the alternative use of set-aside land as woodland, would attract both set-aside and Farm Woodland grants. A recent study [Crabtree 1987] has indicated that small scale farm-forestry is relatively unattractive at proposed grant rates under the Farm Woodland Scheme, unless there are benefits over and above those accruing from the value of the woodland itself, such as an enhancement of amenity/sporting values.

At a time when EEC beef production is beginning to decline, and when a more favourable period of potential expansion of sucker cows is imminent, it is difficult to reconcile the Extensification Regulation with market reality. Indeed, if there is concern about the expansion of grazing pressure through sheep, then it does not make much sense to further reduce stocking rates of cattle on the hills. Indeed, it might be more sensible to restrict the application of the Regulation to dairy-bred beef cattle, since this is the dominant source of any surplus problem in beef.

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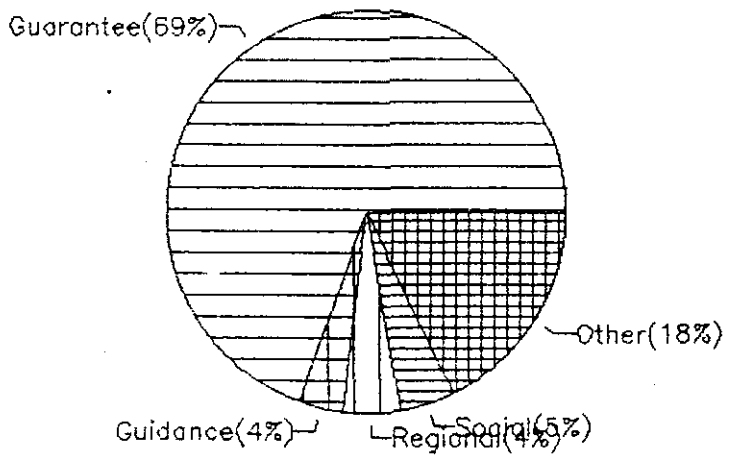
Figure 1 EXPENDITURE

1980



1985

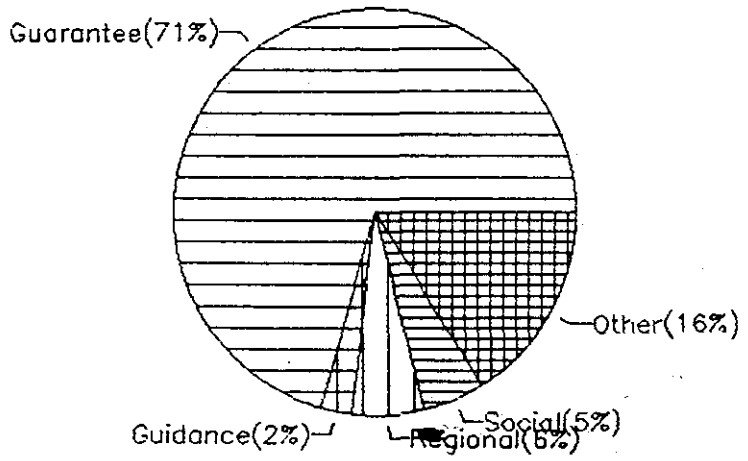


Fig 2 AGRICULTURAL INCOMES IN THE EEC

Ave 1979/81 = 100

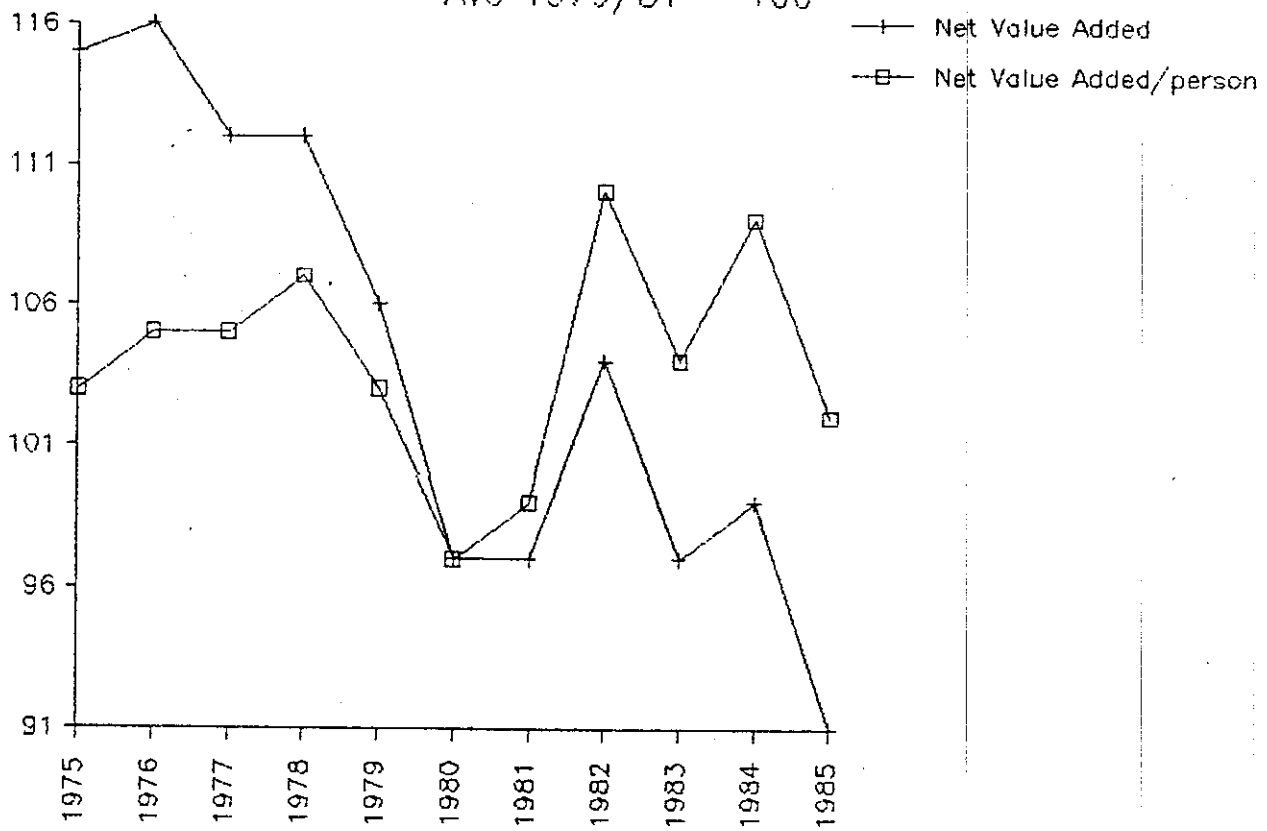


Fig 3 EEC FARM LABOUR FORCE

Ave 1979/81 = 100

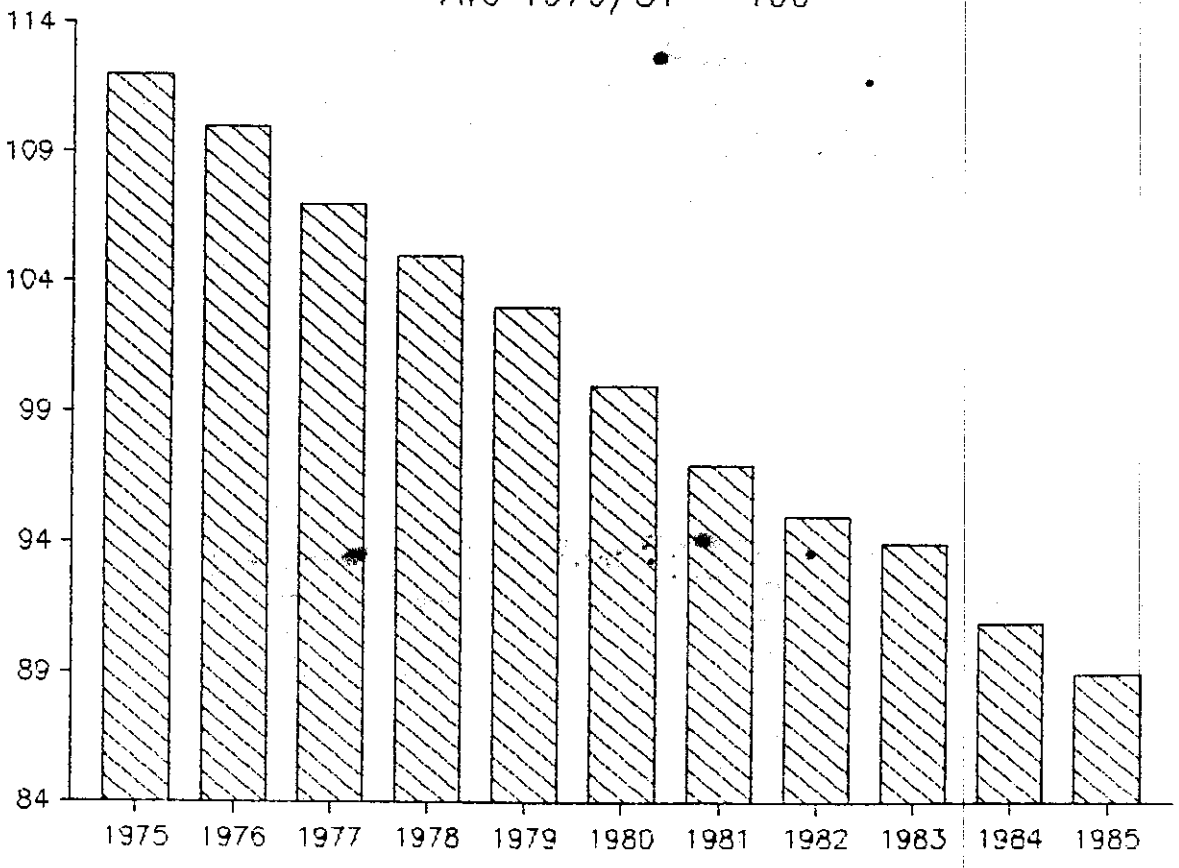


Table 1

EC SURVEY ON THE STRUCTURE OF AGRICULTURAL HOLDINGS

	79/80	1985	% change
	'000 units		
No. Holdings			
EUR10	6820	6359	-6.8
UK	269	259	-3.8
Total Agric Area ha			
EUR10	89553	88281	-1.4
UK	17098	16830	-1.6
Total labour Force (AWU)			
EUR10	7324	6833	-6.7
UK	583	543	-6.8
No. full Time Employed			
EUR10	3502	3149	-10.1
UK	178	164	-7.5
No. Holdings with Arable			
EUR10	5015	4449	-11.3
UK	178	164	-7.5
No. Hold. with Perm. Grass			
EUR9	2956	2697	-8.8
UK	232	217	-6.4
Area of Arable Land ha			
EUR10	46661	46777	.2
UK	6665	6999	5.0
Area of Perm. Grass ha			
EUR9	42485	35114	-17.3
UK	10212	9779	-4.2
No. Holdings with Bovines			
EUR10	2530	2133	-15.7
UK	184	161	-12.5
No Holdings with Sheep			
EUR10	794	721	-9.1
UK	84	88	4.0
No Holdings with Pigs			
EUR10	1654	1292	-21.9
UK	36	23	-35.6
No. Bovine Animals			
EUR10	78994	79028	.0
UK	13539	12792	-5.5
No. of Sheep			
EUR10	63292	67902	7.3
UK	29858	35461	18.8
No. of Pigs			
EUR10	76059	79982	5.2
UK	7839	7828	-.1

Source: Eurostat Rapid Reports "Agriculture: structures 1987 1", SOEC Luxembourg 1.10.1987

Table 2

"INTENSIFICATION" IN EEC ARICULTURAL PRODUCTION

	79/80	1985	% change
Ave. Size of Holding ha			
EUR10	13	14	5.7
UK	64	65	2.3
Ave. Area of Arable ha			
EUR10	9	11	13.0
UK	38	43	13.6
Ave No. Bovines			
EUR10	31	37	18.7
UK	74	79	7.9
Ave No. Sheep			
EUR10	80	94	18.0
UK	354	404	14.2
Ave. No. Pigs			
EUR10	46	62	34.6
UK	217	336	55.1

Source: Eurostat Rapid Reports "Agriculture: structures 1987 1" SOEC Luxembourg 1.10.1987