THE CENTRE FOR EUROPEAN AGRICULTURAL STUDIES ASSOCIATION

RURAL RESPONSE TO THE RESOURCE CRISIS IN EUROPE

SEMINAR PAPERS

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WYE COLLEGE
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RURAL RESPONSE TO THE RESOURCE CRISIS IN EUROPE

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FOREWORD

The Centre for European Agricultural Studies Association is a group of people who are interested in supporting and promoting the Centre, and also in sharing and contributing to its studies of European agriculture, allied industries and rural affairs.

The Association held its own seminar at Wye in April 1981, to consider a subject which embraced the whole spectrum of the Centre's activities - the use and inter-relationship of the main resources connected with the land in Europe, and their future role not only in maintaining or recreating a prosperous agriculture, thriving rural communities and attractive countryside, but also in helping to overcome the shortage and imbalance of other important resources shared with industrial and urban neighbours.

It is a huge field. Inevitably, any such discussion is over-shadowed by the all-pervasive Common Agricultural Policy (CAP), but we were determined that, for once, this did not become the dominant theme. On this occasion, we were more concerned to study the effects which that policy and other forces are having beneath the surface and beyond the present; and, in this regard, many of us are apprehensive about what we see.

In general, we see a European agriculture still kept relatively healthy by price support and tariff protection; but costs are continuing to out-run prices, as the effects of inflation and EEC budget considerations assume more prominence. In such a situation, the bigger and more intensive enterprises tend to get richer, while the rest get comparatively poorer. Some producers try to avoid these consequences by adopting part-time status, by converting cheaper imported feedstuffs into animal products, or by simply increasing production in some other way. Whatever the case may be, several major agricultural commodities remain in embarrassing surplus, the family farm and rural population continue to decline in numbers and political influence (along with many ancillary industries and services), and some large areas of the rural landscape are changing unacceptably.

While we smart from repeated lashes for our failure to overcome unemployment, energy shortage and overseas famine, it is pertinent to ask whether European agriculture and countryside hold potential solutions to some of these problems, as well as their own. Can we, should we, make the CAP more equable, employ more people in the countryside, use more of our surpluses for food aid, and grow more fuel crops? Can we achieve all these things together, and thus perhaps ensure that at least the rural areas can flourish in such a balanced way that millions of others will benefit? What is, what should be, the general response of those most concerned with farming and the countryside to such questions?

Already, agriculture in Europe has reacted to the high cost and shortage of two of its main resources - land and labour - by the greater use of two others which have, until recently, been relatively

cheaper - capital and energy. These, together with State benevolence, have enabled the industry to make the fullest use of science and mechanisation to increase production substantially on less and less land. But has this process gone too far? Are there now perhaps more important considerations than efficiency?

This is the point at which we would like to have invited the late Dr. E.F. Schumacher to make a contribution to our discussion. He would undoubtedly have reiterated that "moral criteria should be paramount in the consideration of economic objectives". He often used the subject of fuel energy to illustrate the simple thesis that economic growth, having no apparent limit, is certain to collide with a finite environment; and he led on from that to his famous belief that small-scale operations, however numerous, are much less likely to be harmful, because the recuperative forces of nature can survive them.

In our case, we asked what effects are these, predominantly economic, currents having on rural and natural life today? What are they doing to the appearance of the countryside? What are they doing to our traditional ideals of crop and soil husbandry? How are they influenced by the leisure aspirations of a growing urban population? Are we now requiring in the EEC a Mark II Mansholt Plan? Much depends on the answer to the question: what does the Community require of modern agriculture, socially and economically? As that answer changes gradually from generation to generation, can we continue to convince politicians and the non-rural population that the maintenance of a prosperous countryside, managed by people who have to make their living in it and from it, is in the best long-term interest of all mankind?

In our seminar, we tried to stand back from the trees, so that we might see the wood more clearly. We wanted to distinguish the main problems, and then to sift out the most practical responses to them. Readers of these papers will judge for themselves how successful we may have been; but there was little doubt among those who took part that the issues were much clearer at the end than at the beginning. We now hope that, with the publication of the papers, an even wider public will be helped to make a more positive and intelligent contribution to any debate on the future role of agriculture and the countryside in Europe.

We also hope that even more people will be encouraged to join the CEAS Association, so that they can become better acquainted with the work of the Centre, and so that they can take part in our future meetings and discussions (see last page).

John Hosking,
Chairman.

August 1981.

THE RESOURCE CRISIS IN EUROPE

by Sir Kenneth Blaxter, FRS,

Rowett Research Institute, Bucksburn, Aberdeen.

While this Symposium is concerned with ways in which European agriculture and its associated rural structures might or could deal with a series of problems related to resources, I will give most emphasis to such problems as they relate to the United Kingdom. The reasons are, that I am more familiar with them and, that in some ways the United Kingdom is confronting some problems in a more acute form than are other countries. Even so, we should not assume that simply because the UK led Europe, in terms of the industrialisation of its agriculture and in the urbanisation of its people, that it is still in the van and setting a pattern which other countries will follow. Admittedly, we have a low percentage of 2.7 of our labour force in farming compared with 8 per cent in the EEC as a whole, but Belgium has only 3.3 per cent. The contribution that farming makes to the gross domestic product is also lowest in the UK at 2.8 per cent but Germany runs us close with 3.2 per cent. With respect to certain other indices we are certainly no longer in the lead. Thirty years ago, some 80 per cent of the UK's population was urbanised, the highest proportion in Europe. This percentage has dropped as our city centres have decayed and now Germany, Austria and particularly Belgium, are countries far more urbanised than the UK. We are among the leaders with respect to the proportion of the working population concerned with service industries, and the proportion which is salaried or wage-earning, as distinct from being self-employed, but we are no longer trail blazers in many aspects of social and economic change, or indeed in terms of many criteria of agricultural efficiency. Nevertheless, from the changes that have occurred in the United Kingdom one can infer certain patterns of change in other countries and one can anticipate that in Europe as a whole, there will be a movement towards a greater uniformity of structures; conversely, those problems we can foresee are not peculiar to us alone.

It is desirable at the outset to consider what we encompass by the term 'agriculture'. Agriculture is usually defined as that industry which produces primary foodstuffs and some of the fibres required for clothing. In Europe, the proportion of income spent on food and clothing varies from country to country but not to a very great extent. With the exception of Italy and Ireland, all European countries come within the range 30-35 per cent but this range is considerably above the proportion of income spent on food and clothing in the United States, which is less than 25 per cent. What the consumer spends on food and clothing, however, includes expenditures which relate to the processing and distribution of these primary products. Consider food alone. It has been the lesson of the last 50 years that the balance between the three sectors of the food provision industry (farming, processing and distribution of food) changes - the primary production sector

diminishes and the secondary sectors augment. In terms of labour, as farm labour has declined so labour in the UK food industries has increased, not just relatively but also in absolute terms. Since no European country has achieved that low proportion of income spent on food and clothing recorded in the USA, we might expect that the trend towards further change in the balance of these three sectors will continue. Engel's law will undoubtedly continue to apply and the relative remuneration of the primary producer will inevitably fall. Equally, as remuneration and numbers in farming decline so does its political influence.

The definition of agriculture solely as a component of the economic activity of meeting needs for food and clothing is not, however, a sufficient one for our purpose. Agriculture is the most obvious industry in Europe since it uses the most land but most urban people regard farmed land not only as an analogue of their own work places but also as an amenity, either in terms of its visual impact or as a recreational area. Increasingly, and because of the strength of the urban lobby, constraints are being placed on agricultural development which have economic effects but the infra-structure of rural areas depends on farming's economic health and on the population it supports. Thus, in dealing with agriculture, we should not confine discussion solely to its technical or economic dimensions and the diminishing role of primary production in the whole system of food provision but should consider also, its impact on rural life. The classic division of resources by economists is into three; land, labour and capital. The relationships between these are certainly complex, even for economists. I shall attempt to follow this division.

The first fundamental resource is land. It is fundamental since it has the dimension of power, for every hectare represents an annual influx of energy as solar radiation. The whole purpose of farming is to capture part of this power using green plants and where desirable enrich the captured product using animals in secondary conversion processes. This entails judicious use of power from other sources - manpower and also the power usually termed 'support energy', exemplified by machines and resources other than labour which are brought to the farm. Indeed land, labour and capital all have the dimension of power, and extending the concept, the quality of land might be regarded in part as indicative of the additional resources required to realise the potential of the solar radiation receipt. In the UK mean annual incoming radiation does not vary by more than ± 10 per cent from a mean of 9 Mj/m^2 per day over the whole latitude range from 51 to 58°N. Land quality as reflected in its price is thus not a measure of the energy receipt itself but of other factors, soil attributes, topography and aspects of climate which limit its use. Limitations of land due to water supply and fertility of soil can, however, be removed in part by drainage or irrigation and by the use of additional resources such as lime, fertiliser and organic matter. Limitations due to other components of climate, to altitude and aspect, are not included in such argument.

The amount of land for farming in Europe is diminishing due to pressures from forestry and urban and industrial sources. In the UK, estimates from the last 10 years suggest an annual removal of

about 50,000 hectares. This is based on simple accounting but losses may in fact be greater, and similar trends may equally have occurred in other European countries. The depopulation of major urban centres, previously mentioned, has created a considerably greater urban-rural fringe and isolated and fragmented farm land in new, semi-urban areas. Such land is clearly not highly productive agriculturally. Much of it, although classified as farm land, is used for leisure activities and even in Aberdeenshire, land around the city of Aberdeen is increasingly moving from farm use to pony grazings. Such attrition on land is likely to continue.

The fact that land represents a continuous source of power no doubt could be a basic reason for its value as a long-term investment. The value of land dominates the financial accounting of farming in any balance sheet and the return of it, as judged by rentals, is small. The present financial problems of many farmers relate to the fact that while they can use land as collateral in borrowing, the servicing of the loan comes from current income. The high price of land in terms of its investment value probably operates as a real constraint on the entry of new and younger men into farming. How we should best use the resource of land, how we should resolve problems related to the demand for the use of land for non-agricultural purposes, and how it should be optimally packaged in terms of farm size should demand our attention.

Given a defined area, obviously the mean size of farm reflects the number of farmers. The United Kingdom diverges from the rest of Europe in this respect with an average farm size of about 66 hectares; in most other European countries mean farm size is about a third of this. Additionally, and understandably, there is a reasonable correlation between farm size and the proportion of the total farm labour force made up of the farmer and his family. Regression analysis for all European countries indicates that for a mean farm size of 10 hectares, 94 per cent of the labour will be family labour while for the 70 hectare holding it is 62 per cent. Additionally, there is a negative correlation between farm size and the total labour force. In the UK the increase in farm size over the years has been associated with a decline in total rural population density, particularly in those areas in which there is no easy access to non-agricultural employment. Glen Buchat in the Don Valley of East Aberdeenshire is a good example. The 1931 census showed that the population was 222 and there were 20 tenant farmers. At present there are 9 tenant farmers and the 1971 census showed a population of only 100. It has since declined further. Since the war the school, the post office, the local shop and the petrol supply station have all closed, and the number of people employed by the two major estates relating to sporting activities has diminished. Incomers have been those seeking second houses and they contribute little to the life of the Glen. In less isolated areas within commuting distance of industrial or commercial centres, an incoming commuting population has in many instances preserved the infra-structure of schools and other services. No doubt as farm size and reduction of the farm labour force occurs in Europe the same infra-structure problems will emerge. They may be delayed, however, if patterns of part-time farming as seen in West Germany provide a pattern of social resistance; this pattern,

is probably not economically efficient. The total German farm labour force is about 6.5 per cent of all workers; it contributes only 3.2 per cent to the GNP. This contrasts with the UK where the labour force is 2.7 per cent of the total and contributes 2.8 per cent to the GNP. Clearly the resource of land and that of labour are inter-related through farm structure and this, in turn, affects rural infra-structure. These aspects too we should consider with respect to policy for the future.

Turning now to capital, I use the term largely to encompass "support energy", that is the value of the goods and services necessary to operate farms expressed as energy, rather than as finance. This approach is criticised by many economists who adhere slavishly to the theory of value. All that I can say is that on a macro-scale, considering the whole of the food provision system, energy accounting gives results which agree with financial accounting and that while decision making at the farm level is certainly in terms of cost and price, in any wider context and for projection purposes, energy accounting is the more useful.

Throughout Europe there has been a simple substitution of machine power for man and horse-power in the last 50 years. The marginal returns on this have been considerable, for land devoted to feeding horses has become available for food production and this is also true of Belgium where horsemeat is consumed. The advent of large amounts of power has also ensured timely farm operations; windows in the weather can be exploited in a way not possible with men and horses. Additionally, machines have added a dimension to the output from those men who remain. The statistics from the past show that reduction in labour paralleled the reduction in horse numbers and the increase in the number or nominal horsepower of tractors. In our own country this phase is over; in other European countries, Poland being the best example, it is only in an initial period.

The purchase of new machines, maintenance of machines and purchase of fuel and power for machines accounts for the largest proportion of the input of support energy into farming. The remainder, apart from minor items, consists of fertilisers and agro-chemicals, the use of which has been boosted by scientific develop-ments in crop and animal nutrition and in weed, pest and disease control. The UK was once in the van in the use of fertilisers; this is no longer so, for the Netherlands now use more than the UK. Again, the increase in production from a given unit area of land has been considerable as a result of these 'energy inputs', in terms of crop yield and animal carrying capacity.

The determinants of these changes have been economic. The cost of these new inputs was incredibly low since the price of support energy was also incredibly low. The industrialisation and mechanisa-tion of farming engendered by this economic opportunity can be said to have led to changes in economic thinking by the farming community, or rather to an appreciation by them that farming could respond to approaches similar to those adopted in other industries. Increasing returns by increasing scale, development of monocultures, increasing work efficiency by re-organisation of the factory floor - that is

removing hedges - centralisation of the facilities for supply of requisites and of essential services, and the erosion of local services for the industry have been undertaken, aided and abetted by a succession of governments unable or unwilling to appreciate the implications.

The situation, however, has now changed, some support energy is no longer cheap, and despite the UK's own reserves of oil, present government policy is to encourage economy in its use, through pricing policies. Additionally, the price obtained for farm produce now has neither the stability nor the value relative to cost that it had in the past. This does not encourage a search for alternative forms of farm production. The need for price stability as a spur for enhanced and efficient farm production was, of course, recognised by the architects of the 1947 Agriculture Act in the UK and that principle has not changed. It seems that the reaction to low and variable prices and increasing input costs will be either to reduce input or to hope that, on average, good and bad years will cancel out and that the underlying problem will, given time, simply go away. Even so, some halt has occurred in the rate of fall of manpower since the first of what will inevitably be a series of energy crises engineered by the OPEC countries, suggesting that the trend to further industrialisation of agriculture in the UK has been reduced. Fiscal policies and tax avoidance devices, however, still seem to encourage heavy investment in machinery and point in an opposite direction. If, as seems likely, energy prices and transport costs increase, it is possible that the trend towards commuter repopulation of rural areas will reverse, with consequent further decline in the services available in the more remote areas. How far this will exacerbate the problems of communication and understanding between urban and rural communities is difficult to foresee. Within Europe there is certainly a movement which is almost entirely urban-based, and which deprecates the changes which have taken place in farming and in the whole food provision system. In the UK alone I have identified 18 organisations concerned about present intensive animal husbandry methods and the press and other media have given much attention to their views. Engledow and Amery in their book "*Britain's Future in Farming*" touched on this basic problem when they wrote, "*A highly urbanised economy with a romantic view of its countryside has yet to come to terms with the unpicturesque aspects of an intensive and efficient agriculture*". An increase in urban commuters in rural areas rather than those in extended urban fringes might well have aided the process of understanding. The repercussions of changes in the price of petrol may thus become evident in quite unsuspected areas. Whether or not they occur, the fundamental difficulty of partial alientation of town and country folk remains as a consequence of the change wrought by the adoption of new energy sources by the farming industry.

One might wonder how, with such a complex, intercalated series of problems as those confronting farming and the rural areas, it is possible to reach conclusions about ways ahead. We are faced with resource problems - how best to use our land; what incentives there are in so doing; how balance is to be maintained between rural and urban communities; how erosion of rural infra-structure is to be halted or how patterns of rural living might be changed; and how we

should adapt to a situation in which the new-found power base, which has doubled agricultural output, is being eroded and changed. All these problems, social and economic, come back eventually to the structure of farming and what the community requires of it. What we have seen in the past has been the failure of Adam Smith-type economics. His 'invisible hand' has not worked to the common weal, while the interventions by governments to remedy matters have been of such a pragmatic nature that they have exacerbated rather than solved some of the underlying difficulties, through failure to consider the wider implications of political actions.

What perhaps is needed is a new appraisal of all the interrelations within the power structure of land, labour and capital, a structure that has not only a physical interpretation but a social one as well. Such an appraisal might well be attempted within the conceptual framework derived from a micro-economic theory, but the calculus involved and the criteria adopted in attempting optimalisation may well predicate new concepts about value that have rarely been considered in such exercises. It is unlikely that we will either build such a model or arrive in other ways at any general solutions in the next two days, but I would hope that we can perhaps better define the problems and identify what needs to be done to resolve them.

ECONOMIC PROBLEMS

by Mr. John Nix, BSc(Econ.), MA,

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I intend in this paper to try to take a fairly clinical, objective view, since I feel that is what is expected of me, although my own views and prejudices are bound to emerge from time to time. It will be for the discussion and later speakers to weigh up the relative arguments and viewpoints and pass judgment, possibly to arrive at a synthesis of opinion. Although for all to agree on solutions at the end is doubtless too much to expect.

With regard to my title, "Economic Problems", I have been asked to consider these both from the individual farmer's viewpoint and from the national (UK)/EEC viewpoint. Since most of my work is as a farm management economist, perhaps I may be forgiven if I appear to overstress the former - particularly as the farm level appears to be receiving less attention from later speakers than the broader level and wider issues, which is no doubt as it should be, given the title of this seminar.

Although my title relates to "problems", the organisers have agreed that I might also refer to the available options, or solutions - since many of the problems for both the farmer and government relate to how to solve the problems described!

Inevitably, my talk will refer largely to the UK, but most of the problems and options I describe relate also to the other EEC countries; they tend to differ only in degree.

Problems for the farmer

The considerable decrease in farmers' real incomes in recent years has been well documented. In the UK, the average reduction was 24 per cent in the last year for which full figures are available (i.e. 1979/80, the 1979 harvest, as compared with 1978/9). It is estimated that they fell by 50 per cent in the four years after 1976. In 1980, in the UK, farm product prices rose by 6 per cent while farm input prices rose by 14 per cent. Good cereal yields in England should have helped cereal growers, despite rather poor prices. However, the results to date from Wye for 1980-81 (i.e. the 1980 harvest) are well below those even of the previous year; but these represent only a quarter or our sample, (those with a Michaelmas or December 31st year end), and thus may be misleading; another University is reporting an improvement in money incomes.

The story is similar in other EEC countries; this found expression in demonstrations in Brussels recently.

However, one has to remember that 1973-76 was an especially profitable period for a high proportion of farmers. A big upsurge in cereal prices after 1973 and very high potato prices in 1975 and 1976 particularly helped arable farmers on good land.

Trying to calculate the return on capital in farming is beset with difficulties, and, of course, conditions vary enormously from area to area, especially as regards soil type. Buf if machinery valuations and depreciation are based on current costs instead of historic costs, the return on farming capital (including an average rental value on owner-occupied land and omitting the value of the land in the capital calculation) is probably averaging less than 7 per cent, compared with the long-term average since the end of World War II of around 15 per cent. If salaried management has to be paid, the average is probably below 5 per cent, on a farming capital (covering livestock, machinery and working capital) of just over £1,000 per hectare. Hence the difficulties in which some of the farming companies are finding themselves. Of course, these are only averages; good farmers on good land will be doing substantially better than this, but then others will obviously be doing far worse.

Well-established owner-occupiers with no management charge and no, or a very low, mortgage, who have accumulated their farming capital over many years and have low borrowings, should still be making adequate profits, given a reasonable area of land of fair quality. With interest rates at recent levels, however, the average management and investment income only equals the interest on less than half the farming capital.

Bank borrowings for agriculture have increased five-fold in the UK since 1971. The increase has been especially high in the past three years and increased by about a third in the last year alone. This increase has been far less dramatic if considered in real terms, until the last few years. Nevertheless, it has been estimated that farmers' interest charges as a percentage of gross output doubled (to 5.4 per cent) between 1975 and 1979, and it must have risen substantially since, despite recent reductions in interest rates.

Denmark's experience has been particularly serious, with over-investment especially by the younger, expanding, optimistic farmers. In 1978-9, Danish agriculture invested 45 per cent of its gross income, compared with 20 per cent before accession to the EEC, and 10 per cent by industry during the 1970s. With increasing interest rates, interest payments in the agricultural sector doubled in three years to half the gross income in 1979-80. The story is similar, if less extreme, in the other EEC countries.

In Denmark, 600 agricultural concerns were wound up in 1980 and 200 in the first two months of 1981. It is surprising that there have not been more farming bankruptcies in the UK. Clearly, the banks are supporting ailing farms, hoping for an improvement soon. It is well-known that most UK farms still have a high percentage equity, especially owner-occupiers.

Another factor worsening tenant farmers' incomes has been the marked increase in rents (between about 16.5 and 18.5 per cent per annum) at a time when incomes have been falling. This has been particularly serious on Grade 3 land and worse, where a rent exceeding £60 per hectare is hard to bear unless there is a very good dairy herd.

The farmers worst hit, then, are the inefficient, those with too small a resource base, those on poorish land with above-average land-finance charges (rent or mortgage), those with a high percentage of borrowed farming capital (by "high" is meant exceeding about 20 per cent!) and those with predominantly livestock rather than cash crops. The "up corn, down horn" position continues.

On the other hand, owner-occupiers with a fair level of management (the range is vast, as every enterprise study amply demonstrates), a farm of reasonable size and quality, no, or a low, mortgage, and modest levels of borrowings on farming capital, should easily "survive", despite lower incomes. In particular, those on goodish land specialising in cash crops should have few worries.

Two further points should be made in reviewing recent and current farmers' incomes. First, they are not of course alone; industrial profits, too, have in general been poor in recent years. Second, there appear to be signs now of improvement; falling interest rates, falling inflation (and thus slower increases in input prices), and recent EEC decisions on product price increases which are only little short of expected increases in input prices.

Other problem areas, as far as UK farming is concerned, are high land prices, capital taxation and tenancy legislation.

Although falling over the past year, especially in real terms, high land prices reduce the chances of farmers expanding. Not everyone considers this to be a bad thing, especially in the case of already large farms. The current earning power of farmland is only about 20 per cent of the vacant possession land price as far as beginning farmers are concerned; it is, however, above this for existing farmers wishing to expand. High land prices encourage higher rents, in order to achieve a given level of return on the value of the capital. They also increase the burden of capital taxation, despite periodic ameliorations in successive Finance Acts.

There is, too, the likelihood of capital taxation leading to the break up of larger farms and estates, although some say the possible effects are exaggerated if the right steps are taken in good time and, again, some would welcome any trend to smaller units, on both economic and social grounds - especially the latter.

With regard to tenancy legislation, many argue that this now too much favours the tenant, especially since the succession of tenancies legislation contained in the Agriculture (Miscellaneous Provisions) Act of 1976. The effect of this on "drying up" new tenancies for new entrants into farming has undoubtedly been exaggerated. Even before this, when let land became available it

either went to the previous tenants' successors in any case, or was sold, taken in hand by the landlord to add to the home farm, or let to existing farmers, enabling them to expand - frequently through farm amalgamation. Indeed, the legislation may well have helped maintain the percentage of let land. However, this legislation may be altered back soon, nearer to the previous legislation.

The extreme difficulties facing new entrants trying to get into farming (as farmers) is common to all countries, with high land prices and, where applicable, few farms to rent. Special aid is given in France, but little elsewhere, and virtually none in the UK - the very few exceptions proving the rule.

National/EEC problems

Turning now to the government/EEC level, I shall say less about these problems since more will be said about them by other speakers.

First must be mentioned the high cost of the Common Agricultural Policy. Agricultural support represents between 70 and 75 per cent of the total EEC budget.

This largely arises from the cost and disposal of surpluses of many agricultural products. References to 'butter mountains', 'wine lakes', etc. abound and the current harvest year has seen considerable quantities of grain going into intervention. The problem has sometimes looked impossible, especially as regards milk - and certainly the potential here for further expansion, particularly in terms of milk yield per cow, can seem positively frightening.

On the other hand, many argue as follows:

1) that some surpluses are inevitable if food supplies are to be assured, given fluctuating harvests both in the EEC and abroad and political uncertainty in many supplying countries.

ii) that as a percentage of total production these surpluses are often in fact quite small - amounting in many cases to only a few months' or even weeks' supply.

iii) that their cost is small as a percentage of GNP, or per head of the population per annum.

iv) that it is immoral to talk of surpluses when there are so many under-nourished, often starving, people in the world.

v) that apparently very large surpluses can quickly "disappear"

Despite the continual stress on EEC surplus sugar production, for example, world supplies were short and world prices thus reached very high levels last year. In the case of grain, world stocks are said to be less now than even in 1973-74, when there was so much alarm about their low level; one or two years of poor harvests in the major

producing countries could be extremely serious and would make the present EEC grain "surplus" look very insignificant indeed by comparison. Finally, the 'butter mountain', once so extremely worrying, has apparently virtually "melted away" during the past year - though many would want to question the high cost to the EEC Exchequer of its disposal.

The next important argument is that the EEC's protectionist policy leads to high consumers' prices - or, at least, prices higher than they otherwise would, or need, be. This has the effect of reducing consumption (thus worsening the surplus problem) and hits the poorest members of the Community hardest.

Against this, others would argue that there is little effect on consumption, owing to the inelastic demand for many food products; that it is a small price to pay for assured supply and a "healthier" rural sector and countryside; and that most EEC countries are relatively affluent and most people can well afford to pay present food prices. Many farmers would also argue that high food prices are more the result of high marketing or processing "on-costs" and that higher farm gate prices have relatively little effect on the price of food in the shops.

Then there is the argument that EEC protectionism and the cheap disposal of surpluses are bad for international trade and have a reducing effect on exports of manufactured products. In the UK in particular, the serious effect on "old friends and allies", who depend largely on agricultural exports, especially to the UK, is stressed - with particular reference to New Zealand. Finally, the impact of additional production in the EEC on agricultural producers in the Third World/Developing Countries, whose market here is thereby reduced, is pointed to; probably sugar is the main product referred to in this connection.

Options available to farmers

Although turning now to possible "solutions", as far as farmers are concerned, these still involve problems. Obviously, this is so as regards farmers endeavouring to find answers to their economic difficulties. Then there is the point that possible remedies for the individual farmer may worsen some of the national/EEC problems outlined above. Furthermore, there are other effects that relate to environmental considerations, which form an important part of the subject-matter of this seminar.

Basically the individual farmer has three alternatives. First, he can change his system, i.e. his cropping and stocking policy; he may extensify or intensify. Second, he can increase his output from his present enterprises. Third, he can endeavour to reduce his costs (in real terms). The following discussion of each alternative will necessarily be brief.

With regard to changing the farming system, the problem is that there are not many enterprises that one might argue a farmer should give up (owing to over-production within the EEC, etc.), but very few

that one can recommend he should move into or expand! The only EEC shortage, at least of major temperate products, is for protein and oilseeds. However, while there is scope for some farmers to increase their area of oilseed rape, field beans and peas, this is obviously limited. Thus it becomes a straightforward farm planning exercise for the individual farmer, with risks attached especially to any product that looks to be in surplus or potential surplus. Despite these, a farm management adviser such as myself would often be advising some farmers to increase, for example, their dairy herd or cereal area, for their own individual benefit, while necessarily considering the possible overall effect on prices if many farmers did the same.

In discussing whether a farmer should move to a more intensive or a more extensive system, the latter could only be considered if he has low land finance charges, low personal/family commitments, land of relatively low potential (i.e. which gives only modest returns for extra inputs), and if he is prepared to accept a lower income. The justification for such a policy is twofold: the lower the expenditure the less that can be lost; and the policy in (comparatively) bad times of "keeping one's head down". hoping the storm will soon blow over, i.e. "seeing it through". The problem is, no one knows how long the storm will last.

Although this is not a time when one would advise a farmer to intensify, this would still have to be seriously considered if he had high financial or personal commitments, spare capacity in buildings, machinery or labour, good land - with good prospects of returns increasing well in excess of extra costs, and/or a good "track record" in the more intensive enterprises, such as dairying, fruit or vegetables.

The inexorable pressure of increasing fixed costs will oblige many farmers to consider further intensification even though by inclination they would prefer to extensify.

With regard to increasing output from existing enterprises, the main way is by increasing yields. Time and again, surveys show that this is the most important single factor affecting profitability, almost regardless of enterprise - apart possibly from stocking rate when considering grazing livestock. But, obviously, if this can only be achieved by increasing inputs, then marginal revenue must exceed marginal costs - and thus increases in the use of fertiliser, sprays, concentrates etc. have to be carefully watched. Better if the improved yields can be obtained simply from additional expertise, improved husbandry, attention to detail, better technical and economic control. Either way, however, there is the macro-problem that if many increase their yields then this may exacerbate the problem of surpluses and thus lead to lower product prices. Thus this may appear to be a self-defeating exercise as far as farmers as a whole are concerned. Nevertheless, if a farmer does not improve his efficiency while others do, he could ultimately be forced out of business - the classic dilemma in times of over-production.

Farmers may also seek to raise output by obtaining higher prices, through more appropriate seasonality of production or sales, or improved quality. Unfortunately, past experience has so often been that the extra price obtained from better quality produce has been

insufficient to cover the cost in terms of extra inputs or lower yields. However, if increasing surpluses lead to an inability to sell poor quality produce, greater attention to improving quality (at least at the "lower end") will be forced upon producers in the future.

Somewhat excessive emphasis has been placed on "better marketing" by UK politicians over the past two years. It is obviously impossible to argue that marketing should not be improved. This must be to the ultimate benefit of the consumer, through improved quality, better matching consumer needs, and lower marketing costs, and obviously it is the consumer who must ultimately count - everyone being a consumer and the object of production being consumption! However, it will not necessarily benefit the farmer. Once established, he tends to get little or no benefit, except in the sense that he may be unable in future to stay in business unless he produces just what the consumer wants. It is another case of having to run faster to stay in the same place, i.e. maintain income. This is part of progress, but it is no panacea to the individual farmer seeking a higher reward - except perhaps for a few of the front-runners for certain products.

Finally to reducing costs. By this I mean not extensification (already discussed above) but for a given farming system.

First, the "variable" costs may be considered, particularly fertilisers, sprays and concentrate feed. The marginal principle would indicate that if the cost of inputs rises faster than product prices then, assuming marginal revenue was previously equalling marginal costs, the level of inputs should be reduced; and the optimal yield will be at a lower level. Certainly this would help towards solving the surplus problem! However, many farmers (perhaps most) are not producing at the optimum level and are forced to try to get nearer to it when their incomes are squeezed by input prices rising faster than product prices, which often results in increasing yield. Also, new technology may require additional inputs, for example in cereal production in the last five years or so, with the increased emphasis on the use of fungicides and insecticides. However, it is being argued by some that the use of sprays is being overdone on many farms, in economic, as well as environmental, terms. And the possibilities of economising in concentrates by making better use of grass and higher quality conserved fodder are continually being advocated.

Referring now to the so-called "fixed" costs. With regard to labour, many farmers of course employ no labour, and those with one or two hired workers may find it impossible to work their farm without them. On the larger farms it becomes increasingly difficult each year to reduce the labour force further, since the process has been going on now for several decades. And there are still the social obligations many farmers commendably feel for their employees - particularly in a time of high unemployment.

With regard to machinery, many farmers are being forced to operate their farms with lower capacity machinery or, at least, to keep the machines for longer periods before replacement. Extra worry and some yield reductions in difficult seasons are the price that has

to be paid. There will also be lower investment in new buildings and those that are built are likely to be, on average, of a less costly type.

Unfortunately, the economies having to be made in machinery and buildings help worsen the problem of low profitability and unemployment in industry.

The cost-price squeeze in farming, too, seems to have detrimental effects as far as the environment is concerned. Endeavours to raise yields or reduce cost per unit of output are likely to lead to more intensive methods, such as hedge-removal to try to reduce labour and machinery costs and reduce the proportion of unproductive land. There is bound to be less inclination, or less ability to afford, to spend money on planting trees or copses, etc. Few farmers who may like the idea of organic farming are likely to be able to indulge their preference.

National/EEC/CAP options

As for farmers, a major problem at the governmental/ administrative level is trying to find solutions, ones in this case that (a) have a chance of being adopted, and (b) are likely to have the desired results.

Because at least some of these, possibly most, will be referred to by other speakers, I shall simply list possibilities, with the minimum of comment. The likelihood of their adoption or success will no doubt arise in discussion.

The following quotation is taken from a summary of a recent symposium held in Dublin:

" *Any gathering of six experts is likely to lead to six different opinions and this is certainly the case with the European authors assembled ..... While they all agreed about the problems facing the CAP - the structural surpluses and the overall costs - the medicines they prescribe for the cure came in different sized bottles and bear sometimes contrasting advice on the labels*".

(Agra-Europe, 16 April 1981).

The following are possible approaches. Some are currently being applied or have previously been tried.

1) Increase farm prices substantially - to lessen the pressure on farmers to intensify and reduce their labour force, to improve the "health" of rural areas, to enable more to be spent on conservation and reduce the need for further hedge-removal and so on, in the endeavour to raise efficiency and thereby maintain farm incomes. This policy is, of course, unlikely to be adopted, because of the possibility of further encouragement to production, thereby worsening the surplus problem and the cost of the CAP. However, the side-effects of such a policy have relevance to an important section of this seminar.

2) More co-responsibility levies (which do not reduce consumer prices) or introduce 'quantums', or standard quantities (which do) - to cut farmers' prices if a certain level of production is exceeded. The question is, will this reduce production of products in surplus or will this effect be more than offset by farmers raising production to try to maintain their incomes?

3) Reduce farmers' prices further (in real terms) for products in surplus. The same question about the possible unwanted effect on production arises as under 2) above.

4) Cut farmers' prices severely to try to ensure that production is reduced by forcing marginal farmers out of production altogether. This policy is advocated by some as being the obvious "economic" solution. However, two questions then arise: (a) is this politically feasible, i.e. is not the farmers' lobby too strong for this to be possible? and (b) what of the effect on rural areas, employment, etc.?

5) Reduce farmers' prices substantially, if not severely, and give direct income support to those worst hit. The problems of pursuing such a policy include: (a) just who to support (i.e. where to draw the line)? (b) at what level should the support be given? (c) might not other types of business justifiably make a claim for similar support?

6) Introduction of quotas, or "production control". Some see this as the ultimate solution to surpluses, if all else fails, although anathema to many (including me) because it helps ossify the present farming structure, protects the less efficient, curbs the efficient and progressive producers, ultimately to the detriment of the agricultural industry and the consumer. Saleable quotas could reduce some of these ill-effects, but quotas in general are likely to be administratively very difficult to enforce.

7) Give a subsidy per unit of land area - to encourage more extensive farming, lessen the pressure to keep increasing production. One could discriminate in favour of poor farmers in marginal areas (as, apparently, in Switzerland). It is difficult to envisage this being done on a wide scale.

8) More "handshake" schemes for products in surplus, such as the recent milk schemes. However: (a) the milk scheme had little effect, (b) there are so many products this could be applied to, (c) what products can farmers change to? (d) this is only a "partial" type of solution in any case.

9) Try to discourage inputs (such as concentrate feed) by adding to their cost or penalising (intensive) producers who use high levels. The latter has been recently mooted for dairying. But how to impose such a policy, and is it reasonable?

10) Stop (or markedly reduce) all grants, subsidised credit, and perhaps tax allowances for machinery, equipment and buildings for products in surplus. Difficult to enforce on an EEC scale.

11) Introduce the Land Bank idea, paying farmers not to produce. This has not worked in the United States whenever tried, and many would anyway regard it as a basically objectionable idea.

12) Encourage more farmers to leave farming by giving generous grants for quitting. But this is a slow business (as previous attempts have shown); the grants would need to be very generous; and it would probably not help the surplus problem unless the land forfeited was taken out of production.

13) Further aids to encourage farm enlargement, amalgamation, etc. to speed up improvements in farm structure - at least in those countries or regions with a very high proportion of very small holdings. Again a slow process, offering little help towards solving pressing problems. And there is less enthusiasm now about reducing the number of farmers, especially in areas of high unemployment.

14) Encourage more part-time farming, which should lead to less intensive production. But how could this be done? By encouraging more small industries to be established in rural areas?

15) Give grants for conservation (e.g. the recent case on Exmoor). This would only have a very small effect, but it is mentioned because it relates to part of the subject-matter of this seminar.

16) Reduce technological research or its application by cutting funds available for research and advisory services. Obviously, this is not a major possibility; it is anti-progress, would ultimately be against consumers' interests, and its effects would in any case be only long-term.

17) Give away, or sell at very low prices, surplus produce to poor countries. While highly desirable on humanitarian grounds, this policy is fraught with difficulties and raises immense problems in practice. Poorer countries themselves are usually against such a policy (except perhaps in times and regions of imminent disaster through actual starvation), preferring different forms of aid, e.g. technical advice, cheaper agricultural inputs and larger markets for their own agricultural products (including in the EEC) to help develop their own agricultures and economies.

No doubt the policy that will emerge will be gradual, piecemeal, a combination of a number of the above possible options - a policy of compromise such as has in fact been seen over the past decade or so.

Finale

A final word. This paper is entitled "Economic Problems" and that is what I have endeavoured to cover. However, it might be said that we get so concerned with problems that we forget the positive

side, the virtues, the successes of the policy at present and in the recent past - even if some would question whether this constitutes a "policy", as such. Most people in the EEC are at least adequately fed, for most people food prices are not unreasonably high, many farmers (most?) do make a reasonable living (or have at least until the last year or two) - provided they are fairly efficient and do not have too hopelessly small a resource base, i.e. amount of land and capital. Mind you, the cynics would argue that this is despite the CAP rather than because of it!

SOCIAL AND POLITICAL PROBLEMS

by Stanley Blow, DL,
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It has been said that the first step towards overcoming a problem is to recognise that it exists. I am seeking, therefore, in this paper, to outline what I consider to be the major issues in the future within the context of "the rural response to the Resource Crisis in Europe". Many of these are already well recognised and some are self-evident. Most will be dealt with in greater detail and expertise in the other papers delivered by the distinguished speakers gathered at this seminar, and also, I trust, in general discussion. I will seek to pose my own views in a socio-political framework starting with the goal towards which I believe we should aim.

To arrive at this I would say that rural areas cannot be considered entirely in isolation, but can and must play a major role in seeking to achieve:

1) The provision of food and drink for the peoples of Europe (and of the rest of the world);

2) Creative and satisfying employment, both on the land and in ancillary industries and rural crafts;

3) Recreation and enjoyment of the countryside;

4) The maintenance of the soil in good heart - a trust we hold for future generations;

5) The conservation of natural resources;

6) The welfare of wild-life.

These may sound pious platitudes but are, in fact, ideals which must guide us in order to make our vital contribution to combating any political extremism and the breakdown of an ordered and balanced society.

Regretably, the trend of changes in the rural pattern has, with the exception of food production, been regressive in this century in relation to all the points mentioned above. These trends are accelerating, and continuous political and economic pressure exists to speed them up even more in the pursuit of "cheap food", "CAP reform", and "efficient production".

Let us try to define some of these terms. For example, what do we mean by "cheap" or "efficient", "Cheap" is a relative criterion - Oscar Wilde defined a cynic as "one who knew the price of everything and the value of nothing". The only true method of evaluating the relative cheapness of food is to measure how long it takes an average

working person to work to earn sufficient to pay the retail price of a loaf of bread, or a pound of butter or steak, or a chicken. Some people can still remember a time when a working man with a family could not afford to buy any of those commodities at all, except the bread. The NFU (National Farmers' Union) have produced figures which show that, by the same criterion, food is cheaper than at any period in the last 600 years. But at what cost - fewer employed on the land, substantially increased inputs of scarce and finite energy resources, impoverishment of very large areas of soil throughout the world and intensive methods of animal husbandry often bordering on arguable cruelty.

Do we measure "efficiency" by output per man-hour, per hectare, or per unit of energy input. Each calculation would give a different answer. It follows that when critics of the CAP speak of bolstering up inefficient producers they may well be using the term loosely, or yardsticks that are inappropriate. It is important that we do not use terms which mean different things to different people, if we are to make the discussion rational and positive.

Efficient use of resources means avoiding under-use, as well as over-use. Obviously this applies mostly to people, and it would be undesirable to fail to utilise productive employment potential at a time of increasing unemployment, with all the hardship that it entails.

The three most important resources are people, soil and energy, in that order of priority (in my opinion), although they are, of course, interdependent. For generations there has been in farming a major transfer of dependence from people to energy inputs, often at the expense of the soil, although fortunately, because of our unique geological structure, this has not caused as much long-term soil damage in Western Europe as in, for example, North America.

I believe passionately that we have gone too far along this road, and we must not only halt, but reverse, this trend. The last two hundred years have seen previously unparalleled industrial expansion in the developed countries, largely based on cheap food and fuel imported from developing countries. That era is over and both resurgent nationalism and political volatility make even supplies at world market prices suspect (witness present-day Iran).

Partly as a result of this situation, the chimera of continuous industrial growth over the long-term has been abruptly dispelled. We, in the West, are floundering in this unexpected situation for which no preparation has been made. Increasing unemployment following the run-down of manufacturing demand, is contributing to political extremism, violence and attacks on minority groups who represent competition for available jobs (e.g. riots in Northern France). This situation is also a factor in the rise of juvenile crime throughout the Community.

The Governments of most Community countries are aware of the value of the CAP in providing some counter-balance to the scenario I have outlined and of the voting strength of those affected. Unfortunately, because the proportion of population involved in agriculture and allied industries is relatively much smaller in the UK, people

here perhaps do not appreciate the depth of feeling on the Continent about rural problems. More is heard in the UK about 'food mountains' and 'food taxes' than about the cost, either in money or social terms, of the limited options open to us under an alternative support system.

The great Duke of Wellington said that "no one should sit in Parliament unless they had a stake in the country because there is no interest like enlightened self-interest". Whilst such a sentiment would be politically unacceptable today, have we, perhaps strayed too far in the opposite direction, By this means, does the urban viewpoint so outvote the rural one that the result is an unbalanced policy to the national disadvantage.

In practice, there has been a rundown of rural public transport, closure of village schools and post-offices and a diminution of close-knit community life. In Britain this trend is more advanced than in most European countries and has been accelerated by the policy directives handed from central government to the planning authorities at both county and local level. Personally, I think that too many of these policies have been disastrous and far too readily accepted. Town and country planning has become almost an industry in itself, employing vast numbers of officials and consultants and churning out consultative documents and grandiose structure plans, which are frequently overtaken by events before they are published.

If we examine the structure of European society since the beginning of the Industrial Revolution some two hundred years ago, it shows naturally enough strong change from a predominantly rural preponderance to an urban one. It would be pointless to consider, even in the long-term, any but a relatively modest reversal of this trend. But this, in my opinion, is worth working for, and certainly the benefits of halting the continuance of prevailing trends is worthy of a sustained effort to influence and change political thought and public opinion.

How could this be achieved, bearing in mind that inertia is so much easier than initiative, particularly when the latter means challenging established views and actual trends?

Let us first try to list the factors which favour the arguments for change I have advanced:

1) Rising unemployment in Western Europe;

2) The inability of manufacturing industry to alleviate the situation;

3) The fuel crisis;

4) The continuing increase in world population;

5) The almost certain shortfall between world basic food needs, and likely production in say, 20 years time.

6) The threat to world peace that such a situation would present.

These are powerful arguments, but how do we get the message across and cause action to be taken? Those seeking so to do will have the counter-arguments put to them. These will include:

1) the growing restlessness of EEC taxpayers to underwrite the CAP;

2) Consumer demands for food costs in line with world prices;

3) Bitterness generated by, for example, subsidised exports of commodities in surplus, such as butter;

4) Evidence of fraud and the misuse of CAP refunds and grants;

5) Administration costs;

6) Alleged food mountains.

Much of this criticism is based on statements by those opposed to the Community for political reasons, although some of it is partly justified. To overcome it, needs constant and patient public reiteration of facts, and continuous review of the detailed mechanism of the CAP. With regard to the facts, the latest published government figures show that Community spending on agriculture represented 0.47 per cent of the Community's GDP in 1980. If one adds national spending the total rises to between 1 per cent and 1½ per cent. This compares with USA 1½ per cent, Japan 1½ per cent, and the USSR 5 per cent.

Regarding food prices in the UK, these rose by 293 per cent between January 1971 and January 1981. The effect of the CAP is estimated at about 9 per cent of this (Government Agricultural Statement, Hansard, 18 March 1981).

The number of staff employed on managing the CAP in the Commission is less than 700; the German Ministry of Agriculture employs 20,000 and the UK 13,000. The entire Commission employs fewer people than the London Borough of Wandsworth.

The 'food mountains' and 'wine lakes' are an example of propaganda. The 'wine lake' has all been drunk, the butter stocks are now at the equivalent of one pack per person in the Community (25 days supply) and skimmed milk powder represents 40 days supply.

At the time of writing (April 1981) the ability of the EEC to provide food for Poland is a most important factor in helping to stabilise a situation which could threaten not just *détente*, but peace itself.

The CAP is the very corner-stone of the Community, whose countries make a significant contribution to alleviating hunger throughout the world.

The basic concept of the CAP as defined in the Treaty of Rome is, in my view, absolutely right. It is the foundation of a flourishing countryside. Our greatest problem is to convince the general public (who pay the bill) that this is so, and that they get good value for money. I believe that most Europeans on the

mainland accept this but that we in the UK lag well behind. If we can get over this hurdle we have gone some way to being able to combat our most difficult problems and to make an invaluable contribution to future well-being.

Between 1961 and 1969 the numbers employed in farming in the countries now in the Community (excluding Greece) fell by 30 per cent, and from 1969 to 1980 by a further 31 per cent. I believe that it is in the long-term European interest to reverse this grave situation but its essential pre-requisites are confidence in the agricultural future and realistic farm incomes for employers and workers alike, coupled with the development of countryside recreational pursuits and rural crafts.

The substantial increase in involvement in activities such as horse-riding and pony-trekking is a pointer in this direction. Another very interesting development is the forming of stand-by co-operatives for giving dairy-farmers, employing no labour, back-up facilities for holidays and sickness. Frequently minor expenditure on pilot schemes can lead to widespread adoption of new ideas, and the EEC Regional fund could well materially assist in this.

A factor inhibiting the employment of additional labour in many European countries, and particularly in Britain, has been legislation regarding "protection of labour", which has, in fact, frequently proved counter-productive. Although this legislation is well-meaning, small (and large) farmers are concerned about such Acts as those governing unfair dismissal, social security benefits, payment during sickness and many others. A study of the effects of relaxation, or temporary suspension, of some of these measures might be well worthwhile.

I cannot over-emphasise my view that, given the political will, the countryside could make a substantial contribution to the employment situation in Europe and that, at present, precisely the opposite is happening. The reasons are man-made - pressures for cheap food, a run-down of services in rural areas, the lure of the cities to young people, planning priorities given to urban housing and many others.

The number of people employed in UK agriculture and horticulture in June 1980 was 298,700 compared with 303,000 in 1979 and 317,000 in 1978. Again in the UK, taking 1975 as a base with an index of 100, in January 1981 tractors stood at 236, fuel 261, straight fertilisers 182 and spray materials 217. But, taking my own sector, horticulture, as an example, dessert apple prices in the same month, January 1981, stood at 136 and pears were 112. The result is already evident as we drive around Kent, the disappearance of thousands of acres of orchards. In labour terms these were highly intensive, particularly at harvesting time, when fruit picking provided many with lucrative employment.

Regretably, the public generally does not reap any real benefit from these low prices. The on-costs represent about 75 per cent of the difference between net farm gate prices and retail shop prices

and include all the inflationary elements included in transport, packaging and general costs. In the long-term consumers will have fewer varieties to choose from, and there will be a gradual disappearance of the 'Garden of England'. The mechanism exists in the CAP to redress this situation, in the level of intervention prices, but suggested increases in Community farmgate prices are meeting with unfavourable reaction. Nobody seems to remember that these prices are only one part, perhaps 30 per cent, of actual retail food prices. There is little, if any, political or public outcry at the seemingly automatic annual increase in the other 70 per cent - processing, packing, promotions (I suspect that advertising and promotion costs more per packet of cornflakes than the maize content), transport and marketing.

If we can persuade the decision-makers of the justice and sense of an economically sound agriculture, in my view it would follow that throughout Europe we could make a substantial contribution to the well-being of society. To bring public opinion round to the acceptance of this viewpoint and realistic food prices, is the greatest problem of all, because without public support politicians will not look beyond the short-term. We must emphasise the likely consequences of present trends and the contribution food stocks make to our strategic safeguards, both militarily and politically, as in the case of Poland.

If we are successful, the subsequent benefits could be immense. A flourishing countryside, providing opportunities for employment, would make a significant contribution to political and social stability. It would ease pressure on farming methods, reversing the present trend towards over-use of soil and erosion. It would provide a major step forward in achieving European unity, and thus help create a force for concerted assistance to the third world and for peace.

It may sound too good to be true but it is a goal worth striving for, and I am sure that open discussion, such as this seminar, by presenting a positive approach is in itself a major contribution to a better understanding of the vital issues at stake.

POSSIBLE SOLUTIONS TO THE ENERGY PROBLEMS

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INTRODUCTION

This seminar is concerned with problems related to the use of resources. My particular concern is the use of energy in agriculture and my aim is to put to you some of the considerations which affect our attitudes both to the problems posed and to some possible solutions. This will be done mainly by reference to UK circumstances and consideration will be given to the following topics:

1) UK energy prospects in relation to reserves of fuels and consumption patterns;
2) The major items of agricultural production that use energy and the form in which it is used;
3) The effect of rising prices on crop production costs;
4) The current responses of the agricultural industry in terms of conservation measures and the use of new sources of energy.

NATIONAL ENERGY PROSPECTS FOR THE UK

Consumption and reserves

The UK's present situation is one of overwhelming dependence on fossil fuels; for example, in 1977, 99.8 per cent of our energy[1] was provided by coal, petroleum and natural gas (see Table 1). The UK's indigenous sources of energy with estimates of recoverable reserves and life based on consumption in 1977[1] are shown in Table 2. Coal is by far our largest reserve and could last for over three centuries at current rates of consumption. Since both gas and oil may be partly replaced by coal, or synthesised from it, it is convenient to put all fossil fuels together and it is then seen that these could meet the UK's total energy requirements for a century and a half.

Much depends, however, on the energy growth rate that is assumed. Over the twenty years to the energy crisis in 1973, primary energy consumption in the UK grew at an average rate of 2 per cent per annum[2]. In 1973, the Organisation of Petroleum Exporting Countries (OPEC)

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[1] Digest of United Kingdom Energy Statistics 1978, HMSO.

[2] Energy policy: a consultative document, Cmnd.7101, 1978, HMSO.

quadrupled oil prices and this caused a reduction in demand; but this has now recovered and is once again close to the 1973 level[1]. If we were to return to the pre-1973 energy growth rate of 2 per cent for the long term, the life of our indigenous fossil fuels would fall from 150 to 70 years.

The UK has no indigenous uranium resources but the amount of this material already in the country could be equivalent to some 40 Gt of coal if, after use in the current generation of thermal reactors, this is recycled through fast breeder reactors[2]. Thus, this nuclear energy potential is of the same order as the UK's fossil fuel reserves. Although the world has large uranium reserves, the nuclear power industry is still in its infancy and there are problems relating to the environment and public acceptability to be overcome before the role that nuclear power will play can be reliably assessed[3].

Future prospects

In summary, it may be said that compared with most other industrialised countries, the UK is well placed in respect of indigenous energy supplies. In the early 1980s, the UK will have sufficient indigenous resources to balance its total energy needs, but production of North Sea oil and gas may decline before the end of the century. It should be said that some authorities[4] now believe that this decline may not set in until the year 2010 or so, but it will mean the development of technologies for winning oil from increasing depths beneath the sea and at a greater cost because the remaining fields to be exploited will be smaller in size.

Sometime after the turn of the century, it appears that the UK will again become dependent on imported oil and gas and scarcity will undoubtedly justify a premium price for these commodities as world resources become depleted. It is expected that the use of these natural hydrocarbons may become restricted to premium applications such as chemical feed-stocks and motor fuels and, as they decline, coal will assume great importance as a supplementary source.

Energy prices

Since 1973, the retail price index based on all items, which may be taken as a measure of price inflation, has increased by a factor of 3. The price of crude oil has increased by a factor of 9, fuel oils by about 6 and motor fuels by about 4. Although the price of crude oil has thus risen in real terms by a factor of 3, the consumer has been insulated from the full increase because duties and taxes on fuels have not been increased commensurately. Thus motor fuels, where the duty is high, have not increased mostly

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[1] [2] [3] Energy policy: a consultative document, Cmnd.7101, 1978, HMSO.

[4] Raisman, J.M., Oil and gas - more to come from Scottish waters? Conf. on Energy in the '90s, Highlands and Islands Development Board, Aviemore, 24-26 September 1980.

beyond the general level of inflation, while fuel oils, where the duty is low, have increased by a rather larger amount.

The cost of both coal and electricity seem to have followed closely the general pattern of the retail price index and cost about 3 times more in 1980 than in 1973. The position with gas is more complex. Overall, the increase has been about a factor of 2.5, but the increase has been less for domestic consumers and greater for industrial consumers who originally had some long-term contracts for the supply of North Sea gas at very favourable rates. Recent new contracts for large industrial consumers have resulted in prices 5 times greater than those in 1973.

So far as the consumer is concerned, the brunt of rising energy prices has been felt through the price that is paid for liquid fuels and this is not surprising since this commodity is under the greatest pressure. The UK Department of Energy suggests[1] that the average level for energy prices must be expected to rise further, perhaps doubling by the year 2000 in real terms. This will reflect the increased resources which will have to be put into producing energy as supplies get scarcer and more capital intensive sources are developed. Since some liquid fuels have already doubled in cost to the consumer in only 7 years, it is easily possible that a further doubling may prove to be an under-estimate even for average energy price levels taking account of all fuel types.

ENERGY AND FOOD PRODUCTION

Energy use in the food chain

To feed the population of the UK by home-produced and imported food involves an expenditure of about 16 per cent of the UK's national energy consumption (see Table 3); this covers the many activities that take place before food reaches the plate[2,3]. It will be noted that in making unprocessed food available at the farm gate, agriculture uses only 4 per cent of national energy, one-quarter of the total, with the remainder being used in processing, packaging, distribution, food preparation and storage. These energy inputs are quite typical for advanced and Western economies and they are vital both to agriculture and the whole food production chain. With this 4 per cent of national energy, the UK grows a little more than one-half of the food it consumes[4,5], and this proportion is about 70 per cent of the foods that are capable of being produced in the UK's climate.

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1 Energy policy: a consultative document, Cmnd.7101, 1978, HMSO.

2 White, D.J. Energy accounting in agriculture and food. Instn.Mech. Engrs. Conference on Energy Accountancy, London, 1976.

3 White, D.J. Prospects for greater efficiency in the use of different energy sources. Phil.Trans.R.Soc.Lond.B.281, 261-275 (1977).

4 White, D.J. Energy in agricultural system. Agric.Engr.1975, 30(3), 52-58.

5 Annual abstract of statistics 1973, HMSO.

Energy in agriculture

A detailed breakdown of primary energy use in agriculture in 1978 is shown in Table 4 and it can be seen that the largest use is in fertiliser manufacture (28 per cent) and as petroleum fuels (21 per cent). Other large users are off-farm feedstuff processing (16 per cent), machinery (12 per cent) and electricity (10 per cent). As with Table 3, the energies given in Table 4 are all primary energy, that is, they take account of the energy used in manufacture, transport and all the other processes necessary to make the commodity available for use. For fuels, this energy is an "overhead" and is added to the calorific value to give primary energy, while for non-fuels it gives the primary energy directly.

There is little doubt that this energy use is absolutely vital to UK agriculture and that present levels of production are highly dependent on it. The benefits may be illustrated by the fact that in the two decades from 1950 to 1970 energy use in the form of direct fuels and electricity increased by a factor of 1.7 while the labour force was halved. During the same period, increased energy inputs in the form of fertilisers and crop protection chemicals helped to produce increased yields of arable crops, with a corresponding increase in output of metabolisable energy, in some cases by factors of 4 or 5 times the amount of energy in through fertilisers[1,2]. In effect, we have substituted energy for manpower through the increased use of machines, and we have substituted energy for land through increased fertilisation of crops. We have released sources such as men and land for other purposes at the expense of our resources of energy.

Effect of rising prices on agriculture

The nation's food supply is so vital that it seems reasonable to suppose that agriculture's energy demand would be given high priority in the event of an energy shortage. But agriculture is expected to become a more efficient user of energy, and it certainly cannot expect to be insulated from the effect of rising prices. The net effect of cost increases since 1973, is that the farmer is paying little more for coal and electricity and perhaps less for gas. He is, however, paying relatively more for motor fuels and twice as much for fuel oils for heating and drying.

It is not an easy matter to assess quantitatively how a rise in the price of energy will affect the cost of producing a given commodity. A breakdown of costs has been studied for a number of arable crops and direct fuel and oil costs were found to be in the range of 6 to 8 per cent, so doubling oil prices would raise production costs by as much due to this cause alone. However, energy is also

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[1] White, D.J., Energy use in agriculture. In aspects of energy conversion (Eds. I.M. Blair, B.D. Jones and A.J. Van Horn) 1976, pp.141-176, Oxford: Pergamon Press.

[2] White, D.J., Energy in the primary production of food to the farm gate. Conf. on energy - brake or break, 1976, London: Institute of Fuel.

used in the production of fertilisers (which account for 15 to 20 per cent of crop production costs), machines and buildings and the effect of this must also be considered. One of the most energy intensive inputs is that of fertiliser and it has been estimated that a doubling in energy prices would lead to about a 15 per cent rise in the cost of fertiliser production. If this is so, then this would cause a further rise in production costs of about 3 per cent. The other items are not readily assessable but the author would hazard a guess that doubling energy costs would raise production costs by perhaps 10 per cent, but certainly not more than 20 per cent. Thus, because direct energy inputs to the arable crops are relatively low, the effects of a substantial price rise is not immediately catastrophic. The same conclusion is not valid for heated protected crops, such as early tomatoes, where direct fuel costs have been as much as 40 per cent of total production costs, or for that matter, for high-temperature drying of green crops.

In these examples, a doubling in energy prices has been assumed, but of course, the actual change may prove to be more than this by the end of the century. Because the situation is one of great uncertainty, there is every reason to consider measures that may be taken to achieve greater energy efficiency and to ameliorate the effects of predicted rises in energy prices.

ENERGY CONSERVATION AND NEW SOURCES

There is scope for improving the efficiency of energy use through conservation measures, that is, through more effective use of present resources, through re-use of agriculture's own resources, namely wastes, and through the use of new sources of energy which are not at present used. The extent to which these measures are employed will, of course, depend on whether or not they can be exploited economically but it is certain that they will attract increased interest as the relative price of energy rises.

ENERGY CONSERVATION

Direct use of petroleum fuels

Just over one-fifth of the energy used in agriculture is in the form of petroleum fuels (see Table 1). About one-half of this is used by tractors and self-powered machines and one-quarter in glasshouse heating.

Operation and maintenance of tractors and machines

The efficient use of fuel depends on correct maintenance of machines (especially cleaning of injectors and air cleaners), the knowledge and skill to drive them economically and the correct setting and maintenance of implements. The machine should be matched to the task and should be ballasted and loaded so that it may be operated at optimum power and efficiency.

Cultivations

A reduction in the amount of liquid fuel used can be achieved through minimising or reducing cultivation operations. Reduced cultivation usually means replacing conventional ploughing and its accompanying secondary cultivations by shallow ploughing, chisel ploughing or rotary cultivation, all with or without secondary cultivations which may in some cases be carried out at the same time as the primary cultivation by using linked implements. Where soil conditions allow it, seed may be directly drilled into the ground without prior cultivation.

Crop drying

Where artificial drying of crops is practised, this can be a considerable user of energy in relation to the field operations that crops require. In the UK, grain drying is done in a number of different ways but basically it is evident that high temperature oil-fired driers are more efficient in energy use than low temperature in-store driers (using electrically-driven fans and heated or unheated air) which may use twice as much.

In grass conservation, minimum energy is used if natural drying methods are employed to make hay or if grass is made into silage. High temperature drying of green crops is a highly energy intensive process, requiring six times as much energy per unit of dry matter conserved compared with hay or silage.

Glasshouse heating

The protected crops sector has been particularly hard hit by rising fuel prices, simply because heating forms such a large proportion of production costs. This is encouraging energy economies through improved installation, operation and control of heating equipment and the industry has reduced its consumption of oil since 1973.

Some growers are installing thermal screens, a canopy which can be drawn between the crop and the glass at night. Use of the canopy throughout the year can result in an annual fuel saving of about 20 per cent. Experiments are being conducted with houses made from rigid polycarbonate plastic materials of double-walled or cellular construction which have good heat insulation properties. A further interesting material is a double-skin plastic film which is inflated at night to provide good heat insulation, but is deflated during the day to bring the two films together, to give good light transmission. While these developments are encouraging, there are some problems of light transmission and environment to be overcome.

Heat recovery in bulk milk cooling

A direct saving of energy is possible in the milking parlour if heat is recovered from bulk milk cooling and used to heat and store water for cleaning the milking equipment. Commercial heat recovery units are now available for this purpose. The pay-back period is possibly not yet sufficiently attractive for widespread adoption.

Fertilisers

Manufactured fertilisers are a major user of energy in agriculture at 28 per cent of the whole and there is a considerable challenge to make better use of animal wastes as a source of nutrients. In the UK, increased specialisation of farming has produced a situation whereby large arable farms often have few animals while intensive livestock units operate on limited land area. A return to more mixed farming could provide better opportunities for use of the nutrients through more timely application to the land in harmony with crop needs. An estimate of the quantities of wastes produced by housed livestock and poultry shows that these contain plant nutrients equivalent to one-third of the amount of nitrogen, one-half of the phosphates and two-thirds of the potash purchased annually.

The use of manufactured fertiliser may also be reduced by growing more léguminous crops (e.g. field beans, lucerne, clover) which fix atmospheric nitrogen. The légume crop itself requires no artificial fertiliser and it increases the nitrogen status of the soil. Thus, it can also partly satisfy the nitrogen needs of a non-légume crop which follows or is grown with it. However, légumes have their problems and the use of artificial fertilisers and non-légumes has grown because together they provide a reliable and profitable means of ensuring good crop yields. In the area of forage, for example, the use of both white and red clover has declined because of unpredictable growth and persistency (they are susceptible to diseases and pests; selective grazing by animals causes disappearance from the sward as does return of nutrients and treading) and problems of conservation and utilisation (high leaf loss in hay-making and feeding problems when fed fresh or ensiled).

The nitrogen fixing ability of the légume is associated with the fact that its roots harbour colonies of nitrifying bacteria and the plant is able to absorb their output directly. An exciting long-term possibility, given hope by present research, is that it may be possible to develop cereals and root crops capable of coming to the same symbiotic arrangement.

ALTERNATIVE ENERGY SOURCES

Solar water heating

The use of simple direct solar energy collectors is well established in the domestic sector and it is perhaps not surprising that a number of agricultural and horticultural applications are being pursued.

In New Zealand, a solar water heating system has been built and operated on a dairy farm milking 350 cows. Over a nine-month period, the system collected nearly 30 per cent of the total energy used to heat the water to the required temperature but it was concluded that the system was barely economic. In the UK, solar heaters have been used to heat dairy washing water on a commercial

farm in Dorset. The design of this system was far from ideal and this resulted in a low solar collection efficiency and long pay-back period. Further work is being done in the UK at Seale-Hayne Agricultural College.

Solar water heating is also being used to provide environmental control in livestock buildings and examples may be cited of a poultry house (Auburn, USA) and piggery nurseries (Virginia, USA, and Buckinghamshire, UK). The unit in Buckinghamshire includes provision for storing heat in a 'hot water silo' coupled to flat solar panels. Silos are being developed made from a butyl skin supported by a welded mesh frame with insulation of urethane, fibreglass or straw. Straw provides the cheapest silo and is kept dry with an outer skin of plastic sheet.

Application of solar heating to crop drying

Solar energy is extensively used in crop drying and experiments are in progress which seek to enhance solar energy capture to reduce the supplementary fossil fuel inputs that are so often necessary. For crop drying, air is used as the drying medium and a number of experiments have been carried out in which the solar collector has been built into the roof or walls of a building or bare plate collectors have been constructed as an integral part of a grain drying bin. Some success for some of these systems has been reported from relatively sunny parts of the USA.

Similar work is also going on in northern climates. At the Scottish Institute of Agricultural Engineering, solar collectors are located on the south-facing wall of the steading containing grain drying bins. The collectors consist simply of two sheets of corrugated iron with air drawn between the sheets and thus warmed by the sun. The same fan forces the air into the bins via ducts. It is believed that the heat collected will enable the running time of the fans to be shortened and so effect a worthwhile saving. This has already been demonstrated in Sweden where trials have been carried out with grain and hay.

In France, a novel solar hay drying system uses a 1.8m diameter and 340m long black plastic tube laid out on the ground in a spiral form. Air inside the tube is heated by the sun and blown through the hay. It is claimed that the cost of this simple collector can be recovered in two years through energy savings.

Reject heat utilisation

A notable development is the use of reject heat from a large power station in the UK to heat glasshouses for the production of protected crops, mainly tomatoes. This has grown from an experimental enterprise of 0.2 ha. to a commercial venture of 8 ha. in extent. Although the cooling water temperature from the power station is frequently close to that required in the house for growing tomatoes, it has been found possible to solve the heat transfer problems and to produce acceptable crop yields.

Higher temperature industrial reject heat is, of course, a more attractive proposition and one of the most promising developments is that at a whisky distillery where waste heat from the distilling process is used to heat the greenhouse, using a convential heating system.

Geothermal energy

Geothermal exploration of the UK so far indicates that the only resources available are likely to be low temperature (less than 80°C.) water which may offer the possibility of heat for agricultural and domestic purposes on a local basis. Work is in progress to determine heat production from boreholes in Cornwall and Hampshire. Geothermal energy at a similar temperature is already used in France.

Windpower

The British Isles are set in one of the windiest regions on earth and the winds are strongest around the west coasts. The use of wind as a source of energy has been a viable proposition, only in specialised locations and with small machines, the exceptions being where no other supply is available and power is required in small amounts discontinuously.

A number of attempts are now being made, however, to build cheaper and more efficient power producing rotors than hitherto but at present estimated costs, these are nowhere near to providing a farm power supply at an economic cost.

Energy from animal wastes

There is currently much interest in the UK in the generation of methane by anaerobic digestion from animal wastes and there are now at least ten large anaerobic digesters operating on UK farms and others are planned. Most of these envisage the use of the gas to drive engines coupled to electric generators for power producing purposes. The total energy available from all housed livestock in the UK is about 69 PJ per annum, that is, about 1.6 Mtoe. This is more than enough to generate all the electricity used on UK farms for agricultural and domestic purposes, although it would not, of course, be practicable to do this. There is a problem of gas utilisation, since the seasonal pattern of gas availability and electrical demand are not easily reconciled without considerable facilities for gas storage. In the absence of this storage, it may not be possible to use all the gas and yet the provision of storage facilities could add significantly to the cost and render the whole operation uneconomic.

Yet another scheme planned for generation of energy from animal wastes, but not by anaerobic digestion, is that of a large poultry producer in Scotland to burn poultry manure directly to produce warm water for heating the houses containing the younger birds. The scheme has been costed and offers an attractive pay-back period.

Energy from crop residues

There is also the possibility of energy from crop residues and the largest of these in the UK is cereal straw, amounting in an average year to a surplus of 5.4 Mt. If directly burnt, this amount of straw would have a gross energy value of approximately 83 PJ (1.8 Mtoe), that is, almost equal to the petroleum fuel used in agriculture. At present energy prices, collection of straw for industrial use as a fuel is not economic and the most practical thing to do is to burn it and use the energy on the farm. Farmers are beginning to install draught-controlled slow-burning furnaces to heat water, largely for domestic purposes, but there are also examples where straw is being used as a fuel to provide heating for a small rural industry, a mushroom house and small greenhouse. Some experimental work has also been carried out in the UK on grain drying using straw as a fuel.

Energy crops

We have seen already that organic materials such as animal wastes and crop residues can be used to produce energy. Currently there is much interest in growing special energy crops to produce 'biomass' for conversion into gaseous and liquid fuels through fermentation and thermal processes (pyrolysis and gasification).

World-wide attention has been attracted to Brazil where 'gasahol', a blend of 80 per cent petrol and 20 per cent ethanol, is used to power cars and 70 per cent of all new cars are fully alcohol powered. However, Brazil has been producing alcohol from sugar cane since the 1930s, to reduce sugar surpluses, and a net energy gain can be made because the bagasse can be used to fuel the process. Brazil is also chronically short of indigenous fossil fuels and foreign exchange, so energy production from crops forms part of her economic and energy policies. In the USA, grain surpluses, have been turned into ethanol for gasahol production with the backing of Government funds. It is doubtful if a net energy gain can be made and this must again be seen as part of a strategy to reduce surpluses and stimulate fuel production from crops.

In Europe, both France and Sweden are well provided with biomass potential, from wastes and forests and consider this to be a renewable energy source of some importance. In the UK, this is less so and to produce even 10 per cent of our present oil consumption of around 90 Mt per annum would require a cropping area equivalent to one-eighth of the UK and a crop dry matter yield of 20 t/ha per annum.

Despite this it has been argued that there is a considerable area of marginal land which could be used for raising energy crops, particularly by means of short rotation afforestation. It is believed that equivalent yields of 10 t/ha per annum may be possible from single stem trees and from coppiced trees in which new growth

would develop from the old stems. The harvested wood would be transported to processing plant, where it would first be gasified and then converted to methanol. It is believed that the cost of methanol could be competitive with petrol before the end of the century and that some 3 Mtoe could be obtained from trees grown on marginal land.

CONCLUSIONS

The main conclusions arising from this paper are as follows:

1) UK fossil fuel reserves could last for 150 years at present rates of consumption. Exploitation of nuclear fuels already in our possession could extend this period by almost a factor of two.

2) Energy prices must be expected to rise in real terms, thus reflecting the increased resources which will have to be put into producing energy as supplies become scarcer.

3) Agriculture and horticulture even more so, already show signs of responding to increased energy prices through energy conservation measures, the adoption of alternative practices and the exploitation of alternative energy sources.

4) These responses can be expected to accelerate only as fuel prices rise in real terms so that alternative measures show economic benefits.

5) Agriculture has the potential to supply much of its energy needs from within its own resources.

6) To exploit possibilities to the full, it could be necessary to relocate some enterprises geographically and to re-structure others in respect of crops and animals so that the resources arising may be used more effectively.

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TABLE 1: PRIMARY ENERGY CONSUMED IN THE UK, 1977

Resource	Consumption in original units	Energy equivalent	Percentage of total energy
Coal	123 Mt	3,150	34.0
Petroleum*	90.5 Mt	4,080	44.0
Natural gas	1.57 T cu.ft.	1,660	17.8
Nuclear electricity	40,000 GWh	350	3.7
Hydro-electricity	3,920 GWh	50	0.5
Total	-	9,290	100.0

* includes 10.2 Mt used for non-energy purposes

TABLE 2: ESTIMATES OF THE UK'S INDIGENOUS ENERGY RESOURCES

Resource	Estimated recoverable reserves		Consumption in 1977	Estimated life (reserves/ consumption)
	Unit given	Coal equivalent Gt	Gt of coal equivalent	years
Coal	45 Gt	45	0.123	366
Oil	3-4.5 Gt	5-7.5	0.154	32-49
Natural gas	50-60 T cu.ft.	2-2.4	0.063	32-38
All fossil fuels	-	52-55	0.340	153-162
Uranium	-	40	-	-

TABLE 3: PRIMARY ENERGY INVOLVED IN FOOD PRODUCTION, UK 1973

	Primary energy PJ	Percentage of national consumption (9260 PJ)
Agriculture (to the farm gate)	361	3.9
Processing, packaging, distribution	648	7.0
Food storage and preparation	449	4.9
Total	1,458	15.8

TABLE 4: PRIMARY ENERGY CONSUMED IN UK AGRICULTURE, 1978

Item	PJ	Per cent
Solid fuel	1	0.3
Petroleum	70	20.9
Electricity	35	10.4
Fertiliser	93	28.0
Machinery	40	11.9
Feedstuff processing (off-farm)	52	15.7
Chemicals	9	2.5
Buildings	14	4.2
Transport, services	16	4.8
Miscellaneous	4	1.3
Total	334	100.0

APPENDIX

Primary energy

Every commodity, fuel and non-fuel, uses energy in manufacture and transport and all the other processes to make it available for use. For fuels, this energy is an 'overhead' and is added to the calorific value to give primary energy while for non-fuels it gives the primary energy directly.

Energy conversion factors

Throughout the tables and text, energy is given in terms of multiples of the joule (J). Some conversion factors to other commonly used units are given in the table below.

	J	kWh	Cal	Btu	Therm
iJ =	1	2.778×10^{-7}	2.389×10^{-1}	9.481×10^{-4}	9.481×10^{-9}
1kWh =	3.600×10^{6}	1	8.598×10^{5}	3412	3.412×10^{-2}
1 cal =	4.187	1.163×10^{-6}	1	3.968×10^{-3}	3.968×10^{-8}
1 Btu =	1.055×10^{3}	2.930×10^{-4}	252	1	10^{5}
1 therm =	1.055×10^{8}	29.30	2.520×10^{7}	10^{-5}	1

Oil and coal equivalents

Unlike the above, these conversion factors are only approximate since they depend on the assumed calorific values of oil and coal. 1 Mtoe (million tonne of oil equivalent) = 1.7 Mtoe (million tonne of coal equivalent) = 425 M therm (million therm) = 44.6 PJ (peta-joule).

General conversion factors

1 t (tonne) = 1000 kg = 2205 lb = 0.984 ton

1 ha (hectare) = 10000 m^2 = 2.471 acre

1 t/ha = 0.398 ton/acre; 1 ton/acre = 2.51 t/ha

Definitions of prefixes

Prefix:	kilo	mega	giga	tera	peta	exa
Symbol:	k	M	G	T	P	E
Factor:	10^{3}	10^{6}	10^{9}	10^{12}	10^{15}	10^{18}

POSSIBLE SOLUTIONS TO THE HUSBANDRY PROBLEMS

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It is important to recognise at the outset that the "resource crisis" is unlikely to be the only factor shaping agriculture in the future, even when the crisis is defined as widely as for this meeting on "Rural response to the resource crisis in Europe".

The foreseeable pressures are:

1. Costly supplies of fuel;
2. Increased availability of labour;
3. Concern for the nature of the diet;
4. Concern for the soil;
5. Concern for the countryside;
6. Decreasing availability of land;
7. Restrictions on use of capital;
8. Concern for animal welfare.

The effects of these kinds of pressure on methods of husbandry will be discussed in turn, although it is not always possible to separate these from energy or social developments.

1. Costly supplies of fuel

This will apply particularly to liquid fuel and will thus have its biggest effect on the use of machinery that normally uses liquid fuel (including drying operations).

The main husbandry implications include reduced cultivation, more efficient use of machinery and equipment and, perhaps, a choice of crops that require less fuel, for cultivation or drying. This could lead to minimal cultivation, less ploughing or a choice of perennial crops rather than annuals.

It is dangerous, however, to ignore other parts of the agricultural industry when considering energy use in farming itself. It is just as likely - perhaps more so - that crops would be chosen that require less processing beyond the farm gate, than that they would be chosen for a low requirement for fuel during production. Equally, it is well recognised that the energy cost of inputs to farming will exert an important effect on their use. The most important in this context are machinery and fertiliser.

Machinery has been getting larger (for many reasons, some of them related to tax avoidance, fashion and a belief in economies of scale) and this trend could be reversed. On the other hand, it is possible that machinery could be designed to use less costly forms of fuel.

The most obvious, and generally accepted, response to high fuel costs in crop production is a reduction in the use of nitrogenous fertiliser, although it has to be recognised that, currently, the use of a high level of nitrogenous fertiliser has the effect of increasing the efficiency with which land, labour and solar radiation are used (see Figure 1).

There are several ways in which less fertiliser N might be used.

The first involves accepting lower yields, though not necessarily, of course, lower profitability.

The second is to substitute other sources of nitrogen by using recycled crops, crop residues, animal manures, town refuse, human sewage or the residues from digestion for the production of methane.

Third is increased dependence on biological fixation by the use of légumes (and some other plant groups), free-living bacteria and, in the very long term, the transfer of the capacity to fix nitrogen from légumes to other species, including cereals.

Quite apart from reduction or substitution for energy-expensive inputs, it is also likely that farming may produce fuel. The biggest implication of this for husbandry is in terms of fuel-cropping, either from perennials (such as coppicing) or from annuals, whether main or catch crops (see Table 1). The advantages of the latter are that they do not commit resources (especially land) permanently but can be introduced into existing food crop rotations. They do not require different machinery, except for the conversion (and storage) processes and, as catch crops, they would not necessarily interfere with food production. Indeed, they may represent an important use for land not required for food production. Such fuel-production would probably be used on site and would result in the use of the residue as fertiliser.

The implications of high fuel costs to animal production are difficult to foresee. The relative inefficiency of animal production in providing basic nutritional needs for people, suggests the possibility of a reduction in animal production relative to crop production. The production of human food per unit of energy could be greatly increased in this way.

Within animal production, however, it does not necessarily increase efficiency of support-energy use a great deal, to move from intensive to extensive systems (see Table 2).

However, many animals (and not only ruminants) could be fed on crop by-products and other wastes. It might seem likely that

ruminants would be grazed, since this form of harvesting is indirectly solar-powered, but this may be an over-simplification. Grazing is itself rather inefficient and it might be better to think in terms of multi-purpose crops, producing feed, food, fuel and feedstock or raw materials for industry. This would require harvesting by machinery but might be fuelled by one component of the product.

2. Increased availability of labour

Although more people may be available, it does not follow that they will be employable, either because they cannot be afforded or because they are not sufficiently skilled.

It could be that human labour will be cheaper than fuel as a source of power but it is unlikely that the cost of labour will be independent of the fuel costs that will contribute greatly to the cost of living.

If labour can be afforded, it could replace machinery in some operations and, indeed, could result in greater productivity per unit of land and capital.

However, if the number of people interested in working on the land should increase, it would not necessarily be on the basis of employed labour (it could be as small-scale farmers) and it would not necessarily be on a full-time basis. These are rather more social implications but they would have husbandry consequences as well.

For example, part-time farming would impose constraints on what crops and animals could be managed and small-scale farming has implications for choice of species and method of husbandry.

3. Concern for the nature of the diet

This might relate to beliefs about the relationships between diet and health (concerning fats, sugar or fibre) or might reflect a desire to eat "natural" rather than "artificial" foods, or to eat "fresh" foods or foods free from chemical or hormonal residues.

The main effect would be on the products demanded and thus on the crops and animals farmed but there would also be considerable implications for methods of food production. Various degrees of organic farming could be required but it is hard to judge the likely scale of such a demand.

4. Concern for the soil

This is unlikely to be found amongst the urban population but it may not be confined to farmers.

The farmers' concern may be to rely more on natural fertility processes and it is most likely that practices leading to soil with a higher organic content and a higher population of small animals

(especially earthworms) would be associated with reduced tillage (and perhaps reduced use of artificial fertiliser). As yet, relatively little has been done along these lines so we do not really know what solutions are possible.

5. Concern for the countryside

It is clear that there is already a growing concern about the effect of farming practices on the countryside. This is mainly directed at the removal of hedges, the destruction of habitats for wild-life, monoculture and straw-burning.

It is likely that agriculture, as a major land user, will have to accept greater regulation of its activities, where they affect amenity and conservation.

This is perhaps most likely to change husbandry methods where they offend by noise or odour. Major patterns of land-use are rather more than just husbandry matters.

6. Decreasing availability of land

The supply of land for agriculture can only decrease but the extent of this is hard to predict.

The general effect on husbandry must be to encourage intensive use of land, in terms of yield per unit area, and the problem will be how to achieve this without high inputs of fertiliser nitrogen. Although pesticides and herbicides also cost a lot of energy to produce, they are used in relatively small quantities. Even so, more use of biological control methods may be expected, especially in glasshouses.

7. Restrictions on use of capital

After recent experience of being trapped with very heavy capital investment during a period of very high interest rates, farmers might well be expected to move into systems requiring less capital. This may only be possible to a limited extent, however, since land itself is expensive and, in the case of animal production, livestock also involves a very high cost. It might be expected that the price of livestock would reflect the profitability of livestock enterprises but there are many other (non-agricultural) influences on the price of land.

Another feature of recent years has been the inflexibility associated with heavy capital investment, well illustrated by the problem of a dairy farmer wishing to get out of milk and into some other enterprise.

Farming involves a good many features of a long-term nature, related to the length of breeding cycles, unchangeable seasons and climatic patterns, and it is sufficiently difficult to alter course quickly in response to changed economic conditions without rigidities imposed by capital investment.

8. Concern for animal welfare

There is already considerable evidence of public concern about the welfare of farm animals, during production on the farm, in transit, in markets and in slaughterhouses.

There is also much emotion, not of itself unnatural or undesirable but often clouding the issue, and the debate has hardly begun on an informed basis. There is no shortage of extremists, who hardly talk to each other and certainly do not listen, and a lot of people in the middle who tend to be confused by both sides.

Inevitably, farmers who are attacked as a body, defend themselves and resent uninformed comment. But eventually it will be recognised that the community is entitled to decide what standards of behaviour it finds acceptable or unacceptable, in this as in other matters, and that arbitrary lines have to be drawn (rather like speed limits). Everyone would wish to draw a line, the only problem is to arrive at a concensus as to where it should be drawn in relation to methods of animal production.

Currently, concern is with markets, transport and slaughter processes, which do not have serious implications for methods of husbandry, and with the production methods employed in batteries (for poultry), in piggeries (tethered sows, early weaning, restraint on turning round and lack of bedding) and with veal calves (restraint in crates and lack of light). There is also concern about particular practices, such as debeaking (or beak trimming, as it might more accurately be called), forced moulting and docking of tails, but no great outcry about castration, one of the best illustrations that cruel practices are not confined to modern intensive methods.

Alternative systems are already beginning to appear for veal calves and will undoubtedly be sought for poultry and pigs. Codes of practice will be agreed and certain practices will probably, in time, be banned.

Either the price of food will increase somewhat or economic alternatives will be found. Such changes will provide an opportunity to take into account the need to use less support energy and to conserve what is used. (Adequate insulation of battery houses would transform the current economic argument about the number of birds per cage, because the effect on temperature is a major factor in most calculations).

It is unlikely that the response will be a move to less intensive systems unless the pattern of farming changes radically.

None of this has a great deal to do with the resource crisis but it may prove to have the biggest effect on the systems of animal production that are used.

Radical changes

Taking all the foregoing factors into account, there appears to be one major development that would represent a very radical change.

This would involve small-scale enterprises, using more labour, serving local markets and based on land rather than complete housing.

It would require, however, multiple use of land, in order to reduce the cost, but might not result in any lessening of the total intensity of land use. Multiple use could take many forms.

Poultry could be used as a means of pest control in some field vegetable crops; pigs could use commercial woodland and reduce the control of undergrowth problems. Stored straw could be utilised for shelter, as could drying timber. The cultivation of snails could be based on waste vegetable material and the culture of insects, especially fly larvae, could be combined with manure disposal from poultry, cattle and rabbits.

Orchards could be grazed by geese (or hens or ducks), keeping the grass short, provided that toxic chemicals were not used for pest control.

Fish production could be combined with duck keeping and utilise animal faeces and vegetable wastes.

There are endless possibilities for the development of such mixed enterprises but they all depend upon a desire of people to become involved in small-scale agriculture.

Perhaps the biggest factor in bringing about radical change of husbandry methods, therefore, will be the desire of people to solve social problems by changing their life-styles in this direction.

FIGURE 1: THE EFFECT OF NITROGENOUS FERTILISER INPUT ON EFFICIENCY OF USE OF SOLAR RADIATION

$E = \frac{\text{DM Yield (kg)}}{\text{Solar Radiation (MJ)}}$

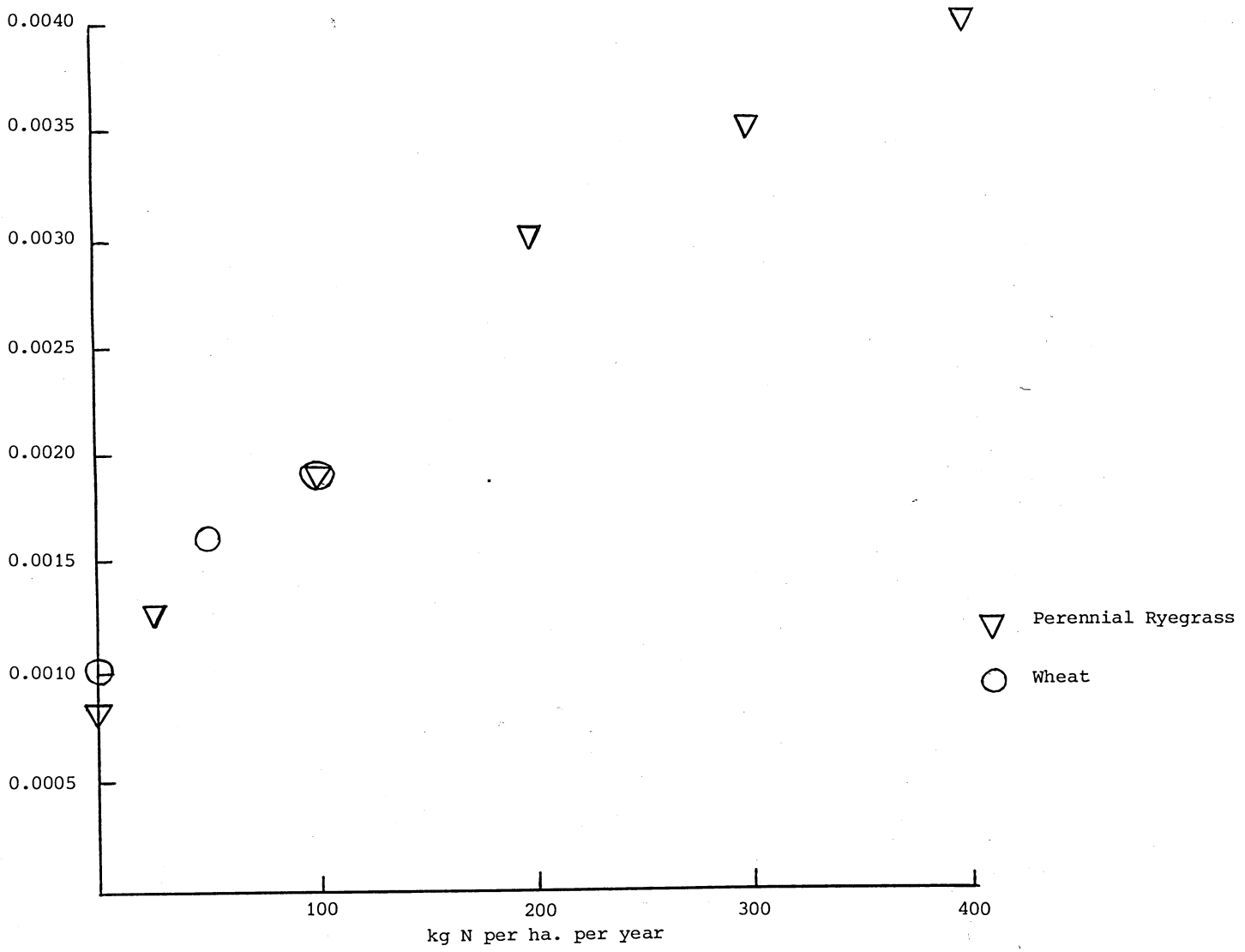

TABLE 1: ENERGY YIELDS OF CATCH CROPS AND A PURE FUEL CROP (ITALIAN RYEGRASS)

Planting date	Potential yield per hectare	
	Dry matter (t)	Gross energy ($J \times 10^9$)
June/July	13.9	244
July/August	7.0	120
August/September	4.2	74
Mid-September on	2.5	45
Italian ryegrass	16.9	311

TABLE 2: ENERGY COST PER KG. OF PRODUCT IN INTENSIVE AND EXTENSIVE ANIMAL PRODUCTION SYSTEMS

System	Support energy MJ/kg	
	Intensive	Extensive
Dairying	9.12	13.64
Beef	43.1	47.72
Hen eggs	49.5	40.22

POSSIBLE SOLUTIONS TO THE SOCIAL PROBLEMS

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INTRODUCTION

This seminar is intended to discuss practical ways in which European agriculture could help to overcome economic deficiency, shortage of resources and social disintegration. My brief is to suggest possible solutions to problems of social disintegration. As the notes on your programme put it, reduction in the working population of the countryside destroys balanced communities and adds to the problems of towns and cities, not the least of which is unemployment. Speakers have been asked to concentrate on realistic solutions which are likely to be technically and economically possible as well as socially desirable and politically acceptable.

For this reason I shall try to be pragmatic. Personally, I do not believe that European agriculture holds the key to the massive unemployment problems of our towns and cities. Those of you who hoped I would advocate settling the urban unemployed on the land with three acres and a cow, will be disappointed.

This does not mean I want to belittle the very real social and economic benefits which some individuals have enjoyed and continue to enjoy through the creation of statutory smallholdings, allotments, the Land Settlement Association, job creation schemes and so on. Ventures like these can be successful for the few. But they only scratch the surface of the problem. It would be ludicrous to suggest resettling two million unemployed on the land. Where would the land be taken from? What would the smallholdings produce? Who would foot the bill? How many of the eligible unemployed would have the necessary skills and experience, let alone the will to succeed as smallholders?

Here I am not talking about those who turn to the countryside in search of alternative lifestyles. I expect their numbers to increase. These people are not merely looking for practical answers to unemployment problems. They are more likely to be in revolt against the pressures of modern urban industrial society in general, driven by strong idealistic or quasi-religious principles to find more fundamental and satisfying patterns of living. For such people, I suggest the element of choice is very important. To sacrifice the security and amenities of urban life, to uproot the family and to embark on a hard and unrewarding struggle on a small farm, may be acceptable if one has been able to make the choice. It is not the kind of solution which can be imposed on others.

In short, I very much doubt whether the solution to Britain's or Europe's major social problems lies in the countryside. But perhaps I am too pessimistic. Maybe someone in the audience has some positive suggestions to put forward in the discussion. In this paper I shall take a more cautious approach, suggesting some ways in which rural social disintegration might be slowed down, if not actually stopped or reversed. First I will indicate some of the human problems in rural areas. Then I will outline some possible approaches to solving these problems.

The root of the problem

Agriculture's increasing efficiency in use of labour is largely to blame for what has been described as 'rural social disintegration'. In 1851 the total farm labour force in Britain numbered over 2 million persons, in 1951 a little over 1 million and today, only about half a million. Over the last hundred years, hired men have been leaving the land in great numbers. The total number of farmers enumerated in the 1951 Population Census for Great Britain was almost exactly the same as in 1851. Since 1951, however, there has been a steady decline in the number of farmers. In the 1960s it was thought to be about 2 per cent per year. If farmers give up farming or retire without successors, their holdings are likely to be amalgamated with other farms. But British farmers have lost well over half their hired work force since 1950: in England and Wales the reduction has been 60 per cent. Hired men have been made redundant or, more often, not replaced when they retire or leave farming for other jobs.

In one sense this is splendid news. The British agricultural industry's record of increasing labour productivity is second to none. During the early post-war years, the British economy was being held back by a shortage of labour. Farming contributed by releasing surplus manpower to other industries. Indeed, the 1965 National Plan expressly charged British agriculture with the task of supplying workers for other sectors of the economy.

In another sense, the picture is not so rosy. The loss of some half a million farmers and workers with their families from agriculture in only thirty years, is bound to leave a vacuum in rural areas. Here it is useful to distinguish between those parts of Britain where the vacuum is readily filled and those where it is not. The social problems are quite different.

In the first category are most of the southern counties of England, as far west as Gloucestershire, and the Midlands north to Cheshire and Lancashire. Here the rural population has been growing very rapidly since the war, growth being especially rapid in rural districts close to urban centres. Demand for housing from families working in cities and towns or coming to retire, has guaranteed more than enough newcomers to fill the vacuum left by a declining farm population.

For villages on the periphery of towns, within commuting distance of major cities or in popular retirement areas like the south coast, social problems are likely to arise over shortage of housing and the assimilation of newcomers with expectations and

value systems different from those of the natives. Conflict and change there may be but I do not think we can speak of social disintegration.

Much more serious, to my mind, are the social problems of rural areas where declining employment in agriculture has left a vacuum which is not being filled. In the north of England, East Anglia and the south-west, population growth in rural areas has been below the national average since the war. In much of Scotland and most of the Welsh counties, rural population actually decreased between the 1961 and 1971 censuses. Even within counties with a stable or slowly growing rural population, there are districts suffering a steady and prolonged drain of people. Parts of Lincolnshire and Norfolk, the Fens, parts of north Devon and Cornwall have been losing population for over a century. Among the worst hit have been the north Cornwall-Devon border, the Pennines and mid-Wales, where the net outflow of people has been more than 2 per cent per annum in the post-war period.

Failure of agriculture to support the same labour force as in earlier times, is one of the main factors contributing to depopulation and social disintegration in remote rural areas. Declining population means withdrawal of commercial services like shops, then of subsidised services like public transport and finally of public utilities (closure of schools, no investment in roads, water supplies and other services). Rural depopulation can be cumulative; the more people leave, the more services are curtailed, the less attractive the area will be for those left behind.

Part-time farming

One possible solution might be to encourage more part-time farming in remote rural areas. Whereas large-scale, modern farming systems which use labour so economically, may not be able to support a viable rural population, smaller scale farming interspersed with other forms of employment might just do so. What I have in mind are small firms, preferably started by local initiative, employing only a few people each but well scattered throughout a rural area. The number of jobs necessary to make a significant contribution to the economy and social structure of a village, need not be great.

What are the obstacles to increasing part-time farming in remoter rural areas? Obviously, in the current economic climate, it would be unrealistic to imagine scores of small businesses springing up all over Northumberland or mid-Wales. Yet, despite the recession, there are new firms starting up and many small businesses in rural areas which are doing tolerably well and Budget incentives have recently been introduced to help them. The work of the Council for Small Industries in Rural Areas (CoSIRA), deserves credit for its sterling work in advising and supporting the development of such initiatives.

In the past, I suggest, the attitudes of planners and policy makers have done little to encourage the growth of part-time farming in disadvantaged rural areas. Listening to agricultural policy makers, farming leaders and advisers, I get the impression that part-time farming is somehow regarded as second class, less satisfactory

than full-time farming, and that part-time farmers ought to be removed to allow full-time farming to expand. Part-time farming has connotations of dilettantism. It is often regarded as a transitional stage between 'proper' full-time farming and non-farming activity. It seems to be assumed that the families unfortunately caught in this transitional phase should be helped to move one way or the other as quickly as possible. The suggestion that part-time farming may be a stable type of occupation in its own right, one with very practical benefits, is rarely acknowledged.

Agricultural policy makers seem determined to find solutions for farm income problems within agriculture. It is a basic tenet of the Common Agricultural Policy that farming families should have the opportunity of earning incomes which are comparable with those of the non-farming population in the same area. Resources available to implement agricultural policy, such as money and administrative time, are fully stretched trying to cope with the problem of families - the majority of all farm families in the EEC - who are making inadequate incomes from small farms. The goal is to help as many as possible to make decent incomes in farming. Part-time farming has low priority and resources are not being diverted to promoting it. Yet it may be that many of the families with low incomes from agriculture could be earning, or already do earn, quite acceptable incomes from farming in combination with other activities. For example in West Germany, total household incomes of part-time farming families are thought to compare very favourably with those of the non-farming population and often exceed those of full-time farming families.

It is commonly alleged that part-time farming is less efficient than full-time. To my knowledge, there is little evidence to support this claim. We do know that part-time farmers tend to choose simpler farming systems and less labour intensive enterprises than full-timers, but this says nothing about their relative efficiency. On the other hand, there is ample evidence that on small farms, the labour of the farmer and his wife is often under-employed and this is a source of inefficiency. If one or other spouse were able to find additional employment, labour productivity would be likely to improve even if farm production declined.

By concentrating on full-time farming in a rather narrow sense, policy makers may be discriminating against the part-time farmer who has the potential to use his time more effectively and make a more satisfactory income, remaining in a disadvantaged area. The Farm Improvement Directive 159, for instance, is only payable to full-time farmers. Claimants for a farm improvement grant become ineligible if they are receiving more than 20 per cent of their income from non-agricultural activities. Directive 268 on less favoured areas is more innovative. It allows farmers to be earning up to 50 per cent of their incomes from non-agricultural occupations and still to apply for farm improvements grants.

Physical planners, too, have come out against part-time farming as an 'untidy' use of the countryside. The idea that rural areas ought to be kept for (full-time) farming and protected against aesthetically unpleasing industrial development, is deeply entrenched. Yet there are circumstances where part-time farming might also serve the ends of landscape planners.

A few years ago, a group of consultants was asked to advise the Lake District Park Planning Board on how to maintain the landscape, strong pressure being on conserving it in its existing form. A study of the Hartsop Valley revealed a great deal of change taking place in types of farming and types of farmer in the area. The consultants recommended that the Board should try to keep middle- sized farms in existence. If economic forces were allowed free rein until there were only large, extensive full-time farms ranching the land, the landscape would become dull and monotonous. Smaller farms, which have been traditional in the Lake District, would help to maintain an attractive and varied patchwork landscape. Yet they would not provide a full-time living for a family. A possible solution would be to encourage part-time farming. Tourism was the obvious activity to combine with farming in the Lake District. The consultants, therefore, recommended that farm tourism should not be discouraged but allowed to become an integral part of the farming economy.

Under Directive 268, the system of investment aids provided for the Farm Modernisation Directive may be applied to the development of farm-based tourist or craft industries in suitable areas within the less favoured regions. There are, of course, many areas suffering from rural depopulation and declining farm employment, which are not suitable for development of tourism. Here, a possible solution might be to extend farm investment aids to development of other suitable, small-scale businesses. If members of farming families could find supplementary employment, it might help to keep them in the area and stabilise the rural population.

Lack of opportunities for women

Social disintegration of rural communities which are mainly agricultural, stems in part from lack of job opportunities for women. Unless there is some alternative employment near at hand, the daughters of farmers, farm workers and other rural workers are obliged to leave home when they have left school and move to the towns in search of work.

Not only the lack of suitable jobs but lack of services and amenities make life in the remoter rural areas unattractive to women. A man who inherits his father's farm may find tremendous satisfaction in meeting the challenge of farming. His wife may not have the same ties with the land and, perhaps, sees more of the drawbacks. She is more intimately affected by low income, coping with travelling to shops, hospitals, schools. Life on an isolated farm is probably lonelier for her and the children than for her husband, who may see other men in the course of his work. Tristram Beresford has spoken of areas of rural depopulation as being 'unwomanworthy'.

The exodus of young women to the towns in search of training and work, leaves an unbalanced age and sex structure in more isolated rural areas. In most of the rural parts of Britain today there are only of the order of 85 to 95 women to every hundred men. In some areas the ratio is less than 85 per 100. The deficiency of women is most marked in the 20 to 35 age group.

Consequently, there are not enough marriage partners for farmers' sons. Notably in upland areas with a preponderance of small farms, a high proportion of farmers remains unmarried. In England and Wales as a whole, 83 per cent of farmers are married but in Wales alone, the figure is only 72 per cent. The Pennines and western Ireland are other areas with a high proportion of batchelor farmers.

A farmer on a small holding with no wife to share the work is not likely to be very innovative. What incentive has he to improve and enlarge his farm business? It will only mean more work and he will not have the satisfaction of handing on the business to his son. Therefore one sympton of social disintegration in more isolated rural areas is likely to be a concentration of small, run-down farms with elderly, unmarried occupiers who are not very interested in farm modernisation.

Making rural areas more womanworthy

What can be done to make farming areas more womanworthy? I suggest one solution is to recognise the need for female employment. This is more than just an economic need, though of course, the financial aspect is important. A job can mean much besides a wage packet. Some women find in employment an outlet for their creative abilities, a source of self respect and status, independence, a justification for their education and training, company, an escape from the house. Now that half the married women in Britain go out to work, it is becoming accepted as 'normal' for wives to return to work once the children are at school. Those who stay at home describe themselves as 'only housewives' and feel they are missing something.

In a survey of farm women which I recently carried out with *Farmers Weekly*, a number of respondents touched on this theme of a woman 'needing' a career. Many bemoaned the fact that they were 'just housewives'. As one reader put it:

> *"I think the present role of women going out to work will make a difference to the younger farmer's wife. She will be less content to do mundane jobs at home".*

Money was certainly not the only motive. One farmer's wife in my sample enjoyed guiding visitors round a stately home because it provided mental stimulus. Another felt it 'added perspective' to leave the farm for a part-time teaching job. Another suggested it was important for the farmer's wife to bring a breath of the outside world into the farm 'as farmers can be so insular'.

What is there to stop women living on farms from following off-farm occupations? The needs of young children first of all. As a

a wife of a Devon farmer put it:

> *"However well qualified, the farm wife is obliged to stay at home with under fives as there are no nursery schools in the country".*

Second, obviously she is hampered by the lack of suitable jobs in the rural area. A shepherd's wife from Norfolk considered:

> *"Women could do more if opportunities were available. Here in East Anglia especially, she is limited to seasonal piecework with fruit and vegetables".*

Third, she has to consider the cost of travelling to towns where most female employment is to be found. Or as a Gloucestershire farmer's wife said:

> *"Distance from urban centres and demands of the farm can prevent wives from following their own employment".*

The emphasis in this seminar is on practical solutions. It would be totally unrealistic to think in terms of government investment to create employment for women in rural areas. I have in mind much more modest steps, such as a change of attitude on the part of planners, a climate of opinion which would encourage rather than discourage the setting up of small industries employing women in rural areas, flexibility over working hours, willingness to consider women for jobs normally assumed to be the prerogative of men. In Lincolnshire, to give just one example, the Agricultural Training Board has taken to employing women to organise training groups. Traditionally, it has been held that only men can advise and provide services for farmers. Yet the Board has had great success with its female training organisers and, incidentally, made rural life more acceptable for the women involved.

The needs of the farm may be another obstacle to the farmer's wife who wants to take another job. A farmer's wife from Somerset admitted:

> *"Often I should like to have a part-time job to earn a little money of my own, but I am constantly being told I must be around to 'back up' the farm".*

A Cambridgeshire reader of *Farmers Weekly* agreed that:

> *"Farmers' wives have fewer career opportunities because their husbands expect them to be constantly available in case of emergencies".*

How much is this objection to wives going out to work based on real needs of the farm? Could it perhaps reflect a rather outmoded social attitude? A Scottish woman wrote to *Farmers Weekly* that:

> *"A farmer needs a wife at home to help. I would not like any of my four sons to embark on farming with a wife who pursued a separate career".*

Other women wrote in to say that their career were unacceptable because *"farmers' wives do not go out to work"* or because having a career was *"not the done thing"* in their position. For a woman to busy herself with voluntary work is acceptable, it seems, to pursue a career for which she is qualified, is not.

Women in farming

One alternative to farmers' wives going out to work, is that they should be allowed to make careers for themselves in farming alongside their husbands. Some women already find great satisfaction from being real partners in the farm business. I suggest many more would like to do so but are held back by attitudes of husbands or parents. As a young farmer's wife from Kent complained:

> *"We are a farming company, but wives are supposed to keep quiet, according to my father-in-law".*

Many respondents in my survey felt they were being shut out of the farm business. As one put it:

> *"Many women seem resigned to the role of housekeeper and general dogsbody. They will not have any say in the farm although they are in some cases better able and qualified than their husbands".*

Here, I suggest, is another way in which rural living could be made more 'womanworthy'. The farmer's wife could be given a more significant role in the business and made to feel she was necessary, not a mere onlooker. Some farmers' wives are given responsibility for an entire farm enterprise, not merely doing as they are told but making decisions too.

Second, there is scope for women to become more involved in farm business management. Already a large number of farmers' wives keep the accounts; relatively few have to make decisions on the basis of farm records and accounts. This might indicate a training need. Wives might, perhaps, be encouraged to attend courses, not only in farm accounting and VAT but in subjects like capital budgeting, cash flow and farm planning.

Third, women may need to become more skilled in farm tasks. Already three-quarters of the agricultural holdings in Britain employ no full-time regular workers and the proportion is growing all the time. Many farmers wives up and down the country are now attending training courses in subjects like tractor driving and ploughing. I suggest this is another way in which rural social disintegration might be slowed down. Not only is the skill useful to the farm business but the woman knows she is vital to the success of the farm business. This can give her a sense of pride and satisfaction at a time when it is widely held that women should be working outside the home.

Women with other enterprises

I believe that creating employment opportunities for women in rural areas could help to make those areas more womanworthy. I have indicated some of the difficulties for farm women seeking outside employment and suggested as an alternative, that a niche might be made for them as active farming partners. But not all women are willing or anxious to become farmers.

Another possibility is for women to develop business enterprises for themselves which they can run from home. As a Welsh reader put it in my *Farmers Weekly* survey:

> *"I would say most farmers' wives are busy, hard working people, who ought to be given more incentive to work for themselves at home".*

I have in mind business ventures which are intended to make a profit, involving the woman's skill, business acumen and time, which make use of farm products, spare buildings or space, yet are not an integral part of the farm business.

Direct retailing of farm products is an obvious example. In my *Farmers Weekly* survey, one woman in six was involved in some form of retailing. Popular enterprises included retail milk, egg and potato rounds, farmgate sales of fruit and vegetables, Pick-your-own. More unusual ones included the sale of goats' milk, dried flowers, pot grown herbs and dried cow dung.

Farm-based recreation and tourism is another possibility. In south-west England, one farm woman in seven in my sample was engaged in providing holiday accommodation in the farmhouse, running a caravan or camp site, letting cottages and so on.

Success of ventures like these depends a lot on estimating demand correctly and advertising effectively. An interesting example of co-operation in this field comes from the Peak District. There a dozen farm families decided to form a co-operative to promote farm holidays. Several were already providing farmhouse bed and breakfast or full board, self-catering accommodation or caravans. Facilities for pony trekking, angling, walking and climbing were also available in the district. Whilst the families continue to run their own businesses, grouping together has enabled them to produce a joint brochure which is distributed nationally. Other benefits of the group are encouraging members to maintain a high standard of accommodation and advising on ways of upgrading facilities. Links have been established with ADAS, the Peak Park Planning Board and the Tourist Board, which advise the group of new opportunities and developments in the region. I feel that ventures like this, quite modest in themselves, nevertheless help to make farm and rural life a little more rewarding. In turn, this may check the out-migration of families and help to stave off social disintegration.

Relief labour co-operatives

So far I have suggested some possible ways of keeping a viable population in rural areas where full-time farming alone is not sufficient. Now I will turn to some of the problems facing families who do remain on full-time farms. Nearly half the farmers and wives in Britain are on holdings where they provide at least eighty per cent of the labour. Over a quarter are on farms where they make up the entire labour force.

The farmer who employs no outside labour is in a vulnerable position, the single-handed dairy farmer particularly so. He may feel unable to take a holiday away from the farm, which puts a strain on family relationships. He cannot afford to be ill or have an accident, yet milking twice daily can undermine his sanity. Apart from these personal considerations, a farmer without a regular assistant is handicapped when it comes to planning changes for the farm business. He cannot stand back and take an objective view, being so close to the grindstone.

All this points to the need for some form of relief service which would enable farmers on family farms to enjoy a reasonable standard of living and keep their businesses in a healthy state. Family farmers in Britain do not make much use of commercial relief services; the rates are high and not all farmers have had happy experiences with them.

Problems of the one-man farm are by no means unique to Britain. Soon after the war, farms in the Netherlands began to experience 'the drift from the land'. By the mid-1960s not only hired workers but farmers and farmers' sons were leaving agriculture in large numbers. This led to social disintegration. One result was that if a farmer was ill or in trouble, he could no longer call on his neighbours to run his farm, for there were scarcely any neighbours left. Lacking anyone to fall back on in emergencies, many farmers felt reluctant to expand their herds.

In 1960, a group of Friesland dairy farmers decided to form a co-operative to employ one relief worker between them. The idea was that the man would be highly skilled and responsible, capable of taking over the running of an entire farm in an emergency. Members would pay an annual premium to belong to the co-operative and a daily charge for the relief labour they used. Emergency calls would be given first priority, after which any of the members could employ the man on their farms. The dairy co-operative was sympathetic to the idea and agreed to help by finding work for the man if there was nothing for him to do on members' farms.

The idea spread rapidly and within a few years, the whole of the Netherlands was covered by a network of dairy relief co-operatives. One effect has been to give the single-handed dairy producer confidence to enlarge his herd. It has even been suggested that many farmers could not survive without their local labour co-operative. Although members are entitled to use the relief services at any time, in practice most of them look upon membership of the co-operative as a kind of insurance. At least half make no regular use of relief services. A two-tier daily charge has recently been introduced, so that members pay less for relief in illness than for holidays.

An ideal size for this type of co-coperative seems to be about one relief worker to every twenty or twenty-five members. For every twenty relief workers in a region there will be one full-time organiser. Advantages of this fairly local scale of operations are that the relief worker, who is often a farmer's son, can live at home. This makes the job more attractive to a married man. The relief worker needs to be someone who gets on well with people.

Through the initiative of the Advisory Service, a similar relief milking service was begun in County Waterford in 1973. At that time the dairy industry in Ireland was expanding and intensifying. Farmers were working harder and earning more but had no time to enjoy the fruits of their labours. The service which was established had much in common with the Dutch scheme although it was not state subsidised. Relief workers were mostly farmers' sons needing extra work and looking for experience. They were well trained for the job and well paid. The co-operative was linked with the creamery co-operative and payment for services was deducted from the milk cheque, which is a relatively painless way of paying.

County Waterford farmers are said to be well satisfied with the labour service. Some maintain that without it, they would have had to cut back on cow numbers. By 1979 there were 120 members in the group served by 26 relief workers. Demand for the service was keen and the relief workers were fully stretched.

The Irish scheme was not state subsidised while the Dutch scheme, started by private initiative, attracted a government subsidy at first, which has now been phased out. In Norway it was the government itself which introduced labour relief schemes in 1976. This was part of a six-year plan to bring farm incomes and working conditions into line with those in industry, in an attempt to check rural depopulation and social disintegration. One scheme allowed small farmers who could not justify employing full-time labour to hire a worker as a group,so that each in turn can enjoy some free time. In 1976, the Norwegian government agreed to pay up to one-fifth of the cost of employing a full-time relief worker. Another scheme allowed farmers to take at least three weeks annual holiday, the government paying 80 per cent of the commercial cost for a holiday relief worker. These schemes helped to make the conditions of rural life more acceptable for small producers and their families, bringing their working conditions more into line with those of non-farm workers.

Discussions have been going on in Britain, following the Dutch experience, into the feasibility of starting relief labour co-operatives here. The first scheme of its kind, to the best of my knowledge, was started in March 1980 in the Leek area of Staffordshire. Incidentally, this was the area which saw the innovation in farm holiday co-operation. The group began with one co-ordinator and three full-time and two part-time relief workers, capable of helping members out in emergencies or at busy times or letting them have a break from the farm.

Schemes like these are a healthy form of job creation in rural areas. They provide employment for sons not fully employed on the family farm or for other young men looking for extra work, perhaps at weekends. For the farmers themselves, belonging to a relief scheme can mean lightening the burden of farm work, taking a holiday, enjoying more free time with the family, bringing relief from anxiety; in short, improving the quality of life. I suggest that modest, self-help ventures like these will make living in a rural area more acceptable to those who work there and that this could, in a small way, help to stabilise the present population and prevent further social disintegration.

RURAL DEVELOPMENT

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The main object of this lecture is to put together a pattern of evidence and concern about the many separate and inter-related facets of the whole economy of rural areas. Agriculture is, of course, a dominant part of the rural economy but it is changing in the nature of its importance and in its relationships with many other activities which are now taking place in the European countryside.

The definition of the word 'development' which is preferred is the one which equates it with evolution or 'the growth of what is in the germ'. Perhaps others would prefer the definition of development as used in music, i.e. 'the unfolding of the capacities of a musical phrase, subject to the requirements of melody and harmony'. The theme of this lecture will therefore be the need to get dynamic but harmonious change into the countryside.

Though it is easy to argue that definitions of rural and urban areas are difficult to make and that urban influences flow into all rural areas, there are real and important differences between urban and rural areas. To my mind the best definition of rural is that it covers the districts which lie outside the towns where activities and infra-structure are dominated by extensive uses of land, such as agriculture and forestry, existing either today or in the immediate past. To give an illustration of the reality in people's minds of a difference between rural and urban and between countryside and towns, a postgraduate of mine who is at present looking at the role and attitudes of women in rural settlements in parts of Kent, has come across a very real concern of many of her women informants as to whether or not they are truly 'country' people. Though these women cannot define what they mean by a country-woman or a town-woman, they are able to identify in other women in their village whether or not they are country or town and on many issues they appear to defer to the attitudes of those which they have graded as truly country-women.

The changing importance of farming and agriculture in rural development

Agriculture has been traditionally accepted as dominant in rural areas. This dominance has had five characteristics:

1) It is the dominant land use, either alone or with forestry, and as such has created and conserved the main landscape features of the open countryside in all European countries.

2) The needs of farming and forestry have been responsible for the close but varied pattern of rural settlements and for the access provided through an intricate secondary road pattern.

3) Agriculture has been considered to be the main source of rural incomes, through farm profits, farm expenditure, the payment of rents and wages, the provision of service trades to farms and the creation and adaptation of marketing mechanisms for farm produce.

4) For many centuries agriculture and, to a smaller extent, forestry have been the main providers of rural jobs, either directly on farms or in forests or indirectly off the farms through the locally based service trades.

5) In most European countries attitudes have developed as to the importance to human societies of the type of persons living or working on farms or being part of the rural scene. These attitudes can be expressed as agricultural or rural fundamentalism. This philosophy has arisen from the long-term strength of farm family life and the closely-knit and agriculturally dominated rural settlements, plus the strong links of farms and villages to so-called 'natural' processes of crop and livestock production. This belief in the inherently supreme importance of individuals concerned closely with rural land has given rise to strong rural interest groups and associated political parties, together with a development of reflected rural and agricultural fundamentalism amongst people living in small and large urban areas.

Let us now look critically at these five basic roles of agriculture in European rural economies, that is, as a creator of landscape forms, settlement patterns, rural incomes and rural employment and as a beneficiary of a fundamentalist philosophy. Have these roles changed significantly in recent decades?

Agriculture and rural landscapes

In general terms the role of agriculture in forming rural landscapes has become greater in recent decades. Of course, the pattern varies tremendously, from lowland areas to mountains and uplands, from peri-urban into remote rural areas, from small-scale farm economies as in parts of Ireland, Belgium, France, Germany and Italy, as compared with the large-scale mechanised farming areas of places like eastern England, northern France and northern Germany and the large state and collective farms of many countries in eastern Europe. But, in general, it is true that agricultural domination of the landscape is more apparent now than it was in, say, the 1950s and decades previous to this. Those concerned with agricultural development might rejoice in this fact but those involved with rural economies and with an integration of all important land uses are beginning to question the powerful influence of agricultural technology in the rural landscape. The questioning takes two forms - first, that other rural land uses are being pushed out or severely contained and secondly, that the advent of heavy capital injection in

buildings and powerful machines is enabling agriculture to change dramatically the physical form of landscapes. Within all countries a varying degree of concern is being expressed about the effects of agricultural change on long established landscape forms in different parts of Europe[1].

In some countries, particularly in eastern Europe, dramatic changes in agricultural land forms and patterns are a direct result of a national drive towards forms of large-scale cultivation and state farming. In other parts of Europe the changes are coming about through the operation of market forces, particularly through large injections of private and state capital into land purchases, modernisation and mechanisation and the maintenance and increase in government support of the prices of the main agricultural products. So much of agricultural technology is now multi-national in its character and pressures.

The change into landscapes more heavily dominated by agricultural technology, and at the expense of other rural land uses, is marked in most European countries, though, naturally, it is more apparent in fertile lowland areas than it is in the traditionally more extensively used areas of the hills and mountains. In many continental European countries, this physical agricultural emphasis has not been at the expense of forestry, as many countries have long-term forestry policies which they have not changed and where impediments have been placed in the path of removal of woodland, particularly in the lowlands, for increased agricultural cultivation. But in a country like England, agricultural intensification and the increase in the agricultural area have bitten into the well-wooded layout of the lowlands established in the 18th and early 19th centuries for landscape improvement and game preservation.

Other extensively used kinds of land such as small copses, hedgerows, banks of streams, low-lying marshes and estuaries and moorlands have all been at risk from agricultural advancement, and in many parts of European countries the mixture of land uses, and the wide differences in degrees of intensive land use have been significantly altered in favour of the single land use of agriculture and towards much more monoculture in that particular use.

Thus two aspects of the old rural landscapes of Europe have been changed or are under immediate threat. The first is their physical appearance. Whether the change is good or bad is a subjective problem about which many people feel passionately. The second major change of importance is the decline in the amount and variety of cover on land in rural areas, that is, the land covered by trees, bushes, natural grassland, shrubs, bracken, bramble, heather; in contrast to managed natural or sown grassland and

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[1] (a) Countryside Commission (England) (1974) "New Agricultural Landscapes, CCP.76, Cheltenham, England.

(b) Shoard, M., (1980), "The Theft of the Countryside", Temple Smith, London.

arable cultivation. The decline in this form of cover means a serious diminution of wildlife. This decline is well documented in many countries and for those who derive pleasure and interest from the scientific complexities and the visual stimuli of a wide variety of plants and associated animals, the growing agricultural domination of much of Europe is a real loss[1]. Certainly attempts are being made to slow down this process in specific areas where ecosystems are particularly interesting and attractive, but these movements are in no way a replacement of the much more mixed land uses and natural cover which the rural landscapes of Europe contained, particularly before World War II.

It would have been interesting (and, maybe, salutary) if we could have discussed the problem of rural landscape change at this particular time following a successful implementation of the Mansholt plan of 1968 with its deliberate emphasis on pulling considerable areas of farmed land out of active agricultural use. But it cannot be, as the plan was rejected out of hand at the end of the 1960s.

Agriculture and rural settlement patterns

The relatively closely settled rural areas of most of Europe, with the exception of some of the hill and mountain areas, originally sprung from the need of agricultural and other rural people to live close to their work so that they could walk or use the horse between home, the tending of livestock, the cultivating and harvesting of crops on land, the movement of crops and livestock to markets and the buying in of farm requisites and non-food items. The centuries of continual but slow adaptation of local rural economies to the local needs of the people involved have been followed by the short and sharp explosion of the invention and development of the internal combustion engine. This has revolutionised the nature of farm work, taken so much of the manual drudgery from both farm work and rural living and feed rural people from the need to walk from place to place or to use the relatively small strengths of four-legged beasts like horses. With rural people having greater amounts of unused physical energy to spare and with the motor car and motor lorry giving access to a much wider area and taking less time, it is obvious that in most aspects rural economies can now operate very well using only a small part of the age-old rural settlement pattern. Simple calculations suggest that if only a doubling of the access radii of farm and rural people has occurred through the advent of the car, more than one-half of the old agricultural and rural settlement pattern is no longer wanted.

As the development of the great mobility and access patterns of the motor car and motor lorry have been associated with a sharp fall

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[1] (a) Nature Conservancy Council (1977) "Agriculture and Conservation", 19/20 Belgrave Square, London.

(b) Green, B., (1981) "Countryside Conservation", Allen and Unwin, London.

in the number of people needed on farms and in local rural services, it is obvious that many rural settlements and rural houses have become surplus to requirements. In areas close to cities, convenient to improved and new road and rail patterns and in areas of attractive scenery and climate, the 'surplus' rural dwellings and centres have been filled by people from urban areas who have settled into them as either short or long distance commuters, as retired people or as the owners and partial users of second homes.

Some contrary movements have occurred with small craft industries and local shops losing trade to shopping centres in nearby towns and cities. Earlier agriculturally dominated settlements have, therefore, changed into predominantly middleclass, residential rural settlements. In other areas which are remote and far away from good road and rail systems and where landscapes and climate are not particularly attractive, the old agricultural settlements have simply lost many of their people to towns and cities, extending even to large-scale migrations to other countries. There remains in these areas all the problems of rural depopulation, so that even if surrounding farms are relatively prosperous the people who live in them are plagued with declining standards in retail services and in social provision.

Certainly, specific help towards maintaining and increasing farm incomes in such areas will improve the cultivation of land and the condition of farmsteads and farm buildings but it does little to help the economy of, and necessary adjustments to, the settlement pattern of such areas[1]. These problems lie outside agricultural support and have to be dealt with through a combination of measures designed to make the areas more attractive to non-agricultural activities and people.

The contribution of agriculture to rural incomes

For the sake of the argument in this part of the lecture it is not necessary to know whether or not the rise in farm incomes over the last four decades has been in line with the incomes of urban people. Of course, parity of incomes between farm and non-farm persons has long been a major element in the agricultural policies of most developed countries and it is still the justification used for the present form of the Common Agricultural Policy in the EEC. High or low farmer incomes have to be related to large-scale reductions in the number of people directly engaged in farming in all the countries of Europe. In Western Europe as a whole, almost 30 per cent of the total civilian workforce in 1955 was engaged either full-time or part-time in agriculture. This proportion had fallen to 16.5 per cent by 1975. In the late 1970s, only some 8.5 per cent of the total workforce in EEC countries were engaged in agriculture, ranging from 2.75 per cent in the UK to 24.5 per cent in Ireland. In the non-EEC Western European countries, with the exclusion of Turkey, there were about 20 per cent engaged in agriculture[2].

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[1] Moseley, M., (1979) "Accessibility - the rural challenge", Methuen, London.

[2] Capstick, C.W., (1978) "Agriculture's total contribution to employment in a modern economy", 30th Confederation of European Agriculture, Athens, Fascicule 59, CEA, Brougg-Suisse.

This means that in Western Europe, again excluding Turkey, the numbers directly engaged in agriculture have been falling at a steady rate of some 800,000 individuals in the civilian workforce each year. The incomes that these people earned in rural areas are now no longer part of the rural wealth of their countries. In order to maintain the contribution of agriculture to total rural incomes, sharp and continuous rises in individual farm incomes would be necessary in order to cover:

a) corresponding rises in non-agricultural incomes elsewhere in national economies;

b) increases in individual farm incomes enough to compensate for the large drop in the number of farmers and full-time agricultural workers;

c) increases in farm income enough to cover losses in the farm workforce who were part of the farm family.

Even if one ignored the sharp reductions in numbers of full-time farmers and their workers in rural areas and compared farming incomes with incomes earned by those working in non-farming occupations, parity has still not been achieved. A study made for the Commission of the European Community by P. Rainelli and F. Bonnrieux of INRA, Rennes, France in 1978[1] shows that, for all rural regions except a few very poor areas in places like Western Ireland and some very fertile, well-situated farming areas in other countries as, for example, around Paris, the "value-added" by the active population engaged in agricultural pursuits is less than that earned by workers in non-agricultural businesses and occupations. One could be critical about this broad-brush analysis but the general picture is very clear as to the relatively low contributions of active workers engaged in agricultural as against non-agricultural pursuits in most parts of rural Europe.

It means, therefore, that rural areas are not gaining as much income from their agricultural inhabitants as they are from their non-agricultural ones and that their people directly engaged in farming continue to disappear at a serious rate. Therefore, unless changes in the agricultural structure are being accompanied by increasing sources of local income through the development of secondary employment coming directly from agriculture (as, for example, in the processing of agricultural products), agriculture as a source of rural wealth is obviously continuing to decline. Certainly in some rural areas income gained from agricultural processing and distribution and from the provision of inputs into farming have increased but many of these secondary developments have moved to urban areas in line with the large-scale manufacturing of agricultural machinery and requisites and the linking of agricultural marketing to the development of large-scale urban supermarkets[2].

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[1] Rainelli, P., and Bonnieux, F., (1978) "Situation et évolution structurelle et socio-economique des régions agricoles de la Communauté". European Economic Commission No.54, October 1978.

[2] Molle, W., van Holst, B., and Smith, H., (1980) "Regional Disparity and Economic Development in the Economic Community", Saxon House, 419 pp.

Recent studies, again in the EEC, have shown that the support to farm income under the Common Agricultural Policy has gone mainly towards the increase of farm incomes on the better lands rather than the poorer, and to northern Europe rather than to the south of Europe. A report submitted to the EEC by A. Giolitti, their Regional Policy Commissioner, in January 1981, shows the slanted regional distribution of EEC agricultural support. With the average EEC farm support reckoned as 100, the Paris Basin in France, Central and south-east parts of England and areas in northern Germany have agricultural support from the EEC equivalent to 135, whereas the corresponding figure for north-east Italy, southern Italy and the south of France drops down to less than 80. A worker engaged in agriculture who is lucky enough to live in one of the EEC's five wealthiest farming areas (Schleswig-Holstein and Lower Saxony in Germany, Holland, the Ile de France and Champagne in France) takes home, on average, seven times as much as a farm worker in the five poorest areas (Umbria, Molise and Basilicata in Italy, Donegal and the west of Ireland). Thus differences in demographic trends, climate, poor soils, nature of farm product and out-dated farming techniques are accentuated by the skewed distribution of farm support, with the result that the regional gaps in farm income have certainly widened over recent years. These trends would not be so important if the amounts of EEC funds for regional aid were in line with the amounts spent on the support of farm incomes. In practice, as most people know, more than 70 per cent of the budget of the EEC is spent on the support of agriculture alone[1].

This situation would not be so serious if there had been a major increase in the amounts of money coming out of farm incomes into local taxation. In practice farming as an industry is relatively lightly taxed in most European countries, whether the taxation is based on income or on land area and grade. My colleague, Ian G. Reid, the Director of the Centre for European Agricultural Studies at Wye College in the University of London, is knowledgeable on farm finance and taxation, and he has drawn my attention to estimates of considerable under-taxing of farmers in Ireland, France and West Germany[2]. In some countries local taxes which were taken away during the agricultural depression of the 1930s have not been re-established. This applies, for example, in Britain where the de-rating of agricultural land in the 1930s on the grounds of low farm incomes has not been renewed even in the areas of considerable agricultural prosperity. Thus a rural area can have a very weak support base in local tax income even though it is occupied by prosperous farmers.

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[1] Select Committee on European Communities - British House of Lords (1979) "Policies for rural areas in the European Community", HMSO, 5720/79.

[2] Reid, I.G., (1980) "Land brugets finansiering og gaeldsactning inden for Faellesmarkedet", 12 Mands Bladet, October 1980, Argang 52, Copenhagen, Denmark.

Agriculture's contribution to rural employment

It is a fair generalisation to say that changes in the technology and employment structure of farming in nearly all parts of Europe have produced a shattering of the rural employment structure. Reductions in jobs within agriculture have been as much as 3 per cent per year in many areas and decreases of this magnitude quickly erode the employment base of a rural area. Certainly, increased employment in agricultural processing and service provision have not been sufficient to recoup these losses even if one ignores the movement to urban centres of some of these service provisions. Future trends are not encouraging. Certain farming areas may well have reached a situation of near-stability in numbers of farmers and farm-workers but there are no parts of Europe where there are strong signs of permanent increases in farm employment.

This does not mean that rural areas have stayed heavily dependent on agriculture for employment. There has been a pronounced dispersal of employment from urban areas to isolated rural sites, crossroads and industrial estates attached to some of the existing large rural villages and towns. Movements of old and new factories out into rural areas have occurred because of the advantages of cheap land, non-unionised labour, preferential tax positions and convenient access to motorways and improved roads. In some countries these developments have been linked with part-time farming and with the processing side of agricultural production, but most of this development has arisen from the large improvements in mobility of goods and services, enabling industrial production and processing to become more scattered in its location. With the movement out into attractive and convenient rural centres of large numbers of urban people, through the development of long and short distance commuting and the use of rural houses and settlements for retirement and second homes, there is, in many areas, an influx of new people into rural areas. But they are new people without local jobs. If it is thought unsatisfactory to have rural settlements with few links with the local rural economy and few local jobs, then any improvement in this situation has to come about through the deliberate creation of local non-agricultural employment[1].

Many European countries have now set up general or specialist agencies for the creation of new jobs of a non-farming nature in their rural areas. Some fortunate areas are attractive to tourists and here local jobs can be developed through the tourist trade. This has a beneficial effect on the local economy, both in terms of jobs and income, if the tourist multiplier effect is high, i.e. where the tourist industry is locally based and linked with local development

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[1] Wibberley, Gerald (1978) "Maintien d'une population stable dans les zones rurale", 31st Assemblée Générale, Confédération Européene d'Agriculture (CEA) Fascicule 61, Brougg-Suisse.

so that the money brought into rural areas by tourists leaks out of the locality relatively slowly. Many parts of Europe, such as the Alps and surrounding countryside, provide good examples of this beneficial type of rural tourist development.

As a director of the Council for Small Industries in Rural Areas for England since its creation in 1968, it may be of interest if I give its pattern of activities and report on the lessons we have learnt from its work.

CoSIRA, which began life as the Rural Industries Bureau, is the main employment agency in rural areas funded by the Development Commission which, in its turn, was one of the brain children of David Lloyd George in 1908. Through the years, the remit of CoSIRA has become simpler but more all-embracing. Its job is now to initiate (by advice, both general and specialist) the provision of loans and the building of workshops and small factories in advance, and to stimulate the provision of new employment in areas where it is thought to be of value to the surrounding rural economy. Its work is limited to firms with below 20 skilled workers and situated in settlements and market towns below 15,000 in population.

The identification of the problems, and of budding entrepreneurs in the area, together with the decision to whom to lend money, is made by County Small Industries Committees. These are made up of voluntary members with considerable experience of business problems and of the local rural economies and they are services by one or more Small Industry Officers. The Headquarters of CoSIRA is at Salisbury from where specialist Advisory Officers operate. The seven directors of the Organisation have advisory functions for different parts of England and they handle a budget of about £4½ million a year with £12 million worth of small workshops and factories built or being built in advance of demand. They also operate a loan scheme which, at its peak in 1979, was lending £1 million a month and are now operating a scheme agreed with the main Joint Stock Banks whereby £18 million of funds are available to small firms receiving favourable reports by CoSIRA officers and committees. Priority is given to the special investment areas of the country which comprise parts of Devon and Cornwall, the Welsh border, large parts of the North and selected parts of Eastern England where rural depopulation has been severe, even though agricultural prosperity may be great. In all other counties 'Pockets of Need' have been identified for special help where it is thought that the provision of new jobs is needed for those members of the rural population, such as working wives and teenages, who suffer from a paucity of local jobs.

The lessons learnt include the following:

1) All sorts of small scale industrial activity can flourish in rural locations. Some employment arises from services to agriculture or the processing of agricultural products but most of it is in seemingly non-rural lines such as electronics, car components, plastics and so on.

2) It is very important to have local knowledge of the rural area with which one is dealing, and of the individuals just beginning to set up small business or who are already in them. This local knowledge is provided by our county committee structure.

3) It is important to work to priorities agreed with local authorities and local planning committees. This means that CoSIRA's work is now part of an organised pattern of rural development.

4) An important part of the work of the local Small Industries Organisers is to provide help, sympathy and friendship to the hundreds of small businesses where people often feel isolated and lonely.

5) Though the new employment provided is small-scale (the average firm helped by CoSIRA employs less than eight people), the provision of merely a few extra jobs has an important catalytic effect on a small local community.

6) Though outsiders are often seen to take the new jobs provided in a local rural settlement, our experience shows that through the years outsiders tend to leave these jobs for jobs closer to home so that local people, through time, take over the new local jobs.

7) Attention is now being paid to the adjustment of new firms to the needs of people in that rural area. This means the provision of essentially part-time jobs, particularly for working wives and families and jobs suited to part-time farmers. More and more of our experience supports Dr. Ruth Gasson's belief in a more positive approach to part-time farming as an important element in a stable rural economy.

Agricultural and rural fundamentalism

Belief in the superiority of rural and agricultural ways of living has suffered some changes of recent decades: changes which have sometimes strengthened this rural and agricultural myth and sometimes weakened it. Millions of individuals have left European farms and rural areas for cities, other regions and other countries, without this mass movement resulting from extreme poverty or violent explosion. The pull of urban jobs and of city living has combined relatively harmoniously with the push on farm people caused by increasing farm size and agricultural mechanisation. This has meant that the new urban migrants coming from rural areas do not have bitter memories of rural poverty and hardship and, therefore, they are ready to continue their links with their old areas and to think with pleasure of their rural childhoods. The private motor car, the development of second homes and the relative ease of retirement into country areas have enabled many urban people to continue a nostalgic association with the countryside and to maintain rural family links[1].

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[1] Williams, R., (1973) "The Country and the City", Chatto and Windus, London.

There have been forces weakening the strength of rural and agricultural fundamentalists' thinking. Improved living and working conditions in the city, markedly better educational opportunities, the ease of private mobility and the spread of new housing into rural areas have all helped to remove some of the previous disadvantages of urban living as compared with the countryside and have given millions of people a very attractive blend of urban services together with spacious living and recreational facilities.

The lives of fortunate persons in the past have shown that where money is no object most individuals try to combine the best of rural and urban worlds by having living places in both and being prepared to travel frequently between urban and rural areas. The town house and the country estate are now a possibility for millions as against only thousands of people in the past, though the town house may only be a city flat and the country estate merely a renovated country cottage.

In many ways recent developments have strengthened the hold of rural and agricultural fundamentalists' thinking on both rural and urban people. The creation of very large city regions has appeared to isolate people from the rural environment but the increase in personal incomes, the rise in the private mobility of the motor car, the continued strength of commuter rail services, the lengthening of the weekend and of the paid annual holiday, and the change in the nature of avocational interests caused by increased formal education over the age of 15 years, have all combined to persuade millions of people to migrate from their large city regions to rural areas during weekends and at other times of the year. Even though agriculture has declined as an employer of people, the organisation of these declining numbers into pressure groups has gone ahead and these have successfully kept the importance of farming well before the public gaze. New ecological and environmental interest groups have developed both in town and country and these have stimulated interest in rural matters and encouraged people to value them highly. Government and regional agencies have continued to support agricultural and rural areas as being of special importance; so much so that the European Economic Community appears to many to be mainly a gigantic combination of agricultural fundamentalists,

Much of the continued subsidisation of purely agricultural interests has been associated with little or no control over the activities of farmers on land use and the rural environment generally. In most countries of Europe there are few controls over the physical location of farm buildings, the materials out of which they are made, the industrial type processes that might go on in them or the physical changes in land use that take place around them. The removal or change of field boundaries, the changes of farm ownership and tenancy, the alteration of streams or other water courses, the drainage of low-lying land, the cultivation of erstwhile heaths and mountain pastures, the removal of individual trees and copses - all of these things are in most places decided by the individual occupier or owner and primarily on technical and economic agricultural considerations.

But there are warning signs that this situation is changing. The rapid movement of people between town and country means that these people are now much more aware of what is actually happening in the

countryside and many environmental changes can no longer be hidden from the eyes of urban beholders. School children are being increasingly educated in environmental matters and they will grow up into persons who will be essentially much more critical of the environmental realities of the countryside. Interest groups are developing in both town and country that are critical of technical and economic developments in modern agriculture, i.e. the destruction of wildlife in intensive arable areas, the concern about animal cruelty through the development of factory-style livestock farming and dramatic visual changes in the landscape of some vulnerable rural areas. Even old, established rural sports like hunting are being more and more critically examined. It is important to realise that, as modern agriculture becomes more factory-like in its processes, human groups and individuals are increasingly talking, writing and acting in favour of more traditional methods of farming which seem closer to natural processes, are smaller in scale (and, therefore, more beautiful in some people's eyes), have the virtue of being more self-sufficient in family food supplies and materials, and use processes of production which are more biologically self-sufficient.

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This lecture has been, in many ways, a protest about the continued agricultural fundamentalism that one is seeing throughout Europe in relation to the problems of rural development. The agricultural sector has been receiving too much attention from Governments (supra-national, national and regional), from politicians and even from University research workers and it has certainly been receiving too large a share of finance. With the non-farm elements of all rural economies becoming of growing importance and complexity, this over-emphasis on strengthening agriculture is becoming a serious weakness in integrated rural development.

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DEVELOPMENTS IN GERMAN FARMING AND COUNTRYSIDE

by Dr. Martin Haushofer,
Upper Bavarian farmer; Deputy Director,
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West Germany.

The development of the countryside is causing concern in a number of ways.

If I may make some remarks on this theme, they are related to:

- my activity as a farmer
- my experiences in agricultural federations
- as a deputy head of an educational establishment

The development in which we find ourselves has, like almost everything, its roots in the past. Germany was, until 1879, generally free-trade minded and then became protectionist. Two wars destroyed the structures that had been built up, and the aim of a specific agricultural policy was not formulated again until 1955 in the Agriculture Law, which said:

> *"Agriculture is, through general economic and agricultural policy, particularly by trade, tax, credit and price policy, to be put in a position which compensates for the natural and economic disadvantages it suffers compared with other sectors of the economy".*

The development of German and Bavarian agriculture has progressed as in other sectors. High input of technology, high input of knowledge and science, and an enormous rise in productivity which has surpassed all sectors of industry.

The migration from agriculture was very marked . Voting took place with the feet!

The following folios will represent further basic data:

- the development of births and deaths (Tables 1,3)
- the development of population (Tables 2,4)
- the development of farm sizes (Table 5)
- farm incomes by region and type of farming (Figures 1,2,3)

In short, the situation of our agriculture may be given as follows:

1) For some products, consumption and production are diverging widely from one another. Farmers in some parts of the Community are too industrious. International trade is becoming more difficult.

2) The number of domestic customers is falling.

3) Consumer habits are hardly changing.

4) The growth in the productivity of agriculture will increase further.

5) Each country in the Community is trying to raise its self-sufficiency or boost agricultural exports.

The following table for the EEC shows the degree of self-sufficiency in 1979/80:

Degree of self-sufficiency for selected agricultural products in Member States of the EEC 1979/80 (%)[1]

Product	G	F	I	NL	B/L	UK	IRE	DK	EEC
Soft wheat	107	203	73	56	86	77	50	122	114
Barley	88	177	34	43	62	113	116	105	110
All grain	87	166	70	26	50	80	85	101	97
Sugar	133	217	93	147	271	49	117	241	130
Wine	-	-	-	-	-	-	-	-	-
Beef and veal[2]	102	111	62	133	98	77	546	346	100
Pigmeat[2]	88	85	75	225	162	63	143	368	101
Butter	132	115	70	492	115	42	335	240	119
Skimmed milk powder[3]	190	107	-	60	144	125	636	98	109

[1] Domestic production as a percentage of total consumption of food and feedingstuffs, including consumption under special measures.

[2] Livestock products for calendar year 1979.

[3] Provisional.

6) The agricultural policy of the Community still has the original direction: grow or decline.

7) The EEC will still conduct its agricultural policy with the emphasis on agricultural trade.

With falling prices and rising costs, agricultural production is shifting to the favourable regions of the Community. The marginal yield regions are the first to get into considerable difficulties.

The principal worries are less with the well-structured farms on good land in favourable situations than with the poor yielding farms and the people in those regions.

I estimate that about 30 per cent of the farms in my homeland are in difficulties.

At present, the following chain of events can be recognised:

1) Economic crisis, with the arresting of structural change.

2) Increased movement into agriculture, including part-time farmers, with the following results:

   - Land shortage
   - High rents

3) Demand for State support, such as agricultural credit, help for structural rationalisation, investment credits for animal housing (e.g. the WIR Investment Credit Law in the Netherlands).

4) Grants of support, especially at election times.

5) Build-up of excessive capacity in the production sector.

6) Over-production.

7) Keener competition in agricultural markets.

8) Fewer customers.

9) Falling agricultural prices.

10) Withdrawal of the EEC from market regulation.

11) Falling prices are balanced by extra production.

12) Further call for State support.

13) On refusal, because of the empty coffers of the Finance Minister, farm demonstrations.

14) Then it all starts again .....

These stages are repeatable ad infinitum. But only so long as the credit framework suffices; once own capital is used, the sequence ends. In this area there are already a range of farming operations.

Recognising this trend, Bavaria has tried to implement its own variant of the agricultural policy. Bavaria belongs, of course, to West Germany, and the latter to the EEC[1], but under the EEC Treaty there is room for manoeuvre even with strict observation of the regulations.

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[1] Folio: EEC structural data (Table 5).

We will not speak of the Member States of the Community who receive Directives from Brussels and do not follow them: nor of the country which loses Directives in the post!

Bavarian agricultural policy consists of the following principles:

a) It has been recognised that rising productivity with falling prices results in structural changes. The full-time farm becomes even larger.

At present full-time farms of 20-40 ha. in our area, in unfavourable regions, are getting into difficulties.

b) Bavarian agricultural policy is built on a partnership between full-time, part-time and spare-time farmers. No difference is made between these types of operation in State support (in contrast to the support threshold observed by the EEC, which sets a minimum farm size).

c) State support lies mainly in:

(i) The foundation of producer groups to strengthen the position of farmers on the market.

(ii) The foundation of machinery syndicates to keep the cost of machinery down.

The involvement of farmers in the market should lead to an improvement in earnings. The farmers will keep their products in their own hands through several marketing stages and retain something of the marketing margins.

Pioneers on this path were and are the co-operatives. The credit co-operatives have, however, moved out of agriculture into ancillary sectors, as there were too few chances for growth in agriculture. We have producer groups in the sector for meat, grain, fruit, milk and wine.

One basis for partnership between farms is the idea of machinery syndicates. This idea was brought to reality by the head of the Land Service of Bavarian State Radio, Dr. Erich Geiersberger. The basic idea is the better utilisation of machinery, a reduction in costs and better farm profits. But also inherent in it is collaboration among farms.

The practical process is as follows:

When grain is to be harvested on my farm, I call the manager of the machinery syndicate and arrange a date. At the arranged time, two large combine-harvesters and two lorries appear on my farm. The grain is harvested and the bales are pressed by a baler belonging to the machinery syndicate. Then I consider how much I can do myself, and plough myself, or let the machinery syndicate plough. Sowing and application of herbicides I can do myself. However, we already have farms which have their whole cropping operations carried out by machinery syndicates.

In addition, the machinery syndicates also run a farm relief service. This is partly financed by the Sickness Fund, which does not pay sickness benefit for farmers but provides relief labour.

For a payment of DM.9 per hour, I can currently obtain labour from the machinery syndicate. Settlement is made, without cash, via the Bank.

The system functions only if a suitable person is in the village to introduce the idea and guide it. In addition, a more or less full-time director is needed to manage the scheme.

If there is a machinery syndicate, it is possible for farmers to have holidays and free time; and what is especially important, help is immediately to hand in the event of illness or accident.

There is a similar arrangement for milkers. A milking relief service exists with about 30 milkers, which helps out only for holidays. The farmer pays a small fee of DM.30 per day; if outside labour is engaged, DM.65 is paid daily for temporary assistance. This brings labour onto the land. As a rule they are young persons who are pleased to have the relief work.

Grain growing is easy to organise but grassland is somewhat more difficult. Even on grassland farms, machinery syndicates may organise, for example, silage harvesting. When necessary, they organise the purchase of hay or straw.

Because of the tax law, the machinery syndicates may not be active in trading. However, the funds for the specially difficult regions, such as the hilly parts of the marginal sub-alpine areas, are not sufficient. The system of partnership rests on a combination between agricultural and non-agricultural income.

In considering why the poor regions suffer first in economic crisis, we come upon a basic fact of democracy. In times of crisis, the room for political manoeuvre is generally limited.

In this connection, I will repeat a critical comment by a member of the German Bundestag:

> *"State, as well as industrial administrative bodies, act mostly tactically, seldom strategically. In many cases, they do not have a considered, comprehensive long-term concept, on which they base their actions. The treadmill of routine and the fight for positions claim much of their time. Solutions, which are developed in the great councils of state and industry with much care, often collapse in the humdrum of daily politics. With only a small parliamentary majority, governments are afraid to tackle unpopular key political questions and to implement solutions. The adroit switch to the next question becomes more and more frequent".*

Now a further quotation:

> *"Political behaviour is directed towards deferring decisions until reality reduces the number of options and leaves hardly any alternatives open".*

The present situation would not be so bad if it were not accompanied by considerable unrest in agriculture, which is evident in the demonstrations held throughout Europe. In addition, the solidarity among farmers sometimes breaks up, despite all endeavours. Farmers are entrepreneurs and behave in exactly the same way as other entrepreneurs.

The age-long question remains: when will there be solidarity among farmers in Europe? When things are going well for them, or when times are bad? According to my experience so far, farmers are mostly fine weather sailors, and when the storm comes, each saves himself as best he can.

I must admit that our system of partnership among different types of farms is also criticised on some points.

Farm accounts show that results for part-time farmers are close to those for full-time farmers[1].

The part-time farmer can, by skilful management on his land, obtain a full-time income from industry, trade or craft and run his farm in his free time. However, the full-time farmer wants to have the land to become larger himself; and he envies them the job, the income and the land.

At the beginning, I expressed concern over the marginal lands and quoted a percentage of 30 per cent. I estimate that around one-third of the area of Bavaria is in difficulties or will soon be so.

However, we note that unemployment is especially high in rural areas. This is connected with the one-sided structure. In times of recession, the subsidiary factories in the marginal areas are the first to be closed.

In January we had, for example, the following rates of unemployment in the region: Koetzting 36.6 per cent, Waldkirchen 32.7 per cent, Grafenau 24.9 per cent, and Bogen 21.5 per cent. Employment programmes are increasingly introduced in the areas of large population, as most voters are there. Farmers who go out of farming are not allowed to seek work as temporary workers. They must train as skilled workers or master craftsmen.

The EEC Social Fund makes considerable sums available for this purpose. These funds have not been claimed by farmers in recent years and have gone by default.

Other categories such as young people, women and migrant workers have shared in the fund, under Article 4, along with textile workers.

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[1] Folio: Farm results: Comparison of full-time with part-time farms (Figures 1,2,3).

In my opinion, the situation is either not yet too bad, or it is still not recognised. Fundamentally, I incline more to self-help than to waiting for State help.

For this reason there remain only a few possibilities:

Self-help

1) Significant production on marginal lands other than food production, e.g. forestry.
2) Part-time employment other than agriculture, e.g. connected with leisure (holidays on the farm).
3) Improvement of marketing to achieve better earnings.
4) Improvement of purchasing (collective ordering, etc.).
5) Extensive farming and spare-time work.
6) Taking up part-time employment in industry, trade and craft or in Public Service.

Help through society

1) Regional and social programmes to promote part-time work.
2) Differentiated prices for problem regions.
3) Extension of direct income payments (EEC mountain farm subsidies).
4) Promotion of extensive production (suckler cow premiums).
5) Planned training for jobs on the land.

Now some comments on the forestry problem[1]:

The EEC produces each year about 80M cbm

The EEC consumes each year about 200M cbm

Production rises each year by 1 per cent

Consumption rises each year by 2 per cent

In addition, timber is the only source of energy growing in our latitude, as other biomass products fail under our climatic conditions. Conversion to timber, however, means long-term investment and low-interest returns. Our grandchildren will derive great pleasure from it.

The ideal agricultural policy for us is the family farm. It is safe in a crisis and stable even under economic fluctuations. We see dangers in the non-land production (based on imported feedingstuffs) which is encouraged in the coastal regions of Europe. We want to maintain the settled cultivated crop landscape. We do not want just to import feedingstuffs and produce food with them. Our dependence on petrol and natural gas from the USSR is already too great.

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[1] Folio: Distribution on wood lands in the EEC (Table 6).

Farmers were asked some months ago how they saw their own situation. Independence was named first. Then came peace, closeness to nature and scenery, and living and working together with their married partner was highly valued. Inadequate income is not therefore a reason for a farmer to give up his position. Migration follows in the next generation. The smaller the income, the greater the appreciation of the peace and beauty of the landscape.

Certain trends are apparent among the young people; these lean towards an agriculture without science and without chemicals. It began with a rejection of high technology; for example, atomic power stations.

People wish themselves back in a wholesome world. This wish is already recognised by the advertising industry. People who move for these reasons onto land want the amenities of the town and the peace of the countryside. These new country dwellers are not available for employment on the land, but would rather draw unemployment benefit for a long time. We also feel concern about the young who do not enter employment and avoid the pressure of work in schools and university.

Occupations of premises and demonstrations for or against anything are signs of dissatisfaction with the aims of the industrial society. These aims of the industrial society - to earn a lot of money with much free time and slightly cleaner work - are already apparent in agriculture. The old image of the farmer is disappearing. We therefore place such special worth on the concept of partnership on the land so that the selfishness of industrial society may penetrate only slowly.

To sum up:

Combining incomes together with a good agricultural education, structural changes and additional places to work, offer good opportunities for some farmers.

Farms on good land, making careful use of credit, are thoroughly capable of competing.

Farms without opportunities for spare-time work are only a few, and in these regions the Community is called upon to help. For this there is the Regional Fund, the Social Fund, etc.

We do not want depopulation of the countryside. There are enough examples of this in Europe.

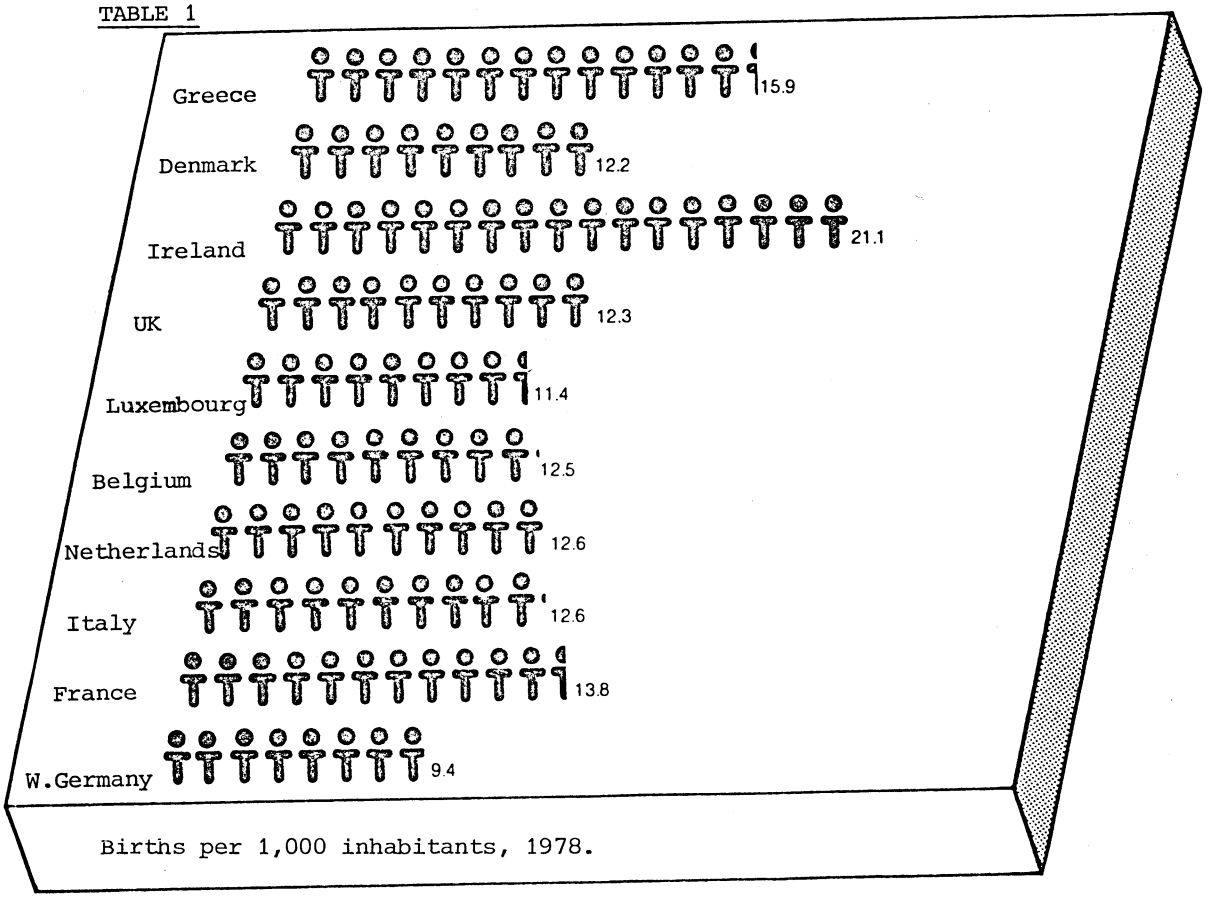
From history we know, however, that these things can be mastered.

Our forefathers have had to bear greater burdens: the greatest calamity would undoubtedly be a warlike altercation in Europe.

Therefore, I see a better prospect in a united and peaceful Europe; but certainly not in a Europe of national self-interest. So I will not mention the fisheries policy!

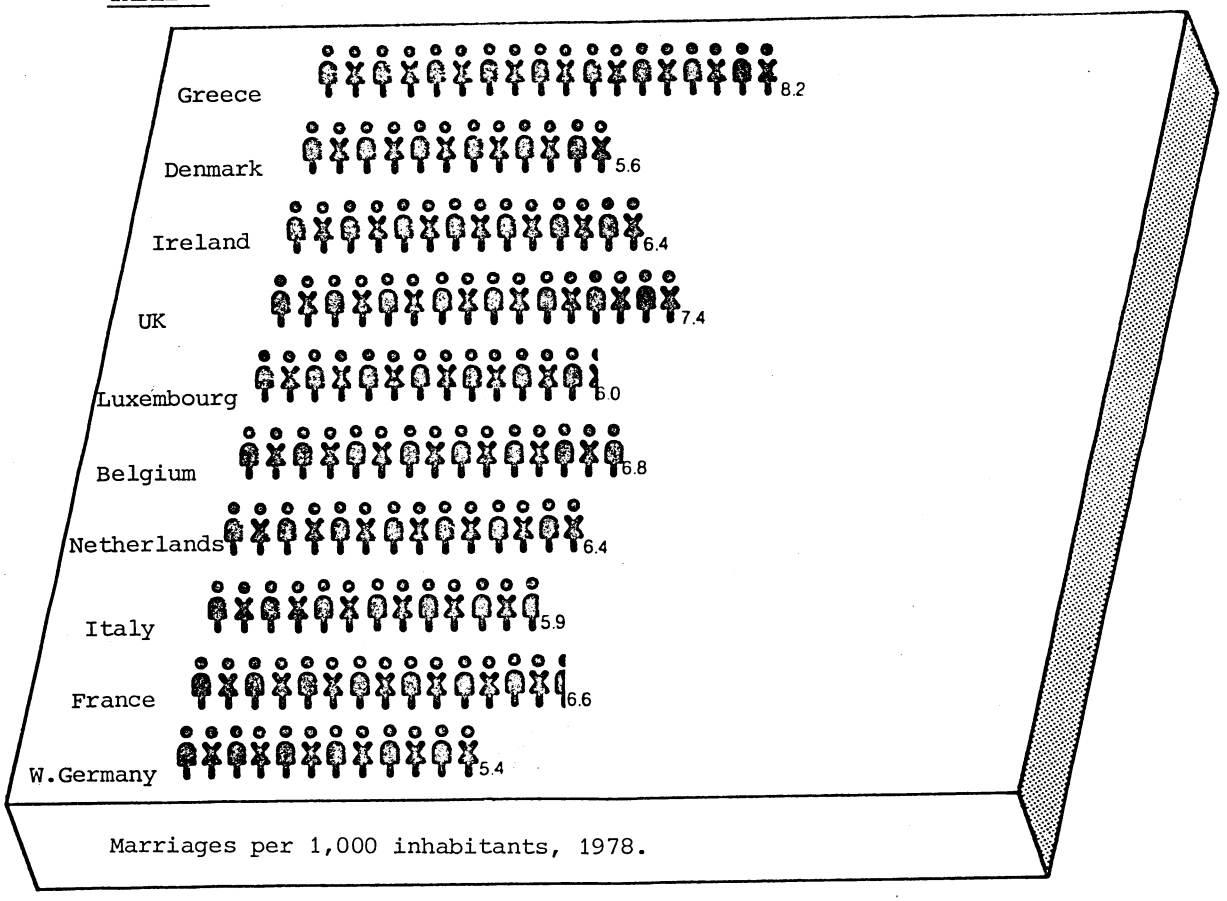
Even in the problem regions of the Community, the countryside can - with a significant share of resources, by a revival of farmers' enterprise and through greater use of partnership - still offer a good future.

TABLE 1



Births per 1,000 inhabitants, 1978.

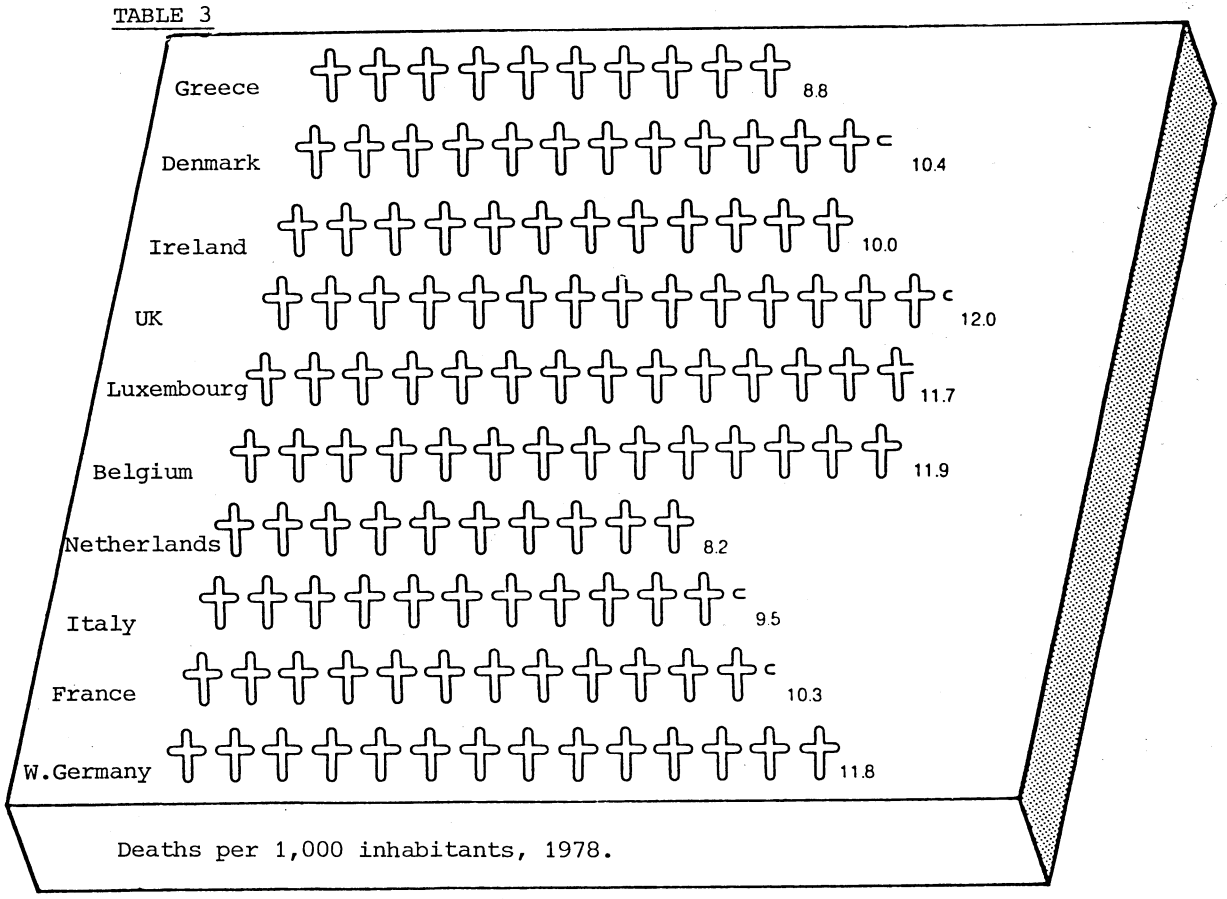
TABLE 2



Marriages per 1,000 inhabitants, 1978.

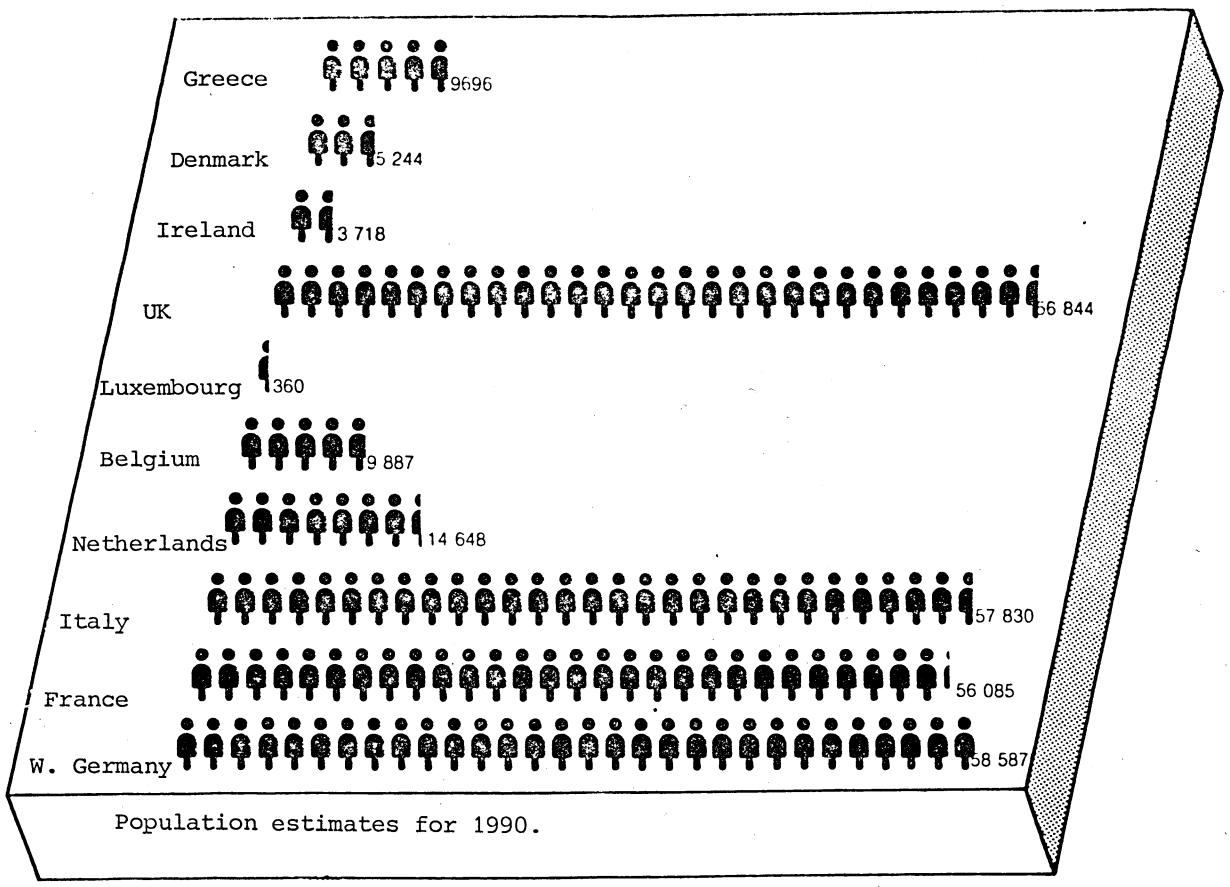
Source: Euroforum (19.12.80).

TABLE 3



Deaths per 1,000 inhabitants, 1978.

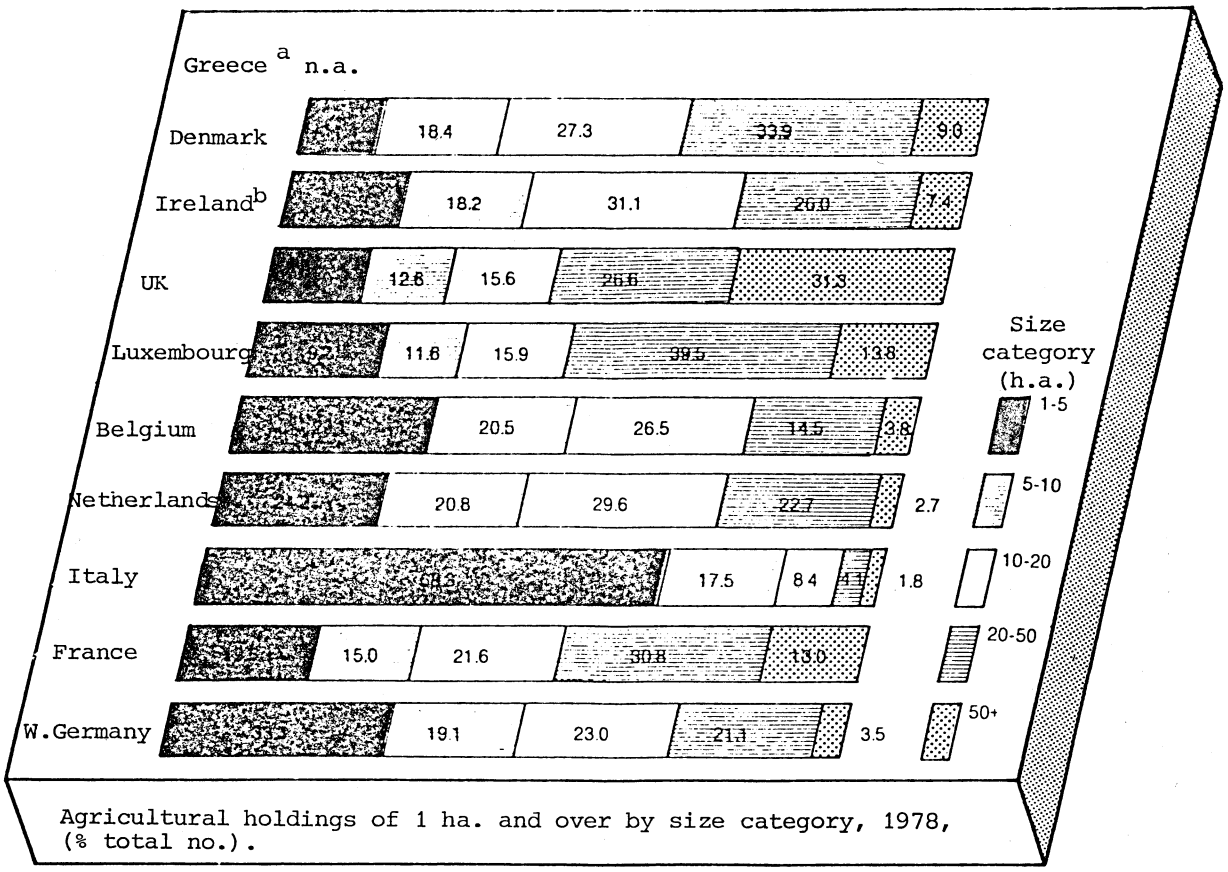
TABLE 4



Population estimates for 1990.

Source: Euroforum (19.12.80).

Table 5



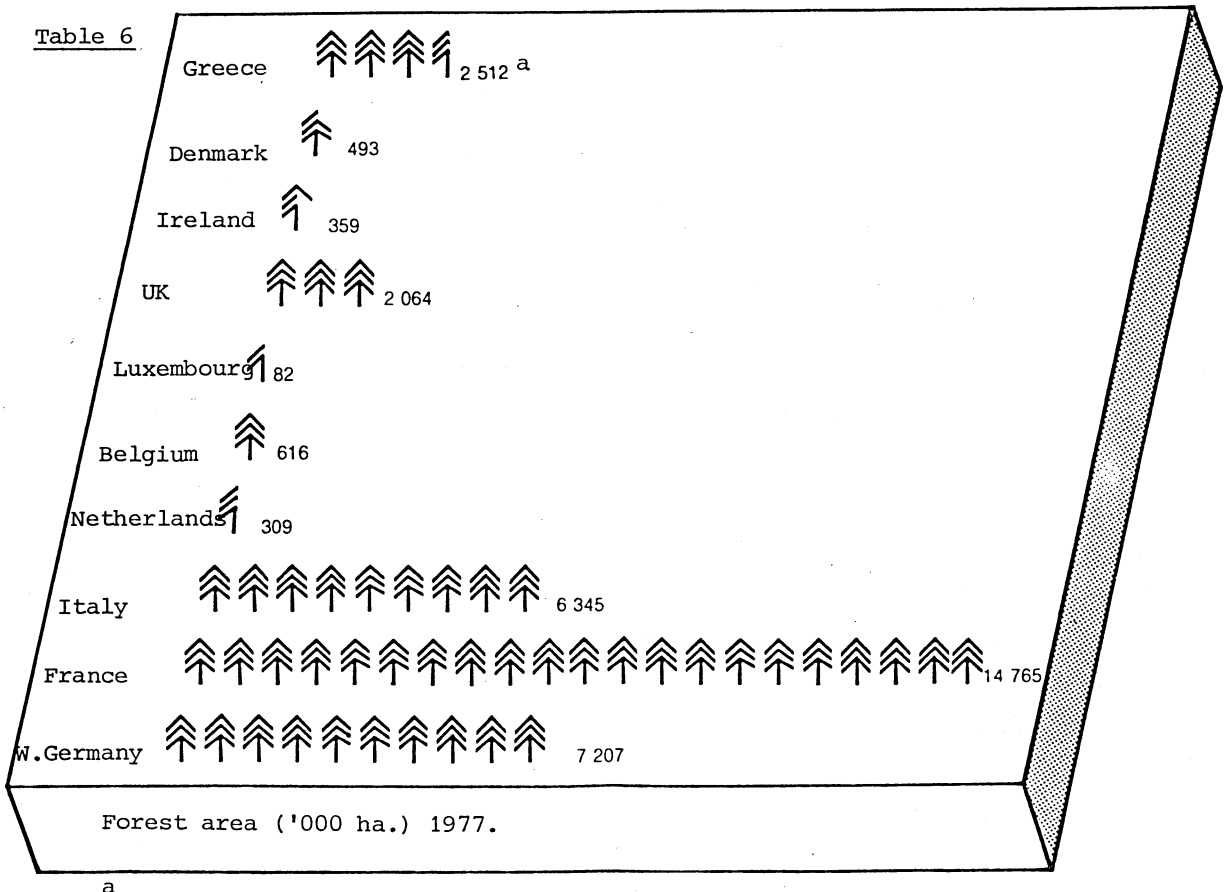
Agricultural holdings of 1 ha. and over by size category, 1978, (% total no.).

a n.a. - not available

b 1975

Source: Euroforum (19.12.80).

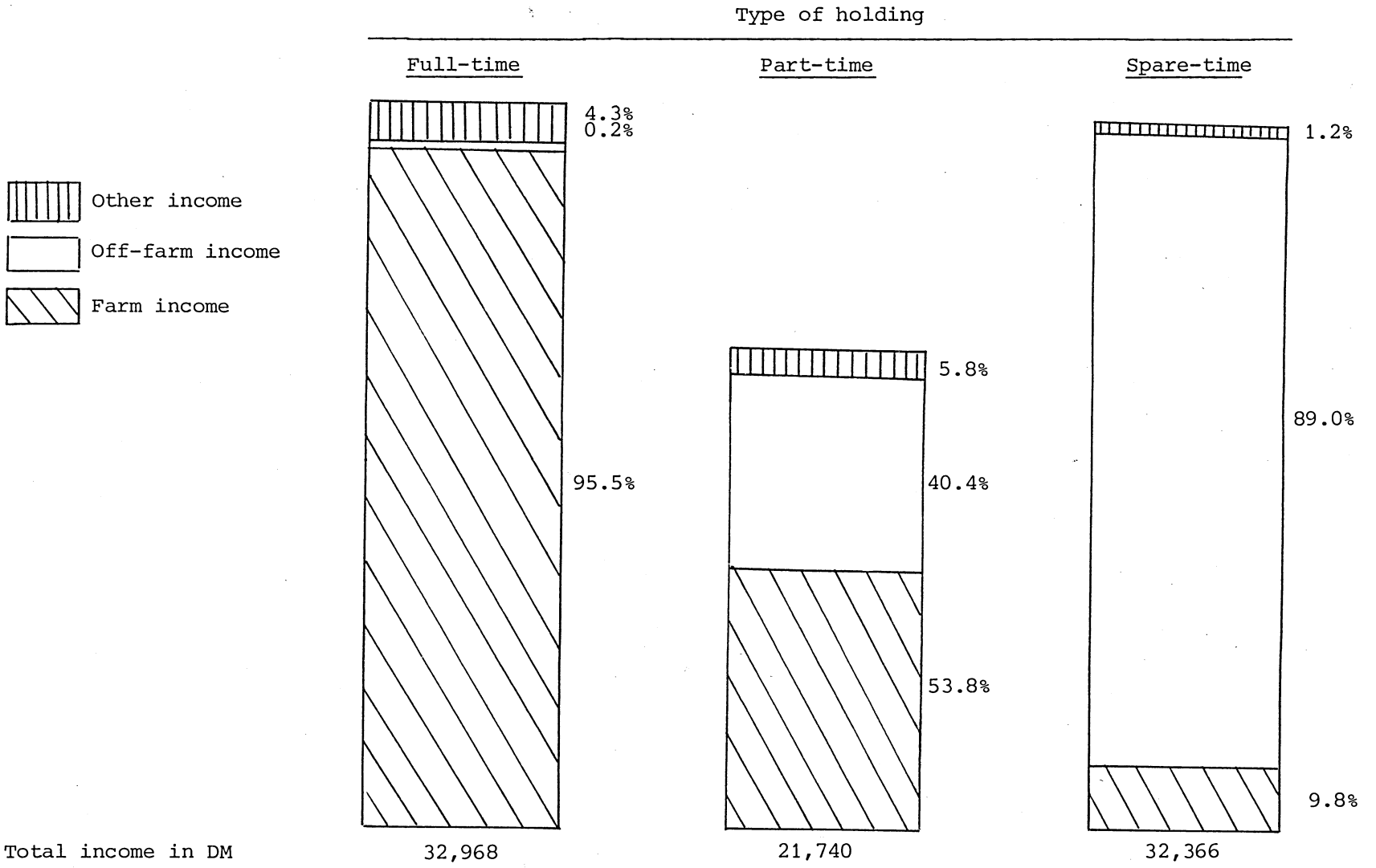
Table 6



Forest area ('000 ha.) 1977.

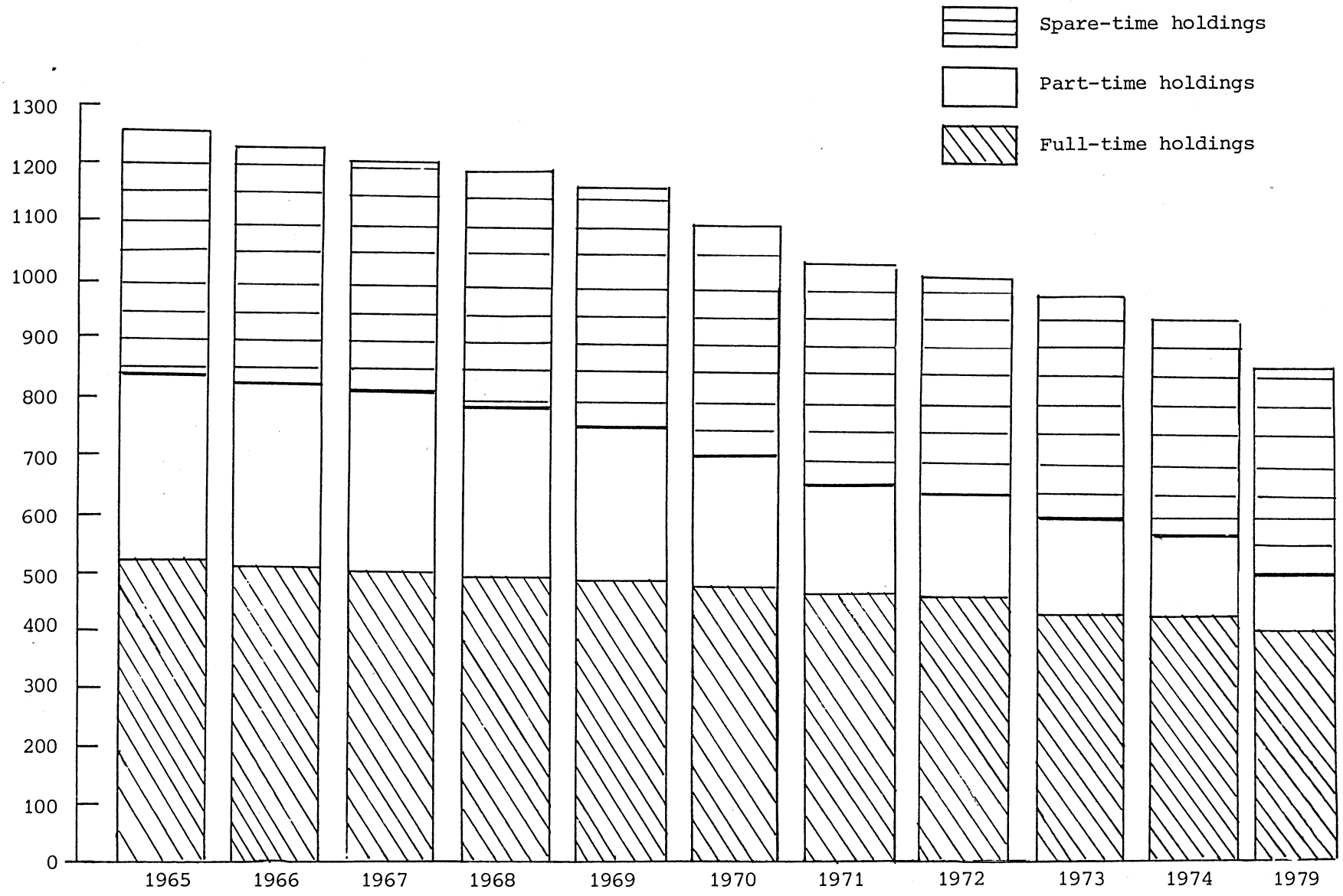
a Source: FAO.

FIGURE 1: AGRICULTURE: TOTAL INCOME PER FAMILY ON FULL, PART-TIME AND SPARE-TIME HOLDINGS, 1979/80.



Source: AID, Fo-15-81.

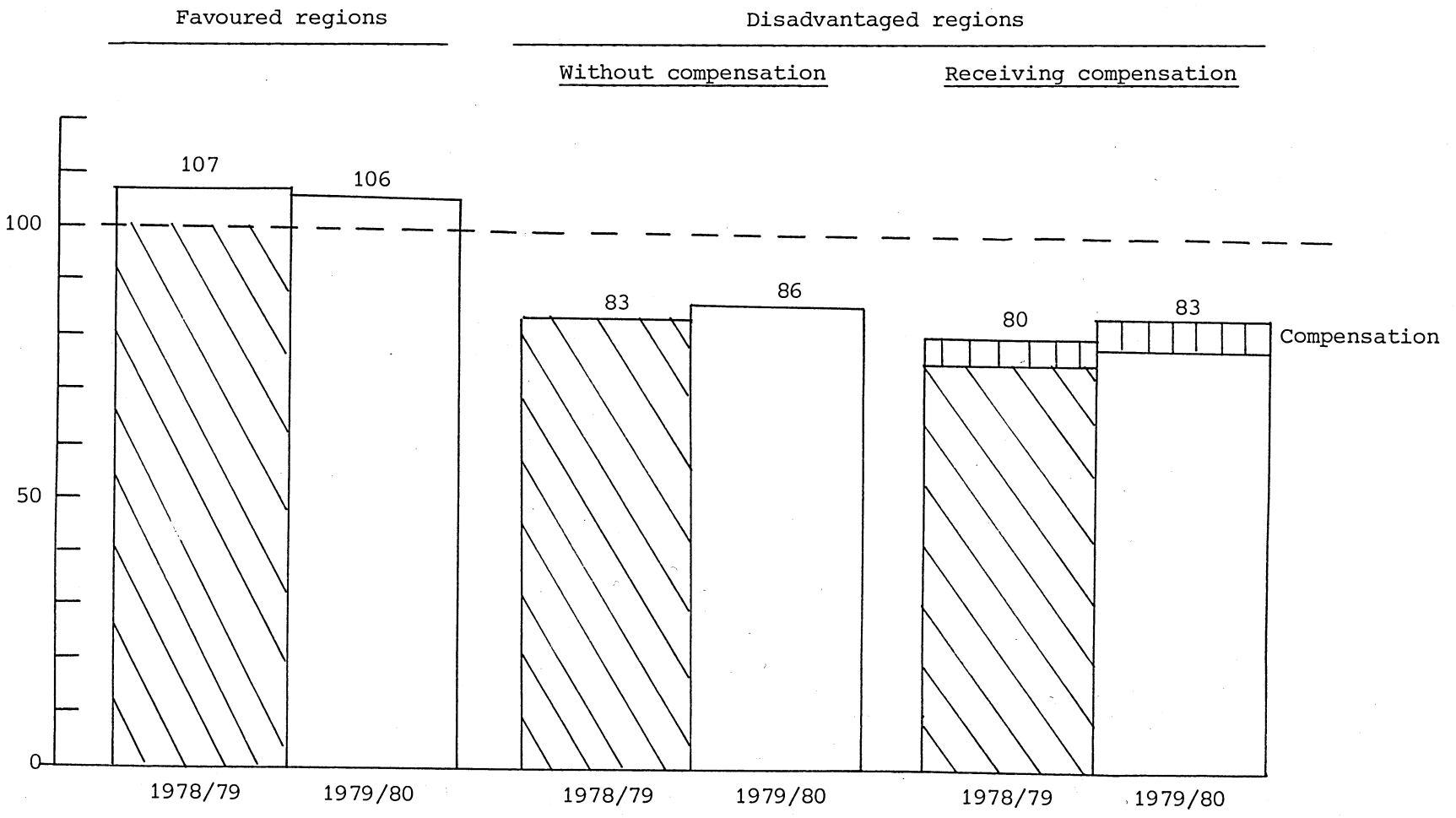
FIGURE 2: DEVELOPMENT OF FULL, PART-TIME AND SPARE-TIME HOLDINGS ('000)



Source: AID, Fo-144-75.

FIGURE 3: INCOME COMPARISONS BY REGION

Average of all full-time holdings = 100 per cent



Source: AID, Fo-13-81.

AN ALTERNATIVE AGRICULTURAL POLICY FOR THE EEC

by Professor Louis Smith,
University College, Dublin, Ireland.

The agricultural revolution is still going ahead after two hundred years. If anything, it is accelerating and this is a major cause of the problems of the Common Agricultural Policy which was designed when war-time famines made food production an urgent need. Prosperity and increased production, however, have now caused the system to be called into question. We are embarrassed by riches and success.

Look at the back-drop for a moment. Yields have gone up about 1.8 per cent per annum, and some crops have doubled in twenty years; productivity per man has gone up 6 per cent per annum (roughly twice the industrial speed), but migration out of farming has only been at the rate of 3 per cent per annum. Although 40 per cent of the people have left European agriculture in the last twenty years and the age-grouping suggests that a further 40 per cent will get out through "vertical migration" in the next twenty years, we have not kept pace with change. In Ireland we have done our best by increasing population to be consumers of food, but in the UK, Germany and Scandanavia, population is falling and people are already well-fed. A market with inelastic demand cannot absorb 2 or 3 per cent per annum increase in output, something must give; so where inelastic demand meets expanded output the price falls. Price is to the farmer what wages are to the worker. It is, however, much harder to keep prices up because the farmer (unlike the worker) does not strike or stop work.

Now the Common Agricultural Policy is being criticised for its price effects. The British did not want an Agricultural Policy at all, preferring a free trade area. The Irish, however, when they became members of the EEC remembered what happened in the Anglo-Irish Free Trade Agreement and in the 1938 Agreement. Trade agreements removed tariffs and quotas - weapons of the 1930s. The British kept the agreements but by deficiency payments effectively avoided the impact of free trade. You can, by direct payments, as easily subsidise farmers as by any system of tariffs.

Since no country is prepared to have unrestricted free trade and since, in the EEC, it was not possible to proceed without agriculture, there has to be a Common Agricultural Policy. If everyone is agreed to distort the market and fair trade is wanted, there has to be agreement on a common system of distortion. "Alice in Wonderland" is our text book in agricultural economics; it takes a certain logical premise and develops it logically to absurdity. That is what we have been doing.

Now that the CAP is reaching a crunch point we have to adapt it. In Ireland we regret this change. The marginal value of our butter in the 1960s was about £100 a tonne, now we can get an unlimited market of roughly £1,700 a tonne and we consider that is a marginal advantage! Naturally we want to ensure this continues.

There are three main criticisms of the CAP:

1) Europe produces a surplus of major products;

2) European production is over-priced;

3) European prices are too high.

Let us examine these accusations:

First, are we producing a surplus? The figures say we have a butter mountain (or we had until we disposed of it) and we have beef problems. That is one way of looking at the situation. The French, the Irish and some Dutch look at the net balance. The European Community imported, in 1978, 36 million tonnes of fodder (see Figure I). Taking 2 kilos to 1 kilo of milk, that would account for roughly one-third of our total milk production. What we were doing was importing soya beans and other feed (which incidentally, would have been very useful to the Third World), churning it through a cow and getting something that even the Third World will not eat. The Russians will put in in their tea. This is not a sensible way of protecting agriculture. The individual farmer will spend £10 to buy fodder if he gets £11 for milk; it pays him as an individual even though it costs £5 in subsidy to dispose of the resulting produce. Similarly, we use expensive and scarce resources of oil and capital to increase yields for subsidised exports. Is this sensible? Do we increase the self-sufficiency of Europe by becoming dependent on soya beans, which in the past the Americans have cut off as soon as they had a shortage at home? Are we assuring independent supplies of food if we depend on oil for nitrogenous fertiliser? For most of Europe, oil may be cut off at an Arab's whim. This is not independence.

We have not built up a <u>European</u> surplus; rather we have imported the raw materials to produce a loss-making surplus.

Second, we are over-priced. Relative to what? We are no dearer for most products than the Americans or the Japanese, not much dearer than the British were to begin with, and cheaper than the Germans. What is the criteria for comparison? World prices are suggested, but this is absurd as the world price goes up and down like a yo-yo. If the Russians, for instance, move in on the grain market the price trebles. World price of milk products has trebled in a year in my time; the price of sugar went up seven-fold on one occasion. What would be the cost of purchasing from world sources? It would not be the current price quoted in the world market now. Britain could buy cheaply in the 1950s; she <u>was</u> the world market. Her relatively small demand could be met from chance surpluses resulting from increased yields and output elsewhere. The European Community,

on the other hand, is a different matter. It already represents 40 per cent of world trade; European production is a very large part of total world production of many agricultural and food commodities (see Table 1) and the demand and supply are extremely inelastic. If you try to buy (as the Russians did) relatively small quantities, the price rockets. The price quoted on the world market at present is not the price at which we can buy any substantial quantity. We could buy 2 or 3 per cent of requirements, not much more.

If price is to the farmer what wages are to labour and dockers in Hong Kong work cheaply, we can bring them in to bring down costs in our docks; their wage differential is bigger than that between CAP and world prices. But is this an acceptable criterion of dock wages?

Third: agriculture takes a crushing subsidy out of the EC Budget. But the total budget is small; it represents about 1 per cent of Gross Domestic Product while national budgets are 40 to 50 per cent of GDP. Japan and the USA spend 1.5 per cent of GDP on agriculture and before 1972, Ireland spent about 5 per cent. As I said above, much of the subsidy goes to pay for the loss on "re-export" of imported raw materials and for processing and storage. The advantage to farmers is a smaller share of a small budget.

The surplus problem is not as black as commentators say. Since we are not yet at the crisis point of European over-production. We are, none the less, approaching it. Even if we shoot the scientists who have caused so much of the trouble by increasing agricultural production, output will continue to increase, if only because the less good farmers will catch up on the leaders. We are heading for over-production so we must use what time there is available to re-think our common policy.

Proposed policies

The first proposal is to get back to national policies of aid to agriculture. To the exporters in France, Denmark and Ireland, the greatest virtue of the CAP is that it is based on prices paid by the consumer. If a subsidy is paid directly, there will be no chance whatever of that being paid from international sources. The trouble about the Common Agricultural Policy is not the level of subsidy to farmers, the real problem concerns the international transfer of taxpayers' money. European solidarity has not progressed to this extent in Regional nor in Agricultural Policy. For the agricultural exporters, therefore, reverting to national aid policies is not an acceptable proposition.

National subsidies, nevertheless, are already a fact. National expenditures on agriculture within the EEC in 1977 (see Table 2) were 13 billion units of account (u.a.), whereas the Community only spent 7 billion u.a. National subsidies, therefore, are already nearly twice the European level. The Irish gave about £6 per acre, the United Kingdom about £23, West Germany and the Netherlands £26 per acre. There is already a very considerable discrepancy in the direct subsidies given. We have gone some distance on the road that Professor Priebe or Professor Marsh would like to follow.

The British would still like to get back to a national deficiency payments system with direct payments of cheques signed "Elizabeth, with love". Such love does not cross frontiers.

It is often said, the Common Market is politics not business.

Quota restraint

This solution is like that of the fat lady's overweight: she can put on a corset; it will squeeze her in at the relevant part, but whatever goes in one place bulges out somewhere else. That happens in agriculture too. When the Americans used quotas in the 1930s, they restrained the area of some crops, but the farmer hates a vacuum, so they increased production of something else.

Quotas are difficult to administer as well as being painful and constricting. The Dutch, however, favour quotas (de Hoogh Meester, De Veer), including quotas per farm. Quotas are difficult to administer because (certainly in our society) things will filter from one farm to another to fill up the quotas. In Ireland, in spite of some difficulties at the border, we have been importing or exporting 10 per cent of our pigs illegally to the north; some pigs indeed cross several times! Frankly, I do not think a European quota system will work, since the Italians are even more agile than the Irish! In any case, it is not desirable to put a strait jacket on a rapidly changing industry.

The Dutch are enthusiastic because they, like the Germans, have been the principal importers of foreign fodder and have developed milk yield as a result. They have a large base from which any quota would be determined. A quota based on present production would confirm the position of advanced farmers or those with factory systems, preventing others from similar developments. The French, therefore, are not keen on quotas.

It would be obnoxious from the European purist's point of view if the quotas were national. The whole European idea is that you should have competition and comparative advantage with people free to grow things where they are cheapest.

Co-responsibility levies

The French and the Commission favour co-responsibility levies. The French would make them proportionate to the size of farms. This takes the sting out as far as the Irish are concerned (we do not have large farms) but upsets the British. Levies, as some propose, on milk production on farms with 60 or 100 cows would amount to almost 100 per cent on increased output. Inevitably, this would cause some distortion of British farm production. The levy means lower prices and therefore, presumably, lower farm incomes; this, however, does not seem to be the object of the game. After all, you can have low prices just as easily by freeing everything and allowing farmers to compete.

This involves an argument about marginal productivity that I shall not elaborate.

Extensive farming

There is a school of thought which wants low intensity farming and thinks that this can be achieved by direct acreage payments. Binswanger of Switzerland has fathered legislation along these lines in the past year and a half. Professor Priebe and some Frenchmen would agree. If half your income per acre is paid for farming, regardless of how, and a very low price given for the produce, extensive farming with low imports of fertiliser and feed, will be followed. Yields will fall and the market price automatically rises until equilibrium is reached. The catch is the millions of hectares on which annual subsidy will be payable (say, some £100 per ha. of subsidy per annum). The working of the system is set out in Table 3.

The taxpayer will be reluctant. The British or Germans may perhaps, pay £5,000 a year to their own nationals. Priebe says this is fair payment for landscape gardening. I cannot imagine their paying it to Southern Italians or Irish. To give a national subsidy at British levels would cost Irish taxpayers over seven times as much per head because we have 20 per cent engaged in agriculture.

Input control

Of these ideas the last is closest to the desirable objective of economy in resource use. For commercial farming we should look again to the fat lady. The appropriate treatment is slimming.

We have large imports of raw materials which produce unwanted surplus. They are bought often at artifically low prices; the resultant farm output is sold at a controlled European price from the farm and the produce is dumped. (Naturally, it would be valid business to import for profitable re-export).

We cannot, of course, just cut-off New Zealand butter immediately; not even the French suggest that. Perhaps we are already committed to some importation of manioc because people in Thailand have expended capital; we may be, to some extent, honour-bound. I can, however, see very little reason, except the plain political argument, for importing from the United States, thus relieving their direct subsidy obligations to their farmers. We have got the wrong balance, wrong because the price of milk in Europe is too high relative to feedstuffs, so it pays to import and to feed too much. The way to get rid of the milk surplus is by raising the cost of inputs rather than by cutting the price of the output. The farmer who is really farming, who is achieving self-sufficiency, who has good management of grassland, for example, gets a European price enabling him to make a better living, than he can now. The "factory farm" which adds little to European food production or self-sufficiency would not be able to produce at the expense of the European taxpayer. The same reasoning applies to fertilisers. A heavy tax on fertilisers would cause a shift towards more healthy farming and more healthy use of raw materials.

Capital should certainly not receive subsidies to encourage output and, usually, displace the labour which we already have in surplus. Our problem is redundant farmers. If one could persuade farmers to take holidays, to reduce their hours of work in step with the urban population, the farm labour population problem would be solved. But our labour problem is transitional; given 20 or 30 years on present trends of entry to agriculture and age grouping, the farmers will die off, they may even become scarce. If they are scarce they will be rich, like plumbers.

We can re-deploy land, encouraging alternative uses to food production. We must take land away from the basic crops if we are going to increase yields. For preference we should find alternative outlets, otherwise we have to have deserts - fallow land. A 3.3 per cent per annum increase in forestry, for example, would take 1 million ha. out of food production each year.

This conflicts with some of the sociological objectives of the Germans. Professor Priebe believes that it is necessary for the mental health of city dwellers that there be a well-farmed German countryside and therefore, that agriculture must be kept up in those areas; he is not, however, in favour of a substantial expansion of forestry. Since Germans have high incomes, German farmers must have higher incomes than other farmers to hold them on the land. Their extra income is a fee as landscape gardeners.

On a European scale such amenity payments seem unworkable. One can hardly fix the price of wheat by proximity to a tourist highway or measure the pleasure from a landscape. The payments would become national subsidies distorting competition within the market.

For commercial farming there seems no substitute for a managed market price.

CONCLUSION

Our policy must be adapted to the transitional period in which we live. The market must continue to be controlled because a free market does not give desirable results. Wide fluctuations in price suit neither farmer nor consumer; rural poverty caused by low prices is repugnant socially and politically unpopular. Adjustment of the labour force is proceeding quickly by demographic standards; 44 per cent of farmers are over 55 and 7 per cent under 35.

We can hardly hasten departure from agriculture by lowering prices. We can shift the emphasis of rural policy to the future use of our land and peoples. Through the Social Policy the Community aided the re-employment of coal miners, when uneconomic pits closed, in such a way that alternative industry was set up and the towns affected did not die. If we passively allow farm employment to fall, numbers of people in rural areas will be too few for the provision of necessary services. In Ireland we try to attract industry to rural areas. The most recent USA Census also shows a movement from the cities; the spread is not now to the suburbs, but to rural areas.

Where the US goes we in Europe tend to follow. We may see the urbanisation or industrialisation of the rural community as a long-term trend solving many farm problems if we can think in terms of a Common Rural Policy, rather than separate CAP, Social Policy and Regional Policy.

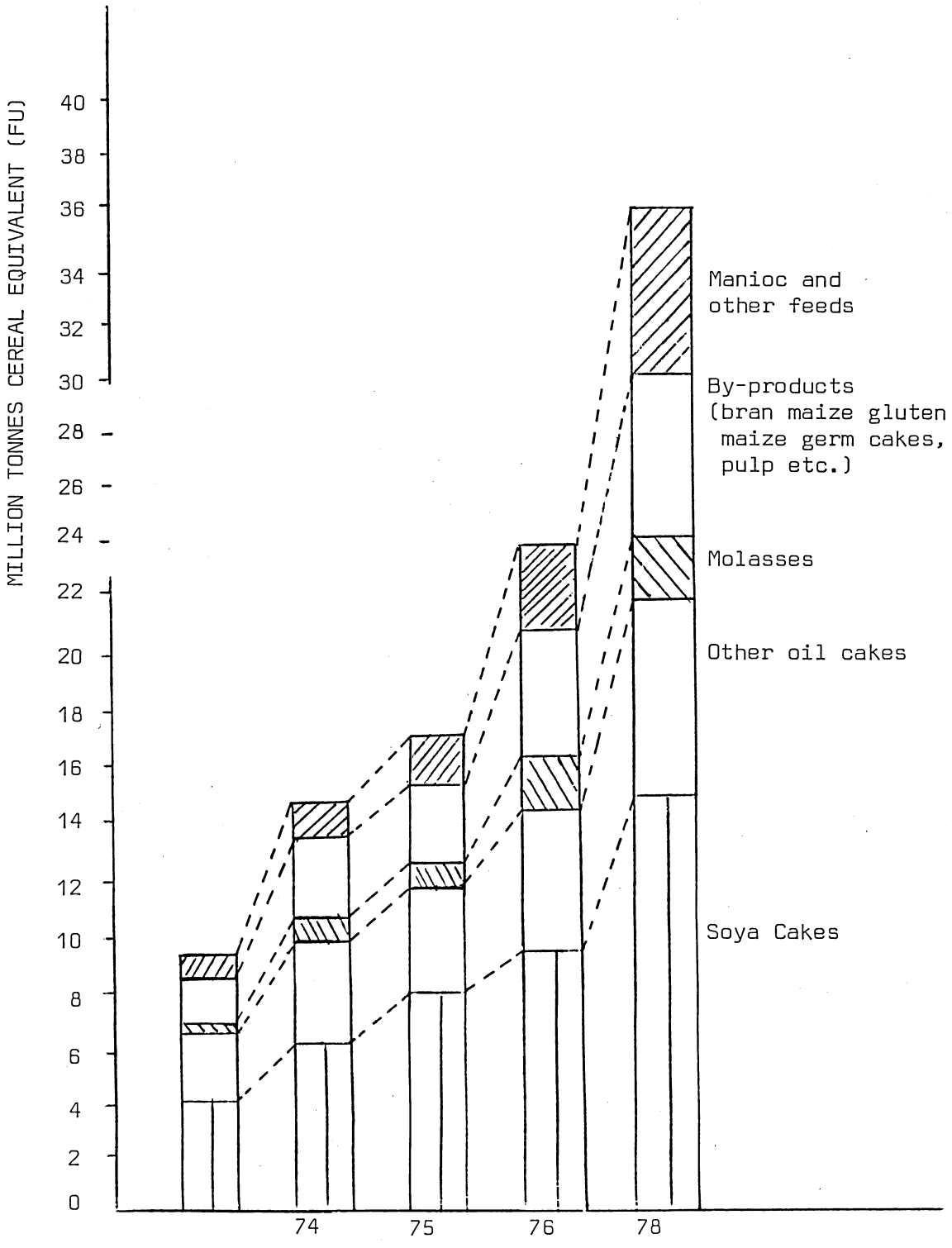
In the short-term our present policies will throw up a surplus which we will be unwilling to carry. This, I submit, has been caused until now by encouragement of increasing inputs of feed and other resources which, although they help individual farmers, cause waste and poverty. If we clarify our objectives with regard to stability of supply and stocks, with stability of price for European produce and European consumers, a rational, transitional policy can be matured.

Should we fail to adapt over policies the Member States will each attempt a national solution, as they are now doing. The Common Market will not survive.

NOTE:

The material for this paper is drawn from Alternative Proposals for the Common Agricultural Policy. Editor: Louis Smith. Publisher: Irish Section of the European League for Economic Co-operation, 29 Merrion Square, Dublin. December 1980.

FIGURE I: IMPORTS OF FEEDSTUFFS TO EEC



Source: COPA.

TABLE 1: COMMUNITY AGRICULTURE IN A WORLD PERSPECTIVE, 1976-1978

Product	World production (millions of tonnes)	World trade % production	EEC Production % World production	EEC Production % World trade	EEC Self-sufficiency %
Wheat*	416	26	10	40	100
Coarse Grains* (except rice)	715	13	9	70	87
Beef*	47	6	14	229	97
Pork	48	3	19	730	100
Wine* (millions H1)	30	14	46	326	98
Butter	7	8	26	329	110
Cheese	10	6	30	500	103
Dried Skimmed Milk	4	30	50	158	110
Sugar*	89	31	13	41	111

* includes Intra-Community Trade

Source: FAO and Commission, EEC Agriculture in World Dimension.

TABLE 2: NATIONAL AND EEC PAYMENTS TO AGRICULTURE IN 1977

National expenditure	million EUA
Research and advisory services	645.8
Production	3285.0
Processing and marketing	647.1
Unattributable	758.4
Consumption	331.1
Total	5667.4
Tax Relief	1374.1
Total	7041.5
Financing of Social Security	6000.0
National Total	13041.5
Community expenditure	
EAGGF Guarantee	6830.4
EAGGF Guidance	347.5
EAGGF Total	7177.9
TOTAL: NATIONAL AND COMMUNITY	20,219.4

Source: EC Commission Directorate-General for Agriculture.
Agra-Europe, June 17, 1980.

TABLE 3: PRODUCER'S PROFIT WITH DIFFERENT LEVELS OF PRODUCTION UNDER ACREAGE PAYMENTS
(uniform results of 4000 kg/cow/year)

1 Required fodder area	2 Quantity of milk	3 Acreage payment	4 Milk proceeds (60 pfg/kg)	5 = 3+4 Total income	6 5÷2 Gross price	7 Difference from the desired price of 645 DM/kg		9 7 x 2 Difference compared to the proceeds from a milk price of 645 DM/kg	
Ha./cow	Kg/ha.	DM/ha.	DM/ha.	DM/ha.	Pfg/kg	Pfg/kg		DM/ha.	
1.20	3330	300	2000	2300	69	+	4.5	+	150
0.90	4440	300	2665	2965	66.8	+	2.3	+	102
0.80	5000	300	3000	3300	66	+	1.5	+	75
0.70	5710	300	3425	3725	65.2	+	0.7	+	40
0.60	6670	300	4000	4300	64.5	-		-	
0.50	8000	300	4800	5100	63.8	-	0.8	-	64
0.40	10000	300	6000	6300	63	-	1.5	-	150

Source: Binswanger, H.C., Alternative Proposals for the Common Agricultural Policy: Ed. L. Smith, Dublin, 1980.

FUTURE EEC AGRICULTURAL STRUCTURES POLICY

by Guy Wilkinson, MA,

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I propose this morning to put our discussion into the institutional framework of the Community's structural policies for agriculture and their development in the future. The emphasis of this seminar has been on the practical; the structural policies of the CAP and perhaps even more so, its price and market policies, are major determinants of the nature and size of farming in the Community, and thus of structures within the rural areas. If we can understand Community policy in these areas and gain some knowledge of future directions, then this could be of help in formulating and implementing other ideas for the revitalisation of the rural regions. I shall try to pick out those aspects relevant to this seminar which seem to me likely to be of particular concern to CAP policy makers in the future - and by policy makers, I mean here the Commission, Council and European Parliament. I shall then consider some of the means by which the Community may try to resolve these issues, and I shall give particular attention to the way in which CAP structures policy has evolved and its future direction. I should say at the outset that I do not expect dramatic changes in Community policies, and it is for this reason that to look at the present gives a reasonable guide to the future.

I have identified four broad areas of particular concern which bear on the subject of our discussions. As will immediately be noticed, they are by no means mutually consistent. First, a continuing attempt to find solutions to the problems arising from the imbalance of supply and demand for many major commodities. I see nothing in recent policy decisions to make me believe that there will not continue to be surplus problems arising for milk, sugar and cereals, for olive oil after Enlargement, and, on a more intermittent basis, for tobacco and wine. The potential for yield increases in all these sectors is considerable, and even to bring the least efficient to the present average yield will give a substantially increased supply for products in which the Community is already at, or close to, self-sufficiency. It is likely that policy-makers will, as in the past, continue to be more concerned with the budgetary consequences than with the existence of surplus production in itself.

Second, there will continue to be a concern, expressed politically, to maintain the level of average farm incomes in real terms in all Member States, taking one year with another. This is, of course, rather a vague formulation, and is political in nature, but I am really saying that I do not expect dramatic changes in price policy compared with the recent past; price reductions and price

freezes, for example, seem to me unlikely to be acceptable, and a period of moderate price increases is likely to be followed by a higher than average settlement. I think that we have seen that happen this year. The difficulty will be to find a satisfactory outcome for each Member State in a situation where there are wide and increasing differences between them in income levels and in inflation rates, as is the case at present.

Third, there is likely to be a growing concern at the disparities between Member States and between regions in rural income levels. By rural incomes, I am including not only farm incomes, but also the whole range of services and infra-structure available. In the past the price and market policies of the CAP have not formally taken this aspect into account. The Treaty in Article 39 does specify that in working out the common agricultural policy, account shall be taken of *"the peculiar nature of agricultural activity, deriving from the social structure of agriculture as well as from the structural and natural disparities between the various agricultural regions"*. In practice the emphasis of price and market policy has been on measures common to the whole Community. Of course, there are in practice regionalised aspects through the geographic distribution of crops and the support systems used. We all know of the higher level of support and protection given to 'Northern' products compared with 'Mediterranean' products; nevertheless, the support systems for olive oil and for tobacco, for example, do inject substantial amounts of cash towards particular regions.

Finally, I expect there to be increasing concern with the type and intensity of farming methods and with rural structures in general. This concern is not yet very far developed, but there are already signs in actions taken, or proposed, with regard to price and market policy in the milk sector and also, for instance, in the oils and fats sector.

The Community will, I expect, continue to be concerned to maintain price unity and free trade across the Community. The main issue will be to find the means by which this can be achieved in the face of widely varying needs and conditions. In the past, of course, and even in the most recent price review, the Community has been able to vary the level of price increases between Member States through the use of 'green money' adjustments. The scope for such adjustments may well be much less in the future and the primary concern will be to find other means of modulation between regions and Member States. In a word then, I expect the Community to aim at limiting the budgetary consequences of surpluses, but at the same time to seek ways to limit, or at least to differentiate, the effects of the measures taken to achieve this, on poorer regions and sectors.

I turn now to the Community's structural policies and their development as I believe these to be of particular relevance to the issues with which we are concerned.

In the years from the first structural policy decisions through to the mid-1970s, there was a period of relative stability and simplicity in the policies at the Community level. Since then a great variety of new measures has been adopted, culminating in the recent

decisions taken in the context of this year's annual price package. That the late 1970s should have seen a search for new policies is no surprise, related, as it was, to the changed economic environment faced by agriculture and industry alike, following the ending of the prolonged period of steady and high growth rates enjoyed by all Community countries in the 1960s. The makers of Community agricultural structures policy are faced with a series of economic and social relationships which, whilst complementing each other in the 1960s, have contradicted each other in the late 1970s. It is for this reason that it seems to be so difficult to find the policy threads which run through the decisions of recent years. There are, however, such threads, and I shall try to pick them out.

In the 1960s, the main theme of structural policy was to be found in the modernisation of farms and agricultural processing. Capital replaced labour in agriculture at a rapid rate, and with high growth rates, other sectors of the economy were eager to absorb the population so displaced. CAP market and price policy encouraged the growth of agricultural output for which markets were available internally. The Community thus enjoyed the best of both worlds - a steady exodus from agriculture to industry giving rise to growth in productivity and production; a high level of demand from growing incomes and from the lower levels of self-sufficiency which obtained within the Community at that time. No doubt price and market policy slowed down the pace at which change took place, but this was seen as a desirable effect in so far as it multiplied the harsher aspects of rapid social change. There were clouds on the horizon - the milk sector was giving rise to surpluses; and the peripheral regions did not seem to be benefiting from overall growth as much as had been hoped. These clouds were taken as a sign of a storm to come in the Memorandum on Agriculture or the 'Mansholt Plan' as it has come to be known. His analysis and remedy was, however, essentially aimed at increasing the pace at which existing developments were taking place. The Plan resulted in the three structural directives of 1972 giving aid for farm modernisation, for re-training and providing early retirement grants for those leaving the land. These measures were added to the existing scheme for individual projects investment aid set up by Regulation 17/64 to improve agricultural processing and marketing, subsequently merged into the present programme-oriented schemes of Regulation 355/77.

By 1975 it was becoming even clearer that the underlying situation had changed. First, overall economic growth had slowed, and the peripheral regions, as is always the case, suffered earliest and most harshly; second, growth of productivity and relatively stagnant consumption had raised the level of self-sufficiency in many commodities and was leading increasingly to the formation of surpluses in the milk, sugar and wine sectors with all their budgetary consequences. Third, it was becoming clear that the socio-economic directives of 1972, combined with relatively high levels of price support were benfiting disproportionately the more prosperous and efficient farms and regions of the Community. As more analysis was undertaken, it became increasingly clear that regional disparities were growing and that the fixing of support prices at levels which were remunerative for the less efficient would give rise to increasing surpluses. This factor has dominated much of the subsequent

discussion on the problems of the CAP. On the one hand, it was said that the surplus problem was caused by the use of small, inefficient farms as the basis for price policy decisions. Progressive elimination of these would enable more internationally competitive support prices to be fixed and the surplus problem would disappear. The problems of the peripheral areas were essentially of a social nature and should be dealt with by Community Regional and Social Policy. On the other hand, it was said to be the highly productive farms which caused surplus, particularly where intensive methods based on cheap imported raw materials were used. Account must be taken of the need to maintain a rural population and of the fact that limited alternative opportunities are open to the agricultural population in these peripheral areas.

In 1975 two regulations were adopted which marked the formalisation of this debate. Regulation 276/75 defined certain areas as being of 'hill farming', or as being 'less favoured regions', by reason of natural physical handicaps. Regulation 268/75 provided for compensatory payment for farmers in these areas. The preamble to that regulation states its purpose to be *"to ensure the continuation of farming, and thereby the maintenance of a minimum population level and the conservation of the countryside"*. The issue was thus stated clearly even if it was not resolved by these measures. Indeed, the existence of regions of this kind defined in Community legislation, has proved the undoing of many subsequent schemes for the elimination of surpluses; it has proved impossible to avoid exempting such regions from the measures to be taken; for example, in the milk sector. The path of direct income aids to which Regulation 268/75 pointed has not been followed any further by the Commission, although it has been repeatedly advocated in many quarters. There is a reluctance to extend beyond the areas of physical handicap, the direct subsidisation of incomes, although such subsidies exist within the market and price policy in other forms, notably for olive oil and tobacco.

In 1977 a further step was taken in recognising that the problem of rural regions went beyond those of the farm alone. The Mediterranean package (and the accompanying programme for drainage in Western Ireland) was put forward as a logical next step in recognition of the fact that the benefits of structural policy had largely passed the region by; and as a preventative measure against the problems expected from the future enlargement of the Community to Greece, Spain and Portugal. Thus the Mediterranean package included Community finance for rural infra-structure development. In this way it was accepted that the answers to the problems of the rural periphery had to be found within those regions and not by exodus from them. In the same context, the link was maintained with price and market policy by a programme of subsidies for the rationalisation and improvement of vineyards in the area, through grubbing up and conversion schemes, and through legal limitations on new plantings and re-plantings. The wine sector thus joined the milk sector in having at the same time schemes for the limitation of output, and for the improvement of productivity. These programmes for the Mediterranean area and viticultures were a more sophisticated attempt to treat the dual nature of the problem than had yet been undertaken in the dairy sector.

Between 1979 and the present day the regional and sectoral approach has been continued and developed. There are three aspects to be noted. First, more regional programmes for particular areas have been put forward by the Commission and accepted by the Council, including the Western Isles of Scotland, Northern Ireland, Western Ireland, Lozère in France, Greenland, parts of Italy and elsewhere. The criteria for the choice of areas are not yet clearly defined but from the preamble to the various regulations it would seem that they are related to particularly low levels of farm income, to high percentages of active population in farming and to deficient rural infra-structure, including 'electricity, drinking water supplies, farm and local roads'. It is clear also that a political balance has had to be struck - thus the programmes for Northern Ireland proposed in June 1980 and in March 1981 were put forward as a subsequent counterpart to proposals for the Irish Republic. Similarly, certain less favoured areas in Germany were given special programmes as part of the 1981 prices package.

The second point to note is that these are intended to be "integrated development programmes" in which, "apart from strictly agricultural development programmes, others for financing activities connected with the food industry, the development of craft industries or activities connected with the hotel, holiday and leisure industries could be implemented" (COM(79)122). It is envisaged that other Community and national funds than purely agricultural, should be used in these areas. As far as I am aware, the means by which 'integration' of the different funds is to take place has not yet been fully worked out.

It is worth digressing a little here, however, to the European Regional Policy and to the developments in the use of the Regional Fund which parallel the integrated programme approach of the agricultural sector. Five per cent of the Regional Fund is now allocated to the non-quota section - that is expenditure not allocated according to the quotas by Member State laid down in the basic regulation. These non-quota funds are to be used within programmes for particular areas or sectors which have been affected by the results of other Community policies. Five of these have now been adopted, including one for the Mediterranean regions of France and Southern Italy. The regulation refers to the measures taken under the CAP and states its complementary nature. It will provide funds for the encouragement of small and medium sized enterprises, for industrial innovation and for the promotion of rural tourism. Another of these programmes provides for the improvement of the 'economic and social situation of the frontier zones of Ireland and of Northern Ireland'. As with the integrated programmes, the intention is to focus on particular areas or sectors, a whole range of policy measures. The approach clearly accepts that there are different needs in different areas of the Community and that the solutions are to be found within the regions concerned.

The third feature relates to finance. The funds available for structural policy in agriculture are very small relative to total FEOGA expenditure, probably around 4 per cent in 1981. The first financial regulation in 1962 envisaged that up to one-third of expenditure should have been on structural policy. Nevertheless,

the absolute amounts have now been substantially increased over the 325 million EUA per annum of the early 1970s. Expenditure is now likely to average 750 million EUA per annum over the period 1980 to 1984. In addition, the rates of Community participation have become more flexible, with higher percentages being made available in the least favoured regions. The complementary use of other Community and national funds concentrated in limited areas or on specific sectors will give a more concentrated effect than has been possible in the past.

This rapid survey has, I hope, demonstrated that the Community has now brought itself to the point where it has at its disposal, a very considerable variety of measures to match the variety of circumstances which exist within the Community of Ten. Most of these are of very recent origin, and I do not have any clear information on their effectiveness. The danger of such an approach is that it will become a ragbag of measures with a complicated administrative structure and prey to the techniques of political trade-off. The latest package of measures for the Republic of Ireland, and extended during the price negotiations to include Northern Ireland, were clearly intended to render more acceptable the common price proposals for a Member State with above average inflation.

The basic issues, however, still face any structural policy for agriculture: is there an acceptable middle or alternative way between the effects on the rural structure of the price and the market policy necessary to squeeze surpluses out of the system; and the preservation by direct subsidy or by protection, of a particular form of socio-economic structure in the rural areas. At present there is a mix of measures representing an uneasy and unsatisfactory balance between the two extremes. Surpluses continue to exist in a number of sectors with a consequent build up of budgetary pressure; the price policy of recent years has led to pressure on farm incomes at both ends of the spectrum - the highly capitalised and the traditional holding. The response of the former is often to undertake an ever greater intensification of his farming system, with all the effect on the countryside that we so often see. The response of the latter is less clear, but is often still to hold on, although the age structure of the farming population in many peripheral areas indicates that the process of rural depopulation has not yet ended in these areas.

I am of the view that the next few years may well see the official recognition within Community policy of a number of trends which are already appearing under the economic pressures of the times. First, the encouragement of less intensive farming systems and the penalisation of the most intensive systems. The economic feasibility of the former has received a great deal of attention in recent times from those more expert than myself. From such studies as I have seen, it does seem possible that, in certain circumstances, lower levels of intensity (less capitalisation, less bought-in inputs, lower energy use) can be financially attractive, especially for the middle sized or so-called family farms which have for long been a central plant of official policy in many Community countries. The advantages of such a trend in the context of continuing surplus production are clear. In a recent comparison of dairy farms in

Bavaria and in England and Wales, profit per hectare is substantially greater in the former, even when the different prices ruling at the time of the study are eliminated. The significant differences appear to relate to the use of family labour, to lower concentrate usage per cow and a higher rate of forage energy used per hectare in Bavaria. I recognise that such comparisons are fraught with difficulties, but I believe that they do provide some indications. In this connection it is interesting to note that the Council has just adopted a proposal for a scheme of aid for the increased use of silage and for pasture improvement in Ireland. The penalisation of intensive methods has already been proposed by the European Commission, and is a concept actively supported in many parts of the Community. The proposed modulation of the co-responsibility levy in the milk sector according the level of output per forage hectare is one example; the calls for limitation of tariff and levy free imports of manioc, soya and other feedingstuffs, is another. I think it likely that pressures for change in these directions will intensify, following, as they do, both the desired policy of limiting production increases, and the market trends, at least for energy and land.

Second, there should be a change of attitude with regard to part-time farmers, and an increase in their numbers. In Germany, according to the study quoted earlier, 39 per cent of farmers earn less than 50 per cent of their incomes from their holdings, and in Bavaria 50 per cent of holdings providing 30 per cent of milk, were part-time. At present, such farmers are regarded rather as a complicating factor in the formulation of price and structural policy by the Commission. It is clearly the case that such farms need a lower level of protection and support than those of the same nature in full-time farming; at the same time, they play a major role in the maintenance of the rural population and structure. The expansion of part-time farming, however, requires a national policy on the decentralisation of non-agricultural employment. In Bavaria, such a policy seems to have been followed with some success. In the United Kingdom the work of the development agencies, the Highlands and Islands Development Board, and organisations such as CoSIRA, seems to have met with less success. The new approach to structural policy represented by the integrated development programmes may, however, be useful in this context. To find the right mix of industry is relatively difficult, and is by no means independent of the objective being aimed at - the level and age structure of the population. Whilst the energy crisis may have made industrial decentralisation less easy, there is perhaps a counter trend in the development of electronic communications, and in the footloose nature of the high technology, high value-added industry that it represents. There is some evidence to this effect from the United States.

Third, we shall see renewed attempts to work out a policy of direct income aids to certain categories of farmers financed partly at national level, but subject to Community guidelines. Even with the development of the more flexible structural policy of recent years, price policy will not be able alone to straddle the need to provide income support for all farming categories on the one hand, and the need for supply and demand balance on the other. Such a policy could have a considerable effect in retaining population and

income, and thus the range of services and infra-structure, within the poorer rural areas. Of course, there will be a price to pay in direct budgetary terms and, in indirect terms, as a loss of economic efficiency. But if the Community's problems of budgetary allocation between Member States can be resolved, then such a policy will have considerable attractions. One might argue that this will be no more than an overdue institutionalising of what is already the case, in view of the often quoted statistic that national agricultural expenditure is still twice the level of FEOGA expenditure.

I have attempted to identify some of the factors which will influence the structure of the rural areas of the Community in the future. Community structural policy can, however, do no more than provide the framework within which solutions have to be found. I am optimistic that there is now a more flexible and comprehensive approach to these problems than in the past.

SUMMARY

by Professor Denis Britton, CBE,
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My task is to try to bring together some common elements out of the very varied and rich discussions which we have had in these past two days. I am not at all sure whether I shall not be reporting merely my own pre-conceptions, embellishing them with gleanings from informal conversations which were not part of the sessions, rather than faithfully summarising the sessions themselves. Be that as it may, I have been considering my notes and my recollections to see whether I can discern any attitudes, beliefs or desires, which we all seem to share. But I do emphasise that the outcome will be very selective from a tremendous wealth of comment and observations.

It is not my impression that we as a group particularly want to endorse some very strongly expressed line of action or to go forth from this seminar as crusaders in a common cause of protest or reform. Nevertheless, I do think that we all share the feeling so well expressed by Martin Haushofer, that *"people wish themselves back in a wholesome world"*. The word 'wholesome' is so much more comprehensive and satisfying than words like 'efficient', 'viable' or even 'compassionate'. I doubt whether we all wholeheartedly wish ourselves back into a period of rapid economic growth once again, though the expansive 1960s have been referred to rather nostalgically more than once. We seem to be thinking very much more of the quality of life than of the quantity of goods and services available per head, and all sorts of ideas mentioned here have had that qualitative aspect either concealed or quite strongly brought out. So we are wishing ourselves back in a wholesome world. And not just for ourselves. We are presuming also to wish all sorts of other people back into a wholesome world. Mr. Blow would like to see us coming up with ideas which would rehabilitate the whole disintegrated urban community, as well as doing our best to improve what is going on in the rural society. The belief emerges that sensible policies for rural areas could give a lead to reversing the undesirable trends which we see in the cities.

We do not seem to be unanimous that there <u>are</u> undesirable trends which can be discerned. We are not so sure whether we can do more than observe them and try to adapt to them, or whether we can actively do something to reverse them. Nobody, I think, has said: let us leave the trends to work themselves out and all will be well. I believe we have various degrees of conviction about whether some kind of national or European Community action is called for which has not yet materialised. We heard expressions of some lingering faith in the 'invisible hand' identified by Adam Smith, whereby enlightened pursuit

of self-interest within a framework of certain rules of behaviour does turn out to be of general benefit to all. Societies of the twentieth century have tended to show less and less regard to that feature of Adam Smith's design which gave maximum freedom of action to the individual and very little role to the state. I think we are all attuned now to a much broader and more perpetual role for the state and for the collectivity of states working internationally, than Adam Smith ever envisaged, even if we do not feel entirely acquiescent.

At the same time, I do think we may have talked sometimes in rather too grandiose or presumptuous terms when we have used phrases like *"we must completely re-think how we are going to use the land of this country"*. Who are we to draw up a kind of blue-print like that? It seems to me that the use of the land of this country is going to rest with the individual decisions of hundreds of thousands of people who, even if they will submit to various forms of regulation, will not abdicate their rights in deference to some centrally-imposed grand design thought up by planners. Again, it has been said that *"we must reverse the trend towards urban preponderance"*. I think it is going to have to be a matter of adapting to some of the strongest trends, rather than imagining that, by acts of will or by political programmes, we can actually presume to reverse them.

However, talking of trends, I feel that no one has challenged strongly the general feeling we have that agricultural production is going to go on increasing in Europe. There are no unmistakeable signs yet that Europe's soil fertility is nearing exhaustion or that man's ingenuity in replenishing it is defeated. No one has seriously challenged the assumption of a 2 per cent growth rate in output in European agriculture confronting almost static European consumption, and I would like to think that we could work from that base when we are talking about solutions in terms of agricultural price policy, food aid and so on.

Certainly, my feeling is that this meeting is not Malthusian in the sense that we cannot really expect Nature to yield much more in the way of agricultural production in Europe. Nature and man together look as though they are going to continue the upward trend, and I have in mind Ian Reid's remark too, that many of the best and most progressive farmers regard technological improvement itself as a challenge and almost as their goal; they do not measure their success in farming by their bank balance but rather by their physical achievement, which almost always is expressed in terms of higher yields per hectare or per animal.

Against that background we have given some consideration to the question of whether or not production which is no longer able to find an outlet in European markets can find a commercial outlet elsewhere, or an outlet in terms of some form of planned food aid. In passing, we had one or two references to how valuable food can be as a diplomatic or strategic weapon, and some have said that in any case it is a much more desirable export than armaments.

If we do envisage that, at the European level, we have already moved through the 100 per cent self-sufficiency mark on a good many major products, and that we are moving further above the 100 per cent of self-supply position, then ought not the policy makers urged by people like ourselves to be actively considering what Europe will be doing with that extra production year by year? Should it not be part of the agricultural planning of the Community and of its individual Member Governments? We have been warned about the damage that food aid directed towards developing countries can do; we have been warned that the effect can be negative and not positive in that it may discourage local producers whose real need is not for food aid but for the means to produce and the technology to produce; and that this would be perhaps the most effective way of aiding the development of developing countries; not to distribute food to them that we do not happen to need, but to comply with their technological needs in a much more imaginative and appropriate way than has been done in the past.

Nevertheless, I come back to the point that it does look as though disposable quantities of agricultural products are going to be available from Europe in most years unless, of course, it is decided to hold them in stock more or less in perpetuity, which is a very expensive exercise.

We need to be thinking more along the lines - can surpluses be made to be beneficial rather than to be a nuisance and an undesirable budgetary cost? Perhaps they have to be accepted as a necessary price to pay for the well-being of the European farming population. They are expensive to produce but the general mood seems to be that it is very important not to have a derelict countryside, not to accelerate the movement of people out of the countryside into urban areas; that a part of the economic health of a countryside - but only a part, as Professor Wibberley pointed out to us - must depend on the economic well-being of agriculture, that is, on the prosperity of agricultural producers and the level of living which they are able to reach. So that if there is a general mood (and perhaps, as we have been told, it is stronger on the Continent than in this country), that the welfare of the small family farm is something which must be not only protected but actually fortified and strengthened, then perhaps this is moving up in our priorities at the expense of other criteria such as efficiency in the use of resources. Whatever economists might say about how to determine priorities, the accepted criteria do seem to be shifting away from efficiency in terms of maximum output per unit of physical input towards welfare of families in rural areas, quality of product and other considerations.

If the balance of opinion and pressure groups is moving away from the Mansholt Plan (Mark I), which really was based on rural exodus and enlargement of the farms remaining in the agricultural sector, then we are going to have the production of an amount of output more than the markets will absorb; our positive planning therefore has to be how to deal with that extra output. In other words, perhaps we are shifting away from the problem of dealing with redundant agricultural people to the problem of dealing with redundant agricultural production. You may say that is a more humance approach, even if it can be shown to be wasteful of resources. This is at all events one general area of concern which I think I detect.

Next I should speak about energy. Rather to my surprise, the impression which I received was that some of the experts who talked to us about this were by no means pessimistic about the energy output. It is true that Dr. White said we perhaps ought to be ready for a further doubling of petrol prices by the end of the century, but he went on to say that this is not necessarily something which we cannot accommodate by ingenuity and by adjustments of various kinds. Indeed, I think Professor Spedding also emphasised the potentialities of ingenuity and suggested that if only people with crazy ideas were given more encouragement, the ideas would not all turn out to be crazy and some of them might turn out to be extremely valuable to us. Therefore, it might be a good risk to change our research priorities, so as to give more scope for people who might think they are on to something but cannot definitely demonstrate yet that it is going to solve our energy problems.

I was also given the impression that we are tackling the energy problem on such a wide front now, and pretty intensively (when I say "we", of course, I do not just mean we Europeans) and also that the reserves are not actually running out just yet. Perhaps we have something approaching one hundred years in which to make all the necessary innovations and adjustments. Sir Kenneth Blaxter was certainly not complacent about the prospects, but on the whole I think there was a playing-down of the notion that the whole of British agriculture must be transformed in response to the new energy position that we are now facing. Our group seemed to think that this was a matter of degree rather than a matter of a completely new situation, and some of Dr. White's figures about how much of agriculture's total costs consist of energy costs were perhaps more reassuring than alarming in that respect.

Several speakers spoke of other major problems which confront us besides energy, outlining what a wide range of options there were; and I certainly got the general impression that farmers and others will adapt and modify rather than just be crushed by these new situations. There are various and multiple ways in which farmers can respond. John Nix, I think, gave us fifteen alternative responses to tightening financial situations. None of these is recommended as being the best for all conditions. Obviously, according to region, according to degree of intensity, according to aptitude of management, it is quite wise and proper for some to be expanding in a time when general contraction might be called for and vice versa. There is no kind of common prescription which could go out from a meeting like this as to how European farmers should respond to the situation.

For example, I have detected no clear cut case that we should move to low-cost, low-output farming. Many farmers here will testify that more often than not, the raising of output has been their own particular salvation against continuing cost-price squeezes and against other difficulties that came their way.

As regards the CAP itself, I think we were given the impression that the supposed "crisis" may have been exaggerated by the media. Some say that the surpluses are not all that large, in fact they may be quite prudent rather than a symptom of gross mis-management; and

that we have had frightful wrangles about the budget, but really the budget when we relate it to our gross domestic product is almost to be described as chicken feed. John Nix and others reminded us that we do seem to play down our successes; the fact is that in all countries standards of living in rural communities are much higher than they were when the Common Market was first launched. I am not attributing cause and effect; I am not saying it is because of the CAP that European agriculture is much better off than in the previous generation. We might say that even despite the mistakes which the policy makers may have made, those mistakes have not been so dreadful that we have been plunged into a desperate situation. I know that some of John Nix's figures would show that just now, profit and loss accounts and bank balances may look pretty desperate, but we should not forget that there have been years of much higher prosperity which have not received quite as much public attention as the difficult years.

On the political scene, we have to report that there has been little progress in European solidarity. Certainly in this country I do not think we feel that as Europeans we have been drawn closer together in recent years, nor that British people see any reason to think more of the European good than of the national good. I think tendencies have in the last five years or so been in the opposite direction, so that it looks as though certain policies may be re-nationalised, as Guy Wilkinson was saying, rather than be further integrated.

I think we all appreciate the political difficulties in trying to put Professor Smith's 'corset' on European farm production. There are objections to almost all the ways of putting that corset on; objections to quotas, objections to severe price reductions, objections to taxes on feed or fertilisers. I was not quite sure what Professor Smith meant when he said we should go in for a slimming diet rather than for the corset approach. I would have thought that slimming of the agricultural sector would have meant a deliberate reduction of the resources being steered into that sector. There are few signs at present that this will be the mood of either national policy or European policy.

I now turn to the question of rural disintegration, as distinct from lower agricultural incomes. I felt it was generally accepted in this enlightened audience that the rural problem is not an agricultural problem and that we are long past the days when that identity was acceptable.

The increasing likelihood of a clash of interests between farmers and other people who live in or seek access to the countryside has not been allowed to escape our attention. We have been shown how some agricultural changes are proving harmful to other rural land users. The supremacy of the farming interest in the land is still taken for granted by most governments, but it is being questioned with increasing insistence. Modern agricultural methods are enabling farmers to change dramatically the physical form of landscapes. Small copses, hedgerows, marshes, estuaries and moorlands have all been put at risk from agricultural intensification, and uniformity of land use has

tended to increase at the expense of diversity. The warning has been sounded to us here that the continued financial support of agricultural interests cannot for much longer be associated with an absence of control over the activities of farmers as they affect land use and the rural environment generally.

Rural disintegration arises, according to the analyses we have been given, very much from the decline in the number of jobs available in a rural area. We had the Glen Buchat example, which perhaps we have not pursued far enough. What would be desirable for the future of Glen Buchat? We have not really faced that question. We have been informed that there were once 800 people there and that there were recently only 100. There has been a drastic change in the whole demographic and economic situation of that particular micro-region, which could be multiplied all over the place.

Rural integration policy, or rural development policy, will have to be something much more than a rehabilitation of agriculture or support to farm incomes. We have heard very positive, encouraging and diverse suggestions as to how non-agricultural jobs can and should be brought into rural areas. There is no suggestion at all that this would lead to an industrialised countryside. Industrial activity and farming activity could so merge and could so complement each other as to ensure a healthy economy without having some of the worst features of industrial towns. Professor Wibberley's report on CoSIRA was very encouraging, and if that sort of activity can be multiplied right across Europe this is a very positive line of solution; socially, economically and psychologically too.

We certainly could not finish a summing-up without referring to the part-time farming discussions which we have had, which I am sure would not have taken place in this seminar if it had been held ten years ago. Part-time farming then was felt to be something to be swept under the carpet, something which policy makers really were justified in ignoring because it was not genuine agriculture. From what we have heard about Bavaria alone, I think we must be convinced that part-time farming is here to stay. It has a positive contribution to make and it probably should be actively encouraged and assimilated with other activities, rather than just be left to fend for itself. It seems to me that if full-time farmers have had so much attention paid to them to make sure that they had opportunities for their businesses to become more viable, the same logic should extend to people who happen to be more diverse in their activities, more adaptable and perhaps more innovative. It seems to me likely that we are going to hear more about policies to develop and improve the prospects for part-time farming. I would couple with this Ruth Gasson's commentary on the role of women in rural areas. We did not discuss it very much. Perhaps that was because we were so convinced by it. She put it across so effectively that there was no real challenge. She was not, I think, asking for a programme of action in that respect, but simply pointing out that the potential contribution which women can make to the solution of some of the problems we have been discussing is much greater than most of us have recognised, and that there is an untapped resource in the situation which we should not be ignoring in the way that we do.

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