

THE POLICY APPROACH TO SUSTAINABLE FARMING SYSTEMS IN THE EU

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Thomas Malthus, an early economist, took an essentially pessimistic view of the earth's ability to support people, based on his understanding of the conflict between trends in population size and the available resources. However, in the 197 years since his essay on population was published, the world's population has increased by 4.5 billion. For many people living standards are higher than ever before and, possibly for the first time, we now have the ability, even if we lack the organisation, to provide a nutritious diet for all those people currently alive. This sort of experience has led people to discount Malthusian gloom in favour of a technologically based optimism.

Current concerns about sustainability question that optimism. From the work of the Club of Rome in the early 1970's, the publication of The Global 2000 Report to the President (1982), the report of the Brundtland Commission (1987) and successive international conferences, including the UN Conference on Environment and Development, (1992) have come increasingly informed analyses of the fragility of the economic system and the excessive demands it makes on global natural resources. Agriculture is deeply implicated in these concerns. Not only is the provision of food a *sine qua non* of continued human survival but the industry is the largest single user of the world's land resources.

It is, however, not just the scale and necessity of agriculture which makes it crucial in debates about sustainability, it is also the fact that to a degree unknown in other consumer industries, it is deeply affected by government policies. This provides both a challenge and an opportunity. The challenge is to devise policies which properly reflect to consumers and producers the longer run values of the resources used in production. The opportunity arises because there exists a wealth of knowledge and a diversity of policy instruments.

This paper is concerned with how sustainability has become an issue for farm policy, with the options open to the industry and to governments to devise sustainable farming systems and with the role of the European Union in implementing such policies.

1. The imperatives for sustainable farming systems.

(i) What is at risk of not being sustained?

Farming systems are the meeting point of natural, economic and social systems, each of which has its own dynamics. For farming systems to survive, they have to be simultaneously sustainable in each of these dimensions. If they are not then the farming system will have to change. Adjustments to reach a lasting system in any one dimension may be incompatible with its sustainability in the others. As a result changes which originate, for example, in the natural world, are likely eventually to result in changes in industry and the social structures which it supports.

The object of farming is to modify natural resources in ways which add to their usefulness to man. Productive plants and animals are developed, protected from competition and disease and multiplied to the extent that markets or government policies justify. The whole of this process is concerned with changing rather than sustaining the existing natural environment. If biological sustainability is conceived in terms of retaining all existing species, farming is an incompatible activity. At least three sorts of concern about modern farming have been voiced in recent years. First, that the system is self-destructive; its dependence on a small range of biological and other natural resources means that it will ultimately be incapable of continuation. It may simply exhaust the set of finite resources upon which it depends or lead to a catastrophe if pests or diseases attack the

favoured, 'economic' species.¹ Second, the power of modern farming to suppress competitive biota threatens a loss of biodiversity which will impoverish future generations. Losses on this score may be economic, they may lessen our chances of eliminating some human disease and they may reduce the quality of life for all people.² Third, the extraordinary increase in the recent ability of farming to manipulate the natural environment through mechanisation, the use of agro-chemicals and biotechnology, raises ethical questions. For example, how far is it acceptable for humanity to suppress other species, can one generation justify actions which diminish the alternatives open to its successors?³

Farming is a business. To survive it has to be able to reward the resources it employs at rates which will retain them in their current activities. Farming systems represent the response of farmers to continuously changing economic circumstances. Productivity raising technologies tend to lower prices, those who cannot compete at these prices ultimately cease to farm. Higher levels of income in a growing economy mean that the cost of labour, whether hired or provided by the farmer himself, is rising in real terms. If that cost is to be covered the farm business has to generate additional revenues over other costs. Farming systems have adjusted by increasing farm size, increasing productivity and reducing employment. Within the EU the agricultural labour force declined from around 25% in the mid 1950's to less than 7% by 1992. Yields of crops and animals have increased as a result of breeding and the use of fertilisers and supplementary feeding.

This has made heavier demands on some natural resources. If their rate of use is to be restricted in order to protect the interests of future generations, some existing farming systems will not be sustainable. However, responding to environmental demand may create new sources of revenue for some farmers. Governments, in richer societies may choose to pay for some farming activities which currently do not generate adequate revenue, for example those which have shaped treasured landscapes. If these policies accurately capture the values of the population, they will lead to a more economically efficient use of resources even if many existing farm and other businesses disappear. Sustainability from this perspective is concerned with the continued value of the industry's outputs not just with the preservation of particular inputs or specific farm businesses. The challenge to the industry is to devise farming systems which respond to the new set of values.

Changing farming systems have profound social and political consequences. In many parts of Europe farmers are still major players in rural communities. There are strong pressures to preserve such communities. Culturally they represent distinctive traditions and provide much of the diversity which makes life in Europe more interesting. Politically they are often represented by relatively cohesive groups which can exercise power within national government structures. Where these groups are strong, it is often assumed that rural and agricultural policies are identical. However, for most of Europe this has become a serious oversimplification. In many 'rural areas' the bulk of income and jobs is no longer on farms or even related to agriculture. For many city dwellers the existing countryside represents a means of escape and recreation. Where governments in an attempt

1 Such concerns led the US Board of Agriculture in 1984 to appoint a committee to study the science and policies that influenced the adoption of alternative productive systems designed to combat pollution from nitrates, pesticides and anti biotic residues, soil erosion and the depletion of aquifers. The committee's report, *Alternative Agriculture*, – National Research Council National Academy Press Washington 1989 recommended changes in US Federal Agricultural Policy, in *Research and Development* designed to support and encourage the application of alternative farming systems.

2 See for example, Goodman D and Redclift M, – *Refashioning Nature, Food Ecology and Culture* Routledge London and New York 1991 notably Chapter 2 'The passing of rural society' and Chapter 6 *The Food System and the Environment*.

3 Such a view is implicit in the Brundland report's definition of sustainability which requires each generation to meet its own needs without lessening the opportunities for future generations to meet theirs – *Our Common Future: the report of the World Commission on Environment and Development* – Oxford University Press 1987

to achieve social sustainability, have sought to protect traditional types of farming⁴ it has proved necessary to do more than preserve the status quo. If people are to remain in farming, their incomes have to keep pace with the growth of income elsewhere in the economy. One response has been to enable farmers to sell more. This has led to surplus production, high budget costs and international trade conflicts. It has also increased the pressure of farming on the natural environment.

These underlying conflicts have led commentators to question the concept of sustainable development.⁵ Viewed in purely economic terms, where the measure can be in terms of a flow of output which is valued more highly in successive years, continuous development is conceptually possible. Values may grow as much because of developments in understanding and appreciation as in physical quantities consumed. In natural resource terms, the contradiction between development and sustainability is more difficult to avoid but even here greater efficiency in the use of resources, stemming from improved understanding and methods may mean that although ultimately a ceiling must be reached, in practical terms this does not prevent continued real economic growth. The issue boils down to a race between the rate of increase in the use of natural resources and the rate of growth in demands upon them. In contrast, there appears to be no equivalent practical or conceptual escape route from the conflict between economic development and existing social systems. Here the most useful concept is not so much sustainability as acceptable rates of change. Given that change may be inescapable for both natural resource and economic reasons, social implications become a central concern of policy makers.

(ii) Evidence of unsustainability.

Technologies have greatly enhanced crop yields and livestock productivity in Europe Land has been used more intensively, more than offsetting the decline in its area. Demands for land for other uses, including housing, road building and recreation have expanded with the growth of the EU economy. A number of indicators suggest that current systems may not be sustainable. These are not evenly distributed across the Union and in some instances are a cause for anxiety only in rather limited areas.

In countries where farming is most intensive pollution of both ground and surface waters has resulted from highly intensive livestock systems and arable farming practices. The escape of fertilisers or farmyard manure into water systems may lead to algal blooms or eutrophication. Raised levels of nitrates in drinking water have led to the imposition of EU wide standards. Pesticides which escape into the environment may damage non-target plants and animals leading to anxiety about their impact on human health.

The range of commercial varieties now used on farms has greatly narrowed. Dependence upon too small a genetic base raises anxieties about the vulnerability of species to diseases to which the variety concerned may have little resistance This loss of biodiversity within agriculture reduces the options open to plant and animal breeders and may make the industry less able to cope with future demands, whether from the market or as a result of environmental pressures. Combined with the continuing loss of wild varieties⁶ this has led to increased demands for policies to preserve biodiversity.

4 For example much of the debate about the reform of the CAP has been concerned with the future of the small family farm. The Commission in describing the goals of the Reform of the Cap in its annual report for 1992, identifies as two of its six goals: a certain redistribution of support to the benefit of more vulnerable enterprises, and: continued employment for a sufficiently high number of farmers, while encouraging a certain mobility as regards production factors, notably land, in order to create more efficient production structures. The Agricultural Situation in the Community 1992 Report CEC Brussels and Luxembourg 1993

5 See for example the report of the Club of Rome Donella H and Dennis L Meadows et al., *The limits to Growth* Washington: Potomac Associates 1972

In some places soil erosion has become a matter of concern. Mechanisation enables soils to be tilled which would have been beyond traditional methods. The use of manufactured fertilisers can enable yields to be maintained in the short run, even if the underlying soil structure is damaged or its organic contents depleted. Erosion problems are site specific and in most of the UK and the northern countries of the EU are not yet perceived as critical. In some regions in the South of the Community, however, there is evidence of erosion both from the distant past and more recently.

Throughout Europe farming populations have been in decline in the final decades of this century. In regions with good transport or where modern industries have established themselves, total rural populations have not declined, indeed the number of residents has increased. In the remoter regions, in hill and mountain areas, however, the decline of farming has been associated with a process of depopulation. The tendency has been for the younger and more able adult population to seek employment elsewhere, leaving villages with an increasing proportion of older people and small children. Such villages become decreasingly able to support the overhead costs of transport, medical services, schools and shops, social structures which make life more tolerable. Such communities become increasingly disadvantaged. The ultimate result is often the abandonment of such settlements.

The departure of the farming population need not automatically lead to the abandonment of land nor the death of rural communities. Farms can be amalgamated and the larger units provide a basis for the livelihood of a new farming household. New economic activities can provide fresh employment and support a population which sustains the social infra-structure. However, where there is no land market, where farms are badly fragmented or where there are tax advantages in remaining nominally a farmer although being resident in a city, structural change within farming may not take place. In this situation land which is potentially productive may fall out of use. In some parts of the Community, for example in Greece and in the Massif Central in France this loss of land to agriculture is regarded as a serious problem. Similarly where communications are poor, planning restrictions obstruct and the social infra-structure is already inadequate, it is difficult to attract new enterprise or to prevent the outward flow of people.

(iii) Who demands sustainability?

The loss of land to farming is not universally regarded as a problem. It provides an opportunity for other types of ecology, managed or natural to develop. It frees resources for other industries such as forestry or recreation. It may diminish the aggregate supply reaching the markets for farm goods and so strengthen prices. Such observations illustrate that while the idea of sustainability is generally regarded as important, the content of what different groups demand differs quite widely.

Scientists studying how natural phenomena develop have drawn attention to anthropogenic sources of global change. Their primary concern is to explain the relationship between human actions and the natural world. Where changes in important variables are seen to result, their responsibility is to explore these, to examine their longer run consequences and to alert the rest of society should damaging outcomes seem to be threatened. They may also help in identifying possible modifications in human behaviour which would ameliorate any undesired outcomes. Recent work on global warming and the potential this may have for climate change provides a good example⁷. Agriculture, through its use of fossil fuels, through the destruction of forests to extend the farmed area and because of release of green-house gases associated with ruminant livestock and paddy rice, is part of the cause. It may also be part of the solution as a means of capturing renewable energy from the sun and of recycling rather than increasing the carbon dioxide content of the atmosphere by replacing fossil fuels⁸. Science has to be concerned with the balance of these effects and how it may be managed to promote human welfare.

6 See Missing species never to be seen again Times London 4th March 1995.

Within Europe green politics have become a matter of widespread interest. Green spokesmen make much of the need to change economic systems, including farming, in order to attain a greater degree of sustainability.⁹ Their critique goes much further than farming. It questions the basis of a consumer driven society. In this it has something in common with traditional puritan values which have formed part of the development of thought within Europe. Although its overall message may not command a majority in any country it has influenced the attitudes of many other parties, particularly where it focuses on one or two high profile issues. It is not politically safe to be seen as 'non' green.

Consumers, too, have conflicting interests in sustainability. On the one hand they are anxious to ensure that the goods and services which they want are available at affordable prices, and will continue to be available for their children. On the other hand, they feel threatened by demands to change lifestyles. Owners of second homes, commuters and car users all feel targeted. Consumers, in general, seek technological solutions which will enable the lifestyles which they prefer and to which they aspire to be sustained.

Two classes of consumer demand are especially important for farmers. There is evidence of interest in the way food is produced. For some this stems from concerns for health. For others it is an expression of a belief that 'modern' foods have sacrificed taste for price and appearance. An important group are critical of contemporary farming because it uses fertilisers and pesticides and seeks to source supplies from production systems which do not make use of such aids. Farmers have to assess how far they should adjust their systems in the light of such consumer attitudes. They have to determine the cost of alternative systems, the additional value which products might reasonably be expected to receive, the scale of the market and their ability to compete with other farmers in supplying such a market. In most of the EU, despite much discussion, these goods remain a small proportion of the total food market.

Consumer demands for rural resources are also important for farmers. As affluence increases more land is needed for recreation, transport and housing. The appearance of the countryside and the relative abundance of wild plants and animals becomes a matter of importance to new rural residents who have no link to farming. Farming practices which have been accepted as normal by traditional farming based societies may be questioned.¹⁰ The outcome of such concerns is likely to be an increasingly regulated environment within which farming systems will have to operate.

Whilst demands for sustainability figure high on the political agenda it is clear that this does not lead to a consistent programme of action. Expert opinion is far from unanimous. Pressure groups may use the term as a weapon but be unprepared to accept limitations which affect their own interests. Policies which impose costs on consumers or taxpayers rapidly encounter the gulf between verbal assent and the willingness to pay. Meantime, autonomous changes in real incomes and consumer aspirations may make the task of attaining any form of sustainability, in natural resource use, in economic terms or in social arrangements increasingly difficult.

7 See *Climate Change The UK Programme*, CM2427 HMSO London

8 For a discussion of the situation in the UK see *Silsoe Research Institute & ADAS Towards a UK Research Strategy for Alternative Crops* – Silsoe Research Institute 1994 and Carruthers SP, Miller FA and Vaughan CMA- *Crops for Energy and Industry* – Centre for Agricultural Strategy 1994.

9 For a discussion of the development of environmental ideas see: *Economics of Natural Resources and the Environment* Pearce D W and Turner R K – Harvester Wheatsheaf New York and London 1990 For an earlier American view see, for example, Erlich P R and Erlich A H – *Population Resources Environment Issues in Human Ecology* W H Freeman and Company San Francisco 1970, who concluded – pp322 “ The basic solutions involve dramatic and rapid changes in human attitudes especially those relating to reproductive behaviour, economic growth, technology, the environment and conflict resolution”.

10 A number of cases have reached the courts in which neighbours have complained about the disturbance caused by cocks crowing. See for example the Times 18.8.94

2. Options for policy

How far any system is sustainable depends upon the rate at which it uses up non-renewable resources. In so far as policy sets a priority on more sustainable farming systems it implies a change in the way in which resources are currently used in agriculture. In discussing what might be options for changing current practice it is therefore essential to understand what forces have led to and underpin the present resource disposition. These include economic, political and technological considerations.

Within the EU both market forces and political decisions play a major part in determining farming systems. The Common Agricultural Policy, (CAP) has regulated the price level within the EU for most agricultural products. The actual prices received by individual farmers have been affected by exchange rates, by the quality of their output and by the efficiency of agricultural marketing systems. Some farming costs are also directly influenced by the CAP, the prices of feedingsuffs or of store livestock, for example. Others are influenced by the CAP, but only indirectly and in the longer term, for example the price of land. Within each member country the performance of the economy in relation to interest rates, inflation, exchange rates and the price of labour is of critical importance.

It is within this framework, which he cannot control, that the individual farmer has to generate sufficient profit to remain in business. His ability to do so will be affected by the physical characteristics of his farm, by the climate within which he works and by his own skills. If resource uses are to be changed to achieve greater sustainability, it is through this framework that the appropriate signals will have to be given. Where consumers take a serious view of the relationship between farming practice and sustainability they may change their purchases to reflect this. The market provides a measure of the extent of this demand within any particular society. Such evidence as we have suggests that whilst environmental benefits are regarded as a selling feature for many products, it is unlikely that this alone would result in changes on a scale which decisively altered current farming systems.¹¹

This increases the responsibility of the policy makers. This has been recognised. It is notable, for example, that the 1992 package of changes in the CAP, generally known as the 'MacSharry reforms' include an agri-environmental package. An important development has been the emergence of a substantial area of consensus between some green lobbyists and some farmer pressure groups. The implicit goal of the farmers has been to ensure the continued availability of funds currently received in the form of price support. As price support becomes vulnerable both because of its budget cost and because of the commitments of the EU in GATT, so payments in return for introducing more sustainable farming systems become increasingly attractive. For those seeking to promote sustainability and other 'green' issues, this affords an opportunity to capture substantial public funding. Even where governments question the validity of the claims made the existence of such large pressure groups, supported by expert presentation in the media, represents a political force which is difficult to resist.

In the longer term both the political and the economic framework are profoundly affected by technological developments. Technology both adds to and changes the relative productivity of inputs. As a result those who can apply new methods earn higher rewards at current prices. Two long term consequences result. First, they tend to bid up the price of those inputs which are fixed in supply, such as land. Second, as additional output reaches the market, product prices fall or support costs rise. In time the squeeze between prices and costs tends to restore the return on capital and

11 For example the UK's most profitable retail group, Marks and Spencer have ceased to carry organic vegetable, and the largest farming organisation the CWS farms, have abandoned production of organic products in favour of integrated farming systems which seek to minimise but not eliminate the use of pesticides and other farm chemical inputs.

labour to its previous level. However, for the individual farmer there is no choice, only those who use the new methods or find new markets will be able to survive. Those who cannot, or who choose not to do so, will suffer reduced income and eventually be unable to retain the resources used within their business.

Technological progress is likely to change rather than sustain existing farming systems. It may increase overall sustainability, simply by reducing the quantity of inputs needed to produce a given level of output. It may lead to more fragile systems if it depends upon increased use of an input which is scarce. If benign effects are to prevail, then policy needs to adapt so as to devise a framework within which it is profitable for farmers to use technologies which reduce resource consumption rather than those which may exacerbate the risks of unsustainability. To do so is far from easy. For example, where technology leads to production in excess of the level of consumption for which consumers willingly pay, then the implied policy requirement is a withdrawal of resources from the industry. Far from promoting this many politicians prefer to talk about maintaining agricultural employment and the family farm. At its worst this attitude may discourage research and farming innovations which increase productivity.¹²

In seeking to devise a framework that will encourage sustainable farming systems ministers have at their disposal a wide variety of policy instruments. The more important include:

Price policies:

These may affect the prices received by farmers or the prices they pay for inputs. Final product prices may be increased by restricting overall supplies to a market. In this case farmers gain. Prices may also be increased by taxes on all supplies or, if it is intended to benefit domestic production, simply on those which are imported. Prices in the market place may be allowed to find their own level but, if these are judged to be too low, the receipts of farmers can be increased by subsidies. In this case the burden of support falls on the taxpayer rather than the consumer. Subsidies or taxes can also be used to influence the prices paid for inputs.

Such manipulation of costs and returns changes the framework within which farm businesses have to operate. They affect calculations about the most profitable scale and method of operation. They affect the ability of farmers to compete and, within the EU have been limited to decisions by the Community rather than by individual governments. Such policies are often relatively easy to administer, they have direct appeal to those who seem to gain and, especially where the cost is borne by consumers, may not produce strongly negative responses from those who pay. Their impact on sustainability is less easy to assess. At most only some of the relevant parts of the framework are susceptible to manipulation by price policy. Economic models can establish the most profitable combination of inputs and outputs under given price assumptions. However, the underlying assumptions built into such models, about farmers goals, their levels of skill and the mobility of resources within the farm business are relatively crude. Furthermore over time conditions in the rest of the economy may make assumptions about factor and product prices decreasingly reliable. Where policy makers are concerned with the very long run consequences of farming systems, such models cannot provide much certainty about the impact of price manipulation.

Structural policies:

Structural policies seek, characteristically, to encourage farm amalgamation or enlargement, to provide physical or marketing infrastructure or to help farmers to retire early or find new, non-farming employment. They influence directly the longer term pattern of resource use in farming.

12 The UK Strategy for Sustainable Development stresses both the need to make further reductions in support levels and to research ways of reducing agriculture's adverse environmental impacts, of developing new crops including energy crops and of finding new uses for established crops. Ch 15 Sustainable Development The UK Strategy CM2426 HMSO 1994

They can be regarded as part of agricultural policy or, more usefully, as part of an overall process of regional economic adjustment. Policies of this sort may fund education and advisory services which increase the personal choices open to the agricultural population. They can subsidise changes on the farm which form part of new farming systems, for example, irrigation, power supplies and the construction of new farm buildings. Structural funds may also be employed to ease pressure on farming systems by promoting the development of diversified activities, for example, forestry, bed and breakfast, craft industries and food processing and farm shops. Such policies have an opportunity to reward changes in farming systems which are judged to promote a more sustainable use of resources. Their effectiveness depends on their uptake. Where existing businesses yield a satisfactory return to their owners, it will require substantially more funding through structural support to persuade them that the work and risks involved in changing the farming system are justified. In terms of the sustainability of natural resources, however, it is not clear that the greatest need is where farm incomes are lowest. Changes may be more urgent among some farms whose present businesses are robust and who will find little to attract them in modest support for structural change.

Market information and public education:

There are good reasons to believe that many people are prepared to modify their purchasing habits to take account of issues such as sustainability if they can do so at little or no personal cost. Providing information about the environmental costs of alternative products enables people to make such choices. There is a danger that such claims may be used to promote sales without being based on independent evidence. Governments may require manufacturers or food distributors to include accurate information on product labels. They may also ensure that producers, particularly those who operate on a small scale are informed about market opportunities for products which are genuinely 'green'. This is an extension of the traditional role of government in establishing and enforcing standards of measurement and purity. In the UK, for example the government has supported the development of a UK Register of Organic Producers, with clearly defined indicators about what this implies. This enables those who believe that organic production provides a more sustainable food supply, to adjust their buying behaviour appropriately.

Formal and informal education play a major role in determining behaviour. An informed public is better placed to judge what regulatory interventions may be needed to ensure sustainability and is also more likely to moderate its own buying habits in ways which encourage the development of sustainable farming systems. In a largely urban community people have little first hand knowledge of agriculture and are vulnerable to propagandist and romantic notions about how it actually operates. Education which includes both the underlying sciences involved in food production and the role of the agricultural and food industries in food supply and in shaping the countryside is especially important.¹³

Research and Development Policies:

Technologies which enable resources to be used more productively may originate within businesses or as 'bright ideas' by outsiders. Fundamentally, they depend upon understanding both the resources and the business concerned. In seeking to promote more sustainable farming systems governments can encourage improved understanding by their support for research and development.

Whilst such a general principle may give rise to little argument, the allocation of research and development expenditure is a much more contentious matter. There is debate about whether such activities should be wholly funded by the industry which, it is assumed, will benefit from the

13 The Council for Environmental Education – sponsored a national programme on Education and Training for Business and the Environment. This included a number of studies such as one on the Rural Environment which is to be published by the Pluto Press London. Teachers are often offered teaching aids by pressure groups who wish to interest children in environmental matters.

changes made possible. There are arguments about the distribution of research and development funds between areas of science. Many critical questions remain unresolved. For example, is it more sensible to direct efforts at solving problems caused by current practice or should 'bolt on solutions' be eschewed in favour of more radical changes in the entire farming system? How far should the choice be left to scientists or given to industry? Should we concentrate more on research and development which would foster the early application of present best practice – or put our efforts whole heartedly into finding better methods of production?

None of these questions is susceptible of easy answers. Within the UK we have recently conducted our first Technology Foresight exercise¹⁴. The goal is to improve just these sorts of decision. The process which involved the academic, the business and the official world, has demonstrated how important such discussion is and how difficult to achieve.

Government may not only fund research and development itself but also create conditions conducive to it by other policies. Regulations relating to patents and intellectual property must influence business decisions about research and development. Taxation systems may give relief to expenditures associated with research and the early stages of development. Regulations about the licensing of new products or the use of bio-technological inputs may encourage or deter investment.

Research and development are readily recognised as important¹⁵ in seeking more sustainable farming systems. The results, of what may prove to be considerable expenditures, are less easy to forecast. Not only is the outcome of research necessarily uncertain but it is impossible to know precisely what changes will have occurred in the economy, the time at which research results and changes in society will take place and how these events will influence the ability of UK businesses to compete in the market. Retrospectively, however, we know that it is advances in technology which have led to higher living standards and have determined the success of businesses throughout the world. The risks of neglecting research are far greater than those of choosing the wrong topic.

Environmental policies:

Virtually every policy has an environmental impact, however, a number of environmental concerns cross the boundaries of several policy areas and it is here that specific environmental policies are needed. Concerns about global warming, which affect all energy using activities, land use questions, housing, transport, water, forestry and tourism are also relevant to agriculture. Environmental policies have to balance conflicting claims, including goals relating to sustainability. Since the Rio Summit a number of these environmental goals have become international commitments. In response governments publish reports on progress which are monitored by the United Nations Commission on Sustainable Development.

Environmental policies although designed as part of an overall strategy operate through changing the activity of individual industries. For agriculture they are likely to include an increasing range of regulatory requirements concerned with water, with maintaining access to the countryside and with the development of recreational activities¹⁶. In essence they change the framework within which the farmer has to reach his decisions.

3. The European Dimension.

The extent to which the Common Agricultural Policy has dominated the development of farming systems in the EU makes it central to any consideration of prospects for changing farming methods. Until 1992 the policy relied almost wholly on manipulating prices to achieve its goals. A

14 Progress through Partnership – Report from the Steering Groups of the Technology Foresight Programme 1995 OST HMSO 1995

15 See for example para 15.18 in Sustainable Development The UK Strategy op cit

16 See for example OECD Agricultural and Environmental Policies OECD Paris 1989

clear conflict emerged. Whilst the incomes of many farmers remained relatively low, higher prices led to production at costs greatly in excess of the market value of the output. This not only stressed the budget and disrupted world trade it also meant that significant quantities of natural resources were being systematically wasted. Given this outcome the most important thing that the CAP could do for sustainability was to cut surplus output.

Within the EU there exist great differences both of circumstance and of attitude, which grow as new members join. The problems of the Mediterranean countries differ from those of the countries of north west Europe for which the CAP was initially designed. Since 1995 the Community has to come to terms with the challenges posed by sparsely populated, afforested areas in Finland as well as those of densely populated countries such as the Netherlands. Even within countries the requirements for sustainable farming systems differ among regions. In Germany the new Lander have thrown into sharp relief the inappropriate nature of policies based on the interests of Bavarian farmers. In the UK, systems which are wholly sustainable in East Anglia would be disastrous in the Scottish Highlands or in Northern Ireland.

Differences exist not only in circumstance but in aspiration. We have differing perceptions of what constitutes an attractive landscape. Our attitudes to animal welfare are not the same. In some countries landlord tenant relationships are well established and accepted. In others small owner occupiers characterise the farming population. Inevitably these lead to different priorities for policies about sustainability. Social problems of rural communities dominate much of the South of the EU. Among the potential members in Central and Eastern Europe the legacy of communism has created a need to build new economic institutions and, in some places, to deal with problems of pollution on a scale more worrying than in the West. In North West Europe natural resource concerns, the preservation of natural habitats, animal welfare and the maintenance of landscape tend to dominate debate.

Such differences mean that the same policies have unequal effects. This makes it difficult for the Council to reach decisions. Even where agreement is reached there may be marked differences in application. In 1992 the Council of Ministers accepted a package of measures which reduced production by a combination of lower prices and supply control and provided compensation for farmers whose incomes were expected to fall. The particular method of supply control chosen for the arable sector was 'set aside'. In order to qualify for compensation all but the smallest farmers had to take part of their arable area out of production. Complicated rules were established about how this 'set aside' area was to be used. From an early stage permission was given for 'industrial' crops to be planted. There was also concern that land set aside should be managed taking account of environmental criteria – such rules affected the dates at which land could be cultivated, the use of fertilisers and sprays and the requirements relating to cutting weeds. In order to ensure that supply was limited, the area set aside had to be rotated around the farm. This was intended to prevent farmers taking out only their least productive fields. However, many environmental interests wished land to be left uncultivated for much longer periods. As a result the rules were adapted to allow farmers to qualify for compensation by choosing to set aside a rather larger proportion of their arable area on a permanent basis so that longer run projects of environmental value could be undertaken.

In economic terms the 1992 package of set aside measures is wasteful. Not only does it keep in production relatively unproductive land whilst forcing some of the better land into idleness but it involves a very substantial administrative exercise and creates possibilities for fraud. Its impact on the sustainability of farming systems is less clear. One object was to provide continued support for the small family farm. An economically more rational solution, to allow market prices to fall until supply matched demand, would have meant that many family farms would have suffered much larger reductions in income. Where land is idled, the pressure of farming on the natural environment has been lessened. However, where industrial crops are grown this is unlikely to be the case. Had economic forces been allowed to cut output by lowering prices, it is arguable that more resources

would have been released for environmental purposes. Certainly the capital value of farm land would have fallen and the process of facilitating the introduction of viable but more extensive farming systems made less costly.

The 1992 measures also changed the beef and sheep regimes. An important feature of the new regimes is the stocking density limits imposed on the number of animals for which farmers can claim compensation. It introduces an element of 'cross compliance', where the receipt of a specific benefit is made conditional upon action to improve the environment. At first sight this seems to be a move towards more sustainable farming systems. However, it also illustrates the complexity of such an approach. The stocking capacity of land varies. To impose a single limit means that while some land may be under-utilised other land may be over-stretched. At the same time, the environmental 'good', – lower stocking rates – may well evaporate if market prices rise to a point at which the loss of compensation would be more than offset by returns from the market. Thus as a tool to encourage sustainable systems 'cross compliance' is both blunt and fragile.

Such considerations illustrate the difficulties which exist where the CAP moves from setting a price/cost framework in order to attain more complicated goals. There is a clear distinction between policies concerned with the overall volume of production and those which seek to steer agriculture in ways which require monitoring at the level of the farm business. The overall level of output and the application of price or other policies which bring about the output required in the Community as a whole must be a matter for central decision. Social and environmental considerations, in contrast, lead to attempts to influence the activity of individual farms or regions. It is not practicable to do this from the centre. As a result the EU, when introducing policies such as Environmentally Sensitive Areas (ESAs), had allowed considerable local autonomy in devising management plans for participating farmers. The agri-environmental package within the 1992 reforms similarly, allows for differences in implementation within the member countries.

A degree of local freedom may not be too serious provided that the methods used are genuinely de-coupled from production. Provided the EU has overall authority to accept or reject such measures, within a general framework of subsidiarity, so that they do not undermine the single market, policies designed in this way offer a way forward. Two sorts of difficulty are likely to arise. First, complete decoupling may not be easy to achieve. If support for sustainable systems is given in ways which affect the quantity produced, 'playing fields will not be level'. Farming and environmental groups who do not benefit are likely to press national governments for equivalent support. If they succeed it will be impossible for the EU to control the level of its output. Second, the share of farming in the economy of member states varies considerably. The need for change may be greatest in countries with the largest proportion of their employment in farming and with the lowest levels of per capita income. They are likely to demand common funding to promote sustainable farming. This would involve considerable inter member transfers. These will be visible and, as a result, are likely to be politically contentious. Countries which seem likely to lose from such policies will legitimately point out that farming affects resource use in only 2.8% of the overall economy. To divert resources in this direction at the expense of other sectors, particularly energy and transport, may make it more difficult to achieve an acceptable and sustainable standard of living for most of the EU's citizens.

Considerations of this type suggest that although the adjustment of agricultural policies to encourage sustainable farming systems may be approved in principle, it will face strong competition for public resources with other sectors. Success may require simultaneous adjustments in areas well beyond agricultural policy. If this were the case the CAP might lose part of its dominance of EU budgets, allowing space for a growth in regional and environmental policies which were applied not just to one sector but to the economic areas within which they made the greatest contribution to improving the long run capacity of the Community to raise the standard of living of its people. The farm lobby and some environmental groups might see this as a defeat; for the Community it could prove to be an important victory.