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INCENTIVES AND OBSTACLES TO THE IMPLEMENTATION OF MORE SUSTAINABLE METHODS IN AGRICULTURE

DENMARK, THE NETHERLANDS AND SPAIN.

SUMMARY FINAL REPORT

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I. OBJECTIVES

The objective of the research project has been to :
- analyse how the EU's and the Member States' attempt to develop a more sustainable agriculture is implemented;
- analyse which obstacles the implementation meets and look at which incentives should be introduced in order to further the implementation. There are two levels of implementation: national implementation of EC socio-structural regulations; and regional/local implementation of EC and national regulations, and regional/local efforts by the agricultural organisations and the extension service to develop voluntary initiatives. The regional/local implementation has been the central issue of the project.

II. METHODOLOGY

The project has used both quantitative and qualitative methods with:
i) a description and analysis of EC and national environmental legislation. The work is based on official reports, parliamentary debates and scientific reports and articles;
ii)a questionnaire sent to 4,000 Danish farmers and interviewing of 900 Dutch farmers in both 1991 and 1994 on their attitudes to environmental regulations and their actual handling of fertilisers and pesticides. This research, which has been co-financed by the Danish Ministry of Agriculture and the Environmental Protection Agency and the Dutch authorities, is the largest survey hitherto in Europe on farmers' attitudes and environmental behaviour.
iii) an analysis of farmers' study groups through interviewing of farmers and extension workers. This part has concentrated on the Dutch situation, but its results has been compared with Danish investigations;
iv) an analysis of regional/local implementation of 2078/92/EEC (the environmentally friendly production methods scheme accompanying the CAP reform) by interviewing of representatives from local/regional authorities, local farmers' unions, and environmental interests, plus integration of statistical and written material. This part has taken place in all three countries.
All four parts reflect different types of research, but the outcome was intended to give some valuable, coherent information on the process of implementation of environmental regulations and sustainable ways of agricultural production and on farmers' environmental attitudes and behaviour.

III. MAIN RESULTS

The project has delivered both basic strategic and applicable research meant for adjustments in policies, implementation and farming practices. As stated in the Interim Review of EU's 'Towards Sustainability' (COM (94) 453), there is a need to :
- use a larger range of instruments (e.g. 'soft regulations'); and
- change the attitudes towards sustainable production methods.
These elements have also been corner stones in this research project.

1. It is very difficult to get into contact with farmers through general campaigns when your offer is voluntary and economically not attractive measures. The Dutch and Danish studies showed that as the provinces/counties have the responsibility for other designations, (for open space in general and for securing ground and surface water), they will also have a greater commitment than the ministry to try to make the accompanying measures a success. From the farmers' point of view, they clearly prefer the province/county as the central administrative body. Last but not least the farmers' unions naturally find it easier to communicate with and get an agreement with an administration which is near by and whose employees will be well-known among the agricultural advisors and farm leaders.

2. It seems to be very important that Member States concentrate the R2078/92 economic incentives on relatively few areas or measures in order to offer farmers a premium comparable with that achieved from normal agricultural practice.

3. The introduction of agri-environmental measures is first and foremost a project launched by northern European Member States with intensive farming methods. In the Mediterranean eco-systems the most urgent problems are not pesticides in ground water, but having ground water at all. Nor is it the negative consequences of intensive farming on nature and environment, but the desertification and the very frequent forests fires.

4. The measures must fit into the farmers strategy for his farm, and the authorities must be very precise. In almost 9 out of 10 cases, Danish farmers have chosen one of the permanent grass schemes. This shows very clearly that

farmers are almost exclusively interested in schemes which only mean minor changes in their traditional way of production, or none at all.

5. It is first and foremost possible to involve farmers already interested in nature conservation and hunting in extensification or nature management schemes. Part-time farmers are more interested than full-time farmers, unless it is possible to create a biotope or another measure in a way that does not bother rational, intensive arable farming. Lack of time seems to be a limiting factor for the busy full-time farmers for their involvement in voluntary measures. Formation of so-called green corps which could help with establishing and cultivating new biotopes is therefore an idea which is very welcomed by the farmers. Green corps were created in some of the investigated areas and consisted of formerly unemployed people who were trained as nature managers.

6. It is very difficult to make farmers interested in voluntary schemes with more paperwork and an economic premium which often is not comparable with the contribution from existing production methods. However, it seems that the level of subsidy at its present level is not a decisive factor for the lack of interest. More important is the resistance towards more bureaucracy. It should not be neglected that the R2078/92 and its environmentally friendly production methods is seen as another regulation on top of existing regulations. Farmers in both The Netherlands and Denmark expressed the same insecurity about the consequences of the many different designations and of the long-term consequences for their free right of disposal if they agree to participate.

7. It is also a problem that it is difficult to get an overview over all the different voluntary nature, landscape, afforestation, extensification and other schemes. Even agricultural advisers and civil servants have difficulties in getting knowledge about the whole range of possibilities, their support level and restrictions, and their latest alterations. It is therefore a good idea to follow the example from the Association of County Councils in Denmark that has adopted an idea developed by the so-called Corridor project. They have created a catalogue for farmers with replaceable fact sheets covering not just 2078/92 but the whole range of voluntary measures with premiums.

8. General information only elicits responses from very few farmers. Instead, personal letters and visits to farms seem rather successful. In one project area, a county biologist was able to make three out of four farmers interested in one or more agreements by visiting every farm. One of the reasons for this success ratio was that the biologist also helped in filling in all the necessary forms. Once again this stresses the fact that the measures and the aid from the authorities must be very oriented towards the situation and needs of single farms.

9. In many cases the environmental benefits must be considered to be rather low compared to the many administrative and economic resources put into the schemes. One way of increasing the benefits for nature and the environment is by collaboration of farmers. In The Netherlands several so-called environmental co-operatives exist, and the Danish government has suggested to give an additional 20% premium if a majority of farmers in a limited area join in a common project .

10. The decisive factor in introducing environmental regulations is not agriculture's organisational strength, but the strength of public awareness and its transformation into actions taken by political parties. In Denmark and The Netherlands, powerful agricultural organisations with a very high percentage of organised farmers, have not been able to avoid agri-environmental regulations, because public and political interest has been much stronger. However, they have been able to persuade the authorities to use predominantly technical solutions. In this way it has been up to the individual farmer in collaboration with the farmer-owned agricultural advising system to adjust production practices according to the environmental rules. The alternative would have been general regulations and instruments known from other sectors, first and foremost economic instruments. An example of this is Sweden. In Spain where both the general public awareness and the agricultural organisations are weak, the latter with only 15 % of farmers organised, the result will be few agri-environmental regulations related to some particular problem.

11. It is a long term project to turn old productivist practices and attitudes into more sustainable ones, but it is not possible without the active collaboration from farmers' organisations (e.g. unions, co-operatives, extension).

12. It cannot be asserted that larger farmers' unions will be less favourable to the agri-environmental programme than unions formed by family farms, nor the contrary. In entrepreneurial farmers' unions, the top priority is still competitiveness in the markets. The problems of the relationship between agriculture and environment are outlined in terms of economic sustainability, perceiving that the deterioration of the natural resources can threaten the availability of environment as a production factor. In the case of family farmers' unions, the agri-

environmental issues start to be placed in a central position, once the opening of markets and the withdrawal of the State in some areas of the agricultural policy threaten the exclusion of non-competitive family farms. For these farmers' unions, the agri-environmental issues are outlined in terms of social sustainability since they value the possibilities of the new policy for a new integration of farmers in society and for a new social legitimacy of the agricultural policy.

13. While farmers' environmental behaviour remains largely unexplored in Spain, a number of surveys as well as statistical information, demonstrate significant change in farmers' environmental behaviour over the past 10 years in Denmark and the Netherlands. Manure is being applied more efficiently through new techniques and increased storage capacity, and the use of fertiliser has started to decrease, although the leaching of nitrate remains far above the ambitious reduction targets of both countries. Moreover, pesticides are being used more carefully and in lower quantities (at least when measured as tonnes active ingredients) due to a series of new techniques such a low dose spraying, early morning spraying, abandonment of plan spraying, shifts to biological and mechanical methods, and the banning of environmentally dangerous pesticides.

14. Apart from statutory regulation, voluntary measures aiming at informing, training, advising and motivating farmers have been given high priority in both countries. A number of results, particularly drawn from large-scale surveys, showed that farmers in close contact with the extension system, farmers participating in study groups, and farmers with "green" or "semi-green" attitudes, have shifted more quickly and strongly to eco-friendly methods than other farmers.

15. Farmers' behaviour is not driven only by rational and maximising reasoning. Values related to family, environment and animal welfare are balanced against rational reasoning when farmers make their decisions. Through the construction of an Alternative-Conventional Attitude Scale as part of the Danish 1993-survey, it was possible to correlate farmers' position on this scale with behavioural variables. These correlations were generally high, suggesting that farmers' environmental attitudes have implications for their behaviour. Other results, comparing the result of surveys in the late 1980s with the 1993 results, indicated that farmers are "greening", and that the gap between environmental values in society at large and the farming community is narrowing.

16. The "greening" process and the observed changes in farmers' behaviour are not irreversible. Most farmers are still conventional in their heads and productivist in their practices, although they have started to change. In other words, the process has still not become self-sustainable. Moreover, compulsory regulation is still needed in order to cope with free-riding farmers.

17. The "greening" process is basically autonomous. Hence there are narrow limits to the extent to which it can be influenced and governed by top-down measures. Authorities and politicians can get environmental debates off the ground, but they cannot govern the conclusions farmers draw collectively and individually. What they can do is provide information channels and strengthen the socio-political process within the farming community by means of support to discussion fora, study groups and other low-level "meeting places" for farmers.

18. The linear model of extension as a messenger of science-based technological innovation is being replaced by knowledge systems which emphasise learning and innovation processes by means of the formation of so-called study groups (usually learning groups of 5-15 farmers). Sometimes these groups are formed by farmers themselves, but usually the extension system is involved in their formation and running. In such groups the advisers (and other experts such as researchers) operate as facilitators rather than messengers of rules, research results and recommendations.

19. Bringing farmers together in study groups can facilitate and accelerate innovative processes and influence the "greening" process among farmers. However, it is not a cost saving mechanism, although extension reaches farmers at the group level. It does not substitute traditional extension and it induces new costs (training of extension staff, support to the organisational and administrative work of extension agencies, etc.). Particular study group schemes, financed by national sources or the EU, are therefore needed to implement this new methodology. Survey results as well as qualitative studies demonstrate that farmers who participate in study groups have shifted more quickly and strongly to eco-friendly techniques than other farmers. In the long run, such 'doing' probably influences 'thinking', but study group farmers are not at the moment on a average more "green" than other farmers.

20. Danish farmers who were frequently in contact with an "official" adviser had reduced their use of pesticides more than other farmers, while a similar correlation was not found in the Dutch surveys. These results suggest

that farmer controlled extension systems are better able to create the necessary trust between farmers and extensionists than government controlled or influenced systems, which again makes it easier to implement the process toward a more sustainable agriculture.

21 Dissemination of results : The most tangible results of the project has been the publishing of reports, articles and books, both in national and in English language. This has led to a knowledge in the international scientific community about the project, which has meant invitation to participate in conferences and journals. Nationally the project members have also participated in public debate and meetings with authorities, farmers' organisations and farmers, partly as a consequence of the results. Here it has been a strength to be able to include results from other European countries and place the often nation-centred interest in a broader European context.

IV. SCIENTIFIC INTEREST AND POLICY RELEVANCE

i) Scientific interest and novelty

The most important new insights were :

1. The use of the discourse concept has proved to be very useful to catch the significant policy changes in the 1980's in northern Europe. At the formulation level the discourse analysis was able to explain the change of agenda of agricultural policy towards a more sustainable development, and at the implementation level, to explain how deep the change of agricultural policy turns out to be when it comes to the realisation of specific regulations. The conclusion was that they are first implemented and taken seriously in corresponding national parliaments/institutions when it suits national attempts to solve these problems - unless there are obvious economical advantages (EU grants).

2. The questionnaire to 4,000 Danish farmers was perhaps the largest survey hitherto on farmers' environmental attitudes. With the use of a so-called Likert scale, the book based on the research has made a contribution to the literature on how to measure attitudes .

3. Part 2 and 3 on farmers' attitudes and on study groups have contributed to the international debate on the use of policy instruments as regards agri-environmental regulations. Until now most attention has been focused on bureaucratic and economic instruments. The results from part 2 and 3 is a major contribution to the discussion on the possibilities of using 'soft' or voluntary regulations as a supplement to other instruments.

4. The case studies in part 4 on implementation of 2078/92/EEC and also part 2 and 4 show that voluntary measures need to be very much in accordance with farmers individual production practices and strategies. But there is still a need for further research in how to combine general regulations with a individual oriented implementation.

ii) Recommendations and policy relevance

1. In order to make agri-environmental regulations work it is very important to maintain the subsidiarity principle. As long as the accompanying measures are voluntary they need to be directed very much towards the specific needs of regions and individual farmers.

2. The idea about creating so-called green corps consisting of unemployed people, who are trained in nature management, seems to facilitate the introduction of some nature and environmental schemes. The project therefore recommends support of training courses through the Social Fund and perhaps afterwards to give some support to reducing the market price of the nature managers.

3. Since voluntary regulation has proven important in the early phase of the process, it is important to continue to give priority to the various instruments which aims at informing, training, advising and motivating farmers. Farmers increasingly search for methods that can lessen the negative environmental impact of their farming activities, with limited negative consequences for their economic situation. Supporting this search-and-experimentation endeavour by means of research, advice, training, study group schemes, etc. should remain a top-priority of authorities in the coming years, also in countries like Denmark and The Netherlands where environmental awareness has moved relatively far.

4. Authorities should lighten the bureaucratic burden on farmers in connection with environmental regulations as the paperwork is a limiting factor in the spreading of voluntary measures. Compulsory measures should still be preserved in the regulatory 'package' as the 'greening' process is still rather weak and reversible. This suggests

substitution of statutory regulations by financial ones, providing more incentives for eco-friendly practices, and imposing duties and fines on eco-hostile ones. It is important to stress the word substitute, however. If financial regulation is simply added to the present statutory regulation, farmers are likely to react negatively, which endangers farmers' voluntary contribution to the process.

5. The Netherlands and Denmark have gained positive results concerning the application of study groups methodology, also in the field of environmental protection. Study groups empower farmers, strengthen the linkages between farmers and 'experts' such as extensionists, and create fora for practical learning and innovation. Application of the study group method in Spain (and other countries in Southern and Eastern Europe) in the coming years would be important, as it can not only trigger a process of learning and innovation, but also can strengthen the present weak linkages between research centres and extension centres, on the one hand, and the farming community on the other.

6. In Denmark and The Netherlands a well-functioning agricultural advisory system has proved to be of immense importance for the development of farmers' competitiveness, but recently also for their adaptability to agri-environmental regulations. The advisory system is not state-governed, but owned by the farmers' unions and receives some support from the government. It means that farmers have more confidence in the advisers. The European Union should therefore create programmes to strengthen the extension service in countries where it is weak at the moment and stimulate that the extension is organised and functioning as close to farmers as possible.

7. The success of agri-environmental policy depends partly on the presence of intermediate actors in the farming sector such as farmers' unions and agricultural advisers. The weakness of the unions in many countries, especially in southern Europe, may be turned into a comparative advantage and ease the way for introducing new ideas for agricultural sustainability. The absence of strong, old union bureaucracies may be a positive factor from an environmental point of view, as the new generation of young union leaders are positive towards the agri-environmental dimension. In this sense, it would be very useful to create agri-environmental advisory committees at national and regional level. Here the representatives from farmers' unions and co-operative federations, together with environmentalist associations and the scientific community, could debate the relations between agriculture and the environment far from old agrarian discourses, but without forgetting the main role played by farming activity in the sustainability of rural areas.

8. In southern Europe agri-environmental formation programmes aimed at the leadership of farmers' unions and the other agricultural associations should be strengthened in order to avoid the current confusion about environmental issues. In this sense, the creation of new agri-environmental departments within the organisational structures of farmers' unions should be promoted. In contact with the scientific community, these departments could be charged to organise the formation programmes aimed at farmers.

9. It would be stimulating to promote the relations between the agricultural associations of the different EU countries. Meetings and organised visits to get to know the agri-environmental experiences existing in EU agriculture would be very useful and encouraging for leaders of many farmers' associations.