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PART FIVE: THE NETHERLANDS

REGIONAL MARGINALIZATION, STYLES OF FARMING AND TECHNOLOGY DEVELOPMENT

DIRK ROEP and RENÉ DE BRUIN

The specificity of the Dutch Veenweiden region

In the Netherlands, 30 per cent of pasture land consists of *veenweiden*, which literally means pasture land on peat-soils. From a cultural-historical point of view it refers to the typical Dutch landscape of 'endless' lowlands with ditches. About 40 per cent of these lowland soils are located in the provinces of Holland in the western part of the Netherlands. The landscape still reflects the way in which the former peat-swamps were colonized. At the end of the Middle-Ages ditches were dug to drain the surplus of water. At right angles from the boards of a river or higher situated strips of land, colonists dug ditches into the swamps to favour the natural drain. This type of cultivation led to the typical open fields system of small fields divided by long ditches. The windmill, and later the diesel-engine and electric-engine, made it possible to drain great amounts of water from big areas (*polders*) thus favouring the cultivation of peat-land far below sea level. Draining the *veenweiden* will always remain essential for cultivation, otherwise it would soon be a peat-swamp again.

Historically there is a clear interaction between the established control by men over the ecological conditions and the agricultural productivity and methods. The peat-soils are very moist and only suitable for pasture land. Therefore dairy farms dominate in the western Veenweiden region. Along with the presence of nearby markets and the entrepreneurship of

the farmers the region has established a reputation for on-farm made dairy products such as cheese (i.e. Gouda and Leidse) and butter. Despite the growth of big dairy industries during this century, on-farm produced dairy products are still of significant importance. Peat-soil consists of about 40-60 per cent organic material, and when properly drained it is a fertile and productive soil. However, when drained the soil oxidizes, which results in sinking of the peat-lands (about 2-5 cm per year). This implies that the level of draining should be adapted regularly. The humid and organic nature of the soil puts also limits to the carrying-capacity of the Veenweiden. Deeper-level draining will significantly improve the carrying capacity, as has been done in large-scale projects or on a small scale by farmers themselves. Nevertheless heavy mechanization has remained very problematic in rainy periods. It is evident that the productivity of the Veenweiden highly depends on water management and draining. The control of water and the necessary adaption of the drain to agricultural needs is a basic issue in the interrelation between agriculture and ecological conditions and has provoked many disputes.

The interaction between the management of the ecological conditions and the development of farm practices, especially its variation over time and space, created the ecological conditions for the typical peat-land vegetation and wildlife. Now the Veenweiden region is appreciated for its open and scenic character: a 'green heart' within the most industrialized and urbanized part of the Netherlands.

Scientification: the systematic elimination of specificity and diversity.

Until the 1960s farm practices were in general developed and optimized under a diversity of social and ecological conditions. This resulted in specific agricultural production processes, which in turn reproduced or even strengthened diversity. However, due to the scientification of farming during the last decades, the nature of the interaction between farm practices and the ecological conditions has changed significantly. Science-based technology reflects a productivistic perspective on agricultural development: a maximization of productivity under optimized production conditions. To control experimental conditions or to reconstruct them into optimal production conditions, the design and development of science-based technology was concentrated in large national research institutes and subsequently tested on experimental farms. Specificity and diversity were systematically eliminated from the process of design and development. A rational application of science-based technology presupposes the experimental production conditions at the farm-level and consequently the structuration of farm practices according to the embodied logic. Science-based technology thus became the guiding image of farm development. Through intensification (higher outputs per cow or hectare) and scale-

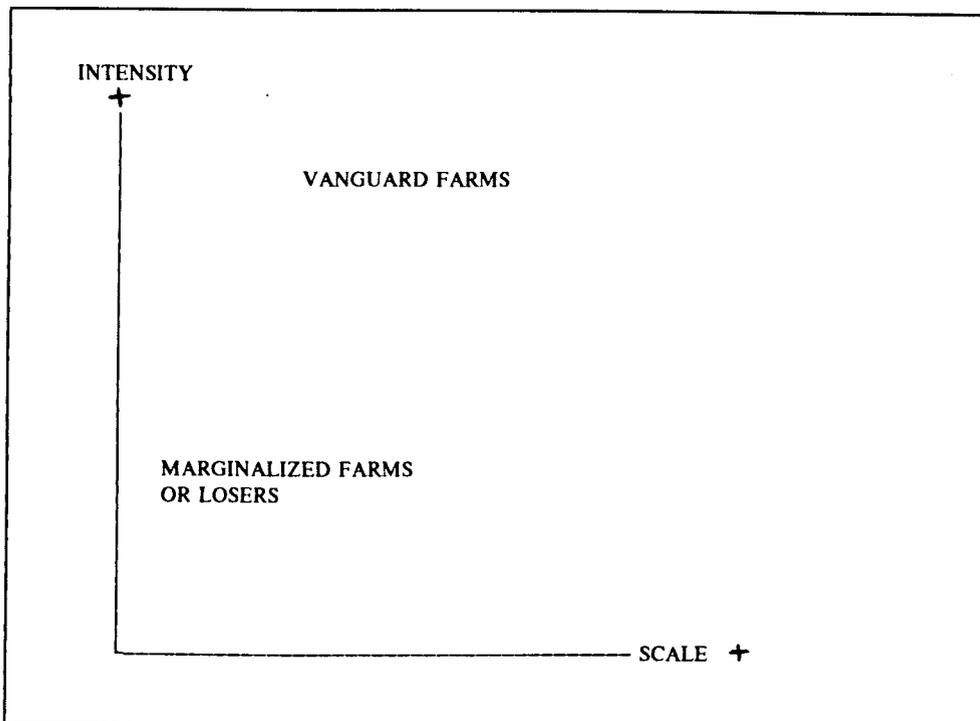


Figure 1: *The prevailing normative perspective on farm development*

enlargement (more cows or hectares per labour unit) agricultural productivity has significantly increased during last decades.

As science-based technology became the main driving force, substantially supported by policy, the degree of application in farm practices became an important instrument to measure 'modernity'. Farmers, their farms and complete regions were classified in terms of 'advanced' or 'backward'. Assuming that the best farmers rapidly adopt 'modern' science-based technology and realize the highest productivity, their farms were identified as 'vanguard farms' (*Koplopers* in the Netherlands, *grand intensif* in France and *azienda di punta* in Italy). This normative model of farm development is schematically represented in Figure 1. Farmers who did not develop or developed too slowly, were given up. Regions were classified in terms of their suitability for the technological model. If ecological obstacles, such as those in the lowest parts of the Veenweiden, were considered important, regions were simply seen as inadequate for science-based technology. From this perspective regions lacking necessary dynamics would inevitably marginalize, while agricultural production could be concentrated in the 'growth poles'.

Scientification thus fundamentally changed the interaction between farm practices and ecological conditions. From the productivist point of view the application of science-based

technology is an undeniable success-story. But for the Veenweiden with its specific ecological conditions it has several limitations.

Firstly, regional specificity can never be completely modelled according to optimal production conditions: peat-soil will always be peat-soil. A radical lowering of the water level is, for instance, one of the critical preconditions for science-based technology. But this has caused many derived problems, such as increased oxidation and sinking land. With many other problems this called for a new research agenda. Secondly, the creation of conditions for modern technology has generated various conflicts, for instance with respect to the protection of the Veenweiden nature and landscape. Thirdly, the restructuring of farm practices was resisted by farmers with other ideas about farm development and the relation between farm practices and ecological conditions. The political project of science-based technology thus generated its own counter-powers with different perspectives and interests.

Styles of farming: differential patterns of social dynamics

Despite tendencies to greater regional uniformity of farming practices according to the unilinear model of agricultural development (see figure 1), a recent study (Van der Ploeg and Roep 1990) of the Veenweiden shows that diversity of farming practices does persist here. This study identified different styles of farming: specific combinations of farming practices and strategic and meaningful aspects of farm labour. A style of farming is connected with a specific idea and model of farm development.

Styles of farming can be identified and analyzed by using extended interviews with farmers, focussing on technical and economic aspects of the production process. The strategic and meaningful aspects of farm labour, the variety of farming practices, strategic elements of management, and norm and values, are conceived from the perspective of the farmers themselves. This methodology reveals the relevant diversity as perceived by the farmers and their classification of these differences. It generates a 'social map' which positions and characterizes each style of farming.

Studying styles of farming has brought us to the conclusion that diversity is consciously reproduced by farmers. Each style of farming reflects a specific normative perspective on farm development (how 'good' farming practices are socially defined), and can be regarded as a structuring principle for farming practices. Farming styles differ from each other in the breeds of cattle they use, the management of pasture-land, the use of off-farm capital, the use of family labour, dependence on bio-chemical inputs, etc. Styles of farming comprise different ways in which internal and external relations are structured and how these are interconnected and co-ordinated in a specific model for farm development. We will give a brief description of the styles of farming identified in the Veenweiden region, portraying six

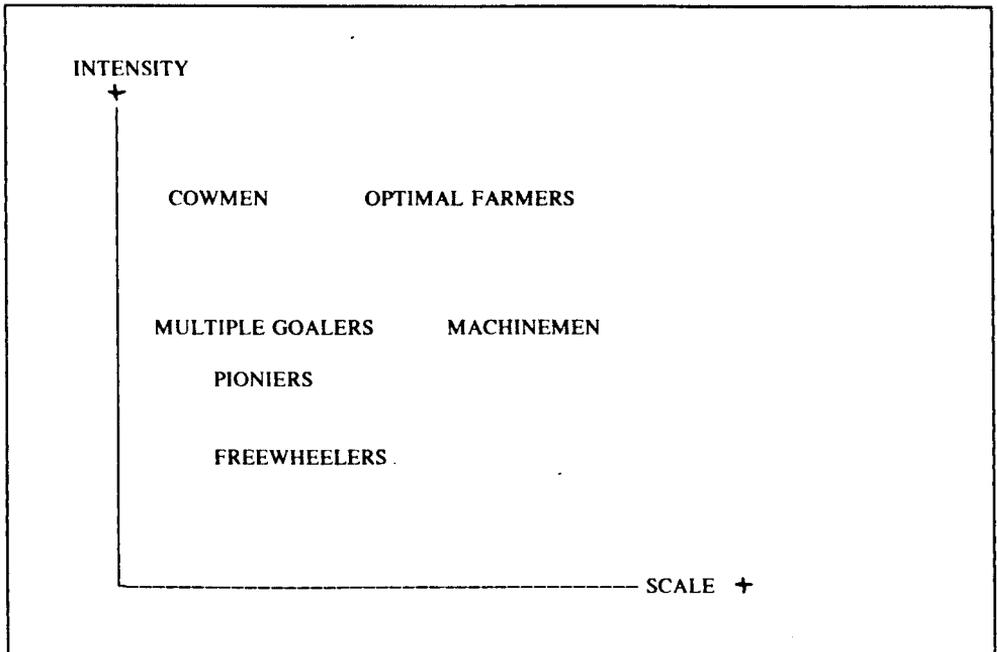


Figure 2: A social map of the styles of farming in the Veenweiden-region

farmers. In each portrait the key-issues of farm management or development are stressed. These portraits were used in a survey among 100 farmers, asking them to classify themselves.

Multiple-goalers

"I like a double-purpose cow. The milkyield per cow is important, but so are the revenues from the sales of cows and calves. I focus breeding and selection on cows with a high residual value. Thanks to the moderate production I can milk more cows and thus sell more calves, so the revenues from the sales of cows and calves are an important source of income."

Freewheelers

"I'm an elderly person without a successor. I manage to keep costs low and can still make a living on the farm. In the long term my farm will not be up to date, and I will sell it."

Cowmen

"I love working with cows, feeding and caring. It is my hobby to attain high milkyields. Therefore I pay special attention to breeding and selection, as well as to forage production. The balance between feeding and milkyield is essential to reach high yields."

The coordination of all these tasks puts a limit to the number of cows one can properly manage.”

Pioneers

“I have a relatively small farm in a disadvantaged area. For me this is no reason to leave farming, because farms like mine may have opportunities to survive in the future. Exactly because of our backward position, we are more prepared to explore new possibilities and anticipate markets, for instance integrating the conservation of nature in farm management or organic farming methods. I regard myself as a pioneer.”

Machinememen

“I prefer working with machines; in the fields and maintaining them. I organize work in the cowshed and in the fields as efficiently as possible. Maximal production with a minimum of labour, that is the economic base of my farm. I don't reach high milkyields per cow, but that is not a problem. I can earn the same revenues through the larger number of cattle.”

Optimal farmers

“In my opinion a good farmer is always increasing production, more cows and higher yields per cow. This requires optimal equipment of and special attention to the newest technology. One must not be afraid to make large investments. It gives high costs now, but one has to be prepared for the future.”

Each style represents a specific model of farm development, in which different positions *vis-à-vis* the market and available technology are chosen. This is illustrated in figure 3. Farmers use different market possibilities and technology and sometimes even create new opportunities, (in the case of the 'pioneers'). A specific structuration of farming practices also includes a specific interaction with the ecological context. Ecological conditions are 'read' with the farmer's eyes and this determines what they see as minimal or ideal conditions for 'proper' farm development.

'Optimal farmers' produce primarily for the European bulk-markets and try to minimize production costs by maximizing the output per ha or cow in combination with scale-enlargement. The ecological conditions of the Veenweiden are seen as a limitation to this strategy. In the past 'optimal farmers' (more than other styles) have made interventions to change the ecological conditions. To achieve their project they try to adapt the ecological conditions to their own needs. Supported by state subsidies and using science-based technology, they created optimal conditions for intensification: high bio-chemical inputs, the introduction of high productive grasses, and mechanization of land management. Little space

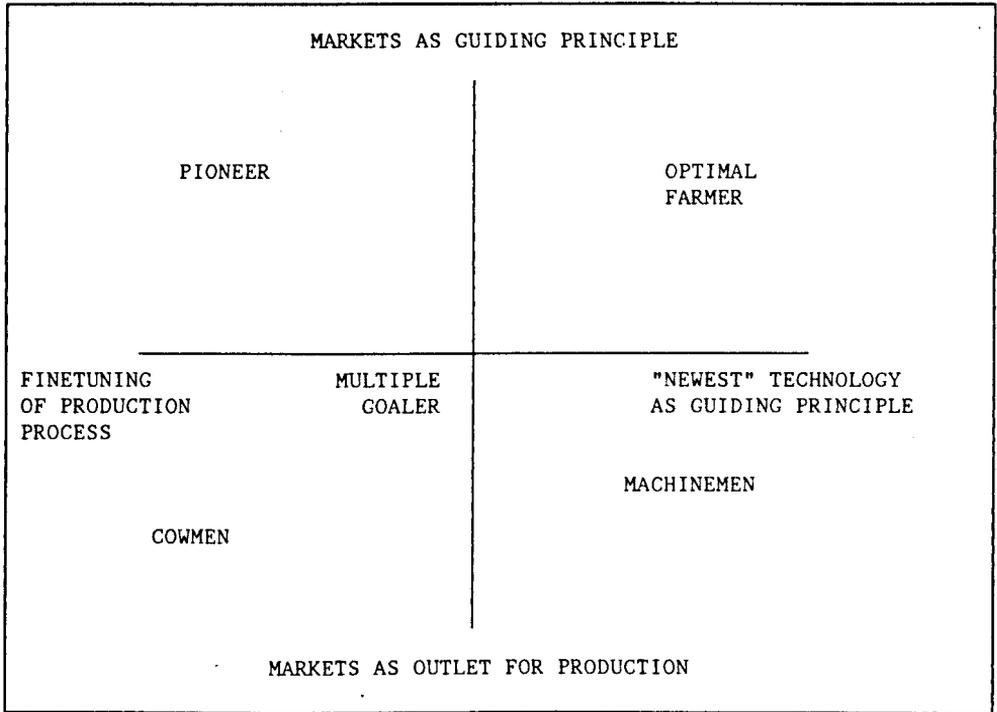


Figure 3: *Styles of farming as differential strategies toward markets and technology*

was left for safeguarding natural and landscape qualities. Intensification and mechanization have reduced ecological variation, and the typical 'veenweiden-vegetation' is rapidly vanishing.

'Pioneers' have a different opinion on 'good' farming practices. On their farm the interaction with ecological conditions is structured from a different perspective. By using the particularities of the Veenweiden, the 'pioneers' try to change a situation of relative backwardness into an advantage. Farm management is directed to the production of high-quality products for regional markets. An example of such a product is farm-made cheese with a high-quality grade, which is sold either directly or at regional markets. The production of this cheese needs high-quality milk. Consequently all elements of farm management have to be structured to produce this specific milk: the productivity of cows, the use of concentrates, the production and quality of forage, the type of grasses that are used etc. 'Pioneers' more than 'optimal farmers' are interested in quality, whilst 'optimal farmers' deliver their milk to the dairy industry for the production of cheese for anonymous markets, 'Pioneers' use the specific ecological conditions of the Veenweiden to make themselves known to groups of interested consumers. They regard the character of the Veenweiden as an economic opportunity and develop it into a regional product. They need no radical

interventions in ecological conditions although there is need for improvements. They try to find an equilibrium between farming practices and ecological conditions instead of intervening in the ecological system itself.

This implies the development of adapted farming practices, based on adequate technology developed for the 'pioneers'. However until now science-based technology is unable to provide such technology. Pioneers must selectively use its adequate parts and depend furthermore on their own skills. They also created a network among farmers to exchange knowledge and to develop adequate technology. The degree to which the creation of such a social basis is successful determines the potential dynamics of this style of farming. A strong social basis may serve to challenge main-stream policy and science-based technology and become a starting point for sustainable agriculture.

What has been said about the 'pioneers' is true for other styles as well. Each has its own dynamics and social basis and should at least be taken into account by technology development and policy. They may be the *social carriers* (cf. Edqvist and Edqvist 1979) providing valuable answers to a growing number of problems in agricultural production and rural areas. They embody the potential to reverse the process of regional marginalization.

Bringing specificity and diversity back into the development of adequate technology.

In the Veenweiden the application of science-based technology generated many new problems such as the degradation of nature and landscape. Water-management and bio-chemical inputs created severe environmental problems. Increased cattle-density and the consequent surplus of dung has become one of the main environmental problems in the Netherlands. Since cattle breeding is largely dependent on land, the emission of ammonia during dung-distribution is the most serious environmental problem and the main cause of 'acid' rain. The Dutch government therefor legally banned the spread of dung in the open air. The injection of dung into the soil is, however, an expensive system, which requires a large working capacity. The use of heavy machines poses also a practical problem on the soft peat-soils. There are several initiatives from farmers as well as from the national institutes for technology development to develop more adequate spreading systems. But until now, systems other than injection are not allowed by law.

Thus, policy measures and technological solutions are still orientated towards 'vanguard farms', or in the Veenweiden the 'optimal farmers'. Innovations are still based on optimizing production conditions, and standard technology is seen as adaptable on peat-soil by improving tires. The basic concept of technology does not change, however, and consequently the variable character of the environmental problems associated with less intensified and less polluting styles is denied. In fact, the potential of these styles is

systematically kept out from the political agenda. Large parts of the Veenweiden region cannot be optimized in a standardized way – or only with excessive expense – and are consequently given up as inappropriate for agriculture. Other parts are claimed for nature conservation and landscape protection, or for the expanding industry and urban growth in the West.

However, in the public debate on regional marginalization, a certain shift in arguments may be discerned. A growing number of people are beginning to see the problem as part of the dominant model of farm development. The model of the 'vanguard farm' simply clashes with the specificity of the Veenweiden. This discrepancy between the reality of a region and the theory of optimal production conditions designates the Veenweiden ecology as inadequate and as an obstacle to proper farm development. When asked for opinions about the ideal production circumstances, 'optimal farmers' often refer to the recently reclaimed Dutch polders. A growing number even want to migrate to these new polders to unchain themselves from the burden of the Veenweiden.

Besides regional problems related to the specific character of the Veenweiden, problems at a national and international scale, such as overproduction and uneven development put social-political pressure on a change in agricultural policy. These changes should result in *sustainable* farming practices. A regional redistribution of production and income cannot be left aside in this reorientation. Adapting agriculture to ecological conditions ultimately comes down to the design and development of more adequate technology.

The concept of adequate technology

As argued above, the scientification of farming practices since the 1960s involved a change in technology development according to the principles of 'modern' science. It uprooted the relationship between the farmer and science: specific local knowledge became submitted to scientific knowledge; farmers' guided experiments were replaced by standardized design methods. Since scientific knowledge was supposed to be superior to local knowledge, farming practices had to be rationalized through the application of science-based technology. This implied a new and rigid division of labour: the scientist designed and the farmer implemented. But it is more than a mere transfer of technology and knowledge, it is at the same time a transfer of the ideas and normative values intrinsic to the scientifically 'objectified' perspective on agricultural development. Hence agricultural extension and education were the essential links between the two.

As already stated before, specificity and diversity were systematically eliminated from the design of science-based technology. Science-based technology was consciously disconnected from the farmers' 'subjective' point of view, opinions, cultural values and

interests. As science-based technology was closely connected to a specific perspective and became itself the main dynamic social force, diversity in farming practices was regarded as a survival from the past: a temporal phenomenon, which would disappear with the completion of rationalization.

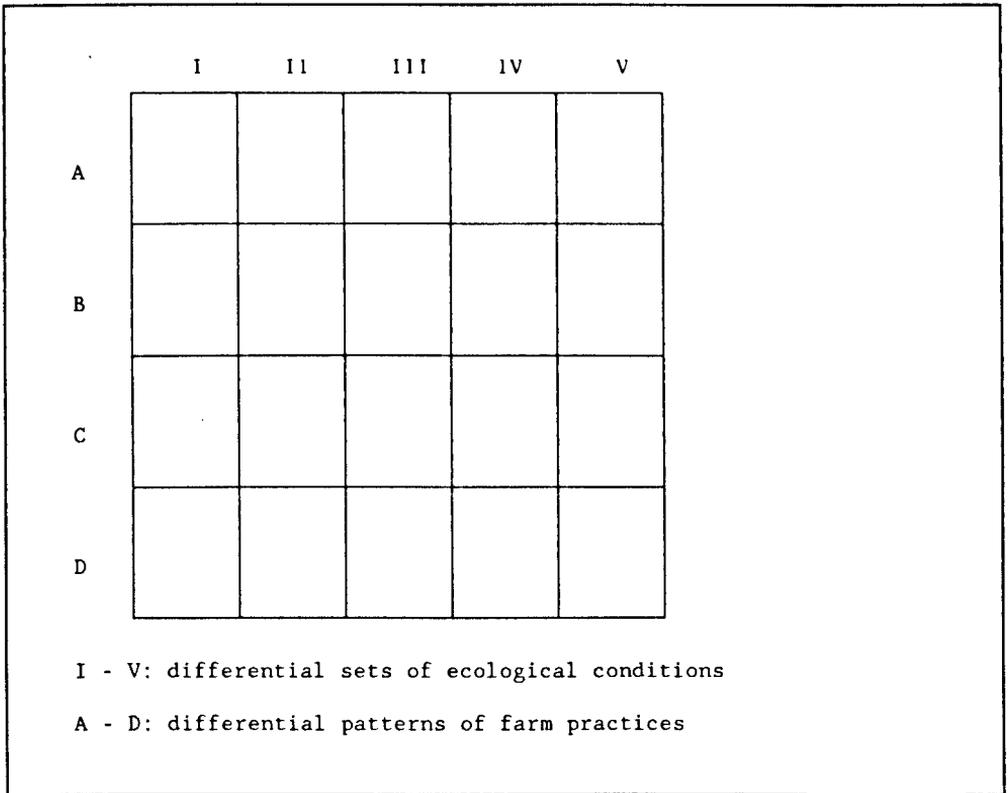


Figure 4: *The design and application of technology*

The process of design and application of science-based technology is schematically summarized in Figure 4. It illustrates how design and application are connected to each other. On the horizontal axis, various sets of ecological conditions are symbolized. Set 'I' is the experimental or optimal production condition in design; from 'II' onwards, the ecological conditions become less optimal or more specific. Along the vertical axis one can imagine differential models of farm development. At 'A' one can imagine a normative productivist model, aimed at maximizing production. From 'B' onwards, one might think of other models. The figure shows that the 'vanguard farm' is scientifically constructed as the interaction between set 'I' and 'A'. 'Optimal farmers' try to implement this model on their farm and have to reconstruct the inherent logic and experimental conditions. All styles of farming can be positioned in this figure as the interaction between a specific set of ecological conditions and a specific pattern of farming practices. 'Pioneers' for instance

might be located at the intersection of set 'III' and 'C', and so on. The concept of adequate technology acquires a specific meaning within this analytical scheme. The adequacy of available technology is related to the position in the scheme or, in other words: *what is regarded to be adequate depends on the style of farming*. The design of adequate technology should take into account the specific conditions and the specific structuring of farming practices in which it will be applied. As argued above, science-based technology has been exclusivity orientated to the construction of 'vanguard farms'. The recent debate on sustainable agriculture has questioned this exclusively. To a certain extent specificity is brought back into the development of technology at national institutes, although mainly as a concession to optimal conditions. Technology is modified to be applied in less optimal conditions too. In figure 4 this can be illustrated as a gradual shift from 'I' to 'II'. In this sense the design of sustainable farming practices will be a scientific construction too, disconnected from the differential patterns of social dynamics. Adequate technology requires bringing specificity and diversity back into the design. This requires a reorganization of technology development, new perspectives on the relation between farmer and scientist, between scientific knowledge and farmers knowledge, and so on.

Referring to the conclusion that the differential styles of farming in the Veenweiden can be viewed as a number of potential answers to specific problems, the notion of adequate technology is in fact a plea for the differentiation of technology development. The 'pioneers' in the Veenweiden, may serve as *social carriers* for the design of more adequate technology for the revitalization of regional production and to counter marginalization. To be successful, the support of people other than farmers is needed. Actually this is what a group of farmers in the Veenweiden region is doing. They started with the idea to produce a region-specific farm-produced cheese. By mobilizing various actors, from policy-makers to scientist and their own organizations, they were able to get their project on the agenda of regional politics and research institutes. This group has opened up new perspectives for a marginalizing region and tries to design a regional specific style of farming. This means the creation of new market opportunities and the development of adequate technology.

Conclusions

With social-political movements against the productivistic model becoming more powerful and the problem more urgent, the call for a new relation between farming and ecological conditions becomes stronger. Sustainable farming practices require bringing specificity back into the design and development of technology. As the study on styles of farming in the Veenweiden has shown, this new concept already exists in practice, as a reaction to the threat of marginalization. The doom of rural poverty and the exodus from rural areas made people

aware that farmers play a role in the rural economy and in the management of nature and landscape. The different styles of farming represent potential 'answers' to the rural crisis and some of the farmers, especially 'pioneers', are ahead in developing a regional specific production system. They may serve as social carriers of more adequate development technology design.

The methodology presented in this paper may be a valuable tool to identify patterns of social development in a region. It may also result in an inventory of the way in which farmers handle problems and propose answers. The concept of 'styles of farming' may serve as a guide to the development of regional agricultural policy in which the development of sustainable agriculture is a central issue.

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PART SIX: GREECE

FAMILY FARMING IN MODERN GREECE: TOWARDS A SYNTHETIC PRESENTATION OF TWO EMPIRICAL RESEARCH EXAMPLES

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Introduction

In the Post-War era Greek agriculture has undergone significant changes, the origins of which can be traced back to the agricultural reform of the post World War I period (1917-1927) which consolidated the rights of small proprietors, the great rural exodus which followed the 1944-47 Civil War and the pattern of economic development designed in the early 1950s. The more systematic state intervention in the process of production in the last two decades and especially in the post entry period into the European Community (1981) facilitated the expansion of modern technology and the improvement of infrastructure. This was mostly achieved through the completion of new land reclamation projects and the extension of existing ones. The result of these developments was the significant differentiation observed today in the size and composition of family income on both regional (Mouzelis 1978) and intra-regional levels (Maraveyas and Spilanis 1983). The amount of land under cultivation has