13 Regional Marginalization, Styles of Farming and Technology Development

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The Specificity of the Dutch Veenweiden Region

In the Netherlands, 30 percent of pasture land consists of *veenweiden*, that is, pastureland on peatsoils. From a cultural-historical point of view *Veenweiden* is the typical Dutch landscape of endless lowlands with water-fitted ditches. About 40 percent of these lowland areas are located in the provinces of Holland in the western part of the Netherlands, and referred to as the western Veenweiden region. 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 banks or borders of a river or higher situated strips of land, colonists dug ditches into the swamps to favour natural drainage. This type of cultivation led to the typical open-field system of small fields divided by long ditches. The windmill, and later the diesel and electric engine, made it possible to drain huge amounts of water from large areas (*polders*), thus favouring the cultivation of peatland far below sea-level. Draining the Veenweiden will always remain essential for cultivation, as it soon turns to peat-swamp again.

Historically, there is a clear relation between established control over ecological conditions and agricultural productivity and methods. Peatsoils are very moist and only suitable for pastureland. 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 farm-made dairy products such as cheese (i.e. Gouda and Leidse) and butter. Despite the growth of big dairy industries during this century, farm-produced dairy products are still of significant importance. Peat-soil consists of about 40-60 percent organic material, and when properly drained it is a fertile and productive soil. However, when drained, the soil oxidizes, which results in the sinking of the peatlands (about 2-5 cm per year). This implies that the level of draining has to be modified regularly. The humid and organic nature of the soil also puts limits on 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 problematic in rainy periods. It is evident that the productivity of the Veenweiden depends heavily on water management and draining. The control of water and the necessary adaption of drainage to agricultural needs is a basic issue in the interrelation between agriculture and ecological conditions and it has provoked many disputes.

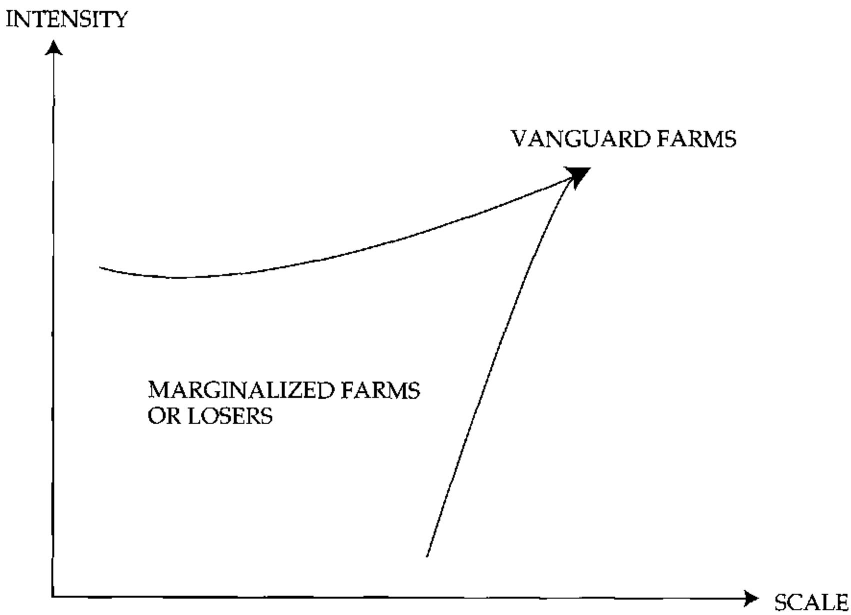
The interaction between the management of ecological conditions and the development of farm practices, especially its variation over time and space, created the ecological conditions for the typical peatland vegetation and wildlife of the Veenweiden region, which is now appreciated for its open and scenic 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 this interaction between farm practice and 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 under 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 a consequent 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-enlargement (more cows or hectares per labour unit) agricultural productivity has significantly increased during the last decades.

As science-based technology became the main driving force, substantially supported by policy, its 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, such regions were simply seen as inadequate for science-based technology. From this perspective regions lacking the necessary dynamics would inevitably become marginalized, while agricultural production would be concentrated in the 'growth poles'.

Figure 1 The Prevailing Normative Perspective on Farm Development

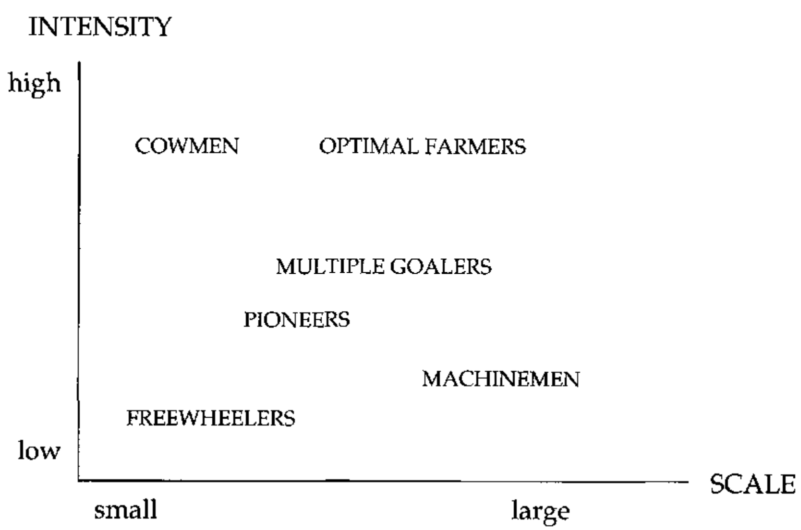


Scientification thus fundamentally changed the interaction between farm practices and ecological conditions. From the productivist point of view the application of science-based technology is an undeniable success story. But for the Veenweiden, with its specific ecological conditions it has several limitations. Firstly, regional specificity can never be completely modelled according to optimal production conditions: peat-soil will always be peatsoil. 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 a diversity of farming practices persists there. The study identified various 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.

Figure 2 A Social Map of the Styles of Farming in the Veenweiden region



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 adopt, 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 farmers. In each portrait the key-issues of farm management or development are stressed. These portraits were then 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 co-ordination of all these tasks puts a limit on 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.'

Machinemen

'I prefer working with machines; in the fields and maintaining then. 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.'

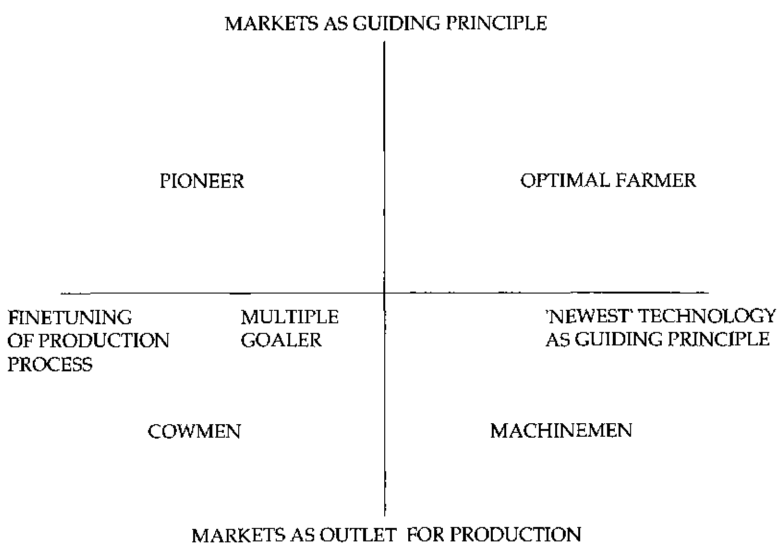
Optimal farmers

'In my opinion a good farmer is always increasing production, more cows and higher yields per cow. This requires optimal equipment 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

Figure 3 Styles of Farming as Differential Strategies



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 have tried to adapt 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 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 about '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 of high-grade quality, 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 quality 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 then 'optimal farmers' are interested in quality. While '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 especially developed for the 'pioneers'. However, until now, science-based technology has been unable to provide such technology. Pioneers must selectively use what is appropriate and depend on their own skills. They have 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, which should 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.

Figure 4 The Design and Application of Technology

	I	II	III	IV	V
A	OPTIMAL FARMER				
B					
C			PIONEER		
D					

I - V: differential sets of ecological conditions

A - D: differential patterns of farm practices

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 exclusively orientated to the construction of 'vanguard farms'. The recent debate on sustainable agriculture has questioned this exclusivity. To a certain extent specificity has been brought back into the development of technology at national institutes, although mainly as a concession to optimal conditions. Technology has been modified to be applied also in less optimal conditions. 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 also be a scientific construction, 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.

If the different styles of farming in the Veenweiden can be viewed as a number of potential answers to specific problems, then 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 to revitalize regional production and to counter marginalization. To be successful, the support of people other than farmers is needed, and this is what a group of farmers in the Veenweiden region have been organizing. They started with the idea to produce a region-specific farm-produced cheese. By mobilizing various actors, from policy-makers to scientists and their own organizations, they were able to get their project on the agendas of regional politics and research institutes. This group has opened up new perspectives for a region that is becoming marginalized and has tried to design a regionally specific style of farming. This has meant the creation of new market opportunities and the development of adequate technology.

Conclusions

With socio-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 is becoming 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 has 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 regionally specific production system. They may serve as social carriers for a more adequate design of technology development.

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.