THE RESEARCH PROGRAMME "NETWORKS IN LIVESTOCK FARMING" AS A MEANS OF PROMOT-ING INNOVATION IN AGRICULTURE

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ABSTRACT

Since the privatization of the agricultural extension service in the Netherlands and the need for a more market oriented approach, the agricultural innovation system "REE" (from Research through Extension and Education to farmers), no longer seems to provide a suitable response to the complex social changes faced by the agricultural sector. The research programme "Networks in Livestock Farming" can be seen as an experiment aimed at giving a new shape to the interaction between practice, research and policy and thus increasing the self-solving ability of farmers and encouraging innovation in livestock farming in the Netherlands. In 2004, 50 networks of livestock farmers were facilitated by 35 project directors from Wageningen University and Research Center (WUR). This paper describes the experiences and results after six months of "working with net-works". The authors recommend to clearly identify the aims (with regard to content and/or proc-ess) that form the basis for the research programme. Clear choices and definitions of the aimes of the research programme must have consequences for both the nature of the networks to be supported and the nature of the support to be offered, which affects the selection criteria to be applied.

Keywords: Networks, knowledge generation, sustainable innovations, facilitation

INTRODUCTION

From the 1950s until right into the 1980s, innovation processes in agriculture and horticulture were unambiguous and self-evident. Almost all the participants in the agriculture complex were clear about the task in hand, namely to increase production volume and lower the cost prices. This proved to be a successful strategy to which the agriculture innovation system of Research, Extension and Education – the so-called "REE-triad" – made a great contribution. The REE-triad played a crucial role in the development and distribution of new knowledge and techniques. In the REE-triad, a special role was assigned to the agricultural extension system, which acted as an intermediary between farmers and research, education, industry and government.

The rise in productivity in the Dutch agricultural sector – which was one of the highest in the world – also had its drawbacks: social issues that demanded and still demand sustainable solutions. In the 1970s and 1980s, a shift began from farming with an unambiguous and self-evident production mandate to farming with a complex social mandate; from quantity to quality and

focus on the means of production. Today, the demand for a (more) sustainable agricultural sector that is market oriented is a fact; the question is how and in what direction. Since the priva-tization of the agricultural extension service in the 1980s, the REE-model no longer seems to provide a suitable response to the complex social changes faced by the agricultural sector. Because of this privatization the connections between the agricultural extension service, farmers, research, education and the governement were cut off. To finally promote innovation under market circum-stances, it is a challenge is to find new mechanisms to connect these parties again.

The research programme "Networks in Livestock Farming", financed by the Ministry of Agriculture, Nature and Food Quality, started in 2004 and can be seen as an experiment aimed at giving a new shape to the interaction between practice, research and policy and thus achieving innovation. The networking programme consists of 50 selected farmers' networks that are sup-ported with respect to process and contents by staff at Wageningen University and Research Centre (WUR) and other knowledge suppliers. In this new approach, it is important to gain insight into the way networks function, what interventions need to be made in the networks, the role of the process facilitator and the support required for these facilitators. However it is also important to see how far this gives the process of change an extra impetus towards achieving sustainable agriculture. This paper describes the experiences and results after six months of "working with networks." (Zaalmink et.al., 2005)

Aim and structure of the research programme

The aim of the networking programme is to support farmers' networks with a view to increasing the self-solving ability of farmers and encourage innovation in livestock farming in the Nether-lands. By achieving this goal, the research programme is expected to contribute to speeding up the dynamics towards (more) sustainable livestock farming in the Netherlands. An important role in the networking programme is the external communication of all the knowledge and experience gained in the networks. This knowledge distribution (or: 'oil slick spreading') mainly involves the exchange of knowledge between farmers' networks rather than mass communication.

From January 2004, networks of livestock farmers and other players were invited to apply to the Ministry of Agriculture, Nature and Food Quality for support for network ideas. Around 160 networks applied to participate in the programme by submitting proposals. These proposals were assessed by an independent committee against various criteria: whether they fulfilled the sus-tainability goals, whether they had sufficient resources of their own, communicative capacity and the drive that is present in the networks. Moreover the networks had to consist of a minimum of 3 livestock farmers. 50 networks were subsequently selected for WUR support. The networks vary in size from 4 to 24 participants. In total, more than 400 livestock farmers are actively involved in the selected networks. The participating networks are distributed all over the country, with a con-centration in the regions of Central/East Brabant and Friesland. The networks are thematically clustered in 10 themes. Examples of these themes are 'animal health,' 'cooperation arable-livestock farming' and 'manure fermentation'. By clustering the networks in themes, it is hoped to achieve alignment between the networks with regard to contents and to promote cooperation be-tween the appointed project directors – more about them in the next paragraph – in these fields.

The networks are facilitated by 35 WUR project directors who are selected on the basis of their experience in process management and more specifically, their experience in facilitating groups of livestock farmers as well as for their affinity with livestock farmers or the subjects of one of the clusters. Their task is to help the networks achieve the goals by helping them to set up concrete project plans and to access the sources of knowledge essential to the implementation

of the plans. An action research team advised the project directors, developed tools to help them facilitate the networks and conducted research into the phenomenon of networks as an incentive for change and innovation. The action research team focused on the following questions:

• To what extent was the aim of the research programme "Networks in Livestock Farming" achieved in 2004?

• Is it possible to make a realistic distinction between types of networks, in relation to the effec-tiveness of certain intervention strategies?

• To what extent are the project directors able to intervene effectively in practice?

• What seems to have obstructed or encouraged the project directors (or the creation of learn-ing communities) to exchange experiences and learn from each other?

• Are there indications that new knowledge infrastructure models have developed through the research programme?

• How should network monitoring be conducted in the future?

We will now provide answers to the above questions, answers that also reflect the main results of the research.

RESULTS
Achievement of the aim

Most networks met between four and six times in the year 2004. In general, participants felt that these network meetings contributed to the creation, acquisition and exchange of knowledge and information between livestock farmers themselves and between livestock farmers and project di-rectors/researchers. The project directors seem to have been fairly successful in bringing in rele-vant expertise from WUR to the networks. However it is not the case that the necessary insights and knowledge are available in a "ready-made" form. The networks have to venture on their own explorations, thus making new discoveries and analyses. Farmers constantly translate existing knowledge and expertise to a specific problem context, which often leads to questions that cannot yet be answered. It is therefore not surprising that two out of three project directors have indi-cated that in their project they would like access to more resources for research.

More than half of the networks are focusing on optimising enterprise processes. This is not to say that sustainability does not play a role in these networks. The networks certainly con-tribute to the promotion of economic, ecological and/or social sustainability. In the every day prac-tice of the networks, people tend to think in terms of solving a concrete problem rather than "bal-ancing different aspects of sustainability" (such as people, planet and profit). The discussion paragraph also addresses the extent to which the aims of this research programme have been achieved and what might still be required.

Types of networks

Classifying networks is not an aim in itself. It is more about recognising situations involv-ing net-works that require a different approach or intervention strategy. The action research team classi-fied networks on the basis of their orientation towards planet, people or profit. The classifications show that the networks are more focused on profit than on people and planet. However there are (still) no indications that these different network categories require a differ-ent approach. Distin-guishing between limiting factors like knowledge, conditions or process is considered useful by project directors. Is it particularly a lack of knowledge or are conditions (e.g. external factors, such as legislation and regulations) limiting factors for innovation? Or must something happen in the process to provide added value to the options of the participants?

Answers to these questions largely determine the agenda. In many cases, the conditions were considered as a constant and people focused on (an increase or development of) knowledge and (attention for the) process. This may be related to the phase of the process: the interaction with the external actors comes later on in the process.

Intervention strategies

Depending on the needs of the network and the competences of the director, the project directors can assume different roles: expert, intermediary, process facilitator or service provider. As an ex-pert the director takes responsibility for the contents of the search process. New knowledge is thus developed. The role of the expert is therefore one of knowledge developer, while there is less focus on the process. The intermediary mediates in the information network (information me-diator) and is concerned with both the content and the process. The process facilitator mainly contributes to communication among the participants and has insight and skills for facilitating group processes. He or she keeps the process open, stimulates qualities to be applied and tack-les problems. The service provider mainly focuses on implementing practical activities which are not carried out by the network itself but which are certainly essential to accelerate the innovation process. The project directors indicate that most of their time is spent on their role as process facilitator (40%), directly followed by that of intermediary (30%). The role of service provider and expert score lower: both 15%. In many cases, the expertise of WUR and others is mobilised.

The role of process facilitator mainly seemed to be important in the process of question articulation: clarifying the issues and aims and then translating them into concrete activities, ultimately culminating in a project plan. Many networks experience this process as slow ("it takes a long time before anything concrete happens!"). For the project directors, such discussions are a crucial part of the process and should be viewed more constructively as an integral part of the process of question articulation. This process requires time, also later in the process.

Learning among project directors

A learning community is an alternative organisational form that transcends formal organisations, projects or departments, binding people to share knowledge, work together and solve problems. It was assumed that the more successful the research programme was in supporting the project directors, the more it would be possible to lay down the conditions important to the creation of learning communities within the research programme. In such a case, project directors learn more from each other and the programme yields more. 'Being close to each other' seems to have had a great effect on the interaction between project directors and thus the creation of learning communities between project directors in the research programme. Furthermore it seems that the WUR organisation structure has (had) an impact on the interaction between project directors and thus the creation of learning communities between project directors within the research pro-gramme. According to most project directors, the heterogeneity (regarding motives for participat-ing and background and affinity with respect to contents) of the group did not stand in the way of the interaction between project directors or the exchange of experiences (and thus the creation of learning communities). Most project directors felt supported by the exchange of experiences that occurred either informally or during the meetings organised through the programme.

Knowledge infrastructure models

When the research programme started, most of the project directors indicated a successful col-laboration within networks, but less collaboration with third parties (other networks, WUR

and other experts). At the end of 2004, almost all networks collaborated with third parties. Participants learn a lot from each other within the network, they contribute more than they are actually aware of. The diffusion of knowledge to practice mainly occurred through the publication of news items about developments within networks in trade journals.

Monitoring networks

In future, networks could be monitored by way of case studies. Three networks already have ex-perience of this in the research programme. In these case studies, learning and negotiating proc-esses that had been related to the work of the network were unravelled. Various explorative re-search methods were used, such as semi-structured interviews (face-to-face, telephone) and par-ticipatory observation at meetings. The case studies are valued as a source of reflection, as a second opinion and also as a way of visualising and discussing both the contribution of the re-search programme and everyday bottlenecks and obstacles.

DISCUSSION

Looking back at the criteria that were applied in the selection of the networks and the project di-rectors, we would like to make a few comments. Firstly, one might question the usefulness of the criterion "sustainability" in the selection of the networks. From almost every direction of change, one can argue that this contributes to some aspect of sustainability. Secondly, one might ask whether real initiatives have been taken with respect to the selected networks offering prospects for sustainable innovations at a systems level. In many cases, it is a matter of optimisation within the enterprise's chosen direction. In other cases there might be potential for innovations with a wider impact, but we only can expect breakthroughs when the networks are more vertical, such as chain or multi-stakeholder networks. Anyway, it is not realistic to expect changes which one could call a system innovation within six months. Based on the present aim of the network pro-gramme, selection criteria like "heterogeneous composition of the network" and "available energy" are the basic parameters. The former is new, the latter is not. The question is "what do you really and exactly look for in the selection and further development of networks?". It is therefore impor-tant to work on a good system for monitoring and evaluation.

The same discussion applies with regard to the selection of project directors. In view of the aim of the network programme, how important was the project directors' experience exactly in process facilitation? Furthermore, the selection criterion "affinity with livestock farmers or a sub-ject from one of the clusters". This selection criterion can conflict with the aim of the programme. An increase in farmers' self-solving capacity and subsequent increase in innovation in Dutch live-stock farming is not helped by a project director whose affinity with livestock farmers or a subject from one of the clusters may trap him or her in the role of the expert.

Finally in this discussion paragraph: knowledge distribution, an important issue in the re-search programme. The distribution of knowledge and experience from the networks to other (networks of) livestock farmers is gradually getting underway. However, do the terms 'knowledge distribution' and 'oil slick spreading' really express what the programme wishes to achieve? The aim of the network programme goes further than distributing the knowledge available from re-searchers. It is about the capacity of (networks of) farmers to innovate and mobilise relevant knowledge. We then hope that successful small-scale innovations will permeate onto a larger scale.

CONCLUSIONS

With regard to knowledge development and dissemination about the methods of network

facilita-tion and about the results with respect to contents, it is important in future to involve project direc-tors and other chain parties from outside WUR in the research programme. With regard to the results described under the headings 'achievement of the aim,' 'types of networks,' 'intervention strategies,' 'learning between project directors', 'knowledge infrastructure models' and 'monitoring networks', the following conclusions can be drawn after six months of "working with networks":

• A time scale of six months' support is far too short to promote innovation. In order to achieve innovation, the composition of networks must be critically studied. In general, networks must have a more heterogeneous composition to encourage innovation.

• It seems probable that different intervention strategies must be applied to different types of networks and their different phases. However more observations are required to provide fur-ther insight.

• The project directors indicate that most of their time is spent in the role of process facilitator, immediately followed by that of intermediary. The expert role scores lower. The support by the project directors is valued by the networks.

• The exchange of experiences between project directors is important, but does not au-tomati-cally lead to competence development in the desired direction. It is therefore essential that project directors are being coached – through a professionalisation programme, for example - whereby the effectiveness of network facilitation is expected to increase.

• Interaction between networks, WUR and other experts increased through the organisation of the research programme. However, more observations are required to provide further insight in the effectiveness of the network programme on knowledge dissemination.

• As a means of providing justification to the principal, there is a need for a systematic monitor-ing and evaluation method for project directors with regard to recognition and reaction and as self-evaluation for the networks themselves.

Finally, we recommend that the network programme should clearly identify the aims (with regard to content and/or process) that form the basis for the programme. Is it mainly about promoting standard innovation or system innovation? Or is it about making the knowledge infrastructure ac-cessible? Clear choices in this field must have consequences for both the nature of the networks to be supported and the nature of the support to be offered, which again affects the selection cri-teria to be applied.

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