Platform Approach for Sustainable Flowerbulb Production

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Abstract

Highly developed farming systems, like flowerbulb production, are facing new challenges. Intensification and mechanisation have led to an increase of production, but have had negative side-effects on the environment as well. Research efforts have therefore focussed on finding solutions for environmental problems, caused by the modern farming systems. New technologies and strategies for integrated pest management and nutrient management were developed, but the implementation on a large scale was not successful. Even systems research, where new technologies were tested in the complexity of the farming system, did not result in a breakthrough. The cause for this lies in the social context of the farming system.

The social context of flowerbulb production consists of many different stakeholders who all have their own, sometimes conflicting, goals. Among these stakeholders are national and local government, input suppliers, advisory services and environmental organisations.

The Applied Plant Research (PPO) has started an initiative, where the different stakeholders who have an interest in flowerbulb production, are organised in a regional platform. PPO manages the exchange of information in the platform, where the aim is to agree on the steps to take towards sustainable flowerbulb production and to communicate these steps with one voice to the producers. This will result in the final goal of developing farming systems towards sustainable production. PPO brings results from research into the discussions and constraints that are faced by the platform of stakeholders are selected as new topics for the research agenda. The challenge for research institutes is to use this approach to reach a higher level of implementation of new developed strategies and technologies for sustainable development.

INTRODUCTION

Flower bulb production in the Netherlands has been a fast growing and economically prosperous activity for several decades. At present it is one of the most important horticultural sectors in the Netherlands. On approximately 24,000 ha it generates a yearly value of around 1 billion Euros. Besides the direct economic value the flowering fields also contribute to the landscape, attracting tourists from all over the world.

Through the past decades Dutch agriculture, including flowerbulb production, has developed towards yield oriented farming systems which heavily rely on external inputs and mechanisation. As a result, current flower bulb production systems are using considerable quantities of pesticides and nutrients per unit area. These high levels of inputs may lead to contamination of surface and ground water. Consequently, in the early nineties the Dutch government started to focus on the environmental effects of agriculture in order to rebalance production methods and environment.

Research on flower bulb production in the Netherlands was until that period mainly oriented towards production. The governmental concern for the environment has lead to research programs with a farming systems research approach. Farming systems research integrates different themes, as environment, economics and agronomics on farm level, with the objective of an optimal result on the different themes. This research has
been quite successful in finding production methods with fewer side-effects on environment. In the late nineties the results from this research were implemented on farms of flowerbulb growers in participatory projects. In these projects extension service and research worked together intensively with farmers.

The set of techniques and methods, based on integrated pest management and efficient use of nutrients, proved to be useful tools for growers. Those participating in the projects realised a reduction in the use of pesticides and nutrients while retaining income level. Unfortunately the spread of these farming methods to other growers was limited. The large group of farmers showed to be hesitant to adopt sustainable farming methods. This paper deals with the constraints of this implementation and discusses a different approach to disseminate sustainable flowerbulb production.

**PLATFORM APPROACH**

The approach of this research focuses on understanding and utilising the social context of the farming system, to change towards more sustainability. Therefore, the research starts with a stakeholder analyses, showing the interactions between the grower and the other stakeholders that are involved with the production on the farm.

Once the stakeholders are identified, the formation of a platform can start. The platform consists of stakeholders who share a common interest. To start collaboration it is important to identify the objectives of each of the stakeholders in the network and to show the advantage of working together. The common objective of all stakeholders forms the basis of collaboration in the platform. The differences in objectives and ideas need to be discussed, to search for possible agreement. Once the common and adverse objectives are identified, the exchange of information in the platform can start and a strategy to overcome the identified constraints can be developed.

Crop protection and nutrient management are the most critical items for sustainable farming. Part of the strategy to overcome constraints on farm level, involves innovation. This innovation is partly carried out by research and passes through a process of testing, evaluation and improvement on farm level before implementation can start. During this process the stakeholders need to be involved, so that they agree on and become part of the development. Once the innovation has proved to be successful, each of the stakeholders plays a role in the process of its dissemination and implementation (Fig. 1).

**THE SOCIAL CONTEXT OF FLOWER BULB PRODUCTION**

In his daily activities a flower bulb grower is surrounded by many organisations and companies that have an interest in the way the grower manages his crops. This “network” of stakeholders is shown in Fig. 2.

The centre of the diagram shows the grower, with the companies and individuals he has a frequent interaction with shown in the middle circle. They include suppliers of inputs like fertilisers and pesticides, advisors on crop or farm management and salesmen who buy his produce as well as research and colleagues (growers). The outer circle shows organisations that have less direct interaction with the farmer, but have a strong impact on the behaviour as a result of laws, regulations and social pressure.

In the network, the different stakeholders all have their own short-, mid- or long-term goals. In his interaction with the grower, each stakeholder sends messages to the farmer to influence or regulate the farmer’s management decisions in order to reach his goal. It is obvious that the different and often conflicting messages of these stakeholders, result in a low effectiveness of each message. The arrows in Fig. 3 show the direction and importance of the influence in the network. Among the messages from research are those that show the results from farming systems research oriented towards more sustainable production. The effect of this message however, is limited, because of the contradictory messages sent by other stakeholders. The short-term interest of input suppliers, for example, is to sell pesticides and other inputs to the grower to earn their living. They visit the grower frequently and give advice that often supports their short-term interest. Depending on their relationship with the grower, the influence of this group can be
significant and may have a strong effect on the risk perception of the grower considering his pest management.

The growers (followers) are influenced by the pioneer on sustainable farming, but on the other hand this group is also influencing the pioneer by projecting their risk perception on sustainable farming.

And last but not least trade & export is aiming at good products, free from diseases and other associated risks. These different short-term interests lead to different and sometimes conflicting messages to the grower.

The farmer will consider the different messages to decide on his farm management. Flower bulbs are perennial crop, so problems with pest & diseases or a low level of nutrients will have their effect in the forthcoming years. Sustainable farming methods using less or other inputs are considered from this point of view, and are felt to be risky. Low adoption of new technologies is therefore strongly related to the farmer’s risk perception.

When long term issues are considered there is more common interest between the various groups that interact with the grower. All the groups have in common that they are dependent on the future of flowerbulb production. Sustainability of the sector in an economical and ecological sense therefore is crucial to all of them. This provides the common basis for collaboration and formation of a platform of stakeholders.

Once the platform operates, all stakeholders need to be clear on their criteria under which they can agree on the shift towards sustainable development. For the input supplier one of the criteria is that his business needs to continue. The shift to sustainable production, which has become government policy, will result in a lower demand for chemical inputs, resulting in a decline in sales of pesticides. This threat needs to be addressed, looking for opportunities to guarantee an income for the input supplier. This opportunity can be found in the increased demand for knowledge with the shift towards sustainable production. The demand for knowledge is a chance for the input supplier whose customers will increasingly demand knowledge on sustainable farming. The knowledge is available in the platform, which provides a valid reason for the input supplier to participate in the platform.

CONCLUSION
When conflicting interests are present, the platform approach increases the successful implementation of new developed strategies and technologies.

The criteria to apply the platform approach are the presence of a common interest or final goal. Short term goals may be different, but need to be discussed and agreement on the handling of these differences is crucial. Once the platform is active, the different stakeholders need to be involved in the development of solutions to move towards more sustainability of the farming system. Individual criteria, like generating income through sales of pesticides, can be threatened by these solutions. The threats need to be identified and new opportunities have to be searched for, so that the solution will be accepted by all stakeholders. The active participation of stakeholders in the communication, dissemination and implementation of the solutions will greatly improve the adoption of sustainable production.

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Fig. 1. From diagnosis to dissemination. Innovation is a continuous dynamic process of design, testing and improving. Shown in the left part of Fig. 1 as part of the process from problem identification to dissemination of solutions. Innovation can be a slow and difficult process as shown in the figure at the right, where the circle is moving upwards against gravity.
Fig. 2. The social context of the farming system.

Fig. 3. Messages of different stakeholders addressing the grower can be conflicting as a result of different short-term interests.