

“Cropping School” - An alternative to advisory services in Brandenburg, Germany?

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Abstract: *In Brandenburg, unlike in other federal states of Germany, neither public advisory services are available nor organic field trials are conducted. Farmers are largely left alone with the challenge to develop individual cropping solutions in addition to their daily operative business. Therefore, the new concept of a “Cropping School” based on Farmer Field Schools and Stable Schools has been developed and will be piloted in the north-east of Brandenburg, Germany. The main goals of the Cropping School are to empower farmers to take action for improving their cropping system and to develop a practice based approach as an alternative to advisory services*

Keywords: *action research, mutual learning approach, participatory approach, agriculture education and extension*

Introduction

The federal state of Brandenburg has the largest organically managed agricultural land area (16,000 ha) in Europe, regionally concentrated in the north-eastern part (GLS, 2017). This area is considered as a “poster child” for sustainable development of rural areas throughout Germany. It has gradually developed since the 1990’s, largely without the support by official advisory services (Nölting & Boeckmann, 2005). Today, organic farming in this area is expected to be particularly affected by climate change (Bloch et al., 2016). In order to be able to adapt to the changing conditions, regionally adapted problem solving approaches and specific innovations are required. However, in Brandenburg, unlike in other federal states of Germany, neither public advisory services are available nor organic field trials are conducted (Knuth et al., 2013). Farmers are largely left alone with the challenge to develop individual cropping solutions in addition to their daily operative business (Bloch et al., 2016).

One promising approach to address such a situation is a regional farmer’s-advisors-researchers network, based on the concept of Danish “stable schools” (Bringmann et al., 2015). The idea is that farmers jointly determine their specific problems and develop solutions, assisted by advisors or scientist. A network coordinator prepares and facilitates all network activities.

Background

Organic farming places high demands on knowledge and skills. Any impact on the complex agro-ecosystem requires specific knowledge of this system and its laws, even more if less synthetic and chemical aids such as fast acting mineral nitrogen fertilizers or pesticides are used. However, according to Lehmann (2005), most of the knowledge available up to the 1950’s has been lost and recourse of the repertoire of methods and knowledge of pre-industrial agriculture is only possible to a limited extent. In addition to the explicit knowledge, knowledge from practical experience and implicit knowledge play an important role, especially in agriculture. On the other hand, the required and existing knowledge in organic agriculture is so complex that experience alone is no longer sufficient. Accordingly, the amount of scientific literature as well as the range of advisory services, congresses or field days is continuously growing (Lehmann, 2005). According to Thomas, Hoffmann and Gerber (1999 cited in Lehmann, 2005: 23) these comprehensive demands on competences can only

be met by integrating different ways of conveying knowledge. It seems to be that the experiences and learning on the parental farm, farming education and counseling as well as the conversation with each other are most important knowledge transfer system in agriculture learning. Informal meetings between colleagues represent an open space with casual atmosphere, which can be designed individually or group specific (Luley, 1996). Group structures create exchange relationships and thus allow innovative action (Luley, 1996; Luley et al. 2015; Knierim). This is also shown by the “Sector Study on the Investigation of the Innovation System of German Agriculture”, which emphasizes the importance of network management structures in this context (Bokelmann et al., 2012). In order to convey complicated contents, written media may be particularly suitable.

In this paper advisory services is understood according to Albrecht et al. (1987) as a process in which the advisor try to motivate and empower his counseling partner through mental help to take action to solve their current problems. The relationship between advisor and consulting partner should be in a partnership as well as a personal relationship field (e.g. the advisor or scientist and farmer are from the same region) is beneficial for successful counseling or participatory problem-solving approaches (Albrecht, 1987). Advisory services are on the one hand classical individual counseling but there are also a wide variety of group counseling. Participatory problem-solving approaches could be included to an group counseling approach.

Participatory approaches and collaboration between farmers, advisors and scientists are based on the idea that the different knowledge and skills which may complement each other and by this lead to better results (Hoffmann, V. et al., 2007). These approaches have been propagated and utilized for many years. One very common approach is the action research (AR) approach introduced by Lewin (1946). Lewin described action research as proceeding in a spiral of steps. Each step is composed of planning, action, observation and reflection on the result of the action. Hamilton (1995) describe AR as it “...begins with the participating group identifying the research methodology and approach cluster of situations of mutual concern, and agreeing to work together to improve the situation.” From the AR approach, the Participatory Action Research (PAR) approach was derived, with the aim to I) produce knowledge and action directly useful to a group of people and II) empower people at a second and deeper level through the process of constructing and using their own knowledge (Reason, 1994). Reason (1994) suggests that PAR is probably the most widely practiced participative research approach.

A range of studies (Stähli et al., 2004; Hoffmann et al., 2007; Curran, 2014) suggest that participatory collaboration between farmers, advisors or scientist are extremely promising. The exchange of experience between practitioners works very well because of I) exact observation of ongoing processes, II) the choice of an appropriate way to proceed, III) the proper definition of everyone’s role and IV) the inclusion of different conditions (Stähli et al., 2004). The combination of professional knowledge from an advisor or scientist and the experiential knowledge of the farmers are the key to success. However, participatory collaboration is only successful when interested and enthusiastic persons wanted to solve a problem together – it could not be dictated from outside (Stähli et al., 2004). Curran (2014) appointed three Benefits of Farmer Collaboration: I) Social benefits: to share work make the work easier for every farmer, II) Skills benefits: bringing together two or more people with varying skills gives the benefit of having a wider skillset to cover farming or management operations and III) Economic benefits: arise from the ability to in share costs. Social and additional skills also contribute to the economic benefits through better decision making, better work life balance and lower dependency on hired in expertise due to a broader skill set among the partners.

Currently, the body of literature describes two successful participatory approaches to mutual learning, which can empower farmers to make their own management decision (Vaarst et al., 2006): Farmer Field Schools (FFS) and Stable Schools (SS).

Farmer Field Schools (FFS)

The FFS approach is a form of adult education where farmers learn optimally in groups from field observation and experimentation. It was developed by specialists from the Food and Agriculture Organization of the United Nations (FAO) to help small farmers in developing countries to improve their Integrated Pest Management practices. The program was started 1989 in Indonesia and rapidly expanded (CATIE, n.d.). 2004 it was conducted in over 30 countries worldwide (van den Berg, 2004). In regular facilitated meetings (often weekly), groups of neighboring farmers observe and discuss dynamics of their crop's ecosystem. Through simple experimentation the farmers improved their understanding of functional relationships. In this cyclical learning process, farmers develop the expertise that enables them to make their own crop management decisions. Special group activities encourage learning from peers as well as strengthening communication skills, problem solving skills and group building (like collaboration between farmers, farmer – to – farmer extension or formation of networks) (van den Berg, 2004). Over the years new commodities were added and local adaptation and institutionalization of these programs was encouraged (van den Berg, H., 2004; CATIE, n.d.).

Stable Schools

The Stable School concept was developed in 2004-2005 in Denmark by a large group of organic dairy farmers which faced the situation of having the common goal to phase out antibiotics from their herds (Vaarst et al., 2006). 23 farmers signed up to participate in the project and it was decided that the main approach was to design individual farm and herd strategies through a participatory process using farmer groups for mutual advice and common learning (Bennedsgaard et al., 2010). By this the FFS approach was adapted to Danish conditions and named “stable schools” (Vaarst et al., 2006) The farmers formed small learning groups (each group consisting farmers from 5-6 farms) and used an organic dairy husbandry advisor as their process facilitator. The groups met monthly on a private farm of the group members and each farm was visited twice with an interval of approximately six months (Bennedsgaard et al., 2010). The role of the facilitator was: I) to make an agenda for the next meeting together with the host farmer and to send it to all members, II) direct the meeting and help the farmers through the discussions and III) write the minutes to send it to the group members after meeting - he or she did not participate active as an advisor or professional at the meetings (Vaarst et al., 2006). The project showed that the Stable Schools are a successful concept for adult education and advisory services. All participants of the project described the positive side of having been members of groups with mutual trust, respect and openness. The feeling of having equal rights to tell about experiences, give opinions and being able to contribute were also positively stated (Vaarst et al., 2006).

The Danish Stable School concept was tested in Germany from 2010 – 2013 in a pilot project to implement the approach in German organic dairy farms, with the aim to improve animal health and welfare. Since 2014 it is also tested as an advisory tool for goat farming systems in Germany. Experiences from these projects show that participants rated the concept very positively. Farmers particularly liked the familiarity between all participants, the concept of finding practical and individualized solutions together as well as the farm visits and the specific external inputs. The most important reason for the high motivation was the special approach of the Stable School. The dialogue on an equal footing and the regularity of the meetings which produced a positive pressure, made it easy for the practitioners to implement changes in their business (Brinkmann et al, 2013). Nearly 70% of the participants consider the Stable School approach motivating for them to take action in concrete change than conventional advisory services (BLE, n.d.). However, the concept still has not become more common in Germany, which could be related to a lack of training option for the facilitation of stable schools. Therefore, the application currently still depends on the initiative of local consultants. Nevertheless, three Stable School groups already formed outside the pilot projects, one of them by conventional farms. The costs per meeting for each participant are between 50 and 80 euro (BLE, n.d.).

The Cropping School concept

Based on the concept of the “Stable Schools” Eberswalde University for Sustainable Development developed the concept of “Cropping School” (CS). The specific aspects of this concept are presented and compared to FFS and SS in Table 1. It will be tested with farmers from nine different – large scale – organic farms in the north-east of Brandenburg, Germany from 2018-2020.

The main goal of the CS is to test if the concept is useful for arable farming as the “Stable Schools” were only tested and used for livestock farming.

The main objectives are to create a room or to develop farmers learning and to empower farmers to take action for improving their cropping systems and to develop a practice based approach – run by the farmers themselves - as an alternative to advisory services. The common goal of farmers is to improve their cropping systems with regard to their specific climate change challenges. Specific objectives will be defined for each farm by farmers hosting a meeting.

Table 1: Comparison of Farmer Field Schools, Stable Schools and Cropping Schools*

	Farmer Field School	Stable School	Cropping School
Developed for:	<ul style="list-style-type: none"> • small farmers in developing countries • livestock farming and arable farming 	<ul style="list-style-type: none"> • organic farmers in Europe (mostly for farmers from the same association) • livestock farming 	<ul style="list-style-type: none"> • organic farmers in Europe • arable farming
Participants:	<ul style="list-style-type: none"> • farmers • one facilitator 	<ul style="list-style-type: none"> • farmers • one facilitator 	<ul style="list-style-type: none"> • farmers • one facilitator • one professional specialized in the meeting topic
Topics/ problem solving:	<ul style="list-style-type: none"> • improve Integrated Pest Management practices 	<ul style="list-style-type: none"> • to phase out antibiotics from dairy herds • to improve animal health and welfare 	<ul style="list-style-type: none"> • to improve the cropping system with regard to specific climate change challenges • specific problem will be identified by farmers
Main goals of the concept:	<ul style="list-style-type: none"> • farmers learning • enable farmers to make their own decisions 	<ul style="list-style-type: none"> • farmers learning • farmers collaborations to find solutions to phase out antibiotics from dairy herd and to improve animal health 	<ul style="list-style-type: none"> • farmers learning • collaboration between farmers and professionals to find solutions to improve their cropping system • to empower farmers to take action for improving their cropping system • to develop a practice based approach as an alternative to advisory services
Payment:	<ul style="list-style-type: none"> • financed by international donor programs or temporary projects 	<ul style="list-style-type: none"> • financed by temporary projects • first stable schools in Germany financed by farmers (50-80 euro per meeting per 	<ul style="list-style-type: none"> • financed by a pilot project • after the project: the facilitator and external specialist is financed by farmers

		farmer)	
Regularity of meetings:	• weekly	• monthly	<ul style="list-style-type: none"> • regular from March to November • one – two meetings during the winter time

*Other concepts for arable farms based on the Stable School approach in Europe could not be identified via a literature review.

The idea of the CS is to bring regional farmers together. Therefore, other than for SS (see Table 1) the farmers of the CS are not from the same farming association and mostly do not know each other. They only have in common that they all are organic farmers from the same regional setting - the north-east of Brandenburg, Germany – with the same natural and various physical conditions. Therefore, they all encounter similar problems in arable farming. Because mostly these problems are strongly dependent on site conditions; therefore it is necessary to bring farmers together which are working under the same site conditions in the same region. In comparison to SS, the topic or problem to be solved in CS is not determined on one topic, e.g. to phase out antibiotics from dairy herds. The problems will be identified by the farmers themselves at the beginning of each of cultivation year and may vary from crop rotational systems to fertilizer management. In comparison to the SS the group of the CS is not constant in the sense of a small consistent group of farmers; it is open to receive new members.

Like for Stable Schools (see Table 1), the meetings will take place on one of the farms. A facilitator assists the host farmer in agenda setting of the meeting, facilitates the meeting and assures documentations of the meeting for group. In comparison to SS, meetings in CS are supported by a specialized advisor or scientist. This participatory collaboration aims to find specific solutions for farm related problems. As a result, other farmers could conduct an On-Farm Research trial testing a new cropping system approach.

Every farm should host a meeting at least once a year, in order to follow up changes made and impacts achieved in a participatory manner and by this providing learning opportunities for all group members - not only the farmer who took the action. During the pilot project, costs for facilitation and specific external input by advisors or scientists are free of cost for farmers. However, in order to develop a viable CS concept (incl. financing) that may be continued by the farmers in the future, the pilot project will also evaluate the willingness to pay for the CS.

Research question

It is assumed that:

- i) the concept of the SS can also be adopted to arable farming,
- ii) the network structure is more likely to implement recommendations for action by the individual than recommendation for action from individual counseling, field days or journals,
- iii) the basis of a constructive and innovative network or partnerships is to establish a stable relationship between the individuals. Essential factors for such a stable relationship are the creation of a common “language” between farmers, advisors and scientists, permanent meetings, trust, transparency as well as the acceptance and interests between the partners.

The research framework is covered by the following questions:

- i) What specific arable farming problems exist in practice? Which of these are relevant to science or should be conducted in research?
- ii) What is the motivation to participate at CS (farmers, advisors and scientists)? What are the barriers to participate?
- iii) What is the added value (personally, economically) for the individual for himself to participate at CS? How much is he or she willing to pay or perform?
- iv) Does the network structure have a positive influence on the implementation of recommendation for action?

- v) Does the mutual learning have a positive or better effect of knowledge transfer than other methods (e.g. Field days, journals, Internet)?
- vi) How to consider in an equivalent way the knowledge of farmers, advisors and scientist in order to create common approaches to solutions and a new “third knowledge”?

Methods

For confirming or refuting the mentioned hypotheses and for answering the research questions methods from qualitative research are used, of example, written and personal interviews. Furthermore, the results of developed and implemented recommendations for action can be used as an evaluation indicator for the CS.

In general, the project will be based on the action research approach with the model of the problem-solving approach from Albrecht (1987). The Model of the problem-solving approach was adapted to the CS approach and modified (Figure 1).

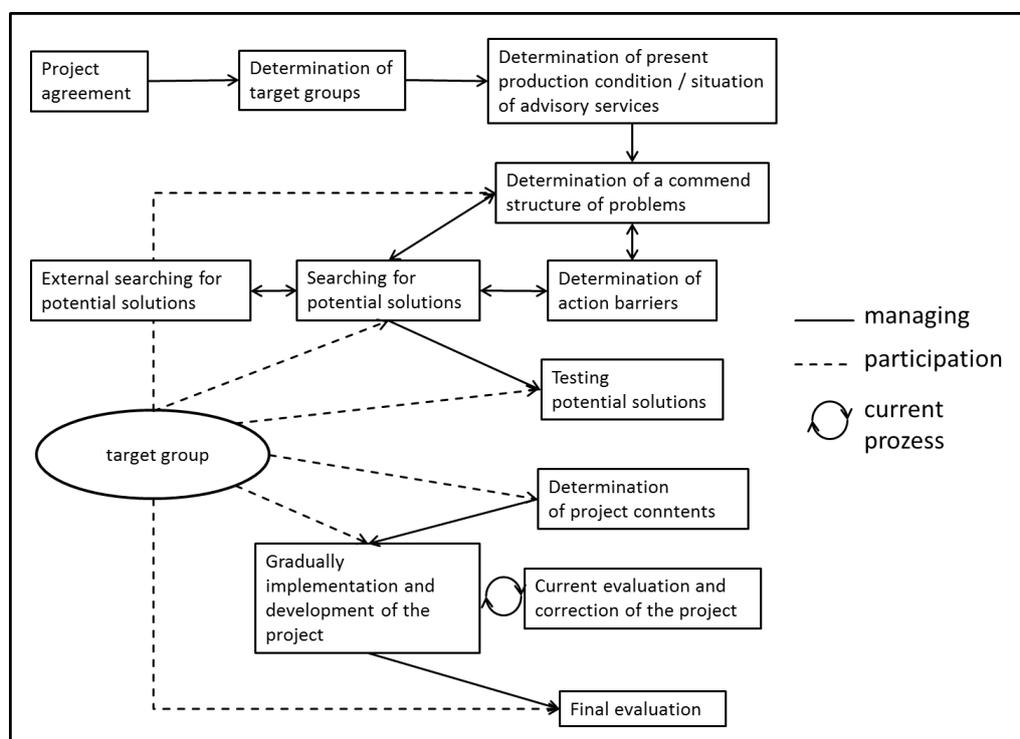


Figure 1: Model of problem-solving approach of Albrecht (1987)

Furthermore, it is based on a step by step project planning and implementation (Figure 3). Thus, enough flexibility for changes that may arise due to new data and facts or new detected problems is guaranteed, without disturbing the project flow. This does not mean that there is no project planning at all, but it makes planning and plan revisions a constant process that accompanies the project. The process of step-by-step planning, implementation and data collection are interlocked that means they run permanently and simultaneously (Albrecht, 1987).

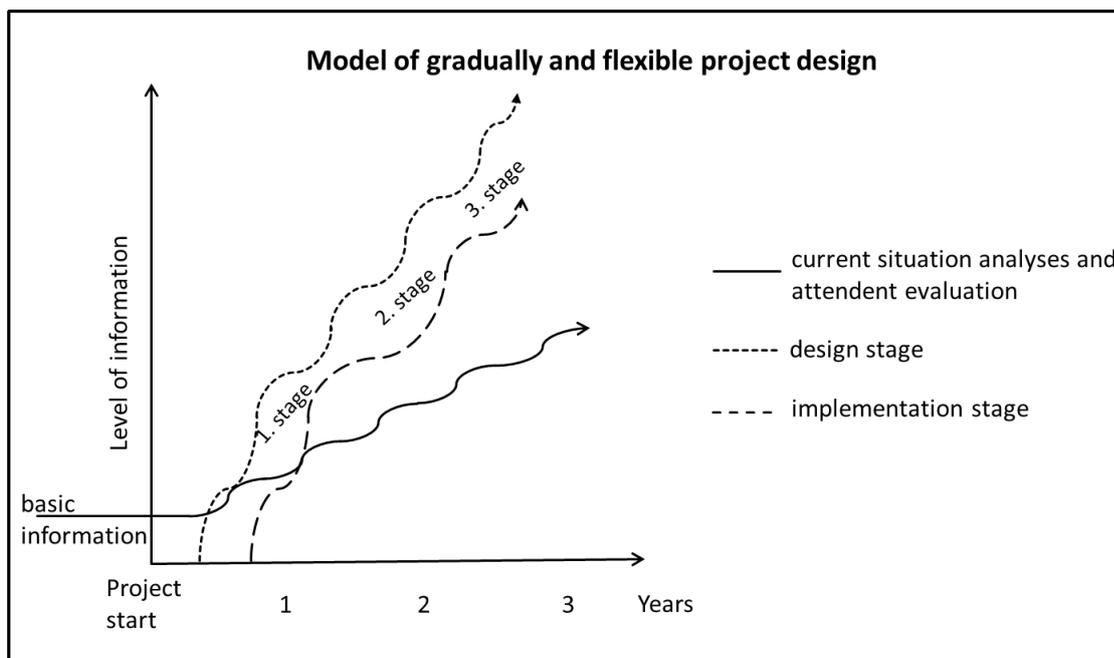


Fig. 2: Model of gradually and flexible project design of Albrecht (1987)

Presently, no results have been produced as the project has begun in March 2018. The following first results of the project will be presented at IFSA 2018:

- i) Motivation and willingness of the farmers to participate in the cropping school.
- ii) Personal contribution of each farmer in the working process.
- iii) Identification of farm-, regional- and cropping system specific problems.
- iv) Identification of first approaches for the working process of the cropping school.

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