



Københavns Universitet

Danish stable schools for experiential common learning in groups of organic dairy farmers

Waarst, M.; Nissen, T.B; Østergaard, I.; Klaas, Ilka Christine; Bennedsgaard, T.W.; Christensen, J.

Published in:
Journal of Dairy Science

DOI:
[10.3168/jds.2006-607](https://doi.org/10.3168/jds.2006-607)

Publication date:
2007

Document version
Publisher's PDF, also known as Version of record

Citation for published version (APA):
Waarst, M., Nissen, T. B., Østergaard, I., Klaas, I. C., Bennedsgaard, T. W., & Christensen, J. (2007). Danish stable schools for experiential common learning in groups of organic dairy farmers. *Journal of Dairy Science*, 90(5), 2543-2554. <https://doi.org/10.3168/jds.2006-607>

Danish Stable Schools for Experiential Common Learning in Groups of Organic Dairy Farmers

M. Vaarst,^{*1,2} T. B. Nissen,[†] S. Østergaard,^{*} I. C. Klaas,[‡] T. W. Bennedsgaard,^{*2} and J. Christensen[§]

^{*}Danish Institute of Agricultural Sciences, P.O. Box 50, DK-8830 Tjele, Denmark

[†]Organic Denmark (The Danish Organisation of Organic Farmers), Frederiksgade 72, DK-8000 Århus, Denmark

[‡]Department of Large Animal Sciences, Section for Production and Health, The Royal Veterinary and Agricultural University, Groennegaardsvej 2, DK-1870 Frederiksberg, Denmark

[§]Organic Dairy Company 'Thise', I/S Ve & Vel, Byrsted, DK-Nibe, Denmark

ABSTRACT

The farmer field school (FFS) is a concept for farmers' learning, knowledge exchange, and empowerment that has been developed and used in developing countries. In Denmark, a research project focusing on explicit non-antibiotic strategies involves farmers who have actively expressed an interest in phasing out antibiotics from their herds through promotion of animal health. One way of reaching this goal was to form participatory focused farmer groups in an FFS approach, which was adapted to Danish conditions and named "stable schools." Four stable schools were established and went through a 1-yr cycle with 2 visits at each of the 5 or 6 farms connected to each group. A facilitator was connected to each group whose role was to write the meeting agenda together with the host farmer, direct the meeting, and write the minutes to send to the group members after the meeting. Through group focus interviews and individual semistructured qualitative interviews of all participants, the approach of the farmers' goal-directed work toward a common goal was judged to be very valuable and fruitful and based on a common learning process. Complex farming situations were the focus of all groups and in this context, problems were identified and solutions proposed based on each farmer's individual goals. In this article, we describe the experiences of 4 stable school groups (each comprising farmers and a facilitator), and the common process of building a concept that is suitable for Danish organic dairy farming.

Key words: organic dairy farming, animal health planning, farmer empowerment, common experiential learning

INTRODUCTION

Organic livestock farming emphasizes health promotion and disease prevention with the goal of minimizing the need for disease treatment, allowing as much natural behavior and natural living for the animals as possible (DARCOF, 2000; Hovi et al., 2004; Verhoog et al., 2004). In European organic livestock farming, antibiotic treatment is allowed but with some restrictions, such as a prolonged withdrawal time for milk and meat. In Denmark, a discussion among organic milk producers was initiated in 2001 around the goal of phasing out antibiotics from organic dairy herds. In 2004, a combined research and development project was initiated to develop strategies and follow the health condition and management of the herds with the explicit aim of phasing out antibiotics (Vaarst, 2006).

The only sustainable way of reducing or eliminating the use of antibiotics and other medical treatments in a given herd is to eliminate the need for treatments through far-reaching health promotion and disease prevention initiatives. Clearly, these initiatives must be based on the conditions on each farm, the goals and priorities of the farmers, and the nature of the problems on the individual farm. Identifying the possibilities and initiating individual strategies on widely differing farms to phase out antibiotics seemed a large and complex task. One way of starting this process is to form smaller groups of farmers who can work together, exchange experience, guide each other, and form a common learning environment.

Different approaches exist to farmer groups worldwide. In Denmark, so-called *erfa*-groups (*erfa* is an abbreviation of *erfaring*, the Danish word for experience) have been widely used for decades for dissemination of new knowledge and ideas to and among farmers, focusing on themes for each meeting such as parasite control, winter feeding strategies, or the use of body condition scores. In East Asia and Africa, so-called farmer field schools (FFS) have been developed (Anonymous, 2003). These are groups for common learning

Received September 18, 2006.

Accepted November 28, 2006.

¹Corresponding author: Mette.Vaarst@agrsci.dk

²Current address: University of Aarhus, Faculty of Agricultural Sciences, P.O. Box 50, DK-8830 Tjele, Denmark.

and development of farming systems for their local conditions, including economic conditions. The FFS are widely used to alleviate poverty and to empower poor farmers through education and common learning. Drawing upon practical experiences with this approach in Uganda (Vaarst et al., accepted) and knowledge of Danish *erfa*-groups, an approach of forming farmer groups was chosen to be the main method to reach the common goal of phasing out antibiotics. These groups were named “stable schools” and were adapted to the identified needs and preconditions to support the farmers in fulfilling their specific goals.

We describe the practical framework of a 1-yr course and the farmers’ evaluation of it, and discuss the relevance of the stable school approach to the overall goal of phasing out antibiotics from organic dairy herds, as well as other approaches to advisory (veterinary) service in relation to the development of the individual farmer and of organic dairy production.

MATERIALS AND METHODS

The Setting: The Change in the Danish Farming Environment

Danish dairy farming has been undergoing a dramatic development during the past few decades. In 1985, 1995, and 2005, the number of farms with dairy cows was, respectively, 31,800, 16,000, and 6,500, with an average herd size of 28, 44, and 86 cows (StatBank Denmark, 2006). Over the same period, the proportion of herds with more than 100 cows has increased from 1% in 1985 to 4% in 1995 and to 38% in 2005 (StatBank Denmark, 2006). In 2003 and 2004, 430 new dairy cattle housing systems were built (Rasmussen, 2005). In 2004, 74% of Danish dairy cows were housed in loose housing systems with an average herd size of 110 cows (Skjøth et al., 2005). High demands are put on the farmers’ skills not only to manage the animals and crops, but also to find their way in a jungle of subsidies, regulations, record keeping, and forms to complete. Most farmers who are still in business can be assumed to be very skilled farmers who are in a favorable economic situation, have a clear attitude about the future for themselves and their farms, and are very busy managing their farms. Through agreements with dairy and other companies, their market situation is usually clear, with a 5-yr guarantee for delivering milk for a certain price. After this time, new negotiations about prices and terms take place.

Project Framework

The project was initiated as an action research project involving the Danish organization of organic farmers

(Organic Denmark), a private dairy company (Thise; at the start of the project owned by 46 organic milk producers), and the Danish Institute of Agricultural Sciences. The aim was to phase out the use of antimicrobial drugs (antibiotics) from organic dairy herds. It was crucial for the project that drugs should be phased out by eliminating the need for disease treatment through minimizing the disease level in the herds. Because the use of antimicrobial drugs varies widely in different herds and is complex, many different approaches can be taken. It was therefore 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.

Selection of Herds, Farmer Groups, and Facilitators

The 46 organic milk producers connected to the Thise dairy company were potential participants. At a meeting for the dairy producers, all producers were asked whether they would be interested in participating. Twenty-two volunteered from the start, and 1 additional farmer was allowed to join the project 4 mo after initiation. During the project, 2 herds went out of milk production. Table 1 presents data on herd size, level of production, SCC, and mastitis treatments. The remaining 23 farmers who did not volunteer to participate were not systematically asked why they declined. However, 6 or 7 of them contacted the project group to say they found initiative interesting but had no time or had participated in previous project activities on other topics (e.g., paratuberculosis) and felt that they could not spare the time that participation would require.

The farmers agreed to give a high priority to keeping driving distances down when forming groups, and when all volunteers had signed up for participation in the project, the chair of the dairy company formed 4 groups based solely on location. In 1 group, 3 of the farms were placed far away from all the others. The longest driving time within this group was approximately 1.5 h between 2 farms. In other groups, the driving time was between 15 and 45 min. It was suggested in the final interviews that the driving time between farms participating in a group should not exceed 45 min.

The facilitator was originally a cattle production advisor in Organic Denmark, and was the project partner in this project. He had undergone a 1-yr program in teaching, learning, and communication before this project, but had no previous practical experience in group facilitation.

Data Collection

The following data were collected. First, individual interviews were conducted with each farmer at the be-

Table 1. Presentation of the 23 different participating herds in the 4 stable school groups (1 through 4)

Herd	Breed ¹	No. of cows in 2004	Milk yield, 2004 (2003) ²	Calculated SCC, 2004 (2003) ³	Housing system, 2004	Mastitis treatment per 100 cow-years, 2004 (2003) ⁴	Other characteristics
Group 1 (March 2004–February 2005)							
A ⁶	DH	82	7,100 (6,400)	393 (339)	Deep litter	12 (13)	Automatic (robotic) milking system
B	Jersey	72	6,900 (7,100)	294 (273)	Deep litter	1 (17)	
C	DH	43	8,100 (8,200)	132 (113)	Tied	23 (52)	
D ⁵	DH	135	7,600 (7,900)	335 (356)	Slatted floor/straw	14 (44)	Heifer hotel ⁶
E	DH	80	7,400 (7,300)	456 (308)	Slatted floor/straw	31 (23)	
F	DH	65	9,000 (8,200)	173 (217)	Slatted floor/mats + sawdust	12 (25)	Automatic (robotic) milking system
Group 2 (March 2004–March 2005)							
G	DH	49	7,500 (6,700)	368 (413)	Tied/deep litter	34 (46)	
H	Jersey	116	7,800 (7,900)	304 (275)	Slatted floor/sawdust	10 (19)	
I	Jersey	51	6,600 (6,300)	232 (189)	Deep litter	14 (6)	
J	Jersey	35	6,900 (6,200)	227 (215)	Deep litter	8 (0)	Outdoor access; seasonal calvings
K	DH	61	8,900 (8,600)	219 (215)	Slatted floor/straw	51 (67)	
Group 3 (March 2004–April 2005)							
L	Cross	153	7,000 (6,900)	325 (209)	Deep litter	4 (10)	Outdoor feeding table with TMR ⁷
M	DH	111	6,900 (6,700)	303 (339)	Deep litter	2 (8)	Outdoor feeding table with TMR
N	Jersey	45	6,300 (5,700)	135 (177)	Deep litter	0 (3)	Outdoor access; suckler aunts; seasonal calvings
O	DH	38	6,100 (6,300)	264 (414)	Deep litter (built new) ⁸	8 (46)	Heifer hotel
P	DH	70	7,900 (7,800)	155 (182)	Slatted floor (built new) ⁸	3 (4)	Outdoor access; suckler aunts; seasonal calvings
W ⁵	DH	58	7,000 (6,800)	248 (263)	Deep litter	11 (12)	Suckler aunts
Group 4 (March 2004–March 2005)							
Q	Jersey	34	5,600 (5,800)	301 (289)	Loose housing	0 (0)	
R	DH	84	7,500 (6,300)	237 (269)	Slatted floor/mats + straw	3 (13)	
S	Jersey	78	6,000 (5,600)	302 (332)	Slatted floor/straw	0 (0)	
T	DH	93	7,700 (6,600)	263 (266)	Deep litter	9 (23)	Heifer hotel
U	Jersey	150	6,800 (6,500)	298 (260)	Deep litter	15 (14)	Herd size +50% during project year
V	Jersey	43	6,800 (6,300)	263 (173)	Deep litter	7 (2)	

¹DH = Danish Holstein-Friesian; Cross = different breeds, including DH and Jersey.²Calculated 305-d production as kilograms of ECM for cows calving in August 2002–July 2003 (2003) and in January 2004–December 2004 (2004). Calculated as described in Bennedsgaard et al. (2003).³Calculated from monthly individual cow SCC, $\times 1,000$ cells/mL.⁴Veterinary treatments with antibiotics.⁵Farmers A and D sold their milk quota during the project period. Farmer A participated in 4 and farmer D in 9 stable school meetings; farmer W entered the project at the fifth meeting in the group.⁶Calves sold/brought up on a collaborating farm at 1 to 4 wk of age and bought/included in the herd before calving.⁷TMR included roughage and concentrate; in some cases, this is combined with feeding of concentrate in the milking parlor.⁸Built new housing system during the project; farm P built a deep litter system and closed the stable with slatted floor.

ginning and the end of the project (the method is described below). Second, group interviews of the 4 stable schools were conducted at the last meeting of each group to evaluate the project and the concept of stable schools. This interview focused on the whole framework of the groups, the meetings, the role of the facilitator, and factors such as the differences among herds and how this had influenced group work and common learning. Finally, the first author of this article participated in one-third of the monthly stable school meetings and had regular discussions and follow-ups with the facilitator of the 4 groups.

The Qualitative Semistructured Interview Approach

The individual qualitative research interview is a research method that aims to explore and describe a spectrum of attitudes and experience within a certain field, rather than presenting a representative sample of opinions or quantifying opinions or experience among a group of people (Strauss and Corbin, 1990; Kvale, 1996). All participating farmers were individually interviewed by means of this method at the beginning and the end of the project. All interviews were performed by the first author and recorded on tape. Each interview lasted 60 to 100 min, preceded by a 30-min walking tour of the farm. The interviews were structured according to several thematic questions. In the last interview (which is focus of this article), the focus was primarily on changes at the farm during the project, including the decisions, process, and perceptions related to these changes. The individual farmer's experience with his or her participation in the stable schools was treated in depth during the interviews. The interviewee was encouraged to speak and direct the course of the interview, and the interviewer followed up on his or her questions, explored apparently self-contradictory statements, asked for examples, and tried to keep to the point and the theme of the interview. A written summary was made and sent to the farmer for confirmation. Quotations of what the farmer said were included in this summary. This approach was chosen to confirm that the interviewer had correctly understood the important messages and conclusions of the farmer regarding his or her experience with the stable schools. A full transcription was difficult to read (because it contained pauses and interruptions) and did not contain any interpretation, unlike the summary, in which some statements were summarized and background for concluding remarks was given, which were also included in the document confirmed by farmers. Overall themes were described across the interviews in an approach modified from Strauss and Corbin (1990).

RESULTS

The Practical Framework of the Meetings

One year's worth of work in the group was required by the project structure. The farmers decided to meet monthly in groups of 5 or 6, based on an estimate of the time they felt that they could spend on meetings. During the 1-yr period they met twice at each farm, with approximately 6 mo between the 2 meetings on the same farm, so that at the second meeting they could see changes and improvements initiated by the host farmer as a result of the first meeting. The farmers agreed on meetings lasting 2.5 to 3 h. During the first meetings, a routine was developed of spending approximately 1 h in the stable and field, and 1.5 to 2 h indoors with discussions around the table, as illustrated in Figure 1. In Figure 2, the practical arrangements of meetings are summarized. This practical framework, as well as the structure of the meetings including the agenda, data from the farm, and the role of the facilitator, was judged appropriate under Danish organic farming conditions, where farmers are usually under time pressure but are generally skilled in looking at data from herds as well as buildings, feed, and animals. Making an agenda gave the farmers in the group an opportunity to be prepared for the next meeting, and stimulated the host farmer for each meeting to think through what actually were the successes and problem areas in the herd on which they would focus.

The Common Goal for Widely Differing Farms

As illustrated in Table 1, the participating farms differed widely regarding the structure of the farming system, the herd size, breed, daily management routines, and goals of the farmer. The group focus interviews revealed a general agreement in all 4 stable schools that the common goal challenged all farmers and made it interesting to work with farms different from one's own. The fact that a goal carried the process should be clearly distinguished from having a theme as the foundation of the group, as expressed by farmer W in the group focus interview:

"I want to emphasize the importance of the fact that this is not a theme, this is a GOAL. That is different. I mean, we have a common goal to phase out antibiotics. ... Not like just discussing 'feeding strategies,' right? ... It is not just discussing how to feed one's cows, but 'how do we work towards this goal?' with all the facets this may have."

A goal can be reached in as many ways as there are participating farms, and demands an analysis of the conditions for each herd, farmer, and farm.



Figure 1. In the stable schools in Denmark, the farmers start with a farm walk, where the group gets an impression of the farm. After this, the farmers sit down and examine the results of the farm in terms of, for example, production, health and disease patterns, feeding plans, and calving patterns and findings in clinical examinations of the animals in the herd.

The Farm's Individual Goals and Focus Areas: Ensuring the Relevance of the Advice Given in Each Group

In the initial phase of each farm meeting, the farmer explained the goals and values of his or her individual farm. It could mean, for example, that they wanted time and resources for a good family life, or that they wanted as much outdoor life for the animals or as extensive a way of farming as was possible under Danish conditions. It could also mean that they did not want to increase the farm size to make things work, or that they wanted to work toward more self-sustainability in terms of feeding and biosecurity on the farm. In the evaluation, this was emphasized as crucial for directing the advice of the fellow farmers to the farmer on the farm, to make it relevant to this particular farm and herd, as articulated by farmer P:

“As far as I remember we all started telling about one’s goals, and then it is a duty for us, who come as visitors to that particular farm, to try and understand those goals. It does not work if you just wear your own glasses and say ‘This way of farming—it

is best that you just close the farm right away,’ but rather to step into this and say that ‘if you have these goals then I can see the following possibility for fulfilling them.’”

The immediate goals could be characterized as identified focus areas, which were also visible in the agenda for the meeting on the host farm. They also were of different types, and in most cases were directly linked to animal health promotion issues, such as “improved somatic cell counts in the herd,” “less lameness,” or “build good outdoor facilities.” In some cases, these were rather broad, as with farmer W, who focused on working routines during the day and during the week to decrease stress, hoping in this way to make better observations of the herd and take better care of individual animals.

One of the participating farmers gave a presentation at the 2006 Danish Organic Congress about her experiences with stable schools. She emphasized the importance of including the individual goals and lives of each participant in combination with the common goals for the stable schools (Olsen, 2006; translated by the first author):

- Five to six farms involved in each stable school group (one or more participants per farm)
- Monthly meetings at participants' farms
- Agenda: Two problem areas and one success case from the farm at each meeting. The farmer chose both the success case and the problem areas with which he wanted to work. At the second meeting at the farm, the success story is replaced by a follow up on what happened with the initiatives started at the first stable school group meeting
- One facilitator with the main role to
 - Identify the topics for the agenda (one success case and two problem areas, which often needed to be specified and described in detail) for the forthcoming meeting with the host farmer and mail it to the group members together with data from the farm
 - Direct the discussion, keep the agenda, and facilitate the discussions at the meeting
 - Write the minutes in a report with conclusions from the meeting
- Two meetings at each farm (in 1 yr)

Figure 2. The practical framework of the meetings in the stable schools, as developed in the project and evaluated to fit the conditions for Danish farmers.

“Our stable school had life as a farmer as a starting point, being organic as a precondition, and phasing out of antibiotics as a goal. The stable schools have clarified in my mind what the problems were on my farm. The mutual trust among the participants made it possible for us to go far with each other and to touch the problem areas that hurt.”

Whether the goals and focus areas had been fulfilled, and with what outcomes, were difficult to evaluate in an unambiguous way after 1 yr. All farmers, without exception, had committed themselves to finding solutions to identified problem areas, and by the second meeting on all farms, new initiatives and improvements had been started. In some herds, the improvements already had measurable effects, such as fewer cases of calf diarrhea or lameness compared with earlier evaluations in the herd.

Learning from the Successful Case of Each Farm

At each meeting, the host farmer was supposed to tell about one area or case of success in the host herd. It could be a type of equipment, such as the water supply for the herd or a new outdoor pathway with a good drainage system, or it could be a management routine that improved the health situation, such as separating the dry cows completely from the lactating herd or attracting the cows to the feed right after milking to avoid their lying down in the litter with their udder and their teat canals still open. This created room for the host farmer to tell about something that had been solved and turned out to be a success in this herd, and not only to focus on the 2 selected problem areas (see Figure 2). The successful cases were very interesting for the

other farmers, because many of them involved innovative, context-related thinking and practice-based trial-and-error stories from which all could learn.

The Feeling of Being Equally Interesting as Group Members from Different Farms

During the evaluation in individual interviews as well as in group interviews, all participants described the positive side of having been members of groups with mutual trust, respect, and openness, and the feeling of having equal rights to tell about experiences, give opinions, and be able to contribute. In some cases, this was contrasted to other experiences the farmers had had, as farmer J explained:

“Here, I compare this group with another erfagroup I once attended. In the other group—maybe more than in this group—I was the one owning the smallest herd, although the difference was not all that big. But there in the other group, I had this feeling that some of the other farmers thought my farm was a ‘nothing’ that could not really contribute to anything. It was too small, and when they were here, it felt as if they immediately stopped looking around and started talking about something completely different. That has not happened in this group—at no point have I had the feeling that what happened here was not fully professional, competent, or interesting, or was something you could not learn from or use for anything.”

Farmers in all groups agreed that the differences among farms in size, breeds, and practices, such as seasonal calving, were an advantage. It was empha-

sized that when it was a matter of reaching a common goal such as the one in this project, all experiences were relevant.

The Role of the Facilitator

The role of the facilitator developed into 3 main well-defined tasks: 1) to make an agenda for the next meeting in collaboration with the farmer and send it out to all group members together with key figures from the herd; 2) to help the group through the discussions and direct the meeting to keep to the schedule; and 3) to write a report, including the decisions made, after the meeting.

In this project, 1 facilitator was involved in all 4 groups. His way of managing the role was generally very well received by all participants, and it was emphasized that it was a big advantage that he was a facilitator and did not take the role of an “expert.” In one group focus interview, a farmer raised the question of whether the facilitator should have been more “aggressive” and asked more critical questions, acting more like an animal health professional. In the individual interviews afterwards, all farmers except this one said that what they would want and expect from a facilitator was exactly what they had experienced in practice in these groups, namely a person who guides the process and the discussions and allows the farmers be active, critical, and advising colleagues. Based on this, we concluded that the development of the facilitator role had taken an appropriate direction through the process and had been shown, in practice, to work well. The learning experience of being a facilitator was profound with respect to shifting from the role of an advisor (who felt responsible for having an answer to all possible questions and being able to teach farmers about correct management routines, for example) to the role of a facilitator (who concentrated on guiding and keeping the focus on a process and a dialogue among group participants).

Animal Health Professionals Do Not Take a Whole-Farm Approach

In the individual and the group focus interviews, it was emphasized that the whole farm was in focus, instead of a more narrow focus on feeding or milking, for example. Furthermore, the focus was on health promotion and disease prevention rather than disease treatment. In one group focus interview, the farmers’ experiences with animal health professionals (particularly veterinarians) were contrasted with the focus area in this project, as illustrated in the dialogue given in Figure 3.

The groups had a common goal—phasing out antibiotics from organic herds—but it seemed as if no animal

health professional was willing or knowledgeable about this, as stated by farmer S, for example:

“Well, taking the issues of penicillin and phasing out, there are no professionals who tell us what to do, right? Only in our own daily practice can we develop how things should be, and there we have only our own experiences and attitudes. Maybe the things that one person does cannot work on anybody else’s farm.”

Group Support to Nontraditional Disease-Handling Approaches

In all groups, farmers had found support to try things that, according to their own statements, they might not have tried if other farmers had not convinced them. In all groups, some practices were spread among all or almost all farmers in the group, such as a certain type of ventilator in the milking parlor to minimize the number of flies in the summer; using TMR; building outdoor feeding tables; and taking samples of the drinking water to test the quality, and improving the hygiene if necessary. In stable school group 4, one of the farmers had not used veterinary medical treatment for approximately 15 yr, primarily through creating a robust herd with great emphasis on the health of the animals, but also through untraditional approaches, such as extra milking-out by hand in case of mastitis and making his own oat soup for calves with diarrhea. This farmer was given a central position in discussions about different approaches to disease prevention and treatment at the meetings of this group. In the final evaluation, the other farmers in this group pointed to the fact that this farmer had been a driving force for everyone when exploring possibilities for alternative disease handling methods, based on the argument that “if he can do it, so can we.”

Mutual Trust and Insight into Other Farms

The whole concept that was developed in this process was based on farmer groups meeting on private farms, where the outcome of the process, the dialogue, and the success of the meetings were based on access and openness of each farmer toward the whole group. Data from each farm were sent to the whole group before the meeting, and the colleagues’ analysis of the herd situation and later the advice about improvements was dependent on the farmer not trying to hide anything and being able to enter into an honest dialogue, where his own shortcuts, and in some cases inappropriate routines, to achieve and maintain good animal health and welfare were exposed to the other farmers in the group. This open-minded approach clearly demands a high level of motivation. The success of this process perceived

Farmer F: *Well, vets do not really know about farming. They repair the tip of the iceberg. But 90% is under the water, and that is where the rest of us operate. Every time things go wrong and become visible, the vet will come with his syringes.*

Farmer E: *The veterinarian comes here so rarely that he does not really know much about what we are actually doing.*

Farmer B: *And the vets – I really don't know, but it is as though they do not take things as seriously as one does oneself.*

Farmer E: *No, definitely not. I do not feel that I can have a serious talk with my vet. ... The ones I use – and I know you use the same vets – their attitude to organic farming, goodness me! And it has not changed over the years.*

Farmer B: *Our vet says that he is allowed to give us everything* and it is our own problem if we are not allowed to use it. They do not get into the legislation at all.*

Farmer E: *No, they pay no respect to the organic legislation or anything ...*

Figure 3. A conversation between 3 participating farmers about their collaboration with their local practicing veterinarians. *The farmer refers to veterinary medical products. In Denmark, veterinarians are allowed to give all types of medicine to the farmers including the organic farmers. According to the regulation on organic farming, the farmers are not allowed to use all these products. Thus, it is the responsibility of the farmer to check what he or she receives. Some veterinarians are aware of this and include it in their advice.

by the farmers is clearly linked to the open-minded and trustful attitude in the groups. The existence of this mutual trust is because farmers participated solely out of their own motivation to make an effort to improve their farms and to participate in a group process.

Group Life in the Stable Schools

There were no systematic, recognizable differences in the perception of the project, the stable schools, or the value of the participatory group approach among the 4 groups, as expressed in both the individual and the group focus interviews. The ways of communicating and the mutual respect within the group were prominent in all 4 groups. However, each group seemed to develop characteristics from which it could be distinguished from the other 3 groups. For example, in one group's meeting, there usually were 2 participants from 5 of the 6 participating farms, either a husband and wife (from 3 farms) or 2 men who ran the farm together (from 2 farms). In the 3 other groups, only one male owner of the farm normally participated. Sometimes, the wife at the host farm participated in these groups. Moreover, in 1 group, 1 of the farmers had not used antibiotics for 15 yr. There was a tendency for the farmers in this group to develop a more radical phasing-out policy than in the other groups. In another group, 2 farmers were eager to stop using antibiotics in cases of chronic mastitis, which influenced the group toward a less radical policy. In addition, the groups differed slightly with regard to how easily they broke the speaking order when not strictly guided by the facilitator. Generally, the farmers rapidly went into a certain well-

disciplined way of communicating around the table, but in the case of issues in which they all had experiences or opinions (such as drying-off routines), they could start a more anarchistic discussion. Finally, all 4 groups were officially closed after 2 rounds of visits to each farm, and all 4 groups chose to continue on their own initiative, but with 4 to 6 annual meetings instead of monthly meetings.

DISCUSSION

The Practical Framework of the Meetings

The conduct of meetings obviously fit well into the Danish context as described above as part of the setting. The FFS are often based on weekly meetings lasting 4 to 6 h. In the Danish stable schools, the farmers would not be able, nor would find it relevant, to spend so much time on these meetings. With many farmers in developing countries not professionally educated as farmers, the FFS approach in some ways seems to replace an education, whereas the Danish approach is used in a very different context. When using the stable school approach with the aim of improving daily practice and routines, it is appropriate to have a lot of time between the meetings, because the experience of implementing and seeing the effects of change needs time. The common learning is improved in this way. When implementing concepts like FFS under completely different conditions, we conclude that it is crucial to analyze the conditions and context into which the approach fits and then base the newly developed version of the concept on this analysis.

The Common Learning Process in Stable Schools Compared with FFS Principles of Learning

The common learning process and the equality among participants of a group are characteristics of the original FFS concept (Anonymous, 2003), and served as the main source of inspiration for the stable schools. Khisa (2003) describes an FFS in general terms as “a platform and ‘school without walls’ for improving decision making capacity of farming communities and stimulating local innovation for sustainable agriculture,” and quotes one of the leading advocates for FFS, Kevin Gallagher, as saying that “the farmer field school is not about technology, it is about people development.”

In the stable schools, a significant learning process took place as expressed by the participants in the individual and group focus interviews, and as reflected in the technical results from the farms, where great changes and improvements regarding animal health were demonstrated (Klaas, 2006; Klaas et al., 2006; Vaarst, 2006). The question is what made this learning process happen in 4 groups of widely different farmers from different herds and farms. The 5 key principles of the FFS concept as described by Khisa (2003) are as follows (the authors’ comments regarding the Danish stable schools are in brackets):

1. What is relevant and meaningful is described by the learner and must be discovered by the learner. [The members of a stable school decide what to focus on in their own farms and the group builds its learning and experience on this.]
2. Learning is a consequence of experience. [Common experience was built up in the group in terms of sharing insights into each other’s farms and following the development after initiation of new routines and improvements.]
3. Cooperative approaches are enabling. As people invest in collaborative group approaches, they develop a better sense of their own worth. [Many FFS involve forming a formal farmer organization or association involving money, which was not regarded as relevant in Denmark.]
4. Learning is an evolutionary process and is characterized by free and open communication, confrontation, acceptance, respect, and the right to make mistakes. [A respectful and open dialogue was achieved in the groups, partially because of the facilitator.]
5. Each person’s experience of reality is unique. As they become more aware of how they learn and solve problems, they can refine and modify their own styles of learning and action.

Each individual’s personal driving force for learning must not be underestimated. Boud et al. (1985) emphasize the emotional element in the learning: “In particular we give much greater emphasis to the affective aspects of learning, the opportunities these provide for enhancing in reflection and the barriers which these pose to it.” They partly relate the feelings on the personal level to the reflection created by the learners themselves rather than to activities planned by others.

Situated Learning on Different Levels in Danish Stable Schools

The common goal is closely linked to the common learning process. When working with a common goal in different farm contexts, all movement toward this common goal is relevant for all participants. This goal can be met in many different ways, and it should always be met in a way that fits well into the local goals and reality of each individual herd. There, a consciousness about and respect for the local circumstances and farmers’ priorities and goals are necessary.

The ideas of situated learning are crucial here, where the common learning process is embedded in a social, cultural, and personal context, that is, in the local environment of each farm (Lave and Wenger, 1991). Therefore, learning in groups is an important process when seen from a community perspective, where the structures (e.g., the roles of farmers and advisors) are reproduced hand-in-hand with new ideas, or changed.

Empowerment in the Context of Danish Stable Schools

A learning process leading to empowerment of farmers on a personal as well as the community and society level will have a great impact on the farmers’ attitudes and practices; this was also reflected in the results from the herds (Klaas et al., 2006). Yet in the Danish setting, empowerment understood as “enabling people to take control over their own life situations” may need to be understood in a different context from where it is normally used. The photograph in Figure 1 demonstrates competent and skilled farmers around a table at a group meeting, interpreting data, and analyzing the farm situation based on their own observations and data.

The aim of the Danish stable school groups was to support farmers in improving the health status in their herd and to enable them to phase out antibiotics. Nevertheless, there are several ways to reach this goal, and farmers improved their skills and insight in the general management of their own herds. The sociocultural part of the process may be closely linked to empowerment of the farmers in a broader understanding. “Empow-

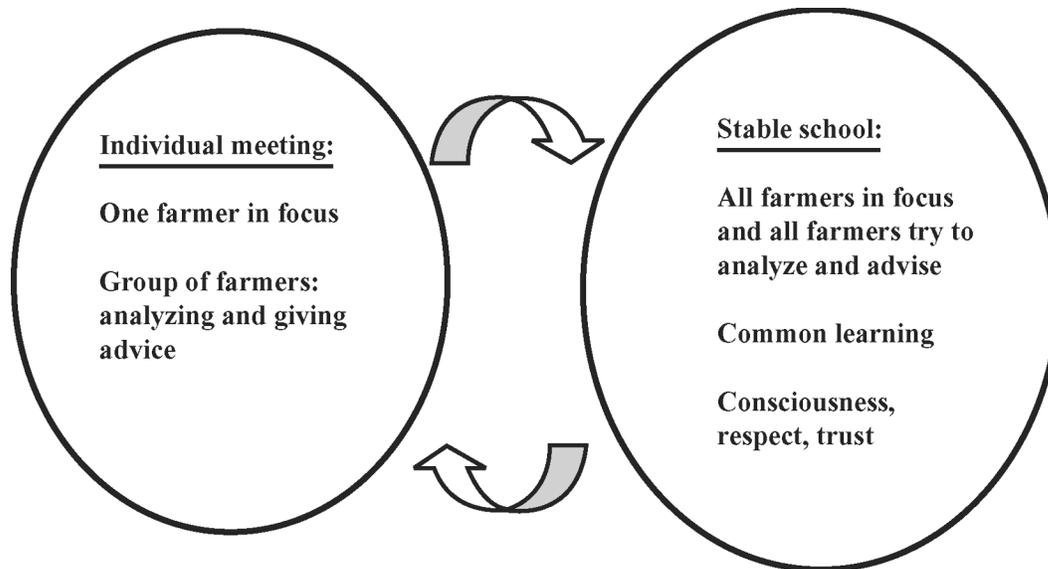


Figure 4. The challenging process of 2 meetings on each participant's farm over a 1-yr period, where the relationship at each individual meeting is asymmetric, because one farmer is in focus and the others give input. However, everybody in the group goes through the whole process trying both roles, which creates the common learning environment.

erment" is normally related to the situation of "powerlessness;" for example, often addressing certain underprivileged or marginalized groups in society with regard to race or gender issues, with the aim of empowering them to take control over their own lives. In this study the participants were not generally powerless, and empowerment in this context is understood rather as a continuous development on the human and community level, where farmers take responsibility for, and control of, their own situation as core elements of the common learning processes.

The Learning Situation at Each Meeting and in the Group

When looking only at what happens during one meeting, it can seem like an asymmetric relationship within the group, with one person being advised by a whole group. However, all participants in the group in turn are in the same situation and participate under the same conditions: they and their farms are exposed, analyzed, and given advice, and each participant visits all other farms with the purpose of contributing their own advice and experience.

In Figure 4, the learning process is illustrated as a challenging contrast between the individual meetings, where one farmer is in focus during a whole session, with 2 meetings at each farm. The farmers are learning together from the process and from the improvements on all farms.

Stable Schools Contrasted to Animal Health Professionals and Advisory Services

During the final interviews, the stable schools were contrasted to the ordinary advisory service, and in particular the veterinary service. Veterinarians are normally very involved in a dairy farm, because only veterinarians are allowed to treat with antibiotics on an organic farm. In these groups, a common learning process happened that included equality among group members. This is in contrast to the relationship between farmers and animal health professionals (in this case the veterinarian), which can be described as an asymmetric power relationship in terms of a meeting between an educated animal health professional and a farmer. In contrast to the situation illustrated in Figure 4, the asymmetry is permanent, and the farmer is supposed to be the one learning from the professional. The expected outcome of an advisory service dialogue is improvements at the farm based on inputs from the animal health professional, who can (but need not) remain unchanged. In contrast, the farmer is expected to change his or her attitude, knowledge base, and practice.

Many similarities can be found between this relationship and the relationship between a medical doctor and a human patient. The work of Bourdieu (1990) focusing on symbolic violence can help to understand this asymmetric power relationship. According to Bourdieu, the professional will dominate the nonprofessional through

the authority of his own profession and the common expectations regarding his knowledge and skills as a professional, which are superior to those of the nonprofessional (in this case the farmer). Symbolic violence may affect both the daily communication as well as the overall collaboration between veterinarians and farmer communities, which was obvious from the conversation in Figure 3. These farmers seem to reject the veterinarian and the knowledge that could be obtained from him or her for several reasons, according to their perception:

- 1) The veterinarian does not respect the goals of the farmer, one of which is being organic.
- 2) The veterinarian focuses more specifically on animal diseases, rather than on the whole farm and, for example, the farmer's general working situation and priorities, which may influence the animal health situation.
- 3) The asymmetric power relationship seems to be recognized and identified, partly through experiencing the dialogue and the feeling of equality in these stable schools.

There are 2 different types of veterinary services on a farm, namely the herd health approach and the individual animal approach. A veterinarian who is interested in herd health and organic farming is a relevant potential partner for the farmer. But farmers in the stable schools did not think of their veterinarians as relevant partners in herd health improvements. They felt that their veterinarians did not support them in being organic farmers and in developing daily practices that were more in accordance with organic livestock production. In this light, the veterinarian did not seem to possess the type of knowledge that they needed, namely knowledge encompassing the whole farm and involving more aspects of animal health and welfare.

This does not imply that the veterinarians in these cases do not possess high-level professional knowledge when dealing with diseases and disease treatments of the individual animal or the whole herd. According to Bourdieu (1990), knowledge is almost exclusively rhetoric and capital and, as such, is primarily used to maintain an asymmetric power relationship. Thinking of the veterinarian's knowledge only in this way, one may ignore the fact that the veterinarians potentially do possess knowledge that the farmers lack and can benefit from. The farmers may acknowledge this when they have a diseased animal, but because they do not want to find themselves nor their animals in situations where this particular knowledge is needed, they do not value the knowledge of the veterinarian. At the same time, they want an animal health professional who can guide them toward a better herd situation. Therefore,

even though the veterinarian can help to develop knowledge about diseases and disease control, it seems that this was not the type of knowledge that the farmers wanted to focus on in these groups.

The increased focus on improving animal health in the stable school groups through changed farm practices may lead to an increased wish to involve animal health professionals in general farm improvements, taking as the starting point their own goals and a goal such as the one in this project of phasing out antibiotics. If the veterinarians do not respond to this request to involve the whole farm in their analyses and advice by keeping the local farm goals in mind or by being relevant partners in a sparring or learning process, the stable school process may lead to structural changes in the relations between the veterinarians and farmers.

Such a development is highly dependent on both sides' attitudes, and whether they can handle a change in focus and mode of dialogue. The empowerment of the farmer may lead to the conclusion that the farmer can do the animal health planning without the veterinarian, who does not seem to respond in the right way to the goals and wishes of the farmer. But it can also take another direction, namely to empower the farmer to articulate his or her expectations to the veterinarian in a more concise and precise way in future communications, which could empower the veterinarian by giving him or her the opportunity to respond to these expectations and live up to the needs expressed by the farmer.

CONCLUSIONS

The farmers participating in this project expressed the view that the stable school process had been valuable and had led to concrete improvements in their herds.

The common goal of a stable school is of crucial importance. The farms, herds, and farmers in the same stable school can very well be different from each other, as long as the farmers work toward the common goal and combine the common goal with the local goal of each farm. The farmers own the common experience-based learning process, and the participation and the process in the stable schools must be completely driven by the farmers' own motivation. Prerequisites for a profound, well-prepared, and meaningful dialogue in a stable school group are the willingness among all members to let others gain insight into their farm, an agenda directed by the host farmer, and equality among group members in the sense that all experiences and opinions are perceived as equally valid. The facilitator has a role of guiding the process and the meetings, and in doing the practical work. The fact that the facilitator was not

given a role as the expert was crucial for the success of the process.

The interplay between the apparently asymmetric relationship at individual meetings (one farmer and farm being in focus for analysis and advice from the whole group) and the whole process, where all farmers take both roles, will create a challenging learning situation in the whole group.

The future concept of stable schools in a Danish context will be a 1-yr process for farmer groups working with learning, advising, and knowledge exchange. After this year, which includes 2 meetings at each farm, it is up to the group whether to continue, maybe in another way, such as taking other approaches to the learning situations, involving veterinarians (provided they are able to work at the herd-health level, respect the individual farmer's goals, and understand the principles of organic farming), or to dissolve the group.

ACKNOWLEDGMENTS

The farmers participating in the project are gratefully acknowledged for carrying the process with such an open-minded attitude and enthusiasm throughout the project, and the great hospitality and communication. Our colleague, Willie Lockeretz (Tufts University, Boston, MA), is gratefully acknowledged for valuable suggestions to improvements of an earlier version of this manuscript.

REFERENCES

- Anonymous. 2003. Farmer Field Schools. The Kenyan Experience. Report of the Farmer Field School stakeholders' forum, Int. Livest. Res. Inst., Nairobi, Kenya.
- Bennedsgaard, T. W., S. M. Thamsborg, M. Vaarst, and C. Enevoldsen. 2003. Eleven years of organic milk production in Denmark: Herd health and production in relation to time of conversion and compared to conventional production. *Livest. Prod. Sci.* 80:121–131.
- Boud, D., R. Keogh, and D. Walker. 1985. Promoting reflection in learning: A model. Pages 18–40 in *Reflection: Turning Experience into Learning*. D. Boud, R. Keogh, and D. Walker, ed. Kogan Page Ltd., London, UK.
- Bourdieu, P. 1990. In *Other Words. Essays Towards a Reflexive Sociology*. Polity Press, Cambridge, UK.
- DARCOF. 2000. Principles of organic farming. Discussion document prepared for the DARCOF Users Committee. Danish Research Centre for Organic Farming (DARCOF), Tjele, Denmark.
- Hovi, M., D. Gray, M. Vaarst, A. Striezel, M. Walkenhorst, and S. Roderick. 2004. Promoting Health and Welfare through Planning. Pages 253–278 in *Animal Health and Welfare in Organic Agriculture*. M. Vaarst, S. Roderick, V. Lund, and W. Lockeretz, ed. CABI Publishing, Wallingford, UK.
- Khisa, G. S. 2003. Overview over the Farmer Field School approach. Pages 3–10 in *Farmer Field Schools. The Kenyan Experience*. Report of the Farmer Field School stakeholders' forum, Int. Livest. Res. Inst., Nairobi, Kenya.
- Klaas, I. 2006. Development and application of systematic clinical udder examinations as supplementary tool in udder health assessment. PhD Diss. Department of Large Animal Sciences, The Royal Veterinary and Agricultural University, Denmark, and Department of Animal Health, Welfare and Nutrition, Danish Institute of Agricultural Sciences, Research Centre Foulum, Denmark.
- Klaas, I., M. Vaarst, T. W. Bennedsgaard, and S. Østergaard. 2006. Udfasning af antibiotika i danske besætninger—resultater fra Thise projektet [Phasing out antibiotics from Danish herds—results from the Thise-project]. Pages 114–115 in *Proc. Danish Organic Congr. 2006*, Odense, Denmark. Danish Research Centre for Organic Farming, Tjele, Denmark.
- Kvale, S. 1996. *Interviews. An Introduction to Qualitative Research. Interviewing*. Sage Publications, Thousand Oaks, CA.
- Lave, J., and E. Wenger. 1991. *Situated learning: Legitimate peripheral participation*. Cambridge University Press, Cambridge, UK.
- Olsen, A. B. 2006. Mine erfaringer med staldskoler og udfasning af antibiotika. [My experiences with Stable Schools and phasing out antibiotics]. Pages 116–117 in *Proc. Danish Organic Congr. 2006*, Odense, Denmark. Danish Research Centre for Organic Farming, Tjele, Denmark.
- Rasmussen, J. B. 2005. Færre end 200 nye kvægstalde i 2004 [Less than 200 new cattle housing systems in 2004]. *Info- Byggeri og Teknik*. Nr. 1409. http://www.lr.dk/bygningerogmaskiner/informationsserier/info-byggeriogteknik-gratis/1409_jbr.htm Accessed Oct. 18, 2006.
- Skjøth, F., A. M. Keldsen, and M. Trinderup. 2005. Landbrugsinfo—kvæg—tal om kvæg [Farming Information > Cattle > Figures]. <http://www.lr.dk/applikationer/kate/viskategori.asp?ID=ka004000080001401> Accessed Oct. 18, 2006.
- StatBank Denmark. 2006. Detailed statistical information on the Danish society. <http://www.statbank.dk/statbank5a/default.asp?w=1280> Accessed Oct. 18, 2006.
- Strauss, A., and J. Corbin. 1990. *Basics of Qualitative Research. Grounded Theory Procedures and Techniques*. Sage Publications, Thousand Oaks, CA.
- Vaarst, M. 2006. Farmer stable schools: A fruitful way for Danish organic dairy farmers with the goal to phase out antibiotics from their herds. Pages 64–68 in *Changing European farming systems for a better future. New visions for rural areas*. H. Langeveld and N. Röling, ed. Wageningen Academic Publishers, Wageningen, the Netherlands.
- Vaarst, M., D. K. Byarugaba, J. Nakavuma, and C. Laker. Participatory livestock farmer training for improvement of animal health in rural and peri-urban smallholder dairy herds in Jinja, Uganda. *Trop. Anim. Health prod.* (accepted)
- Verhoog, H., V. Lund, and H. F. Alrøe. 2004. Animal Welfare, Ethics and Organic Farming. Pages 73–94 in *Animal Health and Welfare in Organic Agriculture*. M. Vaarst, S. Roderick, V. Lund, and W. Lockeretz, ed. CABI Publishing, Wallingford, UK.