

## Farmers taking responsibility for herd health development – Stable Schools as a tool for dairy health and welfare planning in Europe

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### Abstract

*Achieving and maintaining a high herd health and welfare status is an important aim in organic livestock farming. The varying farming systems across and within countries call for models that are relevant for different farming types and that can be integrated into local practice. In stable schools, farmers take responsibility for health and welfare planning by identifying issues, setting goals, and acting to improve the health situation based on farm-specific data e.g. milk production. This paper reviews the results from intervention studies that used the "farmer field school" approach for animal health and welfare planning, providing an overview of on-going activities and their implementation into advisory situations in selected European countries. Research studies with stable schools as an intervention tool showed improvements regarding the specific project aim on the majority of the participating farms. Farmers and facilitators were convinced of the approach and benefits for dairy herds. Farmers' attitude and attention towards their herds and their ownership of the process appear to be crucial success factors for herd health and welfare situations. In some European countries this method has been implemented in advisory practice and in other regions there are promising opportunities.*

### Background

Achieving and maintaining a high herd health and welfare status is an important aim in organic livestock farming. Continuous development is needed within the farm to reach this goal. The different conditions between countries call for models that are relevant for different farming types that can be integrated into local practice (Vaarst et al., 2011b). Beside environment and herd conditions, farmers themselves play a critical role. Several studies have shown the impact of farmers' attitude towards their animals, their goals and motivation in relation to productivity, health and welfare (e.g. Breuer et al., 2000; Waiblinger et al., 2002) and the success of interventions (Ivemeyer et al., 2008). Farmers themselves emphasize the importance of observing, monitoring, and handling of animals (Dockès & Kling-Eveillard, 2006). However, increasing herd sizes and economic pressure across Europe increase the challenges to these skills and there is a demand for tools that help farmers to deal with these.

A set of common principles for active animal health and welfare planning in organic dairy farming have been developed within the ANIPLAN project group of seven European countries (Vaarst & Roderick, 2008). A central principle is that health and welfare planning is a farmer-owned process of continuous development and improvement which may be achieved in many different ways, but common features are that the process needs to be farm-specific, allow for the involvement of external person(s) and knowledge, be based on organic principles (where relevant), be written, and acknowledge good aspects in addition to targeting the problem areas in order to stimulate the learning process (Vaarst et al., 2010). The farmer field school (FFS) concept for farmers' learning, knowledge exchange, and empowerment that has been developed and used in developing countries (Sones, 2003) is relevant to these requirements. This approach has been modified in Denmark to support farmers in achieving specific health and welfare goals (especially avoiding use of antibiotics; Vaarst et al., 2007). This 'Stable School' approach has now been used in several European countries. The development of FFS to Danish stable schools is a form of knowledge transfer from less economically developed areas of the world to those with more developed economies. In FFSs, farmers take responsibility for health and welfare planning by identifying issues, setting goals and acting to improve the health situation based on farm-specific data e.g. milk production. Stable schools are led by an external person taking on the role of facilitation, providing and pre-processing available farm data but not giving specific advice apart from when requested by participating farmers (Vaarst et al., 2011a). Stable schools incorporate health promotion and disease handling, based on a strategy of risk assessment forming the basis for evaluation, action and review (Vaarst et al., 2010). Using scientifically sound health and welfare

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indicators as a basis for farmer-to-farmer-advice provides the possibility to bridge the gap between scientific knowledge and farm practice.

This paper reviews the results from intervention studies that used the FFS approach for animal health and welfare planning, providing an overview of on-going activities and their implementation into advisory situations in selected European countries.

## Material and methods

European research activities involving stable schools have been reviewed and information about on-going advisory activities were collated.

## Results

A summary of on-going and completed research and advisory activities using stable schools for dairy herd health and welfare improvement in several European countries is given in Table 1.

**Table 1: Research and advisory activities with stable schools in different European countries**

CC	finished and on-going research studies (duration)	n farms	on-going advisory activities (duration)	n farms
AT	spin-off from ANIPLAN <sup>a</sup> (2009-2010)	6	Kuhpraktiker <sup>b</sup> (2010-2012; 65 fac. trained)	5
	reduction of concentrate input <sup>c</sup> (2009-2013)	10	1 active stable school	
CH	ANIPLAN <sup>d</sup> (2008-2010)	13	-	
DE	Stable Schools <sup>e</sup> (2010-2013)	20	-	
DK	Danish Stable Schools <sup>f</sup> (2004-2005)	23	as 1 of 2 options for 'obligatory animal health advisory service' (since 2010)	NA
	ANIPLAN <sup>d</sup> (2008-2010)	9		
NL	Networkgroups <sup>g</sup> (2008-2012)	~100	2 active groups	20
NO			Norwegian health service for dairy cattle <sup>h</sup> (since 2009, 34 fac. trained for cattle)	~ 60
UK	ANIPLAN <sup>d</sup> (2008-2010)	9	ANIPLAN group facilitated by DairyCo and new group started	> 9
	The Soil Association's Farmer Field Labs <sup>i</sup> (since 2012)	NA		

CC= country code; fac. = facilitators; NA= not available; <sup>a</sup> Cimer et al., 2011a; <sup>b</sup> [http://www.bio-austria.at/biobauern/termine/ausbildung\\_zum\\_kuhpraktiker](http://www.bio-austria.at/biobauern/termine/ausbildung_zum_kuhpraktiker); <sup>c</sup> Steinwider et al., 2013; <sup>d</sup> Ivemeyer et al., 2012; <sup>e</sup> Brinkmann et al., 2012; <sup>f</sup> Vaarst et al., 2007; Bennedsgaard et al., 2010; <sup>g</sup> not exact FFS, but farmers advising each other, occasionally with input of experts; <sup>h</sup> <http://storfelhelse.tine.no/8747.cms>; <sup>i</sup> <http://www.soilassociation.org/innovativefarming/duchyoriginalsfuturefarmingprogramme/antibioticuse>

### *Evaluation of effectiveness of stable schools aiming at herd health and welfare*

During the original Danish Stable School study aiming at minimizing antibiotic use in 23 organic dairy herds, mastitis treatments decreased from 20 to 10 treatments per 100 cow years. Somatic cell count (SCC) and scores for acute and chronic intramammary infections remained unchanged. Milk yield (MY) of participating stable school farms increased at the same rate as comparable herds not involved in the FFS process. In conclusion, farmers participating in stable schools reduced antimicrobial use without apparent negative effects on production and udder and herd health (Bennedsgaard et al., 2010).

Within the ANIPLAN project in seven European countries, stable schools were adopted for animal health and welfare planning in 27 out of 128 farms (21%). Although there was no significant effect of planning approach (stable school vs. one-to-one advice), the total number of veterinary treatments as well as the number of udder and metabolic treatments, respectively, was significantly reduced during the one year study period. With the exception of somatic cell score, which improved significantly, other parameters such as calving interval and indicators for metabolic imbalances remained stable. MY and average lactation number also remained unchanged (Ivemeyer et al., 2012).

As a spin-off from ANIPLAN, a pilot Stable School was initiated in Austria on six farms resulting in improvements in SCC and energy supply of the dairy cows in the first 100 days in milk (DIM). MY increased on average by 500 kg per herd within one year (Cimer et al., 2011a).

In a German pilot study on the implementation of stable schools in 20 organic dairy farms, the average herd size increased significantly, whilst MY and herd age did not change over the three year project. In all nine farms measures to improve udder health were implemented as recommended by farmer colleagues within the stable school, SCS improved significantly whilst treatment incidence for mastitis and antibiotic drying-off stayed unchanged. Concurrently, there was a significant improvement in the percentage of cows with a fat-protein-ratio  $\geq 1.5$  in the first 100 DIM on these farms (March et al. 2014, OWC).

In the Netherlands, network groups were formed, with four focussing on limiting antibiotic use, one group focussing on strategic choices and one group on intuitive farming. Farmers shared knowledge and benchmarking of data triggered some farmers to achieve very low antibiotic use.

#### *Farmers' and advisors' opinions on stable schools*

Within some of the above mentioned studies, farmers and facilitators were asked how they perceived the process of stable schools and to identify the key aspects for future adoption. Most farmers were of the view that the animal health and welfare planning process was valuable for their farms and had led to sound improvements in their herds (Vaarst et al., 2007; Cimer et al., 2011a; Leeb et al., 2011). Farmers had the opinion that this method should be continued in local advisory structures or farmer group. They gave statements such as 'the project helped us to understand our own influence on the cows and how we can be better animal caretakers' (DK) and 'this method is a link between research and practise' (CH) (Leeb et al., 2011). Participants in the German pilot study expressed a positive attitude towards the tool; they appreciated the joint search for effective and feasible measures and evaluated the self-determined approach in the stable school as highly motivating. Accordingly, the compliance regarding implementation was very high. Of all recommendations given by the group members, more than two thirds had been implemented within the project period, either completely or partly (Brinkmann et al., 2012).

From the facilitators' point of view, the importance was identified of farmers taking the lead in the process, deciding who is involved and who takes responsibility for changes, and thereby taking ownership of the process. Whilst this may require help to organize the process, only the farmer participants can actually carry out changes in practice. However, in North-Western European farming bureaucracy has increased, along with economic pressure and expectations from different stakeholders which may constrain farmers' motivation to take part in such processes. Increasingly larger farms and herds may have more people involved in herd management (e.g. DE, UK and DK), which may create conflict and thereby underlining the importance of involving all relevant persons and ensuring knowledge exchange among farm employees and not just those participating in a FFS (Vaarst et al., 2011a). According to attendees of facilitator trainings in Austria (38 trainees), special attention should be paid to short travel times for participants and support by the facilitator to encourage implementation of additional stable schools (Cimer, 2011b).

#### *On-going activities regarding farmer field schools*

Within the Norwegian health service for dairy cattle, 24 advisors have been trained facilitation (plus a further twenty two involved in sheep farming), with further training planned. Precise data on farms participating in stable schools are not readily available, but there are an estimated 60 farms involved. Stable schools in Norway are not restricted to organic farms, with most participating farms being non-organic. In Austria 65 facilitators were trained in the five day 'Kuhpraktiker' courses, consisting of animal- based assessment, herd health planning and on-farm stable school-training on farm. One stable school was established originating from course participants. In the UK, the dairy industry's levy body, DairyCo, have shown an interest in rolling out the FFS concept to its various discussion groups and has continued to facilitate the original ANIPLAN group of farmers plus an additional stable school focussed on voluntary milking systems. Although not specifically concerned with animal health and welfare, the Soil Association has developed an adapted form of the FFS into Farmer Field Labs, which supports facilitated farmer research initiatives concerned with agro-ecological methods. In Denmark, since 2010, Stable Schools have become one of two options that could be chosen by organic dairy farmer with more than 100 cows as an 'obligatory animal health advisory service' before being allowed to store veterinary medicines on farm.

## **Conclusion**

Research studies with stable schools as an intervention tool showed improvements regarding the specific project aim on the majority of the participating farms. Farmers and facilitators were convinced of the approach and benefits for dairy herds. Farmers' attitude and attention towards their herds and their ownership of the process appear to be crucial success factors for herd health and welfare situations. In some

European countries this method has been implemented in advisory practice and in other regions there are promising opportunities.

## References

- Bennedsgaard, T.W., Klaas, I.C., Vaarst, M., 2010. Reducing use of antimicrobials - Experiences from an intervention study in organic dairy herds in Denmark. *Livest Sci* 131 (2), 183–192.
- Breuer, K., Hemsworth, P.H., Barnett, J.L., Matthews, L.R., Coleman, G.J., 2000. Behavioural response to humans and the productivity of commercial dairy cows. *Appl Anim Behav Sci* 66 (4), 273–288.
- Brinkmann, J., March, S., Winckler, C., 2012: 'Stable schools' to promote animal health in organic dairy farming – first results of a pilot study in Germany. 2nd IFOAM International Conf. on Organic Animal Husbandry, 12.-14.09.2012, Hamburg, Germany. Agriculture and Forestry Research, Special Issue No 362, 128-131.
- Cimer, K., Gratzer, E., Leeb, C.W.C., 2011a. Von der Schule im Stall. *Bio Austria* (4), 12–13.
- Cimer, K., 2011b. Ein Beitrag zur Evaluierung der Ausbildung zum/zur Kuhpraktiker/in. Bachelorarbeit. Hochschule für Agrar- und Umweltpädagogik, Wien, 52 pp.
- Dockès, A.C., Kling-Eveillard, F., 2006. Farmers' and advisers' representations of animals and animal welfare. *Livest. Sci.* 103 (3), 243–249.
- Ivemeyer, S., Maeschli, A., Walkenhorst, M., Klocke, P., Heil, F., Oser, S., Notz, C., 2008. [Effects of a two-year dairy herd health management programme on udder health, use of antibiotics and longevity]. *Schweiz Arch Tierheilkd* 150 (10), 499–505.
- Ivemeyer, S., Smolders, G., Brinkmann, J., Gratzer, E., Hansen, B., Henriksen, B.I.F., Huber, J., Leeb, C., March, S., Mejdell, C., Nicholas, P., Roderick, S., Stöger, E., Vaarst, M., Whistance, L.K., Winckler, C., Walkenhorst, M., 2012. Impact of animal health and welfare planning on medicine use, herd health and production in European organic dairy farms. *Livest Sci* 145 (1–3), 63–72.
- Leeb, C., Gratzer, E., Huber, J., Stöger, E., Winckler, C., Brinkmann, J., March, S., Walkenhorst, M., Ivemeyer, S., Smolders, G., Mejdell, C., Henriksen, B.I.F., Hansen, B., Whistance, L., Vaarst, M., 2011. Farmer opinion on the process of health and welfare planning in Austria, Denmark, Germany, Norway and Switzerland, 80–88.
- Sones, K.R., Duveskog, D., Minjauw, B. (Ed.), 2003. Farmer Field Schools: the Kenyan experience: Report of the Farmer Field School stakeholders' forum held 27th March 2003. FAO/KARI/ILRI, Nairobi, Kenya, 65 pp.
- Steinwider, A., Starz, W., Gotthardt, A., Pfister, R., Rohrer, H., Danner, M., Schröcker, R., Rudlstorfer, S., Schmied, V., 2013. Strategien zur Reduktion des Kraftfuttereinsatzes in Bio-Milchviehbetrieben im Berggebiet Österreichs. final project report, LFZ Raumberg-Gumpenstein, Austria, 40 pp.
- Vaarst, M., Gratzer, E., Walkenhorst, M., Ivemeyer, S., Brinkmann, J., March, S., Whistance, L.K., Smolders, G., Stöger, E., Huber, J., Leeb, C., Roderick, S., Winckler, C., Henriksen B.I.F., Nicholas, P., Hansen, B., Mejdell, C.M. 2010. Farmer groups for animal health and welfare planning in European organic dairy herds. In: Darnhofer I. and M. Grötzer M.: Building sustainable rural futures, Proc. of 9th Europ. IFSA Symp, 4.-7.7.2010, Vienna, Austria, 683-691.
- Vaarst, M., Nissen, T.B., Ostergaard, S., Klaas, I.C., Bennedsgaard, T.W., Christensen, J., 2007. Danish stable schools for experiential common learning in groups of organic dairy farmers. *J Dairy Sci* 90 (5), 2543–2554.
- Vaarst, M., Roderick, S. (Eds.), 2008. Planning for better animal health and welfare. Core Organic, Aarhus and Cornwall.
- Vaarst, M., Roderick, S., Smolders, G., Leeb, C., Walkenhorst, M., Winckler, C., Gratzer, E., Stöger, E., Whistance, L., Brinkmann, J., March, S., Ivemeyer, S., Mejdell, C., Henriksen, B.I.F., Nicholas, P., 2011a. The dialogue with farmers, 64–79. <http://orprints.org/18406/>.
- Vaarst, M., Winckler, C., Roderick, S., Smolders, G., Ivemeyer, S., Brinkmann, J., Mejdell, C.M., Whistance, L.K., Nicholas, P., Walkenhorst, M., Leeb, C., March, S., Henriksen, B.I., Stöger, E., Gratzer, E., Hansen, B., Huber, J., 2011b. Animal health and welfare planning in organic dairy cattle farms. *Open Vet Journal* 5 (Suppl 1: M5), 19–25.
- Waiblinger, S., Menke, C., Coleman, G., 2002. The Relationship Between Attitudes, Personal Characteristics and Behaviour of Stockpeople and Subsequent Behaviour and Production of Dairy Cows. *Appl Anim Behav Sci* 79 (3), 195–219.