

# Dairy health in German organic farming – an intervention study on lameness and the implementation of herd health plans

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**Abstract - A pilot study carried out in 2002/2003 (50 farms) revealed that production diseases such as mastitis, lameness and metabolic disorders play a considerable role in German organic dairy farming. In a follow-up project, an intervention study on lameness is currently being carried out in 43 cubicle housed Holstein Friesian herds. Farms are monitored at 3-months intervals for two years. The average baseline lameness prevalence was 26%. Preliminary findings suggest a beneficial effect of access to pasture during summer and improvements due to intervention measures (housing, management) taken in approximately half of the farms. In a third step, herd health plans with regard to mastitis, lameness, metabolic disorders, reproductive disorders and calf diseases will be implemented on the project farms integrating farmers, veterinary practitioners and advisors.<sup>1</sup>**

## INTRODUCTION

A pilot study carried out in 2002/2003 (50 farms) revealed that production diseases such as mastitis, lameness and metabolic disorders play a considerable role in German organic dairy farming (Winckler & Brinkmann, 2004; Brinkmann & Winckler, 2005). Mastitis treatment incidence ranged between 0 and 101 % (mean 33 %). There was no obvious effect of several preventive measures such as post-milking teat disinfection on mastitis incidence. Automatic stimulation pre-milking apparently reduced mastitis incidence in the respective farms.

The average lameness prevalence was 18 % (2 – 53 %) with herds housed in cubicles showing significantly more lameness (20 %, 4 – 53 %) than herds on straw yard systems (10 %, 2 – 19 %;  $p < 0.01$ , Mann-Whitney-U). Furthermore, housing and management factors such as comfort of the lying place had significant effects on lameness prevalence.

The incidence of metabolic disorders showed a high level of variation. Milk fever incidence ranged between 0 and 25 % (mean 5,9 %). Treatments of

clinical ketosis (0 – 12 %), acidosis (0 – 11 %) and displacement of the abomasum (0 – 2 %) were less frequent and seemed to be only of relevance on single farms.

## ANIMALS AND METHODS

In a follow-up project, an intervention study on lameness is currently being carried out in 43 cubicle housed Holstein Friesian herds (table 1).

**Table 1.** Milk yield and herd size of the 43 project farms.

	Milk yield (kg/cow*a)	Fat (%)	Protein (%)	Herd size (cows/herd)
Mean	6952	4.25	3.26	70
Min	3898	3.89	2.32	34
Max	9492	4.69	3.57	170

Since the winter housing period 2004/2005, farms are monitored at 3-months intervals for two years. In each farm, the locomotion of all cows is scored using a 5-point system (Winckler & Willen, 2001; table 2). Cows with a locomotion score  $\geq 3$  are considered clinically lame.

**Table 2.** Lameness scoring system (Winckler & Willen).

Score	Criteria
1	Normal gait
2	Uneven gait (stiff, very careful)
3	Short striding gait with one limb (even if just noticeable)
4	Short striding gait with more than one limb or strong reluctance to bear weight on one limb
5	Does not support on one limb or strong reluctance to put weight on limb in two or more limbs, holding a limb up whenever possible

Milk production parameters, design criteria (space allowance, dimensions, softness of the stall surface etc.) and management parameters (health and feeding management etc.) are also recorded using questionnaires and checklists.

Lameness problems were identified on the basis of the initial data collection. Following a weakpoint analysis, goals and intervention measures (housing, management) were defined in approximately half of the farms involving the farmers.

Farms are monitored at 3-months intervals in order to be able to control the effectiveness of the intervention measures.

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## PRELIMINARY RESULTS

The average baseline lameness prevalence was 26% and ranged from 2 to 50%. Preliminary findings suggest a beneficial effect of access to pasture during summer and improvements due to intervention measures (housing, management) taken in approximately half of the farms (table 3).

**Table 3.** Average lameness prevalence in the 43 project farms at the first three visits.

	Clinically lame (%)	Moderately/severely lame (%)
Visit 1 (baseline)	26 (2 – 50)	12 (0 – 38)
Visit 2 (pasture)	19 (3 – 46)	8 (0 – 30)
Visit 3 (intervention)	17 (0 – 56)	8 (0 – 38)

Intervention farms showed a greater improvement in lameness prevalence compared with the baseline (visit 1) at both the second and third visit than control farms (table 4).

**Table 4.** Relative lameness prevalence (%) compared with the baseline (visit 1 = 100) in the 43 project farms.

	Intervention farms (n = 16)	Control farms (n = 27)
Visit 2	71 (sd 36)	102 (sd 127)
Visit 3	60 (sd 39)	91 (sd 94)

However, the identification of clinically lame cows by the farmers improved (table 5).

**Table 5.** Pearson correlation coefficients between the 'self-assessment' of lameness prevalence by the farmers and gait scoring results in the 43 project farms.

	Clinically lame (%)
Visit 1	0.59**
Visit 2	0.63**
Visit 3	0.76**

\*\* p<.01

## DISCUSSION

In conclusion, the preliminary results of our study demonstrate that lameness plays a considerable role in organic dairy farming in Germany.

Whereas access to pasture during summer has a beneficial effect, intervention measures in housing and management seem to be important. The lying surface and walking areas are have been selected as starting points for improving the lameness situation in organic dairy farming.

In the next step, herd health plans with regard to mastitis, lameness, metabolic disorders, reproductive disorders and calf diseases will be implemented on the project farms integrating farmers, veterinary practitioners and advisors.

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