

THE EFFECT OF A NEW STYLE TRAINING PROGRAM FOR FARMERS ON PIG HEALTH AND PERFORMANCE

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SUMMARY

To achieve more consciousness at pig farmers about their influence on disease prevention and the immune response of their pigs, farmers took part in a new style training program. Pig farmers indicated that their consciousness about their influence on disease prevention and the immune response was improved. The farmers who participated in the training program undertook significantly more improvements than farmers from the control group. The majority of the trained farmers indicated that the improvements were effective. On average the pigs of the trained farmers had a significant better gut health compared to the pigs of the control group.

Keywords: knowledge transfer, management, physiological parameters, pig health, farm performance

OBJECTIVE

The immune response of pigs is complex. Literature shows that management measures taken by the farmer may improve the immune response and therefore prevent diseases (Boersma et al., 2005). A training program should give farmers more insight in the immune response of the pig and in disease prevention. But knowledge transfer is just not enough, newly gained knowledge should also be taken over by the farmers. We tested the effect of a new style training program on a physiological parameter for the immune response, on a parameter for gut health, on pig performance and on the number of improvements taken by the farmer.

METHODS AND MATERIAL

In 2005 and 2006, 35 Dutch pig farmers with multiplication and fattening units took part in the project. To achieve an effect of a training program, knowledge transfer is just not enough. Newly gained knowledge should be taken over by the farmers, to achieve a real effect. Therefore 18 farmers (test group) took part in three meetings. The first meeting consisted of knowledge transfer and farmers discussing their own farms with other farmers at seven themes to achieve more insight in the factors to be optimized at their own farm. Hereby it became evident for the farmers what to improve. The second meeting farmers were focused to achieve insight in ways to improve their farm by discussing their problem together with colleague farmers, veterinarians and researchers on animal husbandry. At the third meeting a plan of action was made with set deadlines. Farmers had to carry out the improvements from the plan of action for a least half a

year. The meetings took place during the months September until December 2005. 18 farmers belonging to the control group did not take part in the training program. The farmers were randomly assigned to the test group or the control group.

Two physiological parameters for pig health were measured both at the beginning and at the end of the trial period of one year: percentage of lymphocytes and I-FABP (Intestinal Fatty Acid Binding Protein). The percentage of lymphocytes indicates the disease resistance in general or the state of health at a certain moment. I-FABP can be measured in blood when leakage of the intestine is present for example due to stress or changes in feed (Niewold et al., 2004). For these parameters blood samples were taken from 30 fattening pigs of 50 kg on each farm. The difference in increase or decrease of both parameters between the test and control group was analyzed with a linear regression model (Genstat8, 2005). The tests were performed excluding farms on which the breeding strategy was changed. Farm performance, an evaluation of the training program and the number of improvements taken by the farmer were achieved by means of a questionnaire. Farm performance was measured every three months as average daily gain (ADG) and as feed conversion ratio (FC). A regression model was used to test significance of the differences in the development of these two parameters. The difference on the number of improvements taken by the farmers during the trial period was tested with a generalized linear regression model.

RESULTS

The farmers from the test group indicated that they achieved more insight in the points of action to improve the immune response of their pigs and prevent diseases as a result of the meetings (Figure 1).

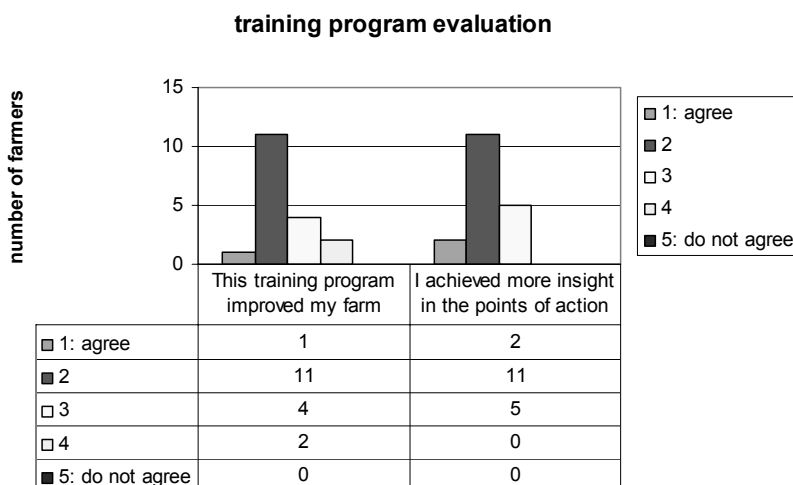


Figure 1. Farm evaluation

No significant difference has been found between the two groups for the percentage of plasma lymphocytes (table 1). Maybe the number of viruses and bacteria at the farms did not change within trial period, yet.

Table 1. Mean percentage of lymphocytes (excluding farms with change in breeding strategy)

	Test Group (n=9)	Control group (n= 13)
2005	61.55	60.87
2006	62.02	61.73
Change during 1 year	+0.47	+0.86

The average I-FABP level of the pigs on the test farms was lower for farms in the test group compared to farms in the control group. This indicates that on average the pigs from farms in the test group have a better gut health (table 2).

Table 2. Median of the category I-FABP>40 (excl. farms with change in breeding strategy)

	Test group (n=9)	Control group (n=13)
2005	110%	100%
2006	139%	173%
Development during 1 year	+28% (*)	+73%

*: significance: P-value<0.10 (P=0.055)

Note: When analyzed with the 75%-quartiel of I-FABP : P-values<0.05

ADG and FC were significant better for the test group during the first three months after the last meeting (P< 0.001). However, the difference between the two groups diminished 6 months after the last meeting (table 3). The difference between the two groups during the first months after the meetings might be a result of intense attention on the subject. A few months after the meetings it might be that the attention of the farmer diminished and therefore the difference diminished.

Table 3. ADG and FC for the test and control group during four periods of three months

Period	ADG (n=17)		FC (n=17)	
	Control (n=8)	Test (n=9)	Control (n=8)	Test (n=9)
Month 9–12 2005	0	0	0	0
Month 1–3 2006	0	30.2(*)	0	-0.24(*)
Month 4–6 2006	0	14.9	0	-0.18
Month 7–9 2006	0	0	0	0.06
Significance (Treatment x Period)	P= 0.18		P<0.001	

* : significance: P-value<0.05

The average number of improvements was significantly higher at farms of the test group. The training program led to a better consciousness to the different themes on disease prevention and the immune response of their pigs. Table 4 shows the number of improvements per theme.

Table 4. Average number of improvements per farm per theme

Theme	Control Group (n=17)	Test Group (n=16)
Average number of improvements per farm	7.4	16.4*
Improvements per theme		
Others (farm size, breed etc.)	0.3	0.5 n.s.
Pig management	1.7	4.1*
Feed and water	1.4	3.6*
Climate	1.1	2.1 n.s.
Pathogen burden/ hygiene/ vaccination	2.2	4.4*
Care of sow and piglet	0.8	1.1 n.s.

* : significance: $P < 0.001$; n.s.= not significant ($p > 0.05$)

CONCLUSION

This new style training program for farmers raised more consciousness about their influence on the immune response and disease prevention. Therefore farmers applied more improvements on their farms which resulted in a better gut health. However the effects of the meetings on ADG and on FC were only seen a few months after the meetings.

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