

The effect of the application of mono-lauric acid with glycerol monolaurate 90

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The Dutch government has asked the pig industry to reduce the use of antimicrobials at farm level by 50% by 2013. The search for alternatives for antimicrobials and other tools which can improve the health status of the farm has intensified.

One example of an alternative for antimicrobials is Daafit, a combination of lauric acid and glycerol monolaurate 90, produced by the firm Daavision BV.

Daafit is used by the Lintjeshof veterinary practice to increase the health of pigs, specifically weaned piglets, at a dose of 1 kg per ton of dry feed. The weaned piglets are supplemented with this additive during the entire weaning period (7-25 kg body weight).

Data analysis

Lintjeshof compiled a dataset with the DD/AY (daily dose per animal year) of 33 test farms which used the additive Daafit and 29 control farms which did not use the product. Data analysis by Lintjeshof showed that the DD/AY of antimicrobials on sow farms who used Daafit was lower when this product was used compared to other sow farms within the practice.

To investigate whether this effect was statistically significant, the Animal Health Service was asked to analyse this dataset. The change in the DD/AY from the period before and during the use of Daafit was calculated for both test and control farms (delta-DD/AY).

The dataset showed a significant difference between the delta-DD/AY for the sow farms that used Daafit in the weaned piglet feed in comparison with farms where Daafit was not used. The DD/AY was reduced by approximately eight days

	N	Mean	Median	Minimum	Maximum	SD
Test herds						
DD/AY before	33	34.3	31.0	2.6	118.5	24.6
DD/AY after	33	24.4	23.4	1.5	84.8	19.3
Delta-DD/AY	33	9.8	8.2	34.1	11.0	10.6
Control herds						
DD/AY before	29	41.8	28.0	2.9	210.8	42.8
DD/AY after	29	39.9	27.8	2.8	198.0	38.8
Delta-DD/AY	29	1.9	1.7	45.3	39.2	18.5

Table 1. Descriptive statistics of DD/AY before and during use of Daafit and delta-DD/AY for test and control farms.

on the test farms, while the DD/AY on the control farms remained the same.

These results indicate that Daafit might help reduce the use of antimicrobials in sow herds.

Search for alternatives

This obligation to reduce the use of antimicrobials has triggered an increasing interest in alternatives for antimicrobials such as mono-laurate. Monolaurate is a medium chain fatty acid with antimicrobial properties against a wide range of microbes.

Daafit is a mixture of lauric acid and glycerol monolaurate 90. This product is used in a dose of 1 kg product per 1000 kg of compound feed in weaned piglets.

The aim of this additive is to reduce the number of bacteria circulating among these weaned piglets, especially *Streptococcus suis*.

As a result of a lower number of circulating bacteria fewer treatments with antimicrobials are necessary, resulting in a smaller number of daily doses per animal year (DD/AY) per herd.

Material and methods

Lintjeshof compiled a dataset where the DD/AY of 33 test farms and 29 control farms was calculated.

The DD/AY was calculated according to the guideline given by the Veterinary Pharmacy of the Faculty of Veterinary Medicine at Utrecht University as described in the MARAN report 2009.

The DD/AY was calculated for the category sows during the period that Daafit was being supplied and a period before that had the same length. The period during which the supplement was added varied from 4-6 months.

The DD/AY was calculated with the help of a calculating module developed by the Agricultural Economic Institute (LEI), based on the rules of the pharmacy from the Faculty of Veterinary Medicine.

The dataset supplied to the Animal Health Service contained the following fields: farm identification, number of sows, piglets, gilts and fattening pigs, whether there was vaccination or not against PCV2, PRRS, *Mycoplasma hyopneumoniae* or with an autogenous vaccine against *Streptococcus suis* and also the DD/AY in the period before and during the use of Daafit.

The change in DD/AY was calculated by subtracting the DD/AY before from the DD/AY during.

A reduction in DD/AY would show as a negative value.

Results

Overall, the control farms had more sows than the test farms. The median for the test farms was 440 sows and for the control farms 685 sows.

This difference is statistically significant. The DD/AY of the periods before the use of Daafit in the test and control farms were comparable (see Table 1).

This method of data-analysis in which antimicrobial use in the peri-

ods before and during the application of a certain product in test and control farms are being compared with one another, can only be seen as an indication of the efficacy of this product.

In the test design and the statistical analysis we did not correct for the many factors which might have an influence on the change of DD/AY for example herd size.

Also, the test design was not randomised and blind so a 'placebo effect' can not be ruled out in this study.

This is why a definite conclusion on the causality between the use of Daafit and the improvement of the DD/AY based on these data is not possible.

However, these data show that the effect of Daafit on the reduction of DD/AY in the test herds can not be ruled out and that Daafit might help in the reduction of the use of antimicrobials on sow farms.

Conclusion

The data show a significant reduction in the use of antimicrobials (daily dosage per animal year) in the herd category sows in the period before and during the use of Daafit in the feed of the weaned piglets, in comparison with farms where Daafit was not used where this reduction did not occur.

The daily dose per animal year was reduced by approximately eight days in the test herds. ■

References are available from the author on request