

How nutrition can offer a successful demedication strategy

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Demedication is quite a complex topic and involves many parts and partners of the farm. What is the real meaning of this word? First of all, it depends on the country and its regulation: demedication does not have the same meaning in Europe, in Asia or in Brazil for example.

It also depends on the people who are speaking about demedication: it is not always the same approach for a farmer, a premixer, a nutritionist or a veterinarian. But, in all cases, a demedication approach is motivated by the need to decrease the use of antibiotics and thus to limit the development of antibiotic resistance, both for animal and human health.

To succeed in decreasing the use of antibiotics, you need to have the right partners around you and to define the right objectives to be achieved. There is not only one way to remove antibiotics and each point of your farm must be checked.

Achieving demedication

Of course, you first need to check the biosecurity rules. If these are not perfect, or almost, you have no chance in succeeding with demedication. Farm management, environment control, vaccines strategy, adequate feeding and water are some examples of the essential checklist.

This global view of your practices is the first step of the demedication approach and nutrition can only help you as a second step.

Among nutrition topics, feed additives



could offer a helping hand to remove antibiotics but they cannot replace every wrong practice or formula!

However, they could be a significant part of a global approach and play a key role in a well conducted demedication approach.

Role of feed additives

To remove antibiotic growth promoters (AGPs) and replace them with a feed additive is probably the easiest way to 'demedicate' efficiently.

Indeed, as antibiotics are used under the minimal inhibitory concentration, they cannot claim a direct antimicrobial effect. This under-dosage of active molecule is also responsible for resistance development because bacteria are able to adapt themselves to these low concentrations.

Due to the ban of AGPs since 2006, European countries and some others are ahead in this field of alternatives and have experienced many efficient and cost effective solutions with a different mode of action. But, before testing all the alternatives available on the market, you need to evaluate them properly. A scientific tool of evaluation for a feed additive is Rosen's screen. It can help you to make the right choice of feed additive, one that has been tested to be efficient and reliable in many different situations.

To replace curative antibiotics is a harder challenge for farmers and their partners because of the risk you can take in terms of hygiene status and profitability. Again, it is really important to evaluate the feed additive you are able to use before removing antibiotics.

Some combinations of feed additives can be more efficient in some cases because of their complementary modes of action.

Successful examples

Neovia is a pioneer in this demedication approach through feed additives, used alone or in combination. This expertise and experience has been possible because of many

Continued on page 13

Table 1. Protocol of the R&D trial.

	Pre-starter 20-43 days of age	Starter 44-69 days of age
A Negative control	Standard feed	Standard feed
B Positive control	A + colistin 120ppm + chlortetracycline 800ppm	A
C Neovia feed additives	A + B-Safe + Powerjet	A + B-Safe + Powerjet

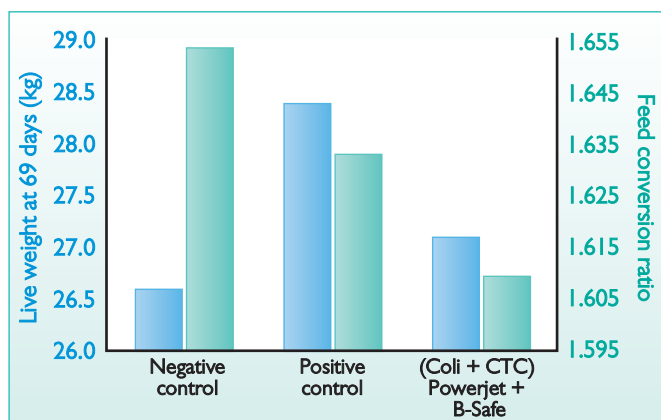


Fig. 1. Zootechnical results.

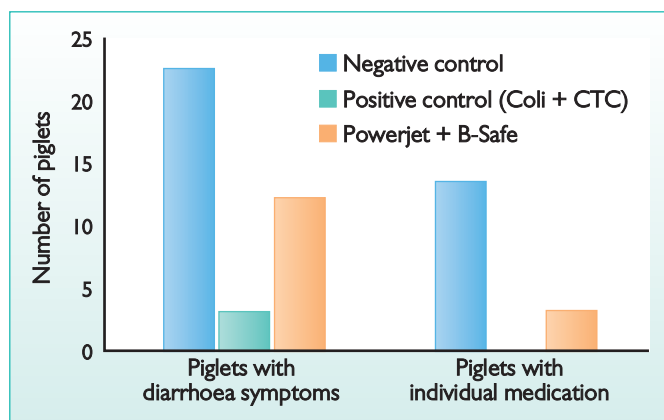


Fig. 2. Hygiene status of the piglets (48 piglets per group).

Continued from page 11
years of research. The first step of the project was to evaluate a combination of two feed additives in the R&D centre with hygiene challenging conditions (Table 1).

Thus a trial was conducted on 144 piglets post-weaning and a hygiene challenge was applied to mimic field conditions: density was increased by 50%, the floor was dirty and the temperature just after weaning was lower than recommended.

The objective of these conditions was to provoke digestive disorders and then to evaluate the feed additives compared to antibiotics. Two feed additives were tested in combination in this trial:

- B-Safe, an activated copper linked to synthetic clay, is used as a gut flora modulator and is mainly used as a growth promoter feed additive.

- Powerjet is a patented combination of plant extracts selected for their anti-inflammatory and anti-oxidant properties. These properties are important to calm down

inflammatory processes due to physiological changes (weaning, farrowing, etc).

The zootechnical results of this trial are presented in Fig. 1. The heaviest weight was obtained in the positive control group and the feed additives combination enabled intermediate results. In terms of feed conversion ratio (FCR), the best result was obtained with the feed additives combination. Globally, zootechnical results with feed additives combination are as good as those obtained with antibiotics used in a curative way.

The hygiene status was evaluated in this trial in terms of number of piglets with diarrhoea symptoms and the number of piglets treated individually.

The results are presented in Fig. 2 and show that the combination of feed additives obtained intermediate results for these two criteria. The hygiene status of the piglets was significantly improved by the use of feed additives but some piglets needed individual medication.

This first step was important before testing

the combination in field conditions in order to propose the right protocol to the farmer.

The second trial was conducted in field conditions on a French farm and the same combination of the two previous feed additives was tested, on top of a natural stimulator of immunity defences (Stimune).

To optimise the effect of Powerjet, this feed additive was also distributed to sows in order to help piglets pass through the weaning stage.

The zootechnical and economic results are presented in Table 2. Six months with antibiotics (colistin + tylosin) are compared to six months with Neovia feed additives.

Weights at weaning, at the end of post-weaning, average daily gain, mortality and FCR were all improved with the Neovia combination compared to the results with antibiotics. This field trial has proven the interest of such a substitution to stop the use of antibiotics.

During the fattening and finishing period the farmer used no antibiotics or feed additives. It is interesting to highlight the positive effect of the Neovia combination on the FCR results during this period. By better managing the transition between the post-weaning and fattening period, the feed additives solution enabled the FCR and ADG to be improved until the end. From an economic point of view, these results have brought an additional benefit of €107/sow/year to the farmer.

Conclusion

In conclusion, we can say that totally or partially removing antibiotics (growth promoters, preventive or curative) is a future strategy. Successful experiences are proving it is possible, even if you need to take into account all the parameters of the farm. Zootechnical, hygiene and economic results have to be checked at each step of the demedication approach, in order to be at least as good as antibiotics.

To significantly decrease the use of antibiotics, without an economic loss for the farmer, is a matter of public health and is compulsory to propose a sustainable way of breeding animals. ■

Table 2. Zootechnical and economic results of a feed additives combination.

	Results with antibiotics	Results with Neovia combination	Difference	Economic impact (€/sow/year)
Weight at weaning (kg)	5.7	6.0	+0.3	
Mortality rate in post-weaning (%)	1.5	1.2	-0.3	4.8
ADG 8-30kg (d/d)	410	470	60	
FCR 8-30kg (kg/kg)	1.95	1.77	-0.18	36
Weight at end of post-weaning (kg)	25	27.5	+2.5	
ADG 30-115kg (g/d)	853	830	-23	
FCR 30-115kg (kg/kg)	2.67	2.53	-0.14	70
FCR 8-115kg (kg/kg)	2.49	2.36	-0.13	
Mortality in fattening-finishing (%)	2.2	1.9	-0.3	6.9
Number of days of fattening	109	102	-7	21
Total				€138.7
Cost of Neovia program in lactation + post-weaning			€31.37/sow/year	