De-worming: benefits of using a strategy

by J. Agneessens, F. Rochette, K. Vlaminck, Janssen Animal Health, Beerse, Belgium and L Goossens, Medisearch International, Mechelen, Belgium.

The clinical symptoms caused by worm diseases in fattening pigs are mostly vague and not specific.

Consequently, pig farmers and veterinarians consider the economic importance of low priority, because inadequate information is available on the economic impact.

Recent data on the life cycle of A. suum suggest that the prepatent period of Ascaris suum might be shorter than usually expected. This could have consequences for deworming programmes and the prevention of liver white spots could benefit from a better approach.

To reduce the prevalence of white spots a control programme should be very efficacious and based on the minimal prepatent period of A. suum. Immatures are already present between day 28 and 35 after infection and the adults start to appear from day 42.

To obtain full parasite control, and interrupt the parasite's life cycle, the frequency of treatments should be at least every five weeks. In a large trial with four fattening farms the economic appraisal of a deworming programme with flubendazole every five weeks for fattening pigs, was evaluated during 16 months (four rounds) and compared with the historical pre-treatment data from the same fattening units.

The evaluated parameters were faecal egg counts of A. suum, percentage liver rejections due to Ascaris induced white spots, body weight gain in g/day and slaughter weight, feed conversion ratios, and meat quality.

Farm		Historical data	Strategic deworming	Gain (%)
A	Number of pigs	146	1335	
	Average daily growth	549.50	584.20	**+6.31**
	Feed conversion rate	nd	nd	
B	Number of pigs	10115	8068	
	Average daily growth	650.06	665.17	**+2.32**
	Feed conversion rate	2.96	2.95	
C	Number of pigs	8000	6518	
	Average daily growth	700.00	715.07	**+2.15**
	Feed conversion rate	2.98	2.88	
D	Number of pigs	5538	4620	
	Average daily growth	772.00	787.20	**+1.97**
	Feed conversion rate	3.05	2942	

Table 2. Daily weight gain and feed conversion.

Materials and methods

Four pig farms without clinical worm infections were selected. Before and during the trial all the fattening pigs had to be supplied from the same breeding unit. Before the introduction of the new deworming regime three out of four of the fattening farms had been using their own deworming programme.

- **Farm A** (1335 pigs): 5mg/kg levamisole to all piglets at the start.
- **Farm B** (8068 pigs): ivermectin premix 0.6% for seven days and flubendazole medicated feed for five days at day 60.
- **Farm C** (6518 pigs): levamisole in the drinking water every four weeks.
- **Farm D** (4620 pigs): no deworming programme.

During the trial, medicated feed containing 30ppm flubendazole was given for five days every five weeks – at start, at day 40, and at day 80. No modifications were allowed in the following parameters – feeding schedule, feed supply, feed supplier, presentation of feeds, drinking water supplies, ventilation techniques and the origin of the piglets.

The feeding schedule remained the same for all the piglets during all rounds of the trial period. The flubendazole concentration in the feed samples was analysed by high liquid chromatography with UV detection (HPLC-UV) done by a certified laboratory (SGS) in Belgium.

All the economical parameters were registered and calculated. The pigs were weighed

Continued on page 17

Table 1. Percentage rejected livers.

Farm		Historical data	Strategic deworming	Improvement (%)
A	Number of pigs	210	1218	
	Rejected livers (%)	8.57	5.58	-3.02
C	Number of pigs	8000	6518	
	Rejected livers (%)	8.49	3.90	-4.59

Table 3. Percentage lean meat (SEUROP) in Farm C.

Classification	Historical data (%)	Strategic deworming (%)	Gain (%)
S	10.94	9.48	
E	61.42	67.36	
U	23.54	22.04	
Total	**95.90**	**98.88**	**+3.11**

Continued from page 15
in-group at the start of the fattening period and before slaughtering. Ten mixed faecal samples were taken at random from several pens. This was done before treatment and every five weeks during each round and examined for faecal egg counts.

Before the new treatment regime was installed, low faecal egg counts for A. suum were detected in up to 50% of the mixed faecal samples.

During the trial, from the third round onwards, all samples were negative, confirming the very high efficacy of flubendazole against A. suum.

The incidence of white spots was very low on farms B and D. On farms A and C, a significant reduction in the percentage of affected and rejected livers was obtained after treatment.

A positive effect on average daily weight gain (ADW) was noted on all farms. The average daily weight gain was at least 15g better in favour of the treated groups.

In three farms (B, C and D) a better feed conversion rate (FCR) was noted. For Farm A no FCR could be calculated due to the fact this farm did not use an all in, all out management system.

Although different authors could not demonstrate a relationship between the occurrence of white spots and daily weight gain, a positive effect on ADW and FCR was noted.

Farm	Historical data	Strategic deworming	Gain (%)
A	10.40	8.60	1.8
B	5.95	4.32	1.63
C	6.89	6.82	0.07
D	4.64	3.58	1.06

Table 4. Mean mortality and drop out rates (%).

In Farm C, two different criteria for meat quality, that is musculature and percentage of lean meat, were evaluated.

The combined percentages of the highest categories of meat quality (Type AA and A) were slightly in favour of the treated groups (87.456 versus 89.68%).

According to the SEUROP-classification the total of the best lean meat classes (S, E and U) was in favour of the treated group (98.9 versus 95.9%), which gives added economical value for the pig farmer. A tendency to the more uniform and economically interesting E and U classes was noted.

Mortality is an indication of the general animal health. In the four farms fewer pigs died in the treated groups during the fattening period compared to the untreated control groups.

The data obtained in this trial confirm published evidence that a significant reduction in liver condemnation due to white spots is possible after a strategic deworming with Flubenol 5%. A deworming programme with 30ppm flubendazole in the feed for five days every five weeks can improve the zootechnical performance of fattening pigs with a history of low parasitic hepatitis. The presence of low numbers of Ascaris egg counts in the beginning of the fattening period can lead to an explosive increase of infection prevalence later during that period.

Therefore, even if faecal examination indicates a very low prevalence of infection, control measures should always be taken from the start of the fattening period onwards, in order to prevent the build up of a massive infection towards the end of the fattening period.

A large part of Ascaris infections are not properly treated or under-treated, because parasite levels are thought to be low, or thought to be not existing.

The application of a deworming regime, based on the minimum prepatent period of A. suum in normal practice conditions of hygienic fattening units, can reduce the prevalence of parasitic hepatitis and improve the zootechnical performance of fattening pigs.

Choosing a de-worming programme does not only improve the health of the present pigs, but also shows a commitment towards a longer term approach in controlling the worm problem at farm level. In conclusion, de-worming programmes are an integral part of modern pig management. ■