

PROBIOTIC PREPARATIONS USED TO ALLEVIATE THE WEANING CRISIS

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Summary

The experiments were conducted on 96, Synthetic Line Peris 345, suckling piglets (12 sows × 8 piglets per litter) reared within the intensive system. Piglets were weaned at 35 days. The experimental period was 42 days. The enzymatic preparation was incorporated 3% into the vitamin-mineral premix (Multigerm at E1 and Probios at E2). The total gain, from farrowing to the age of 42 days, was higher in the groups treated with growth promoting preparations: 15% higher in the group treated with **MULTIGERM** and 21% in the group treated with **PROBIOS**, the differences being statistically significant. The liveability index was improved by the two growth promoting preparations: 8% in the control group, 4% in group E1 and 2.5% in group E2, because the preparations modified the intestinal microbial balance favouring the health state of the animals.

The largest technological problems and losses of the pig industry occur in piglets from farrowing to weaning. The losses are due mainly to the digestive disorders, displayed as diarrhoea, which appear both due to sow milk quality and to the compound feeds given to the suckling piglets.

Increased attention was paid over the past 15 years to the use of live microorganisms culture in pig production.

The live microorganisms used as dietary growth promoting preparations are bacteria strains belonging to the groups of *Lactobacillus*, *Enterococcus*, *Bacillus* and yeasts from the *Saccharomyces* genus.

Materials and methods

The experiments were conducted on 96, Synthetic Line Peris 345, suckling piglets (12 sows × 8 piglets per litter) reared within the intensive system. The suckling piglets were housed in farrowing pens together with the sow. The piglets received colostrums immediately after farrowing and were monitored throughout the first several days not to miss and suckling session. In an attempt to alleviate the weaning crisis piglets were offered compound feeds starting from the age of 8 days.

The experimental period lasted for 42 days.

The experiment used 3 groups of 24 piglets each with 3 litters per group with following experimental design:

- control group, C, no enzyme treatment in the vitamin-mineral premix
- experimental group 1, E1, treatment with the enzymatic preparation MultigerM incorporated 3% into the vitamin-mineral premix
- experimental group 2, E2, treatment with the enzymatic preparation Probios incorporated 3% into the vitamin-mineral premix

MultigerM is a polyculture of selected lactic acid bacteria belonging to *Lactobacillus* (*L. plantarum*, *L. acidophilus*) and *Enterococcus* (*E. faecium*) genera.

Probios contains lactic acid bacteria (*L. acidophilus*, *L. plantarum*, *L. casei*).

The following parameters were monitored throughout the experimental period: daily feed intake; weight gain; average daily gain; feed conversion ratio.

The intake of compound feed was determined on a daily basis by weighing the amount given to each litter and determining the ingesta by subtraction.

Weight gain was determined by individual weighing of the piglets at 7, 14, 21, 28, 35 and 42 days. The suckling capacity was determined at the age of 21 days.

The average daily gain was determined by calculation relating the total weight gain to the days of recording.

Feed conversion ratio was determined by calculation relating the total feed intake to the achieved gain.

The experimental data were processed statistically. The significance of differences was determined with the Student test.

Results and discussions

The feed ingesta, during the 35 days (table 1), did not influence by the use of dietary growth promoters ($p \geq 0.05$). During the period 36-42 days, the feed intake increased by 9 and 13% in groups E1 and E2, respectively ($p \leq 0.05$). The literature mentions the positive effect of growth promoters on ingestion (Soare et al. 1996, Soare 1998, Hebean et al. 2004).

Average daily feed intake during the age period 8-42 days was 214.02 g in group C, 226.72 g in group E1 and 232.83 g in group E2, which is 6% and 9% higher in groups E1 and E2, respectively, than in group C.

The body weight, at the age of 42 days was bigger with 12% and 18.7% in groups E1 and E2, respectively, compared to group C ($p \leq 0.05$). No significant differences were noticed between groups E1 and E2, the piglets treated with MultigerM having a body weight lower by 5%.

Table 1

		8 – 14	15 – 21	22 – 28	29 – 35	36 – 42	8 – 42
Feed intake, g	C	10.12	81.33	146.10	330.45	502.12	214.02
	E1	10.46	83.54	151.22	342.57	545.23	226.72
	E2	10.53	82.36	153.47	350.03	567.74	232.83
Weight gain at final period, kg	C	3.57	4.46	5.98	8.13	8.97	
	E1	3.85	4.83	6.52	8.78	10.12	
	E2	3.89	4.88	6.65	8.94	10.65	
Daily weight gain, g	C	70	127.14	217.14	307.14	122.86	182
	E1	113.86	140	241.43	417.14	191.43	233
	E2	111.43	141.43	252.86	447.14	244.29	248

The daily weight gain was significantly influenced by the treatment with growth promoters during the age periods 8-14 and 36-42 days ($p \leq 0.05$).

After weaning, during the age period 36-42 days, the daily weight gain was 55% higher in group E1 and 99% higher in group E2 ($p \geq 0.05$). The effect of the growth promoting preparations increased with the intake of compound feeds, playing a significant role in alleviating the weaning crisis. Compared to the gains achieved during the previous period, the values recorded during this period were 60% lower in the control group, 54% lower in group E1 and 45% lower in group E2. Under normal technological conditions of maintenance and feeding, the average daily weight gain decreases by 60-65%, which is the main display of the weaning crisis (Potecea, 1998). It is obvious that the treatment with growth promoters alleviated the weaning crisis, the depression of the average daily weight gain being less severe.

The liveability index was 8% in the control group, 4% in group E1 and 2.5% in group E2. Because the growth promoters are obtained from microorganisms that contribute to the change of the intestinal microbial balance, these preparations displayed favourable effects on the health state of the animals (Pană, 2000).

Conclusions

1. Two growth promoting preparations were used to alleviate the weaning crisis in piglets: **MULTIGERM** and **PROBIOS**, included in the dietary (0-1 formulation) vitamin-mineral premix.

2. The intake of feed was not influenced significantly by the use of growth promoting preparations, this parameter being 6 and 9%, respectively, higher in the groups treated with growth promoting preparations.

3. The total gain, from farrowing to the age of 42 days, was higher in the groups treated with growth promoting preparations: 15% higher in the group treated with **MULTIGERM** and 21% in the group treated with **PROBIOS**, the differences being statistically significant.

4. The average daily gain was significantly influenced by the use of the dietary growth promoting preparations, being 28 and 36%, respectively, higher. During the post-weaning period (36-42 days), the average daily gain decreased by 60% in the control group, by 54% in the group treated with **MULTIGERM** and by 45% in the group treated with **PROBIOS**. This is clear evidence that the use of the dietary growth promoting preparations alleviated the weaning crisis, the depression of the average daily gain being less dramatic.

5. The liveability index was improved by the two growth promoting preparations: 8% in the control group, 4% in group E1 and 2.5% in group E2, because the preparations modified the intestinal microbial balance favouring the health state of the animals.

References

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