

**L**andesanstalt für  
**L**andwirtschaft und  
**G**artenbau

Test report

**Use of Bioaktiv in  
pig fattening  
Part 2**



TECHNICAL INFORMATION



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## 1. Introduction

The debate over reducing pollutants from pig production has been further aggravated, from the viewpoint of consumers and governments alike, by the EU's concept of the "best available technology". At the same time, a major factor for stabilizing pig health and performance has been lost by the ban on antibiotic performance promoters and the new directive governing the use of animal drugs.

A first study from the year 2001 describing the use of Bioaktiv in pig fattening suggested a positive effect from this natural feed additive on the performance of fattening pigs. Further field trials also showed a reduction of ammonia in housing air. To verify initial results obtained by the Working Group, a second trial was undertaken in which the use of Bioaktiv was accompanied by measuring the ammonia content of housing air. Results are shown in the following.

## 2. Material and methods

### Animals:

The trial involved 160 crossbred fattening pigs (Pi x (DExDL)) in two groups of 80 which were fattened in parallel using two identical sheds (containing 4 pens with 20 animals each). Feed in the first shed contained Bioaktiv while the control group was given feed without this additive. One animal in the trial group was lost due to foundation problems. Sex distribution between the groups differed on technical grounds (trial group: 40 males + 40 females; control: 46 males + 34 females).

### Feed

Control group : Two-stage fattening using commercial feeds

Trial group : Two-stage fattening using commercial feeds with addition of Bioaktiv (200 g/tonne)

Table 1: Feedstuff ingredients

Feed analysis	Energy (MJME/kg)	Crude protein (g/kg)	Lysine (g/MJME)	Calcium (g/kg)	Phosphorus (g/kg)
Grower fattening	13.4	18.0	0.8	6.9	5.4
Finisher fattening	13.0	17.4	0.7	7.2	4.9

Grower diet was given from live weights of 28 to approx. 60 kg, followed by finisher diet.

### Trial parameters

The following characteristics were determined:

Fattening performance: Initial wt., intermediate wt. every 4 weeks, final wt., daily gain, feed consumption, feed conversion  
Weight was determined for individual animals, feed consumption for 4 groups each

Slaughter performance: Slaughter wt., lean meat content, grade, fat thickness, meat index

### Ammonia measurement

This was carried out at intervals of 3 weeks using Draeger tubes (2–30 ppm). The findings listed are averages obtained from 4 measuring points each distributed across the shed.

## 3. Results

Fattening performance is shown in Table 2 below:

Table 2: Fattening performance

Parameter	Trial group with Bioaktiv			Control group without Bioaktiv		
	Total	Male	Female	Total	Male	Female
Initial weight (kg)	28.1	27.9	28.3	28.4	28.6	28.1
Final weight (kg)	116.1	116.9	115.3	117.6	117.6	117.7
Days in pen	102 <sup>a</sup>	100	105	109 <sup>b</sup>	104	115
Feed consumption (kg/head/d)	2.54			2.45		
Feed conversion (kg/kg)	2.95			2.99		
Daily gain (g/d)	866 <sup>a</sup>	897	833	828 <sup>b</sup>	860	784
Daily gain corrected* (g/d)	865 <sup>a</sup>			816 <sup>b</sup>		

\* Corrected for unbalanced sex distribution

Significance level:  $p < 0.05$

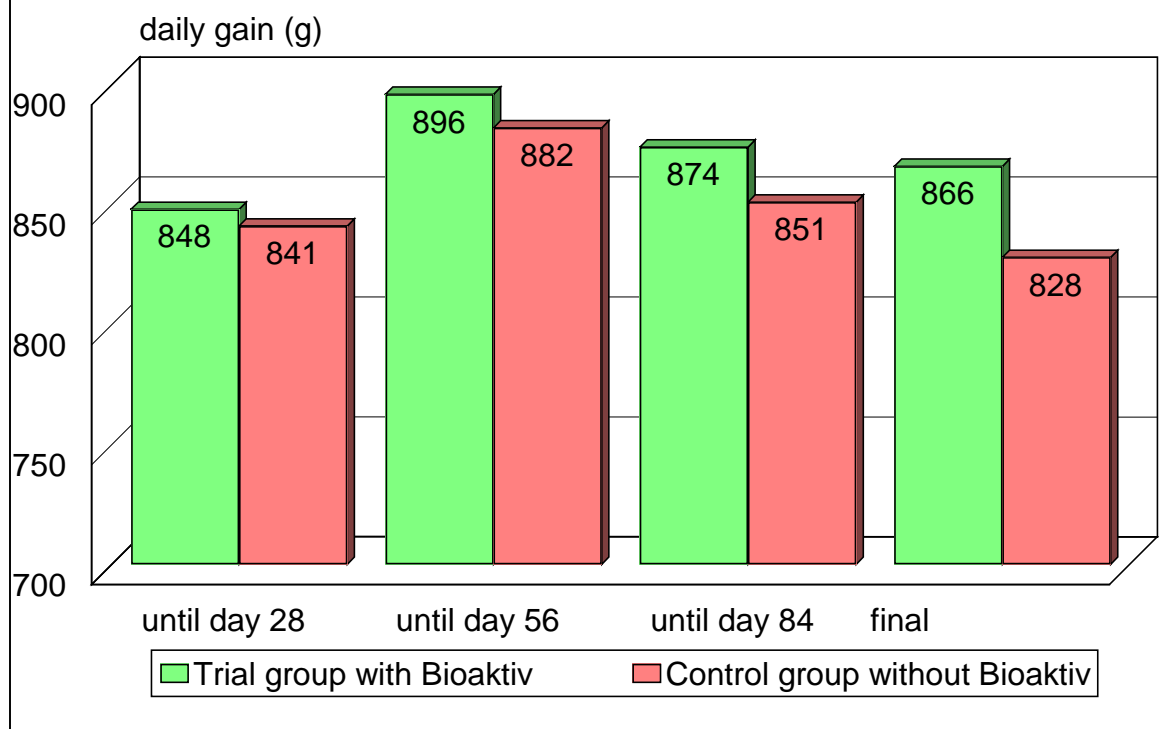
Initial weights for the two groups were comparable. The final weight of animals in the control group was 1.5 kg higher because they were the last to be slaughtered.

Sex distribution differed for the two groups due to technical reasons so that both the normal average and a corrected average are shown for the mean daily weight gain, which is significantly better for the Bioaktiv group in each case. Higher gains clearly resulted from greater feed consumption of approx. 90 g/head/d and a trend toward better feed conversion.

Better daily weight gains significantly reduced by 7 the average number of days in the shed, with about 2 days due to technical grounds (see final weight).

Fig. 1 shows that greater daily weight gains for the trial group were registered mainly in the medium and final stages of fattening.

Fig. 1: Weight gain (corrected)



Slaughtering performance is shown in Table 3

Table 3: Slaughtering performance

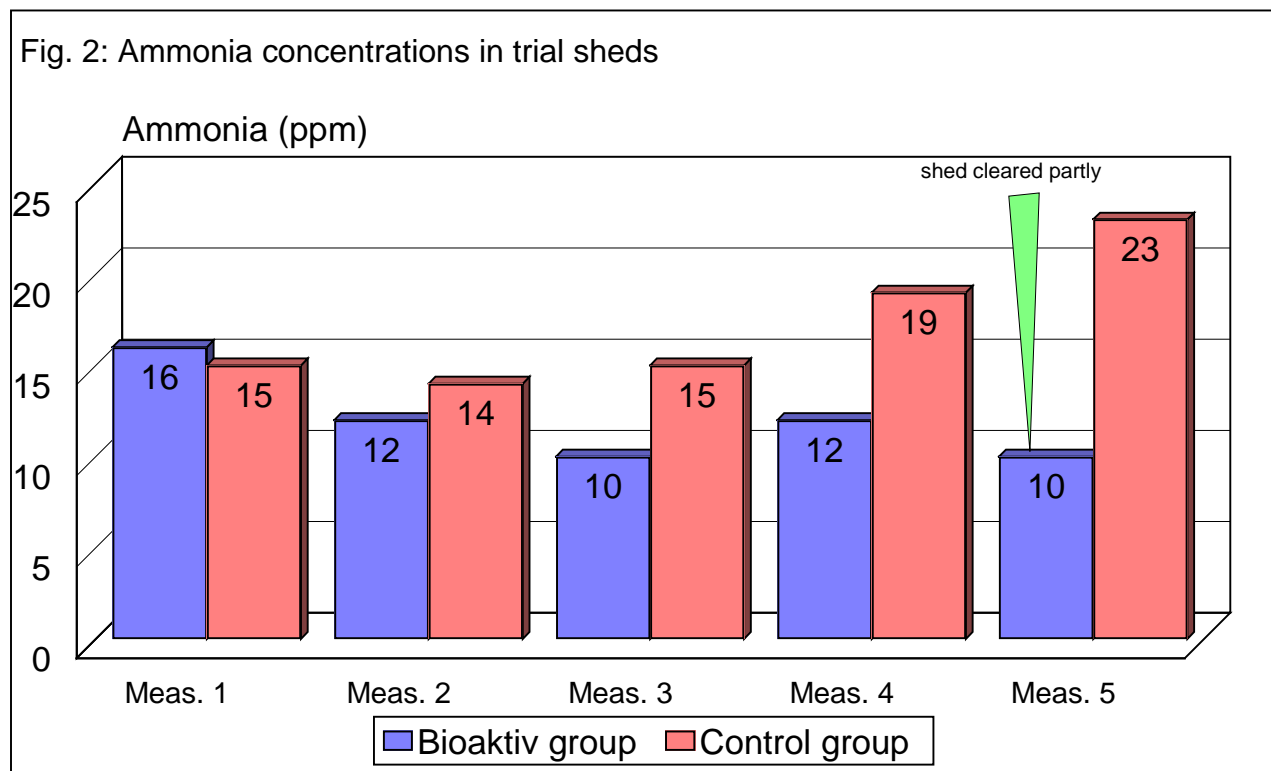
Parameter	Trial group with Bioaktiv	Control group without Bioaktiv
Slaughter weight (kg)	89.4	89.5
Carcass dressing percentage	77	76
Lean meat percentage	54.6	55.2
Fat thickness (mm)	18.7	18.0
Meat index (cm <sup>2</sup> )	62.4	63.7

Dressing yield was quite low in each case because the animals did not fast before slaughter. When allowance is made for fasting losses of approx. 3 %, then the values are in the normal range of 80/79 %.

The low lean meat content in the trial group results primarily from higher gains during finisher fattening, which can also be seen from a clearly greater fat thickness.

## Ammonia measurements

These were carried out during the trial in the two sheds and gave the following readings (Fig. 2):



When the trial started, ammonia concentrations in the two sheds were nearly identical. As the trial proceeded, there were diverging trends. With air conditioning being the same, readings for the shed in which Bioaktiv was given remained at a similar level while those for the control shed rose continuously.

When measurement 5 was taken, the first animals had already left the shed where Bioaktiv was given. Air conditioning control was adjusted accordingly.

## Financial aspects

Characteristic	Unit	Control	Trial	Difference	€/unit	Total €
Fattening period	Days	109	102	- 7	0.2	- 1.4
Feed consumption	Kg	267	259	- 8		
Feed costs	€/pig	46.0	45.0	- 1.0		- 1.0
Lean meat content	%	55.2	54.6	- 0.6	2.4	+ 1.4
<b>Total</b>						<b>- 1.0</b>

Financial comparison between the animals in the two groups showed a difference of €1.0 per animal in favor of the Bioaktiv group.

## **4. Summary**

The effect of adding Bioaktiv to pig feed on performance was tested in a trial involving 160 fattening pigs in two identical sheds. Two groups of 80 animals each were given feed with/without added Bioaktiv.

Fattening performance was improved significantly for the Bioaktiv group as far as days in the pen and daily weight gain were concerned. On the other hand, the group performed slightly worse than the control group with regard to slaughtering performance.

Ammonia measurements in the sheds gave clearly lower readings for the group with Bioaktiv feeding, which apparently resulted in better growth during finisher fattening.

A financial summary and comparison showed a difference of €1.0 per animal in favor of the Bioaktiv group (allowing for extra feed costs of approx. €0.5 per animal).