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# ORIGINA IN WEANER FEED

TRIAL REPORT 911

The addition of Origina to weaner feed had no effect on weaner productivity

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## Abstract

In this trial, the product Origina was added to feed for pigs in the age interval 4-10 weeks. Results revealed no effect of this addition on productivity. The trial comprised 582 pigs per group allocated to 42 blocks.

The trial comprised a control group and a trial group given feed containing Origina. The starter diet (given to the pigs the first 12 days of the trial) included 1 kg Origina per tonne feed and the weaner diet 500 g.

Analyses of the feed demonstrated good agreement between the calculated and analysed content of nutrients with the exception of energy. The content of energy was 2-3 feed units (FU<sub>g</sub>) below the calculated amount in all diets except for the weaner diet in group 2 in which the amount of feed units corresponded with the calculated amount.

### FINANCIAL SUPPORT

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# Background

New products and diets for weaners are routinely launched for use on Danish pig farms. This makes it even more relevant to analyse the production value of these products to be able to assess the economic benefits of using them.

The Swedish company Oregofarm wished to document the effect on weaner productivity of adding their product Origina to weaner feed. Origina contains 5% of the essential oil *Origanum aetheroleum* extracted from *Origanum vulgare ssp. Hirtum*.

The aim of this trial was to analyse the effect of adding Origina to weaner feed. The effect was recorded on weaner productivity, which was calculated on the basis of daily gain, feed intake and feed conversion ratio.

## Materials and methods

The trial was conducted at Experimental Station Grønhøj, which is an SPF farm housing pigs from 7 kg to 105 kg. The trial was conducted in the weaner facilities with two different types of sections: one with 12 pens/section holding 16 pigs each and one with 18 pens/section holding 11 pigs each. Approximately one third of the pen floor is solid, and the rest slatted. The pens are evenly located on either side of the inspection alley, and each pen has one feeder and one nipple drinker.

Each of the two groups comprised 42 pens, and the trial comprised a total of 582 pigs per group.

**Table 1.** Trial design

Group	1. Control	2. Origina
Starter diet (first 12 days of the trial)	Control	0.1% Origina
Weaner diet	Control	0.05% Origina

The pigs' start weight averaged 7.2 kg and end weight averaged 30.8 kg.

### Feed and feeding

Both diets were pelleted and produced by Danish Agro. The diets used in group 2 were identical to the control diets with the exception of the addition of Origina in inclusion rates recommended by the manufacturer of Origina (0.1% to the starter diet and 0.05% to the weaner diet). 2,500 ppm zinc was added to both starter diets, which were given to the pigs the first 12 days of the trial.

The nutrient content of the diets complied with the current Danish standards [1]. The concentration of the amino acids lysine, methionine, threonine and tryptophan was 5% above the current standards to

prevent variations in crude protein content in the ingredients from affecting the trial results. Green microgrits were added to the control feed and red microgrits were added to the trial diets to be able to check visually that the correct diet was fed to the group intended.

## Recordings

Recordings of the following parameters were made at pen level: daily gain, feed intake, treatments for disease, and mortality rates/pigs moved to hospital pens.

## Feed analyses

Feed was produced over two rounds. Samples were taken of each diet with automatic sampling equipment at the feed mill. Four samples of the starter diet were analysed for content of energy, crude protein, calcium and phosphorus. Two samples were analysed for concentrations of zinc and phytase. The same number of samples of the weaner diets were analysed with the exception of energy that was analysed in five samples.

## Calculations and statistics

The pigs' production results, daily gain and feed conversion ratio were pooled in one value, the production value. The below variables were used to calculate the production value:

- Value of gain
- Feed costs
- Productive days

Furthermore, the calculations included the following values based on the prices of the last five years (September 1, 2005 – September 1, 2010):

- Average price of 7 kg pigs: DKK 194 per pig,  $\pm$  DKK 9.44 per kg
- Average price of 30 kg pigs: DKK 334 per pig,  $\div$  DKK 5.05  $\div$  DKK 5.16 per kg
- Starter diet: DKK 2.90 per FUgp
- Weaner diet: DKK 1.65 per FUgp

The individual variables are defined below:

- Value of gain = pigs' gain in kg in the trial period  $\times$  value of 1 kg gain

A value of each kg gain of DKK 6.03 was used in the calculations, which is the value of the average gain throughout the entire period. Feed costs were determined with the below equation and are based on the content of analysed feed units (obtained in an EFOSi analysis):

- Feed costs = (end weight ÷ start weight) × FUgp per kg gain × price per FUgp

Production value (PV) per place unit/day was calculated as follows:

- PV in DKK per place unit/day: (value of gain ÷ feed costs) / productive days

“Productive days” is the number of days an average pig was on trial. The annual production value per place unit was obtained by multiplying PV in DKK per place unit/day by 365.

Production value per place unit/day was analysed as the primary parameter with start weight as co-variable. The model included the following variables: facility, block and group. Furthermore, normal distribution and prevalence of outliers were analysed. The analysis revealed one pen to be a significant outlier, and this pen was therefore eliminated from the data set. Significant differences are stated at 5% level.

## Results and discussion

### Feed analyses

Analyses of the diets are shown in Appendix 2. The analysed content of energy in the weaner diet for group 2 corresponded with the declared values, while the remaining diets contained 2-3 FUgp less than the declared content. In the starter diet for the control group, the crude protein content contained 1 percentage point less crude protein than declared.

### Health

Mortality rates and the percentage of pigs culled due to disease were low in this trial and there were no differences between the groups. 3.4% were culled from the control group and 2.75% from the trial group. Mortality averaged 0.5% in the control group and 1.0% in the trial group.

### Productivity

Table 2 shows the production results obtained in this trial; the differences between groups 1 and 2 are clearly small.

**Table 2.** Production results (LS means)

Group	1. Control	2. Origina
Blocks	42	42
Pigs	582	582
Start weight, kg	7.2	7.2
End weight, kg	30.9	30.7
<b>Before intermediate weighing (7-9 kg)</b>		
Daily gain, g	193	204
Daily feed intake, FUgp	0.27	0.27
Feed conversion ratio, FUgp/kg gain	1.39	1.34
<b>After intermediate weighing (9-31 kg)</b>		
Daily gain, g	605	599
Daily feed intake, FUgp	1.04	1.02
Feed conversion ratio, FUgp/kg gain	1.72	1.70
<b>The entire period (7-31 kg)</b>		
Daily gain, g	507	505
Daily feed intake, FEsv	0.86	0.85
Feed conversion ratio, FUgp/kg gain	1.69	1.67

Table 3 shows the production value obtained in groups 1 and 2. As the differences in production results are small, the differences in production value are likewise small and not significant.

**Table 3.** Production value

Group	1. Control	2. Origina
PV, DKK/place unit/year	573	575
Index	100	100
Actual PV (5 wks prices, DKK/place unit/year)	425	420
Index	100	99

Other trials made by Pig Research Centre have analysed a variety of products based on substances of oregano, and none demonstrated significant effect on pigs' productivity [2],[3],[4],[5]. In line with these other trials, the results of this trial demonstrated no significant effect.

## Conclusion

The addition of Origina to weaner feed in the period 4-12 weeks did not affect weaner productivity.

# References

- [1] Jørgensen, L. & Tybirk, P. (2010): [Nutrient standards](#). Revised April 2010. Pig Research Centre.
- [2] Callesen, J. (1998): Ecodiar til slagtesvin. [Trial report 390](#). [The National Committee for pig production](#).
- [3] Maribo, H. (2000): Firmaprodukter samt firmablanding til smågrise – DLG Starline, blodplasma AP 820 og VePro® 75 PSCF og VePro® 75 BC samt Oregarom til smågrise. [Trial report 497](#). [The National Committee for Pig Production](#).
- [4] Maribo, H. (2003): Firmaprodukter til smågrise: Pioner Feed-Add-S, benzoesyre samt Ropadiar alene og i kombination med Greenacid LBF. [Trial report 577](#). [The National Committee for Pig Production](#).
- [5] Maribo, H. & Sørensen, A. K. (2005): Firmaprodukter til smågrise: Orego-stim. [Trial report 692](#). [The National Committee for Pig Production](#).

## Participants

Technical support: Per Mark Hagelskjær, Pig Research Centre

Statistical work: Mai Britt Friis Nielsen & Jens Vinther, Pig Research Centre

Trial no. 1127

# Appendix 1

Starter diet (first 12 days of the trial period), composition in %

Group	1. Control	2. Origina
Wheat	44.855	44.855
Barley	15.00	15.00
HP 200, soy protein concentrate	10.941	10.941
Soy bean meal	7.00	7.00
Whey, Variolac 960	6.00	6.00
Fishmeal, low ash	5.00	5.00
Palm oil	3.016	3.016
Potato protein concentrate	2.239	2.239
Mono calcium phosphate	1.185	1.185
Molasses	1.00	1.00
Benzoic acid	1.00	1.00
Calcium carbonate	0.88	0.78
Lysine, 98 % HCL	0.407	0.407
Da Vit små Fe fumarat 500571	0.400	0.400
Salt	0.297	0.297
Zinc oxide	0.300	0.300
Threonine, 98 %	0.134	0.134
Methionine, DL 98 %	0.130	0.130
Lucta Adv.	0.1	0.1
Microgrits green	0.05	-
Microgrits red	-	0.05
Tryptophan, 99 %	0.042	0.042
Phyzyme XP 4000 TPT	0.013	0.013
Valine L 98.5 %	0.011	0.011
Origina	-	0.1

## Weaner diet, composition in %

Group	1. Control	2. Origina
Wheat	53.595	53.595
Barley	15.00	15.00
Soy bean meal, dehulled	13.519	13.519
HP 200, soy protein concentrate	6.166	6.166
Potato protein concentrate	3.00	3.00
Palm oil	2.128	2.128
Calcium carbonate	1.608	1.558
Mono calcium phosphate	1.372	1.372
Molasses	1.00	1.00
Benzoic acid	1.00	1.00
Lysine, 98 % HCL	0.448	0.448
Salt	0.406	0.406
Da Vit små Fe fumarat 500571	0.400	0.400
Methionine, DL 98 %	0.135	0.135
Threonine, 98 %	0.122	0.122
Microgrits, green	0.050	-
Microgrits, red	-	0.05
Tryptophan, 99 %	0.025	0.025
Phyzyme XP 4000 TPT	0.013	0.013
Valine L 98.5 %	0.013	0.013
Origina	-	0.05



## Appendix 2

Average guaranteed and analysed nutrient content – starter diet (first 12 days of the trial period)

Group	1. Control		2. Origina	
	Analysed <sup>1</sup>	Declared	Analysed <sup>1</sup>	Declared
Content				
FUgp per 100 kg (EFOSi)	113	116	114	116
Crude protein, %	19.9	20.9	20.6	20.9
Crude fat, %	5.2	5.0	5.3	5.0
Ash, %	5.1	5.9	5.3	5.9
Lysine, g/kg	13.9	14.7	14.2	14.7
Methionine, g/kg	4.5	4.8	4.6	4.8
Cystine, g/kg	3.0	3.2	3.1	3.2
Meth + Cys, g/kg	7.5	8.0	7.8	8.0
Threonine, g/kg	8.6	9.1	8.9	9.1
Calcium, g/kg	7.4	8.3	7.5	8.3
Phosphorus, g/kg	6.7	7.0	6.7	7.0
Zinc, mg/kg <sup>2</sup>	2385	2500	2476	2500
Phytase, FTU/kg <sup>2</sup>	485	500	542	500

1: Average of 4 analyses

2: Average of 2 analyses

Average guaranteed and analysed content of nutrients – weaner diet

Group	1. Control		2. Origina	
	Analysed	Declared	Analysed	Declared
Content				
FUgp per 100 kg (EFOSi) <sup>1</sup>	108	111	111	111
Crude protein, % <sup>1</sup>	19.0	19.3	19.1	19.3
Crude fat, % <sup>1</sup>	4.3	3.9	4.3	3.9
Ash, % <sup>1</sup>	5.3	6.0	5.3	6.0
Lysine, g/kg <sup>2</sup>	13.2	13.4	13.5	13.4
Methionine, g/kg <sup>2</sup>	4.0	4.2	4.1	4.2
Cystine, g/kg <sup>2</sup>	3.2	3.2	3.3	3.2
Meth + Cys, <sup>1</sup> g/kg <sup>2</sup>	7.2	7.4	7.4	7.4
Threonine, g/kg <sup>2</sup>	8.3	8.3	8.4	8.3
Calcium, g/kg <sup>2</sup>	9.7	9.8	9.0	9.8
Phosphorus, g/kg <sup>2</sup>	6.7	6.5	6.5	6.5
Zinc, mg/kg <sup>2</sup>	192	100	240	100
Phytase, FTU/kg <sup>2</sup>	699	500	705	500

1: Average of 5 analyses

2: Average of 2 analyses

## Appendix 3

Origina

<b>Manufacturer</b>	Oregofarm Torkhusgatan 2 S-120 66 Stockholm Sweden
<b>Content</b>	Origina contains 5% <i>Origanum aetheroleum</i> . The remaining part of the product is constituted by the carrier calcium carbonate.
<b>Price</b>	DKK 59.60 per kg