

Skjoldborg test station

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The effect of two different feeding concepts as alternatives to a diet containing medical zinc and/or organic acids after weaning

Test conducted on request from Distributors Processing INC Porterville Ca 93257
and Dantrace-Danfeed 2019 Aps 9830 Taars

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Sammendrag

Denne test havde til formål at teste effekten af to fodringskoncepter mod en positiv og negativ kontrol blanding på grises produktion de første 6 uger efter fravæning (ca. 6-30 kg). Testen blev udført under danske produktionsforhold og omfattede i alt 4592 smågrise (L/Y/D, Danbred).

De fire forsøgsblandinger bestod af **NC** ("Negativ kontrol"): En typisk dansk fravænningsblanding (zink på normniveau) inkl. 0,3% Calciumformiat (kun de første 14 dage efter fravæning) og 0,5% benzoesyre, **PC** ("Positiv kontrol"): Den samme blanding som NC, men suppleret med 2500 ppm Zn fra ZnO de første 14 dage efter fravæning, **MA** ("Micro Aid"): optimeret til samme niveau af næringsstoffer som NC-blandingen, men halvdelen af vitamin E (dl-alfa-tocopherol)-indholdet blev erstattet med RRR-alpha-tocopherol (naturlig E-vitamin), og halvdelen af selenindholdet (Na_2SeO_4) blev erstattet med selen fra en organisk Se-kilde (Se-gær). Derudover var der tilsat MicroAid® til blandingen. Den sidste blanding **GL** ("Gluconate") bestod af samme blanding som MA, men en del af Zn fra ZnO, Cu fra CuSO_4 , Mn fra MnO og Fe fra FeSO_4 blev erstattet med de respektive sporstoffer fra hhv. Zn-gluconat, Cu-gluconat, Mn-gluconat og Fe-gluconat (+ Fe-fumerat).

De målte parametre var gennemsnitlig daglig tilvækst (ADG), foderindtag (FI) og foderudnyttelse (FCR; kg foder pr. kg tilvækst).

Ud fra forsøgsresultaterne konkluderes følgende:

- Høje niveauer af Zn fra ZnO havde som forventet en positiv effekt på ADG, FI, FCR og forekomst af diarré i de første 14 dage efter fravæning. Imidlertid var der ikke forskel på produktionsresultaterne efter at zink-niveauet var tilbage på norm-niveau (uge 3-6) i denne test.
- MA-blandingen resulterede i samme produktionsniveau som NC-blandingen i denne test. Dette demonstrerer, at "Micro Aid, naturlig E vitamin og organisk Se" kan bruges som et alternativ til benzoesyre og calciumformiat i fravænningsfoder.
- GL-blandingen resulterede i samme produktionsniveau som NC- og MA-blandingerne i denne test. At der ikke var forskelle mellem MA- og GL-gruppen indikerer, at de gluconatbundne spormineraler (såvel som Fe-fumerat) ikke påvirkede de produktionsparametre, der blev målt i dette forsøg.

Summary

This study aimed to test the effect of two different conceptual diets against a positive and negative control diet on pig performance for the first 6 weeks after weaning (approx. 6-30 kg live weight), under practical Danish pig production conditions. The test included a total of 4592 Danbred Cross-bred piglets (both gender).

The four test diets were **NC** ("Negative Control"): A typically Danish weaner diet used as standard on the test farm (zinc at requirement level) and inclusion of 0.3% Calciumformiate (first 14 days after weaning) and 0.5% benzoic acid, **PC** ("Positive Control"): The same diet as NC but supplemented with 2500 ppm Zn from ZnO for the first 14 days after weaning, **MA** ("Micro Aid"): Formulated to provide the same level of Nutrients as the NC diet, but, half of the vitamin E (dl-alpha-tocopherol) content was exchanged with RRR-alpha-tocopherol and half of the Selenium (Na₂SeO₄) content was exchanged with Se from an organic Se source (Se-yeast). In addition, MicroAid® was included in the diet and finally **GL** ("Gluconate"): The same diet as MA. However, part of the Zn from ZnO, Cu from CuSO₄, Mn from MnO and Fe from FeSO₄ was exchanged with the respective trace elements from Zn-gluconate, Cu-gluconate, Mn-gluconate and Fe-gluconate (+ Fe-fumerate), respectively.

The main test parameters measured were average daily gain (ADG), feed intake (FI) and feed conversion ratio (FCR; kg feed per kg gain).

The following is concluded:

- High levels of Zn from ZnO improved performance in terms of improved ADG, FI, FCR and reduced incidence of post weaning diarrhoea for the first 14 days after weaning as expected. However, in this study the advancement in performance did not remain when the Zn level was back on requirement level (week 3-6).
- The test group MA performed on the same level as the NC group on all parameters measured in this test. This demonstrates that the "Micro Aid, natural vitamin E, organic Fe and organic Se" approach can be used as an alternative to Benzoic acid and calcium formiate in weaning diets.
- The test group GL performed on the same level as the NC and MA group. The lack of differences in performance between the MA and GL group indicates that the gluconate bound trace minerals (as well as Fe-fumerate) did not affect the performance parameters measured in this trial.

Introduction

This study was conducted on request from Dantrace-Danfeed in the period May 18 (2020) to August 25 (2020) at Skjoldborg test station.

The study aimed to test the effect of two different conceptual diets against a positive and negative control diet on pig performance for the first 6 weeks after weaning (approx. 6-30 kg live weight), under practical Danish pig production conditions.

The 4 diets were designated “NC”, “PC”, “MA” and “GL”.

NC (“Negative Control”): A typically Danish weaner diet used as standard on the test farm (zinc at requirement level) and inclusion of 0.3% Calciumformiate (first 14 days after weaning) and 0.5% benzoic acid.

PC (“Positive Control”): The same diet as NC but supplemented with 2500 ppm Zn from ZnO for the first 14 days after weaning.

MA (“Micro Aid”): Formulated to provide the same level of Nutrients as the NC diet. However, half of the vitamin E (dl-alpha-tocopherol) content was exchanged with RRR-alpha-tocopherol and half of the Selenium (Na_2SeO_4) content was exchanged with Se from an organic Se source (Se-yeast). In addition, MicroAid® was included in the diet.

GL (“Gluconate”): The same diet as MA. However, part of the Zn from ZnO, Cu from CuSO_4 , Mn from MnO and Fe from FeSO_4 was exchanged with the respective trace elements from Zn-gluconate, Cu-gluconate, Mn-gluconate and Fe-gluconate (+ Fe-fumerate), respectively.

The test was designed to test the effect of the diets on average daily gain (ADG), feed intake (FI) and feed conversion ratio (FCR; kg feed per kg gain) in weaned piglets under practical pig production conditions.

Materials and methods

Animals, diets and protocol

The test station is a conventional (Health status: Blue Spf + myc + AP6 +AP12+Vac.) integrated production, which runs weekly operation in the sow unit.

The test included a total of 4592 Danbred crossbred (Landrace/Yorkshire x Duroc) female and castrated male piglets with approximately the same number of both genders. All pigs were vaccinated against PCV2 and Mycoplasma before weaning. The piglets were weaned at 25 ± 3 days of age.

Housing conditions for piglets complied fully with EU and Danish legislation. Nine similar rooms of 12 double-pens were used. Rooms were cleaned and disinfected before insertion of piglets. The double-pens were traditionally structured sharing two dry feed dispensers integrated in the mid-pen wall partitioning the double-pen in two pens. Of the 12 double-pens per room only 8 were used for this trial. The piglets were group housed in pens and allocated randomly; females and castrated males mixed on both sides of the feed dispensers. The exact number of each gender in each pen was not recorded. Thus, two pens around 2 feeders constitute one observation (photo of pen design in Appendix A). Around 32 piglets were inserted in every pen after weaning. The pens measured 2.4 x 4.3 m and were designed as 2-climate pens with an insulated piglet nest and a slatted activity area.

At the day of weaning, all piglets were distributed in pens according to size (small, small/medium, large/medium and Large). The average body weight of piglets in the pens was in the range of 4.7 to 7.5 kg. The double-pens were allocated to one of four diets i.e. two dry feed dispensers for each

diet per room. The average initial body weight of the piglets was 6.1, 6.1, 6.1 and 6.1 kg for diet NC, PC, MA and GL, respectively

The test period was initiated at the day of weaning and was divided into three phases (Phase A, B and C). Phase A was from day 0 to day 14 (15 days), phase B was from day 14 to day 28 (14 days) and phase C was from day 28 to 42 (14 days), resulting in a total test period of 43 days.

In phase A, diet NC and PC differed in terms of the difference in ZnO content. In phase B and C, diet NC and PC were identical.

The diets fed in test were formulated by TestPig. Diets were optimized to provide nutrients according to the Danish feeding standards for piglets in the weight intervals of 6-9 kg (phase A), 9-15 kg (phase B) and 15-30 kg (phase C). The composition of the diets is given in Appendix B and the diet recipes made in the software WinOpti.Net are presented in Appendix E. Diets were produced on farm under the supervision of TestPig. The planned differences, in the content of Acids, micro Aid, sources of vitamin E and sources of Se, Zn, Cu, Mn and Fe, between the experimental diets is presented in Table 1, 2 and 3 in Appendix C.

All the diets were fed as meal feeds *ad libitum*. The diets were supplied when requested by a sensor in one of the 2 feed dispensers up to several times per day. When delivered to the individual feed dispensers, the amount of diet dropped into the feeders was registered by weight. The pigs had permanent access to fresh water from 2 types of nipple drinkers; one separate and one that was built into the feed dispensers.

If pigs showed signs of diarrhoea medical treatment was given through the water to the pen where diarrhoea had been noticed.

Registrations

The piglets were weighed when allocated to the pens at the day of insertion. Subsequently, they were weighed when changing to phase B and phase C diets and at the end of test. All pigs in one pen were weighed as a unit. Whenever a pig was taken out of the study due to death or disease the weight was recorded.

Before change to the next feeding phase any feed residues in the feed dispenser was weighed and subtracted from the amount supplied in the previous phase.

The amount of feed produced per feed dispenser per day was recorded by the feeding computer.

A standard procedure was followed in respect of registration of any medical treatment (including treatment days) against diarrhoea and infections.

Feed analyses

Once every week during the whole test period subsamples representing each diet were taken from individual feed dispensers. Each of the subsamples were weighed and the weight of the sample was deducted from the total amount of diet consumed by pigs in that double pen. All subsamples were stored in a cool (<20 °C) and dry place. When a feeding phase was finalised all the subsamples were pooled into one sample per treatment in each feeding phase ending up with four samples from phase A, three sample from phase B and three samples from phase C. The samples were analysed for dry matter, Ca, P, Mn, Fe, Cu, Zn and Se by Eurofins.

Calculations and statistics

Average daily gain (ADG) per piglet was calculated as the difference in weight of piglets at insertion in the pen and total piglet weight at exit of each feeding phase (A, B and C) divided by the number of pigs in each pen and the number of days in each phase. The ADG in the overall test period from weaning to end of trial was likewise calculated as the difference in weight at insertion and at exit of the trial divided by the number of pigs and days in test:

$$ADG \left(\frac{g}{d}\right) = \frac{\text{Pen weight at exit (g)} - \text{Pen weight at insertion (g)}}{\text{number of pigs per pen} * \text{days in each phase (d)}}$$

When a pig was taken out of the trial due to disease or death, the number of pigs and days in each phase was adjusted (only the number of days that the piglet was in test was used). The weight of piglets taken out of test was included in the Pen weight at exit.

Feed intake (FI) was calculated as the amount of feed provided per feed dispenser in each phase (or the total test period) minus the remaining feed residues and feed taken out for chemical analyses in each of the feeding phases.

$$FI \left(\frac{g}{d}\right) = \frac{\text{Feed provided in each phase (g)} - \text{Feed residues at phase shift (g)} - \text{Feed sample (g)}}{\text{number of pigs per pen} * \text{days in each phase (d)}}$$

When a pig was taken out of the trial the days in each phase was adjusted (only the number of days that the piglet was in test was used).

Feed Conversion Ratio (FCR) was calculated as FI (g/day) divided by ADG (g/day).

Pigs taken out of study (PTO) were calculated as percentage of the initial number of piglets in each phase (A, B and C).

All statistical analyses were done in cooperation with the Danish Technological Institute, Department of field trials, technology and analysis, Aarhus, Denmark.

Animal performance data were statistically analysed by the GLMM procedure of R (R Core Team, 2018). ADG, FI and FCR in phase A, phase B, phase C and the total test period were analysed in a Gaussian mixed effect model including "initial body weight at day 0", "weekly batch number" and "diet" (NC, PC, MA, GL). "Weekly batch number" was included in the model as a random parameter and "diet" was included in the model as a fixed parameter.

Standard model control for all outcome variables were performed to assure that the normality assumptions for the models were met. This was not true for ADG in phase C, ADG in phase A-C and FCR in phase C and therefore the test statistics were not accurate. To obtain a more accurate test of treatment effect, bootstrapping was applied to the analysis of these three variables.

Statistical significance was accepted at $P < 0.05$

This test was mainly designed to analyse performance data and hence health data in terms of PTO and medical treatments are only reported in a descriptive way (no statistical analyses were performed on these data).

Results and comments

Results from the analyses of the feed samples representing each diet from each feeding phase (A, B and C) are shown in Appendix D. It shows that the content of macro nutrients (protein, calcium and phosphorus) was very similar the different diets, which demonstrates the accuracy of the feeding system. In general, the calcium content was higher than expected, which indicates that one or more feed stuffs or the premix contains more calcium than expected. As the difference between the Expected and Analysed content of Calcium was the same for all four diets (three diets in phase B and C) it is not expected to affect the results of this trial.

The values indicated for the Expected content of trace minerals was the amount supplemented from the mineral premixes as the contribution from the raw materials was not included in the

recipients. Hence, the Analysed content was anticipated to be higher than the Expected values. This was also true for all trace minerals in all diets, except for Selenium in the GL diet in phase C (Analysed content was 0.35 ppm and Expected value was > 0.38). However, this small difference is expected to be due to the relatively high uncertainty of the chemical analysis of Selenium (20% Uncertainty). For the remaining trace minerals the variations between test diets within each phase were within the Uncertainty of the chemical analyses with CV values of 1.7 to 8.1%. According to Eurofins the uncertainty of the trace mineral analyses is 18%. Therefore, the analysed content of trace minerals confirm that the diets used in the different phases did not differ in content of trace minerals analysed.

The zinc content measured in the PC diet from phase A was lower than expected (1690 vs 2520 ppm). The ZnO in the PC diet was added as a 3% premix containing ZnO and grinded wheat that was mixed on the farm. It has not been possible to find a good explanation for the discrepancy between the Expected and Analysed content of Zn in this diet. It could be due to sampling, analysis uncertainty (the measurement was made as double analysis) or uncertain admixture. However, 1690 ppm of Zn is known from previous studies to have similar positive effect on performance of weaning piglets as 2500 ppm of Zn (Kjeldsen et al., 2017).

The main pig performance results are presented in Table 1. It shows, as expected, a significantly ($P<0.001$) higher ADG for the first 2 weeks after weaning in the PC group compared to the NC group (226 vs 199 g/day). In the same period the ADG of the MA and GL group was 204 g/day which did not differ significantly from the NC group.

In phase B and phase C the differences in ADG was not statistically significant ($P=0.08$ and $P=0.13$, respectively). However, numerically the ADG was lowest in the PC group in phase B and vice versa the ADG was highest in the PC group in phase C. The NC, PC, MA and GL diets resulted in similar ($P=0.13$) ADG throughout the 6-week test period (phase A-C) with ADG of 475, 483, 470 and 467 g/day, respectively.

The daily FI followed the same pattern as ADG. In phase A, the FI was significantly ($P<0.001$) higher in the PC group compared with the NC, MA and GL group (291 vs 251, 248 and 247 g/day, respectively). In phase B and phase C, the differences were not significant ($P=0.1$ and $P=0.08$, respectively), but the FI was numerically lowest in the PC group in phase B and numerically highest in the PC group in phase C. For the 6-week test period there was a strong tendency ($P=0.05$) that there was an effect of diet on FI with the highest FI in the PC group (691, 713, 692, 686 g/day for NC, PC, MA and GL, respectively).

Table 1. Average daily gain (ADG), feed intake (FI) and feed conversion ratio (FCR) in phase A (6-9 kg) phase B (9-15 kg), phase C (15-30 Kg) and the whole test period (A-C) of pigs fed the four experimental diets.

	Phase	Diet				P-value	LSD
		NC	PC	MA	GL		
ADG, g/d	A	199 ^b	226 ^a	204 ^b	204 ^b	<0.001	10
	B	516	490	507	501	0.08	19
	C	747	762	727	723	0.13	36
	A-C	475	483	470	467	0.13	13
FI, g/d	A	251 ^b	291 ^a	248 ^b	247 ^b	<0.001	9
	B	709	684	701	700	0.10	20
	C	1155	1180	1138	1139	0.08	37
	A-C	691	713	692	686	0.05	20
FCR, kg feed/kg gain	A	1.26 ^{ab}	1.29 ^a	1.24 ^b	1.23 ^b	<0.001	0.03
	B	1.37	1.38	1.38	1.39	0.55	0.03
	C	1.59	1.56	1.60	1.59	0.79	0.09
	A-C	1.45	1.47	1.47	1.47	0.83	0.05

^x Values are LS-means (n=16).

^{ab} LS-Means within rows without a common superscript differ (P<0.05).

The FCR was significantly (P<0.001) affected by dietary treatment in phase A. The MA and GL diets resulted in a more efficient feed utilization compared to the PC diet (1.24, 1.23 and 1.29 kg feed/kg gain, respectively). The FCR of the NC diet was in between with 1.26 kg feed/kg gain. In phase B, phase C and for the whole 6-weeks test period there were no statistically significant differences between the diets in respect of FCR.

The average piglet weight (\pm standard deviations) on day 43 was 26.6 (\pm 2.5), 26.8 (\pm 2.0), 26.4 (\pm 2.6) and 26.2 (\pm 2.5) kg for group NC, PC, MA and GL, respectively.

In Table 2, Table 3 and Table 4 the number of pigs taken out in percentage of the number of pigs inserted in each phase of the study is presented. The reason for taking the pigs out included different kinds of veterinary observations e.g. diarrhoea, hernia, arthritis etc.

The data in table 2 to 4 indicates that the reasons for taking pigs out differed randomly between phases and that there was no particular reason for taking pigs out in any of the treatment groups.

Table 2. Pigs taken out of study (PTO, number of pigs) in phase A (day 0-14) divided on the experimental diets and the reason for taking it out and PTO in % of total number of experimental pigs.

Reason	NC	PC	MA	GL
PTO:				
Disease pen	6	12	5	6
Dead	1	0	1	2
Reason:				
Diarrhoea	1	1	1	1
Arthritis	3	6	2	0
Cerebrospinal Meningitis	0	0	0	0
Blood ear	0	1	0	1
Hernia	0	0	1	0
Un-thriving	2	3	2	5
Tail biting	0	0	0	0
Other	1	1	0	1
PTO (% of total):				
Disease pen (%)	0.53	1.05	0.43	0.52
Dead (%)	0.09	0.00	0.09	0.17

Table 3. Pigs taken out of study (PTO, number of pigs) in phase B (day 15-28) divided on the experimental diets and the reason for taking it out and PTO in % of total number of experimental pigs.

Reason	NC	PC	MA	GL
PTO:				
Disease pen	5	12	8	3
Dead	3	7	0	2
Reason:				
Diarrhoea	0	0	0	0
Arthritis	2	4	6	2
Cerebrospinal Meningitis	0	1	0	0
Blood ear	0	1	1	0
Hernia	1	3	0	1
Un-thriving	3	9	0	1
Tail biting	0	0	0	0
Other	2	1	1	1
PTO (% of total):				
Disease pen (%)	0.44	1.06	0.70	0.26
Dead (%)	0.26	0.62	0.00	0.18

Table 4. Pigs taken out of study (PTO, number of pigs) in phase C (day 29-42) divided on the experimental diets and the reason for taking it out and PTO in % of total number of experimental pigs.

Reason	NC	PC	MA	GL
PTO:				
Disease pen	7	6	7	6
Dead	3	1	1	1
Reason:				
Diarrhoea	0	0	0	0
Arthritis	3	4	2	1
Cerebrospinal Meningitis	0	0	1	0
Blood ear	0	0	1	0
Hernia	3	1	4	3
Un-thriving	2	1	0	2
Tail biting	0	1	0	0
Other	2	0	0	1
PTO (% of total):				
Disease pen (%)	0.62	0.54	0.61	0.70
Dead (%)	0.27	0.09	0.09	0.09

To sum up the data in table 3 to 5 the percentage of pigs moved to a disease pen and the percentage of pigs that died during the 6-week test period is presented in Table 5. The total mortality for the 6-weeks test period was relatively low (0.2 to 0.7%).

Table 5. Pigs taken out of study (PTO, %) in the total test period (day 0-42)

Reason	NC	PC	MA	GL
Disease pen (%)	1.58	2.62	1.73	1.48
Dead (%)	0.61	0.70	0.17	0.43

When signs of diarrhoea were observed in a pen this pen was given antibiotic treatment (Doxycyclin, Doxx-Sol®) in the drinking water for 5 on each other following days. In Table 6 the total number of pens treated with Doxx-Sol® is presented. In addition, the “day after weaning” were medical treatment was initiated is shown. The data indicate that diarrhoea was mainly observed at day 3-7 after weaning. Pigs fed the PC diets did not show signs of diarrhoea that required antibiotic treatment during the first 7 days after weaning. Apparently, there were no differences between the number of antibiotic treatments in the remaining dietary groups (19, 20 and 23 pens were given antibiotic treatments in the NC, MA and GL group, respectively).

Table 6. Number of pens treated with antibiotics against diarrhoea and the days after weaning where medical treatment was initiated divided on the 4 dietary treatments

	NC	PC	MA	GL
Day	Number of pens			
3	3	0	1	4
4	3	0	5	4
5	5	0	6	5
7	5	0	6	5
9	1	0	0	0
11	0	0	0	2
12	0	1	0	0
16	0	0	0	1
33	2	2	2	2
Total	19	3	20	23

Conclusion

On the background of this trial the following is concluded:

- High levels of Zn from ZnO improved performance in terms of improved ADG, FI, FCR and reduced incidence of post weaning diarrhoea for the first 14 days after weaning as expected. However, in this study the advancement in performance did not remain when the Zn level was back on requirement level (week 3-6).

- The test group MA performed on the same level as the NC group on all parameters measured in this test. This demonstrates that the "Micro Aid, natural vitamin E, organic Fe and organic Se" approach can be used as an alternative to Benzoic acid and calcium formiate in weaning diets.

- The test group GL performed on the same level as the NC and MA group. The lack of differences in performance between the MA and GL group indicates that the gluconate bound trace minerals (as well as Fe-fumerate) did not affect the performance parameters measured in this trial.

Implications

This trial showed that after 43 days on the different diets the average weight of the experimental pigs was similar between the dietary groups. In addition, the FCR was not affected by the dietary treatments. With the marked price at the time of this trial the total feeding costs per pig was calculated to be EUR 8.56, 8.80 and 8.34 (DKK 63.7, 65.6 and 62.2) in the NC, PC, and MA group, respectively. Expressed as feeding cost per kg weight gain the values are EUR 0.419, 0.423 and 0.413 (DKK 3.12, 3,15 and 3.08) for the NC, PC and MA group, respectively. Consequently, in this trial it was economical beneficial to exchange organic acids (calcium formiate and benzoic acid) with organic selenium, natural vitamin E and Micro Aid.

The marked price of the GL diets is not available as gluconate bound trace-elements are still to be approved as feed supplements in EU.

References

Kjeldsen, NJ, Krogsdahl, J and Koziara, SE (2017). Alternativer til medicinsk zink til smågrise, Se- ges Svineproduktion, medd. 1101

Appendix A. Photo of the pens used for test



Appendix B. Feed ingredients in test diets

Table 1. Feed ingredients (%) in the test diets used in phase A (6-9 kg).

	NC	PC	MA	GL
Wheat	65.5	62.5	66.1	65.8
ZnO premix	-	3.0	-	-
Fish Meal	5.0	5.0	5.0	5.0
Soy oil	2.2	2.3	2.3	2.4
Alpha Soy	11.9	11.8	11.9	11.9
Premix ¹	15.4 ¹	15.4 ¹	14.7 ²	14.9 ³

¹Containing potato and milk proteins, vitamins, minerals, amino acids, phytase, antioxidants, xylanase and organic acids (Differences between diets are presented in Appendix C)

Table 2. Feed ingredients (%) in the diet used in phase B (9-15 kg).

	NC	PC	MA	GL
Wheat	60.5	60.5	62.0	61.9
Barley	10.0	10.0	10.0	10.0
Soybean meal	10.0	10.0	10.0	10.0
Soy oil	1.5	1.5	1.4	1.4
Alpha Soy	11.2	11.2	10.5	10.5
Premix ¹	6.8	6.8	6.1	6.2

¹Containing vitamins, minerals, amino acids, phytase, antioxidants and organic acids (Differences between diets are presented in Appendix C)

Table 3. Feed ingredients (%) in the diet used in phase C (15-30 kg)

	NC	PC	MA	GL
Wheat	47.9	47.9	49.0	48.6
Barley	20.0	20.0	20.0	20.0
Soybean meal	26.0	26.0	25.3	25.5
Soy oil	1.2	1.2	1.3	1.4
Premix ¹	4.9	4.9	4.4	4.5

¹Containing vitamins, minerals, amino acids, phytase, antioxidants and organic acids (Differences between diets are presented in Appendix C)

Appendix C. Planned differences between the experimental diets

Table 1. Planned differences between the experimental diets in phase A (6-9 kg)

	NC	PC	MA	GL
Micro Aid, ppm	-	-	250	250
Zn from:				
ZnO, ppm	120	2520	120	52
Zn-gluconate, ppm	-	-	-	68
Cu from:				
CuSO ₄ , ppm	135	135	135	79
Cu-gluconate, ppm	-	-	-	56
Mn from:				
MnO, ppm	48	48	48	23
Mn-gluconate, ppm	-	-	-	25
Fe from:				
FeSO ₄ , ppm	180	180	180	73
Fe-fumerate ppm	-	-	-	44
Fe-gluconate, ppm	-	-	-	63
Se from:				
Na ₂ SeO ₄ , ppm	0.42	0.42	0.21	0.21
Se-yeast (Selplex), ppm	-	-	0.21	0.21
Vitamin E from:				
dl-alpha-tocopherol, ppm	156	156	78	78
RRR-alpha tocopherol, ppm	-	-	78	78
Benzoic acid, %	0.5	0.5	-	-
Ca-formiate, %	0.3	0.3	-	-

Table 2. Planned differences between the experimental diets in phase B (9-15 kg)

	NC	PC	MA	GL
Micro Aid, ppm	-	-	125	125
Zn from:				
ZnO, ppm	111	111	111	43
Zn-gluconate, ppm	-	-	-	68
Cu from:				
CuSO ₄ , ppm	135	135	135	79
Cu-gluconate, ppm	-	-	-	56
Mn from:				
MnO, ppm	44	44	44	19
Mn-gluconate, ppm	-	-	-	25
Fe from:				
FeSO ₄ , ppm	167	167	166	62
Fe-fumerate ppm	-	-	-	41
Fe-gluconate, ppm	-	-	-	63
Se from:				
Na ₂ SeO ₄ , ppm	0.39	0.39	0.19	0.19
Se-yeast (Selplex), ppm	-	-	0.20	0.20
Vitamin E from:				
dl-alpha-tocopherol, ppm	144	144	72	72
RRR-alpha tocopherol, ppm	-	-	72	72
Benzoic acid, %	0.5	0.5	-	-

Table 3. Planned differences between the experimental diets in phase C (15-30 kg)

	NC	PC	MA	GL
Micro Aid, ppm	-	-	125	125
Zn from:				
ZnO, ppm	108	108	108	40
Zn-gluconate, ppm	-	-	-	68
Cu from:				
CuSO ₄ , ppm	88	88	88	32
Cu-gluconate, ppm	-	-	-	56
Mn from:				
MnO, ppm	43	43	43	18
Mn-gluconate, ppm	-	-	-	25
Fe from:				
FeSO ₄ , ppm	162	162	162	60
Fe-fumerate ppm	-	-	-	40
Fe-gluconate, ppm	-	-	-	62
Se from:				
Na ₂ SeO ₄ , ppm	0.38	0.38	0.19	0.19
Se-yeast (Selplex), ppm	-	-	0.19	0.19
Vitamin E from:				
dl-alpha-tocopherol, ppm	140	140	70	70
RRR-alpha tocopherol, ppm	-	-	70	70
Benzoic acid, %	0.5	0.5	-	-

Appendix D. Expected (E) and Analysed (A) content of nutrients in the experimental diets

Table 1. Expected (E)¹ and Analysed (A) content of nutrients in the experimental diets fed in phase A.

	NC		PC		MA		GL	
	<i>E</i>	A	<i>E</i>	A	<i>E</i>	A	<i>E</i>	A
Dry matter, %	88.0	89.8	88.0	89.8	88.0	89.7	88.0	89.9
Protein, %	18.9	19.2	18.8	19.2	18.9	19.2	18.9	19.3
Calcium, g/kg	7.4	9.9	7.4	9.9	7.4	10.0	7.4	10.0
Phosphorus, g/kg	6.1	6.5	6.1	6.5	6.1	6.8	6.1	6.8
Zn, ppm	>120	318	>2520	1690	>120	277	>120	290
Cu, ppm	>135	184	>135	209	>135	188	>135	175
Mn, ppm	>48	105	>48	110	>48	118	>48	116
Fe, ppm	>180	380	>180	369	>180	399	>180	410
Se, ppm	>0.42	0.66	>0.42	0.50	>0.42	0.47	>0.42	0.69

¹The values given for the Expected content of trace minerals is the amount supplemented from the mineral premix, the mineral content of the raw materials is not included, hence the analysed content is expected to higher than (>) the expected values.

Table 2. Expected (E)¹ and Analysed (A) content of nutrients in the experimental diets fed in phase B.

	NC		MA		GL	
	<i>E</i>	A	<i>E</i>	A	<i>E</i>	A
Dry matter, %	87.0	88.8	87.0	88.6	87.0	88.7
Protein, %	18.7	18.8	18.6	18.7	18.6	19.1
Calcium, g/kg	8.1	9.9	8.0	9.8	8.0	9.6
Phosphorus, g/kg	5.8	6.4	5.8	6.2	5.8	6.1
Zn, ppm	>111	209	>111	211	>111	200
Cu, ppm	>135	173	>135	159	>135	147
Mn, ppm	>44	91	>44	94	>44	92
Fe, ppm	>167	344	>166	362	>166	360
Se, ppm	>0.39	0.61	>0.39	0.43	>0.39	0.53

¹The values given for the Expected content of trace minerals is the amount supplemented from the mineral premix, the mineral content of the raw materials is not included, hence the analysed content is expected to higher than (>) the expected values

Table 3. Expected (E)¹ and Analysed (A) content of nutrients in the experimental diets fed in phase C.

	NC		MA		GL	
	<i>E</i>	A	<i>E</i>	A	<i>E</i>	A
Dry matter, %	86	88	87	88	87	88
Protein, %	18.5	19.1	18.5	18.1	18.6	18.1
Calcium, g/kg	8.3	8.9	8.3	8.7	8.3	9.4
Phosphorus, g/kg	5.4	5.9	5.4	5.6	5.4	5.7
Zn, ppm	>108	180	>108	196	>108	199
Cu, ppm	>88	100	>88	101	>88	93
Mn, ppm	>43	79	>43	75	>43	76
Fe, ppm	>162	336	>162	349	>162	334
Se, ppm	>0.38	0.60	>0.38	0.43	>0.38	0.35

¹The values given for the Expected content of trace minerals is the amount supplemented from the mineral premix, the mineral content of the raw materials is not included, hence the analysed content is expected to higher than (>) the expected values

Appendix E. Feed recipes

Diet: NC – Phase A

SvineRådgivningen	Dorthe Carlsson doc@sraad.dk	SvineRådgivningen Tlf. / mobil 70151200 / 20315768
Receipt: 97164488-A21 Smågrise A Tneg 04032020 test 20		
Navn	Sven Agergaard	Tlf. / mobil 97164488 / 40824488
Adresse	Nr. Vejervej 10 7400 Herning	Email agergaard@agropartnere.dk

Kode	Navn	Pct	Mængde				
97164488-R30	Wheat 2019	65,500	65,500				
613-20-SR	AlphaSoy 530, Soybean meal extr.	11,900	11,900				
830-0-SR	Fish meal	5,000	5,000				
885-0-SR	Vegetable oil	2,200	2,200				
97164488-ma06	Fravænnning MA06 04032020	15,400	15,400				
		100,000	100,000				

Næringsstof	Yes/No	Pr. kg	Pr. energi	Næringsstof	mg	Pr. kg	Pr. energi
Potatoprotein concentrat	Yes/No	0,012	0,010	Niacin - Added	mg	26,45	22,05
Dry Matter	%	88,40	88,40	Biotin vitamin H - Added	mg	0,26	0,22
Crude protein	%	18,86	15,72	Folinic acid, added	mg	0,00	0,00
Crude fat	%	4,83	4,03	-- Microminerals --			
Fiber	%	2,2	1,8	Calcium	g	7,45	6,21
Crude ash	%	5,8	4,8	Phosfor	g	6,10	5,09
Starch	g	373	311	Dig. Phosfor 0% fytase	g	3,58	2,99
Lactose	g	60	50	Dig. Phosfor 100% fytase	g	3,80	3,17
----- Energy -----				Dig. Phosfor 150% fytase	g	3,86	3,22
Feed Units Sows	FEso	1,177	0,981	Dig. Phosfor 200% fytase	g	3,91	3,26
Feed Units Pigs	FEsv	1,200	1,000	Dig. Phosfor 300% fytase	g	3,96	3,30
----- Amino Acids -----				Sodium	g	3,00	2,50
St. Dig. Protein	g	165,09	137,63	Chlorine	g	5,43	4,52
St. Dig. Lysin	g	12,60	10,50	Potassium	g	8,48	7,07
St. Dig. Methionin	g	4,44	3,70	Magnesium	g	1,30	1,08
St. Dig. Cystin	g	2,40	2,00	Sulfur	g	1,84	1,54
St. Dig. Methionin + Cystein	g	6,84	5,70	-- Microminerals --			
St. Dig. Threonin	g	7,80	6,50	Fe - added	mg	180,33	150,34
St. Dig. Tryptofan	g	2,64	2,20	Fe, iron (II) sulphate monohyd	mg	180,33	150,34
St. Dig. Isoleucin	g	6,76	5,63	Cu - Added	mg	135,25	112,75
St. Dig. Leucin	g	12,15	10,13	Cu, copper-II-sulfate	mg	135,25	112,75
St. dig. Histidin pigs	g	3,87	3,22	Mn, added	mg	48,09	40,09
St. Dig. Fenyl+Tyrosin	g	12,59	10,49	Mn, manganese (II) oxide	mg	48,09	40,09
St. Dig. Valin	g	8,04	6,70	Zn, added	mg	120,22	100,22
----- Vitamins -----				Zn, zinkoxide	mg	120,22	100,22
A-vitamin - Added	1000 i.e	10,58	8,82	I, added	mg	0,24	0,20
D3- vitamin - Added	1000 i.e	1,44	1,20	Se, added	mg	0,42	0,35
Alfatokoferol Added	mg	156,29	130,29	-- Additives --			
K3-vitamin - Added	mg	4,81	4,01	Beta xylanase (3.2.1.8)	U	4,007	3,341
B1-vitamin/ Thiamin - Added	mg	2,64	2,20	BHT (antioxidant)	mg	50	42
B2-vitamin/Riboflavin - Added	mg	5,29	4,41	Benzoic acid	mg	5,009	4,176
B6-vitamin/ Pyridoxin - Added	mg	3,97	3,31	Calciumformiate	mg	3,006	2,506
B12-vitamin - Added	mg	0,03	0,02	HiPhos (6-fytase 3.1.3.26) 4a1	FYT	1,503	1,253
D-pantotenemic acid, added	mg	13,22	11,02	Antioxidant	mg	50,1	41,8



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Diet: PC - Phase A

SvineRådgivningen

Dorthe Carlson

SvineRådgivningen

doc@sraad.dk

Tlf. / mobil 70151200 / 20315768

Receipt: 97164488-A22 Smågrise A Tpos 04032020 test 20			
Navn	Sven Agergaard	Tlf. / mobil	97164488 / 40824488
Adresse	Nr. Vejervej 10 7400 Herning	Email	agergaard@agropartnere.dk

Kode	Navn	Pct	Mængde
97164488-R30	Wheat 2019	62,500	62,500
613-20-SR	AlphaSoy 530, Soybean meal extr.	11,800	11,800
830-0-SR	Fish meal	5,000	5,000
97164488-RR01	Vet.zink premix smågrise (6-9 kg)	3,000	3,000
885-0-SR	Vegetable oil	2,300	2,300
97164488-ma06	Fravænning MA06 04032020	15,400	15,400
		100,000	100,000

Næringsstof	Yes/No	Pr. kg	Pr. energi	Næringsstof	mg	Pr. kg	Pr. energi
Potatoprotein concentrat	Yes/No	0,012	0,010	Niacin - Added	mg	26,45	22,06
Dry Matter	%	88,45	88,45	Biotin vitamin H - Added	mg	0,26	0,22
Crude protein	%	18,78	15,66	Folinic acid, added	mg	0,00	0,00
Crude fat	%	4,92	4,11	-- Macrominerals --			
Fiber	%	2,1	1,8	Calcium	g	7,44	6,21
Crude ash	%	6,1	5,1	Phosfor	g	6,09	5,08
Starch	g	371	310	Dig. Phosfor 0% fytase	g	3,58	2,98
Lactose	g	60	50	Dig. Phosfor 100% fytase	g	3,79	3,16
----- Energy -----				Dig. Phosfor 150% fytase	g	3,86	3,22
Feed Units Sows	FEso	1,176	0,981	Dig. Phosfor 200% fytase	g	3,90	3,25
Feed Units Pigs	FEsv	1,199	1,000	Dig. Phosfor 300% fytase	g	3,95	3,30
----- Amino Acids -----				Sodium	g	3,00	2,51
St. Dig. Protein	g	164,41	137,11	Clorine	g	5,42	4,52
St. Dig. Lysin	g	12,57	10,48	Potassium	g	8,44	7,04
St. Dig. Methionin	g	4,43	3,69	Magnesium	g	1,29	1,08
St. Dig. Cystin	g	2,39	2,00	Sulfur	g	1,84	1,53
St. Dig. Methionin + Cystein	g	6,82	5,69	-- Micromineralsr --			
St. Dig. Threonin	g	7,77	6,48	Fe - added	mg	180,33	150,39
St. Dig. Tryptofan	g	2,63	2,19	Fe, iron (II) sulphate monohydr	mg	180,33	150,39
St. Dig. Isoleucin	g	6,73	5,61	Cu - Added	mg	135,25	112,80
St. Dig. Leucin	g	12,10	10,09	Cu, copper-II-sulfate	mg	135,25	112,80
St. dig. Histidin pigs	g	3,85	3,21	Mn, added	mg	48,09	40,10
St. Dig. FenyL+Tyrosin	g	12,53	10,45	Mn, manganese (II) oxide	mg	48,09	40,10
St. Dig. Valin	g	8,00	6,68	Zn, added	mg	2.520,22	2.101,80
----- Vitamins -----				Zn, zinkoxide	mg	2.520,22	2.101,80
A-vitamin - Added	1000 i.e	10,58	8,82	I, added	mg	0,24	0,20
D3- vitamin - Added	1000 i.e	1,44	1,20	Se, added	mg	0,42	0,35
Alfatokoferol Added	mg	156,29	130,34	-- Additives --			
K3-vitamin - Added	mg	4,81	4,01	Beta xylanase (3.2.1.8)	U	4,007	3,342
B1-vitamin/ Thiamin - Added	mg	2,64	2,21	BHT (antioxidant)	mg	50	42
B2-vitamin/Riboflavin - Added	mg	5,29	4,41	Benzoic acid	mg	5,009	4,178
B6-vitamin/ Pyridoxin - Added	mg	3,97	3,31	Calciumformiate	mg	3,006	2,507
B12-vitamin - Added	mg	0,03	0,02	HiPhos (6-fytase 3.1.3.26) 4a11	FYT	1,503	1,253
D-pantotenemic acid, added	mg	13,22	11,03	Antioxidant	mg	50,1	41,8



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Diet: MA – Phase A



Dorthe Carlson
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SvineRådgivningen

Tlf / mobil 70151200 / 20315768

Receipt: 97164488-A20 Smågrise A Tl 04032020 test 20

Navn	Sven Agergaard	Tlf / mobil	97164488 / 40824488
Adresse	Nr. Vejervej 10 7400 Herning	Email	agergaard@agropartnere.dk

Kode	Navn	Pct	Mængde					
97164488-R30	Wheat 2019	66,100	66,100					
613-20-SR	AlphaSoy 530, Soybean meal extr.	11,900	11,900					
830-0-SR	Fish meal	5,000	5,000					
885-0-SR	Vegetable oil	2,300	2,300					
97164488-ma05	Fravæning MA05 04032020	14,700	14,700					
		100,000	100,000					
Næringsstof		Pr. kg	Pr. energi	Næringsstof		Pr. kg	Pr. energi	
Potatoprotein koncentrat	Yes/No	0,012	0,010	D-pantotenemic acid, added	mg	13,20	11,01	
Dry Matter	%	88,33	88,33	Niacin - Added	mg	26,41	22,02	
Crude protein	%	18,91	15,77	Biotin vitamin H - Added	mg	0,26	0,22	
Crude fat	%	4,94	4,12	Folic acid, added	mg	0,00	0,00	
Fiber	%	2,2	1,8	-- Macrominerals --				
Crude ash	%	5,8	4,9	Calcium	g	7,44	6,21	
Starch	g	377	314	Phosfor	g	6,10	5,09	
Lactose	g	60	50	Dig. Phosfor 0% fytase	g	3,58	2,99	
----- Energy -----				Dig. Phosfor 100% fytase	g	3,80	3,17	
Feed Units Sows	FEso	1,177	0,981	Dig. Phosfor 150% fytase	g	3,86	3,22	
Feed Units Pigs	FEsv	1,199	1,000	Dig. Phosfor 200% fytase	g	3,91	3,26	
----- Amino Acids -----				Dig. Phosfor 300% fytase	g	3,96	3,30	
St. Dig. Protein	g	165,54	138,04	Sodium	g	3,00	2,50	
St. Dig. Lysin	g	12,61	10,52	Clorine	g	5,44	4,53	
St. Dig. Methionin	g	4,43	3,69	Potassium	g	8,51	7,09	
St. Dig. Cystin	g	2,41	2,01	Magnesium	g	1,31	1,09	
St. Dig. Methionin + Cystein	g	6,85	5,71	Sulfur	g	1,85	1,54	
St. Dig. Threonin	g	7,81	6,51	-- Micromineralsr --				
St. Dig. Tryptofan	g	2,64	2,20	Fe - added	mg	180,06	150,15	
St. Dig. Isoleucin	g	6,77	5,65	Fe, iron (II) sulphate monohydr	mg	180,06	150,15	
St. Dig. Leucin	g	12,18	10,16	Cu - Added	mg	135,04	112,61	
St. dig. Histidin pigs	g	3,88	3,23	Cu, copper-II-sulfate	mg	135,04	112,61	
St. Dig. Fenyl+Tyrosin	g	12,62	10,52	Mn, added	mg	48,02	40,04	
St. Dig. Valin	g	8,05	6,71	Mn, manganese (II) oxide	mg	48,02	40,04	
----- Vitamins -----				Zn, added	mg	120,04	100,10	
A-vitamin - Added	1000 i.e	10,56	8,81	Zn, zinkoxide	mg	120,04	100,10	
D3- vitamin - Added	1000 i.e	1,44	1,20	I, added	mg	0,24	0,20	
Alfatokoferol Added	mg	78,03	65,06	Se, selenium yeast	mg	0,21	0,18	
E-vitamin/RRR-alfa-tokoferol (mg		78,03	65,06	Se, added	mg	0,42	0,35	
K3-vitamin - Added	mg	4,80	4,00	-- Additives --				
B1-vitamin/ Thiamin - Added	mg	2,64	2,20	Beta xylanase (3.2.1.8)	U	4,001	3,337	
B2-vitamin/Riboflavin - Added	mg	5,28	4,40	BHT (antioxidant)	mg	50	42	
B6-vitamin/ Pyridoxin - Added	mg	3,96	3,30	HiPhos (6-fytase 3.1.3.26) 4a11	FYT	1,500	1,251	
B12-vitamin - Added	mg	0,03	0,02	Antioxidant	mg	50,0	41,7	



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Diet: GL – Phase A

SvineRådgivningen

Dorthe Carlson

doc@sraad.dk

SvineRådgivningen

Tlf / mobil 70151200 / 20315768

Receipt: 97164488-A19 Smågrise A T2 04032020 test 20			
Navn	Sven Agergaard	Tlf / mobil	97164488 / 40824488
Adresse	Nr. Vejenvej 10 7400 Herning	Email	agergaard@agropartnere.dk

Kode	Navn	Pct	Mængde
97164488-R30	Wheat 2019	65,800	65,800
613-20-SR	AlphaSoy 530, Soybean meal extr.	11,900	11,900
830-0-SR	Fish meal	5,000	5,000
885-0-SR	Vegetable oil	2,400	2,400
97164488-ms04	Fravæning MA04 04032020	14,900	14,900
		100,000	100,000

Næringsstof		Pr. kg	Pr. energi	Næringsstof		Pr. kg	Pr. energi
Potatoprotein concentrat	Yes/No	0,012	0,010	Folic acid, added	mg	0,00	0,00
Dry Matter	%	88,36	88,36	-- Macrominerals --			
Crude protein	%	18,89	15,74	Calcium	g	7,44	6,21
Crude fat	%	5,04	4,20	Phosfor	g	6,10	5,09
Fiber	%	2,2	1,8	Dig. Phosfor 0% fytase	g	3,58	2,99
Crude ash	%	6,0	5,0	Dig. Phosfor 100% fytase	g	3,80	3,17
Starch	g	375	312	Dig. Phosfor 150% fytase	g	3,86	3,22
Lactose	g	60	50	Dig. Phosfor 200% fytase	g	3,91	3,26
----- Energy -----				Dig. Phosfor 300% fytase	g	3,96	3,30
Feed Units Sows	FEso	1,177	0,981	Sodium	g	3,00	2,50
Feed Units Pigs	FEsv	1,200	1,000	Clorine	g	5,43	4,53
----- Amino Acids -----				Potassium	g	8,49	7,08
St. Dig. Protein	g	165,32	137,80	Magnesium	g	1,30	1,09
St. Dig. Lysin	g	12,61	10,51	Sulfur	g	1,85	1,54
St. Dig. Methionin	g	4,43	3,69	-- Micromineralsr --			
St. Dig. Cystin	g	2,41	2,01	Fe - added	mg	180,14	150,16
St. Dig. Methionin + Cystein	g	6,84	5,70	Fe, iron (II) sulphate monohydr	mg	73,16	60,98
St. Dig. Threonin	g	7,80	6,50	Fe, ferrous gluconate	mg	62,55	52,14
St. Dig. Tryptofan	g	2,64	2,20	Fe, ferrofumarate	mg	44,44	37,04
St. Dig. Isoleucin	g	6,77	5,64	Cu - Added	mg	135,11	112,62
St. Dig. Leucin	g	12,17	10,14	Cu, copper-II-sulfate	mg	79,06	65,90
St. dig. Histidin pigs	g	3,87	3,23	Cu, gluconate	mg	56,04	46,72
St. Dig. Fenyl+Tyrosin	g	12,60	10,51	Mn, added	mg	48,04	40,04
St. Dig. Valin	g	8,04	6,70	Mn, manganese (II) oxide	mg	23,02	19,19
----- Vitamins -----				Mn, manganese gluconate	mg	25,02	20,86
A-vitamin - Added	1000 i.e	10,57	8,81	Zn, added	mg	120,10	100,11
D3- vitamin - Added	1000 i.e	1,44	1,20	Zn, zinkoxide	mg	52,54	43,80
Alfatokoferol Added	mg	78,06	65,07	Zn, zinkgluconate	mg	67,55	56,31
E-vitamin/RRR-alfa-tokoferol (mg		78,06	65,07	I, added	mg	0,24	0,20
K3-vitamin - Added	mg	4,80	4,00	Se, selenium yeast	mg	0,21	0,18
B1-vitamin/ Thiamin - Added	mg	2,64	2,20	Se, added	mg	0,42	0,35
B2-vitamin/Riboflavin - Added	mg	5,28	4,40	-- Additives --			
B6-vitamin/ Pyridoxin - Added	mg	3,96	3,30	Beta xylanase (3.2.1.8)	U	4,003	3,337
B12-vitamin - Added	mg	0,03	0,02	BHT (antioxidant)	mg	50	42
D-pantotenic acid, added	mg	13,21	11,01	HiPhos (6-fytase 3.1.3.26) 4a11	FYT	1,501	1,251
Niacin - Added	mg	26,42	22,02	Antioxidant	mg	50,0	41,7
Biotin vitamin H - Added	mg	0,26	0,22				



Info

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Diet: NC and PC – Phase B

SvineRådgivningen

Dorthe Carlson
doc@sraad.dk

SvineRådgivningen

Tlf. / mobil 70151200 / 20315768

Receipt: 97164488-B20 Phase B, 9-15 kg			
Navn	Sven Agergaard	Tlf. / mobil	97164488 / 40824488
Adresse	Nr. Vejervej 10 7400 Herning	Email	agergaard@agropartnere.dk



Kode	Navn	Pct	Mængde
97164488-R26	Wheat 2019, PDM 11,3%, W 15,4%	60,500	60,500
97164488-R25	Barley spring 2019, PDM 9,5%, W 12,4%	10,000	10,000
612-0-SR	Soya bean meal, toasted, dehulled	10,000	10,000
613-20-SR	AlphaSoy 530, Soybean meal extr.	11,200	11,200
885-0-SR	Vegetable oil and fat, Soy	1,500	1,500
97164488-mb16	Mineral MB16 9-15 kg. 01102019	6,800	6,800
		100,000	100,000

Næringsstof		Pr. kg	Pr. energi	Næringsstof	Pr. kg	Pr. energi	
Potatoprotein concentrat	Yes/No	0,018	0,016	B6-vitamin/ Pyridoxin - Added	mg	3,33	3,00
Dry Matter	%	86,88	86,88	B12-vitamin - Added	mg	0,02	0,02
Crude protein	%	18,65	16,79	D-pantotenemic acid, added	mg	11,11	10,01
Crude fat	%	3,59	3,23	Niacin - Added	mg	22,23	20,01
Fiber	%	2,8	2,6	Biotin vitamin H - Added	mg	0,22	0,20
Crude ash	%	5,9	5,3	Folic acid, added	mg	0,00	0,00
Starch	g	400	360	-- Macrominerals --			
Lactose	g	0	0	Calcium	g	8,06	7,25
----- Energy -----				Phosfor	g	5,75	5,18
Feed Units Sows	FEso	1,098	0,989	Dig. Phosfor 0% fytase	g	3,15	2,84
Feed Units Pigs	FEsv	1,111	1,000	Dig. Phosfor 100% fytase	g	3,51	3,16
----- Amino Acids -----				Dig. Phosfor 150% fytase	g	3,60	3,24
St. Dig. Protein	g	162,0	145,9	Dig. Phosfor 200% fytase	g	3,67	3,30
St. Dig. Lysin	g	12,2	11,0	Sodium	g	2,33	2,10
St. Dig. Methionin	g	3,9	3,5	Clorine	g	5,36	4,82
St. Dig. Cystin	g	2,5	2,3	Potassium	g	8,28	7,46
St. Dig. Methionin + Cystein	g	6,4	5,8	Magnesium	g	1,40	1,26
St. Dig. Threonin	g	7,5	6,8	Sulfur	g	1,66	1,50
St. Dig. Tryptofan	g	2,6	2,3	-- Micromineralsr --			
St. Dig. Isoleucin	g	6,6	6,0	Fe - added	mg	166,71	150,09
St. Dig. Leucin	g	12,0	10,8	Cu - Added	mg	135,08	121,61
St. dig. Histidin pigs	g	3,9	3,5	Mn, added	mg	44,46	40,02
St. Dig. FenyL+Tyrosin	g	13,6	12,2	Zn, added	mg	111,14	100,06
St. Dig. Valin	g	7,9	7,1	I, added	mg	1,11	1,00
----- Vitamins -----				Se, added	mg	0,39	0,35
A-vitamin - Added	1000 i.e	5,56	5,00	-- Additives --			
D3- vitamin - Added	1000 i.e	0,56	0,50	Beta xylanase (3.2.1.8)	U	4,002	3,603
Alfatokoferol Added	mg	144,48	130,08	BHT (antioxidant)	mg	50	45
K3-vitamin - Added	mg	4,45	4,00	Benzosyre	mg	5,003	4,504
B1-vitamin/ Thiamin - Added	mg	2,22	2,00	HiPhos (6-fytase 3.1.3.26) 4a11	FYT	1,001	901
B2-vitamin/Riboflavin - Added	mg	4,45	4,00	Antioxidant	mg	50,0	45,0



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Diet: MA – Phase B

SwineRådgivningen

Dorthe Carlson
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SwineRådgivningen

Tlf / mobil 70151200 / 20315768

Receipt: 97164488-B23 Phase B, 9-15 kg			
Navn	Sven Agergaard	Tlf / mobil	97164488 / 40824488
Adresse	Nr. Vejenvej 10 7400 Herning	Email	agergaard@agropartnere.dk

Kode	Navn	Pct	Mængde				
97164488-R29	Barley 2019	10,000	10,000				
97164488-R30	Wheat 2019	62,000	62,000				
612-0-SR	Soya bean meal, toasted, dehulled	10,000	10,000				
613-20-SR	AlphaSoy 530, Soybean meal extr.	10,500	10,500				
885-0-SR	Vegetable oil	1,400	1,400				
97164488-mb21	Mineral 9-15 kg. MB21 04032020 test 20	6,100	6,100				
		100,000	100,000				
Næringsstof		Pr. kg	Pr. energi	Næringsstof	Pr. kg	Pr. energi	
Potatoprotein concentrat	Yes/No	0,016	0,014	D-pantotenemic acid, added	mg	11,08	10,02
Dry Matter	%	87,04	87,04	Niacin - Added	mg	22,15	20,04
Crude protein	%	18,59	16,82	Biotin vitamin H - Added	mg	0,22	0,20
Crude fat	%	3,52	3,18	Folic acid, added	mg	0,00	0,00
Fiber	%	2,9	2,6	-- Macrominerals --			
Crude ash	%	5,8	5,3	Calcium	g	8,03	7,26
Starch	g	411	371	Phosfor	g	5,75	5,20
Lactose	g	0	0	Dig. Phosfor 0% fytase	g	3,13	2,83
----- Energy -----				Dig. Phosfor 100% fytase	g	3,50	3,16
Feed Units Sows	FEso	1,094	0,989	Dig. Phosfor 150% fytase	g	3,59	3,25
Feed Units Pigs	FEsv	1,106	1,000	Dig. Phosfor 200% fytase	g	3,65	3,30
----- Amino Acids -----				Dig. Phosfor 300% fytase	g	3,73	3,37
St. Dig. Protein	g	161,38	145,97	Sodium	g	2,33	2,10
St. Dig. Lysin	g	12,17	11,00	Clorine	g	5,41	4,89
St. Dig. Methionin	g	3,87	3,50	Potassium	g	8,20	7,42
St. Dig. Cystin	g	2,52	2,28	Magnesium	g	1,39	1,26
St. Dig. Methionin + Cystein	g	6,39	5,78	Sulfur	g	1,64	1,49
St. Dig. Threonin	g	7,52	6,80	-- Micromineralsr --			
St. Dig. Tryptofan	g	2,54	2,30	Fe - added	mg	166,14	150,27
St. Dig. Isoleucin	g	6,51	5,89	Fe, iron (II) sulphate monohydr	mg	166,14	150,27
St. Dig. Leucin	g	11,83	10,70	Cu - Added	mg	135,24	122,32
St. dig. Histidin pigs	g	3,86	3,49	Cu, copper-II-sulfate	mg	135,24	122,32
St. Dig. Fenyl.+Tyrosin	g	13,38	12,10	Mn, added	mg	44,30	40,07
St. Dig. Valin	g	7,85	7,10	Mn, manganese (II) oxide	mg	44,30	40,07
----- Vitamins -----				Zn, added	mg	110,76	100,18
A-vitamin - Added	1000 i.e	5,54	5,01	Zn, zinkoxide	mg	110,76	100,18
D3- vitamin - Added	1000 i.e	0,55	0,50	I, added	mg	1,11	1,00
Alfatokoferol Added	mg	71,99	65,12	Se, selenium yeast	mg	0,19	0,18
E-vitamin/RR-alfa-tokoferol (mg		71,99	65,12	Se, added	mg	0,39	0,35
K3-vitamin - Added	mg	4,43	4,01	-- Additives --			
B1-vitamin/ Thiamin - Added	mg	2,22	2,00	Beta xylanase (3.2.1.8)	U	4,007	3,624
B2-vitamin/Riboflavin - Added	mg	4,43	4,01	BHT (antioxidant)	mg	50	45
B6-vitamin/ Pyridoxin - Added	mg	3,32	3,01	HiPhos (6-lytase 3.1.3.26) 4a1	FYT	1,002	906
B12-vitamin - Added	mg	0,02	0,02	Antioxidant	mg	50,1	45,3



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Diet: GL – Phase B



Dorthe Carlson
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SvineRådgivningen
Tlf. / mobil 70151200 / 20315768

Receipt: 97164488-B22 Phase B, 9-15 kg			
Navn	Sven Agergaard	Tlf. / mobil	97164488 / 40824488
Adresse	Nr. Vejervej 10 7400 Herning	Email	agergaard@agroparmere.dk

Kode	Navn	Pct	Mængde				
97164488-R29	Barley 2019	10,000	10,000				
97164488-R30	Wheat 2019	61,900	61,900				
612-0-SR	Soya bean meal, toasted, dehulled	10,000	10,000				
613-20-SR	AlphaSoy 530, Soybean meal extr.	10,500	10,500				
885-0-SR	Vegetable oil	1,400	1,400				
97164488-mb20	Mineral 9-15 kg MB20 04032020 test 20	6,200	6,200				
		100,000	100,000				
Næringsstof		Pr. kg	Pr. energi	Næringsstof		Pr. kg	Pr. energi
Potatoprotein concentrat	Yes/No	0,016	0,015	Folinic acid, added	mg	0,00	0,00
Dry Matter	%	87,05	87,05	-- Macrominerals --			
Crude protein	%	18,58	16,83	Calcium	g	8,02	7,26
Crude fat	%	3,52	3,18	Phosfor	g	5,75	5,20
Fiber	%	2,9	2,6	Dig. Phosfor 0% fytase	g	3,13	2,83
Crude ash	%	5,9	5,4	Dig. Phosfor 100% fytase	g	3,49	3,16
Starch	g	410	371	Dig. Phosfor 150% fytase	g	3,59	3,25
Lactose	g	0	0	Dig. Phosfor 200% fytase	g	3,65	3,30
----- Energy -----				Dig. Phosfor 300% fytase	g	3,72	3,37
Feed Units Sows	FEso	1,093	0,989	Sodium	g	2,32	2,10
Feed Units Pigs	FEsv	1,104	1,000	Chlorine	g	5,40	4,89
----- Amino Acids -----				Potassium	g	8,19	7,42
St. Dig. Protein	g	161,29	146,05	Magnesium	g	1,39	1,26
St. Dig. Lysin	g	12,16	11,01	Sulfur	g	1,64	1,49
St. Dig. Methionin	g	3,87	3,50	-- Micromineralsr --			
St. Dig. Cystin	g	2,52	2,28	Fe - added	mg	165,92	150,25
St. Dig. Methionin + Cystein	g	6,39	5,79	Fe, iron (II) sulphate monohydr	mg	62,40	56,50
St. Dig. Threonin	g	7,51	6,80	Fe, ferrous gluconate	mg	62,60	56,68
St. Dig. Tryptofan	g	2,54	2,30	Fe, ferrofumarate	mg	40,93	37,06
St. Dig. Isoleucin	g	6,51	5,89	Cu - Added	mg	135,21	122,44
St. Dig. Leucin	g	11,82	10,71	Cu, copper-II-sulfate	mg	79,12	71,65
St. dig. Histidin pigs	g	3,85	3,49	Cu, gluconate	mg	56,09	50,79
St. Dig. Fenyl-Tyrosin	g	13,37	12,11	Mn, added	mg	44,25	40,07
St. Dig. Valin	g	7,84	7,10	Mn, manganese (II) oxide	mg	19,21	17,39
----- Vitamins -----				Mn, manganese gluconate	mg	25,04	22,67
A-vitamin - Added	1000 i.e	5,53	5,01	Zn, added	mg	110,62	100,16
D3- vitamin - Added	1000 i.e	0,55	0,50	Zn, zinkoxide	mg	43,01	38,95
Alfatokoferol Added	mg	71,90	65,11	Zn, zink gluconate	mg	67,61	61,22
E-vitamin/RRR-alfa-tokoferol (mg		71,90	65,11	I, added	mg	1,11	1,00
K3-vitamin - Added	mg	4,42	4,01	Se, selenium yeast	mg	0,19	0,18
B1-vitamin/ Thiamin - Added	mg	2,21	2,00	Se, added	mg	0,39	0,35
B2-vitamin/Riboflavin - Added	mg	4,42	4,01	-- Additives --			
B6-vitamin/ Pyridoxin - Added	mg	3,32	3,00	Beta xylanase (3.2.1.8)	U	4,006	3,628
B12-vitamin - Added	mg	0,02	0,02	BHT (antioxidant)	mg	50	45
D-pantotenemic acid, added	mg	11,06	10,02	HiPhos (6-fytase 3.1.3.26) 4al	FYT	1,002	907
Niacin - Added	mg	22,12	20,03	Antioxidant	mg	50,1	45,3
Biotin vitamin H - Added	mg	0,22	0,20				



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Diet: NC and PC – Phase C



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SvineRådgivningen
Tlf / mobil 70151200 / 20315768

Receipt: 97164488-D22 Phase C, 15-30 kg			
Navn	Sven Agergaard	Tlf / mobil	97164488 / 40824488
Adresse	Nr. Vejervej 10 7400 Herning	Email	agergaard@agropartner.dk

HØJ PROTEIN - opjusteret aminosyreprofil

Kode	Navn	Pct	Mængde				
97164488-R25	Barley spring 2019, PDM 9,5%, W 12,4%	20,000	20,000				
97164488-R26	Wheat 2019, PDM 11,3%, W 15,4%	47,900	47,900				
612-0-SR	Soya bean meal, toasted, dehulled	26,000	26,000				
885-0-SR	Vegetable oil and fat, Soy	1,200	1,200				
97164488-mc18	Mineral 15-30 kg. MC18 01102019	4,900	4,900				
		100,000	100,000				

Næringsstof		Pr. kg	Pr. energi	Næringsstof		Pr. kg	Pr. energi
Dry Matter	%	86,22	86,22	B12-vitamin - Added	mg	0,02	0,02
Crude protein	%	18,53	17,17	D-pantotenic acid, added	mg	10,80	10,01
Crude fat	%	3,41	3,16	Niacin - Added	mg	21,59	20,01
Fiber	%	3,2	3,0	Biotin vitamin H - Added	mg	0,22	0,20
Crude ash	%	6,1	5,6	Folinic acid, added	mg	0,00	0,00
Starch	g	389	361	-- Macrominerals --			
Lactose	g	0	0	Calcium	g	8,31	7,70
----- Energy -----				Phosfor	g	5,41	5,02
Feed Units Sows	FEso	1,071	0,993	Dig. Phosfor 0% fytase	g	2,84	2,63
Feed Units Pigs	FEsv	1,079	1,000	Dig. Phosfor 100% fytase	g	3,24	3,00
----- Amino Acids -----				Dig. Phosfor 150% fytase	g	3,34	3,10
St. Dig. Protein	g	161,7	149,8	Dig. Phosfor 200% fytase	g	3,41	3,16
St. Dig. Lysin	g	11,9	11,0	Sodium	g	2,16	2,00
St. Dig. Methionin	g	3,8	3,5	Clorine	g	4,07	3,77
St. Dig. Cystin	g	2,6	2,4	Potasium	g	8,77	8,13
St. Dig. Methionin + Cystein	g	6,3	5,9	Magnesium	g	1,44	1,34
St. Dig. Threonin	g	7,3	6,8	Sulfur	g	1,58	1,47
St. Dig. Tryptofan	g	2,5	2,3	-- Micromineralsr --			
St. Dig. Isoleucin	g	6,3	5,8	Fe - added	mg	161,95	150,08
St. Dig. Leucin	g	11,6	10,8	Cu - Added	mg	88,04	81,59
St. dig. Histidin pigs	g	4,0	3,7	Mn, added	mg	43,19	40,02
St. Dig. Fenyl.+Tyrosin	g	12,9	11,9	Zn, added	mg	107,97	100,05
St. Dig. Valin	g	7,8	7,2	I, added	mg	0,43	0,40
----- Vitamins -----				Se, added	mg	0,38	0,35
A-vitamin - Added	1000 i.e	5,40	5,00	-- Additives --			
D3- vitamin - Added	1000 i.e	0,54	0,50	Beta xylanase (3.2.1.8)	U	4,002	3,708
Alfatokoferol Added	mg	140,36	130,07	BHT (antioxidant)	mg	50	46
K3-vitamin - Added	mg	4,32	4,00	Benzosyre	mg	5,002	4,636
B1-vitamin/ Thiamin - Added	mg	2,16	2,00	HiPhos (6-fytase 3.1.3.26) 4a11	FYT	1,000	927
B2-vitamin/Riboflavin - Added	mg	4,32	4,00	Antioxidant	mg	50,0	46,4
B6-vitamin/ Pyridoxin - Added	mg	3,24	3,00				



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Diet: MA – Phase C



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SvineRådgivningen
Tlf / mobil 70151200 / 20315768

Receipt: 97164488-D25 Phase C, 15-30 kg			
Navn	Sven Agergaard	Tlf / mobil	97164488 / 40824488
Adresse	Nr. Vejervej 10 7400 Herning	Email	agergaard@agropartners.dk

Kode	Navn	Pct	Mængde
97164488-R29	Barley 2019	20,000	20,000
97164488-R30	Wheat 2019	49,000	49,000
612-0-SR	Soya bean meal, toasted, dehulled	25,300	25,300
885-0-SR	Vegetable oil	1,300	1,300
97164488-mc23	Mineral 15-30 kg. MC23 04032020 test 20	4,400	4,400
		100,000	100,000

Næringsstof	Pr. kg	Pr. energi	Næringsstof	Pr. kg	Pr. energi
Dry Matter	86,48	86,48	Niacin - Added	21,59	20,03
Crude protein	18,51	17,18	Biotin vitamin H - Added	0,22	0,20
Crude fat	3,51	3,26	Folic acid, added	0,00	0,00
Fiber	3,2	3,0	-- Macrominerals --		
Crude ash	6,1	5,6	Calcium	8,31	7,71
Starch	397	368	Phosfor	5,43	5,04
Lactose	0	0	Dig. Phosfor 0% fytase	2,82	2,62
----- Energy -----			Dig. Phosfor 100% fytase	3,23	3,00
Feed Units Sows FEso	1,071	0,993	Dig. Phosfor 150% fytase	3,34	3,10
Feed Units Pigs FEsv	1,078	1,000	Dig. Phosfor 200% fytase	3,41	3,16
----- Amino Acids -----			Dig. Phosfor 300% fytase	3,49	3,24
St. Dig. Protein	161,31	149,68	Sodium	2,16	2,00
St. Dig. Lysin	11,85	11,00	Chlorine	4,09	3,79
St. Dig. Methionin	3,77	3,50	Potassium	8,70	8,07
St. Dig. Cystin	2,56	2,38	Magnesium	1,44	1,33
St. Dig. Methionin + Cystein	6,34	5,88	Sulfur	1,57	1,46
St. Dig. Threonin	7,33	6,80	-- Micromineralsr --		
St. Dig. Tryptofan	2,48	2,30	Fe - added	161,93	150,26
St. Dig. Isoleucin	6,24	5,79	Fe, iron (II) sulphate monohydr	161,93	150,26
St. Dig. Leucin	11,53	10,70	Cu - Added	88,15	81,80
St. dig. Histidin pigs	3,96	3,67	Cu, copper-II-sulfate	88,15	81,80
St. Dig. Fenyl-Tyrosin	12,79	11,87	Mn, added	43,18	40,07
St. Dig. Valin	7,75	7,19	Mn, manganese (II) oxide	43,18	40,07
----- Vitamins -----			Zn, added	107,96	100,17
A-vitamin - Added	1000 i.e	5,40	Zn, zinkoxide	107,96	100,17
D3- vitamin - Added	1000 i.e	0,54	I, added	0,43	0,40
Alfatokoferol Added	mg	70,17	Se, selenium yeast	0,19	0,18
E-vitamin/RRR-alfa-tokoferol (mg		70,17	Se, added	0,38	0,35
K3-vitamin - Added	mg	4,32	-- Additives --		
B1-vitamin/ Thiamin - Added	mg	2,16	Beta xylanase (3.2.1.8)	4,007	3,718
B2-vitamin/Riboflavin - Added	mg	4,32	BHT (antioxidant)	50	46
B6-vitamin/ Pyridoxin - Added	mg	3,24	HiPhos (6-phytase 3.1.3.26) 4a11	1,002	930
B12-vitamin - Added	mg	0,02	Antioxidant	50,1	46,5
D-pantotenemic acid, added	mg	10,80			



19-11-2020 09:07:12
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Diet: GL – Phase C

SvineRådgivningen

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SvineRådgivningen

Tlf / mobil 70151200 / 20315768

Receipt: 97164488-D24 Phase C, 15-30 kg			
Navn	Sven Agergaard	Tlf / mobil	97164488 / 40824488
Adresse	Nr. Vejenvej 10 7400 Herning	Email	agergaard@agropartner.dk

Kode	Navn	Pct	Mængde
97164488-R29	Barley 2019	20,000	20,000
97164488-R30	Wheat 2019	48,600	48,600
612-0-SR	Soya bean meal, toasted, dehulled	25,500	25,500
885-0-SR	Vegetable oil	1,400	1,400
97164488-mc22	Mineral 15-30 kg, MC22 04032020 test 20	4,500	4,500
		100,000	100,000

Næringsstof		Pr. kg	Pr. energi	Næringsstof		Pr. kg	Pr. energi
Dry Matter	%	86,51	86,51	Folic acid, added	mg	0,00	0,00
Crude protein	%	18,57	17,21	-- Macrominerals --			
Crude fat	%	3,61	3,34	Calcium	g	8,34	7,73
Fiber	%	3,2	3,0	Phosfor	g	5,44	5,04
Crude ash	%	6,1	5,7	Dig. Phosfor 0% fytase	g	2,83	2,62
Starch	g	395	366	Dig. Phosfor 100% fytase	g	3,24	3,00
Lactose	g	0	0	Dig. Phosfor 150% fytase	g	3,35	3,10
----- Energy -----				Dig. Phosfor 200% fytase	g	3,42	3,17
Feed Units Sows	FEso	1,072	0,993	Dig. Phosfor 300% fytase	g	3,50	3,24
Feed Units Pigs	FEsv	1,079	1,000	Sodium	g	2,17	2,01
----- Amino Acids -----				Chlorine	g	4,10	3,80
St. Dig. Protein	g	161,82	149,98	Potassium	g	8,72	8,08
St. Dig. Lysin	g	11,89	11,02	Magnesium	g	1,44	1,33
St. Dig. Methionin	g	3,78	3,51	Sulfur	g	1,58	1,46
St. Dig. Cystin	g	2,57	2,38	-- Micromineralsr --			
St. Dig. Methionin + Cystein	g	6,35	5,89	Fe - added	mg	162,43	150,55
St. Dig. Threonin	g	7,35	6,81	Fe, iron (II) sulphate monohydr	mg	59,65	55,29
St. Dig. Tryptofan	g	2,49	2,30	Fe, ferrous gluconate	mg	62,71	58,13
St. Dig. Isoleucin	g	6,27	5,81	Fe, ferrofumarate	mg	40,07	37,14
St. Dig. Leucin	g	11,57	10,73	Cu - Added	mg	88,30	81,84
St. dig. Histidin pigs	g	3,97	3,68	Cu, copper-II-sulfate	mg	32,11	29,76
St. Dig. Fenyl-Tyrosin	g	12,84	11,90	Cu, gluconate	mg	56,19	52,08
St. Dig. Valin	g	7,78	7,21	Mn, added	mg	43,32	40,15
----- Vitamins -----				Mn, manganese (II) oxide	mg	18,23	16,90
A-vitamin - Added	1000 i.e	5,41	5,02	Mn, manganese gluconate	mg	25,09	23,25
D3- vitamin - Added	1000 i.e	0,54	0,50	Zn, added	mg	108,29	100,37
Alfatokoferol Added	mg	70,39	65,24	Zn, zinkoxide	mg	40,56	37,59
E-vitamin/RRR-alfa-tokoferol (mg		70,39	65,24	Zn, zinkgluconate	mg	67,73	62,78
K3-vitamin - Added	mg	4,33	4,01	I, added	mg	0,43	0,40
B1-vitamin/ Thiamin - Added	mg	2,17	2,01	Se, selenium yeast	mg	0,19	0,18
B2-vitamin/Riboflavin - Added	mg	4,33	4,01	Se, added	mg	0,38	0,35
B6-vitamin/ Pyridoxin - Added	mg	3,25	3,01	-- Additives --			
B12-vitamin - Added	mg	0,02	0,02	Beta xylanase (3.2.1.8)	U	4,014	3,720
D-pantotenemic acid, added	mg	10,83	10,04	BHT (antioxidant)	mg	50	47
Niacin - Added	mg	21,66	20,07	HiPhos (6-fytase 3.1.3.26) 4all	FYT	1,003	930
Biotin vitamin H - Added	mg	0,22	0,20	Antioxidant	mg	50,2	46,5



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