



MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE ÚSTRAŠICE

státní podnik

390 02 Tábor 2

Česká republika

XXXXX

XXXXX

XXXXX

XXXXX

International Poultry Testing Station Ústrašice
Mezinárodní testování drůbeže Ústrašice

Czech Republic
Česká republika

Study Investigator:
Zpracovatel studie:

Ing. Jan Tyl

Associate Investigator:
Spoluzpracovatel studie:

Ing. Hana Horná
Ing. Markéta Krekulová

Study monitor:
Dohlížitel:

XXXXX

Study sponsor :
Dohlížitel:

XXXXX

December 2024
Prosinec 2024

Aim of the Project

Variations of balance protein levels in grower and finisher diets for broilers including an extended performance test for methionine sources

- To evaluate whether xxxxx recommendations are still suitable or whether adjustments particularly in grower and finisher phase would be needed
- To validate concept of xxxxx compared to xxxxxx at changing balance protein levels

Study location

The study was carried out on the test facility Mezinárodní testování drůbeže, s.p., (next MTD, s.p. only), Ústřašice, Czech Republic. Feed samples were sent for the contents of nutrients by xxxxx.

Trial period

Beginning of the trial: 24 September 2024

End of the trial: 29 October 2024

Study responsibility

Ing. Jan Tyl was the independent Study Director, responsible that the trial is conducted according to the protocol. Ing. Hana Horná was responsible for daily animal care at the test facility. Full details of study's responsibility are provided below.

Persons involved in the trial

Study Investigator: Ing. Jan Tyl
Address: MTD, s.p.
Ústrašice 63
390 02 Tábor 2
CZECH REPUBLIC
Telephone: +420 727 847 908
E.mail: jan.tyl@mtd-ustrasice.cz

Associate Investigator: Ing. Hana Horná
Address: MTD, s.p.
Ústrašice 63
390 02 Tábor 2
CZECH REPUBLIC
Telephone: +420 381 200 317
E.mail: hana.horna@mtd-ustrasice.cz

Study sponsor: xxxxxx
Address: xxxxxx
E.mail: xxxxxx

Study monitor: xxxxxx
Address: xxxxxx
E.mail: xxxxxx

Veterinary Surgeon: xxxxxx
Address: xxxxxx
Telephone: xxxxxx

Material and methods

Birds

In total there were 8400 day old chicks of xxxxx. Day-old chicks were randomly distributed into 10 dietary treatments with 6 replicates per treatment and 140 chicken per replicate.

Origin 1-day old chicks:

breeder company – xxxxx

parent flock – xxxxx

age of the breeding flock – 46 weeks

Experimental treatments:

| Tr. No. | Tr. | xxxxx | | | xxxx | xxxx | Reps | Birds / Rep | Birds |
|---------|-----|---------|--------|----------|-----------|-------|------|-------------|-------|
| | | Starter | Grower | Finisher | | | | | |
| 1 | T1 | 100 | 100 | 100 | deficient | no | 6 | 140 | 840 |
| 2 | T2 | 100 | 100 | 100 | adequate | no | 6 | 140 | 840 |
| 3 | T3 | 100 | 100 | 110 | adequate | no | 6 | 140 | 840 |
| 4 | T4 | 100 | 100 | 120 | adequate | no | 6 | 140 | 840 |
| 5 | T5 | 100 | 110 | 110 | adequate | no | 6 | 140 | 840 |
| 6 | T6 | 100 | 110 | 120 | adequate | no | 6 | 140 | 840 |
| 7 | T7 | 100 | 120 | 120 | adequate | no | 6 | 140 | 840 |
| 8 | T8 | 100 | 100 | 100 | adequate | xxxxx | 6 | 140 | 840 |
| 9 | T9 | 100 | 110 | 110 | adequate | xxxxx | 6 | 140 | 840 |
| 10 | T10 | 100 | 120 | 120 | adequate | xxxxx | 6 | 140 | 840 |

Housing system

Chickens were kept in the windowless chicken house with full climatic control, on deep litter. The heating program was conducted according to the xxxxx. Drinking water was supplied ad libitum by nipple drinkers. Each pen was equipped with manually filled tube feeders. Bedding material was wood shaving.

Light was provided as follows during the experimental period:

Lighting programme:

| | |
|-------------|---|
| Day 1 - 7 | 23 hours of light + 1 hour of darkness |
| Day 8 - 32 | 18 hours of light + 6 hours of darkness |
| Day 33 - 35 | 23 hours of light + 1 hour of darkness |

Stocking density: 17,2 broilers per square meter

The conduct of the trial was conformed to the national welfare legislation.

Veterinary precautions

The chicken house was disinfected with xxxxx before the chick placement.

On days 1 and 12 the chicken were vaccinated with xxxxx. On the first days old chickens was applied the water solution of permanganate.

Feeds and Diets

Chickens were fed ad libitum according to three phase feeding programme. The test phases were 0-10 days of age for the starter BR1, 11-24 days of age for the grower BR2 and 25-35 days of age for the finisher BR3.

Feed was produced by International Poultry Testing Station Ústrašice. The composition of diets is shown in following tables.

Composition of the feed

| Ingredients (%) | Starter | | | | | | | | | |
|------------------------------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| Corn | 33.34 | 32.99 | 32.99 | 32.99 | 32.99 | 32.99 | 32.99 | 32.51 | 32.51 | 32.51 |
| Wheat | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| SBM | 32.68 | 32.68 | 32.68 | 32.68 | 32.68 | 32.68 | 32.68 | 32.68 | 32.68 | 32.68 |
| RSM | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| Soybean oil | 3.99 | 3.99 | 3.99 | 3.99 | 3.99 | 3.99 | 3.99 | 3.99 | 3.99 | 3.99 |
| Neophos | 1.98 | 1.98 | 1.98 | 1.98 | 1.98 | 1.98 | 1.98 | 1.98 | 1.98 | 1.98 |
| xxxxx | 0.98 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.81 | 1.81 | 1.81 |
| Limestone | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |
| MCP | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 |
| Salt | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| AMV BR1 plus | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| Nutritional composition (%) | | | | | | | | | | |
| Crude protein | 22.39 | 22.59 | 22.59 | 22.59 | 22.59 | 22.59 | 22.59 | 22.39 | 22.39 | 22.39 |
| Lysine dig. | 1.29 | 1.29 | 1.29 | 1.29 | 1.29 | 1.29 | 1.29 | 1.29 | 1.29 | 1.29 |
| Methionine dig. | 0.28 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 |
| Met.+Cys. dig. | 0.58 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |

| Ingredients (%) | Grower | | | | | | | | | |
|------------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| Corn | 34.25 | 33.95 | 33.95 | 33.95 | 30.09 | 30.09 | 26.24 | 33.53 | 29.59 | 25.65 |
| Wheat | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 |
| SBM | 26.92 | 26.92 | 26.92 | 26.92 | 29.96 | 29.96 | 33.00 | 26.92 | 29.96 | 33.00 |
| RSM | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |
| Soybean oil | 4.17 | 4.17 | 4.17 | 4.17 | 4.66 | 4.66 | 5.14 | 4.17 | 4.66 | 5.14 |
| Neophos | 2.38 | 2.38 | 2.38 | 2.38 | 2.31 | 2.31 | 2.25 | 2.38 | 2.31 | 2.25 |
| xxxxx | 0.85 | 1.16 | 1.16 | 1.16 | 1.51 | 1.51 | 1.86 | 1.58 | 2.02 | 2.46 |
| Limestone | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.29 | 0.30 | 0.30 | 0.29 |
| MCP | - | - | - | - | 0.03 | 0.03 | 0.07 | - | 0.03 | 0.07 |
| Salt | 0.13 | 0.13 | 0.13 | 0.13 | 0.14 | 0.14 | 0.15 | 0.13 | 0.14 | 0.15 |
| AMV BR2 plus | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| Nutritional composition (%) | | | | | | | | | | |
| Crude protein | 20.33 | 20.51 | 20.51 | 20.51 | 21.96 | 21.96 | 23.41 | 20.33 | 21.74 | 23.16 |
| Lysine dig. | 1.15 | 1.15 | 1.15 | 1.15 | 1.27 | 1.27 | 1.38 | 1.15 | 1.27 | 1.38 |
| Methionine dig. | 0.26 | 0.57 | 0.57 | 0.57 | 0.64 | 0.64 | 0.72 | 0.57 | 0.64 | 0.72 |
| Met.+Cys. dig. | 0.54 | 0.85 | 0.85 | 0.85 | 0.94 | 0.94 | 1.02 | 0.85 | 0.94 | 1.02 |

| Ingredients (%) | Finisher | | | | | | | | | |
|------------------------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| Corn | 34.71 | 34.49 | 32.71 | 30.93 | 32.71 | 30.93 | 30.93 | 34.19 | 32.32 | 30.44 |
| Wheat | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 |
| SBM | 25.92 | 25.92 | 27.16 | 28.40 | 27.16 | 28.40 | 28.40 | 25.92 | 27.16 | 28.40 |
| RSM | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 |
| Soybean oil | 5.23 | 5.23 | 5.38 | 5.52 | 5.38 | 5.52 | 5.52 | 5.23 | 5.38 | 5.52 |
| Neophos | 1.88 | 1.88 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.88 | 1.87 | 1.87 |
| xxxxx | 0.28 | 0.50 | 0.90 | 1.31 | 0.90 | 1.31 | 1.31 | 0.80 | 1.30 | 1.79 |
| Limestone | 0.30 | 0.30 | 0.29 | 0.28 | 0.29 | 0.28 | 0.28 | 0.30 | 0.29 | 0.28 |
| MCP | - | - | - | - | - | - | - | - | - | - |
| Salt | 0.19 | 0.19 | 0.19 | 0.20 | 0.19 | 0.20 | 0.20 | 0.19 | 0.19 | 0.20 |
| AMV BR3 plus | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| Nutritional composition (%) | | | | | | | | | | |
| Crude protein | 19.40 | 19.64 | 20.45 | 21.25 | 20.45 | 21.25 | 21.25 | 19.64 | 20.45 | 21.25 |
| Lysine dig. | 1.00 | 1.00 | 1.10 | 1.20 | 1.10 | 1.20 | 1.20 | 1.00 | 1.10 | 1.20 |
| Methionine dig. | 0.26 | 0.48 | 0.55 | 0.62 | 0.55 | 0.62 | 0.62 | 0.48 | 0.55 | 0.62 |
| Met.+Cys. dig. | 0.54 | 0.76 | 0.84 | 0.91 | 0.84 | 0.91 | 0.91 | 0.76 | 0.84 | 0.91 |

Parameters recorded and methods applied

Live weight

Live weight was measured on day 1 and on day 10 (the birds in each pen were weighed altogether). On day 24 of age birds were weighed individually, without fasting. On day 35 birds were weighed individually, after 12 hours of fasting.

Weight gain

Weight gain per phase and average daily weight gains were calculated for the periods 1 – 10 days, 11 – 24 days, 25 – 35 days and for the overall experiment (1 – 35 days).

Feed consumption

Feed consumption was determined per pen for the feed – starter, grower and finisher.

Feed conversion ratio

Feed conversion ratio was calculated as feed consumption per 1 kg of live weight and per 1 kg of weight gain for the periods 1 – 10 days, 11 – 24 days, 25 – 35 days and for the overall experiment (1 – 35 days). The calculation was included weight of deaths.

Mortality

All pens were checked three times a day to see if there were any dead or ill birds. Dead chickens were registered by date, weight and reason of mortality on the day of death. Mortality was recorded for the periods 1 – 10 days, 11 – 24 days, 25 – 35 days and 1 – 35 days.

Foot pad lesions

At the end of the trial the animals were recorded according the scale.

Statistical analyses

Performance results of live weight (on days 1, 10, 24 and 35) and feed conversion ratio were statistically evaluated using the ANOVA single-factor model (Duncan test, Scheffe test) or nonparametric method (Kruskal-Wallis test).

Results

| | |
|----------|---|
| Tab. No. | 1 Hatchability |
| | 2 Performance results: |
| | 2a Body weight |
| | 2b Weight gain |
| | 2c Feed conversion per 1 kg of live weight |
| | 2d Feed conversion per 1 kg of weight gain |
| | 2e Feed consumption |
| | 3 Mortality |
| | 4 Carcass analysis |
| | 5 Foot pad lesions |
| | 6a Litter scoring at the age of 24 days |
| | 6b Litter scoring at the age of 35 days |
| | 7 Statistical analysis of body weight at the age of 35 days (average body weight, standard deviation, coefficient of variation) |
| | 8 - 9 Statistical analyses of performance results |
| | 10 Performance results per pen: |
| | 10a Body weight |
| | 10b Weight gain |
| | 10c Feed conversion per 1 kg of live weight |
| | 10d Feed conversion per 1 kg of weight gain |
| | 10e Feed consumption |
| | 10f Foot pad lesions |
| | 10ga Litter scoring at the age of 24 days |
| | 10gb Litter scoring at the age of 35 days |

Results of incubation and hatching

Tab. No. 1

| Treatment | Tr. No. | Fertility | Hatchability | | Birds housed | Average weight | |
|-----------|---------|-----------|--------------|--------------|--------------|----------------|----------------|
| | | | Set eggs | Fertile eggs | | Hatching eggs | Day old chicks |
| | | % | % | % | | g | g |
| T1 | 1 | 78.10 | 70.00 | 89.63 | 840 | 64.50 | 43.21 |
| T2 | 2 | | | | 840 | | 43.10 |
| T3 | 3 | | | | 840 | | 43.10 |
| T4 | 4 | | | | 840 | | 43.15 |
| T5 | 5 | | | | 840 | | 43.04 |
| T6 | 6 | | | | 840 | | 43.10 |
| T7 | 7 | | | | 840 | | 42.98 |
| T8 | 8 | | | | 840 | | 43.10 |
| T9 | 9 | | | | 840 | | 43.04 |
| T10 | 10 | | | | 840 | | 43.04 |

Body weight per phases

Tab. No. 2a

| Treatment | Tr. No. | Day 1 | | Day 10 | | Day 24 | | Day 35 | |
|-----------|---------|-------|---------------------|--------|---------------------|--------|---------------------|--------|---------------------|
| | | Birds | Average body weight | Birds | Average body weight | Birds | Average body weight | Birds | Average body weight |
| | | | g | | g | | g | | g |
| T1 | 1 | 840 | 43.21 | 840 | 229.64 | 837 | 766.13 | 835 | 1387.54 |
| T2 | 2 | 840 | 43.10 | 840 | 311.85 | 835 | 1261.44 | 832 | 2209.69 |
| T3 | 3 | 840 | 43.10 | 840 | 314.35 | 833 | 1300.11 | 830 | 2250.52 |
| T4 | 4 | 840 | 43.15 | 840 | 316.96 | 833 | 1276.95 | 831 | 2272.39 |
| T5 | 5 | 840 | 43.04 | 840 | 315.71 | 831 | 1311.94 | 822 | 2284.23 |
| T6 | 6 | 840 | 43.10 | 840 | 313.33 | 831 | 1316.87 | 824 | 2310.83 |
| T7 | 7 | 840 | 42.98 | 840 | 313.63 | 836 | 1320.37 | 831 | 2320.76 |
| T8 | 8 | 840 | 43.10 | 840 | 318.21 | 832 | 1261.57 | 830 | 2206.30 |
| T9 | 9 | 840 | 43.04 | 840 | 316.19 | 830 | 1312.67 | 821 | 2209.37 |
| T10 | 10 | 840 | 43.04 | 840 | 316.55 | 833 | 1312.62 | 827 | 2245.42 |

Weight gain per phases

Tab. No. 2b

| Treatment | Tr. No. | Day 1 - 10 | | Day 11 - 24 | | Day 25 - 35 | | Day 1 - 35 | |
|-----------|---------|-----------------------|-------------------|-----------------------|-------------------|-----------------------|-------------------|-----------------------|-------------------|
| | | Weight gain per phase | Daily weight gain | Weight gain per phase | Daily weight gain | Weight gain per phase | Daily weight gain | Weight gain per phase | Daily weight gain |
| | | g | g | g | g | g | g | g | g |
| T1 | 1 | 186.43 | 18.64 | 536.49 | 29.80 | 621.42 | 88.77 | 1344.33 | 38.41 |
| T2 | 2 | 268.75 | 26.88 | 949.59 | 52.76 | 948.25 | 135.46 | 2166.59 | 61.90 |
| T3 | 3 | 271.25 | 27.13 | 985.76 | 54.76 | 950.41 | 135.77 | 2207.42 | 63.07 |
| T4 | 4 | 273.81 | 27.38 | 959.99 | 53.33 | 995.44 | 142.21 | 2229.24 | 63.69 |
| T5 | 5 | 272.68 | 27.27 | 996.22 | 55.35 | 972.30 | 138.90 | 2241.20 | 64.03 |
| T6 | 6 | 270.24 | 27.02 | 1003.54 | 55.75 | 993.95 | 141.99 | 2267.73 | 64.79 |
| T7 | 7 | 270.65 | 27.07 | 1006.74 | 55.93 | 1000.39 | 142.91 | 2277.78 | 65.08 |
| T8 | 8 | 275.12 | 27.51 | 943.36 | 52.41 | 944.73 | 134.96 | 2163.21 | 61.81 |
| T9 | 9 | 273.15 | 27.32 | 996.48 | 55.36 | 896.69 | 128.10 | 2166.33 | 61.90 |
| T10 | 10 | 273.51 | 27.35 | 996.07 | 55.34 | 932.80 | 133.26 | 2202.38 | 62.93 |

Feed conversion per 1 kg of live weight

Tab. No. 2c

| Treatment | Tr. No. | Feed conversion ratio | | |
|-----------|---------|-----------------------|------------------|------------------|
| | | Day 10 | Day 24 | Day 35 |
| | | g/kg live weight | g/kg live weight | g/kg live weight |
| T1 | 1 | 974.60 | 1530.04 | 1841.13 |
| T2 | 2 | 853.22 | 1218.77 | 1484.39 |
| T3 | 3 | 858.93 | 1186.81 | 1459.38 |
| T4 | 4 | 827.42 | 1204.51 | 1440.45 |
| T5 | 5 | 821.27 | 1159.12 | 1419.90 |
| T6 | 6 | 815.73 | 1156.62 | 1407.78 |
| T7 | 7 | 825.20 | 1128.89 | 1399.34 |
| T8 | 8 | 800.22 | 1175.32 | 1469.80 |
| T9 | 9 | 837.35 | 1162.44 | 1455.78 |
| T10 | 10 | 826.25 | 1131.53 | 1414.83 |

Feed conversion per 1 kg of weight gain

Tab. No. 2d

| Treatment | Tr. No. | Feed conversion ratio | | | |
|-----------|---------|-----------------------|------------------|------------------|------------------|
| | | Day 1-10 | Day 11-24 | Day 25-35 | Day 1-35 |
| | | g/kg weight gain | g/kg weight gain | g/kg weight gain | g/kg weight gain |
| T1 | 1 | 1200.51 | 1238.27 | 2226.95 | 1900.48 |
| T2 | 2 | 990.03 | 1007.32 | 1839.58 | 1514.09 |
| T3 | 3 | 995.39 | 978.47 | 1834.75 | 1488.08 |
| T4 | 4 | 957.83 | 998.27 | 1744.28 | 1468.54 |
| T5 | 5 | 950.88 | 960.51 | 1776.57 | 1447.49 |
| T6 | 6 | 945.81 | 961.54 | 1744.01 | 1434.83 |
| T7 | 7 | 956.23 | 932.52 | 1758.39 | 1425.89 |
| T8 | 8 | 925.57 | 972.61 | 1865.04 | 1499.31 |
| T9 | 9 | 969.27 | 959.31 | 1889.55 | 1485.07 |
| T10 | 10 | 956.26 | 931.62 | 1816.86 | 1442.70 |

Feed consumption per phases

Tab. No. 2e

| Treatment | Tr. No. | Feed consumption | | | |
|-----------|---------|------------------|------------------|--------------------|----------------|
| | | Starter (d 1-10) | Grower (d 11-24) | Finisher (d 25-35) | Total (d 1-35) |
| | | kg | kg | kg | kg |
| T1 | 1 | 188.00 | 796.60 | 1155.50 | 2140.10 |
| T2 | 2 | 223.50 | 1063.20 | 1452.40 | 2739.10 |
| T3 | 3 | 226.80 | 1063.70 | 1448.70 | 2739.20 |
| T4 | 4 | 220.30 | 1064.80 | 1445.20 | 2730.30 |
| T5 | 5 | 217.80 | 1051.80 | 1422.70 | 2692.30 |
| T6 | 6 | 214.70 | 1056.70 | 1432.00 | 2703.40 |
| T7 | 7 | 217.40 | 1031.00 | 1464.70 | 2713.10 |
| T8 | 8 | 213.90 | 1024.80 | 1464.50 | 2703.20 |
| T9 | 9 | 222.40 | 1048.90 | 1397.50 | 2668.80 |
| T10 | 10 | 219.70 | 1022.40 | 1405.40 | 2647.50 |

Mortality

Tab. No. 3

| Treatment | Tr. No. | Mortality in the period | | | | | | | | | Mortality according causes | | | | | | | | | | | | | | |
|-----------|---------|-------------------------|---|-------------|------|-------------|-------|------------|-------|------|----------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| | | Day 1 - 10 | | Day 11 - 24 | | Day 25 - 35 | | Day 1 - 35 | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| | | birds | g | birds | g | birds | g | birds | g | % | | | | | | | | | | | | | | | |
| T1 | 1 | 0 | 0 | 3 | 2261 | 2 | 1520 | 5 | 3781 | 0.60 | | | | | | | | | 2 | 3 | | | | | |
| T2 | 2 | 0 | 0 | 5 | 2439 | 3 | 4370 | 8 | 6809 | 0.95 | | | | | | | | | 2 | 6 | | | | | |
| T3 | 3 | 0 | 0 | 7 | 4379 | 3 | 4648 | 10 | 9027 | 1.19 | | | | | | | | | | 9 | | | 1 | | |
| T4 | 4 | 0 | 0 | 7 | 3211 | 2 | 3878 | 9 | 7089 | 1.07 | | | | | | | | | | 8 | | | 1 | | |
| T5 | 5 | 0 | 0 | 9 | 5092 | 9 | 13391 | 18 | 18483 | 2.14 | | | | | | | | | 1 | 15 | | | 2 | | |
| T6 | 6 | 0 | 0 | 9 | 4913 | 7 | 11295 | 16 | 16208 | 1.90 | | | | | | | | | | 16 | | | | | |
| T7 | 7 | 0 | 0 | 4 | 2036 | 5 | 8256 | 9 | 10292 | 1.07 | | | | | | | | | 1 | 7 | | | 1 | | |
| T8 | 8 | 0 | 0 | 8 | 4299 | 2 | 3636 | 10 | 7935 | 1.19 | | | | | | | | | 2 | 8 | | | | | |
| T9 | 9 | 0 | 0 | 10 | 4130 | 9 | 15223 | 19 | 19353 | 2.26 | | | | | | | | | 1 | 18 | | | | | |
| T10 | 10 | 0 | 0 | 7 | 4303 | 6 | 9983 | 13 | 14286 | 1.55 | | | | | | | | | 2 | 9 | | | 2 | | |

Causes:

- 1 - Viral diseases
- 2 - Bacterial diseases
- 3 - Fungal diseases
- 4 - Parasitary diseases
- 5 - Tumors

- 6 - Injuries
- 7 - Digestive tract diseases
- 8 - Respiratory tract diseases
- 9 - Reproduction tract diseases
- 10 - Locomotion apparatus diseases

- 11 - Sudden death syndrome
- 12 - Cannibalism
- 13 - Diverticulus inflammation
- 14 - Culling and other causes
- 15 - Sampling (excluded of calculation)

Results of carcass analysis

Tab. No. 4 (page 1)

| Treatment | Tr. No. | Sex | Weight | | | | Ratio of abd. fat to live weight | Breast muscles without skin | | | Thigh muscles with skin | | | Total muscles | | | Carcass | |
|-----------|---------|-----|-------------|-------------|------------|-------------|--|--------------------------------|-----------------|-----------------|----------------------------|-----------------|-----------------|---------------|-----------------|-----------------|--------------|--------------|
| | | | Total | Body | Gibl. | Abd. fat | | Weight | Percentage | | Weight | Percentage | | Weight | Percentage | | Value | Yield |
| | | | | | | | | | Total weight | Body carcass | | Total weight | Body carcass | | Total weight | Body carcass | | |
| | | | g | g | g | g | | g | % | % | % | g | % | % | g | % | % | % |
| T1 | 1 | ♂ | 1580 | 1019 | 109 | 20 | 1.26 | 255 | 16.13 | 25.02 | 345 | 21.87 | 33.91 | 600 | 38.00 | 58.93 | 64.49 | 71.37 |
| | | ♀ | 1288 | 814 | 100 | 17 | 1.29 | 199 | 15.45 | 24.47 | 280 | 21.72 | 34.39 | 479 | 37.17 | 58.86 | 63.15 | 70.89 |
| | | ♂ | 1434 | 916 | 104 | 18 | 1.27 | 227 | 15.83 | 24.77 | 313 | 21.80 | 34.13 | 540 | 37.63 | 58.90 | 63.89 | 71.15 |
| T2 | 2 | ♂ | 2406 | 1684 | 136 | 27 | 1.11 | 546 | 22.70 | 32.44 | 522 | 21.69 | 30.99 | 1068 | 44.39 | 63.42 | 69.99 | 75.66 |
| | | ♀ | 2118 | 1485 | 127 | 26 | 1.24 | 491 | 23.16 | 33.03 | 465 | 21.94 | 31.30 | 955 | 45.10 | 64.34 | 70.10 | 76.10 |
| | | ♂ | 2262 | 1584 | 132 | 27 | 1.17 | 518 | 22.92 | 32.72 | 493 | 21.81 | 31.13 | 1012 | 44.72 | 63.85 | 70.04 | 75.87 |
| T3 | 3 | ♂ | 2419 | 1700 | 142 | 25 | 1.04 | 557 | 23.04 | 32.80 | 519 | 21.45 | 30.54 | 1076 | 44.49 | 63.34 | 70.25 | 76.13 |
| | | ♀ | 2149 | 1503 | 135 | 23 | 1.05 | 495 | 23.02 | 32.91 | 465 | 21.63 | 30.93 | 959 | 44.65 | 63.84 | 69.94 | 76.21 |
| | | ♂ | 2284 | 1601 | 138 | 24 | 1.05 | 526 | 23.03 | 32.85 | 492 | 21.54 | 30.72 | 1018 | 44.57 | 63.57 | 70.11 | 76.17 |
| T4 | 4 | ♂ | 2458 | 1737 | 141 | 24 | 0.98 | 577 | 23.47 | 33.21 | 539 | 21.93 | 31.03 | 1116 | 45.40 | 64.24 | 70.67 | 76.43 |
| | | ♀ | 2183 | 1551 | 132 | 22 | 1.02 | 526 | 24.09 | 33.91 | 477 | 21.84 | 30.75 | 1003 | 45.93 | 64.66 | 71.04 | 77.09 |
| | | ♂ | 2320 | 1644 | 137 | 23 | 1.00 | 551 | 23.76 | 33.54 | 508 | 21.89 | 30.90 | 1059 | 45.65 | 64.44 | 70.85 | 76.74 |
| T5 | 5 | ♂ | 2508 | 1769 | 142 | 24 | 0.94 | 585 | 23.32 | 33.06 | 543 | 21.63 | 30.67 | 1128 | 44.96 | 63.73 | 70.54 | 76.20 |
| | | ♀ | 2129 | 1500 | 133 | 23 | 1.08 | 513 | 24.08 | 34.17 | 459 | 21.55 | 30.59 | 971 | 45.63 | 64.76 | 70.45 | 76.68 |
| | | ♂ | 2318 | 1634 | 137 | 23 | 1.00 | 549 | 23.67 | 33.57 | 501 | 21.60 | 30.63 | 1049 | 45.27 | 64.20 | 70.50 | 76.42 |

| Treatment | Tr. No. | Sex | Weight | | | | Ratio of abd. fat to live weight | Breast muscles without skin | | | Thigh muscles with skin | | | Total muscles | | | Carcass | |
|-----------|---------|-----|-------------|-------------|------------|-------------|--|--------------------------------|-----------------|-----------------|----------------------------|-----------------|-----------------|---------------|-----------------|-----------------|--------------|--------------|
| | | | Total | Body | Gibl. | Abd. fat | | Weight | Percentage | | Weight | Percentage | | Weight | Percentage | | Value | Yield |
| | | | | | | | | | Total weight | Body carcass | | Total weight | Body carcass | | Total weight | Body carcass | | |
| | | | g | g | g | g | | g | % | % | % | g | % | % | g | % | % | % |
| T6 | 6 | ♂ | 2497 | 1760 | 141 | 24 | 0.95 | 591 | 23.67 | 33.57 | 546 | 21.86 | 31.01 | 1137 | 45.53 | 64.58 | 70.50 | 76.16 |
| | | ♀ | 2154 | 1525 | 135 | 23 | 1.06 | 524 | 24.31 | 34.33 | 466 | 21.62 | 30.53 | 989 | 45.92 | 64.86 | 70.80 | 77.08 |
| | | ♂ | 2326 | 1643 | 138 | 23 | 1.00 | 557 | 23.96 | 33.92 | 506 | 21.75 | 30.79 | 1063 | 45.71 | 64.71 | 70.64 | 76.58 |
| T7 | 7 | ♂ | 2540 | 1796 | 146 | 19 | 0.75 | 610 | 24.03 | 33.99 | 558 | 21.97 | 31.07 | 1168 | 46.00 | 65.05 | 70.71 | 76.46 |
| | | ♀ | 2163 | 1519 | 137 | 21 | 0.96 | 513 | 23.70 | 33.75 | 472 | 21.84 | 31.11 | 985 | 45.54 | 64.86 | 70.21 | 76.52 |
| | | ♂ | 2352 | 1657 | 141 | 20 | 0.85 | 561 | 23.88 | 33.88 | 515 | 21.91 | 31.09 | 1077 | 45.79 | 64.96 | 70.48 | 76.49 |
| T8 | 8 | ♂ | 2390 | 1671 | 137 | 28 | 1.16 | 549 | 22.98 | 32.88 | 519 | 21.73 | 31.09 | 1069 | 44.71 | 63.97 | 69.89 | 75.62 |
| | | ♀ | 2124 | 1491 | 130 | 30 | 1.40 | 491 | 23.10 | 32.91 | 465 | 21.89 | 31.18 | 955 | 44.99 | 64.09 | 70.21 | 76.32 |
| | | ♂ | 2257 | 1581 | 133 | 29 | 1.27 | 520 | 23.04 | 32.89 | 492 | 21.80 | 31.13 | 1012 | 44.84 | 64.02 | 70.04 | 75.95 |
| T9 | 9 | ♂ | 2372 | 1684 | 144 | 24 | 1.00 | 558 | 23.52 | 33.11 | 527 | 22.20 | 31.27 | 1084 | 45.72 | 64.38 | 71.01 | 77.07 |
| | | ♀ | 2120 | 1494 | 136 | 22 | 1.05 | 491 | 23.15 | 32.84 | 458 | 21.62 | 30.67 | 949 | 44.77 | 63.51 | 70.49 | 76.89 |
| | | ♂ | 2246 | 1589 | 140 | 23 | 1.02 | 524 | 23.34 | 32.99 | 493 | 21.93 | 30.99 | 1017 | 45.27 | 63.97 | 70.77 | 76.98 |
| T10 | 10 | ♂ | 2467 | 1736 | 146 | 18 | 0.74 | 586 | 23.76 | 33.77 | 550 | 22.28 | 31.67 | 1136 | 46.04 | 65.44 | 70.36 | 76.26 |
| | | ♀ | 2138 | 1522 | 134 | 19 | 0.90 | 510 | 23.84 | 33.47 | 475 | 22.21 | 31.19 | 984 | 46.05 | 64.67 | 71.21 | 77.47 |
| | | ♂ | 2302 | 1629 | 140 | 19 | 0.82 | 548 | 23.80 | 33.63 | 512 | 22.25 | 31.44 | 1060 | 46.04 | 65.08 | 70.75 | 76.83 |

Foot pad lesions**Tab. No. 5**

| Treatment | Tr. No. | Evaluation | |
|------------------|----------------|-------------------|------------------|
| | | right foot | left foot |
| T1 | 1 | 1.19 | 1.09 |
| T2 | 2 | 1.49 | 1.41 |
| T3 | 3 | 1.37 | 1.35 |
| T4 | 4 | 1.43 | 1.33 |
| T5 | 5 | 1.32 | 1.25 |
| T6 | 6 | 1.43 | 1.38 |
| T7 | 7 | 1.37 | 1.22 |
| T8 | 8 | 1.55 | 1.49 |
| T9 | 9 | 1.69 | 1.62 |
| T10 | 10 | 1.68 | 1.60 |

Litter scoring at the age of 24 days Tab. No. 6a

| Treatment | Tr. No. | Litter scoring |
|------------------|----------------|-----------------------|
| T1 | 1 | 1.67 |
| T2 | 2 | 2.83 |
| T3 | 3 | 2.67 |
| T4 | 4 | 2.83 |
| T5 | 5 | 2.83 |
| T6 | 6 | 2.67 |
| T7 | 7 | 3.17 |
| T8 | 8 | 3.33 |
| T9 | 9 | 3.17 |
| T10 | 10 | 3.17 |

Litter scoring at the age of 35 days Tab. No. 6b

| Treatment | Tr. No. | Litter scoring |
|------------------|----------------|-----------------------|
| T1 | 1 | 3.50 |
| T2 | 2 | 4.50 |
| T3 | 3 | 4.67 |
| T4 | 4 | 4.50 |
| T5 | 5 | 4.33 |
| T6 | 6 | 4.67 |
| T7 | 7 | 4.67 |
| T8 | 8 | 4.83 |
| T9 | 9 | 4.83 |
| T10 | 10 | 4.67 |

Statistical analysis - Body weight at 35 days of age

Tab. No. 7

| Treatment | Tr. No. | Cocks | | | | Hens | | | |
|-----------|---------|-----------------|---------------------|--------------------|--------------------------|-----------------|---------------------|--------------------|--------------------------|
| | | Number of birds | Average body weight | Standard deviation | Coefficient of variation | Number of birds | Average body weight | Standard deviation | Coefficient of variation |
| | | | g/birds | g/birds | % | | g/birds | g/birds | % |
| T1 | 1 | 428 | 1520.28 | 206.17 | 13.56 | 407 | 1247.96 | 184.50 | 14.78 |
| T2 | 2 | 423 | 2367.80 | 228.77 | 9.66 | 409 | 2046.16 | 260.30 | 12.72 |
| T3 | 3 | 434 | 2415.16 | 241.58 | 10.00 | 396 | 2070.08 | 248.18 | 11.99 |
| T4 | 4 | 418 | 2424.45 | 244.90 | 10.10 | 413 | 2118.50 | 239.20 | 11.29 |
| T5 | 5 | 414 | 2449.25 | 252.51 | 10.31 | 408 | 2116.79 | 231.01 | 10.91 |
| T6 | 6 | 423 | 2491.82 | 226.73 | 9.10 | 401 | 2119.90 | 227.54 | 10.73 |
| T7 | 7 | 417 | 2501.18 | 219.60 | 8.78 | 414 | 2139.03 | 229.99 | 10.75 |
| T8 | 8 | 423 | 2370.99 | 231.39 | 9.76 | 407 | 2035.14 | 258.35 | 12.69 |
| T9 | 9 | 419 | 2366.95 | 265.44 | 11.21 | 402 | 2045.12 | 228.96 | 11.20 |
| T10 | 10 | 420 | 2420.48 | 246.45 | 10.18 | 407 | 2064.77 | 261.71 | 12.67 |

Statistical analyses of performance results

Performance results were statistically evaluated using the ANOVA single-factor model (Duncan test, Scheffe test) or nonparametric method (Kruskal-Wallis test).

The following symbols are used for levels of significance:

- $p \leq 0,001$ * * * - differences are very high significant
- $p \leq 0,01$ * * - differences are high significant
- $p \leq 0,05$ * - differences are significant
- $p > 0,05$ o - differences are not significant

Body weight - day 1

Tab. No. 8a

| Treatment | Treat. No. | No. of box | Average (g) | Standard deviation | Duncan test | | | | | | | | | | |
|-----------|------------|------------|-------------|--------------------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|-----|---|
| | | | | | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | |
| T1 | 1 | 6 | 43.21 | 0.55 | | o | o | o | o | o | o | o | o | o | o |
| T2 | 2 | 6 | 43.10 | 0.43 | 0.720264 | | o | o | o | o | o | o | o | o | o |
| T3 | 3 | 6 | 43.10 | 0.58 | 0.727283 | 1.000000 | | o | o | o | o | o | o | o | o |
| T4 | 4 | 6 | 43.15 | 0.53 | 0.842277 | 0.852505 | 0.858860 | | o | o | o | o | o | o | o |
| T5 | 5 | 6 | 43.04 | 0.49 | 0.619090 | 0.866013 | 0.864914 | 0.739012 | | o | o | o | o | o | o |
| T6 | 6 | 6 | 43.10 | 0.58 | 0.733377 | 1.000000 | 1.000000 | 0.864914 | 0.858860 | | o | o | o | o | o |
| T7 | 7 | 6 | 42.98 | 0.43 | 0.508184 | 0.737661 | 0.733377 | 0.619090 | 0.842277 | 0.727283 | | o | o | o | o |
| T8 | 8 | 6 | 43.10 | 0.58 | 0.709630 | 1.000000 | 1.000000 | 0.842277 | 0.866917 | 1.000000 | 0.739012 | | o | o | o |
| T9 | 9 | 6 | 43.04 | 0.49 | 0.616040 | 0.864914 | 0.858860 | 0.737661 | 1.000000 | 0.852505 | 0.852505 | 0.866013 | | o | o |
| T10 | 10 | 6 | 43.04 | 0.44 | 0.611502 | 0.858860 | 0.852505 | 0.733377 | 1.000000 | 0.842277 | 0.858860 | 0.864914 | 1.000000 | | o |

Body weight - day 10

Tab. No. 8b

| Treatment | Treat. No. | No. of box | Average (g) | Standard deviation | Duncan test | | | | | | | | | |
|-----------|------------|------------|-------------|--------------------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|-----|
| | | | | | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| T1 | 1 | 6 | 229.64 | 11.44 | | *** | *** | *** | *** | *** | *** | *** | *** | *** |
| T2 | 2 | 6 | 311.85 | 6.01 | 0.000115 | | o | o | o | o | o | o | o | o |
| T3 | 3 | 6 | 314.35 | 5.17 | 0.000032 | 0.582186 | | o | o | o | o | o | o | o |
| T4 | 4 | 6 | 316.96 | 3.94 | 0.000017 | 0.290654 | 0.573980 | | o | o | o | o | o | o |
| T5 | 5 | 6 | 315.71 | 7.14 | 0.000028 | 0.405853 | 0.738011 | 0.783751 | | o | o | o | o | o |
| T6 | 6 | 6 | 313.33 | 5.31 | 0.000062 | 0.716197 | 0.817181 | 0.449347 | 0.600330 | | o | o | o | o |
| T7 | 7 | 6 | 313.63 | 8.56 | 0.000055 | 0.683032 | 0.861442 | 0.481818 | 0.633791 | 0.942056 | | o | o | o |
| T8 | 8 | 6 | 318.21 | 4.63 | 0.000017 | 0.192002 | 0.414097 | 0.760061 | 0.591589 | 0.313690 | 0.339363 | | o | o |
| T9 | 9 | 6 | 316.19 | 9.07 | 0.000023 | 0.358867 | 0.673070 | 0.859784 | 0.907396 | 0.539619 | 0.573204 | 0.656173 | | o |
| T10 | 10 | 6 | 316.55 | 5.58 | 0.000019 | 0.326946 | 0.627970 | 0.918927 | 0.849100 | 0.497659 | 0.531196 | 0.703127 | 0.930492 | |

Body weight - day 24

Tab. No. 8c

| Treatment | Treat. No. | No. of birds | Average (g) | Standard deviation | Kruskal-Wallis test | | | | | | | | | |
|-----------|------------|--------------|-------------|--------------------|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|-----|
| | | | | | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| T1 | 1 | 837 | 766.13 | 140.05 | | *** | *** | *** | *** | *** | *** | *** | *** | *** |
| T2 | 2 | 835 | 1261.44 | 172.95 | 0.000000 | | ** | o | *** | *** | *** | o | *** | *** |
| T3 | 3 | 833 | 1300.11 | 179.08 | 0.000000 | 0.005531 | | o | o | o | o | ** | o | o |
| T4 | 4 | 833 | 1276.95 | 161.98 | 0.000000 | 1.000000 | 0.787419 | | * | ** | *** | o | * | ** |
| T5 | 5 | 831 | 1311.94 | 160.75 | 0.000000 | 0.000082 | 1.000000 | 0.042717 | | o | o | *** | o | o |
| T6 | 6 | 831 | 1316.87 | 168.56 | 0.000000 | 0.000001 | 1.000000 | 0.001864 | 1.000000 | | o | *** | o | o |
| T7 | 7 | 836 | 1320.37 | 172.05 | 0.000000 | 0.000000 | 1.000000 | 0.000259 | 1.000000 | 1.000000 | | *** | o | o |
| T8 | 8 | 832 | 1261.57 | 167.04 | 0.000000 | 1.000000 | 0.001341 | 1.000000 | 0.000015 | 0.000000 | 0.000000 | | *** | *** |
| T9 | 9 | 830 | 1312.67 | 162.61 | 0.000000 | 0.000027 | 1.000000 | 0.018988 | 1.000000 | 1.000000 | 1.000000 | 0.000005 | | o |
| T10 | 10 | 833 | 1312.62 | 157.45 | 0.000000 | 0.000007 | 1.000000 | 0.007293 | 1.000000 | 1.000000 | 1.000000 | 0.000001 | 1.000000 | |

Body weight - day 35

Tab. No. 8d

| Treatment | Treat. No. | No. of birds | Average (g) | Standard deviation | Kruskal-Wallis test | | | | | | | | | |
|-----------|------------|--------------|-------------|--------------------|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|-----|
| | | | | | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| T1 | 1 | 835 | 1387.54 | 238.50 | | *** | *** | *** | *** | *** | *** | *** | *** | *** |
| T2 | 2 | 832 | 2209.69 | 292.80 | 0.000000 | | o | * | * | *** | *** | o | o | o |
| T3 | 3 | 830 | 2250.52 | 299.29 | 0.000000 | 1.000000 | | o | o | o | ** | o | * | o |
| T4 | 4 | 831 | 2272.39 | 286.29 | 0.000000 | 0.024933 | 1.000000 | | o | o | o | ** | *** | o |
| T5 | 5 | 822 | 2284.23 | 293.59 | 0.000000 | 0.024280 | 1.000000 | 1.000000 | | o | o | ** | *** | o |
| T6 | 6 | 824 | 2310.83 | 293.46 | 0.000000 | 0.000002 | 0.061995 | 1.000000 | 1.000000 | | o | *** | *** | ** |
| T7 | 7 | 831 | 2320.76 | 288.64 | 0.000000 | 0.000000 | 0.001341 | 0.118744 | 0.114275 | 1.000000 | | *** | *** | *** |
| T8 | 8 | 830 | 2206.30 | 296.93 | 0.000000 | 1.000000 | 0.397815 | 0.006862 | 0.007191 | 0.000000 | 0.000000 | | o | o |
| T9 | 9 | 821 | 2209.37 | 295.75 | 0.000000 | 1.000000 | 0.018362 | 0.000111 | 0.000118 | 0.000000 | 0.000000 | 1.000000 | | o |
| T10 | 10 | 827 | 2245.42 | 310.06 | 0.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 0.008407 | 0.000102 | 1.000000 | 0.130021 | |

FCR - day 10

Tab. No. 9a

| Treatment | Treat. No. | No. of box | Average (g) | Standard deviation | Kruskal-Wallis test | | | | | | | | | | | |
|-----------|------------|------------|-------------|--------------------|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|-----|---|---|
| | | | | | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | | |
| T1 | 1 | 6 | 978.27 | 105.08 | | o | o | o | o | o | o | o | * | o | o | |
| T2 | 2 | 6 | 853.39 | 26.55 | 1.000000 | | o | o | o | o | o | o | o | o | o | |
| T3 | 3 | 6 | 858.33 | 46.57 | 1.000000 | 1.000000 | | o | o | o | o | o | o | o | o | |
| T4 | 4 | 6 | 827.46 | 20.82 | 0.124787 | 1.000000 | 1.000000 | | o | o | o | o | o | o | o | |
| T5 | 5 | 6 | 821.67 | 25.10 | 0.057035 | 1.000000 | 1.000000 | 1.000000 | | o | o | o | o | o | o | |
| T6 | 6 | 6 | 816.19 | 47.87 | 0.100284 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | | o | o | o | o | o | |
| T7 | 7 | 6 | 825.18 | 21.37 | 0.094890 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | | o | o | o | o | |
| T8 | 8 | 6 | 800.14 | 53.64 | 0.015059 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | | o | o | o | |
| T9 | 9 | 6 | 837.31 | 32.62 | 0.592177 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | | o | o | |
| T10 | 10 | 6 | 826.62 | 47.29 | 0.131712 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | | o | o |

FCR - day 24

Tab. No. 9b

| Treatment | Treat. No. | No. of box | Average (g) | Standard deviation | Duncan test | | | | | | | | | | | |
|-----------|------------|------------|-------------|--------------------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|-----|-----|-----|
| | | | | | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | | |
| T1 | 1 | 6 | 1536.17 | 106.61 | | *** | *** | *** | *** | *** | *** | *** | *** | *** | *** | *** |
| T2 | 2 | 6 | 1219.45 | 35.74 | 0.000115 | | o | o | o | o | o | * | o | o | o | * |
| T3 | 3 | 6 | 1189.23 | 61.51 | 0.000055 | 0.401993 | | o | o | o | o | o | o | o | o | o |
| T4 | 4 | 6 | 1205.86 | 42.93 | 0.000062 | 0.687448 | 0.622210 | | o | o | o | o | o | o | o | o |
| T5 | 5 | 6 | 1160.81 | 48.82 | 0.000023 | 0.132190 | 0.447921 | 0.239847 | | o | o | o | o | o | o | o |
| T6 | 6 | 6 | 1158.34 | 49.08 | 0.000019 | 0.121498 | 0.420962 | 0.223036 | 0.941598 | | o | o | o | o | o | o |
| T7 | 7 | 6 | 1130.65 | 40.10 | 0.000017 | 0.026587 | 0.137886 | 0.058762 | 0.420559 | 0.442633 | | o | o | o | o | o |
| T8 | 8 | 6 | 1176.97 | 69.37 | 0.000032 | 0.256247 | 0.716625 | 0.423024 | 0.653942 | 0.618916 | 0.235062 | | o | o | o | o |
| T9 | 9 | 6 | 1164.14 | 52.99 | 0.000028 | 0.148581 | 0.486639 | 0.264756 | 0.921349 | 0.872354 | 0.382843 | 0.703824 | | o | o | o |
| T10 | 10 | 6 | 1132.76 | 38.37 | 0.000017 | 0.028999 | 0.147250 | 0.063403 | 0.436644 | 0.449556 | 0.950221 | 0.248772 | 0.401898 | | o | o |

FCR - day 35

Tab. No. 9c

| Treatment | Treat. No. | No. of box | Average (g) | Standard deviation | Duncan test | | | | | | | | | |
|-----------|------------|------------|-------------|--------------------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|-----|
| | | | | | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| T1 | 1 | 6 | 1842.42 | 38.72 | | *** | *** | *** | *** | *** | *** | *** | *** | *** |
| T2 | 2 | 6 | 1484.60 | 29.79 | 0.000115 | | o | o | * | ** | ** | o | o | * |
| T3 | 3 | 6 | 1459.54 | 25.44 | 0.000032 | 0.344001 | | o | o | o | * | o | o | o |
| T4 | 4 | 6 | 1440.82 | 33.87 | 0.000028 | 0.105689 | 0.434047 | | o | o | o | o | o | o |
| T5 | 5 | 6 | 1421.03 | 48.16 | 0.000023 | 0.020396 | 0.131552 | 0.408598 | | o | o | o | o | o |
| T6 | 6 | 6 | 1408.36 | 34.45 | 0.000017 | 0.006428 | 0.058189 | 0.219857 | 0.619239 | | o | * | o | o |
| T7 | 7 | 6 | 1399.78 | 33.19 | 0.000017 | 0.002614 | 0.029360 | 0.129551 | 0.422277 | 0.719368 | | * | * | o |
| T8 | 8 | 6 | 1470.16 | 44.66 | 0.000062 | 0.545851 | 0.677200 | 0.267588 | 0.069147 | 0.026101 | 0.011984 | | o | o |
| T9 | 9 | 6 | 1460.11 | 51.07 | 0.000055 | 0.337127 | 0.981054 | 0.449495 | 0.139415 | 0.059714 | 0.029942 | 0.673874 | | o |
| T10 | 10 | 6 | 1416.81 | 59.23 | 0.000019 | 0.014537 | 0.105914 | 0.346671 | 0.859569 | 0.723341 | 0.504328 | 0.052163 | 0.109597 | |

Performance results per replicate

Body weight per phases

Tab. No. 10a (page 1)

| Treatment | Tr. No. | Pen | Day 1 | | Day 10 | | Day 24 | | Day 35 | |
|-----------|---------|-----|-------|---------------------|--------|---------------------|--------|---------------------|--------|---------------------|
| | | | Birds | Average body weight | Birds | Average body weight | Birds | Average body weight | Birds | Average body weight |
| | | | | g | | g | | g | | g |
| T1 | 1 | 1 | 140 | 43.93 | 140 | 232.14 | 140 | 760.07 | 139 | 1416.83 |
| | | 11 | 140 | 43.57 | 140 | 229.29 | 140 | 756.64 | 139 | 1431.73 |
| | | 21 | 140 | 42.50 | 140 | 223.93 | 139 | 698.92 | 139 | 1402.73 |
| | | 40 | 140 | 42.86 | 140 | 237.14 | 139 | 845.47 | 139 | 1419.78 |
| | | 50 | 140 | 42.86 | 140 | 244.29 | 139 | 813.81 | 139 | 1393.74 |
| | | 60 | 140 | 43.57 | 140 | 211.07 | 140 | 722.29 | 140 | 1261.36 |
| T2 | 2 | 2 | 140 | 43.57 | 140 | 312.86 | 140 | 1184.57 | 138 | 2170.07 |
| | | 12 | 140 | 43.21 | 140 | 315.71 | 138 | 1270.22 | 137 | 2236.50 |
| | | 22 | 140 | 42.50 | 140 | 313.57 | 139 | 1313.96 | 139 | 2233.09 |
| | | 39 | 140 | 42.86 | 140 | 306.79 | 140 | 1219.57 | 140 | 2160.71 |
| | | 49 | 140 | 42.86 | 140 | 319.29 | 139 | 1281.01 | 139 | 2212.81 |
| | | 59 | 140 | 43.57 | 140 | 302.86 | 139 | 1300.22 | 139 | 2245.40 |
| T3 | 3 | 3 | 140 | 43.57 | 140 | 306.79 | 140 | 1210.93 | 140 | 2149.36 |
| | | 13 | 140 | 43.21 | 140 | 321.07 | 139 | 1226.69 | 137 | 2238.61 |
| | | 23 | 140 | 42.50 | 140 | 315.00 | 139 | 1402.52 | 139 | 2338.85 |
| | | 38 | 140 | 42.86 | 140 | 315.71 | 139 | 1315.54 | 138 | 2241.88 |
| | | 48 | 140 | 42.50 | 140 | 317.50 | 140 | 1279.43 | 140 | 2234.64 |
| | | 58 | 140 | 43.93 | 140 | 310.00 | 136 | 1367.79 | 136 | 2301.47 |
| T4 | 4 | 4 | 140 | 43.57 | 140 | 315.71 | 140 | 1232.00 | 140 | 2269.79 |
| | | 14 | 140 | 43.21 | 140 | 321.79 | 138 | 1265.87 | 136 | 2295.22 |
| | | 24 | 140 | 42.50 | 140 | 312.14 | 139 | 1347.05 | 139 | 2333.09 |
| | | 37 | 140 | 42.86 | 140 | 315.36 | 138 | 1247.17 | 138 | 2235.87 |
| | | 47 | 140 | 42.86 | 140 | 321.79 | 139 | 1242.52 | 139 | 2229.64 |
| | | 57 | 140 | 43.93 | 140 | 315.00 | 139 | 1327.12 | 139 | 2271.01 |
| T5 | 5 | 5 | 140 | 43.57 | 140 | 323.57 | 139 | 1245.11 | 138 | 2205.43 |
| | | 15 | 140 | 43.21 | 140 | 308.21 | 138 | 1313.77 | 137 | 2320.44 |
| | | 25 | 140 | 42.50 | 140 | 310.71 | 139 | 1309.71 | 138 | 2323.62 |
| | | 36 | 140 | 42.86 | 140 | 321.79 | 138 | 1294.06 | 135 | 2281.11 |
| | | 46 | 140 | 42.50 | 140 | 321.07 | 139 | 1291.08 | 139 | 2189.50 |
| | | 56 | 140 | 43.57 | 140 | 308.93 | 138 | 1418.55 | 135 | 2388.44 |

Body weight per phases

Tab. No. 10a (page 2)

| Treatment | Tr. No. | Pen | Day 1 | | Day 10 | | Day 24 | | Day 35 | |
|-----------|---------|-----|-------|---------------------|--------|---------------------|--------|---------------------|--------|---------------------|
| | | | Birds | Average body weight | Birds | Average body weight | Birds | Average body weight | Birds | Average body weight |
| | | | | g | | g | | g | | g |
| T6 | 6 | 6 | 140 | 43.57 | 140 | 316.07 | 139 | 1301.15 | 138 | 2288.19 |
| | | 16 | 140 | 43.21 | 140 | 314.64 | 138 | 1244.06 | 136 | 2284.41 |
| | | 26 | 140 | 42.50 | 140 | 305.71 | 137 | 1398.98 | 136 | 2358.75 |
| | | 35 | 140 | 42.86 | 140 | 320.36 | 139 | 1238.99 | 137 | 2236.57 |
| | | 45 | 140 | 42.50 | 140 | 308.57 | 140 | 1350.36 | 140 | 2313.07 |
| | | 55 | 140 | 43.93 | 140 | 314.64 | 138 | 1368.48 | 137 | 2384.23 |
| T7 | 7 | 7 | 140 | 43.57 | 140 | 308.57 | 139 | 1287.48 | 138 | 2264.13 |
| | | 17 | 140 | 43.21 | 140 | 313.21 | 138 | 1255.00 | 138 | 2274.86 |
| | | 27 | 140 | 42.50 | 140 | 311.07 | 140 | 1430.64 | 140 | 2392.86 |
| | | 34 | 140 | 42.86 | 140 | 312.14 | 140 | 1261.71 | 137 | 2294.09 |
| | | 44 | 140 | 42.50 | 140 | 330.36 | 140 | 1294.21 | 139 | 2309.57 |
| | | 54 | 140 | 43.21 | 140 | 306.43 | 139 | 1392.52 | 139 | 2387.41 |
| T8 | 8 | 8 | 140 | 43.93 | 140 | 321.79 | 140 | 1251.57 | 140 | 2212.00 |
| | | 18 | 140 | 43.21 | 140 | 320.71 | 139 | 1190.14 | 138 | 2156.96 |
| | | 28 | 140 | 42.50 | 140 | 316.79 | 139 | 1335.68 | 139 | 2210.50 |
| | | 33 | 140 | 42.86 | 140 | 317.50 | 139 | 1230.58 | 138 | 2175.29 |
| | | 43 | 140 | 42.50 | 140 | 322.50 | 139 | 1211.44 | 139 | 2190.00 |
| | | 53 | 140 | 43.57 | 140 | 310.00 | 136 | 1352.06 | 136 | 2294.34 |
| T9 | 9 | 9 | 140 | 43.57 | 140 | 318.21 | 137 | 1230.15 | 136 | 2222.21 |
| | | 19 | 140 | 43.21 | 140 | 317.50 | 138 | 1330.29 | 135 | 2303.04 |
| | | 29 | 140 | 42.50 | 140 | 300.36 | 139 | 1390.14 | 138 | 2078.62 |
| | | 32 | 140 | 42.86 | 140 | 327.14 | 139 | 1270.00 | 137 | 2202.04 |
| | | 42 | 140 | 42.50 | 140 | 321.07 | 139 | 1275.11 | 139 | 2083.31 |
| | | 52 | 140 | 43.57 | 140 | 312.86 | 138 | 1379.78 | 136 | 2372.43 |
| T10 | 10 | 10 | 140 | 43.57 | 140 | 309.64 | 138 | 1373.19 | 138 | 2334.71 |
| | | 20 | 140 | 43.21 | 140 | 316.79 | 137 | 1342.77 | 137 | 2307.96 |
| | | 30 | 140 | 42.50 | 140 | 323.57 | 140 | 1346.00 | 139 | 2158.49 |
| | | 31 | 140 | 43.21 | 140 | 312.14 | 139 | 1256.76 | 137 | 2243.07 |
| | | 41 | 140 | 42.50 | 140 | 322.50 | 140 | 1221.71 | 139 | 2084.75 |
| | | 51 | 140 | 43.21 | 140 | 314.64 | 139 | 1336.55 | 137 | 2346.50 |

Weight gain per phases (WG) and daily weight gain (DWG)

Tab. No. 10b (page 1)

| Treatm ent | Tr. No. | Box | Day 1 - 10 | | Day 11 - 24 | | Day 25 - 35 | | Day 1 - 35 | |
|---------------|---------|-----|------------|-------|-------------|-------|-------------|--------|------------|-------|
| | | | WG | DWG | WG | DWG | WG | DWG | WG | DWG |
| | | | g | g | g | g | g | g | g | g |
| T1 | 1 | 1 | 188.21 | 18.82 | 527.93 | 29.33 | 656.76 | 93.82 | 1372.91 | 39.23 |
| | | 11 | 185.71 | 18.57 | 527.36 | 29.30 | 675.08 | 96.44 | 1388.16 | 39.66 |
| | | 21 | 181.43 | 18.14 | 474.99 | 26.39 | 703.81 | 100.54 | 1360.23 | 38.86 |
| | | 40 | 194.29 | 19.43 | 608.32 | 33.80 | 574.32 | 82.05 | 1376.93 | 39.34 |
| | | 50 | 201.43 | 20.14 | 569.53 | 31.64 | 579.93 | 82.85 | 1350.88 | 38.60 |
| | | 60 | 167.50 | 16.75 | 511.21 | 28.40 | 539.07 | 77.01 | 1217.79 | 34.79 |
| T2 | 2 | 2 | 269.29 | 26.93 | 871.71 | 48.43 | 985.50 | 140.79 | 2126.50 | 60.76 |
| | | 12 | 272.50 | 27.25 | 954.50 | 53.03 | 966.28 | 138.04 | 2193.28 | 62.67 |
| | | 22 | 271.07 | 27.11 | 1000.39 | 55.58 | 919.14 | 131.31 | 2190.59 | 62.59 |
| | | 39 | 263.93 | 26.39 | 912.79 | 50.71 | 941.14 | 134.45 | 2117.86 | 60.51 |
| | | 49 | 276.43 | 27.64 | 961.72 | 53.43 | 931.80 | 133.11 | 2169.95 | 62.00 |
| | | 59 | 259.29 | 25.93 | 997.36 | 55.41 | 945.18 | 135.03 | 2201.82 | 62.91 |
| T3 | 3 | 3 | 263.21 | 26.32 | 904.14 | 50.23 | 938.43 | 134.06 | 2105.79 | 60.17 |
| | | 13 | 277.86 | 27.79 | 905.62 | 50.31 | 1011.92 | 144.56 | 2195.40 | 62.73 |
| | | 23 | 272.50 | 27.25 | 1087.52 | 60.42 | 936.33 | 133.76 | 2296.35 | 65.61 |
| | | 38 | 272.86 | 27.29 | 999.83 | 55.55 | 926.34 | 132.33 | 2199.03 | 62.83 |
| | | 48 | 275.00 | 27.50 | 961.93 | 53.44 | 955.21 | 136.46 | 2192.14 | 62.63 |
| | | 58 | 266.07 | 26.61 | 1057.79 | 58.77 | 933.68 | 133.38 | 2257.54 | 64.50 |
| T4 | 4 | 4 | 272.14 | 27.21 | 916.29 | 50.90 | 1037.79 | 148.26 | 2226.21 | 63.61 |
| | | 14 | 278.57 | 27.86 | 944.08 | 52.45 | 1029.35 | 147.05 | 2252.01 | 64.34 |
| | | 24 | 269.64 | 26.96 | 1034.91 | 57.49 | 986.04 | 140.86 | 2290.59 | 65.45 |
| | | 37 | 272.50 | 27.25 | 931.82 | 51.77 | 988.70 | 141.24 | 2193.01 | 62.66 |
| | | 47 | 278.93 | 27.89 | 920.73 | 51.15 | 987.12 | 141.02 | 2186.78 | 62.48 |
| | | 57 | 271.07 | 27.11 | 1012.12 | 56.23 | 943.88 | 134.84 | 2227.08 | 63.63 |
| T5 | 5 | 5 | 280.00 | 28.00 | 921.54 | 51.20 | 960.33 | 137.19 | 2161.86 | 61.77 |
| | | 15 | 265.00 | 26.50 | 1005.55 | 55.86 | 1006.67 | 143.81 | 2277.22 | 65.06 |
| | | 25 | 268.21 | 26.82 | 999.00 | 55.50 | 1013.91 | 144.84 | 2281.12 | 65.17 |
| | | 36 | 278.93 | 27.89 | 972.27 | 54.02 | 987.05 | 141.01 | 2238.25 | 63.95 |
| | | 46 | 278.57 | 27.86 | 970.01 | 53.89 | 898.42 | 128.35 | 2147.00 | 61.34 |
| | | 56 | 265.36 | 26.54 | 1109.62 | 61.65 | 969.89 | 138.56 | 2344.87 | 67.00 |

Weight gain per phases (WG) and daily weight gain (DWG)

Tab. No. 10b (page 2)

| Treatment | Tr. No. | Box | Day 1 - 10 | | Day 11 - 24 | | Day 25 - 35 | | Day 1 - 35 | |
|-----------|---------|-----|------------|-------|-------------|-------|-------------|--------|------------|-------|
| | | | WG | DWG | WG | DWG | WG | DWG | WG | DWG |
| | | | g | g | g | g | g | g | g | g |
| T6 | 6 | 6 | 272.50 | 27.25 | 985.08 | 54.73 | 987.04 | 141.01 | 2244.62 | 64.13 |
| | | 16 | 271.43 | 27.14 | 929.42 | 51.63 | 1040.35 | 148.62 | 2241.20 | 64.03 |
| | | 26 | 263.21 | 26.32 | 1093.26 | 60.74 | 959.77 | 137.11 | 2316.25 | 66.18 |
| | | 35 | 277.50 | 27.75 | 918.64 | 51.04 | 997.58 | 142.51 | 2193.71 | 62.68 |
| | | 45 | 266.07 | 26.61 | 1041.79 | 57.88 | 962.71 | 137.53 | 2270.57 | 64.87 |
| | | 55 | 270.71 | 27.07 | 1053.84 | 58.55 | 1015.76 | 145.11 | 2340.31 | 66.87 |
| T7 | 7 | 7 | 265.00 | 26.50 | 978.91 | 54.38 | 976.65 | 139.52 | 2220.56 | 63.44 |
| | | 17 | 270.00 | 27.00 | 941.79 | 52.32 | 1019.86 | 145.69 | 2231.64 | 63.76 |
| | | 27 | 268.57 | 26.86 | 1119.57 | 62.20 | 962.21 | 137.46 | 2350.36 | 67.15 |
| | | 34 | 269.29 | 26.93 | 949.57 | 52.75 | 1032.37 | 147.48 | 2251.23 | 64.32 |
| | | 44 | 287.86 | 28.79 | 963.86 | 53.55 | 1015.35 | 145.05 | 2267.07 | 64.77 |
| | | 54 | 263.21 | 26.32 | 1086.09 | 60.34 | 994.89 | 142.13 | 2344.20 | 66.98 |
| T8 | 8 | 8 | 277.86 | 27.79 | 929.79 | 51.65 | 960.43 | 137.20 | 2168.07 | 61.94 |
| | | 18 | 277.50 | 27.75 | 869.43 | 48.30 | 966.81 | 138.12 | 2113.74 | 60.39 |
| | | 28 | 274.29 | 27.43 | 1018.90 | 56.61 | 874.82 | 124.97 | 2168.00 | 61.94 |
| | | 33 | 274.64 | 27.46 | 913.08 | 50.73 | 944.71 | 134.96 | 2132.43 | 60.93 |
| | | 43 | 280.00 | 28.00 | 888.94 | 49.39 | 978.56 | 139.79 | 2147.50 | 61.36 |
| | | 53 | 266.43 | 26.64 | 1042.06 | 57.89 | 942.28 | 134.61 | 2250.77 | 64.31 |
| T9 | 9 | 9 | 274.64 | 27.46 | 911.93 | 50.66 | 992.06 | 141.72 | 2178.63 | 62.25 |
| | | 19 | 274.29 | 27.43 | 1012.79 | 56.27 | 972.75 | 138.96 | 2259.82 | 64.57 |
| | | 29 | 257.86 | 25.79 | 1089.79 | 60.54 | 688.48 | 98.35 | 2036.12 | 58.17 |
| | | 32 | 284.29 | 28.43 | 942.86 | 52.38 | 932.04 | 133.15 | 2159.19 | 61.69 |
| | | 42 | 278.57 | 27.86 | 954.04 | 53.00 | 808.20 | 115.46 | 2040.81 | 58.31 |
| | | 52 | 269.29 | 26.93 | 1066.93 | 59.27 | 992.64 | 141.81 | 2328.86 | 66.54 |
| T10 | 10 | 10 | 266.07 | 26.61 | 1063.55 | 59.09 | 961.52 | 137.36 | 2291.14 | 65.46 |
| | | 20 | 273.57 | 27.36 | 1025.99 | 57.00 | 965.18 | 137.88 | 2264.74 | 64.71 |
| | | 30 | 281.07 | 28.11 | 1022.43 | 56.80 | 812.49 | 116.07 | 2115.99 | 60.46 |
| | | 31 | 268.93 | 26.89 | 944.62 | 52.48 | 986.30 | 140.90 | 2199.85 | 62.85 |
| | | 41 | 280.00 | 28.00 | 899.21 | 49.96 | 863.03 | 123.29 | 2042.25 | 58.35 |
| | | 51 | 271.43 | 27.14 | 1021.90 | 56.77 | 1009.95 | 144.28 | 2303.28 | 65.81 |

Feed conversion per 1 kg of live weight

Tab. No. 10c (page 1)

| Treatment | Tr. No. | Box | Feed conversion ratio | | |
|-----------|---------|-----|-----------------------|------------------|------------------|
| | | | Day 10 | Day 24 | Day 35 |
| | | | g/kg live weight | g/kg live weight | g/kg live weight |
| T1 | 1 | 1 | 1006.15 | 1538.39 | 1815.88 |
| | | 11 | 906.54 | 1608.61 | 1806.58 |
| | | 21 | 1030.30 | 1661.05 | 1820.14 |
| | | 40 | 855.42 | 1373.57 | 1836.97 |
| | | 50 | 923.98 | 1451.15 | 1865.99 |
| | | 60 | 1147.21 | 1584.26 | 1908.94 |
| T2 | 2 | 2 | 858.45 | 1235.53 | 1472.94 |
| | | 12 | 814.48 | 1252.78 | 1476.78 |
| | | 22 | 865.60 | 1214.46 | 1488.33 |
| | | 39 | 894.06 | 1255.71 | 1538.18 |
| | | 49 | 843.40 | 1193.62 | 1483.59 |
| | | 59 | 844.34 | 1164.58 | 1447.79 |
| T3 | 3 | 3 | 798.60 | 1221.61 | 1450.27 |
| | | 13 | 901.00 | 1280.69 | 1499.97 |
| | | 23 | 866.21 | 1125.77 | 1438.92 |
| | | 38 | 895.93 | 1191.52 | 1476.46 |
| | | 48 | 886.39 | 1199.75 | 1460.44 |
| | | 58 | 801.84 | 1116.01 | 1431.19 |
| T4 | 4 | 4 | 837.10 | 1234.93 | 1444.13 |
| | | 14 | 847.95 | 1228.50 | 1416.55 |
| | | 24 | 826.09 | 1144.16 | 1419.81 |
| | | 37 | 844.85 | 1238.09 | 1478.89 |
| | | 47 | 792.45 | 1231.93 | 1483.02 |
| | | 57 | 816.33 | 1157.58 | 1402.53 |
| T5 | 5 | 5 | 799.12 | 1227.75 | 1472.05 |
| | | 15 | 852.84 | 1150.47 | 1376.92 |
| | | 25 | 813.79 | 1138.00 | 1374.54 |
| | | 36 | 812.43 | 1190.82 | 1460.65 |
| | | 46 | 798.67 | 1172.91 | 1461.74 |
| | | 56 | 853.18 | 1084.90 | 1380.30 |

Feed conversion per 1 kg of live weight

Tab. No. 10c (page 2)

| Treatment | Tr. No. | Box | Feed conversion ratio | | |
|-----------|---------|-----|-----------------------|------------------|------------------|
| | | | Day 10 | Day 24 | Day 35 |
| | | | g/kg live weight | g/kg live weight | g/kg live weight |
| T6 | 6 | 6 | 815.82 | 1192.16 | 1430.55 |
| | | 16 | 864.93 | 1210.19 | 1433.80 |
| | | 26 | 855.14 | 1098.08 | 1380.62 |
| | | 35 | 755.85 | 1183.53 | 1440.30 |
| | | 45 | 844.91 | 1169.53 | 1411.23 |
| | | 55 | 760.50 | 1096.52 | 1353.63 |
| T7 | 7 | 7 | 849.54 | 1159.75 | 1424.61 |
| | | 17 | 820.98 | 1146.29 | 1377.98 |
| | | 27 | 845.01 | 1060.96 | 1363.88 |
| | | 34 | 791.76 | 1155.46 | 1420.77 |
| | | 44 | 830.27 | 1157.90 | 1441.87 |
| | | 54 | 813.52 | 1103.55 | 1369.55 |
| T8 | 8 | 8 | 854.61 | 1271.54 | 1512.53 |
| | | 18 | 728.29 | 1143.70 | 1463.89 |
| | | 28 | 854.57 | 1095.28 | 1436.60 |
| | | 33 | 830.15 | 1212.28 | 1509.32 |
| | | 43 | 775.19 | 1224.18 | 1497.34 |
| | | 53 | 758.06 | 1114.86 | 1401.31 |
| T9 | 9 | 9 | 792.37 | 1205.91 | 1448.09 |
| | | 19 | 881.89 | 1218.11 | 1452.17 |
| | | 29 | 848.99 | 1078.11 | 1475.06 |
| | | 32 | 858.08 | 1173.96 | 1499.46 |
| | | 42 | 832.04 | 1183.46 | 1515.31 |
| | | 52 | 810.50 | 1125.30 | 1370.59 |
| T10 | 10 | 10 | 888.12 | 1083.56 | 1373.56 |
| | | 20 | 879.37 | 1133.26 | 1394.42 |
| | | 30 | 801.32 | 1120.78 | 1494.77 |
| | | 31 | 787.19 | 1189.01 | 1407.29 |
| | | 41 | 777.41 | 1163.47 | 1482.48 |
| | | 51 | 826.33 | 1106.48 | 1348.33 |

Feed conversion per 1 kg of weight gain

Tab. No. 10d (page 1)

| Treatm ent | Tr. No. | Box | Feed conversion ratio | | | |
|---------------|---------|-----|-----------------------|------------------|------------------|------------------|
| | | | Day 1-10 | Day 11-24 | Day 25-35 | Day 1-35 |
| | | | g/kg weight gain | g/kg weight gain | g/kg weight gain | g/kg weight gain |
| T1 | 1 | 1 | 1240.99 | 1231.46 | 2139.72 | 1874.22 |
| | | 11 | 1119.23 | 1334.30 | 2029.80 | 1863.45 |
| | | 21 | 1271.65 | 1330.70 | 1978.94 | 1877.29 |
| | | 40 | 1044.12 | 1133.09 | 2521.61 | 1894.45 |
| | | 50 | 1120.57 | 1175.42 | 2455.03 | 1925.20 |
| | | 60 | 1445.63 | 1249.38 | 2343.98 | 1977.24 |
| T2 | 2 | 2 | 997.35 | 1009.07 | 1762.00 | 1503.30 |
| | | 12 | 943.64 | 1049.06 | 1774.25 | 1506.24 |
| | | 22 | 1001.32 | 1007.20 | 1880.87 | 1517.37 |
| | | 39 | 1039.24 | 1031.07 | 1904.22 | 1569.31 |
| | | 49 | 974.16 | 982.60 | 1883.11 | 1513.07 |
| | | 59 | 986.23 | 967.12 | 1838.18 | 1476.62 |
| T3 | 3 | 3 | 930.80 | 1019.55 | 1745.32 | 1480.28 |
| | | 13 | 1041.13 | 1045.42 | 1771.21 | 1529.74 |
| | | 23 | 1001.31 | 930.59 | 1909.34 | 1465.70 |
| | | 38 | 1036.65 | 976.01 | 1883.96 | 1505.42 |
| | | 48 | 1023.38 | 980.03 | 1809.62 | 1488.76 |
| | | 58 | 934.23 | 930.84 | 1897.15 | 1459.72 |
| T4 | 4 | 4 | 971.13 | 1020.67 | 1692.48 | 1472.39 |
| | | 14 | 979.49 | 1010.99 | 1649.95 | 1444.14 |
| | | 24 | 956.29 | 951.91 | 1797.02 | 1446.32 |
| | | 37 | 977.72 | 1022.55 | 1783.93 | 1508.14 |
| | | 47 | 914.21 | 1026.20 | 1800.16 | 1512.24 |
| | | 57 | 948.62 | 963.53 | 1748.48 | 1430.32 |
| T5 | 5 | 5 | 923.47 | 1019.26 | 1790.81 | 1501.96 |
| | | 15 | 991.91 | 949.18 | 1676.22 | 1403.39 |
| | | 25 | 942.74 | 944.27 | 1681.96 | 1400.34 |
| | | 36 | 937.26 | 987.31 | 1825.70 | 1489.25 |
| | | 46 | 920.51 | 973.59 | 1877.80 | 1490.84 |
| | | 56 | 993.27 | 898.03 | 1822.88 | 1406.39 |

Feed conversion per 1 kg of weight gain

Tab. No. 10d (page 2)

| Treatment | Tr. No. | Box | Feed conversion ratio | | | |
|-----------|---------|-----|-----------------------|------------------|------------------|------------------|
| | | | Day 1-10 | Day 11-24 | Day 25-35 | Day 1-35 |
| | | | g/kg weight gain | g/kg weight gain | g/kg weight gain | g/kg weight gain |
| T6 | 6 | 6 | 946.26 | 993.06 | 1745.93 | 1458.53 |
| | | 16 | 1002.63 | 989.83 | 1704.98 | 1461.87 |
| | | 26 | 993.22 | 909.60 | 1800.99 | 1406.42 |
| | | 35 | 872.59 | 987.30 | 1762.91 | 1468.74 |
| | | 45 | 979.87 | 976.68 | 1750.26 | 1437.65 |
| | | 55 | 883.91 | 920.30 | 1704.04 | 1379.40 |
| T7 | 7 | 7 | 989.22 | 955.54 | 1775.31 | 1452.73 |
| | | 17 | 952.38 | 939.89 | 1664.77 | 1404.97 |
| | | 27 | 978.72 | 877.42 | 1814.27 | 1388.54 |
| | | 34 | 917.77 | 959.82 | 1749.35 | 1447.98 |
| | | 44 | 952.85 | 946.21 | 1806.71 | 1469.00 |
| | | 54 | 947.08 | 923.87 | 1742.71 | 1394.94 |
| T8 | 8 | 8 | 989.72 | 1052.09 | 1826.57 | 1543.18 |
| | | 18 | 841.70 | 946.81 | 1859.34 | 1494.00 |
| | | 28 | 986.98 | 891.81 | 1958.88 | 1464.93 |
| | | 33 | 959.69 | 997.27 | 1898.85 | 1539.90 |
| | | 43 | 892.86 | 1016.76 | 1835.76 | 1527.17 |
| | | 53 | 882.04 | 938.99 | 1818.96 | 1428.99 |
| T9 | 9 | 9 | 918.08 | 998.52 | 1749.75 | 1477.50 |
| | | 19 | 1020.83 | 1005.47 | 1778.64 | 1480.50 |
| | | 29 | 988.92 | 893.71 | 2280.26 | 1506.10 |
| | | 32 | 987.44 | 952.19 | 1950.62 | 1529.58 |
| | | 42 | 958.97 | 973.23 | 2040.24 | 1547.04 |
| | | 52 | 941.64 | 940.05 | 1725.65 | 1396.92 |
| T10 | 10 | 10 | 1033.56 | 881.64 | 1789.89 | 1399.99 |
| | | 20 | 1018.28 | 924.41 | 1762.84 | 1421.39 |
| | | 30 | 922.49 | 928.37 | 2117.29 | 1524.85 |
| | | 31 | 913.68 | 992.52 | 1687.86 | 1435.22 |
| | | 41 | 895.41 | 958.51 | 1935.81 | 1513.38 |
| | | 51 | 957.89 | 911.37 | 1672.55 | 1373.88 |

Feed consumption per phases

Tab. No. 10e (page 1)

| Treatment | Tr. No. | Box | Feed consumption | | | |
|-----------|---------|-----|------------------|------------------|--------------------|----------------|
| | | | Starter (D 1-10) | Grower (D 11-24) | Finisher (D 24-35) | Total (D 1-35) |
| | | | kg | kg | kg | kg |
| T1 | 1 | 1 | 32.70 | 131.00 | 195.10 | 358.80 |
| | | 11 | 29.10 | 141.30 | 190.70 | 361.10 |
| | | 21 | 32.30 | 129.90 | 193.60 | 355.80 |
| | | 40 | 28.40 | 133.60 | 201.30 | 363.30 |
| | | 50 | 31.60 | 134.50 | 197.90 | 364.00 |
| | | 60 | 33.90 | 126.30 | 176.90 | 337.10 |
| T2 | 2 | 2 | 37.60 | 167.30 | 240.00 | 444.90 |
| | | 12 | 36.00 | 185.10 | 235.80 | 456.90 |
| | | 22 | 38.00 | 184.40 | 240.30 | 462.70 |
| | | 39 | 38.40 | 176.00 | 250.90 | 465.30 |
| | | 49 | 37.70 | 175.30 | 243.90 | 456.90 |
| | | 59 | 35.80 | 175.10 | 241.50 | 452.40 |
| T3 | 3 | 3 | 34.30 | 172.80 | 229.30 | 436.40 |
| | | 13 | 40.50 | 179.70 | 246.20 | 466.40 |
| | | 23 | 38.20 | 181.90 | 248.50 | 468.60 |
| | | 38 | 39.60 | 179.10 | 241.80 | 460.50 |
| | | 48 | 39.40 | 175.50 | 242.00 | 456.90 |
| | | 58 | 34.80 | 174.70 | 240.90 | 450.40 |
| T4 | 4 | 4 | 37.00 | 176.00 | 245.90 | 458.90 |
| | | 14 | 38.20 | 177.30 | 233.20 | 448.70 |
| | | 24 | 36.10 | 178.50 | 246.30 | 460.90 |
| | | 37 | 37.30 | 176.70 | 243.40 | 457.40 |
| | | 47 | 35.70 | 177.80 | 247.00 | 460.50 |
| | | 57 | 36.00 | 178.50 | 229.40 | 443.90 |
| T5 | 5 | 5 | 36.20 | 176.70 | 238.00 | 450.90 |
| | | 15 | 36.80 | 173.30 | 231.60 | 441.70 |
| | | 25 | 35.40 | 172.30 | 236.20 | 443.90 |
| | | 36 | 36.60 | 177.30 | 242.40 | 456.30 |
| | | 46 | 35.90 | 175.10 | 234.50 | 445.50 |
| | | 56 | 36.90 | 177.10 | 240.00 | 454.00 |

Feed consumption per phases

Tab. No. 10e (page 2)

| Treatm ent | Tr. No. | Box | Feed consumption | | | |
|---------------|---------|-----|------------------|------------------|--------------------|----------------|
| | | | Starter (D 1-10) | Grower (D 11-24) | Finisher (D 24-35) | Total (D 1-35) |
| | | | kg | kg | kg | kg |
| T6 | 6 | 6 | 36.10 | 179.80 | 239.00 | 454.90 |
| | | 16 | 38.10 | 170.90 | 242.80 | 451.80 |
| | | 26 | 36.60 | 176.40 | 234.80 | 447.80 |
| | | 35 | 33.90 | 170.30 | 242.10 | 446.30 |
| | | 45 | 36.50 | 184.60 | 235.90 | 457.00 |
| | | 55 | 33.50 | 174.70 | 237.40 | 445.60 |
| T7 | 7 | 7 | 36.70 | 171.50 | 240.70 | 448.90 |
| | | 17 | 36.00 | 163.70 | 234.30 | 434.00 |
| | | 27 | 36.80 | 175.70 | 244.40 | 456.90 |
| | | 34 | 34.60 | 169.50 | 249.50 | 453.60 |
| | | 44 | 38.40 | 171.40 | 254.80 | 464.60 |
| | | 54 | 34.90 | 179.20 | 241.00 | 455.10 |
| T8 | 8 | 8 | 38.50 | 184.30 | 245.60 | 468.40 |
| | | 18 | 32.70 | 157.00 | 249.70 | 439.40 |
| | | 28 | 37.90 | 165.90 | 238.20 | 442.00 |
| | | 33 | 36.90 | 170.90 | 248.20 | 456.00 |
| | | 43 | 35.00 | 171.30 | 249.70 | 456.00 |
| | | 53 | 32.90 | 175.40 | 233.10 | 441.40 |
| T9 | 9 | 9 | 35.30 | 169.70 | 238.80 | 443.80 |
| | | 19 | 39.20 | 185.10 | 234.80 | 459.10 |
| | | 29 | 35.70 | 172.80 | 217.40 | 425.90 |
| | | 32 | 39.30 | 168.50 | 249.10 | 456.90 |
| | | 42 | 37.40 | 172.90 | 229.20 | 439.50 |
| | | 52 | 35.50 | 179.90 | 228.20 | 443.60 |
| T10 | 10 | 10 | 38.50 | 167.90 | 237.50 | 443.90 |
| | | 20 | 39.00 | 172.40 | 233.10 | 444.50 |
| | | 30 | 36.30 | 174.90 | 239.70 | 450.90 |
| | | 31 | 34.40 | 173.50 | 229.60 | 437.50 |
| | | 41 | 35.10 | 163.90 | 233.00 | 432.00 |
| | | 51 | 36.40 | 169.80 | 232.50 | 438.70 |

Foot pad lesions

Tab. No. 10f (page 1)

| Treatment | Tr. No. | Box No. | Evaluation | |
|-----------|---------|---------|------------|-----------|
| | | | right foot | left foot |
| T1 | 1 | 1 | 0.88 | 0.93 |
| | | 11 | 1.08 | 1.20 |
| | | 21 | 0.58 | 0.43 |
| | | 40 | 1.18 | 1.08 |
| | | 50 | 2.13 | 1.83 |
| | | 60 | 1.33 | 1.10 |
| T2 | 2 | 2 | 1.25 | 1.08 |
| | | 12 | 1.28 | 1.20 |
| | | 22 | 0.73 | 0.60 |
| | | 39 | 1.65 | 1.68 |
| | | 49 | 2.63 | 2.70 |
| | | 59 | 1.40 | 1.23 |
| T3 | 3 | 3 | 0.55 | 0.58 |
| | | 13 | 1.23 | 1.30 |
| | | 23 | 1.08 | 0.95 |
| | | 38 | 1.53 | 1.50 |
| | | 48 | 2.53 | 2.48 |
| | | 58 | 1.33 | 1.30 |
| T4 | 4 | 4 | 0.90 | 0.63 |
| | | 14 | 1.48 | 1.33 |
| | | 24 | 1.08 | 0.90 |
| | | 37 | 1.43 | 1.30 |
| | | 47 | 2.45 | 2.55 |
| | | 57 | 1.23 | 1.25 |
| T5 | 5 | 5 | 1.43 | 1.28 |
| | | 15 | 1.18 | 1.25 |
| | | 25 | 0.88 | 0.65 |
| | | 36 | 0.93 | 0.83 |
| | | 46 | 2.25 | 2.23 |
| | | 56 | 1.25 | 1.30 |

Foot pad lesions

Tab. No. 10f (page 2)

| Treatment | Tr. No. | Box No. | Evaluation | |
|-----------|---------|---------|------------|-----------|
| | | | right foot | left foot |
| T6 | 6 | 6 | 0.78 | 0.73 |
| | | 16 | 1.18 | 0.80 |
| | | 26 | 0.98 | 0.85 |
| | | 35 | 1.43 | 1.43 |
| | | 45 | 2.38 | 2.50 |
| | | 55 | 1.83 | 1.98 |
| T7 | 7 | 7 | 0.95 | 0.68 |
| | | 17 | 0.88 | 0.78 |
| | | 27 | 1.10 | 0.85 |
| | | 34 | 1.28 | 1.18 |
| | | 44 | 2.15 | 2.13 |
| | | 54 | 1.85 | 1.73 |
| T8 | 8 | 8 | 1.20 | 1.10 |
| | | 18 | 0.75 | 0.78 |
| | | 28 | 1.78 | 1.33 |
| | | 33 | 1.60 | 1.75 |
| | | 43 | 2.00 | 2.05 |
| | | 53 | 2.00 | 1.95 |
| T9 | 9 | 9 | 1.15 | 1.00 |
| | | 19 | 1.20 | 1.08 |
| | | 29 | 1.65 | 1.68 |
| | | 32 | 2.03 | 1.93 |
| | | 42 | 2.03 | 2.03 |
| | | 52 | 2.08 | 2.03 |
| T10 | 10 | 10 | 1.35 | 0.98 |
| | | 20 | 1.25 | 1.25 |
| | | 30 | 1.75 | 1.55 |
| | | 31 | 2.13 | 2.23 |
| | | 41 | 1.68 | 1.68 |
| | | 51 | 1.95 | 1.90 |

Litter scoring at the age of 24 days Tab. No. 10ga (page 1)

| Treatment | Tr. No. | Box No. | Litter scoring |
|------------------|----------------|----------------|-----------------------|
| T1 | 1 | 1 | 2 |
| | | 11 | 2 |
| | | 21 | 2 |
| | | 40 | 1 |
| | | 50 | 1 |
| | | 60 | 2 |
| T2 | 2 | 2 | 4 |
| | | 12 | 3 |
| | | 22 | 3 |
| | | 39 | 2 |
| | | 49 | 2 |
| | | 59 | 3 |
| T3 | 3 | 3 | 3 |
| | | 13 | 3 |
| | | 23 | 3 |
| | | 38 | 2 |
| | | 48 | 2 |
| | | 58 | 3 |
| T4 | 4 | 4 | 3 |
| | | 14 | 2 |
| | | 24 | 2 |
| | | 37 | 3 |
| | | 47 | 3 |
| | | 57 | 4 |
| T5 | 5 | 5 | 4 |
| | | 15 | 3 |
| | | 25 | 3 |
| | | 36 | 2 |
| | | 46 | 2 |
| | | 56 | 3 |

Litter scoring at the age of 24 days Tab. No. 10ga (page 2)

| Treatment | Tr. No. | Box No. | Litter scoring |
|------------------|----------------|----------------|-----------------------|
| T6 | 6 | 6 | 3 |
| | | 16 | 3 |
| | | 26 | 3 |
| | | 35 | 3 |
| | | 45 | 2 |
| | | 55 | 2 |
| T7 | 7 | 7 | 3 |
| | | 17 | 4 |
| | | 27 | 3 |
| | | 34 | 3 |
| | | 44 | 3 |
| | | 54 | 3 |
| T8 | 8 | 8 | 4 |
| | | 18 | 3 |
| | | 28 | 3 |
| | | 33 | 4 |
| | | 43 | 3 |
| | | 53 | 3 |
| T9 | 9 | 9 | 3 |
| | | 19 | 3 |
| | | 29 | 4 |
| | | 32 | 4 |
| | | 42 | 3 |
| | | 52 | 2 |
| T10 | 10 | 10 | 4 |
| | | 20 | 4 |
| | | 30 | 4 |
| | | 31 | 2 |
| | | 41 | 3 |
| | | 51 | 2 |

Litter scoring at the age of 35 days Tab. No. 10gb (page 1)

| Treatment | Tr. No. | Box No. | Litter scoring |
|------------------|----------------|----------------|-----------------------|
| T1 | 1 | 1 | 4 |
| | | 11 | 4 |
| | | 21 | 3 |
| | | 40 | 3 |
| | | 50 | 3 |
| | | 60 | 4 |
| T2 | 2 | 2 | 5 |
| | | 12 | 5 |
| | | 22 | 4 |
| | | 39 | 4 |
| | | 49 | 4 |
| | | 59 | 5 |
| T3 | 3 | 3 | 5 |
| | | 13 | 5 |
| | | 23 | 5 |
| | | 38 | 4 |
| | | 48 | 4 |
| | | 58 | 5 |
| T4 | 4 | 4 | 4 |
| | | 14 | 4 |
| | | 24 | 4 |
| | | 37 | 5 |
| | | 47 | 5 |
| | | 57 | 5 |
| T5 | 5 | 5 | 5 |
| | | 15 | 4 |
| | | 25 | 5 |
| | | 36 | 4 |
| | | 46 | 4 |
| | | 56 | 4 |

Litter scoring at the age of 35 days Tab. No. 10gb (page 2)

| Treatment | Tr. No. | Box No. | Litter scoring |
|------------------|----------------|----------------|-----------------------|
| T6 | 6 | 6 | 5 |
| | | 16 | 5 |
| | | 26 | 5 |
| | | 35 | 5 |
| | | 45 | 4 |
| | | 55 | 4 |
| T7 | 7 | 7 | 5 |
| | | 17 | 5 |
| | | 27 | 5 |
| | | 34 | 4 |
| | | 44 | 5 |
| | | 54 | 4 |
| T8 | 8 | 8 | 5 |
| | | 18 | 5 |
| | | 28 | 5 |
| | | 33 | 5 |
| | | 43 | 5 |
| | | 53 | 4 |
| T9 | 9 | 9 | 5 |
| | | 19 | 5 |
| | | 29 | 5 |
| | | 32 | 5 |
| | | 42 | 5 |
| | | 52 | 4 |
| T10 | 10 | 10 | 5 |
| | | 20 | 5 |
| | | 30 | 5 |
| | | 31 | 4 |
| | | 41 | 5 |
| | | 51 | 4 |