



MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE
státní podnik, ÚSTRAŠICE

390 02 Tábor 2

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**XXX. International performance test
of commercial layers
- cage system**

**The final report
2021 - 2022**

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Ústrašice, November 2022

1 The list of participants

| Sam. | Cross | Hatchery flock | State | Breeding organization |
|------|-------|----------------|-------|-----------------------|
| 1 | XXXXX | XXXXX | XXXXX | XXXXX |
| 2 | XXXXX | XXXXX | XXXXX | XXXXX |
| 3 | XXXXX | XXXXX | XXXXX | XXXXX |
| 4 | XXXXX | XXXXX | XXXXX | XXXXX |
| 5 | XXXXX | XXXXX | XXXXX | XXXXX |
| 6 | XXXXX | XXXXX | XXXXX | XXXXX |
| 7 | XXXXX | XXXXX | XXXXX | XXXXX |
| 8 | XXXXX | XXXXX | XXXXX | XXXXX |
| 9 | XXXXX | XXXXX | XXXXX | XXXXX |
| 10 | XXXXX | XXXXX | XXXXX | XXXXX |
| 11 | XXXXX | XXXXX | XXXXX | XXXXX |
| 12 | XXXXX | XXXXX | XXXXX | XXXXX |

2 The basic data of performance test

2.1 Progeny testing

The progeny testing of commercial layers hybrids consists of:

- incubation and hatch of delivered hatching eggs from a regular PS flock
- pullets rearing: 18 weeks long rearing period (126 days)
- hen production: 56 weeks long laying period (127 – 518 days of age)

2.2 Location of the test

Mezinárodní testování drůbeže, s.p. Ústrašice – Testační stanice nosných slepic (Test Station of Layers)

2.3 Material

There were 12 genotypes compared in the test. Each sample consisted of 1080 hatching eggs delivered to the test station. (Only treatment No. 5 had 982 eggs and treatment No. 10 had 1062 eggs.)

2.4 Important dates

| | |
|---|------------------|
| setting in the hatchery: | 15 March 2021 |
| beginning of rearing – day 1: | 6 April 2021 |
| end of rearing: | 10 August 2021 |
| beginning of laying, start of the period 1: | 11 August 2021 |
| end of laying, end of the period 14: | 6 September 2022 |

3 Incubation and hatching

3.1 Sorting and weighing of hatching eggs

The hatching eggs were sorted immediately after delivery to the test station. The average egg weight of each sample was found.

3.2 Storage of hatching eggs

After sorting and weighing, the hatching eggs were disinfected and stored in temperature of 16 – 18 °C.

3.3 Setting in the hatchery

Hatching eggs of all samples were set for a single stage incubation at once. Correspondent data monitoring was made during incubation.

4 Rearing of pullets

4.1 Samples and their location

The rearing of pullets took 126 days. Day old chicks were sexed. The males were destroyed. After culling of non standard birds, 240 pullets of each sample were randomly chosen for the test. 80 pullets were placed in the house with deep litter system and 160 pullets in the cage system.

Pullets were marked (wing banded). Beak trimming was carried out by hot blade. This treatment was done on a half of pullets reared in the cage system and on all pullets reared in the deep litter system. A half of pullets reared in the cage system is not beak-trimmed.

4.2 Housing system

Pullets were kept in windowless house with full control of the environment. Pullets in cage system were kept in 3-tier cage batteries. Feed was manually filled in the feeders. Nipple automatic drinkers were used. Belt conveyer for clearance of excrements. Manually filled tube feeders and nipple automatic drinkers were used in deep litter system.

4.3 Conditions of the environment

Temperature

| Age | Deep litter system | | Cage system |
|-------------|---------------------|-----------------|-----------------|
| | below the heater °C | in the house °C | in the house °C |
| Day 1 - 3 | 36 | 27 | 36 |
| Day 4 - 7 | 33 | 27 | 33 |
| Day 8 - 14 | 30 | 24 | 30 |
| Day 15 - 21 | 27 | 24 | 27 |
| Day 22 - 28 | 24 | 22 | 24 |
| Day 29 - 35 | - | 20 | 20 |
| From week 6 | - | 18 – 20 | 18 – 20 |

Stocking density

| Age | Deep litter system | Cage system |
|--------------|------------------------|---------------------------|
| Day 1 - 112 | 9 birds/m ² | 350 cm ² /bird |
| From day 112 | | 756 cm ² /ks |

Ventilation

Transversal automatically controlled ventilation (fans and air inlets on the opposite side of the house) was used. Ventilation provided minimum ventilation rate of 3 m³/hour/kg live weight in winter, with possible increase in summer, depending on temperature and air humidity. Relative humidity was kept between 50 – 70 %.

4.4 Lighting programme

Pullets were kept in windowless house. All the birds were submitted to the following lighting programme.

Lighting programme:

| Age | Hours of light | From - to | Luminous intensity (lx) |
|-------------|-----------------------|------------------------------------|--------------------------------|
| Day 1 - 3 | 23 | 1 ⁰⁰ – 24 ⁰⁰ | 40 |
| Day 4 - 7 | 20 | 2 ⁰⁰ – 22 ⁰⁰ | 30 |
| Day 8 - 14 | 18 | 3 ⁰⁰ – 21 ⁰⁰ | 20 |
| Day 15 - 21 | 16 | 4 ⁰⁰ – 20 ⁰⁰ | 10 |
| Day 22 - 28 | 14 | 5 ⁰⁰ – 19 ⁰⁰ | 10 |
| Day 29 - 35 | 12 | 6 ⁰⁰ – 18 ⁰⁰ | 5 - 10 |
| Week 6 - 16 | 10 | 6 ⁰⁰ – 16 ⁰⁰ | 5 - 10 |
| Week 17 | 12 | 6 ⁰⁰ – 18 ⁰⁰ | 10 - 15 |
| Week 18 | 13 | 5 ⁰⁰ – 18 ⁰⁰ | 5 - 10 |

4.5 Feeding and watering

Pullets were fed to reach their BW standards during rearing. The complete feed mixture was filled daily in the tube feeders in deep litter system and in groove feeders in cage system. The feed K1 is distributed several times a day. The feeds K2, KZK and N0 are distributed twice a day – 50% in the morning and 50% in the afternoon. All the distributed feed should be daily eaten. Water was supplied by automatic nipple drinkers. Feed was supplied by xxxxx

Diet formulas:

| | K1 IT N | K2 IT N | KZK IT N | N0 IT N |
|--|----------------|----------------|-----------------|----------------|
| Age | Week 1 - 4 | Week 5 - 10 | Week 11 - 16 | Week 17 - 18 |
| Feed form | crumbled | crushed | crushed | crushed |
| Components – content in %: | | | | |
| Wheat | 36.250 | 48.130 | 60.180 | 41.385 |
| Maize | 33.000 | 26.000 | 15.000 | 10.000 |
| Extr. soybean groats | 23.300 | 19.500 | 9.300 | 19.800 |
| Barley | - | - | - | 20.000 |
| Wheat bran | - | - | 6.000 | - |
| Extr. sunflower groats | - | - | 5.500 | - |
| Extr. rapeseed groats | - | - | - | - |
| Fish meal | 2.200 | 1.500 | - | - |
| Soybean oil | 1.100 | - | - | 1.500 |
| Animal fat | - | 0.700 | - | - |
| Lysine-HCl | 0.240 | 0.130 | 0.140 | 0.040 |
| L-threonine | 0.080 | 0.040 | - | - |
| DL-methionine | 0.220 | 0.160 | 0.080 | 0.170 |
| Salt | 0.360 | 0.350 | 0.360 | 0.320 |
| Limestone | 1.530 | 1.360 | 0.910 | 1.600 |
| Limestone-roughly ground | - | - | 0.910 | 3.730 |
| MCP – monocalciumphosphate | 1.530 | 1.920 | 1.400 | 0.970 |
| Sodium bicarbonate | - | - | - | 0.080 |
| Vitamin and mineral supplement | 0.190 | 0.210 | 0.220 | 0.405 |
| Nutrient content (calculated values): | | | | |
| CP (g/kg) | 203.57 | 185.47 | 156.58 | 169.10 |
| Fat (g/kg) | 36.88 | 30.76 | 21.41 | 33.25 |
| Linoleic acid (g/kg) | 17.64 | 13.21 | 11.30 | 17.92 |
| Crude fiber (g/kg) | 27.81 | 28.47 | 39.12 | 33.41 |
| ME (MJ/kg) | 12.18 | 12.05 | 11.39 | 11.60 |
| Lysine (g/kg) | 11.54 | 9.54 | 7.12 | 8.27 |
| Methionine (g/kg) | 5.19 | 4.39 | 3.29 | 4.20 |
| Met. + Cys. (g/kg) | 8.60 | 7.65 | 6.36 | 7.37 |
| Threonine (g/kg) | 7.75 | 6.61 | 5.12 | 5.86 |
| Tryptophan (g/kg) | 2.43 | 2.22 | 1.86 | 2.16 |
| Ca (g/kg) | 10.50 | 10.10 | 10.28 | 23.00 |
| P (g/kg) | 7.93 | 8.56 | 7.65 | 5.87 |
| P digest. (g/kg) | 5.48 | 6.52 | 5.41 | 4.28 |
| Vitamin A (IU/kg) | 10842.15 | 10857.29 | 10819.48 | 10812.46 |
| Vitamin D3 (IU/kg) | 2080.00 | 2080.00 | 2080.00 | 2080.00 |

4.6 Veterinary precautions

House was cleaned, washed and disinfected with xxxxx before the pullets` placement. Disinfection of shoes with xxxxx solution at house entry was used. Rodent control was provided regularly.

Vaccination programme

| Age | Disease |
|------------|---|
| Day 1 | Marek`s disease + infectious bronchitis |
| Day 3 | Salmonellosis |
| Day 7 | Coccidiosis |
| Day 10 | E.coli |
| Day 13 | Infectious bronchitis |
| Day 17 | Newcastle disease |
| | Gumboro disease |
| Week 3 | Salmonellosis |
| Week 4 | Gumboro disease |
| Week 6 | Infectious bronchitis |
| | Newcastle disease |
| Week 9 | Infectious bronchitis |
| Week 10 | Avian pneumovirus |
| Week 11 | Avian encephalomyelitis |
| Week 12 | Infectious bronchitis |
| Week 13 | Salmonellosis |
| Week 14 | E.coli |
| Week 16 | Infectious bronchitis |
| | Newcastle disease |
| | Egg-drop syndrome |

4.7 Transfer to the laying house

Pullets were moved to the laying house at the age of 16 weeks (112 days). 180 birds per sample were selected according to their live weight.

Pullets were placed in cage batteries in 6 replications per sample. All samples were kept in coincident environment conditions.

5 Production period

5.1 Samples and their placement

Hens were placed in cage batteries in 6 replications per sample. All samples were kept in coincident environment conditions.

5.2 Housing system

Hens were kept in windowless house with full control of the environment. They were kept in 3-tier enriched cage batteries.

Enriched cages provided 756 cm² of floor space per hen. Enriched cages were equipped with a perch, a nest, a roosting ash place and claw shortening devices in addition to feeders and drinkers.

Feed was manually filled in the feeders, water was supplied by automatic nipple drinkers. Dropings were removed by the conveyor belt. Eggs were collected manually, each sample separately.

5.3 Conditions of the environment

Temperature was kept between 18 – 20°C. Relative humidity was 60 – 70 %. Temperature was regulated by transversal automatically controlled ventilation (fans and air inlets on the opposite side of the house), in cold weather a gas heater was used. Ventilation provided minimum ventilation rate of 3 m³/hour/kg live weight in winter and 5 m³/hour/kg live weight in summer.

5.4 Lighting programme

Hens were kept in windowless house. All the birds were submitted to the following lighting programme.

| Age | Hours of light |
|---------------------------|----------------|
| Week 19 | 14 |
| Week 20 | 15 |
| Week 21 | 15.5 |
| Week 22 – end of the test | 16 |

Luminous intensity 15 – 20 lx.

5.5 Feeding

Hens were fed with three types of feed: from 19th week of age N1 start, from 23th week of age N1 and from 47th week of age N2. Complete feeds were in mash form and fed ad libitum.

Feed was supplied by xxxxx

Diet formulas

| | N1 IT N start | N1 IT N | N2 IT N |
|--|---|---|---|
| Age | 19 th -22 th week | 23 th -46 th week | 47 th -74 th week |
| Feed form | crushed | crushed | crushed |
| Components – content in %: | | | |
| Wheat | 49.065 | 49.965 | 56.475 |
| Extr. soybean groats | 23.150 | 13.450 | 15.000 |
| Maize | 10.000 | 15.000 | 5.000 |
| Sunflower meal | - | 8.000 | 4.500 |
| Wheat bran | 2.700 | - | 4.000 |
| Soybean oil | 3.300 | 2.500 | 3.500 |
| DL-methionine | 0.190 | 0.150 | 0.150 |
| Lysine-HCL | - | 0.150 | 0.110 |
| L-threonine | 0,030 | 0.030 | 0.030 |
| Salt | 0.330 | 0.260 | 0.260 |
| Limestone | 2.740 | 2.750 | 2.900 |
| Limestone-roughly ground | 6.400 | 6.400 | 6.900 |
| MCP - monocalciumphosphate | 0.710 | 0.610 | 0.370 |
| Sodium bicarbonate | 0,080 | 0,150 | 0,150 |
| Premix of vitamins, enzymes | 1.305 | 0.585 | 0.655 |
| Nutrient content (calculated values): | | | |
| Crude protein | g/kg | 175.13 | 160.29 |
| Fat | g/kg | 49.70 | 43.21 |
| Linoleic acid | g/kg | 27.04 | 23.94 |
| Crude fiber | g/kg | 39.87 | 40.43 |
| ME | MJ/kg | 11.45 | 11.41 |
| Lysine | g/kg | 8.53 | 7.91 |
| Methionine | g/kg | 4.42 | 4.07 |
| Meth. +cysteine | g/kg | 7.59 | 7.05 |
| Threonine | g/kg | 6.37 | 5.75 |
| Tryptophan | g/kg | 2.26 | 1.93 |
| Ca | g/kg | 37.08 | 37.01 |
| P | g/kg | 5.38 | 5.14 |
| P (digestible) | g/kg | 3.70 | 3.44 |
| Vitamin A | U.I./kg | 10768.97 | 10739.67 |
| Vitamin D3 | U.I./kg | 2080.00 | 2080.00 |

6 Evaluated parameters

6.1 Incubation and hatching

- weight of hatching eggs
- fertility in %
- hatchability of set eggs in %
- hatchability of fertile eggs in %

6.2 Feed consumption

- per 1 reared pullet
- per 1 hen in production period
- per 1 egg
- per 1 kg of egg mass
- per 1 feeding day

6.3 Live body weight

- at the age of 1 day – group weighing
- at the age of 14 days (2 week), 28 days (4 week), 42 days (6 week), 56 days (8 week), 70 days (10 week), 84 days (12 week), 98 days (14 week) – individual weighing
- at the age of 112 days (16 weeks) – individual weighing all birds
- at the age of 126 days (18 weeks), 140 days (20 weeks), 154 days (22 weeks), 168 days (24 weeks), 182 days (26 weeks), 210 days (30 weeks) – individual weighing 30 birds per sample
- at the age of 518 days (74 weeks) – individual weighing all birds

6.4 Mortality

- mortality during rearing
- mortality of hens and it's causes

6.5 Egg production

Egg production was recorded daily. Eggs were collected manually at the same time every day. Eggs of different samples were collected separately. Production was evaluated in 14 four week periods, from 127 to 518 days of age.

Results of the egg production:

- per 1 hen housed
- per 1 hen present
- per 1 hen housed for each period

6.6 Sexual maturity

- age of the layers at 10 %. 30 %. 50 % and peak of lay

6.7 Egg weight

- average egg weight for each period
- average egg weight for the whole production
- classification of eggs

6.8 Production of egg mass

- per 1 hen housed
- per 1 hen present

6.9 Second quality eggs

Second quality eggs were sorted out as:

- cracked eggs
- broken eggs
- double-yolk eggs
- shell-less eggs

6.10 Egg quality

- egg weight
- yolk weight
- shell strength
- index of egg shape
- shell thickness
- Haugh's units
- yolk colour
- egg shell colour
- presence of blood spots on the yolk

7 Results

| | |
|--------------|------------------------------------|
| Tab. No. 1 | Results of incubation and hatching |
| Tab. No. 2 | Results of rearing |
| Tab. No. 3 | Mortality in rearing |
| Tab. No. 4 | Results of the egg production |
| Tab. No. 5 | Feed consumption |
| Tab. No. 6 | Live weight of laying hens |
| Tab. No. 7 | Mortality and it's causes |
| Tab. No. 8 | Second quality eggs |
| Tab. No. 9 | Weight classes of eggs |
| Tab. No. 10a | Egg quality – Period 6 |
| Tab. No. 10b | Egg quality – Period 9 |
| Tab. No. 10c | Egg quality – Period 12 |
| Tab. No. 11 | Intensity of lay |
| Tab. No. 12 | Average egg weight |

Graph No. 1-4 Intensity of lay

Results of incubation and hatching**Tab. No. 1**

| Sample | Cross | Weight of hatching eggs | Fertility | Hatchability | |
|--------|-------|----------------------------|-----------|--------------|--------------|
| | | | | Set eggs | Fertile eggs |
| | | g | % | % | % |
| 1 | XXXXX | 56.58 | 93.42 | 86.94 | 93.06 |
| 2 | XXXXX | 61.11 | 88.70 | 81.94 | 92.38 |
| 3 | XXXXX | 55.56 | 95.09 | 87.50 | 92.02 |
| 4 | XXXXX | 54.19 | 95.92 | 90.37 | 94.21 |
| 5 | XXXXX | 58.04 | 92.57 | 83.10 | 89.77 |
| 6 | XXXXX | 62.19 | 92.22 | 83.33 | 90.36 |
| 7 | XXXXX | 58.68 | 93.05 | 85.37 | 91.74 |
| 8 | XXXXX | 60.28 | 89.72 | 82.04 | 91.43 |
| 9 | XXXXX | 60.88 | 92.12 | 84.54 | 91.76 |
| 10 | XXXXX | 60.43 | 94.53 | 81.26 | 85.96 |
| 11 | XXXXX | 57.93 | 96.38 | 87.22 | 90.49 |
| 12 | XXXXX | 64.67 | 93.88 | 88.89 | 94.67 |

Results of rearing

Tab. No. 2

Page 1

| Sample | Cross | Live weight | | | | | | | | | | Feed consumption per 1 pullet at the age of 126 days kg/bird |
|--------|--------------------|-------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---|
| | | Day 1 | Week 2 | Week 4 | Week 6 | Week 8 | Week 10 | Week 12 | Week 14 | Week 16 | Week 18 | |
| | | g | g | g | g | g | g | g | g | g | g | |
| 1 | xxxxx | 34.4 | 133.2 | 283.7 | 518.4 | 722.0 | 990.7 | 1166.0 | 1310.0 | 1438.0 | 1606.0 | 7.3 |
| | cage system | 34.4 | 131.4 | 291.3 | 540.7 | 756.0 | 1040.3 | 1144.0 | 1294.0 | 1443.0 | 1591.0 | 6.85 |
| | deep litter system | 34.5 | 135.0 | 276.0 | 496.0 | 688.0 | 941.0 | 1188.0 | 1326.0 | 1433.0 | 1621.0 | 7.79 |
| 2 | xxxxx | 34.1 | 123.5 | 274.7 | 489.4 | 699.4 | 975.0 | 1111.5 | 1234.0 | 1346.8 | 1495.3 | 7.2 |
| | cage system | 34.0 | 123.5 | 274.6 | 473.7 | 735.7 | 1018.0 | 1111.0 | 1250.0 | 1353.5 | 1494.5 | 6.83 |
| | deep litter system | 34.2 | 123.5 | 274.8 | 505.0 | 663.0 | 932.0 | 1112.0 | 1218.0 | 1340.0 | 1496.0 | 7.62 |
| 3 | xxxxx | 34.0 | 125.1 | 284.0 | 497.0 | 722.7 | 997.7 | 1150.9 | 1332.0 | 1431.3 | 1668.0 | 7.4 |
| | cage system | 34.1 | 128.4 | 294.7 | 511.0 | 769.3 | 1054.3 | 1127.7 | 1323.0 | 1416.5 | 1649.0 | 6.89 |
| | deep litter system | 33.9 | 121.8 | 273.3 | 483.0 | 676.0 | 941.0 | 1174.0 | 1341.0 | 1446.0 | 1687.0 | 7.85 |
| 4 | xxxxx | 33.9 | 121.6 | 277.5 | 505.7 | 710.5 | 1009.5 | 1151.4 | 1315.5 | 1421.5 | 1629.0 | 7.3 |
| | cage system | 33.9 | 119.9 | 280.7 | 491.3 | 748.0 | 1069.0 | 1143.7 | 1318.0 | 1401.0 | 1621.0 | 6.88 |
| | deep litter system | 33.9 | 123.3 | 274.3 | 520.0 | 673.0 | 950.0 | 1159.0 | 1313.0 | 1442.0 | 1637.0 | 7.63 |
| 5 | xxxxx | 35.8 | 131.7 | 292.4 | 514.2 | 725.9 | 1027.4 | 1175.2 | 1317.5 | 1438.5 | 1590.0 | 7.3 |
| | cage system | 35.2 | 132.3 | 302.3 | 509.3 | 761.7 | 1081.7 | 1185.3 | 1318.0 | 1426.0 | 1652.0 | 6.82 |
| | deep litter system | 36.5 | 131.0 | 282.5 | 519.0 | 690.0 | 973.0 | 1165.0 | 1317.0 | 1451.0 | 1528.0 | 7.75 |
| 6 | xxxxx | 38.9 | 103.1 | 243.4 | 477.2 | 685.5 | 967.7 | 1091.4 | 1251.5 | 1380.0 | 1538.5 | 7.2 |
| | cage system | 38.8 | 96.8 | 252.8 | 454.3 | 698.0 | 1027.3 | 1073.7 | 1249.0 | 1374.0 | 1594.0 | 6.80 |
| | deep litter system | 39.0 | 109.3 | 234.0 | 500.0 | 673.0 | 908.0 | 1109.0 | 1254.0 | 1386.0 | 1483.0 | 7.60 |

Results of rearing

Tab. No. 2

Page 2

| Sample | Cross | Live weight | | | | | | | | | | Feed consumption per 1 pullet at the age of 126 days kg/bird |
|--------|--------------------|-------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---|
| | | Day 1 | Week 2 | Week 4 | Week 6 | Week 8 | Week 10 | Week 12 | Week 14 | Week 16 | Week 18 | |
| | | g | g | g | g | g | g | g | g | g | g | |
| 7 | xxxxx | 35.1 | 126.4 | 277.6 | 502.2 | 704.9 | 975.2 | 1132.4 | 1264.4 | 1380.3 | 1535.3 | 7.4 |
| | cage system | 35.2 | 126.5 | 286.4 | 515.3 | 732.7 | 1039.3 | 1151.7 | 1284.7 | 1377.5 | 1582.5 | 6.83 |
| | deep litter system | 35.0 | 126.3 | 268.8 | 489.0 | 677.0 | 911.0 | 1113.0 | 1244.0 | 1383.0 | 1488.0 | 7.91 |
| 8 | xxxxx | 35.8 | 128.1 | 274.9 | 513.0 | 721.4 | 992.4 | 1117.0 | 1294.4 | 1411.5 | 1541.8 | 7.3 |
| | cage system | 35.3 | 122.7 | 281.9 | 493.0 | 745.7 | 1051.7 | 1105.0 | 1332.7 | 1417.0 | 1521.5 | 6.96 |
| | deep litter system | 36.3 | 133.5 | 268.0 | 533.0 | 697.0 | 933.0 | 1129.0 | 1256.0 | 1406.0 | 1562.0 | 7.62 |
| 9 | xxxxx | 37.1 | 102.6 | 253.5 | 471.2 | 691.2 | 976.5 | 1119.5 | 1281.9 | 1385.5 | 1547.3 | 7.2 |
| | cage system | 36.9 | 96.2 | 250.4 | 469.3 | 702.3 | 1017.0 | 1119.0 | 1299.7 | 1364.0 | 1557.5 | 6.83 |
| | deep litter system | 37.2 | 109.0 | 256.5 | 473.0 | 680.0 | 936.0 | 1120.0 | 1264.0 | 1407.0 | 1537.0 | 7.63 |
| 10 | xxxxx | 36.2 | 130.5 | 286.0 | 502.5 | 731.0 | 995.0 | 1126.5 | 1279.4 | 1378.8 | 1573.3 | 7.2 |
| | cage system | 36.2 | 126.7 | 287.9 | 500.0 | 758.0 | 1062.0 | 1147.0 | 1294.7 | 1384.5 | 1623.5 | 6.85 |
| | deep litter system | 36.2 | 134.3 | 284.0 | 505.0 | 704.0 | 928.0 | 1106.0 | 1264.0 | 1373.0 | 1523.0 | 7.51 |
| 11 | xxxxx | 36.0 | 129.3 | 277.9 | 504.9 | 705.4 | 1004.5 | 1144.9 | 1292.7 | 1385.5 | 1590.8 | 7.2 |
| | cage system | 35.9 | 128.2 | 280.7 | 504.7 | 731.7 | 1054.0 | 1157.7 | 1291.3 | 1368.0 | 1583.5 | 6.82 |
| | deep litter system | 36.0 | 130.3 | 275.0 | 505.0 | 679.0 | 955.0 | 1132.0 | 1294.0 | 1403.0 | 1598.0 | 7.55 |
| 12 | xxxxx | 41.1 | 138.9 | 291.9 | 526.0 | 728.0 | 1087.0 | 1270.0 | 1306.0 | 1439.0 | 1621.0 | 7.5 |
| | cage system | 41.1 | 138.9 | 291.9 | 526.0 | 728.0 | 1087.0 | 1270.0 | 1306.0 | 1439.0 | 1621.0 | 7.54 |

Mortality in rearing

Tab. No. 3

Page 1

| Sample | Cross | Number of pullets | | | |
|--------|--------------------|-------------------|------------|-----------|-------------|
| | | Initial flock | | Mortality | |
| | | birds | birds | birds | % |
| 1 | xxxxx | 240 | 235 | 5 | 2.08 |
| | cage systém | 160 | 158 | 2 | 1.25 |
| | deep litter system | 80 | 77 | 3 | 3.75 |
| 2 | xxxxx | 240 | 239 | 1 | 0.42 |
| | cage systém | 160 | 160 | 0 | 0.00 |
| | deep litter system | 80 | 79 | 1 | 1.25 |
| 3 | xxxxx | 240 | 233 | 7 | 2.92 |
| | cage systém | 160 | 157 | 3 | 1.88 |
| | deep litter system | 80 | 76 | 4 | 5.00 |
| 4 | xxxxx | 240 | 238 | 2 | 0.83 |
| | cage systém | 160 | 159 | 1 | 0.63 |
| | deep litter system | 80 | 79 | 1 | 1.25 |
| 5 | xxxxx | 240 | 235 | 5 | 2.08 |
| | cage systém | 160 | 158 | 2 | 1.25 |
| | deep litter system | 80 | 77 | 3 | 3.75 |
| 6 | xxxxx | 240 | 236 | 4 | 1.67 |
| | cage systém | 160 | 157 | 3 | 1.88 |
| | deep litter system | 80 | 79 | 1 | 1.25 |

Mortality in rearing

Tab. No. 3
Page 2

| Sample | Cross | Number of pullets | | | |
|--------|--------------------|-------------------|-------------|-----------|-------------|
| | | Initial flock | Final flock | Mortality | |
| | | birds | birds | birds | % |
| 7 | xxxxx | 240 | 232 | 8 | 3.33 |
| | cage systém | 160 | 157 | 3 | 1.88 |
| | deep litter system | 80 | 75 | 5 | 6.25 |
| 8 | xxxxx | 240 | 234 | 6 | 2.50 |
| | cage systém | 160 | 155 | 5 | 3.13 |
| | deep litter system | 80 | 79 | 1 | 1.25 |
| 9 | xxxxx | 240 | 236 | 4 | 1.67 |
| | cage systém | 160 | 158 | 2 | 1.25 |
| | deep litter system | 80 | 78 | 2 | 2.50 |
| 10 | xxxxx | 240 | 240 | 0 | 0.00 |
| | cage systém | 160 | 160 | 0 | 0.00 |
| | deep litter system | 80 | 80 | 0 | 0.00 |
| 11 | xxxxx | 240 | 240 | 0 | 0.00 |
| | cage systém | 160 | 160 | 0 | 0.00 |
| | deep litter system | 80 | 80 | 0 | 0.00 |
| 12 | xxxxx | 80 | 76 | 4 | 5.00 |
| | cage systém | 80 | 76 | 4 | 5.00 |

Results of the egg yield

Tab. No. 4 (page 1)

| Treatment | Cross | | Age at the yield | | | | | Egg production per | | | | Egg weight | Egg mass per | |
|-----------|----------------|---|------------------|-----|--------|------|--------|--------------------|-------|-----------|-------|------------|--------------|-----------|
| | | | 10% | 30% | 50% | Max. | | hen - housed | | hen - day | | | hen - housed | hen - day |
| | Way of rearing | | day | % | number | % | number | % | g | kg | kg | | | |
| 1 | xxxxx | ø | 139 | 141 | 143 | 155 | 100.00 | 336.72 | 85.90 | 342.87 | 87.47 | 60.77 | 20.46 | 20.83 |
| | | a | 140 | 141 | 143 | 153 | 100.00 | 331.18 | 84.49 | 341.85 | 87.21 | 60.56 | 20.06 | 20.70 |
| | | b | 139 | 141 | 142 | 155 | 100.00 | 334.65 | 85.37 | 340.56 | 86.88 | 61.21 | 20.48 | 20.85 |
| | | c | 138 | 140 | 141 | 153 | 100.00 | 344.33 | 87.84 | 346.14 | 88.30 | 60.51 | 20.83 | 20.94 |
| 2 | xxxxx | ø | 138 | 141 | 144 | 155 | 100.00 | 344.65 | 87.92 | 350.07 | 89.30 | 60.96 | 21.01 | 21.34 |
| | | a | 140 | 143 | 146 | 155 | 100.00 | 345.55 | 88.15 | 348.13 | 88.81 | 61.59 | 21.28 | 21.44 |
| | | b | 139 | 142 | 144 | 155 | 100.00 | 341.57 | 87.13 | 349.08 | 89.05 | 61.26 | 20.92 | 21.38 |
| | | c | 136 | 139 | 140 | 149 | 100.00 | 346.83 | 88.48 | 353.03 | 90.06 | 60.03 | 20.82 | 21.19 |
| 3 | xxxxx | ø | 138 | 140 | 143 | 155 | 100.00 | 342.58 | 87.39 | 344.40 | 87.86 | 62.69 | 21.48 | 21.59 |
| | | a | 138 | 142 | 144 | 155 | 100.00 | 346.50 | 88.39 | 348.29 | 88.85 | 63.21 | 21.90 | 22.01 |
| | | b | 138 | 140 | 144 | 155 | 100.00 | 334.28 | 85.28 | 337.90 | 86.20 | 62.96 | 21.05 | 21.27 |
| | | c | 138 | 140 | 142 | 152 | 100.00 | 346.95 | 88.51 | 346.95 | 88.51 | 61.95 | 21.50 | 21.50 |
| 4 | xxxxx | ø | 139 | 142 | 144 | 155 | 100.00 | 347.42 | 88.63 | 350.71 | 89.47 | 61.20 | 21.26 | 21.46 |
| | | a | 141 | 143 | 144 | 155 | 100.00 | 344.82 | 87.96 | 349.18 | 89.08 | 61.76 | 21.30 | 21.56 |
| | | b | 139 | 142 | 145 | 155 | 100.00 | 332.53 | 84.83 | 334.93 | 85.44 | 61.19 | 20.35 | 20.49 |
| | | c | 139 | 141 | 143 | 149 | 100.00 | 364.90 | 93.09 | 368.03 | 93.89 | 60.70 | 22.15 | 22.34 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Results of the egg yield

Tab. No. 4 (page 2)

| Treatment | Cross | | Age at the yield | | | | | Egg production per | | | | Egg weight | Egg mass per | |
|-----------|----------------|---|------------------|------------|------------|------------|---------------|--------------------|--------------|---------------|--------------|--------------|--------------|--------------|
| | | | 10% | 30% | 50% | Max. | | hen - housed | | hen - day | | | hen - housed | hen - day |
| | Way of rearing | | day | % | number | % | number | % | g | kg | kg | | | |
| 5 | xxxxx | ø | 139 | 142 | 144 | 155 | 100.00 | 343.92 | 87.73 | 345.38 | 88.11 | 62.98 | 21.66 | 21.75 |
| | | a | 141 | 143 | 146 | 155 | 100.00 | 340.63 | 86.90 | 341.71 | 87.17 | 63.99 | 21.80 | 21.86 |
| | | b | 139 | 141 | 143 | 152 | 100.00 | 338.60 | 86.38 | 338.60 | 86.38 | 62.71 | 21.23 | 21.23 |
| | | c | 138 | 140 | 142 | 152 | 100.00 | 352.52 | 89.93 | 355.91 | 90.79 | 62.29 | 21.96 | 22.17 |
| 6 | xxxxx | ø | 140 | 143 | 145 | 160 | 100.00 | 341.52 | 87.12 | 343.88 | 87.72 | 61.87 | 21.13 | 21.28 |
| | | a | 142 | 145 | 146 | 160 | 100.00 | 339.78 | 86.68 | 339.78 | 86.68 | 63.35 | 21.53 | 21.53 |
| | | b | 141 | 143 | 147 | 155 | 100.00 | 337.07 | 85.99 | 344.03 | 87.76 | 62.15 | 20.95 | 21.38 |
| | | c | 138 | 140 | 142 | 152 | 100.00 | 347.70 | 88.70 | 347.82 | 88.73 | 60.15 | 20.91 | 20.92 |
| 7 | xxxxx | ø | 139 | 141 | 144 | 155 | 100.00 | 334.96 | 85.45 | 344.49 | 87.88 | 62.49 | 20.93 | 21.53 |
| | | a | 140 | 142 | 145 | 155 | 100.00 | 314.68 | 80.28 | 336.47 | 85.83 | 62.49 | 19.66 | 21.03 |
| | | b | 139 | 142 | 144 | 155 | 100.00 | 339.20 | 86.53 | 343.09 | 87.52 | 63.51 | 21.54 | 21.79 |
| | | c | 138 | 140 | 142 | 152 | 100.00 | 351.00 | 89.54 | 353.43 | 90.16 | 61.50 | 21.59 | 21.74 |
| 8 | xxxxx | ø | 139 | 143 | 147 | 155 | 100.00 | 344.10 | 87.78 | 350.46 | 89.40 | 61.66 | 21.22 | 21.61 |
| | | a | 141 | 144 | 146 | 155 | 100.00 | 346.23 | 88.32 | 350.03 | 89.29 | 62.15 | 21.52 | 21.76 |
| | | b | 140 | 142 | 147 | 155 | 100.00 | 338.37 | 86.32 | 347.44 | 88.63 | 61.59 | 20.84 | 21.40 |
| | | c | 138 | 141 | 145 | 153 | 100.00 | 347.70 | 88.70 | 353.88 | 90.28 | 61.23 | 21.29 | 21.67 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Results of the egg yield

Tab. No. 4 (page 3)

| Treatment | Cross | Age at the yield | | | | | Egg production per | | | | Egg weight | Egg mass per | | |
|-----------|----------------|------------------|-----|-----|--------|-----|--------------------|--------|-----------|--------|------------|--------------|-----------|-------|
| | | 10% | 30% | 50% | Max. | | hen - housed | | hen - day | | | hen - housed | hen - day | |
| | Way of rearing | | day | % | number | % | number | % | g | kg | kg | | | |
| 9 | xxxxx | ø | 139 | 143 | 145 | 155 | 100.00 | 343.22 | 87.56 | 343.91 | 87.73 | 61.29 | 21.04 | 21.08 |
| | | a | 140 | 144 | 146 | 155 | 100.00 | 344.68 | 87.93 | 344.68 | 87.93 | 61.73 | 21.28 | 21.28 |
| | | b | 139 | 143 | 143 | 155 | 100.00 | 342.72 | 87.43 | 344.75 | 87.95 | 61.22 | 20.98 | 21.11 |
| | | c | 139 | 142 | 145 | 155 | 100.00 | 342.27 | 87.31 | 342.31 | 87.32 | 60.94 | 20.86 | 20.86 |
| 10 | xxxxx | ø | 139 | 141 | 144 | 155 | 100.00 | 331.36 | 84.53 | 342.05 | 87.26 | 61.80 | 20.48 | 21.14 |
| | | a | 140 | 143 | 146 | 155 | 100.00 | 316.03 | 80.62 | 345.02 | 88.02 | 62.22 | 19.66 | 21.47 |
| | | b | 139 | 142 | 145 | 155 | 100.00 | 342.10 | 87.27 | 344.16 | 87.80 | 61.63 | 21.08 | 21.21 |
| | | c | 133 | 140 | 141 | 149 | 100.00 | 335.95 | 85.70 | 337.21 | 86.02 | 61.61 | 20.70 | 20.78 |
| 11 | xxxxx | ø | 138 | 142 | 143 | 155 | 100.00 | 334.73 | 85.39 | 342.48 | 87.37 | 61.22 | 20.49 | 20.97 |
| | | a | 140 | 143 | 145 | 155 | 100.00 | 338.93 | 86.46 | 341.55 | 87.13 | 61.79 | 20.94 | 21.10 |
| | | b | 138 | 141 | 143 | 155 | 100.00 | 321.90 | 82.12 | 336.21 | 85.77 | 61.08 | 19.66 | 20.54 |
| | | c | 138 | 139 | 141 | 153 | 100.00 | 343.35 | 87.59 | 349.55 | 89.17 | 60.82 | 20.88 | 21.26 |
| 12 | xxxxx | c | 142 | 149 | 152 | 193 | 100.00 | 292.25 | 74.55 | 292.98 | 74.74 | 59.27 | 17.32 | 17.36 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Feed consumption

Tab. No. 5 (page 1)

| Treatment | Cross | | Feed consumption | | | |
|-----------|----------------|---|------------------|---------------|----------------------|-------------------|
| | | | per 1 hen | per 1 egg | per 1 kg of egg mass | per 1 feeding day |
| | Way of rearing | | kg | g | kg | g |
| 1 | xxxxx | ø | 51.86 | 151.27 | 2.49 | 132.31 |
| | | a | 51.73 | 151.32 | 2.50 | 131.96 |
| | | b | 52.11 | 153.02 | 2.50 | 132.94 |
| | | c | 51.75 | 149.51 | 2.47 | 132.02 |
| 2 | xxxxx | ø | 52.68 | 150.48 | 2.47 | 134.39 |
| | | a | 52.26 | 150.12 | 2.44 | 133.32 |
| | | b | 54.00 | 154.69 | 2.53 | 137.75 |
| | | c | 51.79 | 146.69 | 2.44 | 132.11 |
| 3 | xxxxx | ø | 51.09 | 148.34 | 2.37 | 130.33 |
| | | a | 50.82 | 145.91 | 2.31 | 129.64 |
| | | b | 51.81 | 153.31 | 2.44 | 132.16 |
| | | c | 50.65 | 145.98 | 2.36 | 129.20 |
| 4 | xxxxx | ø | 52.14 | 148.68 | 2.43 | 133.02 |
| | | a | 51.78 | 148.30 | 2.40 | 132.10 |
| | | b | 51.19 | 152.83 | 2.50 | 130.58 |
| | | c | 53.46 | 145.26 | 2.39 | 136.38 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Feed consumption

Tab. No. 5 (page 2)

| Treatment | Cross | | Feed consumption | | | |
|-----------|----------------|---|------------------|---------------|----------------------|-------------------|
| | | | per 1 hen | per 1 egg | per 1 kg of egg mass | per 1 feeding day |
| | Way of rearing | | kg | g | kg | g |
| 5 | xxxxx | ø | 51.04 | 147.80 | 2.35 | 130.22 |
| | | a | 50.70 | 148.38 | 2.32 | 129.34 |
| | | b | 51.64 | 152.51 | 2.43 | 131.73 |
| | | c | 50.79 | 142.71 | 2.29 | 129.57 |
| 6 | xxxxx | ø | 51.58 | 150.00 | 2.42 | 131.59 |
| | | a | 50.39 | 148.30 | 2.34 | 128.55 |
| | | b | 52.46 | 152.50 | 2.45 | 133.84 |
| | | c | 51.91 | 149.24 | 2.48 | 132.42 |
| 7 | xxxxx | ø | 52.49 | 152.38 | 2.44 | 133.91 |
| | | a | 54.46 | 161.85 | 2.59 | 138.93 |
| | | b | 52.36 | 152.60 | 2.40 | 133.56 |
| | | c | 50.78 | 143.68 | 2.34 | 129.54 |
| 8 | xxxxx | ø | 51.94 | 148.21 | 2.40 | 132.51 |
| | | a | 50.82 | 145.20 | 2.34 | 129.65 |
| | | b | 53.48 | 153.92 | 2.50 | 136.43 |
| | | c | 51.55 | 145.66 | 2.38 | 131.50 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Feed consumption

Tab. No. 5 (page 3)

| Treatment | Cross | | Feed consumption | | | |
|-----------|----------------|---|------------------|---------------|----------------------|-------------------|
| | | | per 1 hen | per 1 egg | per 1 kg of egg mass | per 1 feeding day |
| | Way of rearing | | kg | g | kg | g |
| 9 | xxxxx | ø | 52.09 | 151.47 | 2.47 | 132.89 |
| | | a | 51.53 | 149.50 | 2.42 | 131.45 |
| | | b | 51.72 | 150.01 | 2.45 | 131.93 |
| | | c | 53.03 | 154.91 | 2.54 | 135.28 |
| 10 | xxxxx | ø | 52.73 | 154.15 | 2.49 | 134.50 |
| | | a | 54.32 | 157.44 | 2.53 | 138.57 |
| | | b | 51.84 | 150.64 | 2.44 | 132.26 |
| | | c | 52.14 | 154.62 | 2.51 | 133.01 |
| 11 | xxxxx | ø | 51.72 | 151.01 | 2.47 | 131.93 |
| | | a | 51.06 | 149.50 | 2.42 | 130.26 |
| | | b | 52.89 | 157.30 | 2.58 | 134.92 |
| | | c | 51.24 | 146.59 | 2.41 | 130.72 |
| 12 | xxxxx | c | 53.10 | 181.25 | 3.06 | 135.47 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Live weight of laying hens

Tab. No. 6 (page 1)

| Treatment | Cross | | Live weight (g) | | | | | |
|------------------|-----------------------|---|------------------------|---------------|---------------|---------------|---------------|-------------------|
| | Way of rearing | | week 20 | week 22 | week 24 | week 26 | week 30 | final live weight |
| 1 | xxxxx | ø | 1800.0 | 1819.3 | 1866.7 | 1842.0 | 1923.3 | 2148.4 |
| | | a | 1796 | 1810 | 1852 | 1839 | 1904 | 2221.1 |
| | | b | 1832 | 1869 | 1852 | 1820 | 1905 | 2128.4 |
| | | c | 1772 | 1779 | 1896 | 1867 | 1961 | 2098.6 |
| 2 | xxxxx | ø | 1717.3 | 1791.3 | 1764.7 | 1723.3 | 1808.0 | 2122.7 |
| | | a | 1746 | 1839 | 1741 | 1782 | 1841 | 2173.9 |
| | | b | 1729 | 1807 | 1813 | 1713 | 1888 | 2084.3 |
| | | c | 1677 | 1728 | 1740 | 1675 | 1695 | 2108.6 |
| 3 | xxxxx | ø | 1876.0 | 1950.7 | 1955.0 | 1877.0 | 1992.3 | 2148.7 |
| | | a | 1905 | 1978 | 1951 | 1963 | 2050 | 2230.2 |
| | | b | 1915 | 1971 | 1915 | 1831 | 1987 | 2122.3 |
| | | c | 1808 | 1903 | 1999 | 1837 | 1940 | 2107.1 |
| 4 | xxxxx | ø | 1828.0 | 1861.0 | 1938.0 | 1835.7 | 1908.7 | 2145.7 |
| | | a | 1843 | 1905 | 1972 | 1930 | 1939 | 2222.5 |
| | | b | 1791 | 1804 | 1880 | 1764 | 1924 | 2175.1 |
| | | c | 1850 | 1874 | 1962 | 1813 | 1863 | 2086.4 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Live weight of laying hens

Tab. No. 6 (page 2)

| Treatment | Cross | | Live weight (g) | | | | | |
|------------------|-----------------------|---|------------------------|---------------|---------------|---------------|---------------|-------------------|
| | Way of rearing | | week 20 | week 22 | week 24 | week 26 | week 30 | final live weight |
| 5 | xxxxx | ø | 1783.3 | 1845.3 | 1893.3 | 1820.3 | 1902.3 | 2137.5 |
| | | a | 1719 | 1858 | 1806 | 1791 | 1864 | 2117.3 |
| | | b | 1836 | 1860 | 1875 | 1764 | 1938 | 2234.6 |
| | | c | 1795 | 1818 | 1999 | 1906 | 1905 | 2118.3 |
| 6 | xxxxx | ø | 1795.7 | 1891.0 | 1882.7 | 1852.3 | 1964.0 | 2243.4 |
| | | a | 1762 | 1857 | 1848 | 1811 | 1959 | 2327.8 |
| | | b | 1843 | 2010 | 1949 | 1925 | 2012 | 2319.9 |
| | | c | 1782 | 1806 | 1851 | 1821 | 1921 | 2162.5 |
| 7 | xxxxx | ø | 1765.3 | 1854.3 | 1877.0 | 1826.3 | 1900.3 | 2112.4 |
| | | a | 1690 | 1831 | 1836 | 1735 | 1828 | 2102.3 |
| | | b | 1820 | 1952 | 1939 | 1828 | 1958 | 2067.0 |
| | | c | 1786 | 1780 | 1856 | 1916 | 1915 | 2180.6 |
| 8 | xxxxx | ø | 1765.7 | 1828.7 | 1830.3 | 1821.0 | 1884.3 | 2142.2 |
| | | a | 1823 | 1919 | 1923 | 1923 | 1982 | 2147.2 |
| | | b | 1795 | 1779 | 1787 | 1731 | 1880 | 2117.6 |
| | | c | 1679 | 1788 | 1781 | 1809 | 1791 | 2174.6 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Live weight of laying hens

Tab. No. 6 (page 3)

| Treatment | Cross | | Live weight (g) | | | | | |
|------------------|-----------------------|---|------------------------|---------------|---------------|---------------|---------------|-------------------|
| | Way of rearing | | week 20 | week 22 | week 24 | week 26 | week 30 | final live weight |
| 9 | xxxxx | ø | 1824.7 | 1874.7 | 1909.3 | 1794.3 | 1923.0 | 2238.0 |
| | | a | 1830 | 1872 | 1872 | 1759 | 1941 | 2283.2 |
| | | b | 1836 | 1861 | 1958 | 1787 | 1951 | 2233.2 |
| | | c | 1808 | 1891 | 1898 | 1837 | 1877 | 2196.7 |
| 10 | xxxxx | ø | 1752.0 | 1877.7 | 1858.0 | 1805.3 | 1911.0 | 2143.1 |
| | | a | 1757 | 1887 | 1848 | 1801 | 1961 | 2275.5 |
| | | b | 1784 | 1868 | 1846 | 1743 | 1866 | 2027.5 |
| | | c | 1715 | 1878 | 1880 | 1872 | 1906 | 2138.3 |
| 11 | xxxxx | ø | 1762.7 | 1817.0 | 1844.7 | 1795.0 | 1856.3 | 2053.3 |
| | | a | 1785 | 1836 | 1867 | 1801 | 1956 | 2053.4 |
| | | b | 1740 | 1746 | 1847 | 1787 | 1799 | 1986.0 |
| | | c | 1763 | 1869 | 1820 | 1797 | 1814 | 2118.1 |
| 12 | xxxxx | c | 1845.0 | 1949.0 | 2073.0 | 1843.0 | 1994.0 | 2281.8 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Mortality and it's causes

Tab. No. 7 (page 1)

| Treatment | Cross | | Number of hens | | | | Causes | | | | | | | | | | | | | | | |
|-----------|----------------|---|----------------|-------|-------------|-------|-----------|--|---|---|---|---|---|---|---|---|---|----|----|----|----|----|
| | | | Initial flock | | Final flock | | Mortality | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| | Way of rearing | | Birds | Birds | Birds | % | | | | | | | | | | | | | | | | |
| 1 | xxxxx | ø | 180 | 167 | 13 | 7.22 | | | | | | | | | | 2 | | 10 | 1 | | | |
| | | a | 60 | 55 | 5 | 8.33 | | | | | | | | | | | | 4 | 1 | | | |
| | | b | 60 | 53 | 7 | 11.67 | | | | | | | | | | 2 | | 5 | | | | |
| | | c | 60 | 59 | 1 | 1.67 | | | | | | | | | | | | 1 | | | | |
| 2 | xxxxx | ø | 180 | 172 | 8 | 4.44 | | | | | | | | | | | 2 | | 6 | | | |
| | | a | 60 | 58 | 2 | 3.33 | | | | | | | | | | | 1 | | 1 | | | |
| | | b | 60 | 56 | 4 | 6.67 | | | | | | | | | | | 1 | | 3 | | | |
| | | c | 60 | 58 | 2 | 3.33 | | | | | | | | | | | 2 | | | | | |
| 3 | xxxxx | ø | 180 | 173 | 7 | 3.89 | | | | | | | | | | | 4 | | 3 | | | |
| | | a | 60 | 55 | 5 | 8.33 | | | | | | | | | | | 4 | | 1 | | | |
| | | b | 60 | 58 | 2 | 3.33 | | | | | | | | | | | 2 | | | | | |
| | | c | 60 | 60 | 0 | 0.00 | | | | | | | | | | | | | | | | |
| 4 | xxxxx | ø | 180 | 172 | 8 | 4.44 | | | | | | | | | | | 2 | | 6 | | | |
| | | a | 60 | 58 | 2 | 3.33 | | | | | | | | | | | 1 | | 1 | | | |
| | | b | 60 | 55 | 5 | 8.33 | | | | | | | | | | | 1 | | 4 | | | |
| | | c | 60 | 59 | 1 | 1.67 | | | | | | | | | | | 1 | | | | | |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Diagnostic:

1 - Viral diseases

6 - Injuries

11 - Metabolic derangement

2 - Bacterial diseases

7 - Digestive tract diseases

12 - Cannibalism

3 - Fungal diseases

8 - Respiratory tract diseases

13 - Diverticulus inflammation

4 - Parasitary diseases

9 - Reproduction tract diseases

14 - Culling and other causes

5 - Tumors

10 - Locomotion apparatus diseases

15 - Sampling (excluded of calculation)

Mortality and it's causes

Tab. No. 7 (page 2)

| Treatment | Cross | | Number of hens | | | | Causes | | | | | | | | | | | | | | |
|-----------|----------------|-------|----------------|-------------|-----------|-------------|--------|----------|---|---|---|---|----------|---|---|----------|----------|----------|----------|----|----|
| | | | Initial flock | Final flock | Mortality | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| | Way of rearing | Birds | Birds | Birds | % | | | | | | | | | | | | | | | | |
| 5 | XXXXXX | ø | 180 | 178 | 2 | 1.11 | | | | | | | | | | | | 2 | | | |
| | | a | 60 | 59 | 1 | 1.67 | | | | | | | | | | | | 1 | | | |
| | | b | 60 | 60 | 0 | 0.00 | | | | | | | | | | | | 1 | | | |
| | | c | 60 | 59 | 1 | 1.67 | | | | | | | | | | | | 1 | | | |
| 6 | XXXXXX | ø | 180 | 175 | 5 | 2.78 | | | | | | | | | | | 2 | | 3 | | |
| | | a | 60 | 60 | 0 | 0.00 | | | | | | | | | | | | 1 | | | |
| | | b | 60 | 56 | 4 | 6.67 | | | | | | | | | | | 1 | | 3 | | |
| | | c | 60 | 59 | 1 | 1.67 | | | | | | | | | | | 1 | | | | |
| 7 | XXXXXX | ø | 180 | 166 | 14 | 7.78 | | 1 | | | | | 2 | | | 2 | | 7 | 2 | | |
| | | a | 60 | 51 | 9 | 15.00 | | | | | | | 1 | | | 1 | | 1 | | 5 | 2 |
| | | b | 60 | 58 | 2 | 3.33 | | | | | | | | | | 1 | | 1 | | | |
| | | c | 60 | 57 | 3 | 5.00 | | | | | | | | | | | | 2 | | | |
| 8 | XXXXXX | ø | 180 | 167 | 13 | 7.22 | | | | | | | | | | 6 | | 7 | | | |
| | | a | 60 | 57 | 3 | 5.00 | | | | | | | | | | | 2 | | 1 | | |
| | | b | 60 | 53 | 7 | 11.67 | | | | | | | | | | | 2 | | 5 | | |
| | | c | 60 | 57 | 3 | 5.00 | | | | | | | | | | | 2 | | 1 | | |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Diagnostic:

- 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 - Metabolic derangement
- 12 - Cannibalism
- 13 - Diverticulus inflammation
- 14 - Culling and other causes
- 15 - Sampling (excluded of calculation)

Mortality and it's causes
Tab. No. 7 (page 3)

| Treatment | Cross | | Number of hens | | | | Causes | | | | | | | | | | | | | | | | | |
|-----------|----------------|---|----------------|-------|-------------|-------|-----------|--|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|--|
| | | | Initial flock | | Final flock | | Mortality | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | |
| | Way of rearing | | Birds | Birds | Birds | % | | | | | | | | | | | | | | | | | | |
| 9 | xxxxx | ø | 180 | 177 | 3 | 1.67 | | | | | | | | | | | 3 | | | | | | | |
| | | a | 60 | 60 | 0 | 0.00 | | | | | | | | | | | 2 | | | | | | | |
| | | b | 60 | 58 | 2 | 3.33 | | | | | | | | | | | 1 | | | | | | | |
| | | c | 60 | 59 | 1 | 1.67 | | | | | | | | | | | | | | | | | | |
| 10 | xxxxx | ø | 180 | 166 | 14 | 7.78 | | | | | | | | | 1 | | | 4 | | 4 | 5 | | | |
| | | a | 60 | 51 | 9 | 15.00 | | | | | | | | | 1 | | | 1 | | 3 | 5 | | | |
| | | b | 60 | 56 | 4 | 6.67 | | | | | | | | | 1 | | | 3 | | 1 | | | | |
| | | c | 60 | 59 | 1 | 1.67 | | | | | | | | | | | | | | | | | | |
| 11 | xxxxx | ø | 180 | 165 | 15 | 8.33 | | | | | | | | | 2 | 1 | 2 | | 9 | 1 | | | | |
| | | a | 60 | 57 | 3 | 5.00 | | | | | | | | | 1 | | 1 | | 1 | | 5 | 1 | | |
| | | b | 60 | 53 | 7 | 11.67 | | | | | | | | | 2 | | | 1 | | 1 | | 3 | | |
| | | c | 60 | 55 | 5 | 8.33 | | | | | | | | | | | | | | | | | | |
| 12 | xxxxx | c | 60 | 59 | 1 | 1.67 | | | | | | | | | | | | | | 1 | | | | |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Diagnostic:

- 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 - Metabolic derangement
- 12 - Cannibalism
- 13 - Diverticulus inflammation
- 14 - Culling and other causes
- 15 - Sampling (excluded of calculation)

Second quality eggs

Tab. No. 8 (page 1)

| Treatment | Cross | | Eggs layered | Cracked | | Broken eggs | | Double-yolked | | Membranes | | Nonstandard together | |
|-----------|----------------|---|-----------------|-------------|-------------|-------------|-------------|---------------|-------------|------------|-------------|-------------------------|-------------|
| | Way of rearing | | number | number | % | number | % | number | % | number | % | number | % |
| 1 | xxxxx | ø | 60610 | 2561 | 4.23 | 1923 | 3.17 | 2 | 0.00 | 500 | 0.82 | 4986 | 8.23 |
| | | a | 19871 | 946 | 4.76 | 793 | 3.99 | 2 | 0.01 | 158 | 0.80 | 1899 | 9.56 |
| | | b | 20079 | 755 | 3.76 | 528 | 2.63 | 0 | 0.00 | 159 | 0.79 | 1442 | 7.18 |
| | | c | 20660 | 860 | 4.16 | 602 | 2.91 | 0 | 0.00 | 183 | 0.89 | 1645 | 7.96 |
| 2 | xxxxx | ø | 62037 | 2792 | 4.50 | 1933 | 3.12 | 1 | 0.00 | 514 | 0.83 | 5240 | 8.45 |
| | | a | 20733 | 1031 | 4.97 | 703 | 3.39 | 0 | 0.00 | 148 | 0.71 | 1882 | 9.08 |
| | | b | 20494 | 846 | 4.13 | 609 | 2.97 | 1 | 0.00 | 194 | 0.95 | 1650 | 8.05 |
| | | c | 20810 | 915 | 4.40 | 621 | 2.98 | 0 | 0.00 | 172 | 0.83 | 1708 | 8.21 |
| 3 | xxxxx | ø | 61664 | 2741 | 4.45 | 1961 | 3.18 | 1 | 0.00 | 613 | 0.99 | 5316 | 8.62 |
| | | a | 20790 | 1046 | 5.03 | 693 | 3.33 | 0 | 0.00 | 250 | 1.20 | 1989 | 9.57 |
| | | b | 20057 | 822 | 4.10 | 621 | 3.10 | 0 | 0.00 | 193 | 0.96 | 1636 | 8.16 |
| | | c | 20817 | 873 | 4.19 | 647 | 3.11 | 1 | 0.00 | 170 | 0.82 | 1691 | 8.12 |
| 4 | xxxxx | ø | 62535 | 2663 | 4.26 | 1869 | 2.99 | 8 | 0.01 | 606 | 0.97 | 5146 | 8.23 |
| | | a | 20689 | 978 | 4.73 | 703 | 3.40 | 1 | 0.00 | 210 | 1.02 | 1892 | 9.14 |
| | | b | 19952 | 901 | 4.52 | 622 | 3.12 | 4 | 0.02 | 240 | 1.20 | 1767 | 8.86 |
| | | c | 21894 | 784 | 3.58 | 544 | 2.48 | 3 | 0.01 | 156 | 0.71 | 1487 | 6.79 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Second quality eggs

Tab. No. 8 (page 2)

| Treatment | Cross | | Eggs layered | Cracked | | Broken eggs | | Double-yolked | | Membranes | | Nonstandard together | |
|-----------|----------------|---|-----------------|-------------|-------------|-------------|-------------|---------------|-------------|------------|-------------|-------------------------|-------------|
| | Way of rearing | | number | number | % | number | % | number | % | number | % | number | % |
| 5 | xxxxx | ø | 61905 | 2574 | 4.16 | 1807 | 2.92 | 1 | 0.00 | 550 | 0.89 | 4932 | 7.97 |
| | | a | 20438 | 992 | 4.85 | 694 | 3.40 | 0 | 0.00 | 203 | 0.99 | 1889 | 9.24 |
| | | b | 20316 | 847 | 4.17 | 595 | 2.93 | 0 | 0.00 | 189 | 0.93 | 1631 | 8.03 |
| | | c | 21151 | 735 | 3.48 | 518 | 2.45 | 1 | 0.00 | 158 | 0.75 | 1412 | 6.68 |
| 6 | xxxxx | ø | 61473 | 2631 | 4.28 | 1833 | 2.98 | 4 | 0.01 | 510 | 0.83 | 4978 | 8.10 |
| | | a | 20387 | 943 | 4.63 | 647 | 3.17 | 1 | 0.00 | 199 | 0.98 | 1790 | 8.78 |
| | | b | 20224 | 770 | 3.81 | 594 | 2.94 | 2 | 0.01 | 113 | 0.56 | 1479 | 7.31 |
| | | c | 20862 | 918 | 4.40 | 592 | 2.84 | 1 | 0.00 | 198 | 0.95 | 1709 | 8.19 |
| 7 | xxxxx | ø | 60293 | 2359 | 3.91 | 1767 | 2.93 | 4 | 0.01 | 585 | 0.97 | 4715 | 7.82 |
| | | a | 18881 | 750 | 3.97 | 567 | 3.00 | 1 | 0.01 | 166 | 0.88 | 1484 | 7.86 |
| | | b | 20352 | 788 | 3.87 | 547 | 2.69 | 3 | 0.01 | 192 | 0.94 | 1530 | 7.52 |
| | | c | 21060 | 821 | 3.90 | 653 | 3.10 | 0 | 0.00 | 227 | 1.08 | 1701 | 8.08 |
| 8 | xxxxx | ø | 61938 | 2718 | 4.39 | 1896 | 3.06 | 4 | 0.01 | 570 | 0.92 | 5188 | 8.38 |
| | | a | 20774 | 931 | 4.48 | 634 | 3.05 | 4 | 0.02 | 189 | 0.91 | 1758 | 8.46 |
| | | b | 20302 | 916 | 4.51 | 613 | 3.02 | 0 | 0.00 | 177 | 0.87 | 1706 | 8.40 |
| | | c | 20862 | 871 | 4.18 | 649 | 3.11 | 0 | 0.00 | 204 | 0.98 | 1724 | 8.26 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Second quality eggs

Tab. No. 8 (page 3)

| Treatment | Cross | | Eggs layered | Cracked | | Broken eggs | | Double-yolked | | Membranes | | Nonstandard together | |
|------------------|-----------------------|---|-------------------------|----------------|-------------|--------------------|-------------|----------------------|-------------|------------------|-------------|---------------------------------|-------------|
| | Way of rearing | | number | number | % | number | % | number | % | number | % | number | % |
| 9 | xxxxx | ø | 61780 | 2853 | 4.62 | 1919 | 3.11 | 7 | 0.01 | 562 | 0.91 | 5341 | 8.65 |
| | | a | 20681 | 1060 | 5.13 | 661 | 3.20 | 3 | 0.01 | 228 | 1.10 | 1952 | 9.44 |
| | | b | 20563 | 872 | 4.24 | 649 | 3.16 | 0 | 0.00 | 141 | 0.69 | 1662 | 8.08 |
| | | c | 20536 | 921 | 4.48 | 609 | 2.97 | 4 | 0.02 | 193 | 0.94 | 1727 | 8.41 |
| 10 | xxxxx | ø | 59645 | 2651 | 4.44 | 1893 | 3.17 | 6 | 0.01 | 553 | 0.93 | 5103 | 8.56 |
| | | a | 18962 | 967 | 5.10 | 658 | 3.47 | 1 | 0.01 | 188 | 0.99 | 1814 | 9.57 |
| | | b | 20526 | 869 | 4.23 | 645 | 3.14 | 4 | 0.02 | 182 | 0.89 | 1700 | 8.28 |
| | | c | 20157 | 815 | 4.04 | 590 | 2.93 | 1 | 0.00 | 183 | 0.91 | 1589 | 7.88 |
| 11 | xxxxx | ø | 60251 | 2738 | 4.54 | 1801 | 2.99 | 5 | 0.01 | 575 | 0.95 | 5119 | 8.50 |
| | | a | 20336 | 1012 | 4.98 | 626 | 3.08 | 2 | 0.01 | 262 | 1.29 | 1902 | 9.35 |
| | | b | 19314 | 866 | 4.48 | 616 | 3.19 | 2 | 0.01 | 152 | 0.79 | 1636 | 8.47 |
| | | c | 20601 | 860 | 4.17 | 559 | 2.71 | 1 | 0.00 | 161 | 0.78 | 1581 | 7.67 |
| 12 | xxxxx | c | 17535 | 787 | 4.49 | 629 | 3.59 | 0 | 0.00 | 168 | 0.96 | 1584 | 9.03 |

way of rearing: a - deep litter + beak trimming b - cages + non beak trimming c - cages + beak trimming

Weight classes of eggs

Tab. No. 9 (page 1)

| Treatment | Cross | | Egg weight | XL | L | M | S |
|------------------|-----------------------|---|-------------------|-------------|--------------|--------------|-------------|
| | | | | (=> 73 g) | (63 - 73 g) | (53 - 63 g) | (=< 53 g) |
| | Way of rearing | | g | % | % | % | % |
| 1 | XXXXX | ø | 60.77 | 1.53 | 23.85 | 71.81 | 2.82 |
| | | a | 60.56 | 1.58 | 22.41 | 73.50 | 2.51 |
| | | b | 61.21 | 1.09 | 27.89 | 69.15 | 1.87 |
| | | c | 60.51 | 1.92 | 21.18 | 72.85 | 4.05 |
| 2 | XXXXX | ø | 60.96 | 0.96 | 26.74 | 69.35 | 2.95 |
| | | a | 61.59 | 1.30 | 30.58 | 65.66 | 2.45 |
| | | b | 61.26 | 1.21 | 29.66 | 66.50 | 2.63 |
| | | c | 60.03 | 0.36 | 20.00 | 75.89 | 3.75 |
| 3 | XXXXX | ø | 62.69 | 4.23 | 34.74 | 59.55 | 1.47 |
| | | a | 63.21 | 5.82 | 36.70 | 56.50 | 0.98 |
| | | b | 62.96 | 3.58 | 37.72 | 56.95 | 1.74 |
| | | c | 61.95 | 3.36 | 30.02 | 64.93 | 1.68 |
| 4 | XXXXX | ø | 61.20 | 1.87 | 27.40 | 68.33 | 2.41 |
| | | a | 61.76 | 2.31 | 30.86 | 65.04 | 1.79 |
| | | b | 61.19 | 1.93 | 26.19 | 69.35 | 2.52 |
| | | c | 60.70 | 1.39 | 25.30 | 70.42 | 2.89 |

way of rearing: a - deep litter + beak trimming b - cages + non beak trimming c - cages + beak trimming

Weight classes of eggs

Tab. No. 9 (page 2)

| Treatment | Cross | | Egg weight | XL | L | M | S |
|------------------|-----------------------|---|-------------------|-------------|--------------|--------------|-------------|
| | | | | (=> 73 g) | (63 - 73 g) | (53 - 63 g) | (=< 53 g) |
| | Way of rearing | | g | % | % | % | % |
| 5 | xxxxx | ø | 62.98 | 2.99 | 40.58 | 54.83 | 1.61 |
| | | a | 63.99 | 3.57 | 49.97 | 44.69 | 1.76 |
| | | b | 62.71 | 2.81 | 37.63 | 58.06 | 1.51 |
| | | c | 62.29 | 2.61 | 34.59 | 61.25 | 1.55 |
| 6 | xxxxx | ø | 61.87 | 1.92 | 32.44 | 63.50 | 2.14 |
| | | a | 63.35 | 2.47 | 41.69 | 54.66 | 1.18 |
| | | b | 62.15 | 2.51 | 35.90 | 59.03 | 2.56 |
| | | c | 60.15 | 0.78 | 19.97 | 76.60 | 2.65 |
| 7 | xxxxx | ø | 62.49 | 2.83 | 35.29 | 59.65 | 2.23 |
| | | a | 62.49 | 2.54 | 34.16 | 61.33 | 1.97 |
| | | b | 63.51 | 3.15 | 42.15 | 53.62 | 1.08 |
| | | c | 61.50 | 2.77 | 29.57 | 64.08 | 3.58 |
| 8 | xxxxx | ø | 61.66 | 2.39 | 30.40 | 64.00 | 3.21 |
| | | a | 62.15 | 2.47 | 34.38 | 59.61 | 3.55 |
| | | b | 61.59 | 2.69 | 28.92 | 65.08 | 3.31 |
| | | c | 61.23 | 2.02 | 27.93 | 67.27 | 2.78 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Weight classes of eggs

Tab. No. 9 (page 3)

| Treatment | Cross | | Egg weight | XL | L | M | S |
|------------------|-----------------------|---|-------------------|-------------|--------------|--------------|-------------|
| | | | | (=> 73 g) | (63 - 73 g) | (53 - 63 g) | (=< 53 g) |
| | Way of rearing | | g | % | % | % | % |
| 9 | xxxxx | ø | 61.29 | 0.97 | 28.51 | 67.88 | 2.64 |
| | | a | 61.73 | 0.85 | 30.19 | 66.95 | 2.01 |
| | | b | 61.22 | 0.78 | 30.54 | 65.11 | 3.57 |
| | | c | 60.94 | 1.29 | 24.87 | 71.52 | 2.32 |
| 10 | xxxxx | ø | 61.80 | 2.83 | 31.23 | 62.99 | 2.95 |
| | | a | 62.22 | 2.83 | 31.41 | 64.49 | 1.27 |
| | | b | 61.63 | 2.34 | 32.50 | 61.89 | 3.27 |
| | | c | 61.61 | 3.32 | 29.77 | 62.75 | 4.16 |
| 11 | xxxxx | ø | 61.22 | 1.52 | 26.74 | 68.88 | 2.85 |
| | | a | 61.79 | 1.34 | 30.92 | 65.11 | 2.63 |
| | | b | 61.08 | 1.31 | 25.11 | 71.33 | 2.24 |
| | | c | 60.82 | 1.90 | 24.27 | 70.19 | 3.64 |
| 12 | xxxxx | c | 59.27 | 3.07 | 18.90 | 65.20 | 12.82 |

way of rearing: a - deep litter + beak trimming b - cages + non beak trimming c - cages + beak trimming

Egg quality - Period 6
Tab. No. 10a

| Sample | Cross | Egg weight | Yolk weight | Shell strength | Index of egg shape | Shell thickness | Haugh's units | Yolk colour | | | | Egg shell colour | | | Blood spot |
|--------|-------|------------|-------------|----------------|--------------------|-----------------|---------------|-------------|-----|------|-------|------------------|------|------|------------|
| | | g | g | N | | mm | | L | a | b | Roche | L | a | b | |
| 1 | xxxxx | 60.51 | 18.17 | 44.03 | 1.29 | 0.34 | 78.70 | -4.17 | 4.6 | 10.4 | 12.50 | 58.20 | 20.9 | 30.8 | 0 |
| 2 | xxxxx | 60.42 | 17.68 | 41.73 | 1.29 | 0.32 | 76.77 | -5.67 | 5.3 | 9.2 | 13.23 | 56.27 | 20.3 | 29.4 | 0 |
| 3 | xxxxx | 63.31 | 17.97 | 45.92 | 1.29 | 0.36 | 78.27 | -3.43 | 4.7 | 10.9 | 12.33 | 57.33 | 20.5 | 30.3 | 1 |
| 4 | xxxxx | 62.13 | 18.30 | 43.58 | 1.28 | 0.35 | 77.87 | -3.53 | 4.5 | 11.0 | 12.30 | 58.50 | 20.2 | 29.3 | 0 |
| 5 | xxxxx | 62.91 | 17.59 | 47.66 | 1.28 | 0.34 | 79.17 | -4.90 | 5.1 | 10.0 | 12.97 | 57.17 | 19.2 | 29.2 | 0 |
| 6 | xxxxx | 62.82 | 17.90 | 44.39 | 1.27 | 0.33 | 84.17 | -3.60 | 4.6 | 10.9 | 12.33 | 60.37 | 19.0 | 29.8 | 0 |
| 7 | xxxxx | 61.61 | 17.56 | 46.46 | 1.29 | 0.33 | 76.60 | -3.47 | 4.7 | 10.9 | 12.37 | 58.27 | 21.3 | 30.9 | 0 |
| 8 | xxxxx | 64.00 | 18.63 | 44.94 | 1.28 | 0.36 | 78.23 | -4.57 | 4.8 | 10.1 | 12.60 | 58.50 | 20.0 | 29.8 | 0 |
| 9 | xxxxx | 61.90 | 17.74 | 40.94 | 1.28 | 0.35 | 86.47 | -3.33 | 4.7 | 11.2 | 12.40 | 60.33 | 19.1 | 29.3 | 0 |
| 10 | xxxxx | 62.48 | 18.18 | 44.87 | 1.29 | 0.35 | 78.63 | -2.70 | 4.8 | 11.7 | 12.13 | 56.73 | 21.7 | 30.4 | 1 |
| 11 | xxxxx | 60.61 | 18.26 | 42.08 | 1.28 | 0.35 | 78.50 | -2.97 | 4.7 | 11.3 | 12.23 | 58.63 | 19.7 | 29.8 | 0 |
| 12 | xxxxx | 58.63 | 18.69 | 39.28 | 1.30 | 0.32 | 75.40 | -3.63 | 4.7 | 10.9 | 12.50 | 73.43 | 0.3 | 17.9 | 0 |

Interpretative notes:

L - colour of egg (0=black. 100=white)

a - red colouring and it's fullness

b - yellow colouring and it's fullness

Egg quality - Period 9

Tab. No. 10b

| Sample | Cross | Egg weight | Yolk weight | Shell strength | Index of egg shape | Shell thickness | Haugh's units | Yolk colour | | | | Egg shell colour | | | Blood spot |
|--------|-------|------------|-------------|----------------|--------------------|-----------------|---------------|-------------|-----|------|-------|------------------|------|------|------------|
| | | g | g | N | | mm | | L | a | b | Roche | L | a | b | |
| 1 | xxxxx | 60.30 | 17.61 | 41.77 | 1.31 | 0.34 | 69.73 | 0.30 | 0.4 | 13.8 | 6.97 | 53.43 | 18.2 | 28.2 | 0 |
| 2 | xxxxx | 61.97 | 18.11 | 43.11 | 1.29 | 0.35 | 69.90 | -1.57 | 0.9 | 12.2 | 7.97 | 54.13 | 19.5 | 27.7 | 0 |
| 3 | xxxxx | 64.00 | 18.62 | 44.87 | 1.32 | 0.36 | 71.83 | -2.13 | 1.1 | 11.8 | 8.13 | 52.10 | 18.3 | 27.2 | 0 |
| 4 | xxxxx | 62.88 | 18.98 | 41.92 | 1.29 | 0.36 | 69.57 | -0.83 | 0.7 | 13.0 | 7.33 | 51.10 | 17.5 | 26.3 | 0 |
| 5 | xxxxx | 64.02 | 18.31 | 40.72 | 1.32 | 0.37 | 70.03 | -2.00 | 1.2 | 12.0 | 8.30 | 56.10 | 17.3 | 27.4 | 0 |
| 6 | xxxxx | 61.61 | 18.09 | 40.17 | 1.31 | 0.35 | 79.70 | -1.50 | 1.1 | 12.2 | 8.27 | 59.70 | 18.5 | 29.2 | 1 |
| 7 | xxxxx | 64.01 | 18.84 | 40.91 | 1.32 | 0.35 | 71.40 | -1.30 | 0.9 | 12.5 | 7.50 | 56.37 | 19.0 | 28.9 | 0 |
| 8 | xxxxx | 62.97 | 18.82 | 45.61 | 1.28 | 0.39 | 75.77 | -0.63 | 0.9 | 13.1 | 7.87 | 60.03 | 19.4 | 30.8 | 2 |
| 9 | xxxxx | 60.95 | 18.48 | 46.46 | 1.30 | 0.38 | 77.20 | 1.43 | 0.4 | 14.6 | 6.90 | 61.87 | 19.0 | 30.0 | 2 |
| 10 | xxxxx | 61.00 | 18.77 | 44.21 | 1.31 | 0.39 | 70.57 | 1.40 | 0.8 | 14.6 | 7.30 | 58.40 | 20.8 | 29.5 | 3 |
| 11 | xxxxx | 61.60 | 18.76 | 42.68 | 1.31 | 0.39 | 68.13 | 2.27 | 0.2 | 15.4 | 6.47 | 62.40 | 18.3 | 27.5 | 4 |
| 12 | xxxxx | 60.66 | 20.15 | 40.33 | 1.32 | 0.35 | 67.77 | 0.50 | 0.4 | 13.9 | 6.70 | 77.27 | -0.3 | 18.2 | 0 |

Interpretative notes:

L - colour of egg (0=black. 100=white)

a - red colouring and it's fullness

b - yellow colouring and it's fullness

Egg quality - Period 12

Tab. No. 10c

| Sample | Cross | Egg weight | Yolk weight | Shell strength | Index of egg shape | Shell thickness | Haugh's units | Yolk colour | | | | Egg shell colour | | | Blood spot |
|--------|-------|------------|-------------|----------------|--------------------|-----------------|---------------|-------------|-----|------|-------|------------------|------|------|------------|
| | | g | g | N | | mm | | L | a | b | Roche | L | a | b | |
| 1 | xxxxx | 62.77 | 17.75 | 39.84 | 1.32 | 0.34 | 79.10 | -2.53 | 2.1 | 11.5 | 9.87 | 58.33 | 18.6 | 29.1 | 4 |
| 2 | xxxxx | 61.65 | 18.34 | 31.93 | 1.32 | 0.33 | 79.43 | -5.10 | 2.8 | 9.4 | 11.20 | 57.73 | 19.1 | 28.5 | 2 |
| 3 | xxxxx | 64.76 | 18.37 | 35.74 | 1.32 | 0.33 | 81.07 | -4.30 | 2.7 | 10.1 | 11.00 | 58.17 | 18.9 | 29.1 | 0 |
| 4 | xxxxx | 63.30 | 18.46 | 41.09 | 1.33 | 0.36 | 77.43 | -3.10 | 2.3 | 11.1 | 10.07 | 57.97 | 19.3 | 28.8 | 5 |
| 5 | xxxxx | 65.41 | 18.45 | 35.86 | 1.31 | 0.36 | 82.83 | -4.37 | 2.4 | 10.0 | 10.30 | 60.40 | 17.6 | 27.0 | 3 |
| 6 | xxxxx | 62.74 | 18.04 | 37.50 | 1.30 | 0.37 | 77.83 | -1.93 | 2.0 | 12.1 | 9.47 | 58.80 | 18.6 | 28.4 | 0 |
| 7 | xxxxx | 63.88 | 17.78 | 36.08 | 1.33 | 0.35 | 73.63 | -1.70 | 1.9 | 12.3 | 9.57 | 58.33 | 19.0 | 28.9 | 2 |
| 8 | xxxxx | 62.50 | 18.50 | 38.07 | 1.29 | 0.37 | 73.67 | -2.73 | 2.1 | 11.4 | 9.83 | 56.83 | 19.0 | 29.4 | 0 |
| 9 | xxxxx | 63.09 | 18.54 | 33.63 | 1.30 | 0.35 | 77.97 | -0.93 | 1.7 | 12.8 | 8.93 | 60.07 | 18.1 | 28.3 | 1 |
| 10 | xxxxx | 62.94 | 18.51 | 35.47 | 1.33 | 0.34 | 68.53 | -0.50 | 1.5 | 13.2 | 8.67 | 58.93 | 18.6 | 28.7 | 1 |
| 11 | xxxxx | 61.53 | 18.28 | 36.39 | 1.29 | 0.36 | 65.27 | -0.23 | 1.6 | 13.5 | 8.77 | 60.30 | 18.2 | 28.3 | 1 |
| 12 | xxxxx | 63.86 | 20.93 | 31.34 | 1.32 | 0.34 | 58.93 | -0.73 | 1.7 | 13.1 | 8.90 | 75.53 | 1.0 | 18.1 | 0 |

Interpretative notes:

L - colour of egg (0=black. 100=white)

a - red colouring and it's fullness

b - yellow colouring and it's fullness

Laying intensity

Tab. No. 11 (page 1)

in four weeks long periods (%)

| Sample | Cross | | Period | | | | | | | | | | | | | |
|--------|----------------|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Way of rearing | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1 | xxxxx | ø | 60.26 | 91.67 | 91.37 | 93.45 | 93.53 | 92.36 | 90.93 | 90.16 | 85.48 | 84.01 | 85.06 | 83.69 | 80.30 | 80.32 |
| | | a | 57.44 | 90.12 | 91.19 | 94.17 | 92.74 | 90.24 | 88.27 | 87.08 | 84.52 | 84.35 | 85.71 | 81.37 | 77.26 | 78.33 |
| | | b | 59.52 | 90.89 | 91.79 | 93.10 | 94.46 | 95.00 | 93.39 | 92.20 | 84.23 | 81.37 | 80.95 | 81.31 | 79.29 | 77.68 |
| | | c | 63.81 | 93.99 | 91.13 | 93.10 | 93.39 | 91.85 | 91.13 | 91.19 | 87.68 | 86.31 | 88.51 | 88.39 | 84.35 | 84.94 |
| 2 | xxxxx | ø | 59.05 | 94.25 | 93.45 | 95.20 | 94.64 | 93.33 | 92.20 | 90.75 | 86.25 | 86.79 | 88.97 | 87.74 | 83.93 | 84.35 |
| | | a | 52.62 | 94.88 | 93.51 | 95.00 | 95.30 | 93.75 | 92.86 | 91.49 | 86.49 | 87.62 | 89.23 | 88.57 | 87.02 | 85.77 |
| | | b | 57.98 | 92.44 | 92.44 | 94.46 | 93.15 | 93.51 | 92.32 | 91.13 | 86.96 | 86.96 | 88.63 | 86.90 | 82.08 | 80.89 |
| | | c | 66.55 | 95.42 | 94.40 | 96.13 | 95.48 | 92.74 | 91.43 | 89.64 | 85.30 | 85.77 | 89.05 | 87.74 | 82.68 | 86.37 |
| 3 | xxxxx | ø | 60.10 | 91.25 | 91.41 | 93.10 | 93.37 | 93.87 | 92.56 | 91.90 | 89.38 | 88.91 | 89.25 | 85.12 | 82.58 | 80.69 |
| | | a | 58.27 | 88.99 | 91.73 | 94.40 | 94.88 | 96.55 | 94.35 | 92.20 | 92.38 | 91.01 | 92.50 | 87.32 | 83.45 | 79.46 |
| | | b | 58.04 | 93.33 | 89.29 | 89.82 | 91.19 | 91.96 | 90.24 | 89.52 | 87.14 | 87.20 | 85.54 | 81.73 | 80.24 | 78.63 |
| | | c | 63.99 | 91.43 | 93.21 | 95.06 | 94.05 | 93.10 | 93.10 | 93.99 | 88.63 | 88.51 | 89.70 | 86.31 | 84.05 | 83.99 |
| 4 | xxxxx | ø | 56.53 | 95.22 | 94.31 | 96.09 | 95.40 | 95.93 | 93.53 | 94.38 | 90.20 | 88.87 | 89.88 | 85.08 | 83.41 | 81.94 |
| | | a | 52.38 | 93.93 | 93.27 | 96.01 | 95.95 | 96.73 | 93.15 | 93.69 | 91.25 | 89.64 | 89.82 | 85.00 | 82.02 | 78.63 |
| | | b | 55.18 | 93.21 | 91.07 | 92.74 | 91.67 | 92.68 | 89.70 | 91.01 | 85.89 | 85.24 | 85.71 | 78.15 | 78.27 | 77.08 |
| | | c | 62.02 | 98.51 | 98.57 | 99.52 | 98.57 | 98.39 | 97.74 | 98.45 | 93.45 | 91.73 | 94.11 | 92.08 | 89.94 | 90.12 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Laying intensity

Tab. No. 11 (page 2)

in four weeks long periods (%)

| Sample | Cross | | Period | | | | | | | | | | | | | |
|--------|----------------|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Way of rearing | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 5 | xxxxx | ø | 56.69 | 93.91 | 93.19 | 95.10 | 94.44 | 93.93 | 91.88 | 91.37 | 85.87 | 86.69 | 89.70 | 86.39 | 85.16 | 83.95 |
| | | a | 46.55 | 91.07 | 92.44 | 93.45 | 93.21 | 93.27 | 92.74 | 91.61 | 86.61 | 88.21 | 88.99 | 88.87 | 85.71 | 83.81 |
| | | b | 59.82 | 94.88 | 91.19 | 94.58 | 93.93 | 94.17 | 91.07 | 90.30 | 82.14 | 83.99 | 88.45 | 80.77 | 83.63 | 80.36 |
| | | c | 63.69 | 95.77 | 95.95 | 97.26 | 96.19 | 94.35 | 91.85 | 92.20 | 88.87 | 87.86 | 91.67 | 89.52 | 86.13 | 87.68 |
| 6 | xxxxx | ø | 51.71 | 93.41 | 93.85 | 93.69 | 93.55 | 94.17 | 92.56 | 91.37 | 86.73 | 85.22 | 89.37 | 86.31 | 84.66 | 83.12 |
| | | a | 43.10 | 89.40 | 90.77 | 91.31 | 93.33 | 94.29 | 92.14 | 91.61 | 89.05 | 87.68 | 89.64 | 87.08 | 87.50 | 86.61 |
| | | b | 49.82 | 95.83 | 94.82 | 95.06 | 94.11 | 93.27 | 92.62 | 90.95 | 84.40 | 80.36 | 86.37 | 85.00 | 81.43 | 79.76 |
| | | c | 62.20 | 95.00 | 95.95 | 94.70 | 93.21 | 94.94 | 92.92 | 91.55 | 86.73 | 87.62 | 92.08 | 86.85 | 85.06 | 82.98 |
| 7 | xxxxx | ø | 56.77 | 92.80 | 93.13 | 94.40 | 94.50 | 91.73 | 89.82 | 89.66 | 83.37 | 84.27 | 85.75 | 82.08 | 78.87 | 79.13 |
| | | a | 51.37 | 89.82 | 89.52 | 91.73 | 91.79 | 85.83 | 84.35 | 83.39 | 79.40 | 80.89 | 77.92 | 74.94 | 71.07 | 71.85 |
| | | b | 54.35 | 93.27 | 93.99 | 95.54 | 96.07 | 95.30 | 93.15 | 91.37 | 80.36 | 80.54 | 87.44 | 84.88 | 82.80 | 82.38 |
| | | c | 64.58 | 95.30 | 95.89 | 95.95 | 95.65 | 94.05 | 91.96 | 94.23 | 90.36 | 91.37 | 91.90 | 86.43 | 82.74 | 83.15 |
| 8 | xxxxx | ø | 52.68 | 95.10 | 94.96 | 96.11 | 95.40 | 95.22 | 93.02 | 91.71 | 86.53 | 86.23 | 89.74 | 85.24 | 83.81 | 83.19 |
| | | a | 48.33 | 94.76 | 93.75 | 95.95 | 93.75 | 93.21 | 91.79 | 91.73 | 89.17 | 88.63 | 91.01 | 88.21 | 87.62 | 88.63 |
| | | b | 51.31 | 95.24 | 95.54 | 95.36 | 97.26 | 97.08 | 95.48 | 91.67 | 83.87 | 83.21 | 86.31 | 81.31 | 79.52 | 75.30 |
| | | c | 58.39 | 95.30 | 95.60 | 97.02 | 95.18 | 95.36 | 91.79 | 91.73 | 86.55 | 86.85 | 91.90 | 86.19 | 84.29 | 85.65 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Laying intensity

Tab. No. 11 (page 3)

in four weeks long periods (%)

| Sample | Cross | | Period | | | | | | | | | | | | | |
|--------|----------------|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Way of rearing | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 9 | xxxxx | ø | 52.40 | 94.03 | 93.63 | 95.28 | 94.11 | 94.54 | 91.65 | 91.57 | 85.46 | 86.05 | 90.46 | 86.55 | 85.00 | 85.08 |
| | | a | 49.46 | 93.27 | 92.44 | 95.06 | 94.52 | 93.63 | 91.25 | 92.08 | 86.61 | 87.80 | 91.67 | 88.69 | 86.79 | 87.74 |
| | | b | 54.23 | 95.12 | 93.69 | 95.06 | 93.81 | 95.12 | 92.92 | 92.32 | 84.46 | 87.26 | 89.35 | 85.00 | 84.58 | 81.07 |
| | | c | 53.51 | 93.69 | 94.76 | 95.71 | 93.99 | 94.88 | 90.77 | 90.30 | 85.30 | 83.10 | 90.36 | 85.95 | 83.63 | 86.43 |
| 10 | xxxxx | ø | 58.00 | 93.79 | 94.19 | 95.28 | 93.00 | 90.97 | 88.02 | 87.88 | 80.54 | 80.30 | 83.81 | 82.24 | 79.13 | 76.31 |
| | | a | 51.07 | 89.76 | 93.21 | 94.17 | 89.70 | 85.77 | 81.85 | 82.62 | 78.21 | 78.04 | 78.57 | 77.56 | 74.70 | 73.45 |
| | | b | 57.14 | 95.65 | 95.48 | 97.14 | 96.79 | 95.42 | 93.93 | 92.68 | 79.70 | 80.00 | 87.44 | 88.39 | 84.29 | 77.74 |
| | | c | 65.77 | 95.95 | 93.87 | 94.52 | 92.50 | 91.73 | 88.27 | 88.33 | 83.69 | 82.86 | 85.42 | 80.77 | 78.39 | 77.74 |
| 11 | xxxxx | ø | 60.10 | 93.69 | 94.42 | 95.79 | 93.61 | 93.71 | 91.61 | 91.11 | 83.25 | 81.11 | 82.14 | 79.23 | 77.50 | 78.17 |
| | | a | 55.24 | 91.25 | 92.62 | 94.64 | 92.38 | 92.26 | 91.19 | 91.13 | 87.56 | 86.25 | 86.43 | 81.31 | 83.45 | 84.76 |
| | | b | 60.18 | 92.86 | 95.83 | 95.24 | 93.21 | 94.46 | 89.94 | 90.06 | 76.73 | 70.42 | 75.06 | 74.82 | 69.70 | 71.13 |
| | | c | 64.88 | 96.96 | 94.82 | 97.50 | 95.24 | 94.40 | 93.69 | 92.14 | 85.48 | 86.67 | 84.94 | 81.55 | 79.35 | 78.63 |
| 12 | xxxxx | c | 32.02 | 86.90 | 92.26 | 93.21 | 90.48 | 84.76 | 80.60 | 67.92 | 55.65 | 62.26 | 78.51 | 77.26 | 70.95 | 70.95 |

way of rearing: a - deep litter + beak trimming b - cages + non beak trimming c - cages + beak trimming

Average weight of eggs

Tab. No. 12 (page 1)

in four weeks long periods (g)

| Treatment | Cross | | Period | | | | | | | | | | | | | |
|-----------|----------------|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Way of rearing | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1 | xxxxx | ø | 49.60 | 58.07 | 59.59 | 61.43 | 61.58 | 62.01 | 62.23 | 61.26 | 60.36 | 61.67 | 61.17 | 63.53 | 62.60 | 62.54 |
| | | a | 50.26 | 58.05 | 59.74 | 61.75 | 61.45 | 61.78 | 62.41 | 61.43 | 60.83 | 61.06 | 61.13 | 62.90 | 60.87 | 60.90 |
| | | b | 49.55 | 57.65 | 59.68 | 61.09 | 62.00 | 62.17 | 62.43 | 61.59 | 60.71 | 62.66 | 62.04 | 64.31 | 64.41 | 63.83 |
| | | c | 49.04 | 58.49 | 59.36 | 61.46 | 61.27 | 62.08 | 61.84 | 60.77 | 59.58 | 61.25 | 60.29 | 63.36 | 62.65 | 62.60 |
| 2 | xxxxx | ø | 50.56 | 58.66 | 59.64 | 61.06 | 61.77 | 62.06 | 62.55 | 61.15 | 60.80 | 61.63 | 61.85 | 63.45 | 62.65 | 62.36 |
| | | a | 51.24 | 59.43 | 60.20 | 62.13 | 62.32 | 62.19 | 62.99 | 61.35 | 61.56 | 62.53 | 62.40 | 63.97 | 63.24 | 62.67 |
| | | b | 49.94 | 58.76 | 60.25 | 61.01 | 61.91 | 62.88 | 62.44 | 61.64 | 60.98 | 62.20 | 62.28 | 63.49 | 63.16 | 63.15 |
| | | c | 50.53 | 57.81 | 58.48 | 60.00 | 61.09 | 61.05 | 62.22 | 60.45 | 59.93 | 60.13 | 60.83 | 62.88 | 61.63 | 61.21 |
| 3 | xxxxx | ø | 50.64 | 59.59 | 61.34 | 63.57 | 63.31 | 63.66 | 64.18 | 63.63 | 62.45 | 63.49 | 63.83 | 65.48 | 64.95 | 63.94 |
| | | a | 50.56 | 60.34 | 62.21 | 64.72 | 63.72 | 64.33 | 64.51 | 63.89 | 63.36 | 63.56 | 63.53 | 66.07 | 66.11 | 63.54 |
| | | b | 52.05 | 59.11 | 61.54 | 63.55 | 63.78 | 64.08 | 64.45 | 63.70 | 62.83 | 63.96 | 64.00 | 65.41 | 65.30 | 64.62 |
| | | c | 49.39 | 59.38 | 60.27 | 62.59 | 62.48 | 62.59 | 63.63 | 63.33 | 61.24 | 62.91 | 63.99 | 65.00 | 63.63 | 63.56 |
| 4 | xxxxx | ø | 49.27 | 58.32 | 59.39 | 61.50 | 62.10 | 62.30 | 62.26 | 61.88 | 61.36 | 62.03 | 62.09 | 63.94 | 63.33 | 63.14 |
| | | a | 50.48 | 58.66 | 59.57 | 61.89 | 62.21 | 62.37 | 62.91 | 62.70 | 62.28 | 62.66 | 62.25 | 65.00 | 63.88 | 63.68 |
| | | b | 49.25 | 57.74 | 60.06 | 61.30 | 62.06 | 62.39 | 62.26 | 61.89 | 61.79 | 62.27 | 61.77 | 63.36 | 63.74 | 63.21 |
| | | c | 48.27 | 58.55 | 58.59 | 61.32 | 62.02 | 62.14 | 61.68 | 61.16 | 60.07 | 61.27 | 62.24 | 63.31 | 62.48 | 62.60 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Average weight of eggs

Tab. No. 12 (page 2)

in four weeks long periods (g)

| Treatment | Cross | | Period | | | | | | | | | | | | | |
|-----------|----------------|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Way of rearing | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 5 | xxxxx | ø | 52.56 | 60.22 | 61.31 | 63.00 | 63.59 | 63.85 | 64.21 | 63.39 | 63.25 | 64.00 | 63.66 | 65.29 | 65.36 | 64.65 |
| | | a | 52.89 | 61.03 | 62.32 | 64.06 | 64.59 | 64.50 | 65.47 | 64.08 | 64.36 | 64.76 | 65.24 | 66.74 | 66.00 | 64.62 |
| | | b | 52.47 | 59.44 | 60.81 | 62.88 | 63.25 | 64.35 | 63.71 | 63.42 | 62.81 | 63.77 | 62.93 | 64.52 | 65.64 | 65.38 |
| | | c | 52.38 | 60.25 | 60.85 | 62.09 | 62.99 | 62.72 | 63.50 | 62.72 | 62.67 | 63.48 | 62.95 | 64.49 | 64.44 | 63.93 |
| 6 | xxxxx | ø | 51.15 | 59.46 | 60.36 | 62.42 | 62.88 | 62.94 | 62.97 | 61.89 | 61.30 | 62.66 | 62.73 | 63.93 | 64.15 | 63.14 |
| | | a | 51.71 | 61.31 | 61.71 | 63.54 | 63.58 | 63.91 | 64.87 | 63.58 | 62.69 | 63.45 | 64.03 | 66.20 | 65.34 | 65.04 |
| | | b | 51.22 | 59.24 | 60.41 | 62.97 | 63.57 | 63.55 | 62.69 | 61.55 | 61.91 | 63.18 | 63.15 | 63.45 | 64.68 | 64.54 |
| | | c | 50.66 | 57.94 | 59.05 | 60.91 | 61.44 | 61.33 | 61.35 | 60.58 | 59.53 | 61.36 | 61.12 | 62.26 | 62.37 | 59.40 |
| 7 | xxxxx | ø | 51.43 | 59.77 | 60.53 | 62.88 | 63.18 | 63.46 | 63.61 | 63.38 | 62.79 | 63.40 | 63.38 | 65.06 | 65.01 | 63.88 |
| | | a | 52.21 | 59.86 | 60.46 | 63.18 | 63.03 | 63.66 | 64.18 | 64.14 | 62.61 | 62.83 | 62.57 | 64.79 | 65.04 | 63.26 |
| | | b | 51.97 | 60.30 | 61.40 | 63.54 | 64.10 | 64.01 | 64.36 | 64.09 | 63.79 | 64.42 | 65.07 | 66.10 | 66.02 | 66.26 |
| | | c | 50.25 | 59.14 | 59.68 | 61.98 | 62.40 | 62.69 | 62.29 | 62.06 | 62.12 | 62.96 | 62.41 | 64.28 | 64.12 | 61.87 |
| 8 | xxxxx | ø | 50.82 | 58.64 | 60.20 | 61.48 | 62.63 | 62.81 | 62.67 | 61.93 | 62.35 | 62.53 | 62.68 | 63.64 | 63.49 | 63.32 |
| | | a | 51.67 | 59.20 | 61.15 | 62.02 | 62.63 | 63.54 | 63.40 | 62.22 | 62.45 | 62.11 | 63.10 | 63.96 | 63.78 | 64.27 |
| | | b | 50.07 | 58.48 | 59.88 | 61.23 | 62.35 | 62.41 | 62.61 | 61.93 | 63.61 | 62.94 | 62.39 | 63.60 | 63.97 | 62.87 |
| | | c | 50.73 | 58.25 | 59.64 | 61.18 | 62.91 | 62.48 | 62.05 | 61.65 | 61.10 | 62.55 | 62.55 | 63.33 | 62.74 | 62.75 |

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

Average weight of eggs

Tab. No. 12 (page 3)

in four weeks long periods (g)

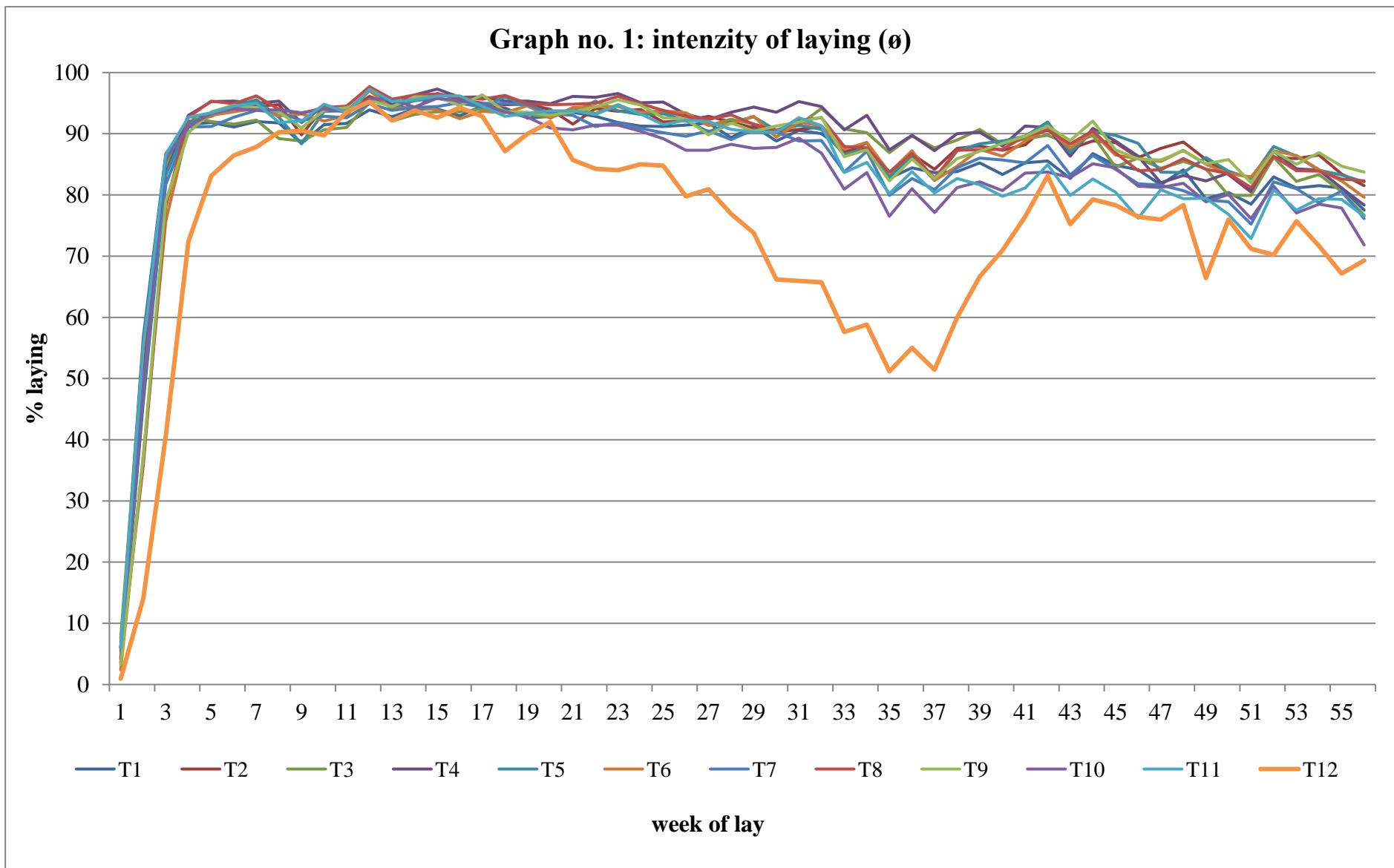
| Treatment | Cross | | Period | | | | | | | | | | | | | |
|-----------|----------------|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Way of rearing | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 9 | xxxxx | ø | 50.40 | 59.12 | 60.17 | 61.30 | 62.09 | 62.20 | 62.17 | 61.94 | 60.80 | 61.88 | 62.06 | 63.33 | 63.24 | 63.15 |
| | | a | 50.95 | 60.00 | 60.45 | 61.78 | 62.03 | 62.48 | 62.38 | 62.20 | 61.50 | 62.45 | 62.33 | 64.17 | 63.53 | 63.30 |
| | | b | 50.50 | 58.24 | 59.56 | 60.96 | 61.84 | 62.16 | 62.63 | 61.85 | 60.57 | 61.92 | 62.08 | 64.07 | 63.45 | 63.61 |
| | | c | 49.80 | 59.10 | 60.50 | 61.18 | 62.38 | 61.95 | 61.54 | 61.79 | 60.36 | 61.28 | 61.78 | 61.81 | 62.75 | 62.57 |
| 10 | xxxxx | ø | 49.74 | 58.95 | 60.19 | 61.90 | 62.90 | 62.74 | 63.10 | 62.50 | 62.41 | 62.00 | 63.14 | 64.32 | 64.66 | 63.62 |
| | | a | 49.58 | 59.14 | 60.95 | 62.17 | 63.11 | 62.75 | 63.28 | 62.57 | 62.58 | 63.16 | 63.81 | 64.91 | 64.80 | 64.60 |
| | | b | 49.19 | 57.88 | 60.19 | 62.00 | 62.47 | 63.35 | 63.11 | 62.80 | 62.81 | 60.74 | 63.06 | 63.79 | 64.14 | 63.33 |
| | | c | 50.42 | 59.88 | 59.43 | 61.53 | 63.16 | 62.09 | 62.93 | 62.13 | 61.92 | 62.21 | 62.62 | 64.38 | 65.04 | 63.08 |
| 11 | xxxxx | ø | 49.81 | 58.62 | 59.41 | 61.40 | 62.00 | 61.83 | 62.78 | 61.56 | 61.88 | 62.10 | 62.03 | 64.66 | 63.39 | 63.13 |
| | | a | 50.80 | 59.31 | 60.58 | 62.22 | 62.54 | 62.24 | 62.91 | 61.81 | 61.93 | 62.37 | 61.90 | 65.04 | 63.85 | 63.97 |
| | | b | 48.87 | 57.52 | 59.19 | 60.90 | 62.09 | 61.59 | 63.22 | 61.46 | 62.70 | 62.33 | 62.46 | 65.12 | 63.31 | 62.77 |
| | | c | 49.71 | 59.07 | 58.55 | 61.16 | 61.45 | 61.69 | 62.23 | 61.41 | 61.05 | 61.66 | 61.75 | 63.88 | 63.06 | 62.59 |
| 12 | xxxxx | c | 48.56 | 52.68 | 54.68 | 57.47 | 58.75 | 60.21 | 60.40 | 60.80 | 60.88 | 61.67 | 62.08 | 63.00 | 63.33 | 62.64 |

way of rearing:

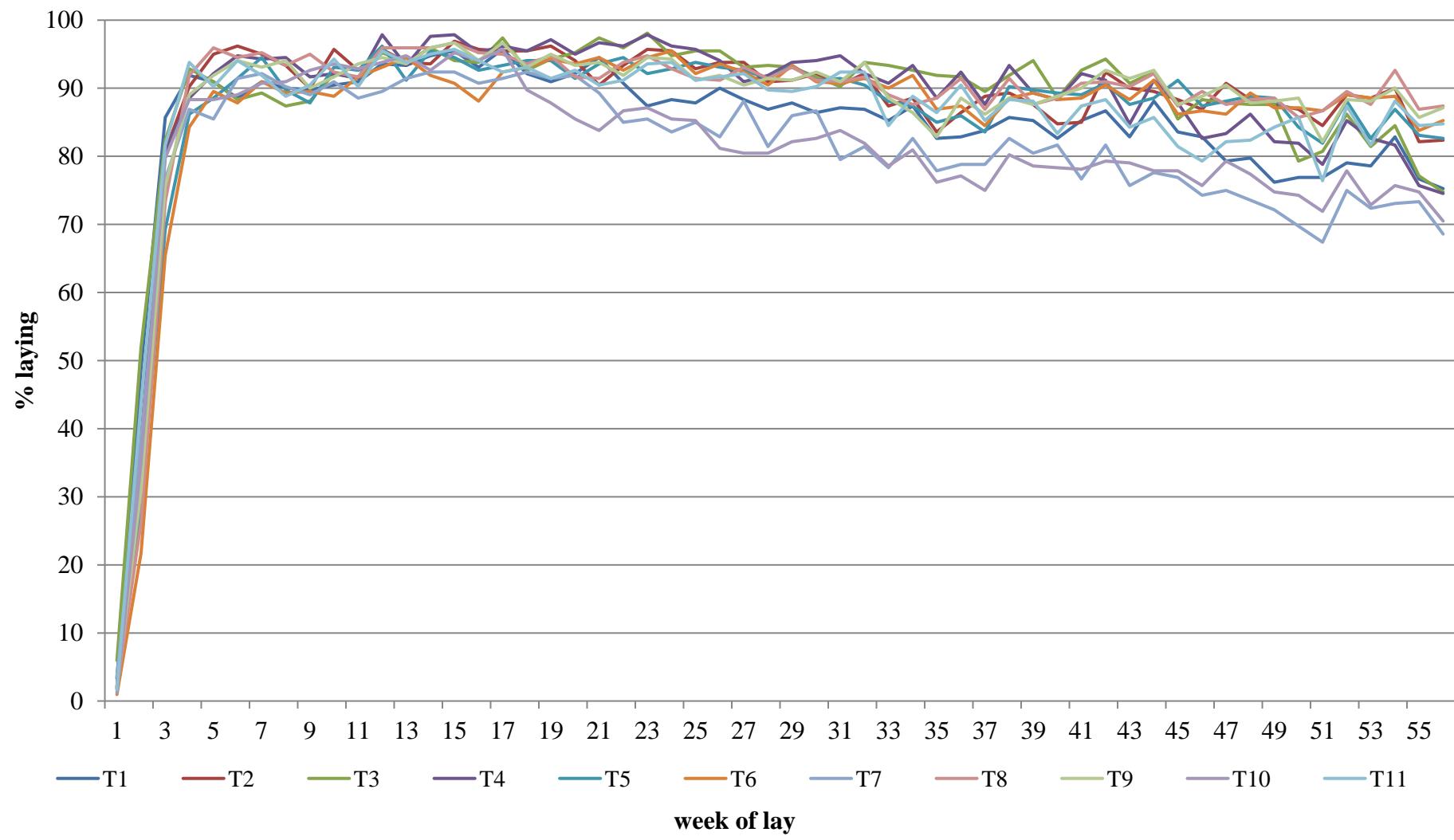
a - deep litter + beak trimming

b - cages + non beak trimming

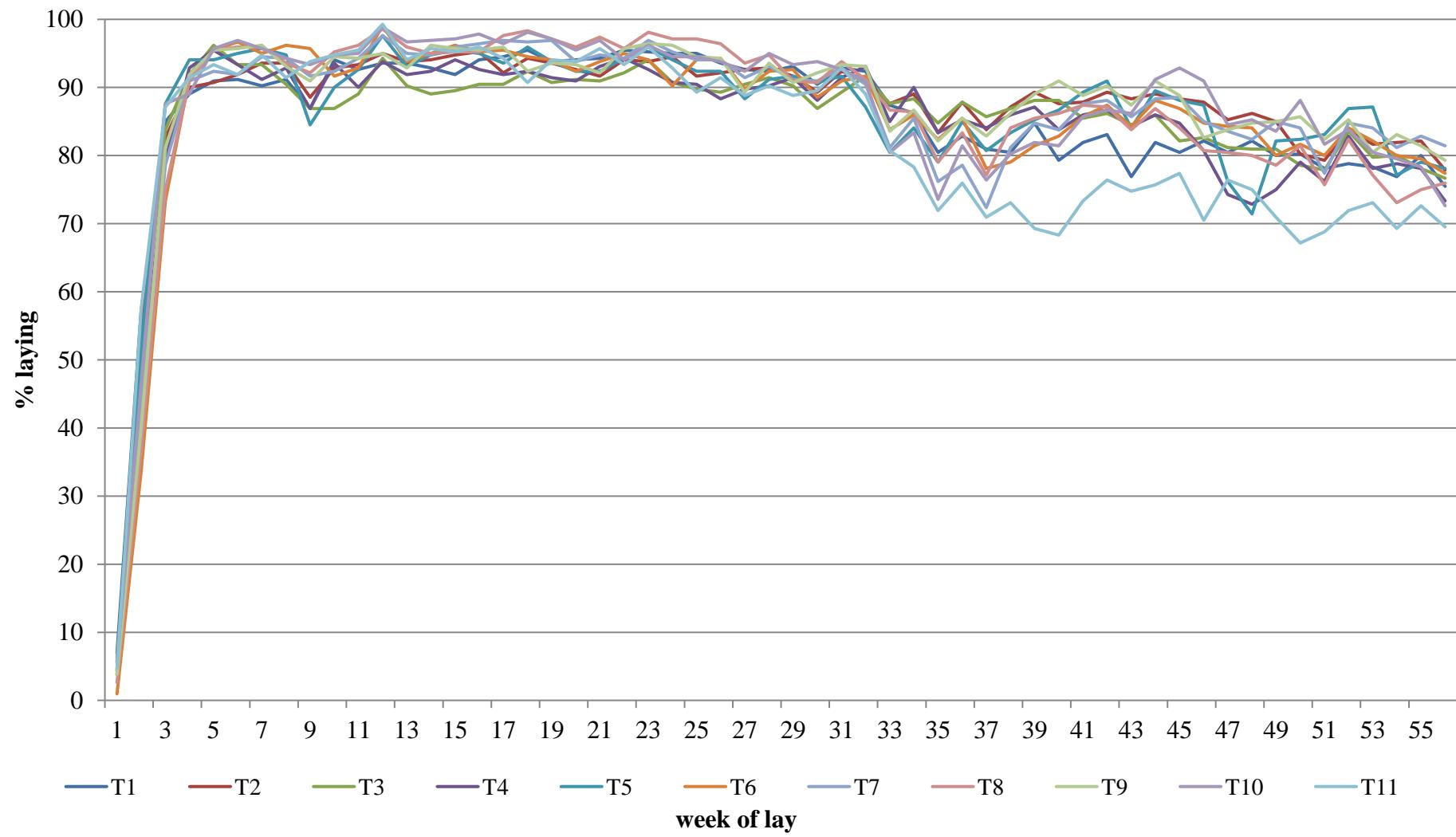
c - cages + beak trimming



Graph no. 2: intenzity of laying (way of rearing: a-deep litter +beak trimming)



Graph no. 3: intenzity of laying (way of rearing: b- cages+non beak trimming)



Graph no. 4: intensity of laying (way of rearing: c-cages+beak trimming)

