



MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE  
státní podnik. ÚSTRAŠICE

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390 02 Tábor 2

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

**The final report  
2023 - 2024**

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Ústrašice. September 2024

## 1 The list of participants

<b>Sam.</b>	<b>Cross</b>	<b>Hatchery flock</b>	<b>State</b>	<b>Breeding organization</b>
1	xxxxxx	xxxxxx	xxxxxx	xxxxxx
2	xxxxxx	xxxxxx	xxxxxx	xxxxxx
3	xxxxxx	xxxxxx	xxxxxx	xxxxxx
4	xxxxxx	xxxxxx	xxxxxx	xxxxxx
5	xxxxxx	xxxxxx	xxxxxx	xxxxxx
6	xxxxxx	xxxxxx	xxxxxx	xxxxxx
7	xxxxxx	xxxxxx	xxxxxx	xxxxxx
8	xxxxxx	xxxxxx	xxxxxx	xxxxxx
9	xxxxxx	xxxxxx	xxxxxx	xxxxxx
10	xxxxxx	xxxxxx	xxxxxx	xxxxxx
11	xxxxxx	xxxxxx	xxxxxx	xxxxxx
12	xxxxxx	xxxxxx	xxxxxx	xxxxxx

## **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.

### **2.4 Important dates**

setting in the hatchery:	27 February 2023
beginning of rearing – day 1:	22 March 2023
end of rearing:	25 July 2023
beginning of laying. start of the period 1:	26 July 2023
end of laying. end of the period 14:	20 August 2024

## **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 nonstandard birds, 270 pullets of each sample were randomly chosen for the test. 90 pullets were placed in the house with deep litter system and 180 pullets in the cage system.

Pullets were marked (wing banded). Beak trimming was carried out by hot blade on days 9 and 10. This treatment was done on half of the pullets reared in the cage system and on all pullets reared in the deep litter system. The other 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 <sup>2</sup>	350 cm <sup>2</sup> /bird
From day 112	756 cm <sup>2</sup> /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 m<sup>3</sup>/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:**

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

### **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:**

	<b>K1 IT N</b>	<b>K2 IT N</b>	<b>KZK IT N</b>	<b>N0</b>
Age	Week 1 - 4	Week 5 - 10	Week 11 - 16	Week 17 - 18
Feed form	crumbled	crushed	crushed	crushed
<b>Components – content in %:</b>				
Wheat	51.00	52.78	58.49	51.26
Maize	15.00	16.00	10.00	15.00
Extr. soybean groats	23.85	19.30	9.00	16.35
Extr. rapeseed groats	1.50	2.00	3.00	3.00
Extr. sunflower groats	1.50	2.00	2.90	2.50
Wheat bran	-	2.50	12.20	2.30
Fish meal	1.50	0.70	-	-
Soybean oil	1.56	0.92	0.88	0.30
Animal fat	-	-	-	1.82
Lysine-HCl	0.29	0.22	0.20	0.13
L-threonine	0.07	0.03	-	-
DL-methionine	0.23	0.17	0.08	0.15
Sodium sulfate	0.15	0.13	0.12	0.17
Salt	0.26	0.27	0.27	0.24
Limestone	1.97	1.95	2.15	3.53
Limestone-roughly ground	-	-	-	2.00
MCP – monocalciumphosphate	0.85	0.75	0.42	0.80
Vitamin and mineral supplement	0.27	0.28	0.29	0.45
<b>Nutrient content (calculated values):</b>				
CP (g/kg)	203.10	186.00	155.90	169.10
Fat (g/kg)	36.00	29.60	28.30	40.00
Linoleic acid (g/kg)	16.00	13.00	12.50	11.00
Crude fiber (g/kg)	29.80	32.80	42.00	33.10
ME enz. (MJ/kg)	12.30	12.10	11.80	11.50
Lysine (g/kg)	11.41	9.75	7.28	8.26
Methionine (g/kg)	5.15	4.39	3.21	3.96
Met. + Cys. (g/kg)	8.67	7.77	6.31	7.13
Threonine (g/kg)	7.90	6.82	5.23	5.91
Tryptophan (g/kg)	2.42	2.21	1.88	2.02
Ca phytase (g/kg)	12.00	11.50	11.50	24.50
P (g/kg)	6.20	6.00	5.90	5.90
P digest. (g/kg)	4.80	4.50	3.80	4.40
Vitamin A (IU/kg)	10000.00	10000.00	10000.00	10000.00
Vitamin D3 (IU/kg)	3000.00	3000.00	3000.00	3000.00

#### 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 cm<sup>2</sup> 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. Droppings 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 m<sup>3</sup>/hour/kg live weight in winter and 5 m<sup>3</sup>/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 19<sup>th</sup> week of age N1 start, from 23<sup>th</sup> week of age N1 and from 47<sup>th</sup> week of age N2. Complete feeds were in mash form and fed ad libitum.

Feed was supplied by xxxxx.



## Diet formulas

		<b>N1 IT N start</b>	<b>N1 IT N</b>	<b>N2 IT N</b>
Age		19 <sup>th</sup> -22 <sup>th</sup> week	23 <sup>th</sup> -46 <sup>th</sup> week	47 <sup>th</sup> -74 <sup>th</sup> week
Feed form		crushed	crushed	crushed
<b>Components – content in %:</b>				
Wheat		35.08	42.71	45.28
Extr. soybean groats		16.20	11.75	11.25
Maize		20.60	18.10	15.00
Rape extr. goat		5.00	5.00	5.00
Sunflower extr. goat		7.10	7.30	7.40
Animal fat		2.35	1.25	3.34
Soybean oil		2.50	2.72	1.10
Salt		0.28	0.28	0.28
Limestone		2.82	2.88	3.09
Limestone-roughly ground		6.60	6.60	7.00
MCP - monocalciumphosphate		0.55	0.47	0.33
Premix of vitamins, enzymes		0.45	0.45	0.45
<b>Nutrient content (calculated values):</b>				
Crude protein	g/kg	174.00	160.98	159.10
Fat	g/kg	67.14	58.03	61.86
Linoleic acid	g/kg	23.02	22.98	15.97
Crude fiber	g/kg	39.99	39.95	39.93
ME	MJ/kg	11.45	11.40	11.40
Lysine	g/kg	7.43	6.89	6.77
Methionine dig.	g/kg	4.08	3.68	3.56
Meth. +cysteine dig	g/kg	6.73	6.21	6.07
Threonine dig.	g/kg	5.27	4.76	4.68
Tryptophan dig.	g/kg	1.76	1.61	1.59
Ca	g/kg	37.00	37.00	38.99
P	g/kg	5.38	5.12	4.78
P (digestible)	g/kg	3.91	3.70	3.41
Vitamin A	U.I./kg	10 000.00	10 000.00	10 000.00
Vitamin D3	U.I./kg	3 000.00	3 000.00	3 000.00

## **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**

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Tab. No. 11	Intensity of lay
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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	xxxxxx	58.81	93.80	87.30	93.10
2	xxxxxx	62.07	90.50	79.40	87.80
3	xxxxxx	63.73	95.50	77.90	81.60
4	xxxxxx	58.04	93.70	86.50	82.30
5	xxxxxx	55.95	94.40	89.10	94.40
6	xxxxxx	59.63	87.20	79.60	91.30
7	xxxxxx	63.11	92.80	82.30	88.70
8	xxxxxx	58.41	93.40	85.10	91.10
9	xxxxxx	58.34	91.70	85.80	93.60
10	xxxxxx	58.99	95.70	85.40	89.20
11	xxxxxx	60.5	97.20	89.40	92.00
12	xxxxxx	61.64	95.80	89.40	93.30

Sample	Cross	Live weight										Feed consumption per 1 pullet at the age of 126 days
		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	kg/bird
1	xxxxx	<b>35.4</b>	<b>139.0</b>	<b>319.4</b>	<b>492.9</b>	<b>734.5</b>	<b>962.0</b>	<b>1157.5</b>	<b>1290.2</b>	<b>1441.9</b>	<b>1624.3</b>	<b>7.4</b>
	cage system	34.9	135.0	331.7	499.7	761.0	1005.0	1218.0	1346.3	1454.8	1669.5	7.10
	deep litter system	35.8	143.0	307.0	486.0	708.0	919.0	1097.0	1234.0	1429.0	1579.0	7.78
2	xxxxx	<b>37.8</b>	<b>131.7</b>	<b>305.0</b>	<b>488.4</b>	<b>745.2</b>	<b>992.7</b>	<b>1207.5</b>	<b>1328.5</b>	<b>1466.8</b>	<b>1669.0</b>	<b>7.5</b>
	cage system	37.4	130.3	313.0	480.7	768.3	1013.3	1234.0	1350.0	1475.5	1719.0	7.13
	deep litter system	38.3	133.0	297.0	496.0	722.0	972.0	1181.0	1307.0	1458.0	1619.0	7.78
3	xxxxx	<b>38.4</b>	<b>140.4</b>	<b>311.5</b>	<b>488.9</b>	<b>742.4</b>	<b>967.0</b>	<b>1183.5</b>	<b>1308.7</b>	<b>1455.7</b>	<b>1675.5</b>	<b>7.5</b>
	cage system	38.7	137.7	322.0	481.7	770.7	1006.0	1231.0	1345.3	1467.3	1705.0	7.10
	deep litter system	38.2	143.0	301.0	496.0	714.0	928.0	1136.0	1272.0	1444.0	1646.0	7.84
4	xxxxx	<b>35.3</b>	<b>128.4</b>	<b>299.9</b>	<b>491.5</b>	<b>721.4</b>	<b>934.9</b>	<b>1155.7</b>	<b>1277.7</b>	<b>1445.3</b>	<b>1650.0</b>	<b>7.5</b>
	cage system	35.4	129.3	318.7	516.0	763.7	989.7	1201.3	1312.3	1454.5	1673.0	7.18
	deep litter system	35.1	127.5	281.0	467.0	679.0	880.0	1110.0	1243.0	1436.0	1627.0	7.72
5	xxxxx	<b>34.5</b>	<b>132.2</b>	<b>311.2</b>	<b>496.5</b>	<b>725.7</b>	<b>949.0</b>	<b>1170.0</b>	<b>1258.0</b>	<b>1423.2</b>	<b>1672.5</b>	<b>7.4</b>
	cage system	34.8	131.3	325.3	489.0	756.3	976.0	1220.0	1304.0	1421.8	1725.0	7.16
	deep litter system	34.1	133.0	297.0	504.0	695.0	922.0	1120.0	1212.0	1424.5	1620.0	7.72
6	xxxxx	<b>36.3</b>	<b>134.7</b>	<b>311.5</b>	<b>474.9</b>	<b>710.9</b>	<b>917.2</b>	<b>1116.4</b>	<b>1208.2</b>	<b>1351.4</b>	<b>1523.0</b>	<b>7.5</b>
	cage system	36.0	139.3	323.0	477.7	736.7	963.3	1164.7	1234.3	1357.3	1539.0	7.12
	deep litter system	36.6	130.0	300.0	472.0	685.0	871.0	1068.0	1182.0	1345.5	1507.0	7.78
7	xxxxx	<b>37.7</b>	<b>138.4</b>	<b>310.5</b>	<b>490.2</b>	<b>721.9</b>	<b>958.5</b>	<b>1147.0</b>	<b>1268.2</b>	<b>1428.3</b>	<b>1623.8</b>	<b>7.5</b>
	cage system	37.8	133.3	321.0	484.3	772.7	1002.0	1183.0	1288.3	1430.5	1664.5	7.16
	deep litter system	37.5	143.5	300.0	496.0	671.0	915.0	1111.0	1248.0	1426.0	1583.0	7.78

Sample	Cross	Live weight										Feed consumption per 1 pullet at the age of 126 days
		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	kg/bird
8	<b>xxxxx</b>	<b>36.2</b>	<b>132.6</b>	<b>303.0</b>	<b>481.2</b>	<b>723.0</b>	<b>972.7</b>	<b>1170.5</b>	<b>1297.7</b>	<b>1442.5</b>	<b>1684.3</b>	<b>7.5</b>
	cage system	36.1	133.7	306.0	479.3	752.0	1009.3	1206.0	1331.3	1449.0	1722.5	7.17
	deep litter system	36.2	131.5	300.0	483.0	694.0	936.0	1135.0	1264.0	1436.0	1646.0	7.77
9	<b>xxxxx</b>	<b>35.4</b>	<b>137.6</b>	<b>305.9</b>	<b>478.7</b>	<b>715.2</b>	<b>959.5</b>	<b>1147.2</b>	<b>1265.5</b>	<b>1408.9</b>	<b>1567.5</b>	<b>7.5</b>
	cage system	35.4	133.7	311.7	491.3	751.3	993.0	1192.3	1297.0	1411.3	1591.0	7.12
	deep litter system	35.3	141.5	300.0	466.0	679.0	926.0	1102.0	1234.0	1406.5	1544.0	7.78
10	<b>xxxxx</b>	<b>36.1</b>	<b>138.6</b>	<b>308.7</b>	<b>489.0</b>	<b>730.9</b>	<b>951.4</b>	<b>1163.7</b>	<b>1284.2</b>	<b>1452.5</b>	<b>1641.8</b>	<b>7.4</b>
	cage system	36.3	134.7	321.3	516.0	772.7	1012.7	1232.3	1325.3	1480.0	1685.5	7.09
	deep litter system	36.0	142.5	296.0	462.0	689.0	890.0	1095.0	1243.0	1425.0	1598.0	7.78
11	<b>xxxxx</b>	<b>39.2</b>	<b>133.0</b>	<b>335.0</b>	<b>513.0</b>	<b>808.0</b>	<b>1014.5</b>	<b>1253.0</b>	<b>1444.0</b>	<b>1513.5</b>	<b>1781.0</b>	<b>7.6</b>
	cage system	39.2	133.0	335.0	513.0	808.0	1014.5	1253.0	1444.0	1513.5	1781.0	7.62
12	<b>xxxxx</b>	<b>38.8</b>	<b>141.5</b>	<b>334.5</b>	<b>507.0</b>	<b>771.5</b>	<b>982.0</b>	<b>1160.0</b>	<b>1277.0</b>	<b>1412.5</b>	<b>1731.5</b>	<b>7.6</b>
	cage system	38.8	141.5	334.5	507.0	771.5	982.0	1160.0	1277.0	1412.5	1731.5	7.62

**Mortality in rearing**

**Tab. No. 3**

Page 1

Sample	Cross	Number of pullets			
		Initial flock	Final flock	Mortality	
		birds	birds	birds	%
1	<b>xxxxx</b>	<b>270</b>	<b>267</b>	<b>3</b>	<b>1.11</b>
	cage system	180	178	2	1.11
	deep litter system	90	89	1	1.11
2	<b>xxxxx</b>	<b>270</b>	<b>265</b>	<b>5</b>	<b>1.85</b>
	cage system	180	176	4	2.22
	deep litter system	90	89	1	1.11
3	<b>xxxxx</b>	<b>270</b>	<b>267</b>	<b>3</b>	<b>1.11</b>
	cage system	180	179	1	0.56
	deep litter system	90	88	2	2.22
4	<b>xxxxx</b>	<b>270</b>	<b>265</b>	<b>5</b>	<b>1.85</b>
	cage system	180	175	5	2.78
	deep litter system	90	90	0	0.00
5	<b>xxxxx</b>	<b>270</b>	<b>265</b>	<b>5</b>	<b>1.85</b>
	cage system	180	175	5	2.78
	deep litter system	90	90	0	0.00
6	<b>xxxxx</b>	<b>270</b>	<b>266</b>	<b>4</b>	<b>1.48</b>
	cage system	180	177	3	1.67
	deep litter system	90	89	1	1.11
7	<b>xxxxx</b>	<b>270</b>	<b>266</b>	<b>4</b>	<b>1.48</b>
	cage system	180	177	3	1.67
	deep litter system	90	89	1	1.11

**Mortality in rearing**

**Tab. No. 3**

Page 2

Sample	Cross	Number of pullets			
		Initial flock	Final flock	Mortality	
		birds	birds	birds	%
8	<b>xxxxx</b>	<b>270</b>	<b>263</b>	<b>7</b>	<b>2.59</b>
	cage system	180	175	5	2.78
	deep litter system	90	88	2	2.22
9	<b>xxxxx</b>	<b>270</b>	<b>267</b>	<b>3</b>	<b>1.11</b>
	cage system	180	178	2	1.11
	deep litter system	90	89	1	1.11
10	<b>xxxxx</b>	<b>270</b>	<b>265</b>	<b>5</b>	<b>1.85</b>
	cage system	180	176	4	2.22
	deep litter system	90	89	1	1.11
11	<b>xxxxx</b>	<b>90</b>	<b>90</b>	<b>0</b>	<b>0.00</b>
	cage system	90	90	0	0.00
12	<b>xxxxx</b>	<b>90</b>	<b>90</b>	<b>0</b>	<b>0.00</b>
	cage system	90	90	0	0.00



Results of the egg yield

Tab. No. 4 (page 1)

Sample	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	XXXXXX	ø	<b>138</b>	<b>141</b>	<b>144</b>	<b>180</b>	<b>100.00</b>	<b>345.36</b>	<b>88.10</b>	<b>349.49</b>	<b>89.15</b>	<b>62.59</b>	<b>21.62</b>	<b>21.87</b>
		a	140	143	145	159	100.00	339.00	86.48	340.69	86.91	63.56	21.55	21.66
		b	137	140	142	162	100.00	352.82	90.00	356.84	91.03	62.14	21.92	22.17
		c	137	139	144	184	100.00	344.27	87.82	351.00	89.54	62.14	21.39	21.81
2	XXXXXX	ø	<b>138</b>	<b>143</b>	<b>144</b>	<b>162</b>	<b>99.44</b>	<b>356.60</b>	<b>90.97</b>	<b>361.14</b>	<b>92.13</b>	<b>63.09</b>	<b>22.50</b>	<b>22.79</b>
		a	141	144	145	155	100.00	361.50	92.22	366.12	93.40	64.20	23.21	23.50
		b	138	141	144	162	100.00	353.03	90.06	357.67	91.24	62.79	22.17	22.46
		c	138	141	144	154	100.00	355.27	90.63	359.62	91.74	62.29	22.13	22.40
3	XXXXXX	ø	<b>138</b>	<b>143</b>	<b>145</b>	<b>162</b>	<b>100.00</b>	<b>340.81</b>	<b>86.94</b>	<b>347.13</b>	<b>88.55</b>	<b>63.03</b>	<b>21.48</b>	<b>21.88</b>
		a	139	143	145	162	100.00	341.48	87.11	341.48	87.11	63.59	21.72	21.72
		b	137	141	144	154	100.00	350.15	89.32	352.02	89.80	63.84	22.35	22.47
		c	137	141	144	162	100.00	330.80	84.39	347.96	88.77	61.62	20.39	21.44
4	XXXXXX	ø	<b>138</b>	<b>141</b>	<b>144</b>	<b>162</b>	<b>98.33</b>	<b>334.46</b>	<b>85.32</b>	<b>340.69</b>	<b>86.91</b>	<b>61.46</b>	<b>20.55</b>	<b>20.94</b>
		a	139	143	145	166	100.00	331.40	84.54	331.40	84.54	62.05	20.56	20.56
		b	137	139	141	163	100.00	349.07	89.05	356.03	90.82	61.04	21.31	21.73
		c	138	141	142	162	100.00	322.90	82.37	334.73	85.39	61.29	19.79	20.51
5	XXXXXX	ø	<b>137</b>	<b>141</b>	<b>143</b>	<b>184</b>	<b>100.00</b>	<b>345.77</b>	<b>88.21</b>	<b>350.61</b>	<b>89.44</b>	<b>62.14</b>	<b>21.49</b>	<b>21.79</b>
		a	138	143	145	162	100.00	341.20	87.04	345.64	88.17	62.26	21.24	21.52
		b	137	140	142	147	100.00	350.03	89.29	354.74	90.49	62.32	21.81	22.11
		c	136	139	142	162	100.00	346.07	88.28	351.46	89.66	61.86	21.41	21.74

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)

Sample	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
6	XXXXXX	ø	<b>137</b>	<b>141</b>	<b>145</b>	<b>162</b>	<b>100.00</b>	<b>352.43</b>	<b>89.91</b>	<b>355.05</b>	<b>90.57</b>	<b>61.98</b>	<b>21.84</b>	<b>22.01</b>
		a	139	143	147	162	100.00	344.92	87.99	350.52	89.42	62.79	21.66	22.01
		b	137	142	144	154	100.00	356.33	90.90	358.53	91.46	61.91	22.06	22.19
		c	135	139	142	162	100.00	356.05	90.83	356.05	90.83	61.27	21.82	21.82
7	XXXXXX	ø	<b>138</b>	<b>141</b>	<b>144</b>	<b>169</b>	<b>100.00</b>	<b>347.19</b>	<b>88.57</b>	<b>352.70</b>	<b>89.97</b>	<b>62.39</b>	<b>21.66</b>	<b>22.00</b>
		a	141	144	146	162	100.00	340.03	86.74	342.48	87.37	63.09	21.45	21.61
		b	137	141	144	157	100.00	345.07	88.03	356.43	90.93	62.62	21.61	22.32
		c	137	139	141	162	100.00	356.48	90.94	359.28	91.65	61.50	21.92	22.10
8	XXXXXX	ø	<b>138</b>	<b>141</b>	<b>144</b>	<b>154</b>	<b>98.89</b>	<b>334.07</b>	<b>85.22</b>	<b>340.44</b>	<b>86.85</b>	<b>62.48</b>	<b>20.87</b>	<b>21.27</b>
		a	141	144	145	171	100.00	331.35	84.53	337.43	86.08	62.55	20.73	21.11
		b	138	139	142	162	100.00	319.97	81.62	332.65	84.86	62.60	20.03	20.82
		c	138	140	144	154	100.00	350.88	89.51	350.88	89.51	62.28	21.85	21.85
9	XXXXXX	ø	<b>139</b>	<b>142</b>	<b>144</b>	<b>163</b>	<b>100.00</b>	<b>341.82</b>	<b>87.20</b>	<b>347.08</b>	<b>88.54</b>	<b>63.78</b>	<b>21.80</b>	<b>22.14</b>
		a	141	144	146	160	100.00	344.30	87.83	345.95	88.25	63.87	21.99	22.10
		b	139	142	144	163	100.00	336.08	85.74	341.45	87.11	64.32	21.62	21.96
		c	138	142	144	159	100.00	345.08	88.03	353.90	90.28	63.14	21.79	22.35
10	XXXXXX	ø	<b>138</b>	<b>141</b>	<b>145</b>	<b>184</b>	<b>99.44</b>	<b>333.69</b>	<b>85.12</b>	<b>341.89</b>	<b>87.22</b>	<b>63.93</b>	<b>21.33</b>	<b>21.86</b>
		a	141	145	146	154	100.00	323.75	82.59	326.82	83.37	64.51	20.88	21.08
		b	139	142	144	158	100.00	340.35	86.82	348.76	88.97	64.42	21.92	22.47
		c	136	141	143	170	100.00	336.97	85.96	350.44	89.40	62.90	21.19	22.04

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)**

Sample	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	
11	xxxxx	c	137	144	147	159	100.00	305.12	77.84	310.41	79.19	62.82	19.17	19.50
12	xxxxx	c	133	135	140	154	100.00	343.17	87.54	348.31	88.85	62.58	21.47	21.80

way of rearing:

a - deep litter + beak trimming

b - cages + non beak trimming

c - cages + beak trimming

**Feed consumption**

**Tab. No. 5 (page 1)**

Sample	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	xxxxxx	ø	<b>52.35</b>	<b>149.78</b>	<b>2.39</b>	<b>133.53</b>
		a	51.99	152.61	2.40	132.64
		b	52.41	146.89	2.36	133.71
		c	52.63	149.95	2.41	134.27
2	xxxxxx	ø	<b>52.50</b>	<b>145.37</b>	<b>2.30</b>	<b>133.92</b>
		a	52.53	143.49	2.24	134.02
		b	52.54	146.88	2.34	134.02
		c	52.42	145.77	2.34	133.73
3	xxxxxx	ø	<b>52.88</b>	<b>152.33</b>	<b>2.42</b>	<b>134.89</b>
		a	52.31	153.17	2.41	133.43
		b	52.55	149.28	2.34	134.05
		c	53.82	154.68	2.51	137.31
4	xxxxxx	ø	<b>52.77</b>	<b>154.89</b>	<b>2.52</b>	<b>134.62</b>
		a	51.87	156.52	2.52	132.32
		b	52.86	148.48	2.43	134.86
		c	53.61	160.15	2.61	136.75
5	xxxxxx	ø	<b>52.20</b>	<b>148.90</b>	<b>2.40</b>	<b>133.17</b>
		a	52.03	150.53	2.42	132.72
		b	52.98	149.36	2.40	135.16
		c	51.60	146.82	2.37	131.63

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

**Feed consumption**

**Tab. No. 5 (page 2)**

Sample	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
6	xxxxxx	ø	<b>52.49</b>	<b>147.84</b>	<b>2.39</b>	<b>133.91</b>
		a	53.12	151.56	2.41	135.52
		b	52.67	146.91	2.37	134.36
		c	51.69	145.18	2.37	131.87
7	xxxxxx	ø	<b>52.75</b>	<b>149.56</b>	<b>2.40</b>	<b>134.56</b>
		a	52.74	153.99	2.44	134.54
		b	53.87	151.13	2.41	137.42
		c	51.67	143.81	2.34	131.80
8	xxxxxx	ø	<b>52.67</b>	<b>154.70</b>	<b>2.48</b>	<b>134.35</b>
		a	52.90	156.78	2.51	134.96
		b	54.36	163.41	2.61	138.67
		c	50.81	144.79	2.32	129.60
9	xxxxxx	ø	<b>52.24</b>	<b>150.52</b>	<b>2.36</b>	<b>133.27</b>
		a	52.20	150.89	2.36	133.16
		b	52.59	154.03	2.39	134.17
		c	51.93	146.74	2.32	132.48
10	xxxxxx	ø	<b>52.84</b>	<b>154.56</b>	<b>2.42</b>	<b>134.80</b>
		a	52.33	160.12	2.48	133.49
		b	52.56	150.70	2.34	134.07
		c	53.66	153.11	2.43	136.88

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

**Feed consumption**

**Tab. No. 5 (page 3)**

Sample	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
11	xxxxx	c	52.69	169.75	2.70	134.42
12	xxxxx	c	52.49	150.70	2.41	133.90

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)

Sample	Cross		Live weight (g)					
	Way of rearing		week 20	week 22	week 24	week 26	week 30	final live weight
1	xxxxxx	ø	<b>1805.7</b>	<b>1835.0</b>	<b>1948.3</b>	<b>2009.3</b>	<b>2177.3</b>	<b>2319.4</b>
		a	1747	1784	1957	1953	2309	2252.1
		b	1814	1827	1930	1966	2077	2259.0
		c	1856	1894	1958	2109	2146	2443.0
2	xxxxxx	ø	<b>1832.7</b>	<b>1892.7</b>	<b>1986.0</b>	<b>2063.7</b>	<b>2134.7</b>	<b>2432.2</b>
		a	1824	1916	2027	2115	2183	2408.5
		b	1865	1910	2032	2058	2217	2370.5
		c	1809	1852	1899	2018	2004	2519.6
3	xxxxxx	ø	<b>1861.7</b>	<b>1936.0</b>	<b>2015.3</b>	<b>2076.0</b>	<b>2126.7</b>	<b>2495.0</b>
		a	1841	1922	1992	2092	2140	2464.0
		b	1892	2022	2144	2178	2161	2383.2
		c	1852	1864	1910	1958	2079	2555.7
4	xxxxxx	ø	<b>1835.0</b>	<b>1867.7</b>	<b>1925.0</b>	<b>2028.3</b>	<b>2059.0</b>	<b>2317.7</b>
		a	1862	1886	1919	2004	2190	2280.2
		b	1779	1834	1911	2039	1962	2246.4
		c	1864	1883	1945	2042	2025	2368.8
5	xxxxxx	ø	<b>1805.3</b>	<b>1865.3</b>	<b>1959.3</b>	<b>2058.7</b>	<b>2046.0</b>	<b>2208.0</b>
		a	1788	1839	1799	2106	2062	2247.8
		b	1798	1888	2023	2068	2102	2287.7
		c	1830	1869	2056	2002	1974	2153.0

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)

Sample	Cross		Live weight (g)					
	Way of rearing		week 20	week 22	week 24	week 26	week 30	final live weight
6	xxxxx	ø	<b>1721.0</b>	<b>1805.0</b>	<b>1879.0</b>	<b>1938.7</b>	<b>2048.7</b>	<b>2284.0</b>
		a	1696	1816	1911	1997	2175	2312.5
		b	1724	1780	1894	1961	1996	2027.0
		c	1743	1819	1832	1858	1975	2348.4
7	xxxxx	ø	<b>1780.7</b>	<b>1801.7</b>	<b>1854.7</b>	<b>1930.7</b>	<b>1957.7</b>	<b>2329.2</b>
		a	1768	1826	1827	1964	1972	2335.2
		b	1809	1824	1899	1948	1952	2319.9
		c	1765	1755	1838	1880	1949	2339.3
8	xxxxx	ø	<b>1838.7</b>	<b>1863.0</b>	<b>1938.7</b>	<b>2096.3</b>	<b>2028.0</b>	<b>2410.6</b>
		a	1819	1811	1924	2065	2085	2557.9
		b	1847	1895	1919	1972	1956	2297.3
		c	1850	1883	1973	2252	2043	2496.8
9	xxxxx	ø	<b>1769.3</b>	<b>1817.0</b>	<b>1895.3</b>	<b>1925.3</b>	<b>1913.3</b>	<b>2190.4</b>
		a	1767	1841	1866	1856	1878	2242.3
		b	1779	1806	1887	1998	1903	2088.8
		c	1762	1804	1933	1922	1959	2235.6
10	xxxxx	ø	<b>1883.0</b>	<b>1884.0</b>	<b>1940.0</b>	<b>1996.3</b>	<b>1936.7</b>	<b>2337.0</b>
		a	1843	1897	1913	2008	2082	2403.8
		b	1924	1908	1970	1929	1814	2181.5
		c	1882	1847	1937	2052	1914	2427.1

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)**

Sample	Cross		Live weight (g)					
	Way of rearing		week 20	week 22	week 24	week 26	week 30	final live weight
11	xxxxx	c	1982.0	2001.5	2116.0	2179.0	2290.0	2677.8
12	xxxxx	c	1879.5	1857.0	1912.0	2062.5	2078.0	2446.6

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)

Sample	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		
	Birds	Birds	Birds	%																			
1	xxxxxx	ø	180	170	10	5.56											1		7	2			
		a	60	58	2	3.33													1	1			
		b	60	54	6	10.00													5	1			
		c	60	58	2	3.33												1		1			
2	xxxxxx	ø	180	174	6	3.33											4		2				
		a	60	59	1	1.67											1						
		b	60	58	2	3.33											1		1				
		c	60	57	3	5.00											2		1				
3	xxxxxx	ø	180	173	7	3.89										1		3		3			
		a	60	60	0	0.00																	
		b	60	58	2	3.33										1							
		c	60	55	5	8.33										2		3					
4	xxxxxx	ø	180	171	9	5.00											3	1	5				
		a	60	60	0	0.00													2				
		b	60	57	3	5.00											1		2				
		c	60	54	6	10.00											2	1	3				
5	xxxxxx	ø	180	171	9	5.00											6		3				
		a	60	58	2	3.33											1		1				
		b	60	57	3	5.00											3						
		c	60	56	4	6.67											2		2				

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

## Mortality and its causes

Tab. No. 7 (page 2)

Sample	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	%																			
6	xxxxxx	ø	180	177	3	1.67												3						
		a	60	58	2	3.33												2						
		b	60	59	1	1.67													1					
		c	60	60	0	0.00																		
7	xxxxxx	ø	180	171	9	5.00												6		2	1			
		a	60	59	1	1.67													1					
		b	60	53	7	11.67													4		2	1		
		c	60	59	1	1.67														1				
8	xxxxxx	ø	180	170	10	5.56												5		4				
		a	60	56	4	6.67													2		2			
		b	60	54	6	10.00							1						3		2			
		c	60	60	0	0.00																		
9	xxxxxx	ø	180	170	10	5.56												3		6	1			
		a	60	59	1	1.67															1			
		b	60	55	5	8.33													1		3	1		
		c	60	56	4	6.67														2		2		
10	xxxxxx	ø	180	170	10	5.56												4		6				
		a	60	57	3	5.00													2		1			
		b	60	57	3	5.00													1		2			
		c	60	56	4	6.67														1		3		

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 3)**

Sample	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	%															
11	xxxxx	c	60	57	3	5.00									1		2				
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

6 - Injuries

11 - Metabolic derangement

2 - Bacterial diseases

7 - Digestive tract diseases

12 - Cannibalism

3 - Fungal diseases

8 - Respiratory tract diseases

13 - Diverticulum inflammation

4 - Parasitary diseases

9 - Reproduction tract diseases

14 - Culling and other causes

5 - Tumors

10 - Locomotion apparatus diseases

15 - Sampling (excluded of calculation)

Second quality eggs

Tab. No. 8 (page 1)

Sample	Cross		Eggs laid	Cracked		Broken eggs		Double-yolked		Membranes		Nonstandard together	
	Way of rearing		number	number	%	number	%	number	%	number	%	number	%
1	XXXXXX	ø	<b>62165</b>	<b>2841</b>	<b>4.57</b>	<b>1682</b>	<b>2.71</b>	<b>4</b>	<b>0.01</b>	<b>319</b>	<b>0.51</b>	<b>4846</b>	<b>7.80</b>
		a	20340	1012	4.98	673	3.31	0	0.00	121	0.59	1806	8.88
		b	21169	940	4.44	519	2.45	4	0.02	115	0.54	1578	7.45
		c	20656	889	4.30	490	2.37	0	0.00	83	0.40	1462	7.08
2	XXXXXX	ø	<b>64188</b>	<b>3056</b>	<b>4.76</b>	<b>1733</b>	<b>2.70</b>	<b>7</b>	<b>0.01</b>	<b>336</b>	<b>0.52</b>	<b>5132</b>	<b>8.00</b>
		a	21690	1148	5.29	586	2.70	2	0.01	97	0.45	1833	8.45
		b	21182	888	4.19	583	2.75	5	0.02	138	0.65	1614	7.62
		c	21316	1020	4.79	564	2.65	0	0.00	101	0.47	1685	7.90
3	XXXXXX	ø	<b>61346</b>	<b>3069</b>	<b>5.00</b>	<b>1870</b>	<b>3.05</b>	<b>2</b>	<b>0.00</b>	<b>319</b>	<b>0.52</b>	<b>5260</b>	<b>8.57</b>
		a	20489	1178	5.75	701	3.42	0	0.00	114	0.56	1993	9.73
		b	21009	966	4.60	593	2.82	1	0.00	109	0.52	1669	7.94
		c	19848	925	4.66	576	2.90	1	0.01	96	0.48	1598	8.05
4	XXXXXX	ø	<b>60202</b>	<b>2794</b>	<b>4.64</b>	<b>1646</b>	<b>2.73</b>	<b>2</b>	<b>0.00</b>	<b>357</b>	<b>0.59</b>	<b>4799</b>	<b>7.97</b>
		a	19884	1059	5.33	565	2.84	1	0.01	107	0.54	1732	8.71
		b	20944	893	4.26	553	2.64	0	0.00	137	0.65	1583	7.56
		c	19374	842	4.35	528	2.73	1	0.01	113	0.58	1484	7.66
5	XXXXXX	ø	<b>62238</b>	<b>2822</b>	<b>4.53</b>	<b>1544</b>	<b>2.48</b>	<b>1</b>	<b>0.00</b>	<b>328</b>	<b>0.53</b>	<b>4695</b>	<b>7.54</b>
		a	20472	1102	5.38	579	2.83	1	0.00	108	0.53	1790	8.74
		b	21002	924	4.40	546	2.60	0	0.00	142	0.68	1612	7.68
		c	20764	796	3.83	419	2.02	0	0.00	78	0.38	1293	6.23

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)

Sample	Cross		Eggs laid	Cracked		Broken eggs		Double-yolked		Membranes		Nonstandard together	
	Way of rearing		number	number	%	number	%	number	%	number	%	number	%
6	XXXXXX	ø	<b>63438</b>	<b>3303</b>	<b>5.21</b>	<b>1806</b>	<b>2.85</b>	<b>2</b>	<b>0.00</b>	<b>383</b>	<b>0.60</b>	<b>5494</b>	<b>8.66</b>
		a	20695	1083	5.23	583	2.82	0	0.00	121	0.58	1787	8.63
		b	21380	1068	5.00	545	2.55	0	0.00	116	0.54	1729	8.09
		c	21363	1152	5.39	678	3.17	2	0.01	146	0.68	1978	9.26
7	XXXXXX	ø	<b>62495</b>	<b>2812</b>	<b>4.50</b>	<b>1528</b>	<b>2.44</b>	<b>4</b>	<b>0.01</b>	<b>329</b>	<b>0.53</b>	<b>4673</b>	<b>7.48</b>
		a	20402	1050	5.15	511	2.50	1	0.00	103	0.50	1665	8.16
		b	20704	864	4.17	487	2.35	2	0.01	85	0.41	1438	6.95
		c	21389	898	4.20	530	2.48	1	0.00	141	0.66	1570	7.34
8	XXXXXX	ø	<b>60132</b>	<b>3007</b>	<b>5.00</b>	<b>1806</b>	<b>3.00</b>	<b>5</b>	<b>0.01</b>	<b>391</b>	<b>0.65</b>	<b>5209</b>	<b>8.66</b>
		a	19881	1099	5.53	605	3.04	1	0.01	121	0.61	1826	9.18
		b	19198	922	4.80	677	3.53	3	0.02	135	0.70	1737	9.05
		c	21053	986	4.68	524	2.49	1	0.00	135	0.64	1646	7.82
9	XXXXXX	ø	<b>61528</b>	<b>2908</b>	<b>4.73</b>	<b>1650</b>	<b>2.68</b>	<b>4</b>	<b>0.01</b>	<b>381</b>	<b>0.62</b>	<b>4943</b>	<b>8.03</b>
		a	20658	1058	5.12	582	2.82	0	0.00	142	0.69	1782	8.63
		b	20165	871	4.32	540	2.68	1	0.00	106	0.53	1518	7.53
		c	20705	979	4.73	528	2.55	3	0.01	133	0.64	1643	7.94
10	XXXXXX	ø	<b>60064</b>	<b>3010</b>	<b>5.01</b>	<b>1735</b>	<b>2.89</b>	<b>3</b>	<b>0.00</b>	<b>392</b>	<b>0.65</b>	<b>5140</b>	<b>8.56</b>
		a	19425	1126	5.80	545	2.81	2	0.01	141	0.73	1814	9.34
		b	20421	980	4.80	648	3.17	1	0.00	105	0.51	1734	8.49
		c	20218	904	4.47	542	2.68	0	0.00	146	0.72	1592	7.87

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)**

Sample	Cross		Eggs laid	Cracked		Broken eggs		Double-yolked		Membranes		Nonstandard together	
	Way of rearing		number	number	%	number	%	number	%	number	%	number	%
11	xxxxx	c	18307	1472	8.04	961	5.25	5	0.03	152	0.83	2590	14.15
12	xxxxx	c	20590	1204	5.85	583	2.83	4	0.02	120	0.58	1911	9.28

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)

Sample	Cross		Egg weight	XL	L	M	S
				(= > 73 g)	(63 - 73 g)	(53 - 63 g)	(= < 53 g)
		Way of rearing	g	%	%	%	%
1	XXXXXX	ø	<b>62.59</b>	<b>4.49</b>	<b>43.28</b>	<b>50.37</b>	<b>1.86</b>
		a	63.56	6.48	47.31	45.27	0.93
		b	62.14	4.07	40.63	52.08	3.21
		c	62.14	3.06	42.21	53.39	1.35
2	XXXXXX	ø	<b>63.09</b>	<b>5.44</b>	<b>46.61</b>	<b>46.70</b>	<b>1.25</b>
		a	64.20	10.33	50.55	37.65	1.46
		b	62.79	3.49	46.61	48.70	1.20
		c	62.29	2.51	42.68	53.70	1.11
3	XXXXXX	ø	<b>63.03</b>	<b>5.48</b>	<b>44.89</b>	<b>48.27</b>	<b>1.36</b>
		a	63.59	6.37	49.69	42.58	1.35
		b	63.84	7.93	46.34	44.30	1.43
		c	61.62	2.05	38.77	57.89	1.29
4	XXXXXX	ø	<b>61.46</b>	<b>2.60</b>	<b>37.17</b>	<b>57.40</b>	<b>2.83</b>
		a	62.05	2.91	38.78	57.07	1.24
		b	61.04	3.09	34.70	57.71	4.50
		c	61.29	1.74	38.24	57.39	2.63
5	XXXXXX	ø	<b>62.14</b>	<b>3.58</b>	<b>41.03</b>	<b>53.91</b>	<b>1.47</b>
		a	62.26	3.47	40.61	54.92	1.00
		b	62.32	4.64	43.65	50.05	1.67
		c	61.86	2.66	38.87	56.73	1.74

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)

Sample	Cross		Egg weight	XL	L	M	S
				(= > 73 g)	(63 - 73 g)	(53 - 63 g)	(= < 53 g)
	Way of rearing		g	%	%	%	%
6	xxxxxx	ø	<b>61.98</b>	<b>3.39</b>	<b>40.30</b>	<b>53.87</b>	<b>2.44</b>
		a	62.79	3.63	46.92	47.02	2.43
		b	61.91	4.03	38.73	55.07	2.17
		c	61.27	2.50	35.36	59.43	2.71
7	xxxxxx	ø	<b>62.39</b>	<b>3.40</b>	<b>42.52</b>	<b>52.42</b>	<b>1.66</b>
		a	63.09	2.39	47.95	48.80	0.85
		b	62.62	4.38	43.64	50.73	1.25
		c	61.50	3.42	36.31	57.46	2.81
8	xxxxxx	ø	<b>62.48</b>	<b>4.42</b>	<b>40.96</b>	<b>52.61</b>	<b>2.01</b>
		a	62.55	6.66	36.94	54.41	1.99
		b	62.60	3.87	44.90	48.95	2.28
		c	62.28	2.90	41.04	54.28	1.78
9	xxxxxx	ø	<b>63.78</b>	<b>6.81</b>	<b>51.25</b>	<b>40.87</b>	<b>1.06</b>
		a	63.87	6.51	54.29	38.27	0.93
		b	64.32	7.78	55.73	36.12	0.37
		c	63.14	6.18	43.84	48.10	1.87
10	xxxxxx	ø	<b>63.93</b>	<b>8.33</b>	<b>50.80</b>	<b>39.90</b>	<b>0.97</b>
		a	64.51	9.96	52.26	37.55	0.23
		b	64.42	8.69	56.69	33.46	1.16
		c	62.90	6.40	43.30	48.82	1.48

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)**

Sample	Cross		Egg weight	XL	L	M	S
				(= > 73 g)	(63 - 73 g)	(53 - 63 g)	(= < 53 g)
	Way of rearing		g	%	%	%	%
11	xxxxx	c	62.82	6.93	41.14	47.65	4.29
12	xxxxx	c	62.58	6.79	43.18	46.52	3.51

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	64.57	17.26	49.48	1.28	0.37	96.23	-6.43	3.4	8.3	12.12	58.22	21.1	30.2	1
2	XXXXX	65.59	17.73	43.35	1.25	0.37	97.95	-7.22	3.9	7.7	12.82	56.52	21.6	29.7	0
3	XXXXX	64.37	17.42	44.43	1.28	0.37	97.00	-7.25	3.9	7.7	12.95	59.10	20.5	29.6	0
4	XXXXX	63.97	17.64	48.93	1.29	0.37	92.48	-6.75	3.8	8.0	12.57	58.03	21.3	30.5	0
5	XXXXX	65.07	17.49	43.49	1.28	0.37	92.35	-7.27	3.8	7.6	12.77	59.05	20.6	29.9	0
6	XXXXX	64.22	19.11	44.24	1.31	0.34	92.78	-4.65	2.7	9.7	10.85	77.52	8.3	20.0	0
7	XXXXX	64.53	18.26	44.01	1.27	0.34	92.78	-7.20	3.6	7.7	12.58	54.95	20.9	28.7	2
8	XXXXX	64.85	18.13	42.08	1.28	0.35	96.32	-6.50	3.5	8.3	12.28	55.78	18.5	28.8	1
9	XXXXX	66.72	18.26	42.54	1.29	0.37	93.72	-6.83	3.6	8.0	12.45	58.45	19.9	29.5	1
10	XXXXX	65.98	18.53	46.50	1.30	0.37	92.53	-6.32	3.4	8.4	12.15	59.35	22.0	30.6	1
11	XXXXX	65.35	19.09	32.21	1.33	0.33	85.80	-5.97	3.0	8.7	11.43	71.73	12.9	24.8	0
12	XXXXX	65.59	19.13	35.83	1.31	0.35	95.37	-6.57	3.6	8.1	12.33	83.90	5.6	16.8	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	64.27	18.16	46.29	1.29	0.36	91.50	-5.77	3.1	8.9	11.50	58.20	22.2	31.0	1
2	XXXXX	65.48	18.17	42.50	1.25	0.36	95.03	-7.35	3.7	7.6	12.65	56.77	22.9	30.9	0
3	XXXXX	63.59	17.91	42.20	1.28	0.36	96.53	-5.80	3.4	8.9	11.90	60.57	20.9	30.7	0
4	XXXXX	62.80	18.32	46.42	1.29	0.36	90.10	-6.62	3.5	8.2	12.30	58.37	22.1	30.6	0
5	XXXXX	63.69	18.59	43.13	1.28	0.35	90.13	-5.33	3.1	9.2	11.42	59.68	21.5	30.8	1
6	XXXXX	62.79	19.62	46.12	1.30	0.34	89.43	-3.63	2.3	10.6	9.95	81.37	8.4	20.5	0
7	XXXXX	64.09	18.17	41.58	1.28	0.37	91.15	-7.40	3.6	7.5	12.53	56.90	22.8	29.7	0
8	XXXXX	63.26	18.47	41.16	1.29	0.36	95.25	-4.68	2.9	9.6	11.17	61.80	20.6	31.1	1
9	XXXXX	66.28	19.10	44.63	1.29	0.37	90.38	-5.95	3.3	8.7	11.90	60.00	21.3	30.6	0
10	XXXXX	65.04	19.34	48.12	1.30	0.37	87.42	-5.20	2.9	9.4	11.35	58.90	22.4	31.3	0
11	XXXXX	64.73	19.78	29.58	1.31	0.32	83.83	-6.83	3.3	8.0	12.03	72.33	12.3	25.8	0
12	XXXXX	65.40	19.71	32.83	1.30	0.33	90.77	-5.10	2.8	9.4	11.13	85.73	4.5	14.6	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	XXXXXX	64.19	17.45	39.20	1.30	0.36	86.32	-7.67	3.4	7.3	12.22	58.02	19.6	30.4	1
2	XXXXXX	64.08	18.08	36.16	1.28	0.36	90.60	-6.62	3.6	8.3	12.28	57.15	21.2	30.2	1
3	XXXXXX	64.88	18.17	36.78	1.32	0.36	88.25	-5.42	3.3	9.1	11.60	60.17	19.4	29.7	2
4	XXXXXX	62.43	17.53	40.94	1.32	0.37	85.97	-5.85	3.3	8.8	11.85	58.85	20.0	30.3	4
5	XXXXXX	64.32	18.13	38.22	1.32	0.36	81.85	-6.00	3.0	8.7	11.75	59.72	19.8	30.2	5
6	XXXXXX	63.62	19.69	39.85	1.33	0.34	80.00	-3.92	2.2	10.3	10.12	81.32	7.2	20.5	2
7	XXXXXX	63.32	18.25	38.99	1.28	0.36	81.05	-6.50	3.4	8.0	12.13	58.00	20.6	30.1	1
8	XXXXXX	64.38	18.79	37.34	1.32	0.37	81.73	-4.83	2.8	9.6	10.77	61.65	18.5	30.4	4
9	XXXXXX	64.77	18.38	40.58	1.31	0.37	78.07	-4.47	3.1	10.1	11.37	60.77	18.3	30.3	4
10	XXXXXX	64.43	18.82	42.51	1.33	0.37	76.43	-3.98	2.7	10.4	10.60	59.72	20.1	31.0	4
11	XXXXXX	65.65	20.76	29.87	1.35	0.33	71.33	-4.67	2.7	9.7	10.90	71.90	12.4	25.6	1
12	XXXXXX	65.85	20.28	32.66	1.35	0.34	70.33	-4.43	2.6	10.0	10.63	84.57	5.5	17.6	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**

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	<b>59.11</b>	<b>92.88</b>	<b>91.59</b>	<b>95.16</b>	<b>93.23</b>	<b>93.06</b>	<b>92.62</b>	<b>91.27</b>	<b>90.60</b>	<b>89.50</b>	<b>89.52</b>	<b>86.59</b>	<b>83.77</b>	<b>84.54</b>
		a	55.60	92.92	90.06	95.30	93.39	92.68	91.73	89.58	88.63	88.45	87.50	82.86	79.23	82.80
		b	61.01	94.17	93.39	96.37	94.46	94.70	93.87	93.21	93.21	91.73	92.32	89.58	87.14	84.88
		c	60.71	91.55	91.31	93.81	91.85	91.79	92.26	91.01	89.94	88.33	88.75	87.32	84.94	85.95
2	xxxxx	ø	<b>57.88</b>	<b>95.83</b>	<b>94.07</b>	<b>96.51</b>	<b>95.28</b>	<b>95.02</b>	<b>95.75</b>	<b>95.20</b>	<b>94.27</b>	<b>92.94</b>	<b>92.52</b>	<b>91.03</b>	<b>88.17</b>	<b>89.11</b>
		a	53.45	97.86	96.49	97.26	95.71	97.02	96.85	96.61	95.83	94.88	94.40	92.86	90.06	91.79
		b	59.82	94.88	92.02	95.71	93.75	92.20	93.81	93.27	93.63	91.96	90.89	91.25	88.63	88.99
		c	60.36	94.76	93.69	96.55	96.37	95.83	96.61	95.71	93.33	91.96	92.26	88.99	85.83	86.55
3	xxxxx	ø	<b>55.46</b>	<b>93.19</b>	<b>90.95</b>	<b>94.25</b>	<b>92.54</b>	<b>91.15</b>	<b>91.03</b>	<b>92.54</b>	<b>89.84</b>	<b>88.89</b>	<b>87.66</b>	<b>86.11</b>	<b>81.43</b>	<b>82.14</b>
		a	50.36	95.36	90.54	95.18	91.49	91.90	91.25	92.62	89.46	88.87	88.81	87.20	82.38	84.17
		b	57.08	92.14	92.86	96.85	95.42	92.62	93.69	95.36	92.80	92.86	89.76	90.00	84.88	84.23
		c	58.93	92.08	89.46	90.71	90.71	88.93	88.15	89.64	87.26	84.94	84.40	81.13	77.02	78.04
4	xxxxx	ø	<b>56.45</b>	<b>91.87</b>	<b>90.79</b>	<b>93.13</b>	<b>91.73</b>	<b>90.22</b>	<b>88.71</b>	<b>88.27</b>	<b>85.97</b>	<b>85.34</b>	<b>86.03</b>	<b>83.57</b>	<b>81.31</b>	<b>81.09</b>
		a	47.56	90.18	88.27	91.25	90.54	88.99	88.21	89.05	86.96	85.48	87.32	84.88	82.68	82.20
		b	62.86	93.99	93.69	95.95	96.31	95.83	91.90	90.30	89.76	89.76	89.70	86.79	85.12	84.70
		c	58.93	91.43	90.42	92.20	88.33	85.83	86.01	85.48	81.19	80.77	81.07	79.05	76.13	76.37
5	xxxxx	ø	<b>59.50</b>	<b>93.77</b>	<b>91.79</b>	<b>95.00</b>	<b>92.22</b>	<b>93.67</b>	<b>93.15</b>	<b>93.17</b>	<b>90.60</b>	<b>89.27</b>	<b>88.79</b>	<b>86.39</b>	<b>83.77</b>	<b>83.79</b>
		a	51.19	91.19	89.40	93.10	93.27	93.33	92.86	91.67	89.94	88.63	88.57	86.79	83.99	84.64
		b	61.96	95.18	92.80	96.61	90.77	93.81	95.12	96.01	92.38	91.79	90.48	87.32	83.27	82.62
		c	65.36	94.94	93.15	95.30	92.62	93.87	91.49	91.85	89.46	87.38	87.32	85.06	84.05	84.11

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
6	xxxxx	ø	<b>52.04</b>	<b>94.44</b>	<b>92.30</b>	<b>95.32</b>	<b>95.26</b>	<b>94.60</b>	<b>95.81</b>	<b>95.04</b>	<b>92.66</b>	<b>93.04</b>	<b>92.08</b>	<b>89.92</b>	<b>87.86</b>	<b>88.31</b>
		a	46.25	92.74	90.54	95.00	93.57	93.87	95.36	93.81	91.85	91.79	91.13	87.20	84.29	84.46
		b	51.55	95.06	93.69	96.19	96.79	95.00	96.37	96.19	93.93	93.93	93.33	90.89	88.99	90.71
		c	58.33	95.54	92.68	94.76	95.42	94.94	95.71	95.12	92.20	93.39	91.79	91.67	90.30	89.76
7	xxxxx	ø	<b>56.01</b>	<b>94.27</b>	<b>91.87</b>	<b>95.30</b>	<b>92.98</b>	<b>91.23</b>	<b>93.63</b>	<b>92.96</b>	<b>91.51</b>	<b>90.50</b>	<b>90.95</b>	<b>88.13</b>	<b>86.21</b>	<b>84.44</b>
		a	45.60	93.15	91.25	94.05	90.77	86.13	91.67	92.62	91.55	90.00	90.60	88.27	85.36	83.39
		b	59.70	94.17	91.25	94.88	92.98	92.86	93.33	91.73	90.30	89.29	89.40	85.18	85.00	82.32
		c	62.74	95.48	93.10	96.96	95.18	94.70	95.89	94.52	92.68	92.20	92.86	90.95	88.27	87.62
8	xxxxx	ø	<b>56.15</b>	<b>92.12</b>	<b>89.09</b>	<b>93.31</b>	<b>91.81</b>	<b>91.57</b>	<b>90.04</b>	<b>88.59</b>	<b>85.85</b>	<b>85.44</b>	<b>86.03</b>	<b>83.04</b>	<b>79.33</b>	<b>80.73</b>
		a	50.06	91.43	89.46	92.08	89.70	90.18	90.18	88.75	86.49	85.89	86.90	83.10	78.99	80.18
		b	57.44	89.94	84.76	91.90	92.02	91.49	87.56	83.57	80.77	79.88	79.58	74.82	74.23	74.76
		c	60.95	95.00	93.04	95.95	93.69	93.04	92.38	93.45	90.30	90.54	91.61	91.19	84.76	87.26
9	xxxxx	ø	<b>55.42</b>	<b>93.97</b>	<b>91.43</b>	<b>94.48</b>	<b>93.25</b>	<b>92.78</b>	<b>92.48</b>	<b>93.00</b>	<b>90.83</b>	<b>88.19</b>	<b>88.43</b>	<b>85.63</b>	<b>80.93</b>	<b>79.96</b>
		a	48.75	94.58	92.38	93.51	93.33	92.32	92.68	93.15	90.95	88.93	89.64	90.06	85.06	84.29
		b	56.85	92.08	89.40	93.81	91.19	92.44	92.80	93.81	91.61	87.56	88.10	81.61	75.77	73.27
		c	60.65	95.24	92.50	96.13	95.24	93.57	91.96	92.02	89.94	88.10	87.56	85.24	81.96	82.32
10	xxxxx	ø	<b>55.08</b>	<b>90.56</b>	<b>90.10</b>	<b>94.23</b>	<b>92.02</b>	<b>91.61</b>	<b>90.71</b>	<b>89.31</b>	<b>86.57</b>	<b>85.81</b>	<b>85.34</b>	<b>83.23</b>	<b>78.71</b>	<b>78.47</b>
		a	46.31	89.23	87.98	91.90	90.54	89.70	88.87	87.62	85.00	82.26	83.33	82.56	76.73	74.23
		b	57.68	92.68	90.54	94.70	92.86	91.90	93.81	91.79	88.63	88.51	88.15	84.29	79.82	80.18
		c	61.25	89.76	91.79	96.07	92.68	93.21	89.46	88.51	86.07	86.67	84.52	82.86	79.58	81.01

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
11	xxxxx	c	45.71	91.67	89.35	90.60	87.38	87.44	86.07	85.42	79.70	76.37	73.99	70.48	65.71	59.82
12	xxxxx	c	71.37	94.58	88.87	95.36	93.69	92.02	91.55	90.83	88.33	88.99	86.85	82.86	82.26	78.04

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)

Sample	Cross		Period													
	Way of rearing		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	XXXXXX	ø	<b>52.66</b>	<b>58.45</b>	<b>59.62</b>	<b>63.06</b>	<b>63.04</b>	<b>62.82</b>	<b>63.67</b>	<b>64.98</b>	<b>63.77</b>	<b>63.90</b>	<b>64.14</b>	<b>63.96</b>	<b>64.72</b>	<b>64.46</b>
		a	53.29	59.81	60.60	62.96	64.00	64.45	64.62	66.32	64.76	64.93	65.00	64.83	66.02	65.08
		b	53.54	58.00	59.00	63.73	62.82	61.44	63.06	64.00	63.21	63.49	63.50	63.49	64.02	63.99
		c	51.07	57.53	59.33	62.47	62.38	62.69	63.44	64.84	63.42	63.33	63.97	63.62	64.23	64.39
2	XXXXXX	ø	<b>53.07</b>	<b>58.54</b>	<b>59.55</b>	<b>63.56</b>	<b>63.74</b>	<b>63.95</b>	<b>64.98</b>	<b>65.39</b>	<b>64.60</b>	<b>64.81</b>	<b>64.45</b>	<b>64.31</b>	<b>64.17</b>	<b>64.55</b>
		a	53.91	59.87	61.46	64.20	64.84	65.06	66.38	66.43	65.51	66.09	65.61	64.89	64.60	65.57
		b	52.97	58.26	58.29	63.25	63.31	63.79	64.49	65.16	64.19	64.50	64.32	64.17	64.72	64.35
		c	52.28	57.50	58.98	63.25	63.01	63.06	64.05	64.60	64.09	63.83	63.40	63.86	63.03	63.78
3	XXXXXX	ø	<b>53.51</b>	<b>59.73</b>	<b>59.76</b>	<b>63.30</b>	<b>63.32</b>	<b>64.00</b>	<b>64.62</b>	<b>64.92</b>	<b>63.80</b>	<b>65.00</b>	<b>64.44</b>	<b>63.64</b>	<b>64.39</b>	<b>64.71</b>
		a	55.21	60.99	60.74	63.68	63.52	64.90	64.93	65.07	64.67	65.12	64.49	63.68	64.54	65.40
		b	53.87	60.38	60.31	63.65	64.25	64.50	65.50	65.85	64.32	66.37	65.32	65.04	65.36	65.47
		c	51.57	57.95	58.25	62.52	62.19	62.57	63.33	63.76	62.36	63.45	63.38	62.37	63.15	63.25
4	XXXXXX	ø	<b>51.37</b>	<b>57.51</b>	<b>58.24</b>	<b>61.60</b>	<b>62.07</b>	<b>62.13</b>	<b>62.40</b>	<b>63.30</b>	<b>62.86</b>	<b>63.10</b>	<b>62.92</b>	<b>62.99</b>	<b>63.31</b>	<b>63.72</b>
		a	53.16	58.25	58.67	62.03	63.64	62.82	62.28	63.48	62.67	63.42	63.40	63.25	63.87	64.08
		b	50.33	56.15	57.78	60.94	61.38	61.60	62.36	63.11	62.53	63.42	62.90	62.71	63.09	63.70
		c	50.81	58.14	58.28	61.89	61.22	62.03	62.55	63.31	63.49	62.34	62.42	63.04	62.97	63.36
5	XXXXXX	ø	<b>51.23</b>	<b>57.69</b>	<b>58.84</b>	<b>61.90</b>	<b>62.19</b>	<b>63.03</b>	<b>63.57</b>	<b>64.21</b>	<b>63.40</b>	<b>63.70</b>	<b>64.02</b>	<b>64.10</b>	<b>64.37</b>	<b>64.59</b>
		a	51.04	58.40	59.08	60.96	62.70	63.20	63.55	64.36	63.38	63.86	63.88	63.39	64.14	65.16
		b	50.00	57.49	58.82	62.59	61.76	63.41	64.29	64.57	63.21	64.01	64.58	64.81	64.70	64.85
		c	52.65	57.26	58.64	62.12	62.00	62.43	62.87	63.71	63.61	63.24	63.56	64.02	64.28	63.88

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)

Sample	Cross		Period													
	Way of rearing		1	2	3	4	5	6	7	8	9	10	11	12	13	14
6	XXXXX	ø	<b>51.23</b>	<b>56.18</b>	<b>57.83</b>	<b>61.30</b>	<b>62.08</b>	<b>62.66</b>	<b>63.65</b>	<b>64.16</b>	<b>63.34</b>	<b>63.86</b>	<b>63.88</b>	<b>63.84</b>	<b>64.70</b>	<b>64.64</b>
		a	52.03	56.79	58.26	61.90	62.78	63.75	64.40	65.10	63.97	64.63	65.00	64.13	66.10	65.32
		b	50.13	55.69	57.97	61.51	62.09	62.71	63.65	64.08	62.96	64.11	63.78	63.83	64.57	64.55
		c	51.69	56.07	57.25	60.48	61.36	61.54	62.91	63.27	63.10	62.77	62.84	63.58	63.58	64.11
7	XXXXX	ø	<b>53.07</b>	<b>58.40</b>	<b>58.83</b>	<b>62.32</b>	<b>62.33</b>	<b>62.71</b>	<b>63.89</b>	<b>64.33</b>	<b>63.47</b>	<b>64.02</b>	<b>63.95</b>	<b>63.89</b>	<b>64.39</b>	<b>64.67</b>
		a	53.66	59.22	59.48	63.56	63.83	63.73	64.49	64.39	63.77	64.48	64.04	64.24	64.92	65.16
		b	53.38	58.54	58.76	62.69	61.83	61.58	64.42	64.97	63.96	64.50	64.62	64.35	65.00	65.65
		c	52.22	57.48	58.26	60.77	61.36	62.91	62.87	63.66	62.69	63.11	63.18	63.14	63.28	63.31
8	XXXXX	ø	<b>53.55</b>	<b>58.84</b>	<b>58.01</b>	<b>62.63</b>	<b>62.50</b>	<b>63.29</b>	<b>63.62</b>	<b>65.44</b>	<b>63.60</b>	<b>63.99</b>	<b>63.67</b>	<b>63.71</b>	<b>64.66</b>	<b>64.70</b>
		a	53.64	58.46	58.97	62.75	61.96	63.40	63.93	65.56	63.70	63.23	63.28	63.62	65.43	64.67
		b	51.21	59.14	56.56	62.38	63.07	63.18	63.72	67.72	63.28	64.88	64.15	64.02	65.55	65.12
		c	55.50	58.91	58.26	62.78	62.44	63.29	63.23	63.12	63.79	63.89	63.55	63.53	63.36	64.36
9	XXXXX	ø	<b>53.22</b>	<b>59.44</b>	<b>60.30</b>	<b>64.09</b>	<b>64.58</b>	<b>64.40</b>	<b>65.15</b>	<b>65.79</b>	<b>65.45</b>	<b>65.12</b>	<b>64.99</b>	<b>65.22</b>	<b>65.47</b>	<b>66.22</b>
		a	53.84	59.94	60.46	64.38	64.47	64.87	65.48	65.29	65.16	65.00	64.71	65.32	65.07	65.95
		b	51.99	59.49	59.86	64.39	65.45	64.64	65.54	67.05	65.96	65.82	66.11	65.98	66.88	67.97
		c	53.72	58.90	60.54	63.51	63.94	63.65	64.46	64.97	65.25	64.49	64.07	64.33	64.67	64.96
10	XXXXX	ø	<b>53.25</b>	<b>59.85</b>	<b>60.43</b>	<b>63.97</b>	<b>64.58</b>	<b>64.49</b>	<b>65.10</b>	<b>66.15</b>	<b>65.27</b>	<b>65.60</b>	<b>65.32</b>	<b>65.65</b>	<b>65.93</b>	<b>66.15</b>
		a	52.55	60.54	62.00	65.10	65.49	65.10	65.46	66.45	65.77	66.21	65.85	65.61	65.64	66.35
		b	53.83	60.06	59.46	63.83	64.90	65.07	65.80	67.04	65.66	66.14	66.30	66.75	67.36	66.72
		c	53.27	58.99	59.93	63.12	63.42	63.35	64.03	64.93	64.31	64.54	63.77	64.58	64.71	65.38

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

**Average weight of eggs**

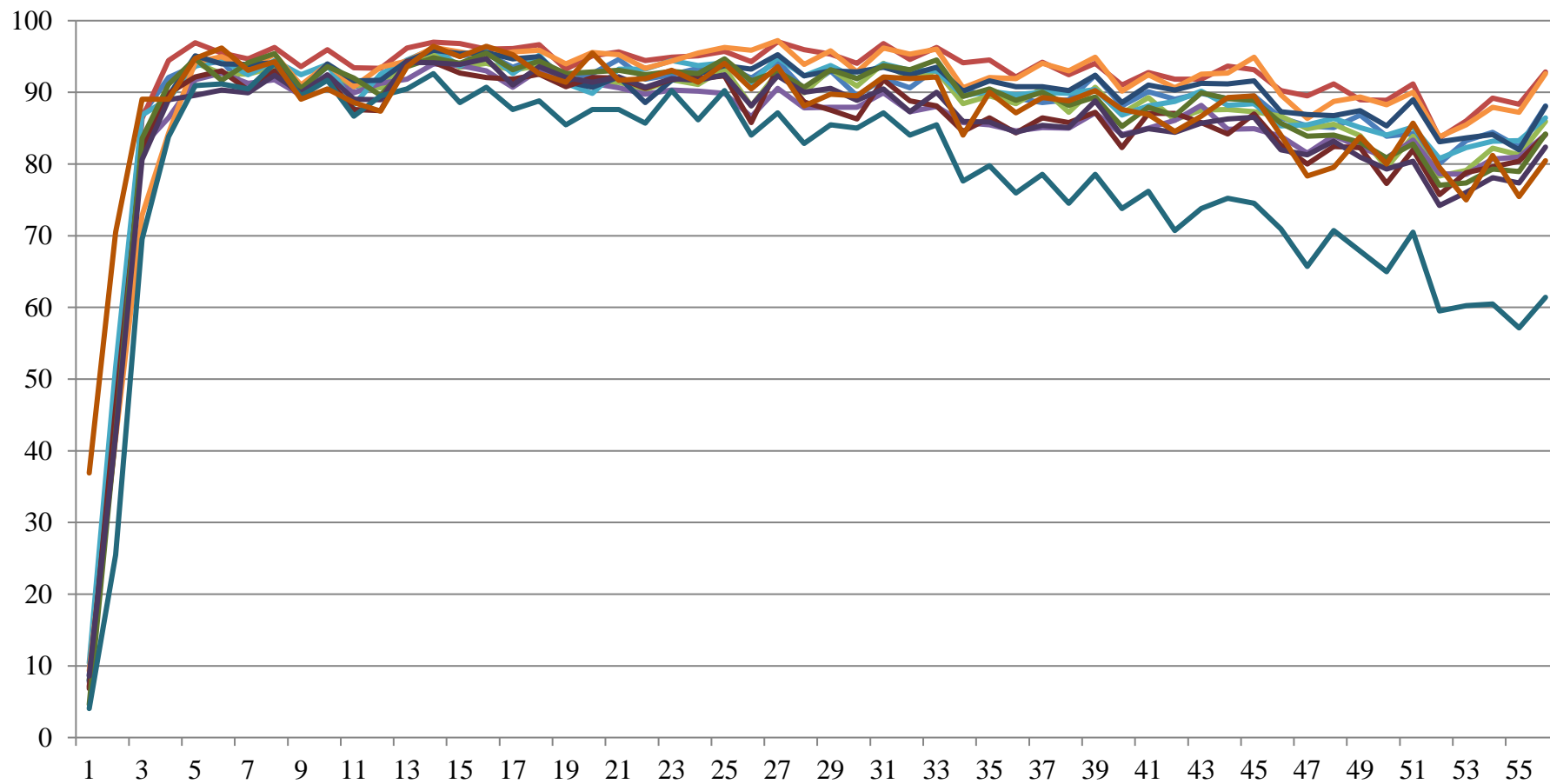
**Tab. No. 12 (page 3)**

in four weeks long periods (g)

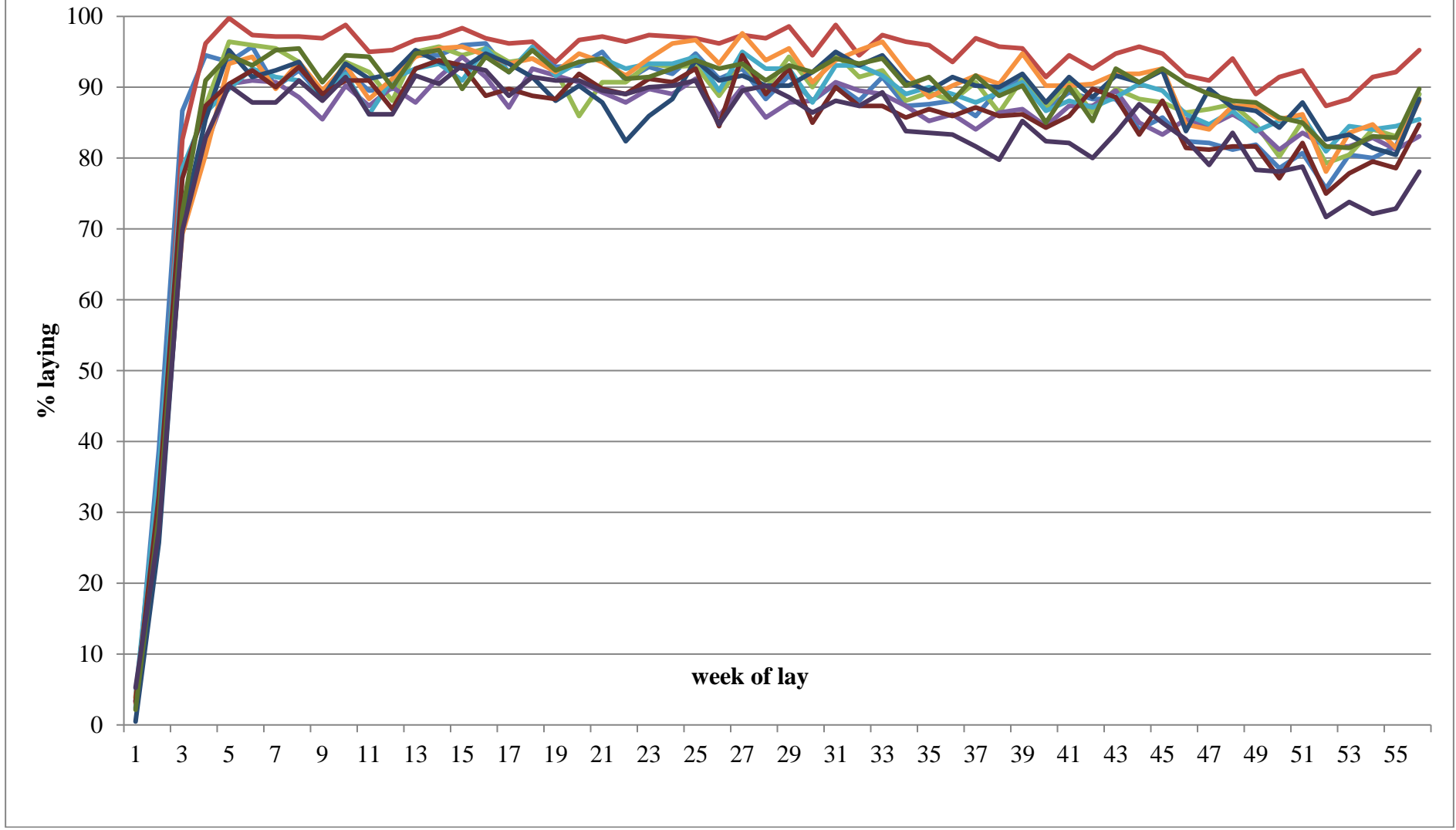
Sample	Cross		Period													
	Way of rearing		1	2	3	4	5	6	7	8	9	10	11	12	13	14
11	xxxxx	c	49.47	54.97	56.42	61.99	61.34	63.43	64.96	65.08	65.64	66.16	66.35	65.86	68.06	69.19
12	xxxxx	c	52.13	56.21	57.64	61.47	62.31	62.29	64.54	65.03	65.19	66.06	64.96	65.28	66.26	65.98

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

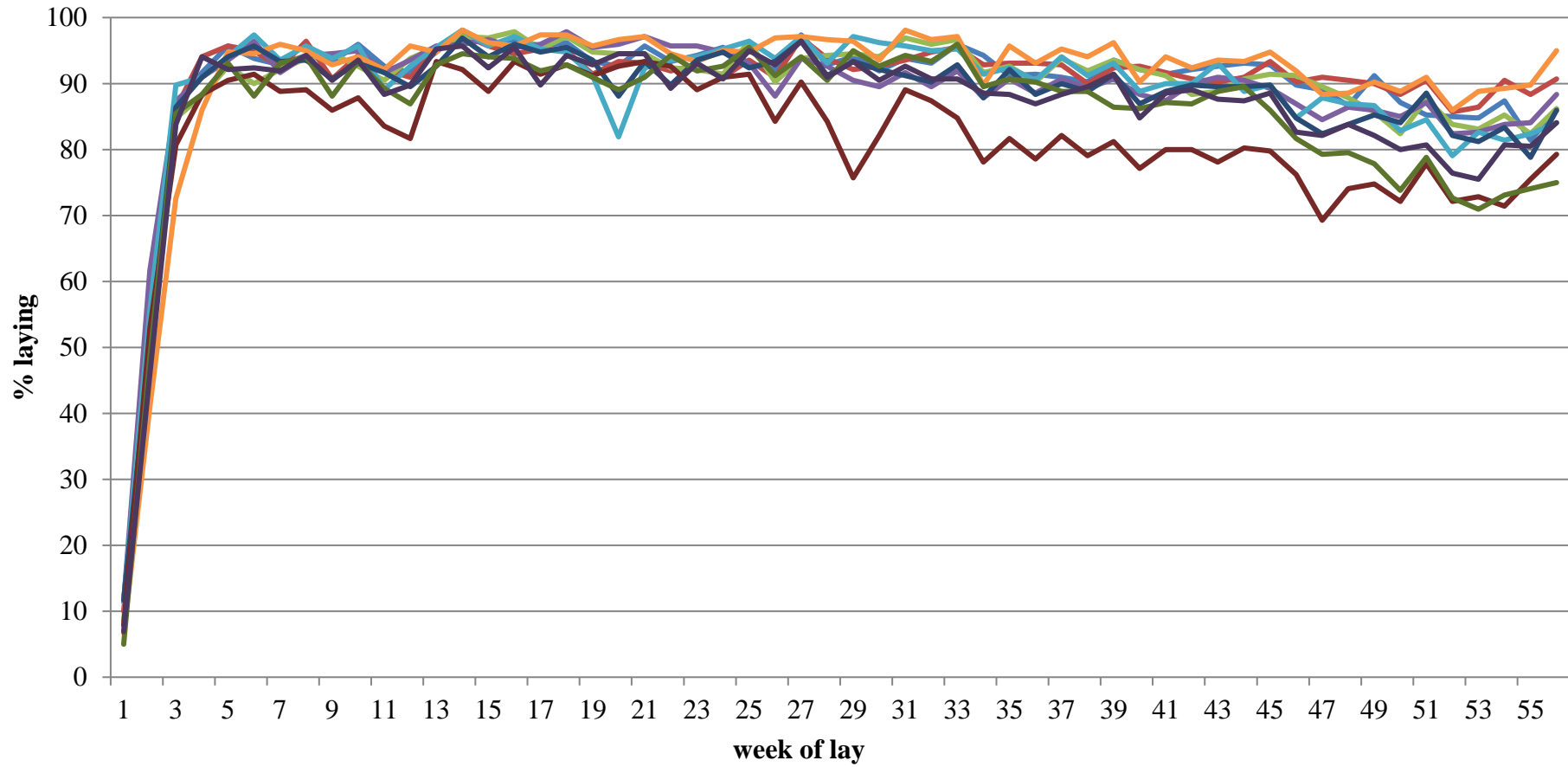
**Graph no. 1: intenzity of laying ( $\theta$ )**



**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: intenzity of laying (way of rearing: c - cages + beak trimming)**

