



MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE  
státní podnik, ÚSTRAŠICE

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## **THE COMPLETE REPORT**

**OF THE LII. INTERNATIONAL TEST  
OF BROILER BREEDERS AND THEIR PROGENY**

**2023 – 2024**

**Ústrašice, July 2024**

## 1 The list of participants

Sample	Cross	Breeding organization	State
1	XXXXX	XXXXX	XXXXX
2	XXXXX	XXXXX	XXXXX
3	XXXXX	XXXXX	XXXXX
4	XXXXX	XXXXX	XXXXX
5	XXXXX	XXXXX	XXXXX
6	XXXXX	XXXXX	XXXXX
7	XXXXX	XXXXX	XXXXX
8	XXXXX	XXXXX	XXXXX
9	XXXXX	XXXXX	XXXXX
10	XXXXX	XXXXX	XXXXX
11	XXXXX	XXXXX	XXXXX
12	XXXXX	XXXXX	XXXXX

## 2 The basic tests information

### 2.1 The basic dates

Rearing 1 – 22 weeks (1 – 154 days): 16 March 2023 – 16 August 2023  
Production 23 – 62 weeks (155 – 434 days): 17 August 2023 – 22 May 2024  
End of the test: 7 July 2024

### 2.2 Location of the test

Mezinárodní testování drůbeže, s.p. Ústrašice, Czech Republic

### 2.3 Material

There were 12 genotypes compared in the test.  
Number of birds in one groups: 270 females of female line and 75 males of male line.

### 3 The rearing of pullets

#### 3.1 Samples and their location

Females were reared in three pens by 90 chicks, males in separate pens by 75 chicks. Numbers of birds were reduced in 5<sup>th</sup> week of age to specified numbers. Females were reduced to 240 birds, i.e. 80 birds per pen, males to 45 birds in one entry. Small or too big birds, ill ones and sexing errors were culled. Females were graded to three pens with low, medium and high bodyweight. All three pens got to the same bodyweight level in a few weeks by using different feed amounts.

Males were transferred to production house in 19 weeks of age according to the dedicated system; each entry was split to four pens (i.e. 9 males per pen). Females were mated to males by one week later. After the final culling at 22 weeks of age the numbers were 220 females and 28 males per entry. Males were reduced later to 20 birds.

#### 3.2 Housing system

Pullets were kept in windowless house with full control of the environment. There were used automated heating and ventilation. There is controlled ventilation in the houses which assures the air exchange 6 cubic metres/hour/1kg live weight in summer time with lower levels in winter. Relative humidity is 60-65%.

Manually filled tube feeders and nipple automatic drinkers were used.

#### 3.3 Conditions of the environment

##### Temperature

Age	Bird level (°C)	House (°C)
Week 1	38	30
Week 2	32	28
Week 3	25	22
Week 4	21	21
Week 5	20	20
From week 6	18	18

##### Stocking density

Age	♀	♂
1 – 35 days	10.7	8.9
36 – 126 days	9.5	5.3
127 – 154 days	4.8	4.8

### 3.4 Lighting programme

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

Age	Light from - to	Hours of light
Day 1 - 3	7 <sup>00</sup> – 6 <sup>00</sup>	23
Day 4	7 <sup>00</sup> – 4 <sup>00</sup>	21
Day 5	7 <sup>00</sup> – 2 <sup>00</sup>	19
Day 6	7 <sup>00</sup> – 24 <sup>00</sup>	17
Day 7	7 <sup>00</sup> – 22 <sup>00</sup>	15
Day 8 - 14	7 <sup>00</sup> – 19 <sup>00</sup>	12
Day 15 - 147	7 <sup>00</sup> – 15 <sup>00</sup>	8
Day 148 - 154	7 <sup>00</sup> – 18 <sup>00</sup>	11

Light intensity in first three days was 60 lux/sq. m. and then till the end of rearing 5 lux/sq. m.

### 3.5 Feeding and watering

There were used four different feed mixtures in the test. Feed was produced in xxxxx

Day 1 – 14:	K1 – starter, pellets
Day 15 – 35:	K2 – pellets
Day 36 – 105:	KZK – pellets
Day 106 – 154:	NP-0 – pellets

#### Diet formulas

	K1	K2	KZK	NP-0
<b>Components (%)</b>				
Wheat	41.09	51.47	46.23	42.92
Maize	22.50	18.00	15.00	23.00
Oat	1.00	1.00	9.60	5.00
Sunflower meal	1.00	3.00	4.60	4.20
Wheat bran	-	2.70	14.00	10.20
Soybean meal	29.70	19.75	7.00	10.50
Soybean oil	1.27	0.75	0.20	0.69
Salt	0.23	0.20	0.15	0.21
Limestone	1.78	1.80	2.00	2.14
Monocalcium phosphate	0.63	0.65	0.41	0.38
Sodium bicarbonate	0.17	0.22	0.21	0.20
Vitamin premix	0.63	0.46	0.60	0.56
<b>Nutrient content (calculated values)</b>				
Protein	20.48	17.74	14.40	15.09
Fat	3.38	2.80	2.50	3.00
Lysin	0.95	0.71	0.53	0.56
Methionin	0.44	0.34	0.30	0.33
Calcium	1.07	1.07	1.09	1.14
Phosphorus	0.43	0.43	0.42	0.38
Metabolizable energy MJ/kg	12.16	12.14	10.99	11.40

#### Feeding management

First week ad libitum. From 2<sup>nd</sup> week feeding was based on bodyweight. Chicks were weighed weekly (20% of the total number) and feed amount adjusted for each pen separately, depending on the development of bodyweight and comparison with the standard bodyweight.

Feed was distributed daily to pan feeders in first three weeks, since four weeks of age pellets were spread on the litter.

Since 4<sup>th</sup> week oats was fed on the litter in following amount:

females – 1,25 g/bird/day

males – 2,20 g/bird/day

The oats was fed once a day.

If the bodyweight is over the weekly standard, the same feed level is used for one more week. If the actual bodyweight is below the weekly standard, feed level is increased by the same % as the % difference of bodyweight.

After the transfer to production house feeding was changed to separate sex feeding – female troughs with grids and male pan feeders. Oats was still fed on the litter.

### **Drinking management**

Nipples were used in rearing period. Water was available the whole day.

### **3.6 Veterinary precautions**

The house was disinfected by 1% xxxxx. As a prevention permanganate was given to the birds as well as vitamin – xxxxx.

### **Vaccination programme**

<b>Age</b>	<b>Disease</b>
Day 1	Marek`s disease + infectious bronchitis (IB)
Days 5	Coccidiosis
Days 11	Salmonellosis
Days 15	Infectious bronchitis (IB)
Days 19	Infectious bursal disease (Gumboro)
Days 26	Infectious bursal disease (Gumboro)
Days 33	Newcastle disease (ND)
Week 6	Escherichia coli infections (E. coli)
Week 7	Infectious bronchitis (IB) + newcastle disease (ND)
Week 8	Salmonellosis
Week 9	Reovirus infections
Week 10	Avian encephalomyelitis (AE)
Week 11	Infectious bronchitis (IB)
Week 12	Chicken anaemia virus (CAV)
Week 13	Salmonellosis
Week 14	Swollen head syndrome
Week 15	Infectious bronchitis (IB)
Week 16	Escherichia coli infections (E. coli)
Week 19	Salmonellosis + (Swollen head syndrome + newcastle disease (ND) + Infectious bursal disease (Gumboro) + infectious bronchitis (IB) + Egg-drop syndrome (EDS`76) + Reovirus infections)

## 4 The production period

### 4.1 Samples and their location

Females were moved to production houses in the same number as were housed in rearing house, male were dynamically added to females only 9 birds in a box. By the beginning of lay the animals had time to become acquainted with the new environment and a different way of feeding and drinking.

Final selection before lay was done at 22 weeks. One sample was placed into four boxes in two halls according to the test station. To lay control was included in each sample 220 females and 28 males, therefore in each box were 55 females and 7 males (who were later reduced to 20 males, i.e. 5 males per box). Selections are carried out primarily by negative selection by health and exteriér, as well as by live weight of each bird.

### 4.2 Housing system

Animals were kept in windowless house with full control of the environment. There were used automated heating and ventilation.

Manually filled tube feeders and nipple automatic drinkers were used.

### 4.3 Conditions of the environment

#### Temperature

Age	House (°C)
155 – 434 days	18

#### Stocking density

Age	♀ and ♂
155 – 434 days	4.2

### 4.4 Lighting programme

Age	Light from - to	Hours of light
Week 22 (Day 148 – 154)	7 <sup>00</sup> – 19 <sup>00</sup>	12
From week 23 (from day 155)	7 <sup>00</sup> – 20 <sup>00</sup>	13

### 4.5 Feeding and watering

Feed was produced in xxxxx

Day 155 – 245: NP-1 – crusher  
Day 246 – 350: NP-2 – crusher  
Day 351 – 434: NP-2 – crusher, new

	NP – 1	NP – 2	NP – 2 new
<b>Components (%)</b>			
Wheat	41.75	40.56	37.49
Maize	24.00	24.00	24.00
Soybean meal	13.60	14.00	10.50
Oat	5.00	5.00	4.00
Soya oil	2.45	2.78	4.22
Monocalcium phosphate	0.40	0.30	0.28
Limestone	2.16	2.35	2.33
Limestone–roughly ground	5.10	5.50	5.50
Sunflower meal	4.40	4.50	10.60
Salt	0.26	0.26	0.26
Sodium sulfate	0.13	0.13	0.13
Premixes	0.75	0.62	0.69
<b>Nutrient content</b>			
Protein (g/kg)	15.00	15.00	15.01
Fat (g/kg)	4.57	4.89	6.19
Lysine (g/kg)	0.62	0.59	0.58
Methionine (g/kg)	0.35	0.33	0.36
Calcium (g/kg)	2.99	3.19	3.19
Phosphorus dig. (g/kg)	0.36	0.34	0.34
Vitamin A (IU/kg)	10000.00	10000.00	10000.00
Vitamin D3 (IU/kg)	3000.00	3000.00	3000.00
Metabolizable energy (MJ/kg)	11.70	11.70	11.80

#### **Feeding management**

The flock was fed daily at 7 a.m. separately males and females. Females were using troughs with grids, males tube pan feeders hanging higher. Oats (3g/birds) was fed daily at 12 a.m. on the litter. In the afternoon he was flung out into the litter grit.

#### **Drinking management**

Nipples were used in production period. Water was available the whole day.

#### **4.6 Veterinary precautions**

The house was disinfected by 1% Virkon liquid, then treated against red mites and finally by xxxxx aerosol on litter before the placement of the flock.

During the laying has been given the vaccine IB (every 6 weeks), IB 88 (24<sup>th</sup> and 42<sup>th</sup> week), IB QX (30<sup>th</sup> and 48<sup>th</sup> week), IB Primer (36<sup>th</sup> and 54<sup>th</sup> week).

From week 32, KOMBISOL D3 (every 2 weeks), AQUAVIT E + Se (every 6 weeks) and KOMBISOL A were administered.

## 5 The growing test of progeny

### 5.1 Samples and their location

Four progeny fattening test of 32 days were performed for each sample, with the 3<sup>rd</sup> fattening test extended to 39 days. In the prolonged test live weight and feed consumption were observed at 32 and 39 days of age.

Carcass analysis was performed on 20 cocks and 20 hens from each genotype. Breast muscles was weighed without the skin and the thigh muscles with the bone and the skin.

720 hatching eggs were set, 560 broilers were sexed and placed always 280 females (in two pens) and 280 males (in two pens). In 3<sup>rd</sup> part fattening test there were 520 birds – 260 females (in two pens) and 260 males (in two pens).

### 5.2 Housing system

Chickens were kept in windowless house with full control of the environment. There were used automated heating and ventilation.

Manually filled tube feeders and nipple automatic drinkers were used.

### 5.3 Conditions of the environment

#### Stocking density

	broilers per square meter
1 <sup>st</sup> , 2 <sup>nd</sup> and 4 <sup>th</sup> part fattening test	17.2
3 <sup>rd</sup> part fattening test	16.0

### 5.4 Lighting programme

	Age	Hours of light	Hours of darkness
1 <sup>st</sup> , 2 <sup>nd</sup> and 4 <sup>th</sup> part fattening test	Day 1 – 7	23	1
	Day 8 – 29	18	6
	Day 30 – 32	23	1
3 <sup>rd</sup> part fattening test	Day 1 – 7	23	1
	Day 8 – 36	18	6
	Day 37 – 39	23	1

### 5.5 Feeding and watering

Feed was produced in xxxxx

1 <sup>st</sup> , 2 <sup>nd</sup> and 4 <sup>th</sup> part fattening test:	Day 1 – 10	Starter (BR1)
	Day 11 – 21	Grower (BR2-A)
	Day 22 – 28	Grower (BR2-B)
	Day 29 – 32	Finisher (BR3)
3 <sup>rd</sup> part fattening test:	Day 1 – 10	Starter (BR1)
	Day 11 – 21	Grower (BR2-A)
	Day 22 – 28	Grower (BR2-B)
	Day 29 – 39	Finisher (BR3)



	<b>Starter BR1</b>	<b>Grower BR2-A</b>	<b>Grower BR2-B</b>	<b>Finisher BR3</b>
Age	Days 1 - 10	Days 11 - 21	Day 22 - 28	Day 29 – 32 (39)
<b>Components (%)</b>				
Wheat	42.86	50.55	52.46	57.88
Maize	15.00	13.00	13.00	10.00
Soybean extr.	32.25	30.95	28.90	26.65
Soybean extr. groats	3.00	-	-	-
Fish meal	1.50	-	-	-
MCP	0.75	0.35	0.27	0.18
Calcium carbonate	1.24	1.08	0.99	0.98
Salt	0.21	0.23	0.23	0.23
Soybean oil	1.30	1.58	1.20	1.00
Animal fat	-	0.50	1.28	1.72
Sodium sulfate	0.11	0.12	0.12	0.11
Cholinchlorid	0.04	0.04	0.03	0.03
Premixes of amino acid	0.87	0.88	0.80	0.80
Vitamin and mineral suppl.	0.87	0.72	0.72	0.42
<b>Nutrient content</b>				
Crude protein (g/kg)	231.60	211.56	203.94	197.15
Fat (g/kg)	38.53	39.48	43.42	45.20
Lysine dig. (g/kg)	12.81	11.63	11.02	10.59
Methionine dig. (g/kg)	6.39	5.77	5.52	5.27
Ca phyt. (g/kg)	9.39	7.70	7.19	6.91
P dig. (g/kg)	5.09	4.00	3.81	3.60
Vitamin A (IU/kg)	15000	10000	10000	10000
Vitamin D3 (IU/kg)	5000	5000	5000	5000
ME (MJ/kg)	12.30	12.60	12.80	13.00

## 5.6 Veterinary precautions

The chicken house was disinfected by xxxxx before the chick placement. On the first days old chickens was applied to the water solution of permanganate. On days 1 and 12 chickens were vaccinated with xxxxx.

## 6 The results

Tab. No.	1	Rearing period
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	13d	Statistical analysis – hens at 39 days of age

Rearing period

Tab. No. 1 (page 1)

Breed	Treat. No.	Sex	Number of birds at			Average live weight at		Feed consumption per 1 bird and day		
			1 day	35 days	154 days	1 day	154 days	1-35 days	36-154 days	1-154 days
			birds	birds	birds	g	g	g	g	g
xxxxx	1	♂	75	45	28	44.23	3694.29	44.27	81.25	69.09
		♀	270	240	220	42.75	2890.41	33.52	72.57	62.87
xxxxx	2	♂	75	45	28	44.39	3672.50	44.57	78.34	67.23
		♀	270	240	220	40.97	2841.77	33.20	73.08	63.17
xxxxx	3	♂	75	45	28	39.44	3624.29	42.21	72.81	62.74
		♀	270	240	220	36.18	2891.27	35.06	73.99	64.31
xxxxx	4	♂	75	45	28	37.89	3596.43	40.65	73.73	62.84
		♀	270	240	220	39.30	2760.95	33.87	66.53	58.41
xxxxx	5	♂	75	45	28	44.39	3603.21	43.31	79.46	67.57
		♀	270	240	220	40.94	2848.41	33.16	71.93	62.29
xxxxx	6	♂	75	45	28	43.75	3754.29	43.81	80.22	68.25
		♀	270	240	220	41.28	2819.82	33.74	73.33	63.49

Rearing period

Tab. No. 1 (page 2)

Breed	Treat. No.	Sex	Number of birds at			Average live weight at		Feed consumption per 1 bird and day		
			1 day	35 days	154 days	1 day	154 days	1-35 days	36-154 days	1-154 days
			birds	birds	birds	g	g	g	g	g
xxxxx	7	♂	75	45	28	39.44	3616.79	42.10	72.66	62.61
		♀	270	240	220	39.20	2770.50	32.84	66.53	58.15
xxxxx	8	♂	75	45	28	37.89	3556.79	40.95	73.76	62.97
		♀	270	240	220	39.20	2692.95	33.79	66.10	58.06
xxxxx	9	♂	75	45	28	43.91	3795.71	44.69	78.71	67.52
		♀	270	240	220	41.49	2902.23	33.51	73.19	63.32
xxxxx	10	♂	75	45	28	39.44	3538.93	42.21	72.44	62.49
		♀	270	240	220	39.30	2743.14	33.85	66.40	58.31
xxxxx	11	♂	75	45	28	43.75	3721.43	43.20	79.42	67.51
		♀	270	240	220	42.88	2968.18	33.60	72.64	62.93
xxxxx	12	♂	75	45	28	39.44	3781.79	40.46	72.42	61.90
		♀	270	240	220	40.63	2793.82	34.37	69.26	60.58

**Mortality during the rearing period**

**Tab. No. 2 (page 1)**

Breed	Treat. No.	Sex	Mortality - days								Mortality according causes														
			1 - 14		15 - 35		36 - 154		1 - 154		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
			birds	%	birds	%	birds	%	birds	%															
xxxxxx	1	♂	0	0.00	2	2.67	0	0.00	2	2.67							2							45	
		♀	0	0.00	2	0.74	1	0.42	3	1.11					1		1						1		47
xxxxxx	2	♂	1	1.33	0	0.00	2	4.44	3	4.00					1								2		44
		♀	1	0.37	1	0.37	4	1.67	6	2.22					1		1				1		3		44
xxxxxx	3	♂	0	0.00	7	9.33	0	0.00	7	9.33							7								40
		♀	0	0.00	0	0.00	8	3.33	8	2.96					4								4		42
xxxxxx	4	♂	0	0.00	1	1.33	1	2.22	2	2.67					1		1								45
		♀	0	0.00	5	1.85	1	0.42	6	2.22					1		5								44
xxxxxx	5	♂	0	0.00	1	1.33	1	2.22	2	2.67					1		1								45
		♀	3	1.11	1	0.37	1	0.42	5	1.85					2								3		45
xxxxxx	6	♂	0	0.00	0	0.00	2	4.44	2	2.67					1								1		45
		♀	0	0.00	1	0.37	0	0.00	1	0.37													1		49

- Causes:**
- |                        |                         |                                 |                                    |                                 |
|------------------------|-------------------------|---------------------------------|------------------------------------|---------------------------------|
| 1 - Viral diseases     | 4 - Parasitary diseases | 7 - Digestive tract diseases    | 10 - Locomotion apparatus diseases | 13 - Diverticulus inflammation. |
| 2 - Bacterial diseases | 5 - Culling             | 8 - Respiratory tract diseases  | 11 - Sudden death syndrome         | 14 - Stock reduction            |
| 3 - Fungal diseases    | 6 - Injuries            | 9 - Reproductive tract diseases | 12 - Cannibalism                   |                                 |

**Mortality during the rearing period**

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

Breed	Treat. No.	Sex	Mortality - days								Mortality according causes														
			1 - 14		15 - 35		36 - 154		1 - 154		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
			birds	%	birds	%	birds	%	birds	%															
xxxxxx	7	♂	0	0.00	1	1.33	3	6.67	4	5.33					1		1				1	1			43
		♀	4	1.48	4	1.48	2	0.83	10	3.70					4		2				2	2			40
xxxxxx	8	♂	0	0.00	3	4.00	2	4.44	5	6.67					1		3				1				42
		♀	0	0.00	3	1.11	3	1.25	6	2.22					2		1					3			44
xxxxxx	9	♂	0	0.00	0	0.00	7	15.56	7	9.33					5						1	1			40
		♀	1	0.37	2	0.74	0	0.00	3	1.11					1		1					1			47
xxxxxx	10	♂	0	0.00	0	0.00	2	4.44	2	2.67					1						1				45
		♀	1	0.37	2	0.74	1	0.42	4	1.48							2					2			46
xxxxxx	11	♂	1	1.33	1	1.33	1	2.22	3	4.00					2		1								44
		♀	1	0.37	5	1.85	4	1.67	10	3.70					3		4					3			40
xxxxxx	12	♂	0	0.00	5	6.67	2	4.44	7	9.33					1		5				1				40
		♀	0	0.00	1	0.37	2	0.83	3	1.11							1					2			47

**Causes:** 1 - Viral diseases      4 - Parasitary diseases      7 - Digestive tract diseases      10 - Locomotion apparatus diseases      13 - Diverticulus inflammation.  
 2 - Bacterial diseases      5 - Culling      8 - Respiratory tract diseases      11 - Sudden death syndrome      14 - Stock reduction  
 3 - Fungal diseases      6 - Injuries      9 - Reproductory tract diseases      12 - Cannibalism

Statistical analysis - Cocks at 154 days of age

Tab. No. 3a

Breed	Treat. No.	Treat. size	Average live weight	Standard deviation	Coefficient of variation	Standard error of mean	Precision select. average	Standard error of coeff. of variation
			g/ks	g/ks	%	g/ks	%	%
xxxxx	1	28	3694.29	239.40	6.48	45.24	1.22	0.89
xxxxx	2	28	3672.50	215.30	5.86	40.69	1.11	0.80
xxxxx	3	28	3624.29	196.51	5.42	37.14	1.02	0.74
xxxxx	4	28	3596.43	183.97	5.12	34.77	0.97	0.70
xxxxx	5	28	3603.21	223.67	6.21	42.27	1.17	0.85
xxxxx	6	28	3754.29	281.47	7.50	53.19	1.42	1.03
xxxxx	7	28	3616.79	192.03	5.31	36.29	1.00	0.72
xxxxx	8	28	3556.79	228.54	6.43	43.19	1.21	0.88
xxxxx	9	28	3795.71	298.76	7.87	56.46	1.49	1.08
xxxxx	10	28	3538.93	349.48	9.88	66.05	1.87	1.36
xxxxx	11	28	3721.43	321.23	8.63	60.71	1.63	1.18
xxxxx	12	28	3781.79	297.41	7.86	56.21	1.49	1.08

Statistical analysis - Hens at 154 days of age

Tab. No. 3b

Breed	Treat. No.	Treat. size	Average live weight	Standard deviation	Coefficient of variation	Standard error of mean	Precision select. average	Standard error of coeff. of variation
			g/ks	g/ks	%	g/ks	%	%
xxxxx	1	220	2890.41	235.12	8.13	15.85	0.55	0.39
xxxxx	2	220	2841.77	191.97	6.76	12.94	0.46	0.32
xxxxx	3	220	2891.27	261.56	9.05	17.63	0.61	0.44
xxxxx	4	220	2760.95	256.92	9.31	17.32	0.63	0.45
xxxxx	5	220	2848.41	175.68	6.17	11.84	0.42	0.30
xxxxx	6	220	2819.82	229.99	8.16	15.51	0.55	0.39
xxxxx	7	220	2770.50	258.13	9.32	17.40	0.63	0.45
xxxxx	8	220	2692.95	222.49	8.26	15.00	0.56	0.40
xxxxx	9	220	2902.23	241.59	8.32	16.29	0.56	0.40
xxxxx	10	220	2743.14	278.04	10.14	18.75	0.68	0.49
xxxxx	11	220	2968.18	272.03	9.16	18.34	0.62	0.44
xxxxx	12	220	2793.82	331.03	11.85	22.32	0.80	0.57



**Body weight - rearing**

**Tab. No. 4 (page 1)**

Breed	Tr. No.	Sex	weeks																					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
xxxxx	1	♂	155	348	498	692	896	1180	1381	1460	1600	1800	1890	1940	2140	2220	2360	2560	2620	2890	3020	3080	3350	3700
		♀	165	306	392	496	642	784	892	1004	1143	1240	1287	1487	1603	1710	1807	1880	2067	2167	2250	2483	2560	2880
xxxxx	2	♂	163	345	480	682	894	1210	1351	1520	1590	1830	1990	2000	2080	2260	2350	2600	2670	2970	3110	3150	3370	3670
		♀	155	305	397	500	639	779	898	1010	1157	1240	1253	1437	1597	1720	1787	1863	1997	2167	2300	2430	2550	2843
xxxxx	3	♂	178	355	438	613	766	931	1076	1200	1390	1480	1750	1800	1900	2020	2210	2290	2350	2610	2750	2850	3250	3620
		♀	145	285	380	508	626	741	874	956	1080	1183	1257	1407	1530	1647	1750	1803	2050	2107	2230	2503	2610	2883
xxxxx	4	♂	163	318	458	683	831	1041	1196	1260	1420	1610	1790	1880	1940	2060	2220	2450	2500	2680	2770	2790	3200	3600
		♀	160	300	385	506	614	705	828	964	1067	1107	1190	1333	1470	1570	1657	1713	1797	1993	2133	2307	2540	2767
xxxxx	5	♂	155	333	505	684	885	1182	1333	1490	1640	1800	1900	1950	2140	2370	2440	2540	2720	2980	3100	3060	3270	3610
		♀	146	291	390	492	639	760	880	1023	1120	1257	1313	1457	1567	1707	1803	1877	2033	2147	2250	2500	2720	2840
xxxxx	6	♂	153	320	488	683	879	1100	1287	1460	1530	1690	1870	1980	2170	2360	2440	2580	2650	2960	3060	3020	3340	3760
		♀	145	295	395	502	625	766	883	1038	1133	1243	1270	1427	1543	1650	1790	1880	2020	2167	2270	2443	2557	2803

**Body weight - rearing**

**Tab. No. 4 (page 2)**

Breed	Tr. No.	Sex	weeks																					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
xxxxx	7	♂	183	335	443	622	794	1021	1151	1280	1350	1550	1740	1850	1970	2020	2300	2350	2380	2610	2730	2800	3200	3620
		♀	147	284	379	479	603	704	835	981	1050	1127	1220	1357	1527	1537	1660	1720	1843	2020	2120	2267	2547	2770
xxxxx	8	♂	180	355	465	639	832	1002	1209	1250	1370	1520	1700	1810	1950	2020	2260	2440	2480	2630	2740	2850	3260	3560
		♀	154	303	387	497	620	722	849	961	1060	1133	1230	1357	1463	1510	1633	1737	1827	2053	2147	2300	2577	2687
xxxxx	9	♂	165	390	490	684	875	1107	1312	1410	1560	1790	1880	1980	2210	2360	2430	2510	2650	2920	3070	3080	3330	3800
		♀	150	297	392	478	627	753	911	1060	1130	1227	1300	1453	1560	1690	1763	1827	1933	2163	2233	2487	2700	2903
xxxxx	10	♂	178	345	453	615	785	1019	1125	1220	1330	1610	1830	1850	1930	2020	2310	2350	2410	2650	2790	2870	3250	3540
		♀	158	313	390	492	617	727	841	996	1067	1110	1247	1380	1483	1550	1667	1723	1870	2110	2187	2273	2577	2760
xxxxx	11	♂	165	348	488	739	881	1115	1331	1400	1630	1830	1910	2040	2110	2280	2420	2620	2680	2840	3020	3010	3380	3720
		♀	170	298	387	484	628	756	891	1062	1130	1230	1310	1480	1593	1667	1813	1850	2033	2203	2243	2493	2620	2963
xxxxx	12	♂	188	325	458	646	806	988	1196	1270	1370	1590	1750	1790	1870	2040	2340	2410	2480	2690	2850	2850	3290	3790
		♀	162	307	394	488	639	750	877	1027	1090	1170	1247	1387	1497	1533	1673	1767	1887	2133	2193	2383	2507	2790

Breed	Tr. no.	Initial flock	Fertility	Hatchability		Average number of eggs per bird-housed			Average egg weight	Nr. of chicks hatched per 1 hen	Days at percentage of laying		Average live weight at the end of laying		Feed consumption during laying per		
				set	fert.	total	hatching eggs				30%	50%	cocks	hens	bird/day	egg	chick
				%	%	number	number	%			g	days	days	g	g	g	g
xxxxx	1	220	93.90	80.92	86.17	192.52	175.31	91.06	64.11	141.86	169	172	5161.18	4233.04	178.31	251.13	340.82
xxxxx	2	220	98.67	86.35	87.52	216.87	195.15	89.99	63.19	168.51	162	165	5021.58	4191.03	178.81	225.96	290.80
xxxxx	3	220	92.35	77.43	83.84	182.54	151.99	83.26	62.14	117.68	171	174	5244.50	4375.47	181.96	274.57	425.89
xxxxx	4	220	96.10	83.21	86.59	183.36	163.94	89.41	66.01	136.41	172	177	5290.00	4356.44	180.75	273.39	367.50
xxxxx	5	220	96.92	84.86	87.55	204.83	183.68	89.68	63.17	155.87	163	166	5212.63	4287.25	178.80	238.82	313.83
xxxxx	6	220	95.21	83.02	87.20	210.35	188.06	89.40	63.50	156.12	163	168	5342.78	4221.18	177.52	229.62	309.39
xxxxx	7	220	94.44	81.68	86.49	182.56	164.68	90.20	65.11	134.51	174	177	5134.00	4198.36	180.48	273.12	370.67
xxxxx	8	220	92.73	82.32	88.77	176.30	159.59	90.52	64.99	131.37	174	178	5254.00	4304.69	180.22	279.62	375.26
xxxxx	9	220	96.38	84.86	88.04	220.20	198.71	90.24	63.29	168.62	163	166	5120.53	4235.16	178.18	222.31	290.30
xxxxx	10	220	92.57	76.67	82.82	174.55	155.86	89.29	66.23	119.49	173	176	5152.22	4320.71	180.20	284.35	415.35
xxxxx	11	220	90.89	78.29	86.13	191.15	172.83	90.42	64.23	135.30	170	172	5147.22	4254.52	179.21	252.56	356.80
xxxxx	12	220	91.62	78.13	85.27	176.56	149.56	84.71	63.99	116.85	171	175	5152.11	4313.19	180.98	282.84	427.39

Egg weight in period (period = 28 days)

Tab. No. 6

Breed	Treat. No.	Period										Cumulate
		1	2	3	4	5	6	7	8	9	10	
xxxxx	1	53.36	57.01	60.78	62.80	65.56	67.60	68.98	70.43	70.20	71.41	64.11
xxxxx	2	53.69	56.91	59.63	61.36	64.22	65.51	67.31	68.80	69.35	70.01	63.19
xxxxx	3	52.16	55.02	58.95	61.87	63.21	64.87	66.72	67.77	68.42	69.11	62.14
xxxxx	4	53.58	57.95	62.34	65.53	67.76	69.95	71.70	72.17	73.07	72.75	66.01
xxxxx	5	54.49	56.84	59.68	61.79	64.40	65.78	67.54	68.33	69.35	70.31	63.17
xxxxx	6	53.71	56.74	59.42	62.32	64.21	65.75	67.80	69.41	70.25	70.59	63.50
xxxxx	7	53.14	57.43	61.99	64.27	67.04	68.08	69.66	70.92	71.55	72.18	65.11
xxxxx	8	52.54	57.08	61.64	64.16	66.99	68.63	70.40	71.02	71.73	72.65	64.99
xxxxx	9	53.75	56.98	60.07	61.75	64.67	65.77	67.40	68.20	69.57	69.62	63.29
xxxxx	10	53.00	58.18	63.10	65.21	68.27	69.92	71.34	72.55	73.91	72.97	66.23
xxxxx	11	53.27	57.09	61.01	63.20	65.47	67.63	68.86	70.27	71.12	71.79	64.23
xxxxx	12	54.56	56.35	60.65	63.02	65.60	67.13	68.87	70.54	70.71	71.29	63.99

1<sup>st</sup> period: 23<sup>th</sup> – 26<sup>th</sup> week of age

10<sup>th</sup> period: 59<sup>th</sup> – 62<sup>th</sup> week of age

**Mortality - hens in the laying period**

**Tab. No. 7**

Breed	Treat. No.	Initial flock	Final flock	Mortality in the laying period		Mortality according causes													
		birds	birds	birds	%	1	2	3	4	5	6	7	8	9	10	11	12	13	14
xxxxx	1	220	207	13	5.91							3		2	5	3			
xxxxx	2	220	213	7	3.18							3				4			
xxxxx	3	220	212	8	3.64										3	5			
xxxxx	4	220	216	4	1.82										2	2			
xxxxx	5	220	211	9	4.09							2			2	4			1
xxxxx	6	220	211	9	4.09							1		1	4	3			
xxxxx	7	220	214	6	2.73									1	1	4			
xxxxx	8	220	211	9	4.09										4	4			1
xxxxx	9	220	213	7	3.18									1		5			1
xxxxx	10	220	211	9	4.09										5	4			
xxxxx	11	220	208	12	5.45							1		2	2	6			1
xxxxx	12	220	210	10	4.55										7	3			

**Diagnostic:**

- |                        |                         |                                 |                                    |                                |
|------------------------|-------------------------|---------------------------------|------------------------------------|--------------------------------|
| 1 - Viral diseases     | 4 - Parasitary diseases | 7 - Digestive tract diseases    | 10 - Locomotion apparatus diseases | 13 - Diverticulus inflammation |
| 2 - Bacterial diseases | 5 - Tumors              | 8 - Respiratory tract diseases  | 11 - Sudden death syndrome         | 14 - culling and other causes  |
| 3 - Fungal diseases    | 6 - Injuries            | 9 - Reproductive tract diseases | 12 - Cannibalism                   |                                |

Statistical analysis - Cocks at 434 days of age

Tab. No. 8a

Breed	Treat. No.	Treatment size	Average live weight	Standard deviation	Coefficient of variation	Standard error of mean	Precision select. average	Standard error of coeff. of variation
			g/ks	g/ks	%	g/ks	%	%
xxxxx	1	17	5161.18	670.17	12.98	162.54	3.15	2.33
xxxxx	2	19	5021.58	331.20	6.60	75.98	1.51	1.10
xxxxx	3	20	5244.50	557.58	10.63	124.68	2.38	1.74
xxxxx	4	20	5290.00	544.27	10.29	121.70	2.30	1.69
xxxxx	5	19	5212.63	529.38	10.16	121.45	2.33	1.71
xxxxx	6	18	5342.78	737.35	13.80	173.79	3.25	2.41
xxxxx	7	20	5134.00	710.93	13.85	158.97	3.10	2.29
xxxxx	8	20	5254.00	609.55	11.60	136.30	2.59	1.91
xxxxx	9	19	5120.53	634.72	12.40	145.62	2.84	2.10
xxxxx	10	18	5152.22	598.88	11.62	141.16	2.74	2.02
xxxxx	11	18	5147.22	852.05	16.55	200.83	3.90	2.92
xxxxx	12	19	5152.11	780.07	15.14	178.96	3.47	2.58

Statistical analysis - Hens at 434 days of age

Tab. No. 8b

Breed	Treat. No.	Treatment size	Average live weight	Standard deviation	Coefficient of variation	Standard error of mean	Precision select. average	Standard error of coeff. of variation
			g/ks	g/ks	%	g/ks	%	%
xxxxx	1	207	4233.04	549.03	12.97	38.16	0.90	0.65
xxxxx	2	213	4191.03	483.71	11.54	33.14	0.79	0.57
xxxxx	3	212	4375.47	599.44	13.70	41.17	0.94	0.68
xxxxx	4	216	4356.44	561.08	12.88	38.18	0.88	0.63
xxxxx	5	211	4287.25	464.12	10.83	31.95	0.75	0.53
xxxxx	6	211	4221.18	453.18	10.74	31.20	0.74	0.53
xxxxx	7	214	4198.36	633.72	15.09	43.32	1.03	0.75
xxxxx	8	211	4304.69	725.46	16.85	49.94	1.16	0.85
xxxxx	9	213	4235.16	621.11	14.67	42.56	1.00	0.73
xxxxx	10	211	4320.71	780.52	18.06	53.73	1.24	0.91
xxxxx	11	208	4254.52	617.11	14.50	42.79	1.01	0.73
xxxxx	12	210	4313.19	710.08	16.46	49.00	1.14	0.83

**Hatchability**

**Tab. No. 9**

Breed	Treat. No.	Fertility	Hatchability		Birds housed	Average weight		
			Set	Fert.		hatch. eggs	1-day	
			%	%			♂	♀
						g	g	g
xxxxxx	1	93.90	80.92	86.17	2200	67.69	49.09	48.85
xxxxxx	2	98.67	86.35	87.52	2200	65.93	48.32	48.00
xxxxxx	3	92.35	77.43	83.84	2200	64.98	45.10	45.36
xxxxxx	4	96.10	83.21	86.59	2200	69.79	49.27	49.11
xxxxxx	5	96.92	84.86	87.55	2200	66.14	48.04	47.63
xxxxxx	6	95.21	83.02	87.20	2200	66.39	48.15	47.86
xxxxxx	7	94.44	81.68	86.49	2200	68.59	47.62	47.41
xxxxxx	8	92.73	82.32	88.77	2200	68.74	47.92	47.74
xxxxxx	9	96.38	84.86	88.04	2200	65.98	48.21	47.79
xxxxxx	10	92.57	76.67	82.82	2200	69.89	49.47	49.32
xxxxxx	11	90.89	78.29	86.13	2200	67.70	48.90	48.74
xxxxxx	12	91.62	78.13	85.27	2200	66.36	47.45	47.49



Broiler results at the age of 14 days

Tab. No. 10a

Breed	Treat. No.	Average live weight at 14 days								
		male			female			average		
		birds	live weight.	FCR	birds	live weight	FCR	birds	live weight	FCR
			g	g		g	g		g	
xxxxx	1	1098	563.33	1085.14	1091	521.46	1114.94	2189	542.46	1099.41
xxxxx	2	1097	565.00	1071.14	1092	521.04	1068.23	2189	543.07	1069.75
xxxxx	3	1093	557.92	1074.12	1091	521.88	1125.11	2184	539.91	1098.74
xxxxx	4	1090	569.58	1112.19	1094	535.25	1156.83	2184	552.39	1133.86
xxxxx	5	1096	553.33	1072.47	1085	520.83	1085.99	2181	537.17	1078.99
xxxxx	6	1097	561.67	1083.99	1078	526.67	1105.07	2175	544.32	1094.10
xxxxx	7	1092	570.83	1106.12	1089	538.96	1142.39	2181	554.92	1123.71
xxxxx	8	1094	563.54	1101.35	1089	525.63	1166.66	2183	544.63	1132.79
xxxxx	9	1095	560.00	1064.42	1087	515.00	1102.35	2182	537.58	1082.52
xxxxx	10	1093	564.17	1105.68	1091	524.79	1173.00	2184	544.50	1138.09
xxxxx	11	1096	567.29	1095.78	1093	527.29	1107.35	2189	547.32	1101.34
xxxxx	12	1095	557.92	1093.93	1088	521.67	1167.95	2183	539.85	1129.58

Broiler results at the age of 32 days

Tab. No. 10b

Breed	Treat. No.	Average live weight at 32 days								
		male			female			average		
		birds	live weight	FCR	birds	live weight	FCR	birds	live weight	FCR
			g	g		g	g		g	
xxxxx	1	1079	2345.04	1477.41	1086	2020.07	1514.22	2165	2182.03	1494.51
xxxxx	2	1088	2237.00	1483.82	1091	1899.18	1521.81	2179	2067.86	1501.29
xxxxx	3	1086	2285.43	1483.07	1086	1965.76	1541.68	2172	2125.59	1510.17
xxxxx	4	1066	2339.03	1491.97	1083	2106.14	1527.00	2149	2221.67	1508.70
xxxxx	5	1074	2233.04	1490.40	1079	1905.24	1525.67	2153	2068.76	1506.68
xxxxx	6	1078	2306.70	1481.53	1074	1946.09	1510.12	2152	2126.73	1494.59
xxxxx	7	1074	2367.44	1475.83	1079	2111.32	1552.03	2153	2239.08	1511.84
xxxxx	8	1072	2304.66	1513.11	1081	2076.73	1564.18	2153	2190.22	1537.43
xxxxx	9	1087	2264.77	1496.58	1086	1975.68	1501.31	2173	2120.29	1498.78
xxxxx	10	1073	2292.34	1514.38	1081	2110.67	1554.20	2154	2201.17	1533.54
xxxxx	11	1070	2359.19	1502.06	1085	2016.16	1542.20	2155	2186.48	1520.69
xxxxx	12	1078	2299.10	1521.08	1083	2022.25	1557.69	2161	2160.36	1538.26

Broiler results at the age of 39 days

Tab. No. 10c

Breed	Treat. No.	Average live weight at 39 days								
		male			female			average		
		birds	live weight	FCR	birds	live weight	FCR	birds	live weight	FCR
			g	g		g	g		g	
xxxxx	1	126	2877.62	1692.59	129	2515.89	1715.91	255	2694.63	1703.61
xxxxx	2	128	2947.73	1588.88	128	2545.47	1630.04	256	2746.60	1607.95
xxxxx	3	129	2842.79	1672.94	129	2500.93	1743.85	258	2671.86	1706.12
xxxxx	4	120	3124.33	1664.09	128	2569.30	1704.32	248	2837.86	1682.89
xxxxx	5	128	2972.58	1569.56	128	2487.50	1639.76	256	2730.04	1601.54
xxxxx	6	123	2951.46	1644.22	129	2517.44	1665.28	252	2729.29	1654.16
xxxxx	7	129	3074.65	1593.42	128	2770.47	1718.74	257	2923.15	1652.58
xxxxx	8	125	2901.60	1682.66	128	2700.70	1726.40	253	2799.96	1704.00
xxxxx	9	126	3065.16	1569.35	129	2482.79	1700.70	255	2770.55	1628.90
xxxxx	10	126	2902.06	1673.96	130	2761.85	1690.90	256	2830.86	1682.35
xxxxx	11	127	2832.83	1719.99	128	2494.30	1711.09	255	2662.90	1715.80
xxxxx	12	127	3001.10	1681.80	129	2727.98	1632.80	256	2863.48	1658.28

Mortality during growing period at the age of 32 days

Tab. No. 11a

Breed	Treat. No.	Mortality in the period						Mortality according causes													
		1 - 14		15 - 32		1 - 32		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		birds	%	birds	g	birds	%														
XXXXX	1	11	0.50	24	1.09	35	1.59		7								2	24		1	1
XXXXX	2	11	0.50	10	0.45	21	0.95		1								2	15		2	1
XXXXX	3	16	0.73	12	0.55	28	1.27		6								1	14		2	5
XXXXX	4	16	0.73	35	1.59	51	2.32		2								1	44		1	3
XXXXX	5	19	0.86	28	1.27	47	2.14		9								1	30		1	6
XXXXX	6	25	1.14	23	1.05	48	2.18		12								1	28		3	4
XXXXX	7	19	0.86	28	1.27	47	2.14		5								2	23		4	13
XXXXX	8	17	0.77	30	1.36	47	2.14		4								2	36		1	4
XXXXX	9	18	0.82	9	0.41	27	1.23		7									16		2	2
XXXXX	10	16	0.73	30	1.36	46	2.09		4								1	33		2	6
XXXXX	11	11	0.50	34	1.55	45	2.05		3								1	34			7
XXXXX	12	17	0.77	22	1.00	39	1.77		3								2	26		2	6

**Causes:**  
 1 – Viral diseases  
 2 – Bacterial diseases  
 3 – Moulds diseases  
 4 – Parasitary diseases  
 5 – Tumors

6 – Wounds  
 7 – Digestive track diseases  
 8 – Respiratory tract diseases  
 9 – Reproduction tract diseases  
 10 – Locomotion apparatus diseases

11 – Sudden death syndrome  
 12 – Cannibalism  
 13 – Yolk sac. infam.  
 14 – Culling and other causes

Mortality during growing period at the age of 39 days

Tab. No. 11b

Breed	Treat. No.	Mortality in the period						Mortality according causes													
		1 - 14		15 - 39		1 - 39		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		birds	%	birds	%	birds	%														
xxxxx	1	1	0.19	6	1.15	7	1.35											6			1
xxxxx	2	3	0.58	3	0.58	6	1.15											6			
xxxxx	3	5	0.96	1	0.19	6	1.15											4			2
xxxxx	4	2	0.38	15	2.88	17	3.27											16			1
xxxxx	5	0	0.00	6	1.15	6	1.15											4			2
xxxxx	6	4	0.77	10	1.92	14	2.69											14			
xxxxx	7	1	0.19	7	1.35	8	1.54											7			1
xxxxx	8	4	0.77	9	1.73	13	2.50											11			2
xxxxx	9	4	0.77	4	0.77	8	1.54											7			1
xxxxx	10	1	0.19	6	1.15	7	1.35											7			
xxxxx	11	4	0.77	6	1.15	10	1.92											8			2
xxxxx	12	2	0.38	4	0.77	6	1.15											6			

**Causes:**  
 1 – Viral diseases  
 2 – Bacterial diseases  
 3 – Moulds diseases  
 4 – Parasitary diseases  
 5 – Tumors

6 – Wounds  
 7 – Digestive track diseases  
 8 – Respiratory tract diseases  
 9 – Reproduction tract diseases  
 10 – Locomotion apparatus diseases

11 – Sudden death syndrome  
 12 – Cannibalism  
 13 – Yolk sac. infam.  
 14 – Culling and other causes

Results of carcass analysis in 32 days

Tab. No. 12a (page 1)

Breed	Treat. No.	Sex	Weight				Ratio of abd. fat to live weight	Breast meat without skin			Thigh meat with bone			Breast meat and thighs			Carcass	
			Total	Body	Gibl.	Abd. fat		weight	percentage		weight	percentage		weight	percentage		value	quality
									total weight	body carcass		total weight	body carcass		total weight	body carcass		
			g	g	g	g		%	g	%	%	g	%	%	g	%	%	%
xxxxx	1	♂	2373	1716	132	32	1.34	589	24.80	34.31	522	21.99	30.41	1110	46.79	64.71	72.30	77.88
		♀	2103	1504	118	30	1.45	525	24.98	34.93	449	21.34	29.84	974	46.33	64.78	71.52	77.13
		♂	<b>2238</b>	<b>1610</b>	<b>125</b>	<b>31</b>	<b>1.39</b>	<b>557</b>	<b>24.89</b>	<b>34.60</b>	<b>485</b>	<b>21.68</b>	<b>30.15</b>	<b>1042</b>	<b>46.57</b>	<b>64.74</b>	<b>71.93</b>	<b>77.53</b>
xxxxx	2	♂	2290	1612	133	29	1.25	553	24.16	34.31	487	21.27	30.21	1040	45.43	64.52	70.42	76.21
		♀	1913	1366	116	25	1.29	466	24.36	34.11	410	21.42	30.01	876	45.78	64.12	71.40	77.45
		♂	<b>2101</b>	<b>1489</b>	<b>124</b>	<b>27</b>	<b>1.27</b>	<b>510</b>	<b>24.25</b>	<b>34.22</b>	<b>448</b>	<b>21.34</b>	<b>30.12</b>	<b>958</b>	<b>45.59</b>	<b>64.34</b>	<b>70.86</b>	<b>76.77</b>
xxxxx	3	♂	2286	1636	127	34	1.48	575	25.17	35.17	485	21.23	29.66	1061	46.41	64.84	71.57	77.13
		♀	2006	1430	112	32	1.58	501	25.00	35.06	420	20.92	29.34	921	45.93	64.40	71.32	76.89
		♂	<b>2146</b>	<b>1533</b>	<b>119</b>	<b>33</b>	<b>1.53</b>	<b>538</b>	<b>25.09</b>	<b>35.12</b>	<b>452</b>	<b>21.09</b>	<b>29.51</b>	<b>991</b>	<b>46.18</b>	<b>64.63</b>	<b>71.45</b>	<b>77.02</b>
xxxxx	4	♂	2396	1692	135	34	1.42	558	23.28	32.96	510	21.29	30.15	1068	44.57	63.11	70.62	76.28
		♀	2163	1536	122	37	1.69	522	24.14	34.00	455	21.05	29.64	977	45.19	63.64	71.00	76.66
		♂	<b>2280</b>	<b>1614</b>	<b>129</b>	<b>35</b>	<b>1.55</b>	<b>540</b>	<b>23.69</b>	<b>33.46</b>	<b>483</b>	<b>21.18</b>	<b>29.91</b>	<b>1023</b>	<b>44.86</b>	<b>63.37</b>	<b>70.80</b>	<b>76.46</b>
xxxxx	5	♂	2251	1592	132	27	1.18	543	24.12	34.09	480	21.34	30.18	1023	45.46	64.27	70.73	76.59
		♀	1928	1353	116	27	1.41	466	24.18	34.46	405	21.01	29.94	871	45.19	64.40	70.17	76.21
		♂	<b>2089</b>	<b>1472</b>	<b>124</b>	<b>27</b>	<b>1.29</b>	<b>504</b>	<b>24.15</b>	<b>34.26</b>	<b>443</b>	<b>21.19</b>	<b>30.07</b>	<b>947</b>	<b>45.34</b>	<b>64.33</b>	<b>70.47</b>	<b>76.42</b>
xxxxx	6	♂	2381	1694	134	30	1.27	575	24.15	33.94	520	21.83	30.68	1095	45.99	64.62	71.17	76.78
		♀	1965	1394	114	29	1.47	484	24.63	34.73	418	21.29	30.02	902	45.93	64.75	70.93	76.73
		♂	<b>2173</b>	<b>1544</b>	<b>124</b>	<b>30</b>	<b>1.36</b>	<b>530</b>	<b>24.37</b>	<b>34.30</b>	<b>469</b>	<b>21.59</b>	<b>30.38</b>	<b>999</b>	<b>45.96</b>	<b>64.68</b>	<b>71.06</b>	<b>76.76</b>

Results of carcass analysis in 32 days

Tab. No. 12a (page 2)

Breed	Treat. No.	Sex	Weight				Ratio of abd. fat to live weight	Breast meat without skin			Thigh meat with bone			Breast meat and thighs			Carcass	
			Total	Body	Gibl.	Abd. fat		weight	percentage		weight	percentage		weight	percentage		value	quality
									total weight	body carcass		total weight	body carcass		total weight	body carcass		
			g	g	g	g		g	%	%	%	g	%	%	g	%	%	%
xxxxxx	7	♂	2432	1738	135	37	1.53	590	24.24	33.93	520	21.38	29.92	1110	45.62	63.85	71.45	77.00
		♀	2156	1544	121	36	1.67	528	24.49	34.20	450	20.88	29.16	978	45.38	63.37	71.61	77.24
		♂	<b>2294</b>	<b>1641</b>	<b>128</b>	<b>37</b>	<b>1.60</b>	<b>559</b>	<b>24.36</b>	<b>34.06</b>	<b>485</b>	<b>21.15</b>	<b>29.56</b>	<b>1044</b>	<b>45.51</b>	<b>63.62</b>	<b>71.52</b>	<b>77.11</b>
xxxxxx	8	♂	2302	1629	133	32	1.40	542	23.55	33.29	492	21.36	30.18	1034	44.91	63.46	70.77	76.56
		♀	2136	1517	123	37	1.75	505	23.64	33.28	456	21.34	30.04	961	44.98	63.32	71.04	76.81
		♂	<b>2233</b>	<b>1582</b>	<b>129</b>	<b>34</b>	<b>1.54</b>	<b>527</b>	<b>23.59</b>	<b>33.28</b>	<b>477</b>	<b>21.35</b>	<b>30.12</b>	<b>1003</b>	<b>44.94</b>	<b>63.41</b>	<b>70.87</b>	<b>76.66</b>
xxxxxx	9	♂	2262	1610	131	29	1.28	542	23.96	33.66	492	21.76	30.57	1034	45.72	64.23	71.19	76.98
		♀	2025	1443	116	29	1.42	492	24.27	34.07	438	21.63	30.37	930	45.90	64.44	71.23	76.97
		♂	<b>2143</b>	<b>1526</b>	<b>124</b>	<b>29</b>	<b>1.34</b>	<b>517</b>	<b>24.11</b>	<b>33.85</b>	<b>465</b>	<b>21.70</b>	<b>30.47</b>	<b>982</b>	<b>45.81</b>	<b>64.33</b>	<b>71.21</b>	<b>76.97</b>
xxxxxx	10	♂	2337	1659	135	33	1.40	551	23.59	33.24	501	21.42	30.18	1052	45.01	63.42	70.97	76.76
		♀	2156	1528	125	37	1.73	510	23.65	33.37	453	21.03	29.68	963	44.69	63.05	70.87	76.67
		♂	<b>2247</b>	<b>1593</b>	<b>130</b>	<b>35</b>	<b>1.55</b>	<b>531</b>	<b>23.62</b>	<b>33.30</b>	<b>477</b>	<b>21.24</b>	<b>29.94</b>	<b>1008</b>	<b>44.86</b>	<b>63.25</b>	<b>70.92</b>	<b>76.72</b>
xxxxxx	11	♂	2385	1719	136	31	1.30	587	24.62	34.16	519	21.74	30.17	1106	46.36	64.33	72.06	77.77
		♀	2062	1494	113	31	1.49	514	24.94	34.43	443	21.49	29.67	958	46.43	64.11	72.43	77.93
		♂	<b>2224</b>	<b>1606</b>	<b>125</b>	<b>31</b>	<b>1.39</b>	<b>551</b>	<b>24.77</b>	<b>34.29</b>	<b>481</b>	<b>21.62</b>	<b>29.94</b>	<b>1032</b>	<b>46.39</b>	<b>64.22</b>	<b>72.23</b>	<b>77.84</b>
xxxxxx	12	♂	2345	1660	134	34	1.43	567	24.15	34.12	498	21.24	30.01	1065	45.40	64.13	70.78	76.49
		♀	2040	1447	118	32	1.59	493	24.17	34.06	429	21.01	29.61	921	45.17	63.67	70.95	76.72
		♂	<b>2193</b>	<b>1554</b>	<b>126</b>	<b>33</b>	<b>1.51</b>	<b>530</b>	<b>24.16</b>	<b>34.10</b>	<b>463</b>	<b>21.13</b>	<b>29.82</b>	<b>993</b>	<b>45.29</b>	<b>63.92</b>	<b>70.86</b>	<b>76.59</b>

Results of carcass analysis in 39 days

Tab. No. 12b (page 1)

Breed	Treat. No.	Sex	Weight				Ratio of abd. fat to live weight	Breast meat without skin			Thigh meat with bone			Breast meat and thighs			Carcass	
			Total	Body	Gibl.	Abd. fat		weight	percentage		weight	percentage		weight	percentage		value	quality
									total weight	body carcass		total weight	body carcass		total weight	body carcass		
			g	g	g	g		%	g	%	%	g	%	%	g	%	%	%
xxxxx	1	♂	2916	2123	165	41	1.41	737	25.28	34.72	651	22.33	30.67	1388	47.60	65.39	72.80	78.46
		♀	2646	1972	149	46	1.73	701	26.50	35.56	586	22.14	29.71	1287	48.64	65.27	74.52	80.15
		♂	<b>2781</b>	<b>2047</b>	<b>157</b>	<b>43</b>	<b>1.56</b>	<b>719</b>	<b>25.86</b>	<b>35.12</b>	<b>618</b>	<b>22.24</b>	<b>30.21</b>	<b>1337</b>	<b>48.09</b>	<b>65.33</b>	<b>73.62</b>	<b>79.27</b>
xxxxx	2	♂	3008	2164	176	45	1.50	729	24.24	33.71	654	21.75	30.24	1384	45.99	63.95	71.92	77.76
		♀	2625	1878	148	45	1.71	673	25.62	35.81	554	21.11	29.51	1227	46.73	65.32	71.54	77.18
		♂	<b>2817</b>	<b>2021</b>	<b>162</b>	<b>45</b>	<b>1.60</b>	<b>701</b>	<b>24.88</b>	<b>34.69</b>	<b>604</b>	<b>21.45</b>	<b>29.90</b>	<b>1305</b>	<b>46.34</b>	<b>64.58</b>	<b>71.74</b>	<b>77.49</b>
xxxxx	3	♂	2850	2097	156	52	1.81	761	26.70	36.29	604	21.18	28.79	1364	47.87	65.08	73.56	79.03
		♀	2693	1990	151	60	2.22	730	27.12	36.70	571	21.20	28.68	1301	48.31	65.38	73.90	79.51
		♂	<b>2772</b>	<b>2043</b>	<b>154</b>	<b>56</b>	<b>2.01</b>	<b>746</b>	<b>26.90</b>	<b>36.49</b>	<b>587</b>	<b>21.19</b>	<b>28.74</b>	<b>1333</b>	<b>48.09</b>	<b>65.23</b>	<b>73.72</b>	<b>79.26</b>
xxxxx	4	♂	3171	2245	184	53	1.66	762	24.03	33.95	666	20.99	29.65	1428	45.03	63.60	70.80	76.61
		♀	2617	1883	163	48	1.82	625	23.87	33.17	554	21.15	29.39	1178	45.03	62.56	71.98	78.20
		♂	<b>2894</b>	<b>2064</b>	<b>174</b>	<b>50</b>	<b>1.73</b>	<b>693</b>	<b>23.96</b>	<b>33.59</b>	<b>610</b>	<b>21.07</b>	<b>29.53</b>	<b>1303</b>	<b>45.03</b>	<b>63.12</b>	<b>71.33</b>	<b>77.33</b>
xxxxx	5	♂	2966	2151	161	35	1.17	774	26.08	35.96	642	21.64	29.83	1415	47.72	65.79	72.53	77.97
		♀	2499	1860	132	40	1.58	628	25.13	33.76	554	22.18	29.80	1182	47.31	63.56	74.44	79.73
		♂	<b>2733</b>	<b>2006</b>	<b>147</b>	<b>37</b>	<b>1.36</b>	<b>701</b>	<b>25.65</b>	<b>34.94</b>	<b>598</b>	<b>21.89</b>	<b>29.82</b>	<b>1299</b>	<b>47.53</b>	<b>64.76</b>	<b>73.40</b>	<b>78.77</b>
xxxxx	6	♂	2979	2162	171	47	1.59	761	25.56	35.21	643	21.59	29.75	1405	47.15	64.96	72.60	78.33
		♀	2561	1873	144	46	1.80	658	25.69	35.12	558	21.78	29.77	1215	47.47	64.89	73.15	78.79
		♂	<b>2770</b>	<b>2018</b>	<b>158</b>	<b>47</b>	<b>1.68</b>	<b>710</b>	<b>25.62</b>	<b>35.17</b>	<b>600</b>	<b>21.68</b>	<b>29.76</b>	<b>1310</b>	<b>47.30</b>	<b>64.93</b>	<b>72.85</b>	<b>78.54</b>



Results of carcass analysis in 39 days

Tab. No. 12b (page 2)

Breed	Treat. No.	Sex	Weight				Ratio of abd. fat to live weight	Breast meat without skin			Thigh meat with bone			Breast meat and thighs			Carcass	
			Total	Body	Gibl.	Abd. fat		weight	percentage		weight	percentage		weight	percentage		value	quality
									total weight	body carcass		total weight	body carcass		total weight	body carcass		
			g	g	g	g		g	%	%	%	g	%	%	g	%	%	%
xxxxxx	7	♂	3120	2278	173	46	1.47	793	25.40	34.79	673	21.58	29.55	1466	46.98	64.34	73.01	78.56
		♀	2880	2123	164	52	1.80	765	26.56	36.02	615	21.35	28.96	1380	47.91	64.98	73.73	79.43
		♂	<b>3000</b>	<b>2201</b>	<b>169</b>	<b>49</b>	<b>1.63</b>	<b>779</b>	<b>25.96</b>	<b>35.39</b>	<b>644</b>	<b>21.47</b>	<b>29.27</b>	<b>1423</b>	<b>47.43</b>	<b>64.65</b>	<b>73.36</b>	<b>78.98</b>
xxxxxx	8	♂	2994	2156	177	52	1.74	714	23.84	33.11	655	21.86	30.37	1368	45.70	63.48	72.00	77.93
		♀	2659	1932	155	51	1.93	651	24.47	33.68	571	21.47	29.55	1221	45.94	63.23	72.66	78.49
		♂	<b>2826</b>	<b>2044</b>	<b>166</b>	<b>52</b>	<b>1.83</b>	<b>682</b>	<b>24.14</b>	<b>33.38</b>	<b>613</b>	<b>21.68</b>	<b>29.98</b>	<b>1295</b>	<b>45.82</b>	<b>63.36</b>	<b>72.31</b>	<b>78.19</b>
xxxxxx	9	♂	3083	2241	172	46	1.50	771	25.02	34.42	680	22.04	30.33	1451	47.06	64.74	72.69	78.27
		♀	2494	1841	134	40	1.60	629	25.22	34.16	545	21.83	29.58	1173	47.05	63.74	73.81	79.20
		♂	<b>2789</b>	<b>2041</b>	<b>153</b>	<b>43</b>	<b>1.55</b>	<b>700</b>	<b>25.11</b>	<b>34.30</b>	<b>612</b>	<b>21.95</b>	<b>29.99</b>	<b>1312</b>	<b>47.06</b>	<b>64.29</b>	<b>73.19</b>	<b>78.69</b>
xxxxxx	10	♂	2999	2162	179	52	1.74	731	24.37	33.81	656	21.88	30.35	1387	46.26	64.16	72.10	78.08
		♀	2749	1976	160	55	2.02	672	24.46	34.02	587	21.34	29.69	1259	45.80	63.71	71.89	77.70
		♂	<b>2874</b>	<b>2069</b>	<b>170</b>	<b>54</b>	<b>1.87</b>	<b>702</b>	<b>24.42</b>	<b>33.91</b>	<b>621</b>	<b>21.62</b>	<b>30.03</b>	<b>1323</b>	<b>46.04</b>	<b>63.94</b>	<b>72.00</b>	<b>77.90</b>
xxxxxx	11	♂	2844	2069	168	41	1.44	715	25.15	34.57	643	22.59	31.06	1358	47.74	65.64	72.74	78.63
		♀	2631	1945	157	45	1.72	673	25.58	34.59	585	22.24	30.07	1258	47.81	64.66	73.94	79.92
		♂	<b>2737</b>	<b>2007</b>	<b>162</b>	<b>43</b>	<b>1.57</b>	<b>694</b>	<b>25.35</b>	<b>34.58</b>	<b>614</b>	<b>22.42</b>	<b>30.58</b>	<b>1308</b>	<b>47.78</b>	<b>65.16</b>	<b>73.32</b>	<b>79.25</b>
xxxxxx	12	♂	3048	2204	177	51	1.66	764	25.08	34.67	652	21.40	29.59	1417	46.48	64.26	72.33	78.14
		♀	2637	1841	147	57	2.16	640	24.26	34.76	547	20.75	29.73	1187	45.01	64.48	69.80	75.37
		♂	<b>2842</b>	<b>2022</b>	<b>162</b>	<b>54</b>	<b>1.89</b>	<b>702</b>	<b>24.70</b>	<b>34.71</b>	<b>600</b>	<b>21.10</b>	<b>29.65</b>	<b>1302</b>	<b>45.80</b>	<b>64.36</b>	<b>71.15</b>	<b>76.85</b>

Statistical analysis - Cocks on the age of 32 days

Tab. No. 13a

Breed	Treat. No.	Sample size	Average	Standard deviation	Coefficient of variation	Standard error of mean	Precision select. average	Standard error of coeff. of variation
			g/birds	g/birds	%	g/birds	%	%
xxxxx	1	1079	2345.04	232.12	9.90	7.07	0.30	0.22
xxxxx	2	1088	2237.00	231.20	10.34	7.01	0.31	0.22
xxxxx	3	1086	2285.43	229.65	10.05	6.97	0.30	0.22
xxxxx	4	1066	2339.03	281.30	12.03	8.62	0.37	0.26
xxxxx	5	1074	2233.04	213.46	9.56	6.51	0.29	0.21
xxxxx	6	1078	2306.70	230.38	9.99	7.02	0.30	0.22
xxxxx	7	1074	2367.44	254.84	10.76	7.78	0.33	0.24
xxxxx	8	1072	2304.66	270.46	11.74	8.26	0.36	0.26
xxxxx	9	1087	2264.77	234.50	10.35	7.11	0.31	0.22
xxxxx	10	1073	2292.34	268.31	11.70	8.19	0.36	0.26
xxxxx	11	1070	2359.19	241.15	10.22	7.37	0.31	0.22
xxxxx	12	1078	2299.10	238.90	10.39	7.28	0.32	0.23

Statistical analysis - Hens on the age of 32 days

Tab. No. 13b

Breed	Treat. No.	Sample size	Average	Standard deviation	Coefficient of variation	Standard error of mean	Precision select. average	Standard error of coeff. of variation
			g/birds	g/birds	%	g/birds	%	%
xxxxx	1	1086	2020.07	231.15	11.44	7.01	0.35	0.25
xxxxx	2	1091	1899.18	192.01	10.11	5.81	0.31	0.22
xxxxx	3	1086	1965.76	231.90	11.80	7.04	0.36	0.26
xxxxx	4	1083	2106.14	230.73	10.95	7.01	0.33	0.24
xxxxx	5	1079	1905.24	208.04	10.92	6.33	0.33	0.24
xxxxx	6	1074	1946.09	217.95	11.20	6.65	0.34	0.24
xxxxx	7	1079	2111.32	241.88	11.46	7.36	0.35	0.25
xxxxx	8	1081	2076.73	227.11	10.94	6.91	0.33	0.24
xxxxx	9	1086	1975.68	233.21	11.80	7.08	0.36	0.26
xxxxx	10	1081	2110.67	262.44	12.43	7.98	0.38	0.27
xxxxx	11	1085	2016.16	209.61	10.40	6.36	0.32	0.23
xxxxx	12	1083	2022.25	223.76	11.06	6.80	0.34	0.24

Statistical analysis - Cocks on the age of 39 days

Tab. No. 13c

Breed	Treat. No.	Sample size	Average	Standard deviation	Coefficient of variation	Standard error of mean	Precision select. average	Standard error of coeff. of variation
			g/birds	g/birds	%	g/birds	%	%
xxxxx	1	126	2877.62	272.98	9.49	24.32	0.85	0.61
xxxxx	2	128	2947.73	296.61	10.06	26.22	0.89	0.64
xxxxx	3	129	2842.79	261.22	9.19	23.00	0.81	0.58
xxxxx	4	120	3124.33	345.13	11.05	31.51	1.01	0.72
xxxxx	5	128	2972.58	268.62	9.04	23.74	0.80	0.57
xxxxx	6	123	2951.46	252.24	8.55	22.74	0.77	0.55
xxxxx	7	129	3074.65	303.33	9.87	26.71	0.87	0.62
xxxxx	8	125	2901.60	325.33	11.21	29.10	1.00	0.72
xxxxx	9	126	3065.16	251.28	8.20	22.39	0.73	0.52
xxxxx	10	126	2902.06	330.33	11.38	29.43	1.01	0.73
xxxxx	11	127	2832.83	269.54	9.51	23.92	0.84	0.60
xxxxx	12	127	3001.10	295.30	9.84	26.20	0.87	0.63

Statistical analysis - Hens on the age of 39 days

Tab. No. 13d

Breed	Treat. No.	Sample size	Average	Standard deviation	Coefficient of variation	Standard error of mean	Precision select. average	Standard error of coeff. of variation
			g/birds	g/birds	%	g/birds	%	%
xxxxx	1	129	2515.89	227.78	9.05	20.05	0.80	0.57
xxxxx	2	128	2545.47	310.87	12.21	27.48	1.08	0.78
xxxxx	3	129	2500.93	233.79	9.35	20.58	0.82	0.59
xxxxx	4	128	2569.30	280.38	10.91	24.78	0.96	0.69
xxxxx	5	128	2487.50	230.69	9.27	20.39	0.82	0.59
xxxxx	6	129	2517.44	212.68	8.45	18.73	0.74	0.53
xxxxx	7	128	2770.47	260.76	9.41	23.05	0.83	0.60
xxxxx	8	128	2700.70	269.98	10.00	23.86	0.88	0.63
xxxxx	9	129	2482.79	227.58	9.17	20.04	0.81	0.58
xxxxx	10	130	2761.85	232.37	8.41	20.38	0.74	0.53
xxxxx	11	128	2494.30	293.98	11.79	25.98	1.04	0.75
xxxxx	12	129	2727.98	294.42	10.79	25.92	0.95	0.68