



MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE
státní podnik, ÚSTRAŠICE

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THE COMPLETE REPORT

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

2022 – 2023

Ústrašice, September 2023

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
13	xxxxx	xxxxx	xxxxx
14	xxxxx	xxxxx	xxxxx
15	xxxxx	xxxxx	xxxxx

2 The basic tests information

2.1 The basic dates

Rearing 1 – 22 weeks (1 – 154 days): 17 March 2022 – 17 August 2022
Production 23 – 62 weeks (155 – 434 days): 18 August 2022 – 24 May 2023
End of the test: 16 July 2023

2.2 Location of the test

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

2.3 Material

There were 15 genotypes compared in the test.
Number of birds in one group: 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 5th 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	32	27
Week 2	28	23
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 ⁰⁰ – 6 ⁰⁰	23
Day 4	7 ⁰⁰ – 4 ⁰⁰	21
Day 5	7 ⁰⁰ – 2 ⁰⁰	19
Day 6	7 ⁰⁰ – 24 ⁰⁰	17
Day 7	7 ⁰⁰ – 22 ⁰⁰	15
Day 8 - 14	7 ⁰⁰ – 19 ⁰⁰	12
Day 15 - 147	7 ⁰⁰ – 15 ⁰⁰	8
Day 148 - 154	7 ⁰⁰ – 18 ⁰⁰	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
Components (%)				
Wheat	41.09	51.47	46.23	45.17
Maize	22.50	18.00	15.00	23.00
Oat	1.00	1.00	9.60	2.00
Sunflower meal	1.00	3.00	4.60	5.30
Wheat bran	-	2.70	14.00	10.90
Soybean meal	29.70	19.75	7.00	9.15
Soybean heat-treated	1.27	0.75	0.20	0.77
Salt	0.23	0.20	0.15	0.21
Limestone	1.78	1.80	2.00	2.18
Monocalcium phosphate	0.63	0.65	0.41	0.46
Sodium sulphate	0.17	0.22	0.21	0.23
Premixes of amino acid	0.29	0.10	0.24	0.25
Vitamin and mineral suppl.	0.34	0.36	0.36	0.38
Nutrient content				
Protein (g/kg)	207.97	179.96	145.47	151.20
Fat (g/kg)	33.80	27.99	25.01	30.05
Lysin (g/kg)	9.57	7.22	5.38	5.72
Methionin (g/kg)	4.40	3.38	2.97	3.35
Calcium (g/kg)	10.69	10.68	10.70	11.67
Phosphorus dig. (g/kg)	4.31	4.31	4.20	3.96
Metabolizable energy (MJ/kg)	12.17	12.15	10.99	11.51

Feeding management

First week ad libitum. From 2nd 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 4th 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 liquid. As a prevention permanganate was given to the birds as well as vitamin – Celaskon (Vit. C).

Vaccination programme

Age	Disease
Day 1	Marek`s disease + infectious bronchitis (IB)
Days 6	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 17	Salmonellosis
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 exterior, 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 ⁰⁰ – 19 ⁰⁰	12
From week 23 (from day 155)	7 ⁰⁰ – 20 ⁰⁰	13

4.5 Feeding and watering

Feed was produced in xxxxx.

Day 155 – 245: NP-1 – crusher

Day 246 – 434: NP-2 – crusher

	NP – 1	NP – 2
Components (%)		
Wheat	43.73	44.57
Maize	25.00	25.00
Soybean meal	14.65	14.35
Limestone	4.39	4.95
Oat	3.60	2.00
Limestone–roughly ground	3.00	3.00
Sunflower meal	2.20	2.70
Soya oil	1.88	2.07
Monocalcium phosphate	0.37	0.27
Salt	0.26	0.27
Sodium sulfate	0.16	0.16
Premixes of amino acid	0.29	0.19
Vitamin and mineral suppl.	0.47	0.47
Nutrient content		
Protein (g/kg)	148.91	148.02
Fat (g/kg)	40.00	41.39
Lysine (g/kg)	6.22	5.81
Methionine (g/kg)	3.50	3.27
Calcium (g/kg)	30.29	32.17
Phosphorus dig. (g/kg)	3.50	3.29
Vitamin A (IU/kg)	10000.00	10000.00
Vitamin D3 (IU/kg)	3000.00	3000.00
Metabolizable energy (MJ/kg)	11.69	11.70

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% xxxxx 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 xxxxx (every 6 weeks), xxxxx (24th and 42th week), xxxxx (30th and 48th week), xxxxx (36th and 54th week).

From week 32, xxxxx (every 2 weeks), xxxxx E + Se (every 6 weeks) and xxxxx 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 3rd 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 3rd 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 st , 2 nd and 4 th part fattening test	17.2
3 rd part fattening test	16.0

5.4 Lighting programme

	Age	Hours of light	Hours of darkness
1 st , 2 nd and 4 th part fattening test	Day 1 – 7	23	1
	Day 8 – 29	18	6
	Day 30 – 32	23	1
3 rd 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 st , 2 nd and 4 th 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 rd 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)

	Starter BR1	Grower BR2-A	Grower BR2-B	Finisher BR3
Age	Days 1 - 10	Days 11 - 21	Day 22 - 28	Day 29 - 32 (39)
Components (%)				
Wheat	41.42	48.42	50.08	57.12
Maize	15.00	13.00	13.00	10.00
Soybean extr. groats	31.50	31.85	29.95	24.80
Soybean extr.	4.00	-	-	-
Fish meal	1.50	-	-	-
Monocalciumphosphate	0.47	0.31	0.17	0.16
Calcium carbonate	1.47	1.13	1.12	1.13
Salt	0.28	0.24	0.22	0.26
Soybean oil	2.46	2.50	2.50	2.62
Animal fat	-	0.87	1.28	2.50
Sodium sulfate	0.13	0.10	0.11	0.08
Premixes of amino acid	0.85	0.83	0.73	0.86
Vitamin and mineral suppl.	0.92	0.76	0.84	0.47
Nutrient content				
Crude protein (g/kg)	230.21	212.94	206.19	188.42
Fat (g/kg)	51.60	52.10	56.13	68.62
Lysine (g/kg)	12.82	11.68	11.30	10.34
Methionine (g/kg)	6.27	5.68	5.44	4.97
Ca (g/kg)	9.76	7.81	7.52	7.37
P dig. (g/kg)	4.51	3.90	3.61	3.50
Vitamin A (IU/kg)	15000	10000	10000	10000
Vitamin D3 (IU/kg)	5000	5000	5000	5000
ME (MJ/kg)	12.45	12.70	12.90	13.46

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	36 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	45.73	3807.14	43.50	81.06	68.71
		♀	270	240	220	40.99	2904.05	33.68	76.29	65.70
XXXXX	2	♂	75	45	28	48.13	3736.07	40.00	72.51	61.82
		♀	270	240	220	38.69	2706.32	32.93	66.24	57.96
XXXXX	3	♂	75	45	28	40.12	3714.64	38.67	72.10	61.10
		♀	270	240	220	44.06	2725.14	35.14	65.89	58.25
XXXXX	4	♂	75	45	28	44.38	3635.36	43.24	81.18	68.70
		♀	270	240	220	40.96	2924.41	33.67	76.76	66.05
XXXXX	5	♂	75	45	28	47.50	3840.36	39.50	71.04	60.66
		♀	270	240	220	42.66	2771.59	35.05	65.98	58.29
XXXXX	6	♂	75	45	28	38.13	3753.57	39.24	71.76	61.07
		♀	270	240	220	44.38	2686.64	35.21	66.64	58.82
XXXXX	7	♂	75	45	28	42.50	3700.00	43.12	80.06	67.91
		♀	270	240	220	40.75	2898.14	33.83	76.36	65.78
XXXXX	8	♂	75	45	28	41.25	3693.57	37.98	67.11	57.53
		♀	270	240	220	43.32	2811.00	34.96	65.58	57.97

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	36 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	9	♂	75	45	28	38.75	3758.57	39.12	71.02	60.53
		♀	270	240	220	43.75	2899.95	35.14	65.97	58.31
XXXXX	10	♂	75	45	28	45.00	3692.50	42.90	82.17	69.25
		♀	270	240	220	33.03	2578.45	30.22	74.10	63.19
XXXXX	11	♂	75	45	28	36.25	3620.71	39.85	82.17	68.25
		♀	270	240	220	33.03	2652.14	30.35	72.84	62.28
XXXXX	12	♂	75	45	28	38.13	3731.79	39.24	71.26	60.73
		♀	270	240	220	39.12	2865.36	34.79	65.86	58.14
XXXXX	13	♂	75	45	28	38.13	3633.93	39.12	73.13	61.94
		♀	270	240	220	41.04	2678.00	35.95	66.93	59.22
XXXXX	14	♂	75	45	28	42.59	3479.29	44.80	82.35	70.00
		♀	270	240	220	40.84	2804.82	33.80	75.78	65.35
XXXXX	15	♂	75	45	28	38.75	3618.57	39.66	71.41	60.96
		♀	270	240	220	37.81	2671.14	34.33	67.13	58.97

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	1	2.22	3	4.00					1						2			44
		♀	1	0.37	1	0.37	1	0.42	3	1.11					2						1			47
XXXXXX	2	♂	0	0.00	0	0.00	0	0.00	0	0.00														47
		♀	1	0.37	1	0.37	1	0.42	3	1.11					1						2			47
XXXXXX	3	♂	1	1.33	2	2.67	0	0.00	3	4.00											3			44
		♀	0	0.00	1	0.37	2	0.83	3	1.11					2						1			47
XXXXXX	4	♂	1	1.33	2	2.67	1	2.22	4	5.33					4									43
		♀	0	0.00	1	0.37	1	0.42	2	0.74					1						1			48
XXXXXX	5	♂	0	0.00	1	1.33	2	4.44	3	4.00					1		1				1			44
		♀	0	0.00	0	0.00	2	0.83	2	0.74					1						1			48
XXXXXX	6	♂	0	0.00	0	0.00	1	2.22	1	1.33											1			46
		♀	0	0.00	0	0.00	3	1.25	3	1.11					1						2			47
XXXXXX	7	♂	1	1.33	3	4.00	4	8.89	8	10.67					3						5			39
		♀	0	0.00	0	0.00	0	0.00	0	0.00														50
XXXXXX	8	♂	0	0.00	10	13.33	10	22.22	20	26.67					1		10				9			27
		♀	2	0.74	2	0.74	5	2.08	9	3.33					4		1				4			41

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	9	♂	0	0.00	1	1.33	2	4.44	3	4.00					3									44
		♀	0	0.00	1	0.37	2	0.83	3	1.11					1	1						1		47
xxxxxx	10	♂	2	2.67	2	2.67	0	0.00	4	5.33												4		43
		♀	0	0.00	0	0.00	2	0.83	2	0.74												2		48
xxxxxx	11	♂	5	6.67	0	0.00	0	0.00	5	6.67					1							4		42
		♀	0	0.00	0	0.00	2	0.83	2	0.74						1						1		48
xxxxxx	12	♂	0	0.00	1	1.33	1	2.22	2	2.67					1							1		45
		♀	1	0.37	2	0.74	5	2.08	8	2.96					3		1					4		42
xxxxxx	13	♂	0	0.00	1	1.33	1	2.22	2	2.67					1							1		45
		♀	0	0.00	0	0.00	2	0.83	2	0.74					2									48
xxxxxx	14	♂	1	1.33	2	2.67	0	0.00	3	4.00												3		44
		♀	1	0.37	1	0.37	7	2.92	9	3.33					1							8		41
xxxxxx	15	♂	0	0.00	1	1.33	1	2.22	2	2.67							1					1		45
		♀	0	0.00	0	0.00	3	1.25	3	1.11					3									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	3807.14	425.71	11.18	80.45	2.11	1.54
XXXXX	2	28	3736.07	267.28	7.15	50.51	1.35	0.98
XXXXX	3	28	3714.64	324.42	8.73	61.31	1.65	1.20
XXXXX	4	28	3635.36	443.39	12.20	83.79	2.30	1.68
XXXXX	5	28	3840.36	357.04	9.30	67.47	1.76	1.28
XXXXX	6	28	3753.57	261.85	6.98	49.48	1.32	0.95
XXXXX	7	28	3700.00	354.72	9.59	67.04	1.81	1.32
XXXXX	8	28	3693.57	364.95	9.88	68.97	1.87	1.36
XXXXX	9	28	3758.57	397.83	10.58	75.18	2.00	1.46
XXXXX	10	28	3692.50	242.33	6.56	45.80	1.24	0.90
XXXXX	11	28	3620.71	185.63	5.13	35.08	0.97	0.70
XXXXX	12	28	3731.79	352.18	9.44	66.56	1.78	1.30
XXXXX	13	28	3633.93	225.66	6.21	42.65	1.17	0.85
XXXXX	14	28	3479.29	504.12	14.49	95.27	2.74	2.01
XXXXX	15	28	3618.57	238.11	6.58	45.00	1.24	0.90

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	2904.05	248.70	8.56	16.77	0.58	0.41
XXXXX	2	220	2706.32	274.29	10.14	18.49	0.68	0.49
XXXXX	3	220	2725.14	287.65	10.56	19.39	0.71	0.51
XXXXX	4	220	2924.41	287.35	9.83	19.37	0.66	0.47
XXXXX	5	220	2771.59	337.63	12.18	22.76	0.82	0.59
XXXXX	6	220	2686.64	168.33	6.27	11.35	0.42	0.30
XXXXX	7	220	2898.14	253.54	8.75	17.09	0.59	0.42
XXXXX	8	220	2811.00	271.27	9.65	18.29	0.65	0.47
XXXXX	9	220	2899.95	300.66	10.37	20.27	0.70	0.50
XXXXX	10	220	2578.45	239.10	9.27	16.12	0.63	0.45
XXXXX	11	220	2652.14	261.40	9.86	17.62	0.66	0.48
XXXXX	12	220	2865.36	293.54	10.24	19.79	0.69	0.49
XXXXX	13	220	2678.00	158.27	5.91	10.67	0.40	0.28
XXXXX	14	220	2804.82	276.88	9.87	18.67	0.67	0.48
XXXXX	15	220	2671.14	161.70	6.05	10.90	0.41	0.29

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
XXXXXX	1	♂	165	300	508	791	918	1110	1230	1460	1560	1670	1820	2000	2060	2220	2430	2580	2820	2830	3060	3010	3270	3810
		♀	150	271	426	534	629	767	845	1025	1123	1180	1273	1373	1573	1677	1790	1940	2133	2253	2327	2490	2683	2907
XXXXXX	2	♂	213	323	498	727	819	1020	1110	1360	1410	1520	1560	1670	1890	1930	2120	2190	2460	2510	2880	2780	3270	3740
		♀	156	269	421	520	618	747	834	967	1033	1103	1190	1253	1367	1460	1533	1707	1803	1997	2097	2220	2480	2703
XXXXXX	3	♂	190	300	490	653	841	1000	1110	1300	1390	1460	1540	1600	1770	1990	2130	2210	2340	2610	2740	2720	3160	3720
		♀	182	270	423	527	623	753	825	966	1040	1097	1187	1263	1400	1495	1557	1653	1803	1923	2103	2230	2530	2730
XXXXXX	4	♂	168	320	503	759	910	1100	1260	1460	1550	1650	1800	1860	2000	2170	2440	2550	2830	2980	3110	3000	3380	3670
		♀	158	280	415	520	625	747	823	975	1100	1143	1243	1363	1517	1538	1777	1930	2090	2233	2303	2450	2750	2930
XXXXXX	5	♂	220	298	510	672	802	990	1040	1310	1370	1410	1490	1600	1820	1970	2140	2210	2420	2480	2800	2800	3450	3740
		♀	174	288	416	525	612	737	817	929	1028	1097	1177	1240	1367	1440	1550	1707	1817	2003	2127	2247	2510	2770
XXXXXX	6	♂	153	305	493	678	808	980	1050	1320	1360	1420	1500	1600	1770	1980	2160	2230	2310	2410	2740	2720	3480	3750
		♀	183	285	419	532	638	753	822	925	1010	1080	1163	1270	1377	1513	1593	1697	1830	1960	2147	2303	2570	2677
XXXXXX	7	♂	160	298	508	675	924	1080	1220	1400	1520	1630	1760	1850	1950	2110	2360	2480	2520	2810	2940	2900	3320	3700
		♀	151	268	416	521	626	763	831	981	1130	1180	1250	1373	1493	1577	1827	1967	2107	2220	2280	2503	2780	2893
XXXXXX	8	♂	195	305	505	654	819	980	1080	1290	1360	1400	1480	1590	1790	1890	2190	2250	2310	2560	2600	2600	3480	3690
		♀	181	280	422	530	629	757	816	926	1020	1107	1177	1257	1343	1447	1573	1680	1793	1963	2097	2187	2580	2790

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
XXXXXX	9	♂	168	298	498	651	786	950	1110	1350	1410	1500	1560	1710	1870	2010	2210	2290	2450	2520	2740	2760	3240	3760
		♀	184	272	418	522	626	743	820	921	996	1110	1187	1270	1357	1483	1560	1667	1837	1877	2067	2247	2573	2903
XXXXXX	10	♂	168	313	560	730	903	1070	1210	1460	1500	1640	1780	1870	2000	2170	2410	2480	2740	2750	3030	2940	3340	3700
		♀	103	212	356	482	546	673	746	859	993	1093	1210	1280	1383	1510	1683	1817	1900	2110	2210	2270	2483	2583
XXXXXX	11	♂	123	268	525	672	867	1080	1200	1420	1440	1650	1740	1930	1990	2140	2400	2520	2690	2720	3000	3030	3400	3620
		♀	102	223	354	446	545	673	745	854	995	1093	1203	1327	1430	1537	1740	1943	2077	2187	2253	2343	2563	2647
XXXXXX	12	♂	165	308	490	648	806	980	1120	1340	1390	1420	1570	1640	1820	1950	2180	2250	2390	2620	2760	2750	3210	3740
		♀	168	262	426	524	638	743	803	918	970	1100	1193	1287	1370	1433	1543	1660	1813	1920	2023	2213	2495	2860
XXXXXX	13	♂	170	290	483	631	797	960	1040	1250	1320	1380	1450	1530	1720	1790	2020	2120	2210	2380	2700	2670	3450	3640
		♀	182	287	433	540	668	783	833	925	993	1110	1190	1270	1400	1470	1613	1727	1850	2030	2127	2283	2520	2670
XXXXXX	14	♂	163	326	528	700	909	1060	1240	1430	1550	1680	1710	1950	1890	2070	2390	2470	2780	2910	2950	2880	3240	3480
		♀	158	284	422	523	614	750	843	969	1117	1177	1257	1340	1477	1550	1767	1903	2167	2257	2297	2450	2720	2800
XXXXXX	15	♂	178	303	515	628	812	970	1050	1290	1360	1450	1510	1720	1900	1950	2160	2250	2320	2420	2740	2690	3320	3620
		♀	157	267	420	504	633	747	803	941	1001	1103	1183	1247	1353	1460	1543	1613	1817	1920	2140	2260	2510	2663

Laying control

Tab. No. 5

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
XXXXXX	1	220	96.25	83.51	86.77	203.50	182.15	89.51	63.36	152.12	167	170	5135.50	4222.00	170.30	229.75	307.35
XXXXXX	2	220	97.45	84.65	86.87	174.93	155.23	88.74	65.89	131.41	179	183	5330.00	4287.79	170.36	267.31	355.83
XXXXXX	3	220	96.04	84.29	87.77	165.06	147.09	89.11	64.52	123.99	177	180	5397.65	4380.69	168.59	273.86	364.60
XXXXXX	4	220	96.16	82.31	85.60	206.00	183.79	89.22	63.31	151.28	168	170	5315.56	4302.26	168.59	222.27	302.66
XXXXXX	5	220	95.26	84.56	88.78	169.79	152.73	89.95	64.13	129.15	177	182	5275.79	4276.44	168.34	268.60	353.10
XXXXXX	6	220	93.87	81.83	87.17	181.60	160.98	88.64	65.86	131.73	177	180	5361.00	4393.36	171.20	261.01	359.81
XXXXXX	7	220	94.53	82.19	86.94	206.55	184.89	89.51	63.52	151.97	167	171	5149.17	4288.78	168.34	225.08	305.93
XXXXXX	8	220	95.92	83.06	86.60	172.19	155.93	90.56	64.41	129.52	177	182	5346.47	4322.43	168.89	266.99	354.95
XXXXXX	9	220	95.89	82.97	86.53	167.30	151.17	90.36	64.74	125.43	177	181	5265.26	4465.31	168.46	272.65	363.66
XXXXXX	10	220	96.94	86.73	89.47	196.19	172.59	87.97	61.66	149.68	164	168	5729.44	3996.75	162.90	224.65	294.44
XXXXXX	11	220	98.14	85.89	87.52	190.00	167.06	87.93	62.06	143.48	162	167	5710.00	3825.51	164.09	233.71	309.47
XXXXXX	12	220	94.74	83.78	88.43	174.00	154.85	89.00	65.32	129.74	179	183	5284.50	4477.38	168.34	264.74	355.05
XXXXXX	13	220	93.54	78.50	83.92	165.92	146.15	88.08	65.60	114.72	176	180	5361.11	4474.57	170.55	272.42	394.00
XXXXXX	14	220	95.77	85.71	89.50	210.90	188.71	89.48	62.99	161.73	166	170	5398.33	4340.52	168.29	219.14	285.77
XXXXXX	15	220	96.01	83.00	86.46	177.57	159.59	89.87	65.56	132.46	178	184	5575.56	4527.57	171.71	264.12	354.07

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	53.08	57.46	60.47	62.64	64.51	65.29	67.20	67.67	69.31	70.96	63.36
XXXXX	2	54.31	57.61	62.01	64.81	66.93	68.50	69.90	70.62	71.97	73.42	65.89
XXXXX	3	52.56	57.24	60.89	63.30	66.02	67.53	69.41	69.80	71.01	72.76	64.52
XXXXX	4	54.17	57.54	60.56	62.11	63.75	65.34	67.07	67.80	69.33	70.09	63.31
XXXXX	5	51.75	56.93	61.22	63.64	65.23	67.13	68.34	68.66	70.34	71.26	64.13
XXXXX	6	53.39	58.90	62.61	65.19	66.97	67.85	69.74	70.34	71.73	72.27	65.86
XXXXX	7	54.14	57.47	60.65	62.33	64.18	65.62	67.82	67.97	69.20	70.14	63.52
XXXXX	8	52.49	56.99	60.76	64.05	65.64	67.11	68.36	69.21	70.64	71.67	64.41
XXXXX	9	52.34	57.22	61.30	63.87	66.80	67.56	68.99	69.46	71.04	72.38	64.74
XXXXX	10	52.96	56.35	59.49	61.56	62.97	64.01	65.05	66.18	66.79	67.37	61.66
XXXXX	11	53.16	56.57	59.57	61.68	63.30	64.47	66.32	66.86	67.55	68.20	62.06
XXXXX	12	53.17	56.77	61.61	63.62	66.72	68.78	69.59	70.16	71.58	72.89	65.32
XXXXX	13	53.01	58.33	62.28	65.60	67.02	68.37	69.77	70.39	71.68	73.35	65.60
XXXXX	14	53.57	57.31	60.46	61.75	63.75	64.62	66.19	67.31	68.57	70.24	62.99
XXXXX	15	53.58	58.06	62.20	64.00	66.80	68.62	69.71	70.22	71.72	71.79	65.56

1st period: 23th – 26th week of age

10th period: 59th – 62th 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	205	15	6.82										4	6			5
XXXXX	2	220	208	12	5.45										6	4			2
XXXXX	3	220	203	17	7.73										4	13			
XXXXX	4	220	208	12	5.45										4	7			1
XXXXX	5	220	205	15	6.82									1	5	7			2
XXXXX	6	220	211	9	4.09										4	4			1
XXXXX	7	220	213	7	3.18										1	4			2
XXXXX	8	220	206	14	6.36										7	5			2
XXXXX	9	220	207	13	5.91										5	7			1
XXXXX	10	220	206	14	6.36									2	2	9			1
XXXXX	11	220	205	15	6.82										4	9			2
XXXXX	12	220	210	10	4.55										5	5			
XXXXX	13	220	197	23	10.45									1	6	16			
XXXXX	14	220	210	10	4.55									2	1	6			1
XXXXX	15	220	210	10	4.55											10			

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	20	5135.50	557.89	10.86	124.75	2.43	1.78
XXXXX	2	20	5330.00	445.16	8.35	99.54	1.87	1.36
XXXXX	3	17	5397.65	477.62	8.85	115.84	2.15	1.58
XXXXX	4	18	5315.56	644.17	12.12	151.83	2.86	2.11
XXXXX	5	19	5275.79	529.58	10.04	121.49	2.30	1.69
XXXXX	6	20	5361.00	527.92	9.85	118.05	2.20	1.61
XXXXX	7	12	5149.17	586.01	11.38	169.17	3.29	2.46
XXXXX	8	17	5346.47	844.98	15.80	204.94	3.83	2.86
XXXXX	9	19	5265.26	609.17	11.57	139.75	2.65	1.95
XXXXX	10	18	5729.44	551.64	9.63	130.02	2.27	1.67
XXXXX	11	20	5710.00	454.43	7.96	101.61	1.78	1.30
XXXXX	12	20	5284.50	507.52	9.60	113.48	2.15	1.57
XXXXX	13	18	5361.11	514.96	9.61	121.38	2.26	1.66
XXXXX	14	18	5398.33	509.74	9.44	120.15	2.23	1.63
XXXXX	15	18	5575.56	531.03	9.52	125.16	2.24	1.65

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	205	4222.00	454.64	10.77	31.75	0.75	0.54
XXXXX	2	208	4287.79	542.73	12.66	37.63	0.88	0.63
XXXXX	3	203	4380.69	519.82	11.87	36.48	0.83	0.60
XXXXX	4	208	4302.26	433.45	10.07	30.05	0.70	0.50
XXXXX	5	205	4276.44	548.71	12.83	38.32	0.90	0.65
XXXXX	6	211	4393.36	544.26	12.39	37.47	0.85	0.61
XXXXX	7	213	4288.78	436.37	10.17	29.90	0.70	0.50
XXXXX	8	206	4322.43	488.51	11.30	34.04	0.79	0.57
XXXXX	9	207	4465.31	616.26	13.80	42.83	0.96	0.69
XXXXX	10	206	3996.75	465.22	11.64	32.41	0.81	0.58
XXXXX	11	205	3825.51	436.58	11.41	30.49	0.80	0.57
XXXXX	12	210	4477.38	444.13	9.92	30.65	0.68	0.49
XXXXX	13	197	4474.57	534.53	11.95	38.08	0.85	0.61
XXXXX	14	210	4340.52	458.62	10.57	31.65	0.73	0.52
XXXXX	15	210	4527.57	499.60	11.03	34.48	0.76	0.55

Hatchability

Tab. No. 9

Breed	Treat. No.	Fertility	Hatchability		Birds housed	Average weight		
			Set	Fert.		hatch. eggs	1-day	
		%	%	%		♂	♀	
						g	g	g
XXXXXX	1	96.25	83.51	86.77	2200	65.95	45.00	44.97
XXXXXX	2	97.45	84.65	86.87	2200	68.36	45.47	45.72
XXXXXX	3	96.04	84.29	87.77	2200	66.90	44.64	44.34
XXXXXX	4	96.16	82.31	85.60	2200	65.70	45.65	45.13
XXXXXX	5	95.26	84.56	88.78	2200	66.61	43.90	44.01
XXXXXX	6	93.87	81.83	87.17	2200	68.17	45.76	45.80
XXXXXX	7	94.53	82.19	86.94	2200	65.83	45.66	45.07
XXXXXX	8	95.92	83.06	86.60	2200	67.04	45.10	44.91
XXXXXX	9	95.89	82.97	86.53	2200	67.19	44.80	44.86
XXXXXX	10	96.94	86.73	89.47	2200	64.24	42.12	42.02
XXXXXX	11	98.14	85.89	87.52	2200	64.58	42.82	42.89
XXXXXX	12	94.74	83.78	88.43	2200	67.94	44.75	44.86
XXXXXX	13	93.54	78.50	83.92	2200	68.23	45.23	45.89
XXXXXX	14	95.77	85.71	89.50	2200	65.17	44.49	44.39
XXXXXX	15	96.01	83.00	86.46	2200	68.10	45.91	45.58

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	1053	544.58	1038.46	1014	518.13	1060.85	2067	531.60	1049.17
XXXXX	2	1027	558.96	1086.66	1028	526.04	1140.04	2055	542.49	1112.56
XXXXX	3	1015	554.38	1138.64	1047	525.63	1150.58	2062	539.78	1144.54
XXXXX	4	1054	578.75	1006.06	1044	538.54	1036.93	2098	558.74	1020.87
XXXXX	5	1029	548.96	1077.22	985	522.71	1120.87	2014	536.12	1098.04
XXXXX	6	1025	556.04	1093.79	999	521.46	1137.37	2024	538.97	1114.61
XXXXX	7	1062	575.21	989.08	1034	538.38	1063.63	2096	557.04	1024.62
XXXXX	8	1050	555.00	1053.28	1020	528.75	1100.82	2070	542.07	1076.13
XXXXX	9	1015	558.54	1079.34	984	525.21	1117.83	1999	542.13	1097.70
XXXXX	10	1075	461.92	1041.77	1056	441.25	1083.35	2131	451.68	1061.90
XXXXX	11	1065	453.13	1080.86	926	436.43	1066.48	1991	445.36	1074.31
XXXXX	12	1034	557.92	1094.67	1025	522.08	1124.20	2059	540.08	1108.88
XXXXX	13	1014	556.67	1098.04	984	522.92	1120.98	1998	540.05	1108.98
XXXXX	14	1048	571.67	1040.72	1057	537.71	1029.46	2105	554.61	1035.24
XXXXX	15	1012	553.13	1074.38	962	521.21	1105.30	1974	537.57	1088.99

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	1036	2129.09	1469.26	1005	1908.59	1474.38	2041	2020.51	1471.64
XXXXX	2	1003	2250.95	1483.01	1008	2080.49	1494.28	2011	2165.50	1488.44
XXXXX	3	985	2354.56	1467.25	1024	2136.79	1494.97	2009	2243.56	1480.71
XXXXX	4	1031	2228.72	1463.44	1035	1954.13	1460.26	2066	2091.16	1461.95
XXXXX	5	1005	2223.46	1493.88	961	2089.76	1488.85	1966	2158.11	1491.50
XXXXX	6	979	2275.74	1451.87	983	2050.74	1458.72	1962	2163.01	1455.12
XXXXX	7	1051	2282.72	1419.97	1025	2033.62	1439.61	2076	2159.73	1429.10
XXXXX	8	1013	2264.80	1475.91	1011	2123.05	1467.20	2024	2193.99	1471.70
XXXXX	9	985	2263.47	1466.10	966	2112.49	1475.64	1951	2188.72	1470.66
XXXXX	10	1066	1682.99	1547.82	1047	1524.20	1543.33	2113	1604.31	1545.70
XXXXX	11	1041	1539.16	1629.91	1050	1372.94	1600.25	2091	1455.70	1615.86
XXXXX	12	993	2243.39	1496.30	1008	2092.17	1483.14	2001	2167.22	1489.90
XXXXX	13	966	2297.05	1464.21	959	2077.62	1495.35	1925	2187.74	1478.94
XXXXX	14	1030	2221.74	1451.63	1055	1954.37	1467.56	2085	2086.45	1459.18
XXXXX	15	985	2248.90	1455.28	945	2005.88	1509.42	1930	2129.91	1480.25

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	127	2867.64	1584.61	129	2570.85	1630.53	256	2718.09	1606.50
XXXXX	2	115	3051.83	1648.19	124	2754.44	1673.69	239	2897.53	1660.77
XXXXX	3	124	3094.84	1583.80	122	2825.74	1659.66	246	2961.38	1619.70
XXXXX	4	127	2936.93	1601.38	125	2540.96	1688.81	252	2740.52	1641.59
XXXXX	5	125	3100.32	1573.13	124	2713.39	1668.10	249	2907.63	1617.27
XXXXX	6	106	3008.21	1659.30	126	2661.83	1641.97	232	2820.09	1650.41
XXXXX	7	126	3117.06	1537.87	127	2680.08	1624.26	253	2897.71	1577.98
XXXXX	8	125	3017.76	1564.87	127	2789.29	1624.60	252	2902.62	1593.80
XXXXX	9	122	3119.92	1561.10	117	2739.15	1666.09	239	2933.51	1609.09
XXXXX	10	256	2179.57	1745.70	256	2065.59	1679.59	512	2122.58	1713.53
XXXXX	11	243	1960.08	1776.40	253	1830.47	1705.86	496	1893.97	1741.63
XXXXX	12	125	2973.04	1561.50	125	2766.96	1652.35	250	2870.00	1605.30
XXXXX	13	116	3082.67	1613.44	122	2711.07	1607.26	238	2892.18	1610.47
XXXXX	14	122	3006.07	1571.41	130	2583.85	1643.05	252	2788.25	1605.66
XXXXX	15	124	2985.65	1583.11	112	2706.16	1667.33	236	2853.01	1621.02

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	133	6.05	26	1.18	159	7.23										21	29		86	23
XXXXX	2	145	6.59	44	2.00	189	8.59		7								17	41		86	38
XXXXX	3	138	6.27	53	2.41	191	8.68		6								27	47	1	71	39
XXXXX	4	102	4.64	32	1.45	134	6.09		5								22	30		52	25
XXXXX	5	186	8.45	48	2.18	234	10.64		10								17	55		101	51
XXXXX	6	176	8.00	62	2.82	238	10.82		11								23	61		90	53
XXXXX	7	104	4.73	20	0.91	124	5.64		4								11	24		55	30
XXXXX	8	130	5.91	46	2.09	176	8.00		5								18	44		66	43
XXXXX	9	201	9.14	48	2.18	249	11.32		13								16	50		112	58
XXXXX	10	69	3.14	18	0.82	87	3.95		5								10	17		38	17
XXXXX	11	79	3.59	30	1.36	109	4.95		7								5	33		48	16
XXXXX	12	143	6.50	56	2.55	199	9.05		3								20	66		83	27
XXXXX	13	207	9.41	68	3.09	275	12.50		9								28	68		120	50
XXXXX	14	95	4.32	20	0.91	115	5.23		6								12	27		46	24
XXXXX	15	229	10.41	41	1.86	270	12.27		9								20	56		134	51

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	5	0.46	5	0.46	10	0.93										1	6			3
XXXXX	2	11	1.02	24	2.22	35	3.24										1	23			11
XXXXX	3	6	0.56	17	1.57	23	2.13										3	14			6
XXXXX	4	3	0.28	11	1.02	14	1.30										1	6			7
XXXXX	5	14	1.30	13	1.20	27	2.50										1	13			13
XXXXX	6	13	1.20	35	3.24	48	4.44										2	37			9
XXXXX	7	7	0.65	7	0.65	14	1.30										1	9			4
XXXXX	8	10	0.93	8	0.74	18	1.67											9			9
XXXXX	9	22	2.04	18	1.67	40	3.70											19			21
XXXXX	10	1	0.09	7	0.65	8	0.74										2	5			1
XXXXX	11	10	0.93	14	1.30	24	2.22										1	15			8
XXXXX	12	13	1.20	11	1.02	24	2.22										3	13			8
XXXXX	13	7	0.65	27	2.50	34	3.15											23			11
XXXXX	14	10	0.93	4	0.37	14	1.30										2	9			3
XXXXX	15	24	2.22	12	1.11	36	3.33										2	22			12

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	%	%	%
xxxxxx	1	♂	2201	1544	132	24	1.11	524	23.80	33.92	466	21.17	30.17	990	44.97	64.09	70.17	76.17
		♀	1906	1322	114	23	1.20	446	23.37	33.69	395	20.74	29.90	841	44.11	63.59	69.38	75.37
		♂	2053	1433	123	24	1.15	485	23.60	33.81	431	20.97	30.04	915	44.57	63.85	69.80	75.80
xxxxxx	2	♂	2318	1615	139	32	1.38	520	22.43	32.19	493	21.27	30.53	1013	43.71	62.72	69.69	75.68
		♀	2088	1463	124	34	1.62	476	22.78	32.50	434	20.80	29.67	910	43.58	62.17	70.10	76.05
		♂	2203	1539	132	33	1.49	498	22.60	32.34	464	21.05	30.12	961	43.65	62.46	69.88	75.85
xxxxxx	3	♂	2384	1675	140	35	1.48	551	23.12	32.91	496	20.81	29.63	1048	43.94	62.54	70.25	76.11
		♀	2106	1480	120	36	1.71	495	23.52	33.46	436	20.69	29.43	931	44.21	62.89	70.29	76.00
		♂	2245	1578	130	36	1.59	523	23.31	33.17	466	20.76	29.54	989	44.06	62.70	70.27	76.06
xxxxxx	4	♂	2228	1563	132	25	1.14	522	23.40	33.38	473	21.23	30.27	995	44.63	63.65	70.12	76.05
		♀	1981	1376	117	24	1.23	469	23.66	34.07	408	20.60	29.66	877	44.26	63.73	69.45	75.36
		♂	2105	1469	125	25	1.18	495	23.53	33.70	441	20.93	29.99	936	44.46	63.69	69.81	75.73
xxxxxx	5	♂	2312	1619	135	33	1.43	535	23.15	33.05	491	21.25	30.34	1026	44.40	63.39	70.04	75.87
		♀	2110	1477	124	32	1.53	484	22.96	32.80	444	21.03	30.03	928	43.99	62.83	70.02	75.88
		♂	2211	1548	129	33	1.48	510	23.06	32.93	467	21.15	30.19	977	44.21	63.12	70.03	75.87

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	6	♂	2271	1557	142	31	1.38	492	21.68	31.62	481	21.18	30.89	973	42.85	62.51	68.55	74.79
		♀	2052	1418	127	33	1.59	456	22.21	32.12	430	20.97	30.33	886	43.18	62.46	69.14	75.34
		♂	2161	1488	134	32	1.48	474	21.93	31.86	456	21.08	30.62	929	43.01	62.49	68.83	75.05
xxxxxx	7	♂	2293	1619	132	27	1.18	549	23.92	33.89	493	21.49	30.45	1041	45.41	64.34	70.58	76.32
		♀	1994	1409	113	25	1.27	481	24.12	34.12	425	21.31	30.15	906	45.43	64.27	70.69	76.38
		♂	2143	1514	123	26	1.22	515	24.01	34.00	459	21.41	30.31	974	45.42	64.31	70.63	76.35
xxxxxx	8	♂	2289	1618	134	32	1.39	533	23.29	32.95	488	21.33	30.18	1021	44.62	63.13	70.68	76.52
		♀	2133	1500	124	31	1.46	496	23.26	33.07	444	20.82	29.60	940	44.08	62.66	70.34	76.14
		♂	2211	1559	129	32	1.42	515	23.27	33.00	466	21.09	29.90	981	44.36	62.91	70.51	76.34
xxxxxx	9	♂	2313	1638	137	31	1.33	539	23.30	32.92	495	21.41	30.25	1034	44.72	63.17	70.79	76.72
		♀	2136	1507	123	32	1.49	505	23.67	33.54	446	20.88	29.58	951	44.55	63.12	70.58	76.35
		♂	2224	1572	130	31	1.41	522	23.48	33.21	471	21.16	29.93	993	44.63	63.14	70.69	76.54
xxxxxx	10	♂	1749	1207	109	22	1.23	393	22.48	32.56	367	21.01	30.43	761	43.49	62.99	69.03	75.26
		♀	1583	1097	97	20	1.27	362	22.88	33.02	323	20.39	29.43	685	43.27	62.46	69.27	75.42
		♂	1666	1152	103	21	1.25	378	22.67	32.78	345	20.72	29.96	723	43.38	62.74	69.15	75.33

Results of carcass analysis in 32 days

Tab. No. 12a (page 3)

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	11	♂	1597	1103	101	20	1.28	347	21.71	31.42	343	21.46	31.06	689	43.17	62.47	69.09	75.44
		♀	1433	986	92	19	1.31	312	21.75	31.62	295	20.55	29.88	606	42.30	61.49	68.78	75.19
		♂	1515	1044	97	20	1.29	329	21.73	31.51	319	21.03	30.50	648	42.75	62.01	68.95	75.32
xxxxxx	12	♂	2294	1600	141	33	1.44	513	22.36	32.06	494	21.53	30.86	1007	43.89	62.92	69.75	75.87
		♀	2114	1469	130	35	1.67	472	22.34	32.14	442	20.91	30.09	914	43.25	62.24	69.50	75.64
		♂	2204	1535	135	34	1.55	493	22.35	32.10	468	21.23	30.49	961	43.58	62.59	69.63	75.76
xxxxxx	13	♂	2342	1649	140	33	1.41	554	23.65	33.59	496	21.16	30.06	1050	44.81	63.65	70.40	76.38
		♀	2167	1517	127	34	1.58	507	23.38	33.40	451	20.83	29.75	958	44.20	63.15	70.00	75.88
		♂	2255	1583	134	34	1.49	530	23.52	33.50	474	21.00	29.91	1004	44.52	63.41	70.21	76.14
xxxxxx	14	♂	2244	1589	131	23	1.02	537	23.91	33.78	481	21.44	30.28	1018	45.35	64.06	70.80	76.64
		♀	1968	1361	118	24	1.20	461	23.42	33.86	401	20.40	29.49	862	43.82	63.34	69.18	75.18
		♂	2106	1475	125	23	1.11	499	23.68	33.81	441	20.95	29.92	940	44.64	63.73	70.05	75.96
xxxxxx	15	♂	2190	1506	135	31	1.44	474	21.67	31.50	471	21.50	31.26	945	43.16	62.76	68.78	74.94
		♀	1990	1381	120	32	1.60	443	22.24	32.03	417	20.97	30.20	860	43.21	62.23	69.43	75.44
		♂	2090	1444	127	32	1.51	458	21.94	31.75	444	21.25	30.75	902	43.19	62.51	69.09	75.18

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	%	%	%
xxxxxx	1	♂	3021	2137	172	44	1.44	734	24.30	34.36	649	21.47	30.36	1383	45.77	64.72	70.72	76.41
		♀	2649	1898	149	42	1.60	656	24.78	34.58	565	21.34	29.78	1221	46.12	64.36	71.66	77.29
		♂	2835	2017	160	43	1.52	695	24.52	34.46	607	21.41	30.09	1302	45.93	64.55	71.16	76.82
xxxxxx	2	♂	3261	2316	184	55	1.68	770	23.62	33.26	708	21.70	30.55	1478	45.31	63.81	71.01	76.66
		♀	2849	2081	165	54	1.91	705	24.73	33.86	609	21.38	29.28	1314	46.11	63.14	73.04	78.84
		♂	3055	2198	175	55	1.79	737	24.14	33.54	658	21.55	29.95	1396	45.69	63.49	71.96	77.68
xxxxxx	3	♂	3068	2173	166	57	1.86	741	24.16	34.12	643	20.96	29.59	1384	45.12	63.71	70.82	76.23
		♀	2869	2096	156	58	2.02	710	24.73	33.85	628	21.90	29.98	1338	46.63	63.83	73.05	78.50
		♂	2969	2134	161	58	1.94	725	24.44	33.99	636	21.41	29.78	1361	45.85	63.77	71.90	77.33
xxxxxx	4	♂	3023	2178	169	35	1.16	766	25.33	35.15	655	21.68	30.09	1421	47.00	65.24	72.04	77.62
		♀	2562	1840	145	33	1.30	636	24.83	34.57	535	20.88	29.07	1171	45.71	63.64	71.83	77.51
		♂	2792	2009	157	34	1.22	701	25.10	34.88	595	21.31	29.63	1296	46.41	64.51	71.95	77.57
xxxxxx	5	♂	3144	2172	168	55	1.74	739	23.52	34.04	633	20.15	29.16	1373	43.67	63.20	69.10	74.44
		♀	2829	2006	155	58	2.06	682	24.12	34.02	594	21.01	29.63	1277	45.13	63.65	70.90	76.38
		♂	2986	2089	161	56	1.89	711	23.80	34.03	614	20.56	29.38	1325	44.36	63.41	69.96	75.35

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	6	♂	2986	2121	180	45	1.51	699	23.42	32.97	668	22.38	31.52	1368	45.80	64.49	71.02	77.04
		♀	2548	1810	154	43	1.70	601	23.59	33.20	551	21.63	30.44	1152	45.21	63.64	71.05	77.09
		♂	2767	1965	167	44	1.60	650	23.50	33.08	610	22.03	31.02	1260	45.53	64.10	71.03	77.06
xxxxxx	7	♂	3387	2325	177	42	1.23	801	23.64	34.44	707	20.88	30.42	1508	44.52	64.86	68.64	73.88
		♀	2636	1876	146	42	1.61	646	24.52	34.44	560	21.23	29.83	1206	45.75	64.26	71.19	76.72
		♂	3011	2100	161	42	1.39	723	24.03	34.44	633	21.03	30.15	1357	45.06	64.59	69.76	75.12
xxxxxx	8	♂	2996	2136	172	43	1.42	735	24.55	34.43	640	21.38	29.98	1376	45.93	64.42	71.30	77.05
		♀	2732	1974	154	47	1.72	699	25.59	35.41	572	20.92	28.95	1271	46.51	64.36	72.26	77.91
		♂	2864	2055	163	45	1.57	717	25.04	34.90	606	21.16	29.49	1323	46.21	64.39	71.76	77.46
xxxxxx	9	♂	3151	2267	173	44	1.39	786	24.94	34.66	680	21.58	29.99	1466	46.52	64.65	71.96	77.45
		♀	2788	1995	162	48	1.72	694	24.89	34.78	585	20.99	29.33	1279	45.88	64.11	71.56	77.37
		♂	2969	2131	167	46	1.54	740	24.92	34.72	632	21.30	29.68	1372	46.22	64.40	71.77	77.41
xxxxxx	10	♂	2173	1520	127	29	1.33	488	22.48	32.14	467	21.49	30.73	955	43.97	62.87	69.95	75.78
		♀	2062	1453	118	31	1.51	488	23.69	33.61	421	20.43	28.99	910	44.12	62.60	70.48	76.22
		♂	2117	1486	123	30	1.42	488	23.07	32.86	444	20.98	29.88	932	44.04	62.74	70.21	75.99

Results of carcass analysis in 39 days

Tab. No. 12b (page 3)

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	11	♂	1992	1414	120	29	1.47	451	22.66	31.90	440	22.09	31.11	891	44.75	63.01	71.01	77.03
		♀	1843	1288	110	31	1.66	425	23.05	32.97	383	20.81	29.77	808	43.86	62.74	69.91	75.90
		♂	1917	1351	115	30	1.56	438	22.85	32.41	412	21.47	30.47	850	44.32	62.88	70.48	76.49
xxxxx	12	♂	3206	2138	175	45	1.40	672	20.96	31.43	648	20.20	30.29	1320	41.16	61.72	66.69	72.13
		♀	2856	2056	162	50	1.77	694	24.32	33.77	622	21.79	30.26	1317	46.11	64.03	72.01	77.69
		♂	3031	2097	168	48	1.57	683	22.54	32.58	635	20.95	30.28	1318	43.49	62.85	69.20	74.75
xxxxx	13	♂	3135	2196	180	51	1.62	752	24.00	34.27	656	20.92	29.87	1408	44.93	64.13	70.05	75.80
		♀	2803	1995	161	54	1.92	687	24.51	34.42	577	20.58	28.91	1264	45.09	63.34	71.19	76.91
		♂	2969	2096	170	52	1.76	720	24.24	34.34	616	20.76	29.41	1336	45.00	63.75	70.59	76.33
xxxxx	14	♂	3090	2223	172	39	1.26	759	24.57	34.15	675	21.83	30.35	1434	46.40	64.50	71.94	77.50
		♀	2483	1759	142	35	1.41	608	24.47	34.53	526	21.20	29.91	1134	45.67	64.44	70.87	76.58
		♂	2786	1991	157	37	1.33	683	24.52	34.32	600	21.55	30.16	1284	46.08	64.48	71.46	77.09
xxxxx	15	♂	3097	2184	176	51	1.65	723	23.34	33.10	676	21.83	30.95	1399	45.17	64.05	70.52	76.19
		♀	2808	1992	157	46	1.62	679	24.17	34.07	591	21.03	29.65	1269	45.20	63.71	70.95	76.53
		♂	2952	2088	166	48	1.64	701	23.74	33.56	633	21.45	30.33	1334	45.19	63.89	70.72	76.35

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	1036	2129.09	274.99	12.92	8.54	0.40	0.29
XXXXX	2	1003	2250.95	273.73	12.16	8.64	0.38	0.28
XXXXX	3	985	2354.56	300.10	12.75	9.56	0.41	0.29
XXXXX	4	1031	2228.72	248.47	11.15	7.74	0.35	0.25
XXXXX	5	1005	2223.46	283.67	12.76	8.95	0.40	0.29
XXXXX	6	979	2275.74	270.15	11.87	8.63	0.38	0.27
XXXXX	7	1051	2282.72	239.26	10.48	7.38	0.32	0.23
XXXXX	8	1013	2264.80	257.45	11.37	8.09	0.36	0.26
XXXXX	9	985	2263.47	284.45	12.57	9.06	0.40	0.29
XXXXX	10	1066	1682.99	217.65	12.93	6.67	0.40	0.28
XXXXX	11	1041	1539.16	205.62	13.36	6.37	0.41	0.30
XXXXX	12	993	2243.39	267.74	11.93	8.50	0.38	0.27
XXXXX	13	966	2297.05	285.51	12.43	9.19	0.40	0.29
XXXXX	14	1030	2221.74	250.62	11.28	7.81	0.35	0.25
XXXXX	15	985	2248.90	265.82	11.82	8.47	0.38	0.27

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	1005	1908.59	229.74	12.04	7.25	0.38	0.27
XXXXX	2	1008	2080.49	258.29	12.42	8.14	0.39	0.28
XXXXX	3	1024	2136.79	274.40	12.84	8.57	0.40	0.29
XXXXX	4	1035	1954.13	235.08	12.03	7.31	0.37	0.27
XXXXX	5	961	2089.76	263.63	12.62	8.50	0.41	0.29
XXXXX	6	983	2050.74	266.34	12.99	8.49	0.41	0.30
XXXXX	7	1025	2033.62	246.03	12.10	7.68	0.38	0.27
XXXXX	8	1011	2123.05	276.07	13.00	8.68	0.41	0.29
XXXXX	9	966	2112.49	275.18	13.03	8.85	0.42	0.30
XXXXX	10	1047	1524.20	242.17	15.89	7.48	0.49	0.36
XXXXX	11	1050	1372.94	192.91	14.05	5.95	0.43	0.31
XXXXX	12	1008	2092.17	271.46	12.97	8.55	0.41	0.29
XXXXX	13	959	2077.62	228.61	11.00	7.38	0.36	0.25
XXXXX	14	1055	1954.37	217.90	11.15	6.71	0.34	0.25
XXXXX	15	945	2005.88	236.82	11.81	7.70	0.38	0.28

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	127	2867.64	288.68	10.07	25.62	0.89	0.64
XXXXX	2	115	3051.83	323.49	10.60	30.17	0.99	0.71
XXXXX	3	124	3094.84	459.85	14.86	41.30	1.33	0.97
XXXXX	4	127	2936.93	271.47	9.24	24.09	0.82	0.59
XXXXX	5	125	3100.32	374.19	12.07	33.47	1.08	0.78
XXXXX	6	106	3008.21	355.14	11.81	34.49	1.15	0.83
XXXXX	7	126	3117.06	351.39	11.27	31.30	1.00	0.72
XXXXX	8	125	3017.76	293.49	9.73	26.25	0.87	0.62
XXXXX	9	122	3119.92	438.72	14.06	39.72	1.27	0.92
XXXXX	10	256	2179.57	223.28	10.24	13.96	0.64	0.46
XXXXX	11	243	1960.08	224.22	11.44	14.38	0.73	0.53
XXXXX	12	125	2973.04	282.68	9.51	25.28	0.85	0.61
XXXXX	13	116	3082.67	490.52	15.91	45.54	1.48	1.08
XXXXX	14	122	3006.07	249.88	8.31	22.62	0.75	0.54
XXXXX	15	124	2985.65	386.77	12.95	34.73	1.16	0.84

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	2570.85	193.84	7.54	17.07	0.66	0.47
XXXXX	2	124	2754.44	315.61	11.46	28.34	1.03	0.74
XXXXX	3	122	2825.74	351.63	12.44	31.84	1.13	0.81
XXXXX	4	125	2540.96	229.96	9.05	20.57	0.81	0.58
XXXXX	5	124	2713.39	276.62	10.19	24.84	0.92	0.66
XXXXX	6	126	2661.83	252.36	9.48	22.48	0.84	0.60
XXXXX	7	127	2680.08	261.01	9.74	23.16	0.86	0.62
XXXXX	8	127	2789.29	268.36	9.62	23.81	0.85	0.61
XXXXX	9	117	2739.15	306.53	11.19	28.34	1.03	0.74
XXXXX	10	256	2065.59	412.80	19.98	25.80	1.25	0.92
XXXXX	11	253	1830.47	235.53	12.87	14.81	0.81	0.58
XXXXX	12	125	2766.96	330.58	11.95	29.57	1.07	0.77
XXXXX	13	122	2711.07	292.98	10.81	26.53	0.98	0.70
XXXXX	14	130	2583.85	212.59	8.23	18.65	0.72	0.52
XXXXX	15	112	2706.16	276.24	10.21	26.10	0.96	0.69