



MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE
státní podnik, ÚSTRAŠICE

390 02 Tábor 2

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**4th part fattening test of the final product of XLIX.
international test of parents from of broilers**

10. 6. 2021 - 12. 7. 2021

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Ústrašice, July 2021

1 List of participants

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

2 Basic tests information

2.1 The basic dates

setting in the hatchery:	19 May 2021
beginning of test:	10 June 2021 (day 0)
end of the test:	12 July 2021

2.2 Location of the test

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

3 Material and methods

3.1 Material

There were 12 different breeds in this test. Each sample consisted of 900 hatching eggs. 560 broilers were sexed and placed always 280 females (in two pens) and 280 males (in two pens).

The parent flock is 58 weeks old at the time of hatching eggs collection.

3.2 Housing system

Pullets were kept in windowless house with full control of the environment. They were kept in deep litter system. Manually filled tube feeders and nipple automatic drinkers were used.

3.3 Lighting programme

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

Age	Hours of light	Hours of darkness
Day 1 – 7	23	1
Day 8 - 29	18	6
Day 30 - 32	23	1

3.4 Stocking density

17,2 broilers per square meter

3.5 Feeding

Feed was produced in xxxxxxxx

Day 1 – 10 Starter (BR1)
Day 11 – 21 Grower (BR2-A)
Day 22 – 28 Grower (BR2-B)
Day 29 – 32 Finisher (BR3)

Diet formulas

	Starter BR1	Grower BR2-A	Grower BR2-B	Finisher BR3
Age	Days 1 - 10	Days 11 - 21	Day 22 - 28	Day 29 - 32
Components (%)				
Wheat	41.42	49.66	51.28	57.12
Maize	15.00	13.00	13.00	10.00
Soybean extr. groats	31.50	30.45	28.55	24.80
Soybean extr.	4.00	-	-	-
Fish meal	1.50	-	-	-
MCP – monocalciumphosphate	0.47	0.31	0.18	0.16
Calcium carbonate	1.47	1.21	1.20	1.13
Salt	0.28	0.24	0.23	0.26
Soybean oil	2.46	2.50	2.50	2.62
Animal fat	-	0.90	1.33	2.50
Sodium sulfate	0.13	0.10	0.11	0.08
Premixes of amino acid	0.85	0.86	0.86	0.86
Vitamin and mineral supplement	0.92	0.77	0.76	0.47
Nutrient content				
Crude protein (g/kg)	23.36	21.17	20.48	19.15
Fat (g/kg)	5.16	5.24	5.66	6.86
Lysine (g/kg)	1.30	1.17	1.13	1.05
Methionine (g/kg)	0.63	0.56	0.54	0.50
Ca (g/kg)	0.94	0.78	0.75	0.70
P (g/kg)	0.45	0.39	0.36	0.35
Vitamin A (IU/kg)	15000	10000	10000	10000
Vitamin D3 (IU/kg)	5000	5000	5000	5000
ME (MJ/kg)	12.40	12.70	12.90	13.40

3.6 Veterinary precautions

The chicken house was disinfected by xxxxxxxx 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 xxxxxxxx

4 Parameters recorded

4.1 Live weight

Live weight was measured on days 1 (all the birds in each pen were weighed altogether), 7 and 14 (20 % of the birds were weighed altogether, without fasting). On day 32 birds were weighed individually, after 12 hours of fasting.

4.2 Feed conversion ratio (FCR)

Feed conversion ratio was calculated as feed consumption per 1 kg of live weight for the periods 1 – 14 days and 1 – 32 days.

4.3 Mortality

All pens were checked three times a day to see if there were any dead or ill birds. Dead chickens were registered by date and reason of mortality on the day of death.

4.4 Carcass analysis

The carcass analysis was done on 20 cocks and 20 hens per each genotype on day 32. Breast muscles was weighed without skin and thigh muscles with bone and skin.

4.5 Statistical analyses

Performance results of live weight at the age of 32 days were statistically evaluated.

5 Results

Tab. No.	1a	Hatchability
	1b	Broiler results at the age of 7 days
	1c	Broiler results at the age of 14 days
	1d	Broiler results at the age of 32 days
	2a	Mortality during growing period at the age of 14 days
	2b	Mortality during growing period at the age of 32 days
	3	Results of carcass analysis
	4a	Statistical analysis - cocks
	4b	Statistical analysis - hens

Hatchability

Tab. No. 1a

Test: 49

Part fattening: 4

Cross	Sample	Fertility	Hatchability		Birds housed	Average weight		
			Set	Fert.		hatch. eggs	1-day	
		%	%	%			♂	♀
					g	g	g	
XXXXXXXX	1	82.11	69.00	84.03	560	69.81	47.32	47.46
XXXXXXXX	2	90.00	76.78	85.31	560	70.22	48.96	48.14
XXXXXXXX	3	90.67	79.22	87.38	560	73.06	48.07	48.36
XXXXXXXX	4	88.67	80.67	90.98	560	69.50	48.25	48.11
XXXXXXXX	5	87.22	73.11	83.82	560	72.50	48.43	48.43
XXXXXXXX	6	92.56	76.78	82.95	560	73.10	48.18	48.14
XXXXXXXX	7	93.00	80.33	86.38	560	69.90	47.25	47.64
XXXXXXXX	8	92.33	75.00	81.23	560	72.08	48.36	48.14
XXXXXXXX	9	94.33	78.67	83.39	560	70.26	47.00	47.04
XXXXXXXX	10	84.33	71.00	84.19	560	71.69	49.18	48.68
XXXXXXXX	11	89.56	74.11	82.75	560	72.82	48.93	48.29
XXXXXXXX	12	85.33	73.56	86.20	560	71.13	48.93	48.57

Broiler results at the age of 7 days

Tab. No. 1b

Test: 49

Part fattening: 4

Cross	Sample	Average live weight at 7 days								
		male			female			average		
		mortality		live weight	mortality		live weight	mortality		live weight
		birds	%	g	birds	%	g	birds	%	g
XXXXXXXX	1	0	0.00	208.33	4	2.86	200.00	4	0.71	204.20
XXXXXXXX	2	0	0.00	208.33	12	8.57	203.33	12	2.14	205.89
XXXXXXXX	3	0	0.00	215.00	8	5.71	209.17	8	1.43	212.13
XXXXXXXX	4	0	0.00	214.17	1	0.71	218.33	1	0.18	216.25
XXXXXXXX	5	3	2.14	217.50	6	4.29	210.00	9	1.61	213.77
XXXXXXXX	6	0	0.00	211.67	1	0.71	200.83	1	0.18	206.26
XXXXXXXX	7	0	0.00	215.83	3	2.14	201.67	3	0.54	208.79
XXXXXXXX	8	0	0.00	213.33	2	1.43	216.67	2	0.36	214.99
XXXXXXXX	9	4	2.86	221.67	5	3.57	201.67	9	1.61	211.68
XXXXXXXX	10	0	0.00	207.50	7	5.00	197.50	7	1.25	202.56
XXXXXXXX	11	0	0.00	197.50	1	0.71	212.50	1	0.18	204.99
XXXXXXXX	12	1	0.71	209.17	1	0.71	204.17	2	0.36	206.67

Broiler results at the age of 14 days

Tab. No. 1c

Test: 49

Part fattening: 4

Cross	Sample	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	
XXXXXXXX	1	276	577.50	1102.64	274	525.00	1112.96	550	551.35	1107.54
XXXXXXXX	2	278	558.33	1116.83	267	515.83	1168.97	545	537.51	1141.34
XXXXXXXX	3	275	565.00	1082.86	267	498.33	1203.64	542	532.16	1138.58
XXXXXXXX	4	278	566.67	1095.96	278	526.67	1104.75	556	546.67	1100.19
XXXXXXXX	5	271	580.83	1110.51	269	539.17	1114.90	540	560.08	1112.61
XXXXXXXX	6	278	578.33	1082.25	277	529.17	1166.26	555	553.79	1122.31
XXXXXXXX	7	275	565.00	1088.01	276	512.50	1144.93	551	538.70	1115.14
XXXXXXXX	8	275	582.50	1082.17	276	536.67	1127.46	551	559.54	1103.93
XXXXXXXX	9	261	554.17	1065.21	270	519.17	1169.25	531	536.37	1116.42
XXXXXXXX	10	273	580.00	1089.43	268	545.83	1088.98	541	563.07	1089.21
XXXXXXXX	11	274	586.67	1096.82	275	541.67	1159.38	549	564.13	1126.91
XXXXXXXX	12	275	575.00	1093.12	277	531.67	1085.07	552	553.25	1089.24

Broiler results at the age of 32 days

Tab. No. 1d

Test: 49

Part fattening: 4

Cross	Sample	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	
XXXXXXXX	1	274	2155.44	1572.50	273	1916.67	1580.70	547	2036.27	1576.35
XXXXXXXX	2	272	2174.63	1536.94	267	1895.77	1568.25	539	2036.49	1551.38
XXXXXXXX	3	272	2194.08	1488.46	264	1858.83	1607.20	536	2028.96	1542.04
XXXXXXXX	4	274	2096.57	1585.31	276	1821.27	1559.07	550	1958.42	1573.07
XXXXXXXX	5	267	2114.94	1560.86	269	1923.57	1558.25	536	2018.90	1559.61
XXXXXXXX	6	272	2227.83	1526.31	270	1981.52	1538.10	542	2105.13	1531.84
XXXXXXXX	7	271	2174.94	1523.39	271	1883.65	1621.06	542	2029.30	1568.72
XXXXXXXX	8	270	2210.78	1524.69	273	1924.95	1601.87	543	2067.07	1560.82
XXXXXXXX	9	257	2011.25	1548.11	268	1928.17	1592.07	525	1968.84	1570.08
XXXXXXXX	10	266	2249.81	1553.68	267	1958.13	1521.75	533	2103.70	1538.79
XXXXXXXX	11	267	2142.92	1568.79	273	2003.19	1545.16	540	2072.28	1557.24
XXXXXXXX	12	270	2188.30	1587.06	275	1963.09	1508.01	545	2074.66	1549.32

Mortality in the age 14 days

Tab. No. 2a

Test: 49

Part fattening: 4

Cross	Sample	Mortality in the period						Mortality according causes														
		male		female		total		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
		birds	%	birds	%	birds	%															
XXXXXXXX	1	4	1.43	6	2.14	10	1.79											7				3
XXXXXXXX	2	2	0.71	13	4.64	15	2.68											3		9		3
XXXXXXXX	3	5	1.79	13	4.64	18	3.21											9		3		6
XXXXXXXX	4	2	0.71	2	0.71	4	0.71											2				2
XXXXXXXX	5	9	3.21	11	3.93	20	3.57											9		6		5
XXXXXXXX	6	2	0.71	3	1.07	5	0.89											3				2
XXXXXXXX	7	5	1.79	4	1.43	9	1.61											6				3
XXXXXXXX	8	5	1.79	4	1.43	9	1.61											6				3
XXXXXXXX	9	19	6.79	10	3.57	29	5.18											18		4		7
XXXXXXXX	10	7	2.50	12	4.29	19	3.39											8		1		10
XXXXXXXX	11	6	2.14	5	1.79	11	1.96											7				4
XXXXXXXX	12	5	1.79	3	1.07	8	1.43											5				3

- 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 the masts in 32 days

Tab. No. 2b

Test: 49

Part fattening: 4

Cross	Sample	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	%	birds	%														
xxxxxxxx	1	10	1.79	3	0.54	13	2.32											10			3
xxxxxxxx	2	15	2.68	6	1.07	21	3.75											8		9	4
xxxxxxxx	3	18	3.21	6	1.07	24	4.29											12		3	9
xxxxxxxx	4	4	0.71	6	1.07	10	1.79											7			3
xxxxxxxx	5	20	3.57	4	0.71	24	4.29											11		6	7
xxxxxxxx	6	5	0.89	13	2.32	18	3.21											10			8
xxxxxxxx	7	9	1.61	9	1.61	18	3.21											14			4
xxxxxxxx	8	9	1.61	8	1.43	17	3.04											11			6
xxxxxxxx	9	29	5.18	6	1.07	35	6.25											23		4	8
xxxxxxxx	10	19	3.39	8	1.43	27	4.82											16		1	10
xxxxxxxx	11	11	1.96	9	1.61	20	3.57											13			7
xxxxxxxx	12	8	1.43	7	1.25	15	2.68											11			4

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. 3 (page 1)

Test: 49

Part fattening: 4

Cross	Sample	Sex	Weight				Ratio of abd. fat to live weight	Breast meat without skin			Thigh meat with bone and skin			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	%	%	%
xxxxxxxxx	1	♂	2257	1585	142	27	1.17	496	21.97	31.28	494	21.90	31.19	990	43.87	62.47	70.23	76.52
		♀	2032	1423	122	24	1.17	437	21.53	30.74	431	21.23	30.31	869	42.76	61.04	70.05	76.04
		♂	2144	1504	132	25	1.17	467	21.76	31.02	463	21.58	30.77	929	43.34	61.79	70.14	76.29
xxxxxxxxx	2	♂	2233	1581	133	28	1.23	499	22.37	31.59	499	22.33	31.54	998	44.70	63.13	70.80	76.75
		♀	1921	1334	115	25	1.30	441	22.95	33.04	416	21.65	31.15	857	44.60	64.19	69.48	75.44
		♂	2077	1458	124	26	1.26	470	22.64	32.25	457	22.01	31.36	927	44.65	63.62	70.19	76.14
xxxxxxxxx	3	♂	2220	1557	133	22	1.00	518	23.35	33.30	474	21.36	30.47	993	44.72	63.77	70.12	76.09
		♀	1898	1303	118	25	1.30	435	22.92	33.37	401	21.12	30.75	836	44.04	64.12	68.67	74.90
		♂	2059	1430	125	23	1.14	477	23.15	33.34	438	21.25	30.60	914	44.40	63.93	69.45	75.55
xxxxxxxxx	4	♂	2139	1476	128	21	1.00	471	22.00	31.88	450	21.06	30.52	921	43.06	62.40	69.01	74.97
		♀	1872	1296	116	20	1.06	434	23.19	33.51	388	20.74	29.96	822	43.93	63.47	69.21	75.39
		♂	2005	1386	122	21	1.02	452	22.56	32.64	419	20.91	30.26	872	43.47	62.90	69.11	75.17
xxxxxxxxx	5	♂	2172	1501	130	26	1.22	486	22.38	32.39	458	21.10	30.53	944	43.48	62.92	69.10	75.10
		♀	1982	1386	116	27	1.38	466	23.52	33.64	414	20.89	29.87	880	44.41	63.51	69.92	75.79
		♂	2077	1443	123	27	1.29	476	22.93	32.99	436	21.00	30.21	912	43.92	63.20	69.49	75.43
xxxxxxxxx	6	♂	2277	1543	136	29	1.27	497	21.82	32.21	467	20.49	30.24	964	42.31	62.45	67.76	73.74
		♀	2041	1440	122	26	1.29	462	22.63	32.07	434	21.26	30.13	896	43.89	62.20	70.56	76.52
		♂	2159	1491	129	28	1.28	479	22.20	32.14	450	20.86	30.19	930	43.06	62.33	69.08	75.05

Results of carcass analysis in 32 days

Tab. No. 3 (page 2)

Test: 49

Part fattening: 4

Cross	Sample	Sex	Weight				Ratio of abd. fat to live weight	Breast meat without skin			Thigh meat with bone and skin			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	%	%	%
xxxxxxxxx	7	♂	2258	1536	135	23	1.02	505	22.36	32.86	477	21.11	31.03	981	43.47	63.89	68.04	74.04
		♀	1914	1376	118	25	1.31	451	23.55	32.76	414	21.61	30.07	864	45.16	62.84	71.87	78.05
		♂	2086	1456	127	24	1.15	478	22.91	32.82	445	21.34	30.58	923	44.25	63.39	69.80	75.88
xxxxxxxxx	8	♂	2304	1576	135	25	1.09	508	22.06	32.25	467	20.27	29.63	975	42.33	61.89	68.40	74.24
		♀	1987	1395	119	28	1.40	467	23.51	33.49	416	20.95	29.83	883	44.46	63.32	70.21	76.21
		♂	2145	1485	127	26	1.23	488	22.73	32.83	442	20.58	29.73	929	43.32	62.56	69.24	75.15
xxxxxxxxx	9	♂	2128	1475	136	26	1.21	458	21.52	31.03	450	21.13	30.47	907	42.65	61.50	69.35	75.76
		♀	2029	1431	125	28	1.37	460	22.69	32.15	438	21.57	30.57	898	44.25	62.72	70.56	76.73
		♂	2078	1453	131	27	1.29	459	22.09	31.58	444	21.35	30.52	903	43.43	62.10	69.94	76.23
xxxxxxxxx	10	♂	2313	1652	140	26	1.12	537	23.24	32.54	517	22.36	31.30	1055	45.60	63.84	71.43	77.48
		♀	2097	1492	123	28	1.34	501	23.89	33.58	453	21.61	30.36	954	45.50	63.94	71.15	77.02
		♂	2205	1572	131	27	1.22	519	23.55	33.03	485	22.00	30.86	1004	45.55	63.89	71.30	77.26
xxxxxxxxx	11	♂	2194	1513	136	30	1.38	472	21.52	31.21	462	21.04	30.52	934	42.56	61.73	68.94	75.15
		♀	2084	1443	121	34	1.61	467	22.40	32.36	436	20.92	30.21	903	43.33	62.57	69.24	75.07
		♂	2139	1478	129	32	1.49	469	21.95	31.77	449	20.98	30.37	918	42.93	62.14	69.09	75.11
xxxxxxxxx	12	♂	2257	1566	131	22	0.98	523	23.18	33.41	473	20.96	30.21	996	44.14	63.61	69.39	75.20
		♀	2006	1385	123	23	1.14	458	22.83	33.07	415	20.69	29.98	873	43.52	63.05	69.03	75.18
		♂	2132	1476	127	23	1.06	491	23.02	33.25	444	20.84	30.10	935	43.85	63.35	69.22	75.19

Statistical analysis - Cocks on the age of 32 days

Tab. No. 4a

Test: 49

Part fattening: 4

Cross	Sample	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	%	%
XXXXXXXX	1	274	2155.44	282.74	13.12	17.08	0.79	0.57
XXXXXXXX	2	272	2174.63	259.88	11.95	15.76	0.72	0.52
XXXXXXXX	3	272	2194.08	319.71	14.57	19.39	0.88	0.64
XXXXXXXX	4	274	2096.57	211.48	10.09	12.78	0.61	0.44
XXXXXXXX	5	267	2114.94	234.28	11.08	14.34	0.68	0.49
XXXXXXXX	6	272	2227.83	237.17	10.65	14.38	0.65	0.46
XXXXXXXX	7	271	2174.94	226.44	10.41	13.76	0.63	0.45
XXXXXXXX	8	270	2210.78	249.95	11.31	15.21	0.69	0.49
XXXXXXXX	9	257	2011.25	296.30	14.73	18.48	0.92	0.67
XXXXXXXX	10	266	2249.81	242.22	10.77	14.85	0.66	0.47
XXXXXXXX	11	267	2142.92	261.74	12.21	16.02	0.75	0.54
XXXXXXXX	12	270	2188.30	207.45	9.48	12.62	0.58	0.41

Statistical analysis - Hens on the age of 32 days

Tab. No. 4b

Test: 49

Part fattening: 4

Cross	Sample	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	%	%
XXXXXXXXXX	1	273	1916.67	237.32	12.38	14.36	0.75	0.54
XXXXXXXXXX	2	267	1895.77	196.22	10.35	12.01	0.63	0.45
XXXXXXXXXX	3	264	1858.83	234.18	12.60	14.41	0.78	0.56
XXXXXXXXXX	4	276	1821.27	199.71	10.97	12.02	0.66	0.47
XXXXXXXXXX	5	269	1923.57	216.68	11.26	13.21	0.69	0.49
XXXXXXXXXX	6	270	1981.52	214.86	10.84	13.08	0.66	0.47
XXXXXXXXXX	7	271	1883.65	239.36	12.71	14.54	0.77	0.56
XXXXXXXXXX	8	273	1924.95	216.20	11.23	13.08	0.68	0.49
XXXXXXXXXX	9	268	1928.17	221.50	11.49	13.53	0.70	0.50
XXXXXXXXXX	10	267	1958.13	204.84	10.46	12.54	0.64	0.46
XXXXXXXXXX	11	273	2003.19	210.69	10.52	12.75	0.64	0.46
XXXXXXXXXX	12	275	1963.09	229.76	11.70	13.86	0.71	0.51