



MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE
státní podnik, ÚSTRAŠICE

390 02 Tábor 2

Tel.: 381 200 320

**1st part fattening test of the final product of XLIX.
international test of parents from of broilers**

2. 12. 2020 - 3. 1. 2021

Study Investigator: Ing. Hana Horná
Ing. Markéta Krekulová

Ústřašice, January 2020

1 List of participants

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

2 Basic tests information

2.1 The basic dates

setting in the hatchery: 10 November 2020
beginning of test: 2 December 2020 (day 0)
end of the test: 3 January 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 810 hatching eggs. 560 broilers were sexed and placed always 280 females (in two pens) and 280 males (in two pens).

The parent flock is 31 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 XXXXXXXXXX

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	0.92	0.86	0.86	0.86
Vitamin and mineral supplement	0.85	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 [REDACTED] 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 [REDACTED]. [REDACTED] treatment was initiated on day 3 due to higher mortality.

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: 1

Cross	Sample	Fertility	Hatchability		Birds housed	Average weight		
			Set	Fert.		hatch. eggs	1-day	
		%	%	%			♂	♀
					g	g	g	
	1	94.07	83.21	88.45	560	59.1	39.4	39.3
	2	97.04	90.12	92.88	560	59.8	40.8	41.0
	3	95.56	86.42	90.44	560	59.1	39.4	39.3
	4	96.05	88.77	92.42	560	59.4	40.9	40.9
	5	94.69	84.94	89.70	560	59.4	39.6	39.6
	6	94.94	88.15	92.85	560	59.0	39.4	39.3
	7	95.93	86.54	90.22	560	59.1	39.9	39.6
	8	95.68	87.65	91.61	560	58.5	38.6	38.9
	9	96.30	87.41	90.77	560	57.5	37.3	37.5
	10	96.05	87.16	90.75	560	59.5	40.3	40.3
	11	94.81	87.04	91.80	560	59.1	38.8	38.9
	12	96.17	87.28	90.76	560	59.5	39.9	39.6

Broiler results at the age of 7 days

Tab. No. 1b

Test: 49

Part fattening: 1

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
	1	0	0.0	179.2	2	1.4	162.5	2	0.4	170.9
	2	0	0.0	185.0	0	0.0	170.0	0	0.0	177.5
	3	2	1.4	175.0	3	2.1	164.2	5	0.9	169.6
	4	0	0.0	180.8	0	0.0	170.8	0	0.0	175.8
	5	0	0.0	178.3	0	0.0	170.8	0	0.0	174.6
	6	4	2.9	180.8	0	0.0	166.7	4	0.7	173.7
	7	0	0.0	181.7	0	0.0	164.2	0	0.0	172.9
	8	0	0.0	180.0	3	2.1	169.2	3	0.5	174.6
	9	5	3.6	175.0	4	2.9	163.3	9	1.6	169.2
	10	0	0.0	176.7	5	3.6	166.7	5	0.9	171.7
	11	0	0.0	178.3	4	2.9	169.2	4	0.7	173.8
	12	0	0.0	182.5	0	0.0	172.2	0	0.0	177.3

Broiler results at the age of 14 days

Tab. No. 1c

Test: 49

Part fattening: 1

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	
	1	280	483.3	1055.5	278	458.3	1078.4	558	470.9	1066.6
	2	279	489.2	1069.8	279	472.5	1030.9	558	480.8	1050.7
	3	275	464.8	1081.1	276	460.0	1103.5	551	462.4	1092.3
	4	278	486.7	991.9	280	470.0	1057.8	558	478.3	1024.4
	5	279	496.7	1014.6	279	483.3	1024.1	558	490.0	1019.3
	6	275	491.7	1081.3	278	462.5	1119.2	553	477.0	1099.8
	7	279	472.5	1108.3	280	482.5	1008.9	559	477.5	1058.0
	8	279	490.0	1046.7	276	469.7	1079.2	555	479.9	1062.6
	9	274	490.0	1036.8	275	470.8	1094.4	549	480.4	1065.1
	10	280	482.5	1046.6	275	478.3	995.9	555	480.4	1021.6
	11	280	485.8	1125.5	275	475.8	1093.6	555	480.9	1109.8
	12	280	481.7	1042.5	278	462.2	1084.2	558	472.0	1062.8

Broiler results at the age of 32 days

Tab. No. 1d

Test: 49

Part fattening: 1

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	
	1	277	2075.4	1614.2	275	1899.7	1588.3	552	1987.9	1601.9
	2	272	2122.1	1553.9	278	1921.8	1551.3	550	2020.9	1552.7
	3	272	2118.4	1535.7	275	1945.0	1549.8	547	2031.2	1542.5
	4	277	1924.0	1625.4	279	1856.4	1549.9	556	1890.1	1588.2
	5	273	2144.5	1528.6	277	1899.9	1559.0	550	2021.3	1543.0
	6	272	2158.3	1567.2	278	1958.9	1584.4	550	2057.5	1575.5
	7	279	2067.6	1585.1	279	1794.6	1629.6	558	1931.1	1605.8
	8	275	2200.1	1531.3	272	1968.9	1593.6	547	2085.2	1560.6
	9	270	2199.5	1491.4	274	1942.0	1553.4	544	2069.8	1520.7
	10	276	2178.7	1545.9	275	1932.0	1529.7	551	2055.6	1538.3
	11	274	2169.5	1557.7	271	1920.3	1614.9	545	2045.6	1584.4
	12	278	2013.6	1549.3	277	1867.8	1583.8	555	1940.8	1565.9

Mortality in the age 14 days

Tab. No. 2a

Test: 49

Part fattening: 1

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	%															
	1	0	0.00	2	0.71	2	0.36														2	
	2	1	0.36	1	0.36	2	0.36											1				1
	3	5	1.79	4	1.43	9	1.61											2		2		5
	4	2	0.71	0	0.00	2	0.36											2				
	5	1	0.36	1	0.36	2	0.36											2				
	6	5	1.79	2	0.71	7	1.25											1		3		3
	7	1	0.36	0	0.00	1	0.18											1				
	8	1	0.36	4	1.43	5	0.89										2	2				1
	9	6	2.14	5	1.79	11	1.96											2		7		2
	10	0	0.00	5	1.79	5	0.89										1			3		1
	11	0	0.00	5	1.79	5	0.89											1		3		1
	12	0	0.00	2	0.71	2	0.36											2				

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: 1

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	%														
	1	2	0.36	6	1.07	8	1.43											6		2	
	2	2	0.36	8	1.43	10	1.79											9			1
	3	9	1.61	4	0.71	13	2.32											6		2	5
	4	2	0.36	2	0.36	4	0.71											4			
	5	2	0.36	8	1.43	10	1.79											9			1
	6	7	1.25	3	0.54	10	1.79											4		3	3
	7	1	0.18	1	0.18	2	0.36											2			
	8	5	0.89	8	1.43	13	2.32											2	10		1
	9	11	1.96	5	0.89	16	2.86											7		7	2
	10	5	0.89	4	0.71	9	1.61										1	4		3	1
	11	5	0.89	10	1.79	15	2.68											10		3	2
	12	2	0.36	3	0.54	5	0.89											4			1

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: 1

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	%	%	%
	1	♂	2109	1483	132	24	1.14	461	21.85	31.07	463	21.94	31.18	923	43.79	62.25	70.35	76.61
		♀	1970	1409	119	29	1.45	444	22.53	31.49	422	21.41	29.92	866	43.95	61.41	71.56	77.61
		♂	2039	1446	126	26	1.29	452	22.18	31.27	442	21.68	30.57	894	43.86	61.84	70.93	77.10
	2	♂	2120	1495	129	23	1.09	468	22.07	31.30	473	22.29	31.61	940	44.36	62.92	70.50	76.57
		♀	1945	1399	120	30	1.54	435	22.39	31.13	429	22.04	30.64	864	44.43	61.78	71.93	78.09
		♂	2032	1447	124	27	1.31	452	22.22	31.22	451	22.17	31.14	902	44.39	62.36	71.18	77.30
	3	♂	2205	1568	133	27	1.23	508	23.03	32.38	485	22.02	30.97	993	45.04	63.35	71.10	77.12
		♀	2021	1454	122	28	1.40	483	23.88	33.19	427	21.14	29.38	910	45.02	62.57	71.96	78.02
		♂	2113	1511	128	28	1.31	495	23.43	32.77	456	21.60	30.20	951	45.03	62.97	71.51	77.55
	4	♂	2031	1425	129	20	0.99	455	22.39	31.91	445	21.89	31.20	899	44.27	63.11	70.16	76.52
		♀	1856	1300	114	24	1.29	426	22.94	32.74	389	20.97	29.92	815	43.91	62.66	70.08	76.21
		♂	1943	1363	121	22	1.13	440	22.65	32.30	417	21.45	30.59	857	44.10	62.89	70.12	76.37
	5	♂	2214	1593	134	27	1.21	517	23.34	32.44	485	21.89	30.43	1001	45.23	62.87	71.95	77.98
		♀	1977	1407	122	30	1.53	451	22.82	32.06	420	21.25	29.86	871	44.07	61.92	71.18	77.33
		♂	2095	1500	128	29	1.36	484	23.09	32.26	452	21.59	30.16	936	44.68	62.42	71.58	77.67
	6	♂	2232	1596	140	32	1.44	508	22.75	31.81	493	22.10	30.91	1001	44.85	62.71	71.51	77.77
		♀	2007	1420	127	34	1.71	443	22.09	31.23	423	21.10	29.82	867	43.19	61.05	70.75	77.06
		♂	2119	1508	133	33	1.57	475	22.44	31.54	458	21.63	30.39	934	44.06	61.93	71.15	77.43

Results of carcass analysis in 32 days

Tab. No. 3 (page 2)

Test: 49

Part fattening: 1

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	%	%	%
	7	♂	2075	1460	128	26	1.24	460	22.17	31.50	454	21.88	31.09	914	44.05	62.59	70.38	76.53
		♀	1894	1353	117	28	1.48	442	23.36	32.70	404	21.32	29.84	846	44.67	62.53	71.44	77.60
		♂	1984	1406	122	27	1.36	451	22.74	32.08	429	21.61	30.49	880	44.35	62.56	70.89	77.04
	8	♂	2236	1559	136	29	1.27	492	22.00	31.56	480	21.48	30.81	972	43.47	62.37	69.71	75.77
		♀	2045	1451	119	32	1.55	478	23.39	32.97	423	20.68	29.14	901	44.07	62.11	70.96	76.79
		♂	2141	1505	127	30	1.40	485	22.67	32.24	452	21.10	30.01	937	43.76	62.24	70.31	76.26
	9	♂	2211	1565	137	29	1.29	501	22.64	31.98	476	21.53	30.42	977	44.17	62.41	70.78	76.97
		♀	2041	1452	123	31	1.50	444	21.76	30.59	431	21.10	29.66	875	42.87	60.26	71.14	77.16
		♂	2126	1508	130	30	1.39	472	22.22	31.31	453	21.33	30.06	926	43.54	61.37	70.95	77.07
	10	♂	2270	1604	132	26	1.16	525	23.12	32.72	495	21.79	30.84	1019	44.91	63.56	70.66	76.47
		♀	1984	1430	118	27	1.38	458	23.07	32.01	434	21.89	30.37	892	44.96	62.39	72.07	78.03
		♂	2127	1517	125	27	1.26	491	23.10	32.39	464	21.84	30.62	956	44.94	63.01	71.32	77.20
	11	♂	2285	1607	138	37	1.60	504	22.06	31.36	496	21.70	30.85	1000	43.76	62.21	70.34	76.39
		♀	1962	1411	116	33	1.66	447	22.76	31.65	425	21.68	30.14	872	44.44	61.78	71.93	77.83
		♂	2123	1509	127	35	1.63	475	22.38	31.49	460	21.69	30.52	936	44.07	62.01	71.07	77.06
	12	♂	2136	1524	132	22	1.02	499	23.35	32.72	470	22.02	30.86	969	45.37	63.59	71.35	77.54
		♀	1875	1329	114	24	1.29	435	23.18	32.70	400	21.32	30.07	834	44.49	62.76	70.89	77.00
		♂	2005	1427	123	23	1.15	467	23.27	32.71	435	21.69	30.49	902	44.96	63.20	71.14	77.29

Statistical analysis - Cocks on the age of 32 days

Tab. No. 4a

Test: 49

Part fattening: 1

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	%	%
	1	277	2075.42	233.21	11.24	14.01	0.68	0.48
	2	272	2122.10	238.30	11.23	14.45	0.68	0.49
	3	272	2118.38	210.33	9.93	12.75	0.60	0.43
	4	277	1923.97	199.83	10.39	12.01	0.62	0.45
	5	273	2144.47	199.12	9.29	12.05	0.56	0.40
	6	272	2158.27	241.96	11.21	14.67	0.68	0.49
	7	279	2067.60	220.80	10.68	13.22	0.64	0.46
	8	275	2200.15	210.53	9.57	12.70	0.58	0.41
	9	270	2199.48	237.90	10.82	14.48	0.66	0.47
	10	276	2178.73	235.96	10.83	14.20	0.65	0.47
	11	274	2169.53	259.80	11.97	15.69	0.72	0.52
	12	278	2013.60	231.86	11.51	13.91	0.69	0.50

Statistical analysis - Hens on the age of 32 days

Tab. No. 4b

Test: 49

Part fattening: 1

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	%	%
	1	275	1899.67	187.64	9.88	11.31	0.60	0.43
	2	278	1921.83	213.03	11.08	12.78	0.66	0.48
	3	275	1945.02	231.64	11.91	13.97	0.72	0.52
	4	279	1856.38	264.82	14.27	15.85	0.85	0.62
	5	277	1899.93	242.25	12.75	14.56	0.77	0.55
	6	278	1958.92	238.41	12.17	14.30	0.73	0.52
	7	279	1794.62	220.14	12.27	13.18	0.73	0.53
	8	272	1968.90	222.32	11.29	13.48	0.68	0.49
	9	274	1941.97	199.91	10.29	12.08	0.62	0.45
	10	275	1932.04	205.98	10.66	12.42	0.64	0.46
	11	271	1920.30	205.12	10.68	12.46	0.65	0.46
	12	277	1867.80	219.65	11.76	13.20	0.71	0.51