MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE
státní podnik, ÚSTRAŠICE

390 02 Tábor 2 Tel.: 381 200 320

3rd part fattening test of the final product of test of parents from of broilers

xxxxx

2. 4. 2025 - 7. 5. 2025

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Ústrašice, June 2025

1 Basic tests information

1.1 The basic dates

setting in the hatchery:	11 March 2025
beginning of test:	2 April 2025
end of the test:	7 May 2025

1.2 Location of the test

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

2 Material and methods

2.1 Material

There were 4 different samples in this test. Each sample consisted of 630 hatching eggs of broilers xxxxx. There were 390 chicken in each sample, divided into 3 pens (130 broilers in each pen).

The parent flock is 51 weeks old at the time of hatching eggs collection.

Treatment		Description
1	T1	xxxxx
2	T2	xxxxx
3	T3	xxxxx
4	T4	xxxxx

2.2 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.

2.3 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 – 32	18	6
Day 33 – 35	23	1

2.4 Stocking density

16 broilers per square meter

2.5 Feeding

Feed was produced in Mezinárodní testování drůbeže, s.p.

Day 1 – 14 Starter (BR1)
Day 15 – 28 Grower (BR2)
Day 29 – 35 Grower (BR3)

Diet formulas – treatment T1, T2

	Starter BR1	**Grower BR2**	**Finisher BR3**
Age	Days 1 - 14	Days 15 - 28	Day 29 - 35
Components (%)			
SBM	39.77	35.43	29.14
Wheat	32.12	38.92	46.41
Maize	18.00	15.80	15.40
Soybean oil	5.43	6.06	5.64
Limestone	1.42	1.01	0.93
MCP	1.69	1.33	1.08
Salt	0.27	0.27	0.27
Sodium bicarbonate	0.15	0.15	0.15
L-lysine	0.29	0.23	0.28
L-threonine	0.16	0.13	0.13
DL-methionine	0.20	0.17	0.16
Premix AMV BR1-PLUS 0,5%	0.50	-	-
Premix AMV BR2-PLUS 0,5%	-	0.50	-
Premix AMV BR3-PLUS 0,5%	-	-	0.50
Nutrient content			
Crude protein (g/kg)	230.02	214.91	195.01
ME (MJ/kg)	12.39	12.80	13.00
Lysine (g/kg)	14.75	13.22	12.06
Methionine (g/kg)	7.24	6.55	6.37
Met.+Cys. (g/kg)	11.09	10.20	9.74
Ca (g/kg)	9.48	7.49	6.51
P dig. (g/kg)	4.99	4.20	3.61
Na (g/kg)	1.59	1.59	1.58

Diet formulas – treatment T3, T4

	Starter BR1	Grower BR2	Finisher BR3
Age	Days 1 - 14	Days 15 - 28	Day 29 - 35
Components (%)			
SBM	39.21	34.93	28.52
Wheat	34.37	41.14	48.68
Maize	18.00	15.80	15.40
Soybean oil	3.72	4.34	3.92
Limestone	1.43	1.01	0.93
MCP	1.69	1.32	1.07
Salt	0.27	0.27	0.27
Sodium bicarbonate	0.15	0.15	0.15
L-lysine	0.30	0.24	0.27
L-threonine	0.16	0.13	0.13
DL-methionine	0.20	0.17	0.16
Premix AMV BR1-PLUS 0,5%	0.50	-	-
Premix AMV BR2-PLUS 0,5%	-	0.50	-
Premix AMV BR3-PLUS 0,5%	-	-	0.50
Nutrient content			
Crude protein (g/kg)	229.94	215.07	194.99
ME (MJ/kg)	12.01	12.40	12.60
Lysine (g/kg)	14.74	13.22	12.05
Methionine (g/kg)	7.24	6.55	6.38
Met.+Cys. (g/kg)	11.10	10.22	9.76
Ca (g/kg)	9.52	7.49	6.48
P dig. (g/kg)	5.00	4.19	3.59
Na (g/kg)	1.60	1.59	1.58

Feed analyses for nutrient contents were performed at the laboratory of xxxxx

T1, T2:

Nutrient content	Starter BR1	Grower BR2	Finisher BR3
Crude protein (g/kg)	229	220	195
Dry matter (%)	88.7	89.0	89.2
Fat (g/kg)	65.3	78.0	74.0
Ash (g/kg)	58.9	52.5	47.6
Starch (g/kg)	354	361	407
Reducing sugars (g/kg)	54.2	52.8	48.1
P (g/kg)	7.21	6.84	6.07
Ca (g/kg)	9.51	7.96	7.05
ME (MJ/kg)	12.4	12.8	13.0

T3, T4:

Nutrient content	Starter BR1	Grower BR2	Finisher BR3
Crude protein (g/kg)	233	221	195
Dry matter (%)	88.8	89.1	89.4
Fat (g/kg)	59.9	64.3	59.7
Ash (g/kg)	61.5	53.4	47.2
Starch (g/kg)	357	382	424
Reducing sugars (g/kg)	54.4	52.6	47.5
P (g/kg)	7.58	6.82	6.12
Ca (g/kg)	9.78	7.77	7.14
ME (MJ/kg)	12.3	12.7	12.8

The feed was without coccidiostats. xxxxx (1 kg/tonne) was in every group of feed.

2.6 Veterinary precautions

The chicken house was disinfected by xxxxx before the chick placement. After the chicks hatched, a spray vaccination against coccidiosis (xxxxx) was applied. On the first days old chickens was applied to the water solution of permanganate. On days 1 and 12 chickens were vaccinated with xxxxx.

3 Parameters recorded

3.1 Live weight

Live weight was measured on days 1 (all the birds in each pen were weighed altogether), 14 (all the birds in each pen were weighed altogether, without fasting). On day 21 and 28 birds were weighed individually without fasting. On day 35 birds were weighed individually, after 12 hours of fasting.

3.2 Feed conversion ratio (FCR)

Feed conversion ratio was calculated as feed consumption per 1 kg of live weight for the periods 1 – 14 days, 1 – 21 days, 1 – 28 days and 1 – 35 days.

3.3 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.

3.4 Carcass analysis

The carcass analysis was done on 3 cocks and 3 hens per each pen on day 35. Breast muscles were weighed without skin and thigh muscles with bone and skin.

3.5 Statistical analyses

Performance results of live weight at the age of 35 days were statistically evaluated.

4 Results

Tab. No. 1 Hatchability
- 2a Broiler results at the age of 14 days
- 2b Broiler results at the age of 21 days
- 2c Broiler results at the age of 28 days
- 2d Broiler results at the age of 35 days
- 3 Mortality during growing period at the age of 35 days
- 4 Results of carcass analysis
- 5 Statistical analysis
- 6 Performance results per pen
  - 6a Broiler results at the age of 14 days
  - 6b Broiler results at the age of 21 days
  - 6c Broiler results at the age of 28 days
  - 6d Broiler results at the age of 35 days

Hatchability **Tab. No. 1**

Treatment	Tr. No.	Fertility	Hatchability		Birds housed	Average weight	
			Set	Fert.		hatch. eggs	1-day
		%	%	%		g	g
T1	1	96.19	84.29	87.62	390	68.43	46.36
T2	2	96.19	84.29	87.62	390	68.43	46.36
T3	3	96.19	84.29	87.62	390	68.43	46.18
T4	4	96.19	84.29	87.62	390	68.43	46.38

Broiler results at the age of 14 days **Tab. No. 2a**

Treatment	Tr. No.	Mortality		Live weight		FCR
		Birds	%	Birds	g	g
T1	1	3	0.77	387	570.80	927.75
T2	2	2	0.51	388	569.88	978.51
T3	3	5	1.28	385	571.95	962.72
T4	4	7	1.79	383	577.61	946.98

Broiler results at the age of 21 days **Tab. No. 2b**

Treatment	Tr. No.	Mortality		Live weight		FCR
		Birds	%	Birds	g	g
T1	1	7	1.79	377	1068.73	1130.66
T2	2	5	1.28	379	1084.27	1171.68
T3	3	8	2.05	376	1133.16	1130.66
T4	4	12	3.08	372	1057.88	1194.13

Broiler results at the age of 28 days **Tab. No. 2c**

Treatment	Tr. No.	Mortality		Live weight		FCR
		Birds	%	Birds	g	g
T1	1	11	2.82	373	1807.08	1236.51
T2	2	5	1.28	379	1816.57	1247.21
T3	3	10	2.56	374	1803.16	1277.74
T4	4	15	3.85	369	1802.14	1266.99

Broiler results at the age of 35 days **Tab. No. 2d**

Treatment	Tr. No.	Male		Female		Average		FCR	IEV
		birds	live weight	birds	live weight	birds	live weight		
			g		g		g	g	
T1	1	188	2692.61	182	2252.42	370	2476.08	1424.08	471
T2	2	191	2605.76	188	2188.94	379	2399.00	1464.59	455
T3	3	189	2667.67	184	2266.58	373	2469.81	1467.72	460
T4	4	187	2659.09	182	2290.44	369	2477.26	1444.23	464

The fattening efficiency index (IEV) means the level of fattening and is characterized mainly by its length, feed consumption per 1 kg live weight, achieved live weight and percentage of chicken deaths.

Calculation:

$$\textbf{IEV} = \frac{\text{\% live} \times \text{average weight at slaughter (kg)}}{\text{fattening length (days)} \times \text{feed consumption (kg / bw)}} \times 100$$

Mortality during the masts in 35 days **Tab. No. 3**

Treatment	Tr. No.	Mortality in the period							Mortality according causes														
		1 - 14	15 - 21	22 - 28	29 - 35	1 - 35			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		birds	birds	birds	birds	birds	g	%															
T1	1	3	4	4	3	14	12984	3.59										1	12			1	6
T2	2	2	3	0	0	5	2246	1.28											3			2	6
T3	3	5	3	2	1	11	8697	2.82											11				6
T4	4	7	5	3	0	15	8742	3.85											13			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
15 – Sampling (excluded of calculation)

Results of carcass analysis in 35 days **Tab. No. 4**

Treatment	Tr. No.	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	%	%	%	%
T1	1	♂	2669	1907	167	20	0.73	652	24.41	34.17	570	21.36	29.90	1222	45.77	64.07	71.44	77.71
		♀	2303	1640	137	23	1.00	537	23.33	32.77	490	21.25	29.85	1027	44.58	62.62	71.19	77.13
		ø	**2486**	**1773**	**152**	**21**	**0.86**	**594**	**23.91**	**33.52**	**530**	**21.31**	**29.88**	**1124**	**45.22**	**63.40**	**71.33**	**77.44**
T2	2	♂	2733	1868	155	27	0.98	625	22.87	33.46	546	19.96	29.20	1171	42.83	62.66	68.35	74.01
		♀	2209	1592	140	21	0.93	527	23.86	33.11	478	21.66	30.06	1006	45.52	63.17	72.07	78.41
		ø	**2471**	**1730**	**148**	**24**	**0.96**	**576**	**23.31**	**33.30**	**512**	**20.72**	**29.60**	**1088**	**44.03**	**62.89**	**70.01**	**75.98**
T3	3	♂	2728	1922	152	24	0.88	636	23.30	33.07	570	20.91	29.68	1206	44.21	62.75	70.46	76.02
		♀	2350	1630	140	26	1.09	551	23.47	33.82	483	20.53	29.60	1034	44.00	63.42	69.38	75.33
		ø	**2539**	**1776**	**146**	**25**	**0.98**	**594**	**23.38**	**33.41**	**527**	**20.74**	**29.64**	**1120**	**44.11**	**63.06**	**69.96**	**75.70**
T4	4	♂	2698	1887	164	23	0.87	639	23.68	33.86	569	21.08	30.15	1208	44.76	64.00	69.93	76.01
		♀	2329	1615	138	25	1.08	527	22.63	32.64	499	21.41	30.87	1026	44.04	63.51	69.35	75.28
		ø	**2513**	**1751**	**151**	**24**	**0.97**	**583**	**23.19**	**33.30**	**534**	**21.23**	**30.48**	**1117**	**44.43**	**63.78**	**69.66**	**75.67**

Statistical analysis - Body weight at 35 days of age **Tab. No. 5**

Treatment	Tr. No.	Cocks				Hens			
		Sample size	Average	Standard deviation	Coefficient of variation	Sample size	Average	Standard deviation	Coefficient of variation
			g/birds	g/birds	%		g/birds	g/birds	%
T1	1	188	2692.61	287.24	10.67	182	2252.42	260.66	11.57
T2	2	191	2605.76	249.27	9.57	188	2188.94	224.12	10.24
T3	3	189	2667.67	242.25	9.08	184	2266.58	242.66	10.71
T4	4	187	2659.09	257.47	9.68	182	2290.44	262.97	11.48

Broiler results at the age of 14 days **Tab. No. 6a**

Treatment	Tr. No.	Box	Mortality		Live weight		FCR
			birds	%	birds	g	g
T1	1	1	1	0.77	129	577.13	889.76
		5	1	0.77	129	570.93	932.75
		34	1	0.77	129	564.34	961.59
T2	2	2	2	1.54	128	577.34	1019.68
		6	0	0.00	130	567.69	936.31
		33	0	0.00	130	564.62	979.56
T3	3	3	2	1.54	128	576.56	967.34
		32	1	0.77	129	569.38	959.92
		36	2	1.54	128	569.92	960.90
T4	4	4	3	2.31	127	575.59	967.96
		31	4	3.08	126	585.71	970.35
		35	0	0.00	130	571.54	903.10

Broiler results at the age of 21 days **Tab. No. 6b**

Treatment	Tr. No.	Box	Mortality		Live weight		FCR
			birds	%	birds	g	g
T1	1	1	3	2.31	125	1079.68	1089.49
		5	1	0.77	127	1101.81	1118.75
		34	3	2.31	125	1024.16	1186.53
T2	2	2	3	2.31	125	1095.12	1211.36
		6	2	1.54	126	1052.62	1157.54
		33	0	0.00	128	1104.84	1146.20
T3	3	3	5	3.85	123	1159.76	1099.26
		32	1	0.77	127	1116.61	1154.15
		36	2	1.54	126	1123.89	1139.25
T4	4	4	4	3.08	124	1071.45	1201.11
		31	5	3.85	123	1096.83	1187.78
		35	3	2.31	125	1006.08	1193.52

Broiler results at the age of 28 days **Tab. No. 6c**

Treatment	Tr. No.	Box	Mortality		Live weight		FCR
			birds	%	birds	g	g
T1	1	1	5	3.85	123	1794.31	1214.53
		5	1	0.77	127	1860.63	1227.13
		34	5	3.85	123	1764.55	1268.80
T2	2	2	3	2.31	125	1723.52	1331.96
		6	2	1.54	126	1832.14	1225.94
		33	0	0.00	128	1892.11	1191.58
T3	3	3	6	4.62	122	1760.74	1313.08
		32	2	1.54	126	1916.98	1205.47
		36	2	1.54	126	1730.40	1322.69
T4	4	4	5	3.85	123	1791.14	1282.95
		31	5	3.85	123	1923.33	1227.15
		35	5	3.85	123	1691.95	1294.70

Broiler results at the age of 35 days **Tab. No. 6d**

Treatment	Tr. No.	Box	Male		Female		Average		FCR	IEV
			birds	live weight g	birds	live weight g	birds	live weight g	g	
T1	1	1	64	2683.75	56	2292.32	120	2501.08	1389.45	475
		5	66	2791.06	61	2311.64	127	2560.79	1390.00	514
		34	58	2590.34	65	2162.46	123	2364.23	1497.92	427
T2	2	2	66	2648.03	59	2237.29	125	2454.16	1445.77	466
		6	60	2562.00	66	2236.21	126	2391.35	1461.81	453
		33	65	2603.23	63	2094.13	128	2352.66	1486.66	445
T3	3	3	63	2650.95	58	2286.21	121	2476.12	1458.47	451
		32	63	2705.71	63	2340.63	126	2523.17	1439.34	485
		36	63	2646.35	63	2174.44	126	2410.40	1506.84	443
T4	4	4	64	2630.63	59	2265.25	123	2455.37	1462.12	454
		31	61	2743.93	62	2395.81	123	2568.46	1423.84	488
		35	62	2605.00	61	2207.70	123	2407.97	1447.58	450

The fattening efficiency index (IEV) means the level of fattening and is characterized mainly by its length, feed consumption per 1 kg live weight, achieved live weight and percentage of chicken deaths.

Calculation:

$$\textbf{IEV} = \frac{\text{\% live} \times \text{average weight at slaughter (kg)}}{\text{fattening length (days)} \times \text{feed consumption (kg / bw)}} \times 100$$