MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE
státní podnik, ÚSTRAŠICE

390 02 Tábor 2 Tel.: 381 200 320

THE COMPLETE REPORT

the effect of addive to production of parent forms of slowly growing broiler chicken

JA 39/2023

2023-2025

Ústrašice, June 2025

1. The basic characteristics of the test

DOC placement: 14. 11.2023
Rearing 154 days: 16. 4. 2024
Production 155 – 490 days: 17. 4. 2024 – 18. 3. 2025

Experimental treatments:

Tr. No.	Treatment	Description	No. of pen	Birds per pen	No. of chick
1	T1	xxxxx	6	102♀ + 12♂	612♀ + 72♂
2	T2	xxxxx	6	102♀ + 12♂	612♀ + 72♂
3	T3	xxxxx	4	82♀ + 9♂	328♀ + 36♂
4	T4	xxxxx	4	82♀ + 9♂	328♀ + 36♂

xxxxx was administered throughout the study in the laying phase, via feed.

2. Production period (155 – 490 days)

Females were moved to production houses at 21 weeks of age. Males were moved at 20 week of age. 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 six boxes in one hall (treatment 1 and 2) and into four boxes in other one hall, according to the test station. To lay control was included in each sample 612 (328) females and 72 (36) males, therefore in each box were 102 (82) females and 12 (9) males. Selections are carried out primarily by negative selection by health and exterier, as well as by live weight of each bird.
Housing in laying halls: deep litter houses, automated heating and ventilation.

Stocking density (155 – 490 days):
House 15: 12 pens 114 birds/pen (102 females + 12 males) Pen size: 18,4 m^2
House 16: 14 pens 91 birds/pen (82 females + 9 males) Pen size: 13,6 m^2

Light programme:

Age (days)	Light hours	Light intensity (lux)
148 – 154 days (week 22)	12	60
155 – 161 days (week 23)	13	
162 – 168 days (week 24)	14	
from 169 day (week 25)	15	

Complete feed formulation:
Feed for females was produced by the feed mill xxxxx.
Feed for males was produced by the feed mill xxxxx.

Diet formulas:

Ingredient (%)	**Females:** N**P-1**	**Males:** N**R**
Wheat	52.14	61.49
Soybean ext. meal	16.65	10.00
Maize	13.00	20.00
Calcium carbonate	4.78	-
Sunflower ext. meal	4.20	-
Wheat bran	3.00	4.00
Limestone	3.00	2.10
Soyabean oil	1.22	-
Fish meal	0.60	-
Monocalcium phosphate	0.44	1.40
Salt	0.26	0.34
DL-Methionin	0.15	0.21
Lysin-HCL	0.03	0.22
Sodium sulfate	0.12	-
Premix (vitam., enz.,….)	0.41	0.25
Nutrient level (g)		
Protein	170.02	144.23
Fat	30.77	22.29
Lysine	7.82	7.39
Methionine	4.01	4.29
Calcium	30.49	12.57
Phosphorus	5.13	6.94
Vitamin A (m.j./kg)	10000.00	-
Vitamin D3 (m.j./kg)	3000.00	-
Metabolizable energy MJ/kg	11.07	12.17

Feeding management:
The flock was fed daily at 7^{00} am separately males and females. Females were using troughs with grids, males tube pan feeders hanging higher. Oats (3g/birds) was fed daily at 12^{00} on the litter. In the afternoon he was flung out into the litter grit.

System of drinking:
Nipple cup drinkem in production houses. Water was available the whole day.

Veterinary precautions:
The house was disinfected by 1% xxxxx liquid, then treated against red mites and finally by xxxxx aerosol on litter efore the placement of the flock.
During the laying has been given the vaccine IB (every 6 weeks), Poulvac IB Primer (36^{th} and 54^{th} week), Poulvac IB QX (30^{th} and 48^{th} week), Gallivac IB 88 (24^{th}, 42^{nd} and 60^{th} week).

3. Method of results presentation

The final results of testing are in the following tables:

Tab. No.	1:	Laying control
	2:	Feed consumption
	3:	Egg weight in period
	4:	Laying intensity in periods
	5:	Distribution of eggs in periods
	6:	Mortality – hens in the laying period
	7a:	Statistical analysis – cocks at 490 days of age
	7b:	Statistical analysis – hens at 490 days of age
	8:	Hatchability of chicks in period
Graph No.:	1:	Laying intensity

Laying control **Tab. No. 1**

Treatment	Tr. no.	Init. flock	Fertility	Hatchability		Average number of eggs per bird-housed			Aver. egg weight	Nr. of chicks hatched per 1 hen	Days at percent. of laying		Average live weight at the end of laying	
				set	fert.	total	hatch. eggs				30%	50%	cocks	hens
		birds	%	%	%	num.	num.	%	g		days	days	g	g
T1	1	612	95.91	90.01	93.85	274.44	251.68	91.71	60.87	226.54	154	155	5558.67	2202.25
T2	2	612	96.04	88.61	92.26	262.74	236.75	90.11	61.08	209.78	155	156	5616.28	2266.96
T3	3	328	95.08	89.56	94.20	248.61	224.33	90.23	60.96	200.91	155	155	5840.42	2304.73
T4	4	328	97.31	90.35	92.85	255.67	233.08	91.17	61.70	210.59	156	156	6150.31	2319.70

Feed consumption **Tab. No. 2**

Treatment	Tr. No.	Hens housed	Feed consumption per			
			1 feeding day	1 egg	1 hatch. egg	1 chick
			g	g	g	g
T1	1	612	140.36	167.38	182.52	202.77
T2	2	612	140.00	173.68	192.75	217.53
T3	3	328	139.34	181.64	201.29	224.77
T4	4	328	139.91	177.83	195.06	215.90

Egg weight in period (period = 28 days) **Tab. No. 3**

Treatment	Tr. No.	Period												Average
		1	2	3	4	5	6	7	8	9	10	11	12	
T1	1	52.61	55.99	58.29	58.81	59.41	60.99	62.34	63.49	64.51	64.77	62.58	66.11	60.87
T2	2	52.51	55.95	58.31	59.23	60.29	61.66	62.87	63.69	64.96	64.96	62.05	66.63	61.08
T3	3	52.92	56.73	58.39	58.97	59.97	61.61	62.89	64.17	65.19	65.70	61.80	66.23	60.96
T4	4	53.11	56.54	58.92	59.97	61.24	62.53	64.10	64.36	65.65	66.24	63.07	67.43	61.70

1st period: 23th – 26th week of age
12th period: 67th – 70th week of age

Laying intensity **Tab. No. 4**

in four weeks long periods (%)

Treatment	Tr. No.	Period											
		1	2	3	4	5	6	7	8	9	10	11	12
T1	1	82.33	94.65	94.42	91.81	87.12	85.77	83.31	79.93	76.57	72.46	68.53	63.26
T2	2	81.43	93.97	92.58	88.42	82.97	80.71	79.07	74.94	72.05	68.32	65.01	58.89
T3	3	88.32	94.54	92.11	89.10	83.61	77.69	70.56	68.23	65.37	58.22	52.80	47.34
T4	4	84.57	94.89	93.12	91.88	85.83	82.84	74.72	71.48	67.36	61.28	55.00	50.14

Distribution of eggs in period (%) **Tab. No. 5**

Hatching eggs

Treatment	Tr. No.	Period												Average
		1	2	3	4	5	6	7	8	9	10	11	12	
T1	1	86.11	92.84	93.47	93.87	93.39	93.50	93.60	92.57	91.31	89.78	89.67	88.06	91.71
T2	2	84.64	92.24	92.97	92.89	91.68	91.54	92.23	91.28	90.30	88.67	86.51	82.49	90.11
T3	3	87.86	92.69	92.56	93.36	92.19	91.72	91.98	90.34	88.57	86.93	84.66	83.30	90.23
T4	4	88.53	93.12	94.01	94.96	93.34	92.84	92.54	91.10	90.20	88.13	85.82	82.08	91.17

Double-yolk eggs

Treatment	Tr. No.	Period												Average
		1	2	3	4	5	6	7	8	9	10	11	12	
T1	1	2.12	1.25	0.12	0.09	0.00	0.01	0.02	0.01	0.01	0.01	0.00	0.00	0.32
T2	2	2.47	1.25	0.17	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.36
T3	3	2.38	1.13	0.21	0.07	0.01	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.39
T4	4	2.61	1.16	0.15	0.09	0.03	0.01	0.04	0.03	0.00	0.00	0.00	0.00	0.40

Cracked eggs

Treatment	Tr. No.	Period												Average
		1	2	3	4	5	6	7	8	9	10	11	12	
T1	1	2.45	2.14	2.55	2.35	3.03	2.36	2.12	2.66	3.12	3.54	3.25	4.49	2.77
T2	2	3.07	2.31	2.86	3.19	4.40	4.47	3.18	3.52	4.05	4.89	6.41	9.49	4.11
T3	3	2.52	2.22	3.30	2.55	4.06	3.77	3.40	4.10	6.28	6.53	8.87	10.42	4.36
T4	4	2.33	2.38	2.79	2.12	3.41	2.92	2.52	3.18	4.41	5.58	7.25	10.01	3.69

The other non-standard eggs

Treatment	Tr. No.	Period												Average
		1	2	3	4	5	6	7	8	9	10	11	12	
T1	1	9.32	3.77	3.86	3.69	3.58	4.13	4.26	4.75	5.56	6.68	7.08	7.44	5.20
T2	2	9.82	4.19	4.00	3.89	3.91	3.98	4.58	5.20	5.65	6.43	7.08	8.02	5.42
T3	3	7.25	3.96	3.92	4.01	3.74	4.50	4.63	5.55	5.15	6.53	6.48	6.28	5.02
T4	4	6.53	3.35	3.04	2.82	3.22	4.23	4.90	5.68	5.38	6.27	6.93	7.90	4.75

Mortality - hens in the laying period **Tab. No. 6**

Treatment	Tr. No.	Initial flock	Final flock	Mortality and sampling total		Mortality		Mortality according causes													
		birds	birds	birds	%	birds	%	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
T1	1	612	574	38	6.21	20	3.27										20					18
T2	2	612	562	50	8.17	32	5.23										32					18
T3	3	328	296	32	9.76	20	6.10										20					12
T4	4	328	298	30	9.15	18	5.49										18					12

Diagnostic:
1 - Viral diseases
2 - Bacterial diseases
3 - Fungal diseases
4 - Parasitary diseases
5 - Tumors
6 - Injuries
7 - Digestive tract diseases
8 - Respiratory tract diseases
9 - Reproductory tract diseases
10 - Locomotion apparatus diseases
11 - Sudden death syndrome
12 - Cannibalism
13 - Diverticulus inflammation
14 - culling and other causes
15 - Sampling (excluded of calculation)

Statistical analysis - Cocks at 490 days of age **Tab. No. 7a**

Treatment	Tr. No.	Tr. 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	%	%
T1	1	70	5558.67	729.48	13.12	87.19	1.57	1.14
T2	2	68	5616.28	777.47	13.84	94.28	1.68	1.22
T3	3	36	5840.42	773.36	13.24	128.89	2.21	1.61
T4	4	35	6150.31	775.06	12.60	131.01	2.13	1.55

Statistical analysis - Hens at 490 days of age **Tab. No. 7b**

Treatment	Tr. No.	Tr. 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	%	%
T1	1	574	2202.25	189.70	8.61	7.92	0.36	0.26
T2	2	562	2266.96	190.42	8.40	8.03	0.35	0.25
T3	3	296	2304.73	193.51	8.40	11.25	0.49	0.35
T4	4	298	2319.70	179.21	7.73	10.38	0.45	0.32

Hatchability of chicks in period **Tab. No. 8**

Treatment	Tr. No.	Period	Average weight		Fertility	Hatchability	
			hatching eggs	day old chicks		Set eggs	Fertilized eggs
			g	g	%	%	%
T1	1	2	54.50	37.18	93.33	84.89	91.03
T2	2		53.83	36.72	91.67	86.22	94.05
T3	3		54.17	37.39	93.67	88.56	94.54
T4	4		55.67	38.25	95.78	90.00	93.96

Treatment	Tr. No.	Period	Average weight		Fertility	Hatchability	
			hatching eggs	day old chicks		Set eggs	Fertilized eggs
			g	g	%	%	%
T1	1	3	58.59	39.28	96.63	93.45	96.73
T2	2		58.34	39.39	96.63	88.80	91.90
T3	3		57.57	38.83	97.63	93.08	95.33
T4	4		58.29	40.96	98.07	94.13	95.99

Treatment	Tr. No.	Period	Average weight		Fertility	Hatchability	
			hatching eggs	day old chicks		Set eggs	Fertilized eggs
			g	g	%	%	%
T1	1	4	58.30	39.98	97.83	94.54	96.63
T2	2		59.04	40.46	97.87	92.52	94.53
T3	3		58.70	38.71	96.69	93.52	96.73
T4	4		59.98	40.25	98.39	93.65	95.18

Treatment	Tr. No.	Period	Average weight		Fertility	Hatchability	
			hatching eggs	day old chicks		Set eggs	Fertilized eggs
			g	g	%	%	%
T1	1	5	75.14	39.49	123.56	117.11	94.61
T2	2		76.44	40.14	122.33	115.67	94.68
T3	3		75.93	38.37	123.00	115.56	94.57
T4	4		77.39	39.26	123.56	116.78	94.72

Treatment	Tr. No.	Period	Average weight		Fertility	Hatchability	
			hatching eggs	day old chicks		Set eggs	Fertilized eggs
			g	g	%	%	%
T1	1	6	60.30	39.09	94.90	89.48	94.21
T2	2		61.07	39.90	93.93	86.69	92.29
T3	3		61.10	39.51	95.40	90.43	94.77
T4	4		61.60	40.12	95.19	87.33	91.73

Treatment	Tr. No.	Period	Average weight		Fertility	Hatchability	
			hatching eggs	day old chicks		Set eggs	Fertilized eggs
			g	g	%	%	%
T1	1	8	63.00	40.68	91.33	87.67	95.99
T2	2		62.83	41.83	91.67	83.67	91.27
T3	3		62.67	44.08	92.33	87.33	94.58
T4	4		64.00	43.16	94.67	87.67	92.61

Treatment	Tr. No.	Period	Average weight		Fertility	Hatchability	
			hatching eggs	day old chicks		Set eggs	Fertilized eggs
			g	g	%	%	%
T1	1	10	65.56	43.60	73.00	66.56	91.15
T2	2		65.61	42.61	77.11	66.11	85.79
T3	3		65.22	43.04	70.22	64.44	91.65
T4	4		65.50	43.48	77.11	66.89	86.65

Treatment	Tr. No.	Period	Average weight		Fertility	Hatchability	
			hatching eggs	day old chicks		Set eggs	Fertilized eggs
			g	g	%	%	%
T1	1	11	64.50	42.88	83.89	77.22	92.05
T2	2		65.78	45.67	80.00	70.56	88.19
T3	3		65.33	43.54	77.22	70.56	91.37
T4	4		66.78	42.73	76.11	67.22	88.32

Graph no. 1: Intenzity of lay