MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE
státní podnik, ÚSTRAŠICE

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THE COMPLETE REPORT

The effect of xxxxxxx on performance parameters in parent flock

Vliv přípravku xxxxxxx na produkci v rodičovském hejně slepic

XXXXXXXXXXXXX

2020 – 2021

Ústrašice, August 2021

1 The basic tests information

1.1 The basic dates

Rearing 1 – 22 weeks (1 – 154 days):	9 April 2020 – 9 September 2020
Production 23 – 62 weeks (155 – 434 days):	10 September 2020 – 16 June 2021
End of the test:	12 July 2021

1.2 Location of the test

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

1.3 Material

There were 2 different breeds in the test. There were kept 450 hens and 75 cocks in the treatment. Genotype of parent hens was xxxxxxxx.

Treatment No.	Treatment	Description
1	**xxxxxxxxx**	control diets + 1 kg xxxxxxx per 1 tonne of feed
2	**xxxxxxxxx**	control diets

2 The rearing of pullets

2.1 Samples and their location

Females were reared in five 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 400 birds, i.e. 80 birds per pen, males to 60 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 six 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 275 females and 42 males per entry. Males were reduced later to 30 birds.

2.2 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.

2.3 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

2.4 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	$7^{00} – 2^{00}$	19
Day 5	$7^{00} – 23^{00}$	16
Day 6 – 7	$7^{00} – 20^{00}$	13
Day 8 – 14	$7^{00} – 17^{00}$	10
Day 15 – 154	$7^{00} – 15^{00}$	8

Light intensity in first three days was 60 lux/sq. m. and than till the end of rearing 5 lux/sq. m.

2.5 Feeding and watering

There were used four different feed mixtures in the test. Feed was produced in xxxx xxxxxxxxx

Day 1 – 28: K1 – starter, pellets
Day 29 – 105: KZK – pellets
Day 106 – 154: NP-0 – pellets

Diet formulas

	K1	KZK	NP-0
Components (%)			
Wheat	41,00	46,43	55,70
Maize	22,50	18,00	20,00
Oat	1,00	4,70	-
Sunflower meal	1,00	10,00	10,00
Wheat bran	-	9,00	2,00
Soybean meal	29,63	6,30	6,70
Soya fat	1,27	1,40	0,94
Salt	0,23	0,24	0,26
Calcium carbonate	1,78	1,65	2,45
Monocalcium phosphate	0,63	1,33	1,22
Sodium bicarbonate	0,17	0,26	0,13
Vitamin premix	0,79	0,69	0,60
Nutrient content (calculated values)			
Protein	22,25	15,20	15,00
Fat	3,17	3,56	2,97
Lysin	0,94	0,61	0,58
Methionin	0,44	0,32	0,30
Calcium	0,98	0,95	1,20
Phosphorus	0,51	0,42	0,38
Metabolizable energy MJ/kg	12,07	11,30	11,72

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 % diference 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.

2.6 Veterinary precautions

The house was disinfected by xxxxxxxxxxxxx. As a prevention permanganate was given to the birds as well as vitamin – xxxxxxxxxxx

Vaccination programme

Age	Vaccine
Day 1	xxxxxxxxxxxx
Days 6	xxxxxxxxxxxx
Days 13	xxxxxxxxxxxx
Days 17	xxxxxxxxxxxx
Days 22	xxxxxxxxxxxx
Days 29	xxxxxxxxxxxx
Days 35	xxxxxxxxxxxx
Week 6	xxxxxxxxxxxx
Week 7	xxxxxxxxxxxx
Week 8	xxxxxxxxxxxx
Week 9	xxxxxxxxxxxx
Week 10	xxxxxxxxxxxx
Week 11	xxxxxxxxxxxx
Week 12	xxxxxxxxxxxx
Week 13	xxxxxxxxxxxx
Week 14	xxxxxxxxxxxx
Week 15	xxxxxxxxxxxx
Week 16	xxxxxxxxxxxx
Week 17	xxxxxxxxxxxx
Week 19	xxxxxxxxxxxx

3 The production period

3.1 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 10 boxes in the hall according to the test station. To lay control was included in each sample 330 females and 42 males, therefore in each box were 55 females and 7 males (who were later reduced to 30 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.

3.2 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.

3.3 Conditions of the environment

Temperature

Age	House (°C)
155 – 434 days	18

Stocking density

Age	♀ and ♂
155 – 434 days	4.2

3.4 Lighting programme

Age	Light from - to	Hours of light
Week 23 (Day 155 – 161)	$6^{00} – 17^{00}$	11
Week 24 (Day 162 – 168)	$5^{00} – 17^{00}$	12
Week 25 (Day 169 – 175)	$5^{00} – 18^{00}$	13
From week 26	$5^{00} – 19^{00}$	14

3.5 Feeding and watering

Feed was produced in xxxxxxxxxxxx

Day 155 – 294: NP-1 – crusher
Day 295 – 434: NP-2 – crusher

xxxxxxxxxxxx.

	NP-1	NP-2
Components (%)		
Wheat	47,62	48,33
Maize	20,00	20,00
Soybean meal	9,75	8,40
Soya fat	3,33	3,39
Monocalcium phosphate	1,15	1,07
Limestone	4,13	4,72
Limestone–roughly ground	3,00	3,00
Sunflower meal	10,00	10,00
Salt	0,28	0,28
Vitamin premix	0,74	0,81
Nutrient content (calculated values)		
Protein	15,19	14,69
Fat	5,21	5,26
Lysine	0,62	0,58
Methionine	0,32	0,33
Calcium	2,90	3,10
Phosphorus	0,36	0,34
Vitamin A (m.j./kg)	10000,00	10000,00
Vitamin D3 (m.j./kg)	3000,00	3000,00
Metabolizable energy MJ/kg	11,72	11,72

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.

3.6 Veterinary precautions

The house was disinfected by xxxxxxxxxxxx, then treated against red mites and finally by xxxxxxxxxxxx on litter before the placement of the flock.
xxxxxxxxxxxx.

4 The growing test of progeny

Four progeny fattening tests were performed on each sample and processed in separate reports.

5 The results

Tab. No.	1	Rearing period
	2	Mortality during rearing period
	3a	Statistical analysis – cocks at 154 days of age
	3b	Statistical analysis – hens at 154 days of age
	4	Body weight – rearing
	5	Laying control
	6	Egg weight in period
	7	Mortality – hens in the laying period
	8a	Statistical analysis – cocks at 434 days of age
	8b	Statistical analysis – hens at 434 days of age

Rearing period **Tab. No. 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
xxxxxxxxxxxx	1	♂	75	60	42	46,3	3669,8	41,5	71,5	63,4
		♀	450	400	330	41,5	2787,8	32,0	67,0	58,3
xxxxxxxxxxxx	2	♂	75	60	42	46,3	3715,0	41,3	71,1	63,1
		♀	450	400	330	41,5	2835,0	31,5	66,4	57,7

Mortality during the rearing period **Tab. No. 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	%														
xxxxxxxxxxxx	1	♂	0	0,0	0	0,0	2	3,3	2	2,2					2									31
		♀	0	0,0	0	0,0	2	0,5	2	0,4										1	1			118
xxxxxxxxxxxx	2	♂	0	0,0	2	2,2	2	3,3	4	4,4										3	1			29
		♀	0	0,0	0	0,0	3	0,8	3	0,7										1	2			117

Diagnostic:

1 - Viral diseases
2 - Bacterial diseases
3 – Fungal diseases
4 - Parasitary diseases
5 - Culling
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 – Stock reduction

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	%	%
xxxxxxxxxxxx	1	42	3669,76	510,23	13,90	78,73	2,15	1,56
xxxxxxxxxxxx	2	42	3715,00	375,25	10,10	57,90	1,56	1,13

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	%	%
xxxxxxxxxxxx	1	330	2787,76	255,40	9,16	14,06	0,50	0,36
xxxxxxxxxxxx	2	330	2835,00	262,29	9,25	14,44	0,51	0,36

Body weight - rearing **Tab. No. 4**

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
xxxxxxxxxxxx	1	♂	156	307	501	647	742	950	1090	1310	1430	1480	1700	1910	2110	2200	2270	2360	2560	2630	2780	2740	3270	3670
		♀	133	254	386	483	566	710	810	940	1024	1118	1234	1290	1474	1584	1718	1810	2006	2126	2278	2348	2562	2842
xxxxxxxxxxxx	2	♂	171	322	503	651	751	930	1070	1230	1380	1560	1690	1890	2020	2130	2340	2360	2550	2600	2750	2760	3240	3710
		♀	144	270	395	481	577	698	798	938	1034	1152	1230	1286	1490	1584	1710	1812	2030	2138	2266	2376	2656	2892

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
		birds	%	%	%	numbe	number	%	g		days	days	g	g	g	g	g
xxxxxxxxxx	1	330	94,5	78,0	82,3	153,9	140,2	91,1	67,1	109,3	181	184	5165,5	4666,7	156,8	274,9	386,9
xxxxxxxxxx	2	330	97,1	82,0	84,4	153,4	140,8	91,8	66,9	115,5	181	184	5417,3	4637,3	158,3	280,4	372,5

Hatching eggs in week (%) **Tab. No. 6**

Breed	Treat. No.	Period																			
		2				3				4				5				6			
		Week																			
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
xxxxxxxxxxxx	1	56,9	84,5	89,8	91,7	90,9	91,2	90,3	91,2	90,5	92,3	91,2	91,7	93,8	92,3	94,2	93,9	92,6	95,5	94,2	94,0
xxxxxxxxxxxx	2	63,3	84,3	89,7	92,7	93,3	92,5	92,1	92,7	92,5	92,5	92,0	91,4	95,3	94,3	95,2	95,8	93,2	95,1	94,9	94,1

Breed	Treat. No.	Period																Cumulate
		7				8				9				10				
		Week																
		47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	
xxxxxxxxxxxx	1	93,6	95,0	93,2	90,8	92,5	91,4	91,9	90,6	91,2	90,6	94,6	91,5	92,1	92,5	90,7	93,2	91,11
xxxxxxxxxxxx	2	94,5	96,1	92,8	91,6	94,2	92,4	93,2	92,6	90,7	88,7	92,4	92,2	92,9	92,3	91,8	93,4	91,79

Dirty eggs, % of hatching eggs, in week **Tab. No. 7**

Breed	Treat. No.	Period																			
		2				3				4				5				6			
		Week																			
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
xxxxxxxxxxxx	1	8,1	4,4	3,3	4,0	2,3	3,5	2,9	2,2	3,2	4,0	2,9	3,7	3,2	1,9	2,8	2,8	0,6	1,3	1,1	0,9
xxxxxxxxxxxx	2	6,8	4,8	2,6	3,0	2,7	3,5	4,6	2,7	5,2	4,2	3,1	3,6	3,8	2,0	2,5	2,5	0,9	1,0	1,6	0,9

Breed	Treat. No.	Period																Cumulate
		7				8				9				10				
		Week																
		47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	
xxxxxxxxxxxx	1	1,6	2,1	0,8	1,1	0,9	0,3	1,0	2,3	1,3	1,1	0,9	1,7	1,7	1,7	0,5	0,4	2,24
xxxxxxxxxxxx	2	1,5	1,7	1,2	0,4	0,9	0,4	1,1	2,9	1,6	1,7	0,5	2,4	1,1	0,5	0,7	0,0	2,39

Egg weight in period (period = 28 days) **Tab. No. 8**

Breed	Treat. No.	Period										Cumulate
		1	2	3	4	5	6	7	8	9	10	
xxxxxxxxxxxx	1	50,7	56,7	61,3	64,4	67,5	69,9	70,8	71,8	72,4	72,9	67,1
xxxxxxxxxxxx	2	49,5	57,0	61,3	64,5	67,0	69,8	70,7	71,0	72,5	73,1	66,9

1st period: 23th – 26th week of age
10th period: 59th – 62th week of age

Mortality - hens in the laying period **Tab. No. 9**

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	15
xxxxxxxxxxxx	1	330	302	28	8,5										2	23	2		1	18
xxxxxxxxxxxx	2	330	304	26	7,9											22			4	18

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
12 - Cannibalism
13 - Diverticulus inflammation
14 - Other causes
15 - Culling (excluded of calculation)

Statistical analysis - Cocks at 434 days of age **Tab. No. 10a**

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	%	%
xxxxxxxxxxxx	1	22	5165,45	469,79	9,09	100,16	1,94	1,41
xxxxxxxxxxxx	2	22	5417,27	296,44	5,47	63,20	1,17	0,85

Statistical analysis - Hens at 434 days of age **Tab. No. 10b**

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	%	%
xxxxxxxxxxxx	1	283	4666,68	536,95	11,51	31,92	0,68	0,49
xxxxxxxxxxxx	2	287	4637,32	552,15	11,91	32,59	0,70	0,50