



# MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE ÚSTRAŠICE

státní podnik

390 02 Tábor 2

Česká republika

## Final report

### PEKIN – TEST No. 169

XXXXXXXXXX

7 September – 25 October 2021

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Ústřašice, December 2021

## Basic tests information

### The basic dates

Beginning of the test: 9 August 2021 (put into the incubator)

7 September 2021 (day old ducklings)

End of the test: 25 October 2021 – 49 days of age

### Location

Mezinárodní testování drůbeže, s.p. Ústrašice – Testační stanice vodní drůbeže (Test station of water fowl).

## Material and methods

### Material

There were four treatments. 400 ducklings (200 males and 200 females) in the first treatment (in the third and in the fourth treatment too) – divided in 2 pens (200 males or 200 females in one pen) and 300 ducklings (150 males and 150 females) in the second treatment – divided in 2 pens (150 males or 150 females in one pen). Total there were 1500 ducklings.

Origin of hatching eggs:

Sample No.	Sample	Cross	Breeding organization
1	T1	XXXXXXXXXX	XXXXXXXXXX
2	T2	XXXXXXXXXX	XXXXXXXXXX
3	T3	XXXXXXXXXX	XXXXXXXXXX
4	T4	XXXXXXXXXX	XXXXXXXXXX

### Housing system

Ducklings were housed in deep litter rearing. Drinking water was supplied ad libitum by automatic nipple drinkers. Each pen was equipped with manually filled tube feeders.

<b>Lighting program</b>	Day 1 – 7	23 hours of light
	Day 8 – 37	18 hours of light
	Day 38 – 49	23 hours of light

<b>Stocking density</b>	Day 1 – 21	10.81 birds/m <sup>2</sup>
	Day 22 – 49	4.28 birds/m <sup>2</sup>

Stocking density was the same in all treatments. The size of boxes of the second treatment was modified.

## Feeding

Feed was produced in xxxxxxxxxx

Day 1 – 21	Starter “VKCH 1“
Day 22 – 35	Grower “VKCH 2”
Day 36 – 49	Finisher “VKCH 3“

## Formulas of the feed

Components (%)	VKCH 1	VKCH 2	VKCH 3
Maize	10.000	10.000	7.000
Wheat	45.710	59.520	63.280
Extr. soybean meal	27.500	14.500	11.500
Rape seed meal	5.000	5.000	5.000
Wheat brans	5.000	4.000	7.000
Soybean oil	2.400	3.200	2.500
DL-methionine	0.290	0.160	0.170
L-lysine HCl	0.310	0.300	0.230
L-threonine	0.130	0.160	0.200
Limestone	1.410	1.750	1.750
MCP-monocalciumphosphate	1.200	0.400	0.400
Soda bicarbona	0.100	0.180	0.180
NaCl	0.400	0.300	0.260
xxxxxxx	0.200	-	-
xxxxxxx	-	0.200	0.200
xxxxxxx	0.300	0.300	0.300
xxxxxxx	0.050	-	-
xxxxxxx	-	0.030	0.030
<b>Nutrients (calculated values):</b>			
CP (%)	22.369	18.088	17.285
ME (MJ/kg)	11.912	12.875	12.589
Lysine (g/kg)	13.411	10.054	8.862
Methionine (g/kg)	6.090	4.255	4.253
Threonine (g/kg)	9.052	7.503	7.546
Ca (g/kg)	10.482	10.258	10.240
P (g/kg)	7.463	5.138	5.337
Na (g/kg)	1.989	1.823	1.669

## Veterinary precautions

The house were disinfected by xxxxxxxxxx before the duck placement. There was used the wet disinfection and the gaseous disinfection.

## **Parameters recorded and Methods applied**

### **Live weight**

Live weight was measured on day 1 (all the birds in each pen were weighed altogether). On days 21, 35 and 42 (all the birds were weighed individually, without fasting) and 49 (all the birds were weighed individually after 12 hours of fasting).

### **Weight gain and average daily weight gain**

Weight gains were calculated for the periods 1-21 days, 22-35 days, 36-42 days, 43-49 days and for the overall experiment (1-49 days).

### **Feed conversion ratio**

Feed consumption per 1 kg of live weight was recorded per pen on days 21, 35, 42 and 49.

### **Feed consumption**

Feed consumption was calculated for the periods 1-21 days, 22-35 days, 36-42 days, 43-49 days and for the overall experiment (1-49 days).

### **Mortality**

All pens were checked twice 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.

### **Carcass analysis**

The carcass analysis was done at 42 days and 49 days. The breast muscles were weighed with skin and thigh muscles were weighed with skin.

### **Statistical analyses**

Performance results of final live weight (on days 49) were statistically evaluated.

Scheme of carcass analysis

Day of carcass analysis	Treatment no.	Pen no.	Ducks per pen	Total ducks per treatment	Total ducks per day
42	1	1 (♂)	20	40	160
		5 (♀)	20		
	2	2 (♂)	20	40	
		6 (♀)	20		
	3	3 (♂)	20	40	
		7 (♀)	20		
	4	4 (♂)	20	40	
		8 (♀)	20		
49	1	1 (♂)	20	40	160
		5 (♀)	20		
	2	2 (♂)	20	40	
		6 (♀)	20		
	3	3 (♂)	20	40	
		7 (♀)	20		
	4	4 (♂)	20	40	
		8 (♀)	20		

## **Results**

Tab. No.	<b>1 Hatching results</b>
	<b>2 Performance results:</b>
	<b>2a Body weight</b>
	<b>2b Weight gain</b>
	<b>2c Feed conversion ratio</b>
	<b>2d Feed consumption</b>
	<b>3a Results of carcass analysis at the age 42</b>
	<b>3b Results of carcass analysis at the age 49</b>
	<b>4 Mortality</b>
	<b>5 Statistical analysis</b>
	<b>6 Performance results per pen:</b>
	<b>6a Body weight</b>
	<b>6b Weight gain</b>
	<b>6c Feed conversion ratio</b>
	<b>6d Feed consumption</b>

**Hatching results****Tab. No. 1**

<b>Treatment</b>	<b>Treat. no.</b>	<b>Fertility</b>	<b>Hatchability</b>		<b>Birds housed</b>		<b>Average weight</b>		
			Set eggs	Fertilized eggs	Males	Females	Hatching eggs	Day old males	Day old females
		%	%	%	number	number	g	g	g
T1	1	87.00	57.88	66.52	200	200	91.80	58.43	59.22
T2	2	81.00	38.13	47.07	150	150	87.40	57.88	57.52
T3	3	76.50	62.75	82.03	200	200	84.60	53.24	52.55
T4	4	97.50	65.25	66.92	200	200	87.51	54.71	54.80

**Performance results**  
**Body weight per phases**

**Tab. No. 2a**

Treatment	Tr. no.	Day 1		Day 21		Day 35		Day 42		Day 49	
		Birds	Average body weight	Birds	Average body weight	Birds	Average body weight	Birds	Average body weight	Birds	Average body weight
			g		g		g		g		
T1	1	400	58.83	387	1286.96	376	2446.44	372	3273.96	326	3986.17
T2	2	300	57.70	272	1186.26	272	2472.18	268	3403.43	214	3945.90
T3	3	400	52.90	360	1251.22	358	2462.76	357	3289.54	312	3772.25
T4	4	400	54.76	362	1285.28	356	2534.61	353	3365.75	309	3887.89



**Weight gain per phases**

**Tab. No. 2b**

Treatment	Tr. no.	Day 1 - 21		Day 22 - 35		Day 36 - 42		Day 43 - 49		Day 1 – 49	
		Weight gain per phase	Daily weight gain	Weight gain per phase	Weight gain per phase	Weight gain per phase	Daily weight gain	Weight gain per phase	Daily weight gain	Weight gain per phase	Daily weight gain
		g	g	g	g	g	g	g	g	g	g
T1	1	1228.13	58.48	1159.49	82.82	827.52	118.22	712.21	101.74	3927.34	80.15
T2	2	1128.56	53.74	1285.92	91.85	931.25	133.04	542.47	77.50	3888.20	79.35
T3	3	1198.33	57.06	1211.54	86.54	826.78	118.11	482.71	68.96	3719.36	75.91
T4	4	1230.52	58.60	1249.33	89.24	831.13	118.73	522.14	74.59	3833.13	78.23

**Feed conversion ratio (Feed consumption per 1 kg of live weight)****Tab. No. 2c**

<b>Treatment</b>	<b>Tr. no.</b>	<b>Feed conversion ratio</b>			
		<b>Day 21</b>	<b>Day 35</b>	<b>Day 42</b>	<b>Day 49</b>
		<i>g/kg LW</i>	<i>g/kg LW</i>	<i>g/kg LW</i>	<i>g/kg LW</i>
T1	1	1355.68	1965.40	2233.00	2701.68
T2	2	1535.97	2008.68	2240.17	3023.84
T3	3	1415.95	1913.65	2169.17	2757.91
T4	4	1358.99	1940.11	2235.32	2836.54

**Feed consumption per phases****Tab. No. 2d**

<b>Treatment</b>	<b>Tr.. no.</b>	<b>Feed consumption</b>				
		<b>Starter (1-21 days)</b>	<b>Grower (22-35 days)</b>	<b>Finisher (36-42 days)</b>	<b>Finisher (43-49 days)</b>	<b>Total</b>
		kg	kg	kg	kg	kg
T1	1	675.20	1132.70	911.70	791.20	3510.80
T2	2	495.60	855.10	692.60	510.10	2553.40
T3	3	637.80	1049.40	860.20	698.50	3245.90
T4	4	632.30	1118.30	905.20	751.90	3407.70

Results of carcass analysis with skin at the age 42 days

Tab. No. 3a

Treatment	Tr. no.	Sex	Weight				Ratio of abd. fat to live weight	Breast muscles with skin			Thigh muscles with skin			Total muscles with skin			Carcass	
			Total	Body	Gibl.	Abd. fat		Weight	Percentage		Weight	Percentage		Weight	Percentage		Value	Yield
									Total weight	Body carcass		Total weight	Body carcass		Total weight	Body carcass		
			g	g	g	g		g	%	%	%	g	%	%	g	%	%	%
T1	1	♂	3584	2102	342	29	0.80	506	14.13	24.09	542	15.13	25.80	1049	29.26	49.89	58.65	68.18
		♀	3349	2005	311	38	1.13	496	14.81	24.74	505	15.07	25.17	1001	29.88	49.92	59.86	69.15
		♂	<b>3466</b>	<b>2053</b>	<b>326</b>	<b>33</b>	<b>0.95</b>	<b>501</b>	<b>14.46</b>	<b>24.41</b>	<b>523</b>	<b>15.10</b>	<b>25.49</b>	<b>1025</b>	<b>29.56</b>	<b>49.90</b>	<b>59.23</b>	<b>68.65</b>
T2	2	♂	3682	2160	334	32	0.88	555	15.07	25.69	547	14.86	25.33	1102	29.93	51.02	58.66	67.74
		♀	3362	1981	296	41	1.21	534	15.89	26.96	490	14.57	24.73	1024	30.46	51.70	58.92	67.72
		♂	<b>3522</b>	<b>2070</b>	<b>315</b>	<b>37</b>	<b>1.04</b>	<b>545</b>	<b>15.46</b>	<b>26.30</b>	<b>519</b>	<b>14.72</b>	<b>25.04</b>	<b>1063</b>	<b>30.18</b>	<b>51.34</b>	<b>58.79</b>	<b>67.73</b>
T3	3	♂	3347	2014	315	33	0.99	511	15.27	25.36	499	14.91	24.77	1010	30.18	50.14	60.19	69.61
		♀	3398	2071	294	34	0.99	565	16.64	27.29	514	15.12	24.80	1079	31.75	52.08	60.96	69.62
		♂	<b>3372</b>	<b>2043</b>	<b>305</b>	<b>34</b>	<b>0.99</b>	<b>538</b>	<b>15.96</b>	<b>26.34</b>	<b>506</b>	<b>15.01</b>	<b>24.78</b>	<b>1044</b>	<b>30.97</b>	<b>51.12</b>	<b>60.58</b>	<b>69.62</b>
T4	4	♂	3368	1994	309	29	0.87	534	15.86	26.79	477	14.15	23.90	1011	30.00	50.69	59.19	68.38
		♀	3499	2143	301	27	0.78	640	18.29	29.87	490	14.01	22.88	1130	32.30	52.74	61.24	69.84
		♂	<b>3433</b>	<b>2068</b>	<b>305</b>	<b>28</b>	<b>0.83</b>	<b>587</b>	<b>17.10</b>	<b>28.38</b>	<b>483</b>	<b>14.08</b>	<b>23.37</b>	<b>1070</b>	<b>31.17</b>	<b>51.75</b>	<b>60.24</b>	<b>69.12</b>

Results of carcass analysis with skin at the age 49 days

Tab. No. 3b

Treatment	Tr. no.	Sex	Weight				Ratio of abd. fat to live weight	Breast muscles with skin			Thigh muscles with skin			Total muscles with skin			Carcass	
			Total	Body	Gibl.	Abd. fat		Weight	Percentage		Weight	Percentage		Weight	Percentage		Value	Yield
									Total weight	Body carcass		Total weight	Body carcass		Total weight	Body carcass		
			g	g	g	g		%	g	%	%	g	%	%	g	%	%	%
T1	1	♂	4383	2860	402	57	1.29	805	18.36	28.14	667	15.21	23.31	1471	33.57	51.45	65.26	74.44
		♀	3974	2615	354	55	1.38	744	18.72	28.45	587	14.76	22.43	1331	33.49	50.88	65.82	74.73
		♂	<b>4178</b>	<b>2738</b>	<b>378</b>	<b>56</b>	<b>1.34</b>	<b>774</b>	<b>18.53</b>	<b>28.29</b>	<b>627</b>	<b>15.00</b>	<b>22.89</b>	<b>1401</b>	<b>33.53</b>	<b>51.18</b>	<b>65.52</b>	<b>74.58</b>
T2	2	♂	4039	2561	380	44	1.08	748	18.51	29.19	603	14.94	23.55	1351	33.45	52.74	63.42	72.84
		♀	3823	2498	334	55	1.43	738	19.30	29.54	574	15.01	22.97	1312	34.31	52.51	65.34	74.07
		♂	<b>3931</b>	<b>2530</b>	<b>357</b>	<b>49</b>	<b>1.25</b>	<b>743</b>	<b>18.90</b>	<b>29.36</b>	<b>588</b>	<b>14.97</b>	<b>23.26</b>	<b>1331</b>	<b>33.87</b>	<b>52.63</b>	<b>64.35</b>	<b>73.44</b>
T3	3	♂	3853	2467	354	39	1.01	707	18.36	28.67	558	14.47	22.59	1265	32.83	51.26	64.05	73.25
		♀	3840	2553	320	63	1.65	788	20.52	30.86	587	15.29	23.00	1375	35.81	53.87	66.48	74.80
		♂	<b>3846</b>	<b>2510</b>	<b>337</b>	<b>51</b>	<b>1.33</b>	<b>748</b>	<b>19.44</b>	<b>29.78</b>	<b>572</b>	<b>14.88</b>	<b>22.80</b>	<b>1320</b>	<b>34.32</b>	<b>52.59</b>	<b>65.26</b>	<b>74.02</b>
T4	4	♂	4248	2785	394	48	1.13	872	20.53	31.31	594	13.99	21.33	1466	34.52	52.64	65.57	74.84
		♀	3851	2582	320	53	1.37	820	21.30	31.76	571	14.83	22.12	1391	36.13	53.88	67.05	75.36
		♂	<b>4050</b>	<b>2684</b>	<b>357</b>	<b>50</b>	<b>1.24</b>	<b>846</b>	<b>20.89</b>	<b>31.53</b>	<b>583</b>	<b>14.39</b>	<b>21.71</b>	<b>1429</b>	<b>35.28</b>	<b>53.24</b>	<b>66.27</b>	<b>75.09</b>

**Mortality**

**Tab. No. 4**

Treatment	Tr. no.	Mortality in the period						Mortality according causes													
		Day 1-21	Day 22-35	Day 36-42	Day 43-49	Day 1-49		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		birds	birds	birds	birds	birds	%														
T1	1	14	11	3	6	34	8.50										16	10		8	
T2	2	28	1	3	14	46	15.33										17	3		26	
T3	3	40	2	1	5	48	12.00										8	2		38	
T4	4	39	5	3	4	51	12.75										12	4		35	

Treatment	Tr. no.	Sex	Mortality in the period						Mortality according causes													
			Day 1-21	Day 22-35	Day 36-42	Day 43-49	Day 1-49		1	2	3	4	5	6	7	8	9	10	11	12	13	14
			birds	birds	birds	birds	birds	%														
T1	1	♂	10	3	1	3	17	8.50										6	6		5	
		♀	4	8	2	3	17	8.50										10	4		3	
T2	2	♂	14	0	0	3	17	11.33										3	2		12	
		♀	14	1	3	11	29	19.33										14	1		14	
T3	3	♂	9	1	0	1	11	5.50										2			9	
		♀	31	1	1	4	37	18.50										6	2		29	
T4	4	♂	10	1	1	3	15	7.50										5	1		9	
		♀	29	4	2	1	36	18.00										7	3		26	

Diagnostic:

- 1 - Virus caused diseases
- 2 - Bacteria caused diseases
- 3 - Mould caused diseases
- 4 - Parasite caused diseases
- 5 - Tumors

- 6 - Injuries
- 7 - Gastrointest diseases
- 8 - Respiratory diseases
- 9 - Reproduct. org. diseases
- 10 - Mobility app. diseases

- 11 - Sudden death syndrome
- 12 - Cannibalism
- 13 - Yolk sac. inflam.
- 14 - Other causes

Statistical analysis of body weight on day 49

Tab. No. 5

Treatment	Tr. No.	Males				Females			
		Number of birds	Average body weight	Divergence valuation	Variations coeff. valuation	Number of birds	Average body weight	Divergence valuation	Variations coeff. valuation
			g/birds	g/birds	%		g/birds	g/birds	%
T1	1	163	4104.14	454.12	11.06	163	3868.19	372.30	9.62
T2	2	113	4081.14	319.59	7.83	101	3794.58	341.83	9.01
T3	3	169	3759.57	335.27	8.92	143	3787.24	385.25	10.17
T4	4	165	3958.17	485.27	12.26	144	3807.36	339.86	8.93

Performance results per pen

Body weight per phases

Tab. No. 6a

Treatment	Tr. no.	Pen	Sex	Day 1		Day 21		Day 35		Day 42		Day 49	
				Birds	Average body weight	Birds	Average body weight	Birds	Average body weight	Birds	Average body weight	Birds	Average body weight
					g		g		g		g		
T1	1	1 5	♂	200	58.43	191	1330.03	187	2489.12	186	3369.70	163	4104.14
			♀	200	59.22	196	1244.99	189	2404.22	186	3178.22	163	3868.19
T2	2	2 6	♂	150	57.88	136	1176.12	136	2520.93	136	3471.99	113	4081.14
			♀	150	57.52	136	1196.40	136	2423.42	132	3332.80	101	3794.58
T3	3	3 7	♂	200	53.24	191	1261.82	190	2432.93	190	3277.41	169	3759.57
			♀	200	52.55	169	1239.25	168	2496.50	167	3303.35	143	3787.24
T4	4	4 8	♂	200	54.71	190	1283.78	189	2484.63	188	3308.34	165	3958.17
			♀	200	54.80	172	1286.93	167	2591.17	165	3431.15	144	3807.36



Weight gain per phases

Tab. No. 6b

Treat.	Tr. no.	Pen	Sex	Day 1 - 21		Day 22 - 35		Day 36 - 42		Day 43 - 49		Day 1 - 49	
				Weight gain per phase	Daily weight gain	Weight gain per phase	Daily weight gain	Weight gain per phase	Daily weight gain	Weight gain per phase	Daily weight gain	Weight gain per phase	Daily weight gain
				g	g	g	g	g	g	g	g	g	g
T1	1	1	♂	1271.60	60.55	1159.09	82.79	880.58	125.80	734.44	104.92	4045.71	82.57
		5	♀	1185.77	56.47	1159.23	82.80	774.00	110.57	689.97	98.57	3808.97	77.73
T2	2	2	♂	1118.24	53.25	1344.82	96.06	951.05	135.86	609.16	87.02	4023.26	82.11
		6	♀	1138.88	54.23	1227.02	87.64	909.38	129.91	461.79	65.97	3737.06	76.27
T3	3	3	♂	1208.58	57.55	1171.11	83.65	844.48	120.64	482.16	68.88	3706.33	75.64
		7	♀	1186.70	56.51	1257.25	89.80	806.85	115.26	483.89	69.13	3734.69	76.22
T4	4	4	♂	1229.07	58.53	1200.85	85.78	823.71	117.67	649.83	92.83	3903.46	79.66
		8	♀	1232.13	58.67	1304.24	93.16	839.98	120.00	376.21	53.74	3752.56	76.58

**Feed conversion ratio (Feed consumption per 1 kg of live weight)**

**Tab. No. 6c**

Treatment	Tr · no	Pen	Sex	Feed conversion ratio			
				Day 21	Day 35	Day 42	Day 49
				g/kg LW	g/kg LW	g/kg LW	g/kg LW
T1	1	1	♂	1344.30	1938.06	2210.56	2666.92
		5	♀	1367.52	1993.41	2256.79	2738.55
T2	2	2	♂	1630.49	2055.14	2253.33	2915.63
		6	♀	1443.06	1960.34	2226.04	3154.05
T3	3	3	♂	1390.42	1854.17	2076.58	2625.88
		7	♀	1445.33	1979.20	2273.69	2912.80
T4	4	4	♂	1409.48	1944.22	2225.52	2741.40
		8	♀	1303.35	1935.64	2246.09	2949.88

**Feed consumption per phases**

**Tab. No. 6d**

Treatment	Tr. no.	Pen	Sex	Feed consumption				
				Starter (1-21 days)	Grower (29-35 days)	Finisher (36-42 days)	Finisher (43-49 days)	Total
				kg	kg	kg	kg	kg
T1	1	1	♂	341.50	560.60	483.40	398.60	1784.10
		5	♀	333.70	572.10	428.30	392.60	1726.70
T2	2	2	♂	260.80	443.80	359.40	280.60	1344.60
		6	♀	234.80	411.30	333.20	229.50	1208.80
T3	3	3	♂	335.10	522.00	436.00	375.30	1668.40
		7	♀	302.70	527.40	424.20	323.20	1577.50
T4	4	4	♂	343.80	569.20	471.20	406.20	1790.40
		8	♀	288.50	549.10	434.00	345.70	1617.30