



# MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE ÚSTRAŠICE

státní podnik

390 02 Tábor 2

Česká republika

## Final report

### PEKIN – TEST No. 165



15 September – 2 November 2020

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Ústrašice, December 2020

## Basic tests information

### The basic dates

Beginning of the test: 16 August 2020 (put into the incubator)  
15 September 2020 (day old ducklings)  
End of the test: 2 November 2020 – 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 three treatments. 800 ducklings (400 males and 400 females) in the first treatment – divided in 4 pens (200 males or females in one pen) and 400 in the second and third treatment divided in 2 pens (200 males and 200 females). Total there were 1600 ducklings.

Origin of hatching eggs:

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

### 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>

## Feeding

Feed was produced in [REDACTED].

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
Aminovitan VKCH-1 spec 0,2%	0.200	-	-
Aminovitan VKCH-2 spec 0,2%	-	0.200	0.200
Premix of cholin-chlorid 0,3%	0.300	0.300	0.300
Avizyme Porzyme XP	0.050	-	-
Axtra PHY 1500L+Xyl. 40000L	-	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 [REDACTED] 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	3 (♂)	10	20	120
		7 (♂)	10		
		4 (♀)	10	20	
		8 (♀)	10		
	2	1 (♂)	20	40	
		5 (♀)	20		
	3	2 (♂)	20	40	
		6 (♀)	20		
49	1	3 (♂)	10	20	120
		7 (♂)	10		
		4 (♀)	10	20	
		8 (♀)	10		
	2	1 (♂)	20	40	
		5 (♀)	20		
	3	2 (♂)	20	40	
		6 (♀)	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>
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	<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	95.06	61.00	64.17	400	400	88.25	54.90	55.05
T2	2	64.13	46.25	72.12	200	200	84.23	55.65	55.05
T3	3	68.25	48.13	70.51	200	200	84.84	55.25	54.95

**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	800	54.98	800	1395.97	800	2895.03	798.0	3707.83	744	3968.31
T2	2	400	55.35	399	1313.31	397	2749.21	396.0	3558.02	356	3880.46
T3	3	400	55.10	400	1272.52	400	2721.47	400.0	3483.10	359	3739.19

Treatment	Tr. no.	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	♂	400	54.90	400	1399.23	400	2927.42	400.0	3769.75	369	4093.14
		♀	400	55.05	400	1392.70	400	2862.63	398.0	3645.61	375	3845.48
T2	2	♂	200	55.65	200	1320.06	200	2817.44	200.0	3662.00	180	4026.68
		♀	200	55.05	199	1306.53	197	2679.93	196.0	3451.91	176	3730.90
T3	3	♂	200	55.25	200	1280.30	200	2780.15	200.0	3571.24	180	3840.72
		♀	200	54.95	200	1264.74	200	2662.80	200.0	3394.96	179	3637.08



**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	1340.99	63.86	1499.06	214.15	812.81	116.12	260.48	37.21	3913.33	79.86
T2	2	1257.96	59.90	1435.89	205.13	808.81	115.54	322.44	46.06	3825.11	78.06
T3	3	1217.42	57.97	1448.95	206.99	761.63	108.80	256.09	36.58	3684.09	75.19

Treatment	Tr. no.	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	♂	1344.33	64.02	1528.19	218.31	842.33	120.33	323.39	46.20	4038.24	82.41
		♀	1337.65	63.70	1469.93	209.99	782.98	111.85	199.87	28.55	3790.43	77.36
T2	2	♂	1264.41	60.21	1497.38	213.91	844.56	120.65	364.68	52.10	3971.03	81.04
		♀	1251.48	59.59	1373.40	196.20	771.98	110.28	278.99	39.86	3675.85	75.02
T3	3	♂	1225.05	58.34	1499.85	214.26	791.09	113.01	269.48	38.50	3785.47	77.25
		♀	1209.79	57.61	1398.06	199.72	732.17	104.60	242.12	34.59	3582.13	73.10

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

**Tab. No. 2c**

Treatment	Tr. no.	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	1294.89	1811.86	2106.12	2701.73
T2	2	1358.94	1877.34	2168.24	2829.58
T3	3	1399.39	1904.67	2186.63	2893.17

Treatment	Tr. no.	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	♂	1291.42	1791.42	2079.65	2656.47
		♀	1298.38	1832.76	2133.63	2749.13
T2	2	♂	1345.77	1862.15	2126.02	2754.68
		♀	1372.31	1893.56	2213.95	2912.25
T3	3	♂	1394.60	1886.77	2145.89	2821.81
		♀	1404.24	1923.35	2229.48	2968.95

Feed consumption per phases

Tab. No. 2d

Treatment	Tr.. no.	Feed consumption				
		Starter (1-21 days)	Grower (22-35 days)	Finisher (36-42 days)	Finisher (43-49 days)	Total
		kg	kg	kg	kg	kg
T1	1	1446.10	2750.20	2035.40	1744.95	7976.65
T2	2	712.10	1336.90	1006.00	853.90	3908.90
T3	3	712.30	1361.10	973.10	837.20	3883.70

Treatment	Tr.. no.	Sex	Feed consumption				
			Starter (1-21 days)	Grower (22-35 days)	Finisher (36-42 days)	Finisher (43-49 days)	Total
			kg	kg	kg	kg	kg
T1	1	♂	722.80	1374.90	1038.20	876.35	4012.25
		♀	723.30	1375.30	997.20	868.60	3964.40
T2	2	♂	355.30	694.00	507.80	439.50	1996.60
		♀	356.80	642.90	498.20	414.40	1912.30
T3	3	♂	357.10	692.00	483.60	418.10	1950.80
		♀	355.20	669.10	489.50	419.10	1932.90

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	♂	3678	2421	356	30	0.82	730	19.83	30.14	569	15.48	23.52	1299	35.31	53.66	65.82	75.50
		♀	3588	2433	319	38	1.06	768	21.39	31.55	550	15.34	22.62	1318	36.73	54.16	67.81	76.71
		∅	<b>3633</b>	<b>2427</b>	<b>338</b>	<b>34</b>	<b>0.94</b>	<b>749</b>	<b>20.60</b>	<b>30.84</b>	<b>560</b>	<b>15.41</b>	<b>23.07</b>	<b>1308</b>	<b>36.01</b>	<b>53.91</b>	<b>66.80</b>	<b>76.10</b>
T2	2	♂	3631	2363	367	32	0.89	647	17.82	27.39	579	15.95	24.51	1226	33.77	51.90	65.06	75.18
		♀	3362	2230	318	40	1.18	633	18.84	28.39	542	16.12	24.29	1175	34.95	52.68	66.35	75.81
		∅	<b>3496</b>	<b>2296</b>	<b>343</b>	<b>36</b>	<b>1.03</b>	<b>640</b>	<b>18.31</b>	<b>27.88</b>	<b>560</b>	<b>16.03</b>	<b>24.40</b>	<b>1201</b>	<b>34.34</b>	<b>52.28</b>	<b>65.68</b>	<b>75.48</b>
T3	3	♂	3564	2317	347	38	1.08	659	18.49	28.45	563	15.79	24.29	1222	34.28	52.75	65.00	74.74
		♀	3423	2256	322	42	1.24	655	19.12	29.02	551	16.10	24.44	1206	35.23	53.46	65.89	75.29
		∅	<b>3494</b>	<b>2286</b>	<b>335</b>	<b>40</b>	<b>1.16</b>	<b>657</b>	<b>18.80</b>	<b>28.73</b>	<b>557</b>	<b>15.94</b>	<b>24.37</b>	<b>1214</b>	<b>34.75</b>	<b>53.10</b>	<b>65.44</b>	<b>75.01</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	♂	4112	2736	365	43	1.06	889	21.61	32.48	588	14.30	21.50	1477	35.91	53.98	66.53	75.41
		♀	3931	2625	339	49	1.24	857	21.79	32.63	563	14.33	21.45	1420	36.12	54.08	66.78	75.41
		∅	<b>4021</b>	<b>2680</b>	<b>352</b>	<b>46</b>	<b>1.15</b>	<b>873</b>	<b>21.70</b>	<b>32.55</b>	<b>576</b>	<b>14.32</b>	<b>21.48</b>	<b>1448</b>	<b>36.01</b>	<b>54.03</b>	<b>66.65</b>	<b>75.41</b>
T2	2	♂	4138	2685	374	49	1.18	799	19.32	29.77	617	14.91	22.97	1416	34.22	52.75	64.88	73.92
		♀	3756	2487	315	53	1.40	772	20.54	31.02	555	14.78	22.32	1327	35.33	53.35	66.22	74.61
		∅	<b>3947</b>	<b>2586</b>	<b>345</b>	<b>51</b>	<b>1.29</b>	<b>785</b>	<b>19.90</b>	<b>30.37</b>	<b>586</b>	<b>14.85</b>	<b>22.66</b>	<b>1371</b>	<b>34.75</b>	<b>53.04</b>	<b>65.52</b>	<b>74.25</b>
T3	3	♂	3670	2431	342	41	1.10	704	19.18	28.97	561	15.28	23.07	1265	34.46	52.03	66.23	75.56
		♀	3778	2551	330	58	1.53	784	20.76	30.75	578	15.31	22.67	1363	36.07	53.42	67.52	76.24
		∅	<b>3724</b>	<b>2491</b>	<b>336</b>	<b>49</b>	<b>1.32</b>	<b>744</b>	<b>19.98</b>	<b>29.88</b>	<b>569</b>	<b>15.29</b>	<b>22.86</b>	<b>1314</b>	<b>35.28</b>	<b>52.74</b>	<b>66.88</b>	<b>75.90</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	0	0	2	14	16	2.00										13	3				
T2	2	1	2	1	0	4	1.00										3	1				
T3	3	0	0	0	1	1	0.25											1				

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	♂	0	0	0	11	11	2.75										10	1				
		♀	0	0	2	3	5	1.25										3	2				
T2	2	♂	0	0	0	0	0	0.00															
		♀	1	2	1	0	4	2.00										3	1				
T3	3	♂	0	0	0	0	0	0.00															
		♀	0	0	0	1	1	0.50											1				

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	369	4093.14	438.60	10.72	375	3845.48	360.18	9.37
T2	2	180	4026.68	412.13	10.23	176	3730.90	343.36	9.20
T3	3	180	3840.72	430.36	11.21	179	3637.08	426.37	11.72

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		g
T1	1	3	♂	200	55.30	200	1412.18	200	2995.63	200.	3752.30	184	4073.48
		7		200	54.50	200	1386.29	200	2859.22	200.	3787.20	185	4112.69
		4	♀	200	55.45	200	1366.66	200	2856.07	200.	3621.82	190	3870.74
		8		200	54.65	200	1418.74	200	2869.19	198.	3669.64	185	3819.54
T2	2	1	♂	200	55.65	200	1320.06	200	2817.44	200.	3662.00	180	4026.68
		5	♀	200	55.05	199	1306.53	197	2679.93	196.	3451.91	176	3730.90
T3	3	2	♂	200	55.25	200	1280.30	200	2780.15	200.	3571.24	180	3840.72
		6	♀	200	54.95	200	1264.74	200	2662.80	200.	3394.96	179	3637.08



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	3	♂	1356.88	64.61	1583.45	226.21	756.68	108.10	321.18	45.88	4018.18	82.00
		7		1331.79	63.42	1472.93	210.42	927.98	132.57	325.49	46.50	4058.19	82.82
		4	♀	1311.21	62.44	1489.41	212.77	765.76	109.39	248.92	35.56	3815.29	77.86
		8		1364.09	64.96	1450.46	207.21	800.45	114.35	149.90	21.41	3764.89	76.83
T2	2	1	♂	1264.41	60.21	1497.38	213.91	844.56	120.65	364.68	52.10	3971.03	81.04
		5	♀	1251.48	59.59	1373.40	196.20	771.98	110.28	278.99	39.86	3675.85	75.02
T3	3	2	♂	1225.05	58.34	1499.85	214.26	791.09	113.01	269.48	38.50	3785.47	77.25
		6	♀	1209.79	57.61	1398.06	199.72	732.17	104.60	242.12	34.59	3582.13	73.10

**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	3	♂	1271.80	1750.72	2082.06	2659.90
		7	♂	1311.41	1834.07	2077.26	2653.10
		4	♀	1300.98	1837.14	2145.88	2697.70
		8		1295.87	1828.39	2121.42	2802.66
T2	2	1	♂	1345.77	1862.15	2126.02	2754.68
		5	♀	1372.31	1893.56	2213.95	2912.25
T3	3	2	♂	1394.60	1886.77	2145.89	2821.81
		6	♀	1404.24	1923.35	2229.48	2968.95

**Feed consumption per phases**

**Tab. No. 6d**

Treatment	Tr. no.	Pen	Sex	Feed				
				Starter (1-21 days)	Grower (29-35 days)	Finisher (36-42 days)	Finisher (43-49 days)	Total
				kg	kg	kg	kg	kg
T1	1	3	♂	359.20	689.70	513.60	431.15	1993.65
		7		363.60	685.20	524.60	445.20	2018.60
		4	♀	355.60	693.80	505.00	429.60	1984.00
		8		367.70	681.50	492.20	439.00	1980.40
T2	2	1	♂	355.30	694.00	507.80	439.50	1996.60
		5	♀	356.80	642.90	498.20	414.40	1912.30
T3	3	2	♂	357.10	692.00	483.60	418.10	1950.80
		6	♀	355.20	669.10	489.50	419.10	1932.90