



# MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE ÚSTRAŠICE

státní podnik

390 02 Tábor 2

Česká republika

## BROILER FEEDING TEST No. 5/2023

**XXXXX**

**XXXXX**

**17 May – 27 June 2023**

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**August 2023**  
Srpen 2023

## Material and methods

### Test term

**Beginning of the test:** 16 May 2023 (transfer to the chicken house)

**End of the test:** 27 June 2023

### Birds

In total there were 3360 day old chicks – females of xxxxx. Chicks were randomly distributed into 2 dietary treatments with 12 replicates per treatment and 140 chicken per replicate.

Origin 1-day old chicks: Mezinárodní testování drůbeže, s.p.

Age of the breeding flock: 39 weeks

### Experimental treatments:

Tr. No.	Tr.	Description
1	T1	xxxxx
2	T2	xxxxx

### Housing system

Chickens were kept in the windowless chicken house with full climatic control, on deep litter. The heating program was conducted according to the Manual of xxxxx. Drinking water was supplied ad libitum by nipple drinkers. Each pen was equipped with manually filled tube feeders. Bedding material was wood shaving.

Light was provided as follows during the experimental period:

Lighting programme: Day 1 - 7	23 hours of light + 1 hour of darkness
Day 8 - 39	18 hours of light + 6 hours of darkness
Day 40 - 42	23 hours of light + 1 hour of darkness

The conduct of the trial was conformed to the national welfare legislation.

### Veterinary precautions

The chicken house was disinfected with xxxxx before the chick placement.

On days 1 and 13 the chicken were vaccinated with xxxxx. On the first days chickens was applied xxxxx.

## Feed

Feed was produced by International Poultry Testing Station Ústrašice

Day 1 - 10 Starter (BR 1)

Day 11- 28 Grower (BR2)

Day 29 - 42 Finisher (BR 3)

## Diet formulas:

Components (%)	Starter BR1	Grower BR2	Finisher BR3
Soybean extr. groats	37.00	34.00	28.00
Wheat	34.00	35.09	41.24
Maize	20.41	21.00	21.00
Soybean oil	4.50	6.00	6.00
Calcium carbonate	1.43	1.28	1.11
MCP - monocalciumphosphate	1.10	1.08	1.10
Salt	0.29	0.30	0.29
Sodium sulfate	0.12	0.15	0.15
L-lysine	0.35	0.30	0.30
L-threonin	0.20	0.20	0.20
DL-methionin	0.10	0.10	0.10
AMV BR1 Plus	0.50	-	-
AMV BR2 Plus	-	0.50	-
AMV BR3 Plus	-	-	0.50
<b>Nutrient content</b>			
Crude protein (g/kg)	219.73	208.40	189.63
Fat (g/kg)	61.63	76.32	75.98
Lysine (g/kg)	14.74	13.55	12.04
Methionine (g/kg)	6.46	5.90	5.33
Ca (g/kg)	9.60	8.81	7.90
P (g/kg)	6.36	6.19	6.07
Vitamin A (IU/kg)	13500	10000	10000
Vitamin D3 (IU/kg)	5000	5000	5000
ME (MJ/kg)	12.54	12.94	13.07

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

<b>Nutrient content</b>	<b>Starter BR1: T1</b>	<b>Starter BR1: T2</b>	<b>Grower BR2: T1</b>	<b>Grower BR2: T2</b>	<b>Finisher BR3: T1</b>	<b>Finisher BR3: T2</b>
Crude protein (g/kg)	211	220	198	203	190	183
Dry matter (%)	88.70	88.90	89.20	89.10	89.10	89.80
Fat (g/kg)	62.70	63.30	78.30	77.70	78.30	77.50
Crude fibre (g/kg)	30.40	37.20	29.10	25.80	28.20	27.80
Starch (g/kg)	399	405	410	408	432	432
ME (MJ/kg)	12.70	12.90	13.20	13.20	13.40	13.30

## **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 10 and 28 of age birds were weighed individually, without fasting. On days 35 and 42 birds were weighed individually, after 12 hours of fasting.

### **Feed consumption**

Feed consumption was determined per pen for the feed – starter, grower and finisher.

### **Weight gain**

Weight gain per phase and average daily weight gains were calculated for the periods 1 – 10 days, 11 – 28 days, 29 – 35 days, 36 – 42 days and for the overall experiment (1 – 42 days).

### **Feed conversion ratio**

Feed conversion ratio was calculated as feed consumption per 1 kg of live weight and per 1 kg of weight gain for the periods 1 – 10 days, 11 – 28 days, 29 – 35 days, 36 – 42 days and for the overall experiment (1 – 42 days). The calculation was included weight of deaths.

### **Mortality**

All pens were checked twice times a day to see if there were any dead or ill birds. Dead chickens were registered by date, weight and reason of mortality on the day of death. Mortality was recorded for the periods 1 – 10 days, 11 – 28 days, 29 – 35 days, 36 – 42 days and 1 – 42 days.

### **Statistical analyses**

Performance results were statistically evaluated using the ANOVA single-factor model (Scheffe and Duncan test) or nonparametric method (Kruskal-Wallis test).

## **Results**

Tab. No.	<b>1 Hatchability</b>
	<b>2 Performance results:</b>
	<b>2a Body weight</b>
	<b>2b Weight gain</b>
	<b>2c Feed conversion per 1 kg of live weight</b>
	<b>2d Feed conversion per 1 kg of weight gain</b>
	<b>2e Feed consumption</b>
	<b>3 Mortality</b>
	<b>4 Carcass analysis</b>
	<b>5a Foot pad lesions at 35 days of age</b>
	<b>5b Foot pad lesions at 42 days of age</b>
	<b>6 Statistical analysis of body weight at the age of 42 days</b> (average body weight, standard deviation, coefficient of variation)
	<b>7 – 12 Statistical analyses of performance results</b>
	<b>13 Performance results per pen:</b>
	<b>13a Body weight</b>
	<b>13b Weight gain</b>
	<b>13c Feed conversion per 1 kg of live weight</b>
	<b>13d Feed conversion per 1 kg of weight gain</b>
	<b>13e Feed consumption</b>
	<b>13f Foot pad lesions at 35 days of age</b>
	<b>13g Foot pad lesions at 42 days of age</b>

**Results of incubation and hatching****Tab. No. 1**

<b>Treatment</b>	<b>Tr. No.</b>	<b>Fertility</b>	<b>Hatchability</b>		<b>Birds housed</b>	<b>Average weight</b>	
			Set eggs	Fertile eggs		Hatching eggs	Day old chicks
		%	%	%		g	g
T1	1	94.75	83.69	88.32	1680	63.00	41.20
T2	2						1680

**Body weight per phases**

**Tab. No. 2a**

Treatment	Tr. No.	Day 1		Day 10		Day 28		Day 35		Day 42	
		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	1680	41.20	1678	254.66	1672	1497.76	1660	1973.73	1643	2341.69
T2	2	1680	41.20	1678	254.31	1674	1481.44	1671	1970.91	1652	2306.33



**Weight gain per phases**

**Tab. No. 2b**

<b>Treatment</b>	<b>Tr. No.</b>	<b>Day 1 - 10</b>		<b>Day 11 - 28</b>		<b>Day 29 - 35</b>		<b>Day 36 - 42</b>		<b>Day 1 - 42</b>	
		Weight gain per phase	Daily weight gain	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
		g	g	g	g	g	g	g	g	g	g
T1	1	213.46	21.35	1243.10	69.06	475.97	68.00	367.96	52.57	2300.49	54.77
T2	2	213.11	21.31	1227.13	68.17	489.47	69.92	335.42	47.92	2265.13	53.93

**Feed conversion per 1 kg of live weight****Tab. No. 2c**

<b>Treatment</b>	<b>Tr. No.</b>	<b>Feed conversion ratio</b>			
		<b>Day 10</b>	<b>Day 28</b>	<b>Day 35</b>	<b>Day 42</b>
		<b>g/kg live weight</b>	<b>g/kg live weight</b>	<b>g/kg live weight</b>	<b>g/kg live weight</b>
T1	1	1070.71	1329.13	1513.44	1708.87
T2	2	1045.71	1332.81	1496.42	1722.29

**Feed conversion per 1 kg of weight gain****Tab. No. 2d**

<b>Treatment</b>	<b>Tr. No.</b>	<b>Feed conversion ratio</b>				
		<b>Day 1-10</b>	<b>Day 11-28</b>	<b>Day 29-35</b>	<b>Day 36-42</b>	<b>Day 1-42</b>
		<b>g/kg weight gain</b>	<b>g/kg weight gain</b>	<b>g/kg weight gain</b>	<b>g/kg weight gain</b>	<b>g/kg weight gain</b>
T1	1	1071.31	1382.22	2101.62	2788.27	1708.87
T2	2	1046.34	1392.41	1993.91	3090.41	1722.29

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

Treatment	Tr. No.	Feed consumption				
		Starter (day 1-10)	Grower (day 11-28)	Finisher (day 29-35)	Finisher (day 36-42)	Total (day 1-42)
		kg	kg	kg	kg	kg
T1	1	457.80	2876.40	1652.10	1663.20	6649.50
T2	2	446.50	2863.80	1628.70	1684.00	6623.00

**Mortality**

**Tab. No. 3**

Treat.	Tr. No.	Mortality in the period											Mortality according causes														
		Day 1 - 10		Day 11 - 28		Day 29 - 35		Day 36 - 42		Day 1 - 42			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		birds	g	birds	g	birds	g	birds	g	birds	g	%															
T1	1	2	241	6	4062	12	13976	17	25500	37	43779	2.20										25	5		1	6	
T2	2	2	258	4	3520	3	3380	19	28238	28	35396	1.67										14	8		1	5	

**Causes:**

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

Results of carcass analysis

Tab. No. 4

Treatment	Tr. No.	Weight				Ratio of abd. fat to live weight	Breast muscles without skin			Thigh muscles with skin			Total muscles			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	2392	1699	142	26	1.10	558	23.34	32.85	529	22.13	31.14	1087	45.47	63.99	71.05	76.99
T2	2	2376	1694	141	27	1.12	560	23.57	33.06	522	21.95	30.79	1082	45.52	63.85	71.29	77.22

**Foot pad lesions at 35 days of age**

**Tab. No. 5a**

<b>Treatment</b>	<b>Tr. No.</b>	<b>Evaluation</b>	
		<b>right foot</b>	<b>left foot</b>
T1	1	2.35	2.39
T2	2	2.52	2.55

**Foot pad lesions at 42 days of age**

**Tab. No. 5b**

<b>Treatment</b>	<b>Tr. No.</b>	<b>Evaluation</b>	
		<b>right foot</b>	<b>left foot</b>
T1	1	2.64	2.64
T2	2	2.63	2.63

**Statistical analysis - Body weight at 42 days of age****Tab. No. 6**

<b>Treatment</b>	<b>Tr. No.</b>	<b>Hens</b>			
		Number of birds	Average body weight	Standard deviation	Coefficient of variation
			g/birds	g/birds	%
T1	1	1643	2341.69	285.26	12.18
T2	2	1652	2306.33	283.48	12.29



## Statistical analyses of performance results

Performance results were statistically evaluated using the ANOVA single-factor model (Scheffe test, Duncan test) or nonparametric method (Kruskal-Wallis test).

The following symbols are used for levels of significance:

$p \leq 0,001$	***	- differences are very high significant
$p \leq 0,01$	**	- differences are high significant
$p \leq 0,05$	*	- differences are significant
$p > 0,05$	o	- differences are not significant

### Body weight – day 1

Tab. No. 7a

Treat.	Tr. No.	No. of box	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	41.20	0.40	0.966937	o
T2	2	12	41.20	0.28		

### Body weight – day 10

Tab. No. 7b

Treat.	Tr. No.	No. of birds	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	1678	254.66	24.03	0.671240	o
T2	2	1678	254.31	24.85		

**Body weight – day 28****Tab. No. 7c**

Treat.	Tr. No.	No. of birds	Average (g)	Standard deviation	Scheffe test	
					T1	T2
T1	1	1672	1497.76	178.44	0.007521	**
T2	2	1674	1481.44	174.63		

**Body weight – day 35****Tab. No. 7d**

Treat.	Tr. No.	No. of birds	Average (g)	Standard deviation	Scheffe test	
					T1	T2
T1	1	1660	1973.73	248.80	0.743869	o
T2	2	1671	1970.91	250.21		

**Body weight – day 42****Tab. No. 7e**

Treat.	Tr. No.	No. of birds	Average (g)	Standard deviation	Scheffe test	
					T1	T2
T1	1	1643	2341.69	285.26	0.000364	***
T2	2	1652	2306.33	283.48		

**Average weight gain (day 1 – 10)****Tab. No. 8a**

Treat.	Tr. No.	No. of box	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	21.35	0.94	0.923218	o
T2	2	12	21.31	0.76		

**Average weight gain (day 11 – 28)****Tab. No. 8b**

Treat.	Tr. No.	No. of box	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	69.06	2.02	0.384693	o
T2	2	12	68.18	2.79		

**Average weight gain (day 29 – 35)****Tab. No. 8c**

Treat.	Tr. No.	No. of box	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	68.00	12.23	0.665533	o
T2	2	12	69.94	9.35		

**Average weight gain (day 36 – 42)****Tab. No. 8d**

Treat.	Tr. No.	No. of box	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	52.53	10.06	0.325960	o
T2	2	12	47.91	12.34		

**Average weight gain (day 1 – 42)****Tab. No. 8e**

<b>Treat.</b>	<b>Tr. No.</b>	<b>No. of box</b>	<b>Average (g)</b>	<b>Standard deviation</b>	<b>Duncan test</b>	
					T1	T2
T1	1	12	54.77	1.43		o
T2	2	12	53.94	1.37	0.159807	

**FCR 10****Tab. No. 9a**

Treat.	Tr. No.	No. of box	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	1072.36	54.06	0.187242	o
T2	2	12	1046.16	38.99		

**FCR 28****Tab. No. 9b**

Treat.	Tr. No.	No. of box	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	1329.61	27.71	0.740425	o
T2	2	12	1333.65	31.16		

**FCR 35****Tab. No. 9c**

Treat.	Tr. No.	No. of box	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	1515.10	63.81	0.432007	o
T2	2	12	1497.20	43.84		

**FCR 42****Tab. No. 9d**

Treat.	Tr. No.	No. of box	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	1709.88	44.91	0.433356	o
T2	2	12	1722.94	34.57		

**FCR per 1 kg of weight gain 1 – 10 day****Tab. No. 10a**

Treat.	Tr. No.	No. of box	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	1073.15	54.27	0.185206	o
T2	2	12	1046.92	38.29		

**FCR per 1 kg of weight gain 11 – 28 day****Tab. No. 10b**

Treat.	Tr. No.	No. of box	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	1382.85	35.70	0.494492	o
T2	2	12	1393.62	40.12		

**FCR per 1 kg of weight gain 29 – 35 day****Tab. No. 10c**

Treat.	Tr. No.	No. of box	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	2156.02	327.74	0.306760	o
T2	2	12	2026.20	277.86		

**FCR per 1 kg of weight gain 36 – 42 day****Tab. No. 10d**

Treat.	Tr. No.	No. of box	Average (g)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	2927.15	741.85	0.284448	o
T2	2	12	3288.05	864.49		

**FCR per 1 kg of weight gain 1 – 42 day****Tab. No. 10e**

<b>Treat.</b>	<b>Tr. No.</b>	<b>No. of box</b>	<b>Average (g)</b>	<b>Standard deviation</b>	<b>Duncan test</b>	
					T1	T2
T1	1	12	1740.88	46.47		o
T2	2	12	1754.55	35.84	0.428768	

**Feed intake (starter) – day 1-10****Tab. No. 11a**

Treat.	Tr. No.	No. of box	Average (kg)	Standard deviation	Kruskal-Wallis test	
					T1	T2
T1	1	12	38.15	0.94	0.088534	o
T2	2	12	37.21	1.34		

**Feed intake (grower) – day 11-28****Tab. No. 11b**

Treat.	Tr. No.	No. of box	Average (kg)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	239.70	5.86	0.655108	o
T2	2	12	238.65	5.49		

**Feed intake (finisher) – day 29-35****Tab. No. 11c**

Treat.	Tr. No.	No. of box	Average (kg)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	137.68	3.67	0.347782	o
T2	2	12	135.73	6.01		

**Feed intake (finisher ) – day 36-42****Tab. No. 11d**

Treat.	Tr. No.	No. of box	Average (kg)	Standard deviation	Duncan test	
					T1	T2
T1	1	12	138.60	4.15	0.355528	o
T2	2	12	140.33	4.82		



**Feed intake (total) – day 1-42****Tab. No. 11e**

<b>Treat.</b>	<b>Tr. No.</b>	<b>No. of box</b>	<b>Average (kg)</b>	<b>Standard deviation</b>	<b>Duncan test</b>	
					T1	T2
T1	1	12	554.13	8.56		o
T2	2	12	551.92	6.79	0.491277	

**Mortality – % (day 1-42)****Tab. No. 12**

<b>Treat.</b>	<b>Tr. No.</b>	<b>No. of box</b>	<b>Average (%)</b>	<b>Standard deviation</b>	<b>Duncan test</b>	
					T1	T2
T1	1	12	2.20	1.03		o
T2	2	12	1.67	0.93	0.195254	

**Performance results per replicate**

**Body weight per phases**

**Tab. No. 13a**

Treatment	Tr. No.	Pen	Day 1		Day 10		Day 28		Day 35		Day 42			
			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	140	41.79	139	256.06	137	1503.06	137	1934.80	136	2250.07		
		3	140	40.93	140	256.01	140	1511.62	139	1968.59	137	2289.13		
		5	140	41.36	140	258.31	139	1549.39	139	2024.58	139	2381.74		
		7	140	41.07	140	255.09	139	1509.68	136	1899.91	135	2288.98		
		9	140	40.86	140	264.54	140	1497.29	137	1933.81	136	2328.63		
		11	140	41.00	140	263.64	140	1461.41	140	1886.23	139	2314.81		
		13	140	41.86	140	268.75	140	1538.74	140	1967.26	140	1967.26	138	2419.31
		15	140	41.21	140	253.66	140	1518.24	139	1934.58	139	1934.58	138	2351.14
		17	140	41.43	140	256.83	140	1537.19	139	1980.42	139	1980.42	138	2433.38
		19	140	41.57	140	236.98	139	1479.24	138	2026.70	138	2026.70	136	2411.01
		21	140	40.64	140	242.54	139	1461.19	138	2031.84	138	2031.84	135	2278.19
23	140	40.71	139	243.49	139	1405.63	138	2095.68	138	2095.68	136	2350.48		
T2	2	2	140	41.07	140	266.31	140	1492.35	139	1964.46	139	2247.90		
		4	140	41.00	140	255.85	139	1508.76	139	2025.36	138	2318.57		
		6	140	41.36	139	254.78	139	1483.52	139	2008.32	138	2310.32		
		8	140	41.57	140	249.49	140	1485.79	140	1885.91	139	2328.96		
		10	140	40.64	140	258.34	140	1488.62	140	1894.33	136	2339.46		
		12	140	41.07	140	252.09	140	1445.74	140	1881.46	139	2298.12		
		14	140	41.07	140	259.93	140	1524.42	140	1969.59	137	2439.85		
		16	140	41.14	139	263.60	139	1581.78	138	2029.26	137	2361.53		
		18	140	41.21	140	257.77	140	1404.79	139	1922.49	139	1922.49	139	2238.82
		20	140	41.36	140	246.77	138	1513.66	138	2050.43	138	2050.43	135	2280.43
		22	140	41.14	140	243.26	140	1468.56	140	2029.81	140	2029.81	137	2257.45
		24	140	41.71	140	243.54	139	1379.93	139	1991.83	139	1991.83	138	2256.29

**Weight gain per phases (WG) and daily weight gain (DWG)**

**Tab. No. 13b**

Treatment	Tr. No.	Box	Day 1 - 10		Day 11 - 28		Day 29 - 35		Day 36 - 42		Day 1 - 42	
			WG	DWG	WG	DWG	WG	DWG	WG	DWG	WG	DWG
			g	g	g	g	g	g	g	g	g	g
T1	1	1	214.27	21.43	1247.00	69.28	431.74	61.68	315.26	45.04	2208.28	52.58
		3	215.08	21.51	1255.61	69.76	456.97	65.28	320.54	45.79	2248.20	53.53
		5	216.95	21.70	1291.08	71.73	475.19	67.88	357.17	51.02	2340.38	55.72
		7	214.02	21.40	1254.58	69.70	390.24	55.75	389.07	55.58	2247.91	53.52
		9	223.69	22.37	1232.75	68.49	436.52	62.36	394.82	56.40	2287.78	54.47
		11	222.64	22.26	1197.76	66.54	424.82	60.69	428.58	61.23	2273.81	54.14
		13	226.89	22.69	1269.99	70.56	428.52	61.22	452.05	64.58	2377.45	56.61
		15	212.45	21.25	1264.57	70.25	416.34	59.48	416.56	59.51	2309.92	55.00
		17	215.40	21.54	1280.36	71.13	443.23	63.32	452.96	64.71	2391.96	56.95
		19	195.41	19.54	1242.26	69.01	547.46	78.21	384.32	54.90	2369.44	56.42
		21	201.89	20.19	1218.66	67.70	570.65	81.52	246.34	35.19	2237.54	53.27
23	202.77	20.28	1162.14	64.56	690.05	98.58	254.80	36.40	2309.76	54.99		
T2	2	2	225.24	22.52	1226.04	68.11	472.11	67.44	283.44	40.49	2206.83	52.54
		4	214.85	21.49	1252.91	69.61	516.60	73.80	293.21	41.89	2277.57	54.23
		6	213.43	21.34	1228.73	68.26	524.81	74.97	302.00	43.14	2268.96	54.02
		8	207.92	20.79	1236.30	68.68	400.12	57.16	443.04	63.29	2287.39	54.46
		10	217.69	21.77	1230.29	68.35	405.71	57.96	445.13	63.59	2298.82	54.73
		12	211.02	21.10	1193.64	66.31	435.73	62.25	416.65	59.52	2257.04	53.74
		14	218.86	21.89	1264.49	70.25	445.16	63.59	470.27	67.18	2398.78	57.11
		16	222.46	22.25	1318.17	73.23	447.48	63.93	332.27	47.47	2320.39	55.25
		18	216.56	21.66	1147.02	63.72	517.70	73.96	316.33	45.19	2197.61	52.32
		20	205.41	20.54	1266.89	70.38	536.78	76.68	229.99	32.86	2239.07	53.31
		22	202.11	20.21	1225.31	68.07	561.24	80.18	227.65	32.52	2216.31	52.77
24	201.82	20.18	1136.39	63.13	611.90	87.41	264.46	37.78	2214.58	52.73		

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

**Tab. No. 13c**

Treatment	Tr. No.	Box	Feed conversion ratio			
			Day 10	Day 28	Day 35	Day 42
			g/kg live weight	g/kg live weight	g/kg live weight	g/kg live weight
T1	1	1	1078.42	1362.30	1587.14	1796.55
		3	1093.72	1346.71	1546.40	1743.96
		5	1053.56	1293.86	1495.48	1690.78
		7	1069.64	1309.92	1546.57	1732.56
		9	1058.43	1348.62	1557.38	1733.53
		11	1032.24	1369.03	1591.99	1735.18
		13	967.44	1320.65	1548.20	1689.66
		15	1036.24	1299.91	1529.66	1699.45
		17	1065.19	1296.89	1504.94	1640.45
		19	1190.58	1318.66	1457.98	1644.91
		21	1104.40	1323.03	1437.90	1736.08
		23	1118.49	1365.76	1377.58	1675.39
T2	2	2	1027.25	1344.48	1536.14	1763.65
		4	1055.31	1359.46	1529.36	1750.42
		6	1097.23	1334.81	1493.94	1738.32
		8	1128.00	1313.39	1541.12	1698.48
		10	1039.62	1309.46	1533.52	1705.63
		12	1034.20	1343.36	1519.33	1703.32
		14	1055.23	1299.79	1513.37	1645.30
		16	982.07	1272.22	1490.76	1705.86
		18	997.56	1378.95	1520.83	1768.42
		20	1033.34	1330.77	1432.33	1741.94
		22	1051.21	1341.45	1418.85	1741.68
		24	1052.94	1375.69	1436.89	1712.25

**Feed conversion per 1 kg of weight gain**

**Tab. No. 13d**

Treatment	Tr. No.	Box	Feed conversion ratio				
			Day 1-10	Day 11-28	Day 29-35	Day 36-42	Day 1-42
			g/kg weight gain	g/kg weight gain	g/kg weight gain	g/kg weight gain	g/kg weight gain
T1	1	1	1084.69	1421.37	2377.05	3114.76	1831.18
		3	1093.89	1398.29	2217.74	2986.24	1775.94
		5	1053.73	1342.22	2154.40	2799.82	1720.84
		7	1069.81	1359.17	2503.23	2652.86	1764.80
		9	1058.59	1410.90	2305.16	2615.17	1764.91
		11	1032.40	1443.16	2358.97	2365.55	1766.47
		13	967.59	1395.40	2365.28	2317.56	1719.52
		15	1036.41	1352.80	2377.85	2498.65	1729.93
		17	1065.36	1343.37	2235.57	2249.38	1669.09
		19	1190.79	1343.16	1839.39	2692.55	1674.23
		21	1104.59	1366.70	1735.80	4462.64	1768.17
		23	1120.00	1417.62	1401.87	4370.58	1705.53
T2	2	2	1027.41	1413.38	2144.23	3350.42	1796.53
		4	1055.47	1421.80	2027.66	3314.38	1782.16
		6	1098.58	1384.12	1943.85	3400.15	1770.33
		8	1128.19	1350.80	2386.78	2372.72	1729.38
		10	1039.79	1366.12	2355.68	2486.78	1736.15
		12	1034.37	1408.65	2103.21	2549.64	1734.42
		14	1055.40	1350.06	2244.76	2225.13	1673.73
		16	988.11	1330.60	2277.82	3038.65	1736.49
		18	997.72	1464.66	1912.31	3277.23	1801.75
		20	1033.52	1389.10	1721.23	4781.44	1774.69
		22	1051.39	1399.07	1621.40	4870.73	1774.28
		24	1053.12	1445.11	1575.47	3789.32	1744.65

**Feed consumption per phases**

**Tab. No. 13e**

Treatment	Tr. No.	Box	Feed consumption				
			Starter (day 1-10)	Grower (day 11-28)	Finisher (day 29-35)	Finisher (day 36-42)	Total (day 1-42)
			kg	kg	kg	kg	kg
T1	1	1	38.60	244.50	140.60	132.10	555.80
		3	39.20	245.80	139.60	130.40	555.00
		5	38.10	241.20	142.30	139.00	560.60
		7	38.20	236.80	130.00	140.40	545.40
		9	39.20	243.50	134.90	140.10	557.70
		11	38.10	242.00	140.30	141.90	562.30
		13	36.40	248.10	141.90	143.80	570.20
		15	36.80	239.50	136.90	143.40	556.60
		17	38.30	240.80	137.00	138.40	554.50
		19	39.50	232.90	138.80	135.50	546.70
		21	37.50	232.30	136.50	137.90	544.20
		23	37.90	229.00	133.30	140.30	540.50
T2	2	2	38.30	242.60	141.20	132.00	554.10
		4	37.80	248.50	145.60	132.30	564.20
		6	38.90	236.40	141.80	139.60	556.70
		8	39.40	233.80	133.70	146.20	553.10
		10	37.60	235.30	133.80	145.30	552.00
		12	36.50	235.40	128.30	146.00	546.20
		14	38.40	239.00	139.90	139.60	556.90
		16	36.20	243.80	139.20	137.90	557.10
		18	36.00	235.20	136.30	144.10	551.60
		20	35.70	244.70	127.50	138.70	546.60
		22	35.80	240.00	127.40	142.80	546.00
		24	35.90	229.10	134.00	139.50	538.50

Foot pad lesions at 35 days of age

Tab. No. 13f

Treatment	Tr. No.	Box	Evaluation	
			right foot	left foot
T1	1	1	2.63	2.61
		3	2.36	2.44
		5	2.35	2.24
		7	3.00	2.85
		9	3.02	3.13
		11	3.01	3.22
		13	2.46	2.49
		15	2.09	2.14
		17	1.83	1.85
		19	1.50	1.59
		21	1.54	1.65
		23	2.46	2.51
T2	2	2	2.55	2.60
		4	2.68	2.68
		6	2.45	2.43
		8	2.91	2.99
		10	3.03	2.86
		12	1.79	1.86
		14	2.30	2.39
		16	2.20	2.18
		18	2.81	2.73
		20	2.24	2.44
		22	2.45	2.56
		24	2.83	2.86



Foot pad lesions at 42 days of age

Tab. No. 13g

Treatment	Tr. No.	Box	Evaluation	
			right foot	left foot
T1	1	1	3.21	3.24
		3	2.86	2.85
		5	2.81	2.78
		7	3.44	3.44
		9	3.25	3.25
		11	2.44	2.37
		13	2.43	2.28
		15	2.10	2.13
		17	2.09	2.24
		19	2.48	2.54
		21	1.83	1.83
		23	2.79	2.74
T2	2	2	2.63	2.71
		4	3.01	3.03
		6	3.23	3.33
		8	3.14	3.13
		10	2.18	2.19
		12	1.27	1.26
		14	2.08	1.90
		16	2.71	2.71
		18	3.00	2.94
		20	2.64	2.68
		22	2.55	2.54
		24	3.15	3.11