



# MEZINÁRODNÍ TESTOVÁNÍ DRŮBEŽE ÚSTRAŠICE

státní podnik

390 02 Tábor 2

Česká republika

**Effects of reduced crude protein content with balanced aminoacid  
profil into broiler diets on live performance and slaughter  
parameters**

**Trial No. 13 53 22004 (No. 1235)**

**Vliv sníženého obsahu bílkovin s vyváženými aminokyselinami  
v krmení na zdraví a užitkovost brojlerových kuřat**

Test č. 13 53 22004 (VT č. 1235)

**International Poultry Testing Station Ústrašice  
Mezinárodní testování drůbeže Ústrašice**

**Czech Republic  
Česká republika**

**Study Investigator:**  
Zpracovatel studie:

**Ing. Jan Tyl**

**Associate Investigator:**  
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Ing. Hana Koželuhová  
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**Study monitor:**  
Dohlížitel:

xxxxx

**Study sponsor :**  
Dohlížitel:

xxxxx

**March 2023  
Březen 2023**

## **Aim of the Project**

Effects of reduced crude protein content with balanced aminoacid profil into broiler diets on live performance and slaughter parameters.

## **Study location**

The study was carried out on the test facility Mezinárodní testování drůbeže, s.p., (next MTD, s.p. only), Ústrašice, Czech Republic. Feed samples were sended for the contents of nutrients by xxxxx.

## **Trial period**

Beginning of the trial:	10 January 2023
End of the trial:	14 February 2023

## **Study responsibility**

Ing. Jan Tyl was the independent Study Director, responsible that the trial is conducted according to the protocol. Ing. Hana Horná was responsible for daily animal care at the test facility. Full details of study's responsibility are provided below.

## **Persons involved in the trial**

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## **Material and methods**

### **Birds**

In total there were 8400 day old chicks of xxxxx. Day-old chicks were randomly distributed into 6 dietary treatments with 10 replicates per treatment and 140 chicken per replicate.

Origin 1-day old chicks:

breeder company – xxxxx

parent flock – xxxxx

age of the breeding flock – 37 weeks

### **Experimental treatments:**

<b>Tr. No.</b>	<b>Tr.</b>	<b>Description</b>	<b>No. of pen</b>	<b>No. of chick</b>
1	T1	xxxxx	140	1400
2	T2	xxxxx	140	1400
3	T3	xxxxx	140	1400
4	T4	xxxxx	140	1400
5	T5	xxxxx	140	1400
6	T6	xxxxx	140	1400

### **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 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 - 32	18 hours of light + 6 hours of darkness
Day 33 - 35	23 hours of light + 1 hour of darkness

Stocking density: 17,2 broilers per square meter

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 12 the chicken were vaccinated with xxxxx. On the first days old chickens was applied the water solution of permanganate.

### **Feeds and Diets**

Chickens were fed ad libitum according to three phase feeding programme. The test phases were 0-8 days of age for the starter BR1, 9-16 days of age for the grower BR2-1, 17-24 days of age for the grower BR2-2 and 25-35 days of age for the finisher BR3.

Feed was produced by International Poultry Testing Station Ústrašice. The composition of diets is shown in following tables.

## Composition of the feed

Ingredients (%)	T1-T6	T1	T2-T6	T1	T2, T3	T4, T5,T6
	Starter	Grower 1 20.5	Grower 1 19.5	Grower 2 20.0	Grower 2 19.0	Grower 2 18.0
Corn	41.37	46.40	51.00	35.85	40.31	44.78
Wheat	20.01	15.00	15.01	25.01	25.01	25.01
Soyabean meal	25.73	27.51	21.32	26.92	21.77	16.63
Soy Concentrate 60	3.00	-	-	-	-	-
Rapeseed meal	2.00	2.00	3.91	3.00	3.74	4.48
Rapeseed, full fat	2.00	2.73	1.90	3.08	3.04	3.00
Soyabean oil	1.20	1.44	1.00	2.45	1.72	1.00
Limestone	1.69	0.97	0.99	0.89	0.91	0.93
Salt	0.16	0.36	0.36	0.36	0.35	0.35
Rucana-Ca-Na-P	0.62	-	-	0.03	0.03	0.03
Monocalciumphosphate	-	1.33	1.33	1.12	1.13	1.13
xxxxx	1.72	1.76	2.67	0.81	1.49	2.16
AMV BR1 plus	0.50	-	-	-	-	-
AMV BR2 plus	-	0.50	0.50	0.50	0.50	0.50
AMV BR3 plus	-	-	-	-	-	-

Ingredients (%)	T1	T2	T3, T4	T5	T6
	Finisher 19.0	Finisher 18.5	Finisher 18.0	Finisher 17.5	Finisher 17.0
Corn	37.41	38.72	42.66	45.28	47.90
Wheat	25.00	25.01	25.00	25.01	25.00
Soyabean meal	24.72	23.36	19.28	16.56	13.84
Soy Concentrate 60	-	-	-	-	-
Rapeseed meal	3.50	3.66	4.16	4.49	4.82
Rapeseed, full fat	3.51	3.39	3.01	2.75	2.50
Soyabean oil	2.43	2.25	1.71	1.36	1.00
Limestone	0.82	0.83	0.85	0.86	0.88
Salt	0.35	0.35	0.35	0.35	0.35
Rucana-Ca-Na-P	0.03	0.03	0.03	0.03	0.04
Monocalciumphosphate	0.99	0.99	0.99	1.00	1.00
xxxxx	0.73	0.91	1.45	1.81	2.18
AMV BR1 plus	-	-	-	-	-
AMV BR2 plus	-	-	-	-	-
AMV BR3 plus	0.50	0.50	0.50	0.50	0.50

## **Parameters recorded and methods applied**

### **Live weight**

Live weight was measured on day 1 and on day 8 (the birds in each pen were weighed altogether). On day 16 and 24 of age birds were weighed individually, without fasting. On day 35 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 – 8 days, 9 – 16 days, 17 – 24 days, 25 – 35 days and for the overall experiment (1 – 35 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 – 8 days, 9 – 16 days, 17 – 24 days, 25 – 35 days and for the overall experiment (1 – 35 days). The calculation was included weight of deaths.

### **Mortality**

All pens were checked three 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 – 8 days, 9 – 16 days, 17 – 24 days, 25 – 35 days and 1 – 35 days.

### **Statistical analyses**

Performance results of live weight (on days 1, 8, 16, 24 and 35) and feed conversion ratio were statistically evaluated using the ANOVA single-factor model (Duncan test, Scheffe 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>5 Statistical analysis of body weight at the age of 35 days</b> (average body weight, standard deviation, coefficient of variation)
	<b>6 - 7 Statistical analyses of performance results</b>
	<b>8 Performance results per pen:</b>
	<b>8a Body weight</b>
	<b>8b Weight gain</b>
	<b>8c Feed conversion per 1 kg of live weight</b>
	<b>8d Feed conversion per 1 kg of weight gain</b>
	<b>8e Feed consumption</b>



**Results of incubation and hatching**

**Tab. No. 1**

Treatment	Tr. No.	Fertility	Hatchability		Birds housed	Average weight	
			Set eggs	Fertile eggs		Hatching eggs	Day old chicks
		%	%	%		g	g
T1	1	92.80	89.40	96.40	1400	61.50	40.79
T2	2				1400		40.64
T3	3				1400		40.82
T4	4				1400		41.00
T5	5				1400		40.86
T6	6				1400		40.97

**Body weight per phases**

**Tab. No. 2a**

Treatment	Tr. No.	Day 1		Day 8		Day 16		Day 24		Day 35	
		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	1400	40.79	1383	179.65	1372	594.22	1361	1207.16	1350	2077.38
T2	2	1400	40.64	1384	180.66	1377	568.85	1371	1178.57	1365	2127.98
T3	3	1400	40.82	1384	178.49	1376	604.63	1372	1169.04	1368	2081.40
T4	4	1400	41.00	1379	179.62	1373	589.93	1365	1155.42	1362	2076.73
T5	5	1400	40.86	1381	180.16	1377	589.87	1363	1167.73	1357	2004.93
T6	6	1400	40.97	1381	177.33	1371	574.96	1360	1160.39	1355	2022.15

**Weight gain per phases**

**Tab. No. 2b**

Treatment	Tr. No.	Day 1 - 8		Day 9 - 16		Day 17 - 24		Day 25 - 35		Day 1 - 35	
		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	138.86	17.36	414.57	51.82	612.94	76.62	870.22	72.52	2036.59	56.57
T2	2	140.02	17.50	388.19	48.52	609.73	76.22	949.41	79.12	2087.34	57.98
T3	3	137.67	17.21	426.14	53.27	564.41	70.55	912.36	76.03	2040.58	56.68
T4	4	138.62	17.33	410.32	51.29	565.49	70.69	921.31	76.78	2035.73	56.55
T5	5	139.30	17.41	409.71	51.21	577.86	72.23	837.20	69.77	1964.07	54.56
T6	6	136.36	17.05	397.63	49.70	585.43	73.18	861.76	71.81	1981.18	55.03

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

**Tab. No. 2c**

Treatment	Tr. No.	Feed conversion ratio			
		Day 8	Day 16	Day 24	Day 35
		g/kg live weight	g/kg live weight	g/kg live weight	g/kg live weight
T1	1	953.04	1096.54	1217.75	1489.66
T2	2	965.88	1111.62	1239.88	1471.25
T3	3	967.31	1059.51	1253.59	1481.83
T4	4	919.20	1089.25	1247.70	1486.31
T5	5	951.50	1104.27	1257.11	1515.01
T6	6	938.60	1102.78	1244.51	1500.64

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

**Tab. No. 2d**

Treatment	Tr. No.	Feed conversion ratio				
		Day 1-8	Day 9-16	Day 17-24	Day 25-35	Day 1-35
		g/kg weight gain	g/kg weight gain	g/kg weight gain	g/kg weight gain	g/kg weight gain
T1	1	1235.78	1159.17	1336.55	1872.97	1520.26
T2	2	1247.81	1180.15	1360.52	1761.15	1500.48
T3	3	1256.64	1098.39	1463.25	1776.26	1512.03
T4	4	1193.32	1164.62	1414.30	1787.85	1516.93
T5	5	1233.59	1171.88	1414.96	1878.59	1547.27
T6	6	1223.62	1176.61	1385.38	1849.66	1532.48

**Feed consumption per phases**

**Tab. No. 2e**

Treatment	Tr. No.	Feed consumption				
		Starter (d 1-8)	Grower (d 9-16)	Grower (d 17-24)	Finisher (d 25-35)	Total (d 1-35)
		kg	kg	kg	kg	kg
T1	1	237.85	662.80	1120.10	2204.70	4225.45
T2	2	243.25	632.10	1139.00	2283.60	4297.95
T3	3	240.10	646.50	1133.50	2218.80	4238.90
T4	4	229.70	656.50	1094.40	2245.80	4226.40
T5	5	238.00	662.30	1117.00	2138.30	4155.60
T6	6	231.10	644.20	1106.30	2161.40	4143.00

**Mortality**

**Tab. No. 3**

Treatment	Tr. No.	Mortality in the period											Mortality according causes														
		Day 1 - 8		Day 9 - 16		Day 17 - 24		Day 25 - 35		Day 1 - 35			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	17	1070	11	5020	11	10381	11	15596	50	32067	3.57							13		1	24		4	8		
T2	2	16	1792	7	2361	6	4657	6	7782	35	16592	2.50							14			16		2	3		
T3	3	16	1164	8	3667	4	2696	4	5714	32	13241	2.29							13			10		3	6		
T4	4	21	2180	6	1431	8	6638	3	4789	38	15038	2.71							18			13		3	4		
T5	5	19	1301	4	1739	14	10062	6	9166	43	22268	3.07							16			17		3	7		
T6	6	19	1337	10	4115	11	8693	5	6660	45	20805	3.21							15			21		3	6		

**Causes:**

- 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 - Reproduction 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)

Results of carcass analysis

Tab. No. 4

Treatment	Tr. No.	Sex	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	♂	2254	1568	139	34	1.53	502	22.25	31.99	500	22.16	31.87	1001	44.40	63.86	69.54	75.68
		♀	1942	1355	123	29	1.50	439	22.60	32.39	417	21.45	30.74	856	44.05	63.13	69.78	76.11
		♂	<b>2098</b>	<b>1461</b>	<b>131</b>	<b>32</b>	<b>1.51</b>	<b>470</b>	<b>22.41</b>	<b>32.18</b>	<b>458</b>	<b>21.83</b>	<b>31.34</b>	<b>928</b>	<b>44.24</b>	<b>63.52</b>	<b>69.65</b>	<b>75.88</b>
T2	2	♂	2313	1629	146	38	1.62	517	22.36	31.75	508	21.94	31.15	1025	44.30	62.91	70.43	76.74
		♀	2009	1417	124	30	1.49	461	22.94	32.52	437	21.76	30.85	898	44.70	63.37	70.54	76.71
		♂	<b>2161</b>	<b>1523</b>	<b>135</b>	<b>34</b>	<b>1.56</b>	<b>489</b>	<b>22.63</b>	<b>32.11</b>	<b>472</b>	<b>21.86</b>	<b>31.01</b>	<b>961</b>	<b>44.49</b>	<b>63.12</b>	<b>70.48</b>	<b>76.72</b>
T3	3	♂	2227	1527	141	35	1.59	468	21.03	30.68	486	21.80	31.81	954	42.84	62.49	68.55	74.89
		♀	1907	1329	119	29	1.50	420	22.05	31.64	415	21.78	31.26	836	43.83	62.90	69.68	75.90
		♂	<b>2067</b>	<b>1428</b>	<b>130</b>	<b>32</b>	<b>1.55</b>	<b>444</b>	<b>21.50</b>	<b>31.13</b>	<b>451</b>	<b>21.79</b>	<b>31.55</b>	<b>895</b>	<b>43.30</b>	<b>62.68</b>	<b>69.07</b>	<b>75.36</b>
T4	4	♂	2212	1545	138	37	1.66	497	22.47	32.17	492	22.25	31.84	989	44.72	64.01	69.86	76.09
		♀	1956	1364	126	31	1.60	424	21.69	31.09	425	21.71	31.13	849	43.40	62.22	69.76	76.20
		♂	<b>2084</b>	<b>1455</b>	<b>132</b>	<b>34</b>	<b>1.63</b>	<b>461</b>	<b>22.10</b>	<b>31.66</b>	<b>458</b>	<b>22.00</b>	<b>31.51</b>	<b>919</b>	<b>44.10</b>	<b>63.17</b>	<b>69.81</b>	<b>76.14</b>
T5	5	♂	2178	1507	142	37	1.71	457	20.97	30.31	491	22.52	32.55	947	43.49	62.85	69.19	75.69
		♀	1869	1304	120	29	1.58	389	20.83	29.85	418	22.39	32.09	808	43.22	61.94	69.77	76.18
		♂	<b>2024</b>	<b>1406</b>	<b>131</b>	<b>33</b>	<b>1.65</b>	<b>423</b>	<b>20.91</b>	<b>30.10</b>	<b>454</b>	<b>22.46</b>	<b>32.33</b>	<b>878</b>	<b>43.36</b>	<b>62.43</b>	<b>69.46</b>	<b>75.92</b>
T6	6	♂	2183	1507	141	36	1.63	449	20.58	29.82	492	22.53	32.64	941	43.11	62.46	69.02	75.49
		♀	1898	1321	122	33	1.74	401	21.12	30.35	422	22.22	31.92	823	43.34	62.27	69.60	76.03
		♂	<b>2041</b>	<b>1414</b>	<b>132</b>	<b>34</b>	<b>1.68</b>	<b>425</b>	<b>20.83</b>	<b>30.06</b>	<b>457</b>	<b>22.38</b>	<b>32.31</b>	<b>882</b>	<b>43.21</b>	<b>62.37</b>	<b>69.29</b>	<b>75.74</b>



Statistical analysis - Body weight at 35 days of age

Tab. No. 5

Treatment	Tr. No.	Cocks				Hens			
		Number of birds	Average body weight	Standard deviation	Coefficient of variation	Number of birds	Average body weight	Standard deviation	Coefficient of variation
			g/birds	g/birds	%		g/birds	g/birds	%
T1	1	687	2196.80	247.20	11.25	663	1953.63	240.22	12.30
T2	2	676	2239.26	253.50	11.32	689	2018.80	258.11	12.79
T3	3	679	2214.14	231.20	10.44	689	1950.58	241.97	12.40
T4	4	689	2192.28	219.67	10.02	673	1958.44	222.41	11.36
T5	5	669	2122.21	233.08	10.98	688	1890.89	229.96	12.16
T6	6	658	2139.27	240.74	11.25	697	1911.58	218.85	11.45

### Statistical analyses of performance results

Performance results were statistically evaluated using the ANOVA single-factor model (Duncan test, Scheffe 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. 6a**

Treatment	Treat. No.	No. of box	Average (g)	Standard deviation	Duncan test					
					T1	T2	T3	T4	T5	T6
T1	1	10	40.79	0.90		o	o	o	o	o
T2	2	10	40.64	1.04	0.720914		o	o	o	o
T3	3	10	40.82	0.82	0.930348	0.677361		o	o	o
T4	4	10	41.00	0.82	0.637586	0.440185	0.685763		o	o
T5	5	10	40.86	0.78	0.870327	0.631995	0.930348	0.734757		o
T6	6	10	40.97	0.95	0.687417	0.479858	0.736518	0.928363	0.785361	

**Body weight - day 8**

**Tab. No. 6b**

Treatment	Treat. No.	No. of box	Average (g)	Standard deviation	Duncan test					
					T1	T2	T3	T4	T5	T6
T1	1	10	179.65	3.66		o	o	o	o	o
T2	2	10	180.66	3.67	0.575785		o	o	o	o
T3	3	10	178.49	5.18	0.519952	0.257920		o	o	o
T4	4	10	179.62	2.41	0.984941	0.578593	0.504346		o	o
T5	5	10	180.16	3.49	0.762854	0.767032	0.372577	0.764274		o
T6	6	10	177.33	3.54	0.213771	0.086359	0.490910	0.203585	0.138614	

**Body weight - day 16**

**Tab. No. 6c**

Treatment	Treat. No.	No. of birds	Average (g)	Standard deviation	Kruskal-Wallis test					
					T1	T2	T3	T4	T5	T6
T1	1	1372	594.22	84.60		***	o	**	o	***
T2	2	1377	568.85	67.69	0.000000		***	**	***	o
T3	3	1376	604.63	111.78	1.000000	0.000000		**	o	***
T4	4	1373	589.93	99.14	0.003285	0.001210	0.006064		o	o
T5	5	1377	589.87	85.30	1.000000	0.000000	1.000000	0.766509		**
T6	6	1371	574.96	67.59	0.000001	0.449381	0.000002	1.000000	0.002877	

**Body weight - day 24**

**Tab. No. 6d**

Treatment	Treat. No.	No. of birds	Average (g)	Standard deviation	Scheffe test					
					T1	T2	T3	T4	T5	T6
T1	1	1361	1207.16	166.31		***	***	***	***	***
T2	2	1371	1178.57	167.21	0.000683		o	*	o	o
T3	3	1372	1169.04	160.76	0.000000	0.792770		o	o	o
T4	4	1365	1155.42	162.04	0.000000	0.015256	0.432213		o	o
T5	5	1363	1167.73	156.23	0.000000	0.686929	0.999977	0.554898		o
T6	6	1360	1160.39	155.61	0.000000	0.123556	0.854606	0.985829	0.923659	

**Body weight - day 35**

**Tab. No. 6e**

Treatment	Treat. No.	No. of birds	Average (g)	Standard deviation	Kruskal-Wallis test					
					T1	T2	T3	T4	T5	T6
T1	1	1350	2077.38	272.36		***	o	o	***	***
T2	2	1365	2127.98	278.51	0.000024		**	***	***	***
T3	3	1368	2081.40	270.84	1.000000	0.004256		o	***	***
T4	4	1362	2076.73	249.99	1.000000	0.000133	1.000000		***	***
T5	5	1357	2004.93	258.73	0.000000	0.000000	0.000000	0.000000		o
T6	6	1355	2022.15	256.32	0.000000	0.000000	0.000000	0.000000	1.000000	

**FCR - day 8**

**Tab. No. 7a**

Treatment	Treat. No.	No. of box	Average (g)	Standard deviation	Duncan test					
					T1	T2	T3	T4	T5	T6
T1	1	10	954.05	50.17		o	o	o	o	o
T2	2	10	966.87	68.77	0.617526		o	o	o	o
T3	3	10	967.59	75.81	0.621339	0.977497		o	o	o
T4	4	10	918.92	42.53	0.216575	0.098935	0.099789		o	o
T5	5	10	951.30	28.96	0.914561	0.570108	0.567396	0.237609		o
T6	6	10	939.10	62.37	0.585753	0.329306	0.328899	0.432461	0.634828	

**FCR - day 16**

**Tab. No. 7b**

Treatment	Treat. No.	No. of box	Average (g)	Standard deviation	Kruskal-Wallis test					
					T1	T2	T3	T4	T5	T6
T1	1	10	1098.47	52.08		o	o	o	o	o
T2	2	10	1111.71	36.61	1.000000		o	o	o	o
T3	3	10	1068.51	90.29	1.000000	1.000000		o	o	o
T4	4	10	1098.76	106.19	1.000000	1.000000	1.000000		o	o
T5	5	10	1106.45	63.55	1.000000	1.000000	1.000000	1.000000		o
T6	6	10	1103.71	35.20	1.000000	1.000000	1.000000	1.000000	1.000000	

FCR - day 24

Tab. No. 7c

Treatment	Treat. No.	No. of box	Average (g)	Standard deviation	Duncan test					
					T1	T2	T3	T4	T5	T6
T1	1	10	1218.73	43.30		o	o	o	o	o
T2	2	10	1242.46	51.68	0.338554		o	o	o	o
T3	3	10	1255.55	50.76	0.189304	0.633652		o	o	o
T4	4	10	1251.54	73.84	0.230772	0.730983	0.871295		o	o
T5	5	10	1258.87	50.87	0.159432	0.559784	0.892829	0.781435		o
T6	6	10	1245.69	54.29	0.307132	0.895993	0.709084	0.812755	0.631087	

FCR - day 35

Tab. No. 7d

Treatment	Treat. No.	No. of box	Average (g)	Standard deviation	Duncan test					
					T1	T2	T3	T4	T5	T6
T1	1	10	1490.02	25.88		o	o	o	o	o
T2	2	10	1472.20	43.34	0.317236		o	o	*	o
T3	3	10	1482.28	33.73	0.652310	0.530675		o	o	o
T4	4	10	1486.88	29.77	0.844805	0.392571	0.775000		o	o
T5	5	10	1515.80	34.44	0.133279	0.017827	0.065099	0.103628		o
T6	6	10	1501.51	43.58	0.475184	0.107276	0.280384	0.393880	0.375277	

**Performance results per replicate**

**Body weight per phases**

**Tab. No. 8a (page 1)**

Treatment	Tr. No.	Pen	Day 1		Day 8		Day 16		Day 24		Day 35	
			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	40.36	140	182.86	138	622.54	137	1194.96	135	2106.15
		7	140	39.64	138	181.52	137	581.97	136	1258.16	134	2200.52
		13	140	41.79	140	181.79	139	589.57	138	1202.46	138	2076.30
		19	140	41.07	135	171.48	134	555.15	134	1247.91	134	2111.94
		25	140	41.07	140	177.86	140	616.93	137	1144.60	135	2060.89
		36	140	42.14	139	183.45	136	630.81	133	1180.30	132	2020.08
		42	140	40.71	140	181.07	139	572.73	138	1138.77	138	2038.26
		48	140	41.43	137	181.75	136	576.32	136	1239.12	134	2086.12
		54	140	40.36	139	178.06	139	593.53	138	1195.14	138	2065.00
		60	140	39.29	135	176.67	134	601.79	134	1272.91	132	2008.11
T2	2	2	140	40.36	139	179.50	139	558.49	138	1117.32	138	2096.74
		8	140	40.00	135	180.37	133	566.54	132	1185.23	132	2138.33
		14	140	41.07	140	182.86	140	582.00	139	1258.71	138	2210.07
		20	140	42.86	139	177.70	138	586.45	138	1315.43	136	2242.72
		26	140	39.64	140	185.71	140	563.50	140	1098.79	140	2010.29
		35	140	40.00	139	181.65	139	558.13	137	1112.55	136	2049.78
		41	140	40.71	139	179.86	139	554.24	139	1118.35	139	2228.78
		47	140	41.43	138	180.80	136	566.40	136	1251.76	135	2145.11
		53	140	41.07	138	185.14	138	573.70	138	1156.59	138	2091.23
		59	140	39.29	137	172.99	135	579.26	134	1172.69	133	2066.84
T3	3	3	140	40.36	139	182.01	139	680.00	139	1217.27	139	2180.22
		9	140	40.36	139	182.01	137	575.18	137	1219.27	137	2117.96
		15	140	40.71	138	172.00	137	545.18	137	1170.80	136	2135.37
		21	140	42.14	134	181.34	132	570.30	131	1151.53	130	2097.31
		27	140	40.71	138	173.55	136	605.22	134	1148.96	134	2059.63
		34	140	40.36	139	175.18	139	621.87	138	1154.86	138	2022.03
		40	140	41.43	138	178.99	137	570.95	137	1156.93	136	2082.65
		46	140	42.14	140	171.00	140	539.07	140	1063.71	140	2032.79
		52	140	40.36	140	182.86	140	572.64	140	1169.36	139	2022.30
		58	140	39.64	139	185.97	139	763.09	139	1237.19	139	2065.61

**Body weight per phases**

**Tab. No. 8a (page 2)**

Treatment	Tr. No.	Pen	Day 1		Day 8		Day 16		Day 24		Day 35	
			Birds	Average body weight	Birds	Average body weight	Birds	Average body weight	Birds	Average body weight	Birds	Average body weight
				g		g		g		g		
T4	4	4	140	40.36	139	181.29	139	534.75	137	1067.15	137	1989.64
		10	140	40.00	137	182.12	135	563.48	134	1228.81	134	2107.39
		16	140	41.79	140	182.50	140	566.14	139	1284.46	138	2141.16
		22	140	42.50	139	178.42	138	568.12	136	1141.25	136	2046.76
		28	140	41.43	138	179.71	138	677.39	137	1124.09	137	2010.88
		33	140	41.07	138	177.97	138	554.06	138	1066.23	138	1995.43
		39	140	40.36	139	181.65	139	570.50	139	1173.45	139	2068.85
		45	140	41.43	136	180.15	136	569.04	136	1134.34	136	2187.87
		51	140	41.07	137	177.37	135	559.19	134	1113.51	133	2127.22
		57	140	40.00	136	175.00	135	739.26	135	1220.81	134	2095.52
T5	5	5	140	40.36	135	181.85	134	648.66	131	1217.63	130	2172.23
		11	140	40.00	138	183.33	138	566.01	138	1157.39	137	1992.26
		17	140	40.71	139	181.65	139	558.56	138	1180.36	138	2041.88
		23	140	41.79	140	182.50	140	566.00	138	1155.87	137	1961.24
		29	140	41.07	138	174.49	137	606.35	135	1145.19	134	2026.19
		32	140	40.71	138	181.16	138	617.54	137	1073.72	136	1902.50
		38	140	41.43	137	180.66	136	582.06	136	1150.96	136	1959.85
		44	140	42.14	140	182.14	140	568.21	137	1120.29	136	1953.90
		50	140	40.71	138	173.00	137	592.26	137	1238.54	137	2001.97
		56	140	39.64	138	180.80	138	595.65	136	1239.63	136	2044.85
T6	6	6	140	40.36	139	179.50	139	563.67	139	1159.64	139	2040.72
		12	140	40.71	139	181.29	135	577.33	133	1184.44	132	2141.06
		18	140	41.07	136	181.99	136	565.81	134	1210.37	133	2100.45
		24	140	41.79	138	172.83	136	558.97	134	1117.54	133	1952.48
		30	140	41.43	139	173.96	138	613.41	138	1141.59	138	1967.32
		31	140	41.79	137	177.37	136	573.46	135	1104.00	134	1953.88
		37	140	42.50	139	179.50	138	587.10	138	1133.77	138	1972.83
		43	140	40.71	139	179.14	139	570.65	138	1143.99	138	1986.81
		49	140	39.29	138	175.72	138	582.46	136	1206.69	135	2039.41
		55	140	40.00	137	172.00	136	556.25	135	1203.33	135	2071.33



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

Tab. No. 8b (page 1)

Treatment	Tr. No.	Box	Day 1 - 8		Day 9 - 16		Day 17 - 24		Day 25 - 35		Day 1 - 35	
			WG	DWG	WG	DWG	WG	DWG	WG	DWG	WG	DWG
			g	g	g	g	g	g	g	g	g	g
T1	1	1	142.50	17.81	439.68	54.96	572.43	71.55	911.18	75.93	2065.79	57.38
		7	141.88	17.74	400.45	50.06	676.19	84.52	942.36	78.53	2160.88	60.02
		13	140.00	17.50	407.78	50.97	612.90	76.61	873.84	72.82	2034.51	56.51
		19	130.41	16.30	383.67	47.96	692.76	86.60	864.03	72.00	2070.87	57.52
		25	136.79	17.10	439.07	54.88	527.67	65.96	916.29	76.36	2019.82	56.11
		36	141.31	17.66	447.36	55.92	549.49	68.69	839.78	69.98	1977.94	54.94
		42	140.36	17.55	391.66	48.96	566.03	70.75	899.49	74.96	1997.55	55.49
		48	140.32	17.54	394.57	49.32	662.79	82.85	847.00	70.58	2044.69	56.80
		54	137.70	17.21	415.47	51.93	601.62	75.20	869.86	72.49	2024.64	56.24
		60	137.38	17.17	425.12	53.14	671.12	83.89	735.20	61.27	1968.82	54.69
T2	2	2	139.14	17.39	378.99	47.37	558.83	69.85	979.42	81.62	2056.38	57.12
		8	140.37	17.55	386.17	48.27	618.69	77.34	953.11	79.43	2098.33	58.29
		14	141.79	17.72	399.14	49.89	676.71	84.59	951.37	79.28	2169.00	60.25
		20	134.84	16.85	408.75	51.09	728.99	91.12	927.29	77.27	2199.86	61.11
		26	146.07	18.26	377.79	47.22	535.29	66.91	911.50	75.96	1970.65	54.74
		35	141.65	17.71	376.47	47.06	554.43	69.30	937.22	78.10	2009.78	55.83
		41	139.15	17.39	374.39	46.80	564.10	70.51	1110.43	92.54	2188.07	60.78
		47	139.37	17.42	385.60	48.20	685.37	85.67	893.35	74.45	2103.68	58.44
		53	144.07	18.01	388.55	48.57	582.90	72.86	934.64	77.89	2050.16	56.95
		59	133.70	16.71	406.27	50.78	593.43	74.18	894.16	74.51	2027.55	56.32
T3	3	3	141.65	17.71	497.99	62.25	537.27	67.16	962.95	80.25	2139.86	59.44
		9	141.65	17.71	393.17	49.15	644.09	80.51	898.69	74.89	2077.60	57.71
		15	131.29	16.41	373.18	46.65	625.62	78.20	964.56	80.38	2094.66	58.18
		21	139.20	17.40	388.96	48.62	581.22	72.65	945.78	78.82	2055.17	57.09
		27	132.84	16.61	431.67	53.96	543.73	67.97	910.67	75.89	2018.92	56.08
		34	134.82	16.85	446.69	55.84	532.98	66.62	867.17	72.26	1981.67	55.05
		40	137.56	17.19	391.96	49.00	585.99	73.25	925.71	77.14	2041.22	56.70
		46	128.86	16.11	368.07	46.01	524.64	65.58	969.07	80.76	1990.65	55.30
		52	142.50	17.81	389.79	48.72	596.71	74.59	852.95	71.08	1981.94	55.05
		58	146.33	18.29	577.12	72.14	474.10	59.26	828.42	69.03	2025.97	56.28

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

Tab. No. 8b (page 2)

Treatment	Tr. No.	Box	Day 1 - 8		Day 9 - 16		Day 17 - 24		Day 25 - 35		Day 1 - 35	
			WG	DWG	WG	DWG	WG	DWG	WG	DWG	WG	DWG
			g	g	g	g	g	g	g	g	g	g
T4	4	4	140.93	17.62	353.45	44.18	532.41	66.55	922.48	76.87	1949.28	54.15
		10	142.12	17.76	381.36	47.67	665.32	83.17	878.58	73.22	2067.39	57.43
		16	140.71	17.59	383.64	47.96	718.32	89.79	856.70	71.39	2099.37	58.32
		22	135.92	16.99	389.70	48.71	573.13	71.64	905.51	75.46	2004.26	55.67
		28	138.28	17.29	497.68	62.21	446.70	55.84	886.79	73.90	1969.45	54.71
		33	136.90	17.11	376.09	47.01	512.17	64.02	929.20	77.43	1954.36	54.29
		39	141.29	17.66	388.85	48.61	602.95	75.37	895.40	74.62	2028.49	56.35
		45	138.72	17.34	388.90	48.61	565.29	70.66	1053.53	87.79	2146.44	59.62
		51	136.30	17.04	381.81	47.73	554.32	69.29	1013.71	84.48	2086.15	57.95
		57	135.00	16.88	564.26	70.53	481.56	60.19	874.71	72.89	2055.52	57.10
T5	5	5	141.49	17.69	466.80	58.35	568.98	71.12	954.60	79.55	2131.87	59.22
		11	143.33	17.92	382.68	47.84	591.38	73.92	834.87	69.57	1952.26	54.23
		17	140.94	17.62	376.91	47.11	621.80	77.73	861.52	71.79	2001.17	55.59
		23	140.71	17.59	383.50	47.94	589.87	73.73	805.37	67.11	1919.45	53.32
		29	133.42	16.68	431.86	53.98	538.83	67.35	881.01	73.42	1985.12	55.14
		32	140.45	17.56	436.38	54.55	456.19	57.02	828.78	69.06	1861.79	51.72
		38	139.23	17.40	401.40	50.18	568.90	71.11	808.90	67.41	1918.42	53.29
		44	140.00	17.50	386.07	48.26	552.08	69.01	833.61	69.47	1911.76	53.10
		50	132.29	16.54	419.26	52.41	646.28	80.78	763.43	63.62	1961.26	54.48
		56	141.16	17.64	414.86	51.86	643.98	80.50	805.22	67.10	2005.21	55.70
T6	6	6	139.14	17.39	384.17	48.02	595.97	74.50	881.08	73.42	2000.36	55.57
		12	140.58	17.57	396.04	49.50	607.10	75.89	956.62	79.72	2100.35	58.34
		18	140.92	17.61	383.82	47.98	644.56	80.57	890.08	74.17	2059.38	57.21
		24	131.04	16.38	386.14	48.27	558.57	69.82	834.94	69.58	1910.69	53.07
		30	132.53	16.57	439.45	54.93	528.19	66.02	825.72	68.81	1925.89	53.50
		31	135.58	16.95	396.08	49.51	530.54	66.32	849.88	70.82	1912.09	53.11
		37	137.00	17.12	407.61	50.95	546.67	68.33	839.06	69.92	1930.33	53.62
		43	138.43	17.30	391.51	48.94	573.34	71.67	842.83	70.24	1946.10	54.06
		49	136.43	17.05	406.74	50.84	624.23	78.03	832.72	69.39	2000.12	55.56
		55	132.00	16.50	384.25	48.03	647.08	80.89	868.00	72.33	2031.33	56.43

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

**Tab. No. 8c (page 1)**

Treatment	Tr. No.	Box	Feed conversion ratio			
			Day 8	Day 16	Day 24	Day 35
			g/kg live weight	g/kg live weight	g/kg live weight	g/kg live weight
T1	1	1	917.97	1001.76	1210.13	1502.09
		7	935.69	1116.93	1177.21	1459.37
		13	974.46	1123.65	1242.24	1505.47
		19	1053.04	1173.72	1154.93	1472.04
		25	939.76	1066.34	1271.81	1502.10
		36	935.86	1034.57	1255.26	1543.99
		42	919.13	1145.53	1274.99	1495.83
		48	930.34	1122.54	1179.38	1456.84
		54	903.34	1115.73	1237.68	1477.09
		60	1030.91	1083.91	1183.69	1485.38
T2	2	2	1054.97	1088.45	1265.16	1508.37
		8	1002.26	1165.19	1256.52	1516.83
		14	939.45	1137.09	1195.38	1477.14
		20	960.84	1120.47	1163.28	1458.16
		26	861.54	1126.89	1310.54	1506.18
		35	881.04	1092.21	1291.95	1508.06
		41	981.92	1129.80	1288.08	1371.94
		47	993.30	1142.10	1179.70	1451.74
		53	920.53	1067.21	1265.91	1473.06
		59	1072.84	1047.69	1208.09	1450.49
T3	3	3	1135.51	970.58	1202.86	1460.84
		9	930.71	1163.34	1215.32	1488.05
		15	1014.72	1122.85	1235.17	1458.00
		21	916.06	1081.70	1286.56	1515.12
		27	903.78	1041.42	1262.77	1500.47
		34	1011.55	1042.68	1273.86	1541.33
		40	938.49	1140.80	1275.50	1510.29
		46	985.39	1142.18	1367.18	1450.51
		52	972.66	1106.40	1244.27	1460.63
		58	867.09	873.14	1191.96	1437.58

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

**Tab. No. 8c (page 2)**

Treatment	Tr. No.	Box	Feed conversion ratio			
			Day 8	Day 16	Day 24	Day 35
			g/kg live weight	g/kg live weight	g/kg live weight	g/kg live weight
T4	4	4	937.64	1172.61	1320.72	1484.04
		10	910.97	1136.14	1152.57	1508.92
		16	1013.70	1168.31	1138.41	1467.39
		22	945.64	1155.25	1275.82	1514.12
		28	910.95	963.69	1289.08	1512.03
		33	881.31	1188.74	1355.59	1530.05
		39	865.30	1113.93	1229.40	1492.90
		45	920.64	1143.20	1305.58	1436.94
		51	876.98	1087.67	1268.57	1458.33
		57	926.04	858.06	1179.68	1464.05
T5	5	5	916.95	994.63	1227.93	1466.24
		11	932.48	1136.45	1250.66	1514.10
		17	983.65	1190.41	1264.90	1493.83
		23	974.56	1168.60	1276.24	1548.05
		29	979.30	1065.83	1288.72	1512.09
		32	926.18	1030.72	1334.70	1567.68
		38	958.68	1147.92	1281.78	1545.65
		44	968.63	1143.93	1299.21	1538.54
		50	903.04	1117.07	1208.80	1505.87
		56	969.49	1068.94	1155.80	1465.98
T6	6	6	865.61	1135.48	1239.86	1490.24
		12	851.38	1128.14	1239.01	1460.05
		18	942.94	1125.24	1194.12	1455.22
		24	939.34	1112.96	1250.72	1542.15
		30	1020.58	1028.64	1297.68	1552.57
		31	969.76	1105.82	1330.24	1527.69
		37	870.61	1056.50	1274.28	1549.37
		43	997.92	1102.40	1278.54	1528.11
		49	1014.81	1104.66	1210.61	1475.03
		55	918.09	1137.29	1141.85	1434.69

Feed conversion per 1 kg of weight gain

Tab. No. 8d (page 1)

Treatment	Tr. No.	Box	Feed conversion ratio				
			Day 1-8	Day 9-16	Day 17-24	Day 25-35	Day 1-35
			g/kg weight gain	g/kg weight gain	g/kg weight gain	g/kg weight gain	g/kg weight gain
T1	1	1	1177.97	1036.95	1441.14	1893.29	1532.21
		7	1199.65	1199.78	1229.43	1842.76	1486.81
		13	1265.34	1190.20	1357.53	1870.80	1536.70
		19	1394.99	1228.48	1139.72	1932.11	1502.48
		25	1221.92	1117.62	1512.30	1801.06	1533.19
		36	1217.00	1075.53	1516.99	1961.60	1578.28
		42	1185.71	1250.46	1406.93	1777.97	1526.60
		48	1209.19	1212.29	1229.20	1867.60	1487.28
		54	1169.92	1206.93	1358.02	1808.56	1506.84
		60	1335.71	1106.09	1274.32	2015.73	1516.36
T2	2	2	1352.46	1104.78	1443.65	1788.99	1538.23
		8	1295.45	1243.00	1341.81	1844.85	1547.30
		14	1211.57	1227.63	1245.73	1852.81	1505.27
		20	1268.01	1190.62	1197.81	1884.18	1487.18
		26	1095.33	1257.33	1503.87	1742.03	1536.48
		35	1131.35	1194.34	1496.21	1768.70	1538.74
		41	1271.08	1201.00	1443.69	1456.43	1397.65
		47	1292.31	1212.33	1211.24	1837.07	1481.12
		53	1185.23	1137.64	1461.96	1729.73	1502.99
		59	1394.23	1036.75	1366.43	1774.00	1479.84
T3	3	3	1460.99	910.14	1497.05	1787.08	1488.59
		9	1197.57	1271.24	1262.47	1860.79	1517.48
		15	1333.36	1173.19	1333.57	1730.39	1486.99
		21	1202.31	1160.71	1492.32	1799.15	1548.18
		27	1183.39	1097.47	1515.03	1805.29	1531.82
		34	1316.10	1054.92	1546.62	1898.55	1573.13
		40	1224.59	1234.00	1407.57	1807.25	1541.70
		46	1307.45	1215.06	1598.37	1541.98	1481.21
		52	1248.15	1169.14	1376.59	1757.82	1490.40
		58	1102.97	875.09	1705.61	1804.60	1465.90

Feed conversion per 1 kg of weight gain

Tab. No. 8d (page 2)

Treatment	Tr. No.	Box	Feed conversion ratio				
			Day 1-8	Day 9-16	Day 17-24	Day 25-35	Day 1-35
			g/kg weight gain	g/kg weight gain	g/kg weight gain	g/kg weight gain	g/kg weight gain
T4	4	4	1199.08	1296.56	1470.85	1676.69	1515.11
		10	1172.07	1246.00	1166.53	2013.93	1539.21
		16	1314.76	1241.85	1114.65	1964.04	1496.81
		22	1243.32	1251.85	1397.73	1817.30	1547.01
		28	1187.31	982.82	1787.06	1796.03	1544.46
		33	1148.20	1335.26	1536.50	1730.48	1562.66
		39	1114.02	1230.34	1338.74	1838.34	1522.81
		45	1200.60	1247.87	1469.82	1578.73	1465.47
		51	1145.68	1187.93	1453.52	1669.22	1488.28
		57	1206.64	836.63	1676.67	1864.46	1493.60
T5	5	5	1186.60	1025.44	1501.59	1776.25	1495.69
		11	1196.00	1234.61	1360.13	1881.38	1545.64
		17	1269.46	1290.32	1332.13	1809.24	1524.56
		23	1264.00	1260.94	1379.94	1944.03	1582.04
		29	1284.47	1101.08	1545.09	1806.16	1544.38
		32	1197.48	1074.39	1750.79	1873.29	1602.76
		38	1249.36	1233.36	1420.45	1923.46	1579.90
		44	1260.18	1226.64	1461.40	1866.28	1572.98
		50	1183.81	1206.62	1293.20	1988.72	1537.78
		56	1243.73	1112.66	1237.44	1947.77	1495.66
T6	6	6	1117.49	1262.17	1338.73	1820.04	1520.52
		12	1099.54	1256.52	1347.97	1740.72	1489.59
		18	1224.18	1212.64	1255.15	1818.63	1485.46
		24	1242.93	1191.62	1391.21	1939.36	1577.13
		30	1340.56	1031.86	1612.02	1906.10	1586.40
		31	1274.99	1167.03	1576.40	1787.57	1562.18
		37	1141.96	1138.82	1509.81	1922.45	1583.92
		43	1293.33	1150.31	1455.13	1868.28	1560.46
		49	1309.58	1143.77	1310.60	1866.54	1504.80
		55	1201.43	1236.79	1145.81	1843.32	1463.90

Feed consumption per phases

Tab. No. 8e (page 1)

Treatment	Tr. No.	Box	Feed consumption				
			Starter (D 1-8)	Grower (D 9-16)	Grower (D 17-24)	Finisher (D 24-35)	Total (D 1-35)
			kg	kg	kg	kg	kg
T1	1	1	23.50	63.20	112.50	232.60	431.80
		7	23.60	66.20	114.10	234.90	438.80
		13	24.80	67.90	115.20	225.60	433.50
		19	24.70	63.50	105.80	223.70	417.70
		25	23.40	68.70	111.60	222.20	425.90
		36	23.90	66.20	111.40	217.70	419.20
		42	23.30	68.40	110.50	220.70	422.90
		48	23.40	65.30	110.80	213.40	412.90
		54	22.40	69.70	113.60	217.10	422.80
		60	24.85	63.70	114.60	196.80	399.95
T2	2	2	27.10	58.20	112.00	241.80	439.10
		8	24.80	64.40	110.00	232.10	431.30
		14	24.05	68.60	117.50	244.30	454.45
		20	23.80	67.10	120.50	237.00	448.40
		26	22.40	66.50	112.70	222.30	423.90
		35	22.30	62.50	113.60	225.20	423.60
		41	24.60	62.50	113.20	224.80	425.10
		47	24.90	64.40	112.90	222.30	424.50
		53	23.70	61.00	117.60	223.10	425.40
		59	25.60	56.90	109.00	210.70	402.20
T3	3	3	28.80	63.00	111.80	239.20	442.80
		9	23.60	69.50	111.40	229.10	433.60
		15	24.20	60.10	114.30	227.60	426.20
		21	22.70	60.30	114.00	221.70	418.70
		27	21.80	65.00	110.80	220.30	417.90
		34	24.70	65.50	113.40	227.20	430.80
		40	23.30	66.50	113.00	227.20	430.00
		46	23.60	62.60	117.40	209.20	412.80
		52	24.90	63.80	115.00	209.50	413.20
		58	22.50	70.20	112.40	207.80	412.90

**Feed consumption per phases**

**Tab. No. 8e (page 2)**

Treatment	Tr. No.	Box	Feed consumption				
			Starter (D 1-8)	Grower (D 9-16)	Grower (D 17-24)	Finisher (D 24-35)	Total (D 1-35)
			kg	kg	kg	kg	kg
T4	4	4	24.30	63.70	108.90	211.90	408.80
		10	22.90	64.20	105.20	237.10	429.40
		16	25.90	66.70	111.20	232.90	436.70
		22	23.50	67.50	108.90	223.80	423.70
		28	22.70	67.50	109.30	218.20	417.70
		33	21.80	69.30	108.60	221.90	421.60
		39	21.90	66.50	112.20	228.80	429.40
		45	22.90	66.00	113.00	226.20	428.10
		51	21.50	61.20	108.10	225.90	416.70
		57	22.30	63.90	109.00	219.10	414.30
T5	5	5	22.80	64.30	112.10	221.50	420.70
		11	23.70	65.20	111.00	215.70	415.60
		17	24.90	67.60	114.70	215.10	422.30
		23	24.90	67.70	113.50	215.50	421.60
		29	23.70	65.40	112.30	214.40	415.80
		32	23.30	64.70	109.20	211.00	408.20
		38	23.90	68.10	109.90	211.60	413.50
		44	24.70	66.30	111.30	212.20	414.50
		50	21.70	69.30	114.50	208.00	413.50
		56	24.40	63.70	108.50	213.30	409.90
T6	6	6	21.70	67.40	110.90	222.90	422.90
		12	21.50	68.40	109.30	220.40	419.60
		18	23.60	63.30	109.40	214.80	411.10
		24	22.50	63.00	104.80	216.50	406.80
		30	24.80	62.80	117.50	217.20	422.30
		31	23.70	63.40	113.20	204.50	404.80
		37	21.80	64.40	113.90	222.60	422.70
		43	24.90	62.60	115.20	217.30	420.00
		49	24.80	64.20	111.90	209.20	410.10
		55	21.80	64.70	100.20	216.00	402.70