

THE INFLUENCE OF PRESTARTER FORAGE QUALITY ON PERFORMANCES AND ECONOMICAL EFFICIENCY OF GROWING PIGLETS

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Abstract

In an experiment made on 520 piglets, from 52 sows, were established the performance and economical indices for two experimental groups: V1 – 259 piglets fed with combined forage with known parameters, meal type, R.01, which was administered for 10-57 days; V2 – 261 piglet fed with two types of granulated forage: prestarter forage TS 8001 which was administered for 10-42 days and prestarter forage TS 8063 administered from 43 to 57 day. Piglet from experimental group V1 fed with combined forage R.01 have registered a greater forage consumption until 32 days of age, but when the weaning crisis appeared were remediated by forage restriction. Piglet from V2 registered smaller forage consumption of granulated forage and without weaning crisis. On entire experimental period (1-57 days) piglet from V2 registered a daily weight gain of 177 g/head/day and piglet from V1 registered a daily weight gain of 165 g/head/day. In the same period at V2 were registered wastage with 2.62% smaller comparative with V1, but the difference was insignificant. The forage cost was 83027 ROL/head at V1 and 139163 ROL/head at V2, with 59.66% greater. We estimate that the granulated forage have better tolerance in piglet digestive system and eliminate the weaning crisis but the forage cost rises with 60%.

Key words: mash feed, pellet feed, ad libidum feeding, diet feeding, post weaning crisis

INTRODUCTION

Suckling pigs are characterized through a high growth rate and to capitalize this property they must be fed with easy digestible ration with high biological value (Drinceanu 1994, Luca 2000, Stoica and Stoica Liliana 2001). After 2 weeks of age the maternal milk no longer meets the nutritional requirements of piglets and is necessary the supplementation of the ration with combined forages (Pop et al. 2006, Șara 2007, Ștef Lavinia 2008).

In this paper we study the effect in production of prestarter forage, granular and structured on phases on each stage of somatic and physiological development of digestive tube, comparative with a single prestarter forage, meal type with comparable physico-chemical parameters.

MATERIAL AND METHODS

The experience was performed on period 26. november. 2003 - 16. january. 2004 on two experimental groups of hybrids F1 LANDRACE x MARELE ALB:

- Control group – 259 piglet from 26 sows;
- Experimental group – 261 piglets from 26 sows.

In piglet nutrition from control group in period 10-57 days was used a forage, meal type called Prestarter forage cod 01.

For the piglets from experimental group were used two types of prestarter granular forage: in period 10-42 days was used Granular prestarter forage TS 8001 and in period 43-57 days was used TS 8063.

The main nutritional parameters of combined forages used in the experiment are presented in table 1.

Table 1
 Main nutritional parameters of combined forages used in the experiment

Specification	R 01 Meal	TS 8001 granules	TS 8063 granules
DM%	87.50	89.97	88.79
ME Kcal/kg	3337	3482	3432
CP%	18.5	18.8	17.84
Lysine%	1.39	1.47	1.35
Methionine + cystine%	0.81	0.90	0.83
Ca%	0.65	0.75	0.67
P%	0.58	0.68	0.58
Crude cellulose	2.59	2.77	2.68

During the experiment were established the following productive and economic indices:

A) The evolution of body weight from birth to 57 days, by individual weighing at birth, at 21 days (wening), at 42 days and at 57 days;

B) the evolution of forage consumption expressed by the forage quantities ingested in period: 10-21 days, 22-28 days, 29-42 days and 43-57 days;

C) The evolution of piglets weight gain in period 1-57 days expressed by weight gains obtained in period 1-21 days, 22-28 days, 29-42 days and 43-57 days;

D) The forages costs in the experimental period for the two forage variants.

E) The livestock keeping situation.

RESULTS AND DISCUSSION

To emphasize, the influence of prestarter forage structure, as well as the presentation form, were compared the indices mentioned above, for the piglets from experimental groups and the results are:

The evolution of piglets body weight in experimental period is presented in table 2 and represented graphically in figure 1.

Table 2
 The evolution of body weights of piglets in period 1-57 days

Birth			21 days			28 days			42 days			57 days		
Control Kg	Exper Kg	Diff. ± Kg	Control Kg	Exper Kg	Diff. ± Kg	Control Kg	Exper Kg	Diff. ± Kg	Control Kg	Exper Kg	Diff. ± Kg	Control Kg	Exper Kg	Diff. ± Kg
1.57	1.64	0.07 ns*	5.61	5.71	0.1 ns	6.30	7.04	0.65 ns	7.62	8.94	1.32 ns	11.01	11.77	0.76 ns

*ns – (p>0.05)

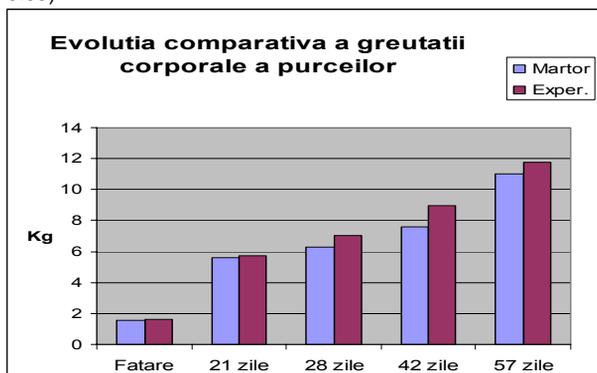


Figure 1. The evolution of body weight of piglets from experimental groups

At birth the piglets from control group (259 piglets) had a total body weight of 407 kg, returning a medium body weight of 1.57 kg and at experimental group (261 piglets) had a total body weight of 427 kg, returning a medium body weight of 1.64 kg. The difference from experimental

groups was statistically insignificant ($p>0.05$).

The evolution of forage consumption in experimental period is presented in table 3 and represented graphically in figure 2.

Table 3
 The evolution of forage consumption in period 10-57 days

10 – 21 days			22 – 28 days			29 – 42 days			43 – 57 days			10 – 57 days		
Control Kg	Exper Kg	Diff. ± Kg	Control Kg	Exper Kg	Diff. ± Kg	Control Kg	Exper Kg	Diff. ± Kg	Control Kg	Exper Kg	Diff. ± Kg	Control Kg	Exper Kg	Diff. ± Kg
32.8	18.02	+14.6	36.5	26.12	+9.95	579.1	880.8	301.1	1440	1282	+158	2088	2207	-119

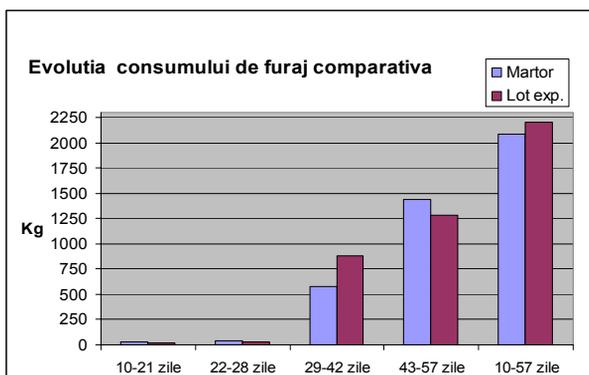


Figure 2. The evolution of forage consumption at experimental groups

For both experimental groups, piglets feeding started at the age of 10 days, as follows:

➤ At control group was administered forage R.01 meal type, in gutter specially arranged for the additional feeding of suckling pigs.

➤ At experimental groups were administered the two types of combined forage. For both experimental groups the forage were administered ad libitum. Was observed that piglets preferences and forage consumption was greater at control group were the forage was meal type.

In period 10-21 days the control group consumed 32.8 kg forage R.01 meal type and the experimental group 18.02 kg forage TS 8001. This consumption is not defining for piglets performances, in this period the

influence of maternal milk was predominant.

At the age of 21 days the medium weight of piglets from control group was 5.61 kg and at experimental group 5.71 kg, the difference of 100 grams was insignificant ($p>0.05$). In this period the total weight gain at piglets from control group was 4.04 kg and at experimental group 4.07 kg, the difference was insignificant ($p>0.05$). In this conditions, the daily weight gain calculated for control group was 192.31 g and for experimental group 193.8 g, the difference was 1.42 g, 0.74%.

The piglet weaning was made at 28 days by removing the sows from piglets box, and at this age the medium body weight of piglets from control group was 6.30 kg and 7.04 kg at experimental group, the difference of 0.74 kg was insignificant ($p>0.05$).

In period 28-42 days the piglets feeding from the two experimental groups was made as follows:

➤ At control group, the feeding was made ad libidum with meal type forage 01 until 32 days, when at almost 60% from piglets group were manifested the weaning crisis (diarehea, tendency of cluster on hot bed), reason for the interruption of forage administration for one day. Starting with the sixth day after weaning feeding was resumed, was administered forage 01 but in limited quantity, calculation 60 g forage/day/piglet in the first day, 120 g the second day and was increased progressively up to 240 g/piglet/day and then was reached a ad libidum feeding, on day time, the last administration was made at 16⁰⁰, and the next feeding was at 7⁰⁰ next morning.

In this conditions in period 29-42 days, the piglets from control group, have consumed a quantity of 579.12 kg forage R.01 meal type, the piglets from experimental group, have consumed a quantity of 880.86 kg granular forage (TS 8001) with 301.74 kg more than control group.

➤ The experimental group was fed ad libidum in period 29-42 days, with granular forage TS 8001, and from 43 day until 57 day with forage TS 8063 and the physico-chemical parameters are presented in table 1.

Experimental group, in period 29-42 days have consumed 880.86 kg forage TS 8001, which at the age of 42 days had 8.94 kg, comparative with control group who registered only 7.62 kg. Benefiting of ad libidum feeding the piglets from experimental group had registered a total gain of 1.9 kg comparative with control group who registered 1.32 kg, the difference of 0.58 kg was significant and is due to the forage surplus consumed in this period.

The daily weight gain, in period 29-42 days, at control group was 94.29 g and at experimental group was with 41.42 g greater, i.e. 138.71 g. Expressed in percents, the experimental group had registered a daily weight gain with 43.92% comparative with control group.

Calculating now the total gain, from birth to 42 days, the control group had registered a total weight gain of 6.05 kg and experimental

group, 7.3 kg, with 20.6% greater at experimental group comparative with control group.

Regarding the daily weight gain, in period 1-42 days, the control group had registered 144 g/pig/day and experimental group registered 174 g/pig/day, with 20.8% greater comparative with control group.

After 42 days the piglets from control group were fed with forage R.01 meal type and piglets from experimental group with forage TS 8063 which nutritional and physico-chemical parameters were presented.

In this period (43-57 days) the experimental group consumed 1282 kg forage TS 8063, which corresponds to 394 g /pig/period and the control group consumed 1440kg forage R.01 meal type, which corresponds to 461.53 g /pig/period.

Comparative analysis of consumed forage quantity for the 2 experimental groups shows that in this period the forage consumption difference was +158 kg forage in favour of control group, but the difference is more dimmed in period 28-42 days, what was passed on piglets performances, thus the medium weight of piglets from experimental group is 11.77 kg, and from control group 11.01 kg, with 7.34% smaller comparative with experimental group.

The experimental group had registered in this period a total weight gain of 2.835 kg and control group had registered in this period a total weight gain of 3.392 kg, the difference in favour of control group demonstrates that after 42 days, when the piglets enzyme equipment is strengthening, the additional forage consumption lead to a better daily weight gain, recovering the differences existing at 42 days.

Analyzing this aspect by daily weight gain it can be shown that experimental group, in period 42-57 days had registered a daily weight gain of 0.189 kg/pig/day and control group had registered a daily weight gain of 0.226 kg/pig/day.

Cumulative analysis from birth to 57 days shows that the experimental group had registered better performances, the total weight gain in this period was 10.135 kg with a daily weight gain of 0.177 kg/pig/day, while the control group registered a total

weight gain of 9.442 kg and a daily weight gain of 0.165 kg/pig/day.

Comparative analysis of casualties in period 1-57 days shows that experimental group registered with only 2.62% less casualties comparative with control group, which is insignificant ($p > 0.05$).

From economic point of view we present the structure of expences registered with feeding at the experimental groups (control and experimental group).

I. Expenditure structure for control group:

➤ Expenditure with feeding

2100 kg forage R.01 x 10240 ROL / kg
forage = **21.504.000 ROL**

II Expenditure structure for experimental group:

➤ Expenditure with feeding

925 kg forage TS 8001 x 18 000/ kg =
16.650.000 ROL

1190 kg forage TS 8063 x 15.739 ROL / kg =
18.729.410 ROL

92 kg forage 01 x 10 240 = 942.080 ROL

Total feeding expences = **36.321.490 ROL**

CONCLUSIONS

Comparative analysis of piglets performances from experimental groups allowed the conclusion that the structure of forage and the presentation way has great influence, especially in the period after weaning until 42 days when piglets enzyme equipment is beginning to consolidate.

Made from raw materials with high bioavailability, the assurance of a optimal level of lactose, essential amino acids and the

assurance of a correct ratio between the energy and amino acids level in forage, the forages TS 8001 and TS 8063 are easily accepted by the piglets digestive tube with not consolidated enzyme equipment, remove the symptoms of weaning crisis, remove the restrictive feeding of piglets.

The use of extruded cereals in the structure of combined forages ensure the removal of syndrome of soft faeces and automated will make more visible the performances of this young animals which, in a short period must adapt to dry food.

Analyzing the costs level of forages for the experimental lots, we see that for the control group the costs are 21.504.000 ROL, for experimental group are 36.321.490 ROL, with 14.817.490 ROL more, which means 68.9% more expences with feeding but only 20% greater performance.

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