

The Effect of Some Forage Additives Used in Feeding of Weaned Pigs

Tiberiu Polen

Banat's University of Agricultural Sciences and Veterinary Medicine-Faculty of Animal Sciences and Biotechnologies, 300645 Timișoara, Calea Aradului 119,, România

Abstract

The experiment was carried out over a group of 50 weaned piglets, allotted into two equal groups. The control group (C) received a basal diet supplemented with a 2% premix – vitamins and microelements as oxides and salts mixed with maize flour-based diet; and the experimental group (E) received the same diet supplemented with 2% premix made of vitamins and microelements as chelated phosphoric glass on zeolite based diet. At the end of our research it was revealed that group (E) obtained a better growing gain, 11%, greater feed intake, 4.8%, and a smaller feed conversion rate of 7.3% versus group (C).

Keywords: weaned piglets, zeolites, microelements

1. Introduction

Zeolites are hydrous, aluminum-silicates, crystalline substances, with a tridimensional structure, having the capacity of reversible losing or retaining of water and constitutive cations, a feature that confers specific property to absorb and to have ions exchange. These properties and the specific chemical composition draw attention over the use of zeolites in animals feed. After more than three decades of researches experiments regarding zeolites in animal feed there came two options some authors: [1,2] believe that mixing zeolites in swine feed [3 to 15%] does not influence favorable growth performances; others [3,4,5,6] show that a 3 to 5% zeolite supplementation in feed determines an improvement of growth speed, increases feed conversion degree, prevent the appearance of some digestive problems, reduces housing concentration of noxious gases. In this we ve studied the utilization of zeolite from Mirșid as a

base support for the obtaining of a 2 % premix with chelated vitamins and microelements compared with premixes based on vitamins and microelements (obtained from salts), using ground cereal as base structure forage.

2. Materials and methods

In this experiments 50 weaned pigs at around 35 days of age, weight 8.5 kg, were divided into two equal groups: control group (C) that received a 2% premix with vitamins and mineral salts on a base diet of fine ground maize, and the experimental group (E) received a 2% premix with chelated vitamins and microelements on a base diet of zeolite powder.

Vitamins supplementation level was the same for both groups, and the microelements were supplemented in accordance with the needed level for the group (C). Chelated minerals were provided at a 10 time smaller level to group (E) versus group (C). Throughout the experiment both groups were fed *ad libitum* with a feed mixture which provides 3145 ME Kcal/kg and 16 % C.P. During the experimental period (60 days) both group (C) and group (E), were housed in the same

* Corresponding author: Tiberiu Polen, 0256 277 165, tiberiupolen@yagoo.com

conditions. There were done monthly weighing for all pigs and it had been in view feed intake during the 60 days of experiment.

3. Results and discussion

The results were statically translated and processed, as shown in the Tables 1, 2, 3 and 4.

Table 1. Body weight (kg) rates for weaned pigs from the two groups

| Age (in days) | Control group (C) | | | Experimental group (E) | | | |
|---------------|-------------------|-----------|------|------------------------|-----------|------|------|
| | n | X±S.x. | V.c. | n | X±S.x. | V.c. | t |
| 35 | 25 | 8.5±0.20 | 11.8 | 25 | 8.5±0.18 | 10.7 | N.S. |
| 65 | 25 | 19.2±0.59 | 15.3 | 25 | 20.5±0.59 | 14.5 | N.S. |
| 95 | 25 | 31.6±1.11 | 17.6 | 25 | 34.2±1.18 | 17.2 | N.S. |

Table 2. Weaned pigs daily body gain (g) evolution in two groups

| Age (in days) | Control group (C) | | | Experimental group (E) | | | |
|---------------|-------------------|-----------|------|------------------------|-----------|------|------|
| | n | X±S.x. | V.c. | n | X±S.x. | V.c. | t |
| 35-65 | 25 | 373±11.77 | 16.5 | 25 | 400±13.84 | 17.3 | N.S. |
| 65-95 | 25 | 413±15.46 | 18.7 | 25 | 457±17.99 | 19.7 | N.S. |
| 35-95 | 25 | 385±13.17 | 17.1 | 25 | 428±15.93 | 18.6 | N.S. |

Table 3. Feed intake evolution in the two groups

| Groups | From 35 to 65 days | From 65 to 95 days | From 35 to 95 days |
|--|--------------------|--------------------|--------------------|
| Group (C) (total feed intake in kg) | 701 | 837 | 1538 |
| Group (E) (total feed intake in kg) | 729 | 883 | 1612 |
| % (E)vs. (C) | 104 | 105.5 | 104.8 |
| Group (C) (daily medium feed intake in kg) | 0.935 | 1.116 | 1.025 |
| Group (E) (daily medium feed intake in kg) | 0.972 | 1.177 | 1.075 |
| % (E)vs. (C) | 104 | 105.5 | 104.8 |

Table 4. Feed conversion rate evolution in the two groups of weaned pigs

| Groups | From 35 to 65 days | From 65 to 95 days | From 35 to 95 days |
|-----------------------------|--------------------|--------------------|--------------------|
| Group (C) (feed kg/gain kg) | 2.62 | 2.70 | 2.66 |
| Group (E) (feed kg/gain kg) | 2.43 | 2.50 | 2.47 |
| % (E)vs. (C) | 92.75 | 92.99 | 92.7 |

The analysis of daily average gain for both groups is shown in Table 2.

Statistically, group (E) reached higher daily average gains, of 11 % compared with group (C). Gaining difference being statistically provided. Analyzing data from Table 3, there is observed that feed intake of group (E), throughout the entire experiments is about 1612 kg of feed mixture, with +4.8% greater versus group (C) who s feed intake was only 1538 kg. Table 4 shows that the feed conversion rate throughout the experiment regarding group (E) is 2.47 kg feed/kg weight, with -7.3% smaller than group (C) who had a 2.66 feed conversion rate.

Dates from the Table 1 show that group (E) had greater weight, 34.2 kg (+8.2%) versus group (C) 31.6 kg, but differences had become statistically provided.

In Table 2 are shown the daily average gains for the two groups.

4. Conclusions

Giving to weaned pigs a 2% premix with a composition of chelated vitamins and minerals as phosphoric glass on a base zeolite meal versus 2% classical premix, determined an improvement of the growth dynamic of 11%, an increase of feed intake of 4.8% and a decrease of feed conversion rate of 7.3%.

References

- Nichita, G., Sărăndan, H., Moisuc, M., Căpriță, R., Moisescu, V., Stepănescu, M., Cercetări privind efectul utilizării tufului zeolitic în hrana păsărilor. Lucrări Șt. I.A.T. vol.XX, 1985, 147-159

2. Hălmăgean, P., Cârpan, Fl., Miloş M., Covăsînzan, R., Rotaru, M., Lixandru, B., Sava, B., Sinitean, Şt., Brancov, Z., „Utilizarea tufului volcanic zeolitic în hrana porcinelor supuse îngrăşării. Rezultate obţinute în faza I experimental Lucrări Şt. I.A.T. vol. XXI, 1986, 27-31

3 Bedelean, I., Stoici, S. D., Zeoliţii – Ed. Tehnică Bucureşti, 1984, pp. 47-56

4 Haţeganu, V., Puia, I., Popa, O., Balton, Gh., Sabău, Al., Utilizarea zeoliţilor naturali în hrana animalelor. Lucrări Şt. seria Zootehnie şi Med. Vet., 1979, Vol.33, 159-167

5 Jose Luis Gonzales, New achievements in zeoponic practice, zeolite meeting 95, Sofia, 1995, 104-105

6 Polen, T., Polen, L., The effect of some forage additives used in feeding of weaned pigs Lucr. St. Zoot. şi Biot. Vol. XXXVII, 2004, 113-116