

## **The efficiency of alfalfa (*Medicago sativa* L.) protein preparation in pig nutrition**

### **Summary**

The objective of the present study was to determine the efficiency of the use of alfalfa protein concentrate in feeding sows, piglets and growing-finishing pigs on the total tract digestibility of nutrients, performance parameters, some biochemical and hematological parameters, carcass value and meat quality. Preparation obtained from alfalfa (*Medicago sativa* L.) although known as protein-xanthophyll concentrate (PX), alfalfa protein concentrate (APC) or lucerne protein concentrate (LPC). The study with the use of this alfalfa additive comprised four experiments. Two trials involved 60 sows and their offspring and other two trials were conducted on 185 growing-finishing pigs. In this study two levels of alfalfa protein concentrate (1.5% and 3%) were tested and there were two feeding systems: continuous or intermittent.

It has been shown that the use of 3% alfalfa protein concentrate in mixtures for sows in lactation period made it possible to receive better digestibility of crude protein, ether extract and NDF. Addition of 3% studied additive during gestation significantly increased the average piglet birth weight, the number of liveborn piglets and weaned piglets. Fatteners fed with 3% alfalfa preparation intermittently reached better ADG and FCR and were characterized by the highest carcass meatiness.

Studied APC additive modified blood metabolic profile, what was demonstrated by increased red blood cell indices, i.e. RBC, HGB, HCT, decreased level of CHOL and reduced LDL in blood serum. This effect was observed both in cases of lower and higher level of APC additive. Influence of antinutritional factors contained in alfalfa preparation on hepatocytes was found by increase of liver weight and activity of ALP from fatteners fed with 3% addition of studied additive. Meat from growing-finishing pigs fed with 3% alfalfa protein concentrate was characterized by lower CHOL content, better texture profile of meat and beneficial fatty acids composition in analyzed tissue samples.

The results of the study demonstrate that the best effects obtained by adding 3% alfalfa preparation to the sows' diets in whole reproductive cycle. For piglets 1,5% APC after weaning in continuously use can be recommended, whereas the 3.0 % dietary additive to fatteners diet is preferred to be used intermittently.

**Key words:** alfalfa protein concentrate (APC), pigs, digestibility, performance, blood, meat quality