

**HUMAC® Natur AFM** with a high content of **natural humic acids (65%)** is a natural feed material intended for all types of animals. The product is mixed into the feed as a preventive measure, which supports the reproductive indicators of animals, improves their production health and ensures the production of animal products without residues of foreign substances. It is also used to prevent and support the treatment of diarrheal diseases, dyspepsia and various intoxications. The natural humic acids in the product have the ability to bind various types of toxins, while simultaneously supplying minerals and trace elements in a chelated form that is easily usable in the animal's body. **The high efficiency of the product is ensured by the activation of the raw material** - humic substances by our own technological procedure. The product prepared in this way shows better biological effectiveness in the animal organism.



**Activated natural humic acids** play a key role in the detoxification of the pig organism due to their high adsorption capacity. They can bind toxic substances in the animal's digestive system (toxins, heavy metals, PCB substances, etc.) to their structure, which are then excreted in the feces. They support the immune system, activate metabolism and have an antiseptic effect. They stabilize the pH in the entire digestive system of animals, optimize digestive processes and support the reproduction and activity of symbiotic microflora. They have a significant impact on the reduction of mortality, especially of weanlings, as well as on the improvement of meat quality.

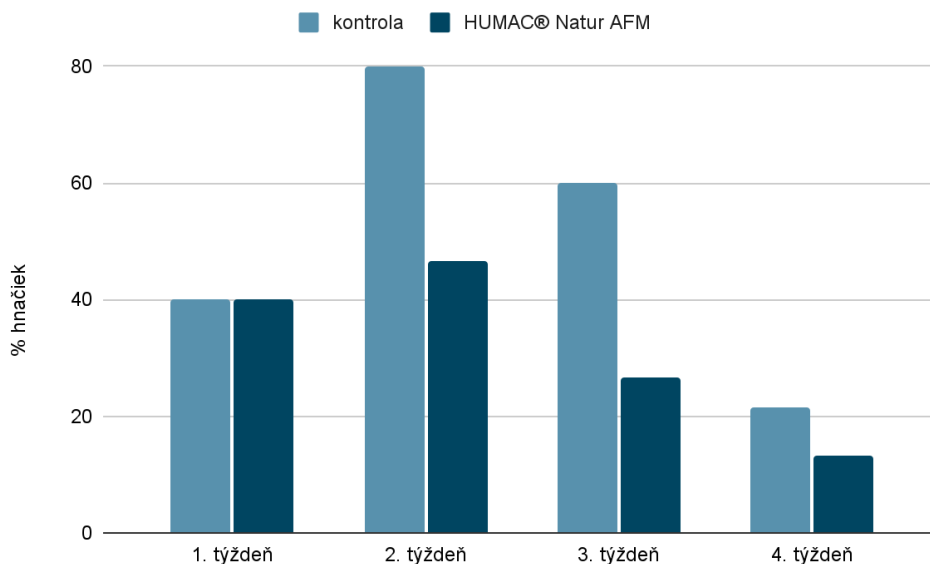
In a semi-operational trial in 2016 at ZEAS a.s. in Moravské Budějovice, 96 pigs were divided into two groups, where half were fed with the addition of HUMAC® Natur AFM in a concentration of 0.5% throughout the entire period. The results of the experiment pointed to, among other things, **increases in weight and slaughter by an average of 4.5% and a significant 50% decrease in the death of pigs** compared to the control group (see table 1).

Table 1. Monitoring the effect of HUMAC® Natur AFM in pig farming

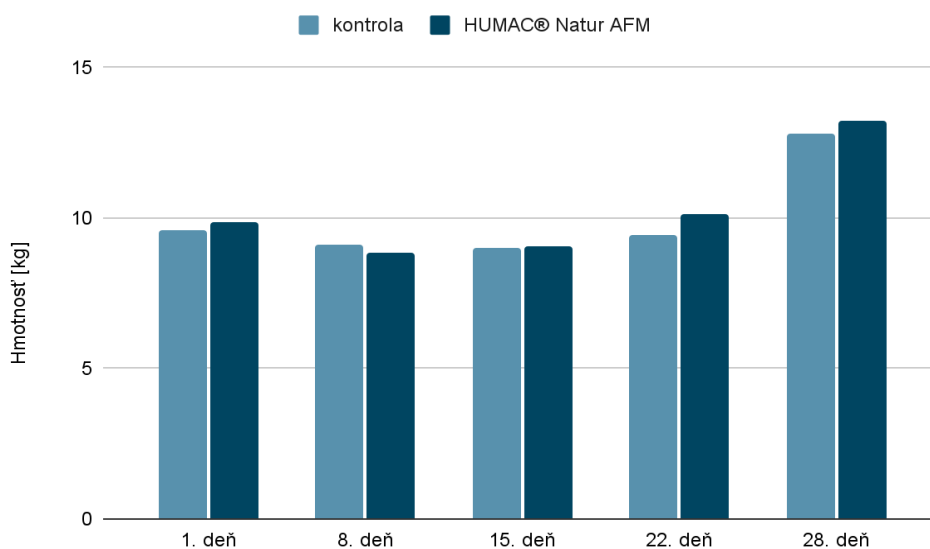
Parameter	Control	HUMAC® Natur AFM 0,7 %	Unit	Change
Average weight	110,47	115,54	kg	+ 4,59 %
Carcass weight	83,30	87,08	kg	+ 4,54 %
Confusion	60,30	61,70	%	+ 2,32 %
Death	8,33	4,16	%	- 50,00 %

This experiment was conducted in 2019 in cooperation with the Research Institute of Veterinary Medicine in Brno to verify the effects of HUMAC® Natur AFM. Thirty weanlings (day 28) were randomly divided into two groups, where the experimental group was fed HUMAC® Natur AFM at a dose of 10 g/kg/day. During the experiment, the health status of the animals was monitored with a focus on diarrheal diseases. Based on the results achieved, it can be concluded that the supplementation of HUMAC® Natur AFM in the feed of weaned piglets can alleviate the clinical course of diarrheal diseases in the critical post-weaning period, especially in the case of severe watery diarrhea (see graph 1), and prevent the mortality of piglets (2 pcs in control group, none in the experimental group). By supplementing the preparation, it is possible to increase the growth dynamics of piglets in the post-weaning period (see graph 2).

Graph 1. Average incidents of diarrhea during the experiment



Graph 2. Average weight of animals during the experiment





Natural feed material with activated humic acids

## Product application in pig breeding

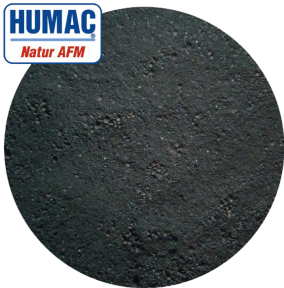
While carrying out tests in 2023 to prove the effect of humic substances on cellular immunity and blood characteristics in piglets (Bujňák et al., 2023), half of 24 crossbred piglets (Slovenská biela Landrasa; 35 days) were fed with the addition of HUMAC® Natur AFM in the amount 5 g/kg. The study was aimed at monitoring the effect of humic substances on the immunity of animals and they came to the conclusion that the inclusion of **humic substances in the diet of piglets has a stimulating effect on cellular immunity without a negative effect on hematological and biochemical parameters**. The addition of HUMAC® Natur AFM to the feed increases the activity and absorption capacity of phagocytes, which results in an improvement of the immunity of the whole organism.

Table 1. The effect of HUMAC® Natur AFM to phagocytes(cells of the immune system)

Parameter	Control	HUMAC® Natur AFM	Unit	Change
Phagocytes activity	83,08	84,90	%	+ 2,19 %
Absorption capacity of phagocytes	31,78	36,06	n/a	+ 13,47 %

**Recommended dosage of HUMAC® Natur AFM for pigs**

**0,5 %** into feed



The activated natural humic acids in the product are mixed into any feed that can be fed immediately. They are indigestible and after ingestion pass through the digestive tract, where they have a positive effect on many processes in the body. We recommend applying the product year-round, as it has a preventive effect, especially on diarrheal diseases, and improves the immunity of animals and their well-being in the long term. For health problems (diarrhea, etc.), increase the daily recommended amount by 2-3 times for at least 5 days. The preparation has no known side effects or contraindications, however we recommend keeping a two-hour interval between administration of the veterinary medicine. The product has no shelf life.

### Economics of the HUMAC® Natur AFM product in pig farming

An increase in daily gains (by 8%), better feed conversion (by 7%) and a reduction in deaths (by 50%) will ensure a return on the cost of purchasing the product. The overall improvement in health will reduce the need for veterinary drugs.

**HUMAC® Natur AFM is suitable for use in organic agriculture for the production of organic food**

