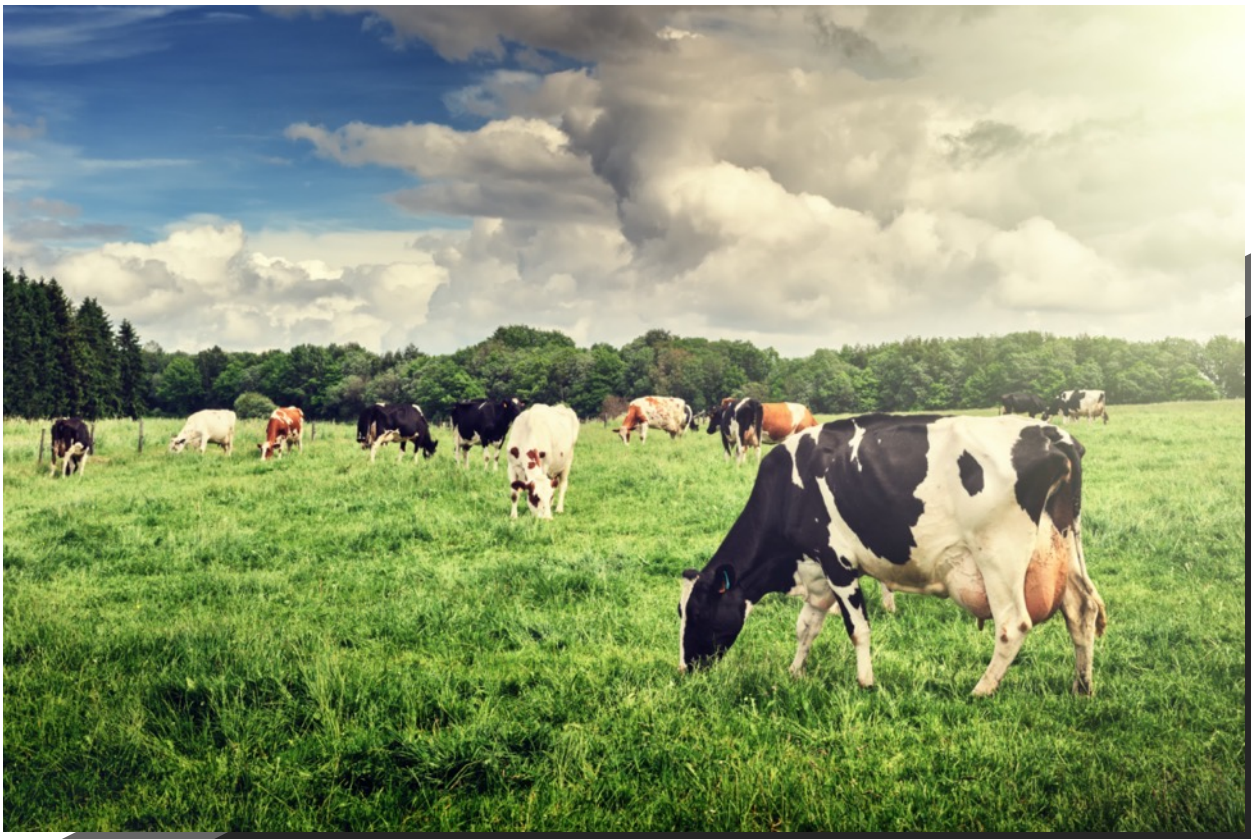


Natural Feed materials
for Optimal Beef & Dairy Cattle Farming

HUMAC
SUPPLEMENTS

HUMAC Supplements Ltd. | www.humac-organic.ie | info@humac-organic.ie

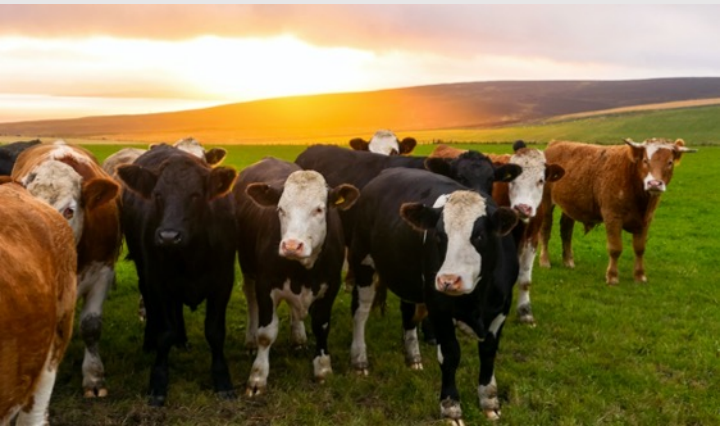
HUMAC® Your Partner for Quality Feed

HUMAC Supplements Ltd. is a **registered feed business distributor (IED242655)** of natural feed materials made from Leonardite with a high content of humic acids produced without the use of any chemicals or additives. The HUMAC® Natur AFM product line offers broad-spectrum solutions to the many complex challenges faced by feed production and animal husbandry industries.

The entire production process of our feed materials is unique with green manufacturing processes. Starting with one of the purest sources of Leonardite, which is mechanically processed and activated without the use of chemicals based on our own unique technological know-how in our state-of-the-art facility. The final products are regularly tested to maintain the highest quality parameters stipulated EU norms and the GMP+ feed safety program. Upon request, deliveries can be supplied with product batch analysis.

Feed producers: achieve feed safety & efficiency with HUMAC® Natur AFM.

- Produce safe compound feeds with reduced risk of toxicity
- Produce more nutritious feed
- Compatible with all types of feed components



In the Winter of 2019, HUMAC® products were awarded multiple gold medals at the **Novosadski Sajam** agricultural fair in Novi Sad, Serbia. Products from our HUMAC® Natur AFM line were awarded three gold medals amongst strong competition from 66 countries.

HUMAC Natur AFM

0,3 – 0,5% per kg of feed or 100 – 150 g per cow / day

HUMAC Natur AFM MycotoxiSorb

0,3 – 0,5% per kg of feed

HUMAC Natur AFM Liquid

10 – 50 ml per calf / day

HUMAC® products for animals are certified **GMP +FSA** and also certified for use in **organic** animal husbandry.

All HUMAC® products are **Kosher** certified and prepared in a 100% natural way.

The HUMAC® Natur AFM Product Line for Beef & Dairy Cattle

Improved Immunity Equals Improved Productive Parameters

HUMAC® Natur AFM is a feed material made from Leonardite with a **high content of humic acids**. It is a 100% natural substance with high biological efficacy - **a natural growth stimulator**. By applying **HUMAC® Natur AFM** feed material, animals are provided with minerals and trace elements in chelated form which are readily absorbed by their organisms.

By adding **HUMAC® Natur AFM** feed material into the feed, intestinal microflora is regulated - it slows down the reproduction of noxious microflora and encourages the growth of beneficial microflora. It reduces the occurrence of inflammation and supports immunity. It favourably affects the pH of the digestive system. It prevents the absorption of toxic metals, xenobiotics, fungal toxins and other toxic compounds in the digestive system, which is then excreted by animals. It benefits the use of feed and its nutritional components, which improves the conversion of feed. Improves the microclimate in the stable, mainly by absorbing nitrogenous and other volatile substances, which results in decreased emissions of harmful (greenhouse) gases.
HUMAC® Natur AFM Liquid is optimal for use with calves where it can be applied easily with milk.

Optimization of cattle farming economy

With bovine, just as with other animal species, humic acids accelerate the metabolism of cells, promote cell respiration and energy creation, and thereby stimulate the organism to increased nutrient intake, excretion of more digestive juices, support of immunity and of the overall health condition. This results in accelerated growth, higher production and improved health.

The usage of **HUMAC® Natur AFM and Natur AFM Liquid** in cattle farming has the following positive effects on

breeding:

- Favourably affects the utilization of nutrients from feed ration and therefore improves feed conversion (4 - 8%)
- Improves qualitative parameters of milk (higher protein, fat, dry matter, etc.)
- Optimizes reproductive indicators (drop of insemination index, shortening of ad interim and of service period), more pronounced oestrus
- Reduces somatic cell count (12 – 15%)
- Improved mineral composition of milk (higher Ca, Fe, etc.)
- Reduced greenhouse emissions (by up to 22%)

HUMAC® Natur AFM is admixed into feed or granules.
Dosage: **0.3 - 0.5 %** per kg of feed or 100 – 150 g / cow per day

HUMAC® Natur AFM Liquid is admixed into water or liquid feed.
Dosage: **10 – 50 ml** / calve per day

Its application is recommended throughout the entire fattening or lactation period. Feed materials are without a withholding period, the prepared feed can be fed immediately.

The HUMAC® Natur AFM Product Line in Cattle Farming

Humic acids impact on cattle health

Scientific trials & practice using HUMAC or humic acids in general have shown some of the following benefits on animal health:

The dry period 4-6 weeks before calving

- Enhanced conditions for calf rearing
- Decreases in subclinical and clinical acidosis, ketosis and mastitis
- Improved zoo hygienic conditions – reduced emissions of methane, NH_3 and H_2S levels in the stable - affects the airways and has a physiological effect on nitrogen management – reduced impact of NH_3 on the internal organs, especially the liver
- Detoxication of the organism (mycotoxins, bacterial toxins, heavy metals, etc.) - toxins tend to pass to the fetus, resp. the colostrum and milk
- Physiologically balanced pH of the organism
- Optimal nutrient management, supplementation of macro and micro elements
- Higher level of immunoglobulins in colostrum - better immunity of calves

From calving to conception

- Fewer birth complications
- High quality colostrum - an essential prerequisite to efficient calf breeding
- Optimal utilization of nutrients from feed - a rapid onset of lactation curve and the assumption of high milk production
- Significant decrease of mastitis and of post-natal complications and inflammation
- More pronounced oestrus
- Optimal preparation for future gravidity - by reducing the insemination index value, shortening the service period and optimisation of other indicators of reproductivity, aiming to achieve 1 calf from one cow per year
- Detoxifying effects, optimal utilization of nutrients from the feed ration and improved indicators of reproductivity are prerequisites for an increased number of lactations and significantly improved breeding efficiency

From conception to the dry period

- Optimised utilization of nutrients from feed ration and proper functioning of the digestive system and of internal organs
- Significant effect on the rumen metabolism - stable milk production of a constant composition, degradation of endotoxins and exotoxins
- Beneficial effect on fermentation of carbohydrates (and some amino acids) by rumen microorganisms
- Markedly reduces the production of histamine and thus also the inflammatory processes of limbs, which prevents decreased milk production
- Greatly affects the reproduction and regeneration of bacteria and viruses in the digestive tract of animals, detoxifies the digestive system from microbial and fungal toxins
- Keeps the animal in good reproductive condition and after a proper drying period the animal is ready for insemination and quality lactation

Calves (served in milk immediately after birth)

- Positively affects the development of useful microorganisms in the first days and hinders the development of pathogens
- Maintains digestive health, minimizes diarrhoea
- Better health condition of calves with minimal reduced use of medicines
- Improved growth increments
- Mortality is reduced

Heifers in preparation for conception and birth

- Like with dairy cows, by regularly administering **HUMAC® Natur AFM** we're effectively preparing the animal for the state of optimal productive health, birth and following lactation with a high production of qualitatively balanced milk

HUMAC® Natur AFM: Backed by Science

Notable scientific trials

Effects on milk yield & quality parameters for cheese production

Parameter	After 30 days			After 60 days		
	Control	HUMAC	Difference	Control	HUMAC	Difference
Milk yield	38,51 kg	38,47 kg	-0,1 %	38,65 kg	39,46 kg	+2,1 %
pH	6,78	6,79	-	6,76	6,79	-
Fat	3,67 %	3,84 %	+4,6 %	3,66 %	3,93 %	+7,4 %
Protein	3,27 %	3,35 %	+2,4 %	3,30 %	3,44 %	+4,2 %
Casein	2,60 %	2,67 %	+1,0 %	2,61 %	2,73 %	+4,6 %
Lactose	4,87 %	4,83 %	-0,8 %	4,82 %	4,76 %	-1,2 %
Dry matter	12,51 %	12,76 %	+2,0 %	12,47 %	12,85%	+3,0 %
Urea, mg/kg	203,54	225,14	+10,6 %	210,88	239,68	+13,7 %
SCC x 10^3	258,88	225,83	-12,8 %	261,08	208,45	-20,2 %

A trial conducted by researchers from the University of Life Sciences in Lublin, Poland observed the effects of HUMAC® Natur AFM on the coagulation properties and quality parameters of milk intended for the production of cheese. The trial consisted of two test groups milk samples collected after 30 days and 60 days. While the above chart indicates that qualitative parameters between the control and HUMAC group remained fairly stable after the first 30 days, **some key indicators, especially a reduced somatic cell count by 20% as well as increased fat, protein and casein contents were observed after 60 days.** The authors also noted the fact, that the dairy cattle used for the trial were already at their peak productive capacity which could be a factor in the stable milk yield between the two groups. Coagulation properties of milk also improved; milk from the HUMAC group coagulated significantly faster (by 15%) on average, and **the curd was 36% and 28% firmer after 30 and 60 days than in the control group.** Pertaining to the mineral profile of milk, negligible differences were observed for K, Na, Mg, Zn, Mn and Cu after both 30 and 60 days, however, **Calcium increased by 5,5% and 13,4% after 30 and 60 days, and Iron content increased by 24,2% and 34,4% after 30 and 60 days.** The authors conclude that *"the results of the study indicate that the suitability of milk for cheese production can be improved by introducing a humic mineral additive to the diet of cows."*

Source: Teter A, Kędzierska-Matysek M, Barłowska J, Król J, Brodziak A, Florek M. The Effect of Humic Mineral Substances from Oxyhumolite on the Coagulation Properties and Mineral Content of the Milk of Holstein-Friesian Cows. *Animals (Basel)*. 2021;11(7):1970. Published 2021 Jun 30. doi:10.3390/ani11071970

Milk quality parameters & Mastitis

	Comparison after 10th day of lactation			Comparison after 30th day of lactation		
Parameter	**Control**	**HUMAC**	**Difference**	**Control**	**HUMAC**	**Difference**
SCC x 10^3	424,30	385,14	-9,23%	384,42	331,60	-13,74%
Milk Urea (mg.100 mL^{-1})	14,26	9,31	-34,71%	12,3	13,61	+10,65



A 50 day experimental period was setup consisting of 20 cows in the last stages of pregnancy evenly split with 10 in the control group and 10 in the experimental group. All parameters being the same, the experimental group was supplemented daily with 100g of HUMAC® Natur AFM per cow. The purpose of the study was to observe the impact of humic acids on the milk quality parameters and occurrence of Mastitis in dairy cows.

The authors of the study conclude that *"The milk parameters (dry matter, lactose, fat, crude protein, casein and milk urea) and Somatic Cell Count (SCC) of every cow, and the presence of mastitis, were checked on days 10 and 30 during the first month of lactation. The results of the study show that dietary supplementation with HA significantly reduced the milk urea (MU) content and SCC on the 10th day after calving but did not affect the other milk compositions. In addition to the decreased MU and SCC,* ***the number of positive quarters detected by the California Mastitis Test was reduced by 20.0% and the occurrence of mastitis caused by coagulase-negative staphylococci (CNS)****. Based on the obtained results we can conclude that the addition of HA stabilizes the nutrient digestion, as was confirmed by a reduced MU content in the supplemented group. Their indirect beneficial effects improved the development of immune responses, resulting in decreased SCC and the occurrence of mastitis caused by CNS."*

Source: Zigo, F., Vasiľ, M., Farkašová, Z., Ondrašovičová, S., Zigová, M., Maľová, J., Výrostková, J., Bujok, J., & Pecka-Kiełb, E. (2020). Impact of humic acid as an organic additive on the milk parameters and occurrence of mastitis in dairy cows. *Potravinarstvo Slovak Journal of Food Sciences*, *14*, 358–364. https://doi.org/10.5219/1340