

Feed Additives, Derived from Organic Micronutrients, a Way to Biofortify Animal Feed

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Abstract

There has been a drastic change in people's lives due to increasing urbanization and globalization. There has also been an increase in the awareness about nutrition and a healthy lifestyle. Same applies to the animals that are bred. Breeders have realized the importance of providing best environmental conditions to their animals to, in turn, obtain high productivity and quality products. The market for animal protein has, thus, increased steadily in recent years.

Keywords: *Feed Additives; Organic Micronutrients; Biofortify Animal Feed*

Animal feed micronutrients

Micronutrients are nutrients that are required by an organism in trace amounts. Micronutrients are important in all types of animal feed too. They are commonly used to increase feed consistency and to boost overall animal health. Foods that are characterized by a favorable fatty acid profile and high content of biologically active ingredients, such as vitamins or minerals, are therefore sought. Micronutrients can act as performance drivers and help in disease prevention, growth advocating, improving digestion, and boosting reproduction levels; these benefits of micronutrients are expected to drive the market in the coming years.



Animal feed nutrition

The demand for meat and milk products worldwide has grown enormously and has consequently resulted in a growing demand for micronutrients in animal feed. The major minerals of micronutrients are zinc, iron, copper and manganese. In 2013, the zinc segment of the market for animal micronutrients dominated the market. Breeders opt for the micronutrient feed mineral depending on the requirement of the animal.

Animal feed types

Animal feed can be categorically divided into two major types, namely fodder and forage. Plant-based feed is called as fodder; it contains hay, straw, silage, new barley or spilled malt. It involves packed and pelleted meat, mixed oils and mixed rations as well as sprouted grains and legumes.

Forage is also a type of plant-based feed but it is specifically grown in confined areas to be grazed upon by livestock. Forage sorghum, millet, soybean, maize, pennisetum, cowpea and grain of sorghum are included in Forage Plants.

Another type of feed is compound feed. It is produced as meals, pellets or crumbs and often mixed with extra vitamins and minerals.

These blends are formulated in compliance with the target animal's specific requirements. Certain considerations may also need to be addressed such as soil type, erosion, plant type and animal disease, if any.

Animal feed micronutrient and their effects

The use of organic macro-and micronutrients, which are sometimes more processed than inorganic salts, is associated with high expectations. The goal of the recent research has been to collect and systematize details concerning the potential usage of additional feed in organic form for enriching animal diets with micronutrients. Two main factors depend on the performance of farm livestock, their health and the quality of their raw materials: the first is the species genotype followed by breeding setting.

The processing of feed is based mainly on the biology of the digestive tract. Cereals, soybeans, oils, beef, bone meals, as well as food industry waste are the major strategic feed products. Feed additives are also very important in the manufacture of complete compound feeds. The supplementation of these ingredients in foods is one of the most effective methods for enriching food. Feed additives are by definition chemical substances, their mixtures, and microorganisms, excluding feed and premixes which have different functional characteristics.

Role of animal feed in chemicals and veterinary industry

Microclimate conditions (well-being) and nutritional factors are key components of the breeding environment. The optimal growth and development of the animal, the quality of the animal products and, therefore, the economy of production will be determined by proper nutrition of farmed animals and the best possible environmental conditions. The rising demand for animal protein ensures that the animal products and the feed market remain stable. Feed additives are intended to reduce nutritional deficiencies, increase food taste and hygiene, increase feed consumption, and maintain gastrointestinal microflora. Feed supplements also provide animal products with a stronger flavor and higher concentration of biologically active substances, such as micronutrients or polyunsaturated fatty acids. This is what is known as practical food.

Safety for animal feeding

A number of infections for farm animals that can cause human diseases could result in animal feed or drilling through animal foods. Some of these diseases are circular *Trichinella*, *Toxoplasma gondii* and *Salmonella enterica*. These chemical compounds may be caused by foods of animal origin that may contain mycotoxin contamination.

As a result of risks during production, processing, storage, transportation and final preparations for consumption, the food that is generally expected to be safe can become unsafe. A variety of these and other sources that can pose a risk to the infestation of the feeds are consequential from animals, which includes ingestion of contaminated food.

Market overview

Micronutrients are essential in animal diets for their health and welfare, and therefore they are eventually crucial for the production of eggs, milk, fiber, and meat. The growing demand for meat and milk products all across the globe has grown enormously, which is consequently resulting in a rising demand for micronutrients in animal feed. The two types of animal feeds include fodder and forage. Forages are vital for the successful operation of animal production systems. Deficiency of animal feed micronutrients often leads to sub-optimal growth. The supplementation of ingredients such as cereals, soybeans, oils, beef, bone meals, as well as food industry waste is one of the most effective methods for enriching food. However, in recent years, public concern about the safety of foods of animal origin has heightened owing to problems arising from several diseases that contain mycotoxin contamination.

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