URBAN FARMER
Formulating Africa's growth

URBAN FARMER MACRO SOLUTIONS

MACRO PREMIXES AND ENZYMES

The Urban Farmer Macro Solution provides a comprehensive package of services. This includes the provision of analytical services, the design and formulation of feeds, the manufacture and supply of customized macro premixes, as well as ongoing monitoring and support of the solution. The solution brings together the knowledge and products of the world's leading animal nutrition and animal health companies and makes these resources accessible to the farmer.

MACRO PREMIXES AND ENZYMES

An Urban Farmer macro premix is a complimentary feed additive that consists of vitamins, minerals, trace elements, amino acids, enzymes, and non-nutritive ingredients on a limestone carrier. Urban Farmer collaborates with the world's leading premix companies to blend its macro premixes, ensuring the use of only the highest quality ingredients. The enzymes used are carefully selected. They are included at the correct levels for their intended purpose and are chosen based on their stability, bioavailability, mixability, cost-effectiveness, and safe handling characteristics.

WHAT ARE ENZYMES?

Digestive enzymes are proteins that are specific catalysts that are involved in nearly all anabolic and catabolic pathways of digestion and metabolism in animal digestive processes. Digestive enzymes are categorized as endogenous or exogenous. Endogenous enzymes are produced naturally by the animal and exogenous enzymes are commercially engineered analogues of these endogenous enzymes that are fed to animals to enhance the efficiency of digestion by assisting the animals own endogenous enzymes to break down complex food molecules into simpler forms that can be absorbed and better utilized by the animal. Supplementation of enzymes in animal feed can help to prevent the negative effects of anti-nutritional factors as well as assist in improving the digestion of critical nutrients.

Feed enzymes such as amylase and lipase are responsible for breaking down carbohydrates and fats respectively. Proteases assist in the degradation of anti-nutritional factors as we as in breaking down complex or bound proteins. These enzymes all enhance the overall efficiency of the digestive process, leading to improved nutrient absorption and utilization and thereby reduce feed cost while enhancing animal performance.

PHYTASE ENZYME

Phytase enzymes break down phytic acid which is a stable form of bound phosphorus found in plant-based feed ingredients like grains and oilseeds. Monogastric animals have a limited ability to digest and utilize phytic acid.

Phytic acid can also bind to other nutrients like minerals and proteins and so reduce the availability of these nutrients for utilization by the animal.

The inclusion of phytase enzymes in feed causes the breakdown of phytic acid and helps counteract its anti-nutritional effects and thus promote animal growth and overall performance as well as reducing the amount of exogenous phosphorous required in the feed formulations. This also aids in reducing the environmental impact of animal production by reducing excess phosphorus excretion into the environment.

Phytase enzymes can thus improve digestibility of mainly phosphorus but also amino acids, fats, carbohydrates, and minerals in feed as a result of these elements being unbound from the phytic acid molecule in the process.

CARBOHYDRASE ENZYMES

Carbohydrase enzymes are a group of enzymes that are used in animal nutrition to break down complex carbohydrates. This group includes enzymes such as amylase, cellulase, and xylanase, which break down starch, cellulose, and xylan respectively.

Incorporating exogenous carbohydrase enzymes into animal feed helps to boost the overall efficiency of the digestive process and thus improve animal performance by improving feed efficiency and feed conversion

Additionally, the use of carbohydrase enzymes can also help mitigate the environmental impact of animal production by reducing the level of undigested carbohydrates that pass through the animal and end up in the manure and contributes to environmental pollution.

PROTEASE ENZYMES

Protease enzymes are a group of enzymes that are used in animal nutrition to break down complex protein structures in vegetable proteins.

Protease enzymes are used to enhance the digestibility of ingredients like soya, one of the most commonly used vegetable proteins in animal feed. By breaking down the proteins into smaller peptides and amino acids, these enzymes facilitate easier absorption and utilization by the animal, leading to improved growth and overall performance.

Additionally, the use of protease enzymes can also help to reduce the environmental impact of animal production by reducing the level of undigested proteins that pass through the animal and end up in the manure.

BENEFITS OF USING ENZYMES IN ANIMAL FEED

Phytase, carbohydrase, and protease enzymes play a crucial role in animal nutrition. They enhance the digestibility and utilization of key nutrients in animal feed, leading to several benefits:

- *Improved nutrient absorption:* These enzymes break down complex nutrients into simpler forms that are more readily absorbed by the animal. Phytase breaks down phytic acid to release phosphorus, carbohydrase breaks down complex carbohydrates into simpler sugars, and protease breaks down proteins into smaller peptides and amino acids. This results in improved utilization of phosphorus, carbohydrates and proteins in the feed.
- *Enhanced animal growth and performance:* By improving nutrient absorption, these enzymes promote better growth and overall performance in animals. This leads to improved feed efficiency, enabling animals to convert feed into growth and production more effectively.
- *Cost efficiency:* Improved nutrient absorption can reduce the amount of feed required to achieve optimal growth and health in animals, leading to potential cost savings.
- *Environmental sustainability:* The use of these enzymes can help mitigate the environmental impact of animal production. They reduce the amount of undigested nutrients that pass through the animal and end up in the manure, thereby decreasing pollution and greenhouse gas emissions.
- *Improved gut health:* These enzymes can help maintain a healthy balance of gut microflora, supporting overall gut health and immune function.
- *Reduced risk of digestive disorders:* By preventing the build-up of undigested nutrients in the gut, these enzymes can reduce the risk of digestive disorders.

All three types of enzymes - phytase, carbohydrase, and protease - can be incorporated into animal feed either as a single blend or separately, depending on the desired nutritional outcomes and cost-effectiveness. However, it is crucial to ensure the compatibility of these enzymes with the feed ingredients and align them with the specific nutritional requirements of the animal species.

URBAN FARMER MACRO SOLUTIONS – MACRO PREMIXES AND ENZYMES

It is important to consult with a nutritionist to understand the enzyme requirements for each specific animal species and to ensure that the diet provides the correct balance of enzymes. Urban Farmer takes the lead in designing and formulating suitable premixes, then collaborates with the world's top premix companies for manufacturing. We strictly adhere to validated best-before-dates on our products, guaranteeing that what is stated on the label is indeed in the bag and available to the animal through its feed.