

Vitamins, Minerals Hormones are usually added in all Ruminants Complementary Feed Rations, Key Role in their Effectiveness

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Introduction

With the exception of the organically-bound elements are hydrogen, carbon, nitrogen, and oxygen, and there were about 20 of inorganic mineral components, which are essential in the life of the animals, including fish and shrimp. The Basic minerals, are usually divided into two main categories, depending on their concentration in the animal body: macronutrients and trace elements

The supplementation of dairy, sheep and goat diets with vitamins, minerals and trace elements (in the form of a premix) is key as they have positive effects on maintenance, growth and health and milk production. However, it is very easy to make nutritional mistakes when it comes to the use of such premixes in combination with the actual needs of the animals. This is critical under overfeeding conditions (farm economics – environmental impact) and or underfeeding conditions (subclinical signs – nutritional diseases). Regarding these micronutrients, purity and bioavailability plays a key role. The bioavailability of various trace elements is higher when they are used in the form of sulphates, compared to oxides. At the same time, the dosage of certain trace elements should always be calculated with the production phase and type of product in mind. Most of the vitamins for example should be administered in the diet in different levels. Except for the B complex vitamins, because these are synthesised by the rumen micro flora.

The essential mineral elements:-

Macro elements	Trace or microelements
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Principal cations	Principal anions	Iron (Fe)	Fluorine (F)
Calcium (Ca.)	Phosphorus (P)	Zinc (Zn)	Vanadium (V)
Magnesium (Mg)	Chlorine (Cl.)	Manganese (Mn.)	Chromium (Cr)
Sodium (Na)	Sulphur (S)	Copper (Cu)	Molybdenum (Mo)
Potassium (K)		Iodine (I)	Selenium (Se)
		Cobalt (Co)	Tin (Sn.)
		Nickel (Ni)	Silicon (Si)

General function:-

- The general function of minerals and trace elements can be summarised as follows:
- Minerals are essential constituents of skeletal structures such as bones and teeth.
- Minerals play a key role in the maintenance of osmotic pressure, and thus regulate the exchange of water and solutes within the animal body.
- Minerals serve as structural constituents of soft tissues.
- Minerals are essential for the transmission of nerve impulses and muscle contraction.
- Minerals play a vital role in the acid-base equilibrium of the body, and thus regulate the pH of the blood and other body fluids.
- Minerals serve as essential components of many enzymes, vitamins, hormones, and respiratory pigments, or as cofactors in metabolism, catalysts and enzyme activators.

Biological function of some important micro elements:-

Calcium

- Calcium is an essential component of bone, cartilage and the crustacean exoskeleton.
- Calcium is essential for the normal clotting of blood, by stimulating the release of thromboplastic from the blood platelets.
- Calcium is an activator for several key enzymes, including pancreatic lipase, acid phosphatase, cholinesterase, ATPase's, and succinic dehydrogenase.
- Through its role in enzyme activation, calcium stimulates muscle contraction (ie. promotes muscle tone and normal heart beat) and regulates the transmission of nerve impulses from one cell to another through its control over acetylcholine production.



- Calcium is believed to be essential for the absorption of vitamin B12 from the gastrointestinal tract.

Phosphorus

- Phosphorus is an essential component of bone, cartilage and the crustacean exoskeleton.
- Phosphorus is an essential component of phospholipids, nucleic acids, phosphoproteins (casein), high energy phosphate esters (ATP), hexose phosphates, cation phosphate, and several key enzymes.
- As a component of these important biological substances, phosphorus plays a central role in energy and cell metabolism.

Magnesium

- Magnesium is an important constituent of bone, cartilage, and the exoskeleton of crustaceans.
- Magnesium is an activator of many enzyme systems, including those of kinases (for example, the enzymes catalysing the transfer of the terminal phosphate of ATP to sugars and other substances), mutases (trans phosphorylation reactions), a variety of ATPase's, as well as the enzymes, cholinesterase, alkaline phosphatase, enclose, isocyte dehydrogenase, arginine (magnesium is a component of the arginine-molecule), deoxyribonucleic, and glutamines.

Sodium, Potassium and Chlorine

- Functions: Sodium, potassium, chloride, and almost entirely in the body fluids and soft tissues, sodium and chloride are found in the body of water and potassium, it is mostly found in the cells. They serve a vital function in the control of osmotic pressure and acid-base balance. They also play an important role in the water exchange.
- Potassium is the major cation of the intracellular fluids and binds to the intracellular osmotic pressure and acid-base balance. Such as, sodium, potassium, and has a

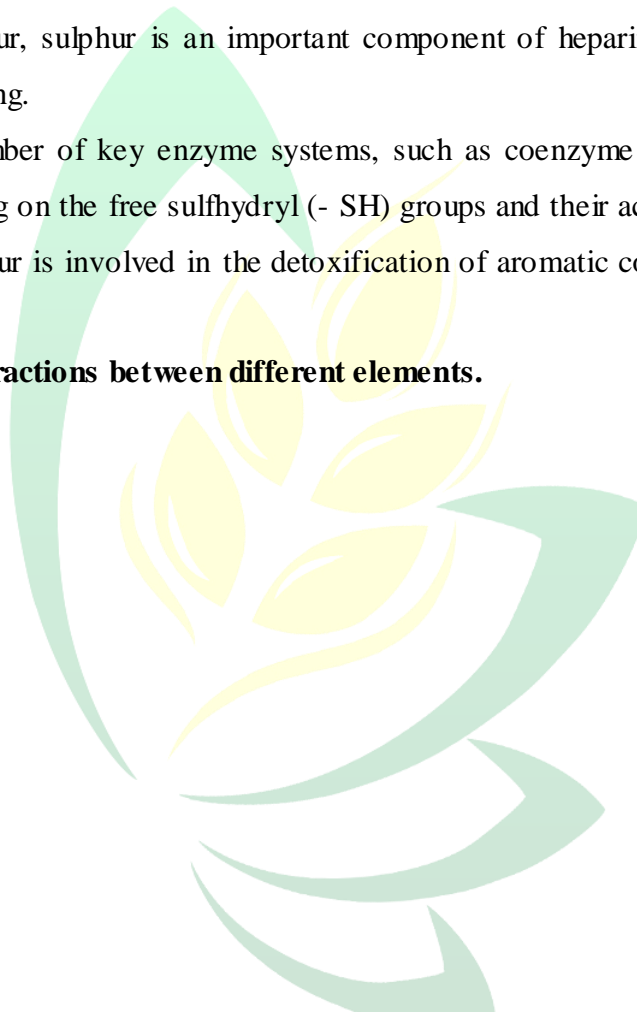


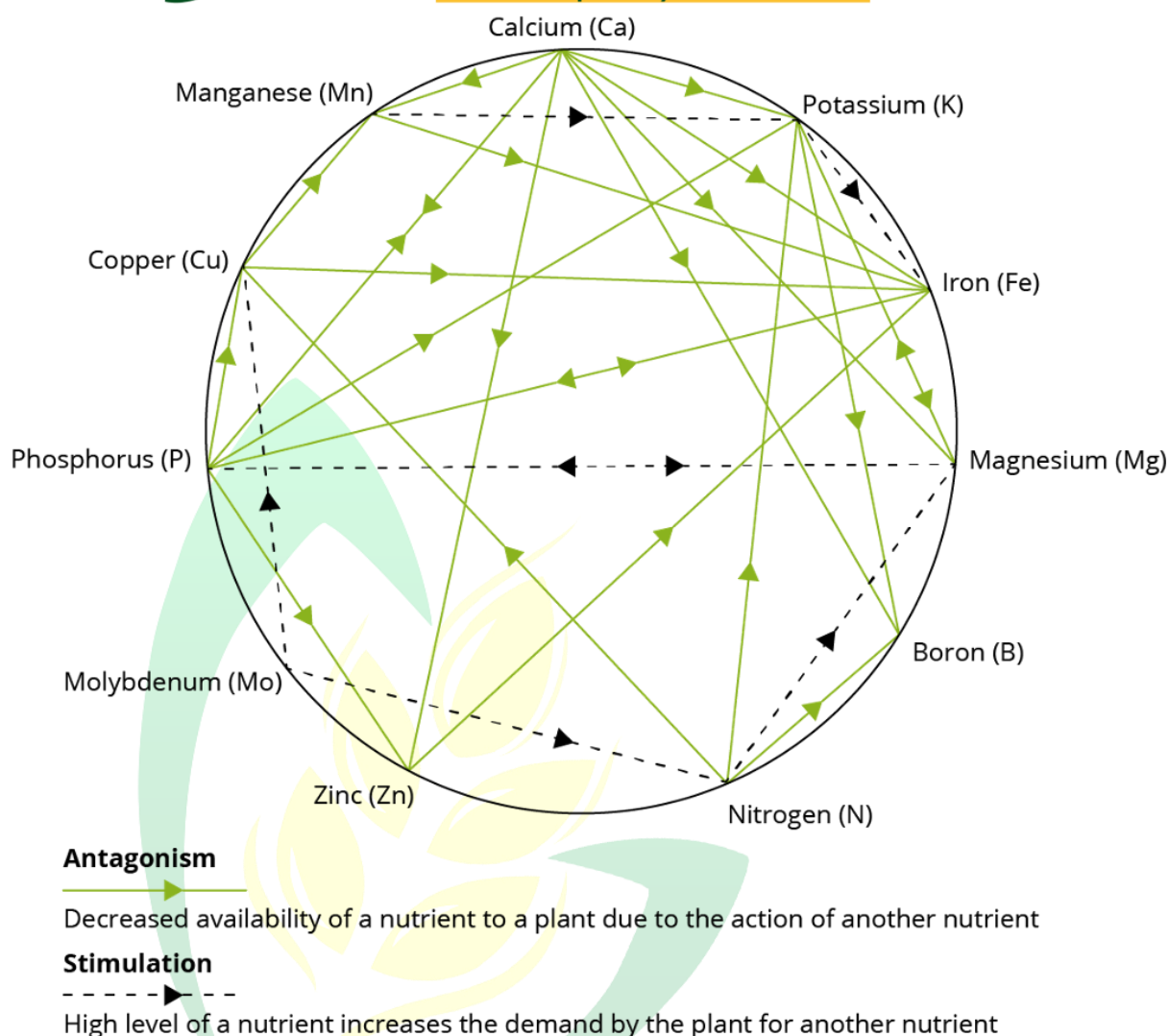
stimulating effect on muscle excitability. Potassium is also required for the synthesis of glycogen and protein, as well as the metabolic breakdown of glucose in the sample.

Sulphur

- Sulphur is an essential component of many essential amino acids (methionine and cysteine), vitamins (thiamine and biotin), the hormone insulin and the exoskeleton of crustaceans.
- As sulphur, sulphur is an important component of heparin, chondroitin, fibrinogen, and touring.
- The number of key enzyme systems, such as coenzyme A and glutathione levels, depending on the free sulfhydryl (- SH) groups and their activities. It is believed that the sulphur is involved in the detoxification of aromatic compounds in the bodies of animals.

The interactions between different elements.





Conclusion:-

The use of a variety of premixes containing vitamins, macronutrients, micronutrients, which are needed for the game, because it is the animals to become more powerful, and have to run their best. Often the feed is badly balanced in all of the vitamins and minerals and, hence, the need for addition of integral to your diet. They must always be on the lookout for advice in order to make sure that the premixes to meet their specific culture conditions, and to comply with the limits for all of the stages in the production of the animals.