CockXyme - Cocktail Enzyme for Poultry / Swine

ADVANCED BIOTECHNOLOGIES

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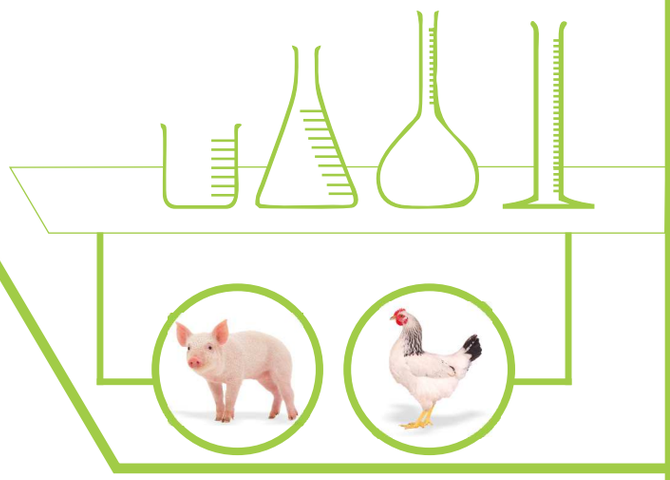


Introduction:

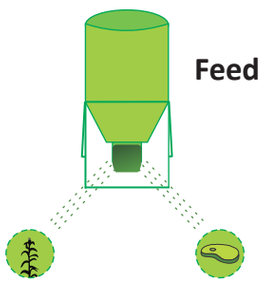
Animal feed is composed of plant material, cereals and vegetable proteins, which cannot be fully digested and utilized by animals. However, feed utilization and digestion can often be increased by the addition of external enzymes to the feed. Many cereals have a proportion of their energy in the form of non starch polysaccharide (NSPs), more commonly known as fibre. Enzymes are to break down these NSPs, which lead in increase of metabolizable energy and protein utilization. In some cereals, a large part of the NSP is soluble and causes highly viscosity in the small intestine of a monogastric animal. As a result, digestion becomes impaired. Selected microbial enzymes can partially degrade this NSP, lowering viscosity in the intestine and improving feed utilization

What is CockXyme?

CockXyme is a very unique blend of enzymes produced by SSF which takes care of various problems in chickens like the effect caused due to the presence of non starch polysaccharides, galactosides, phytates and other antinutritional factors present in the feed stuff.

Why CockXyme?

The digestive system of chicken comprises of natural enzymes to digest complex molecules in feed like proteins, carbohydrates, fats etc. poultry feed involves many plant and animal original ingredients.



Plant Source :

Corn, Maize, wheat, oat, rye,Bajra, rice, rice polish, millets,like sorghum, bajra, DORB, Soyabean meal, sunflower cake etc

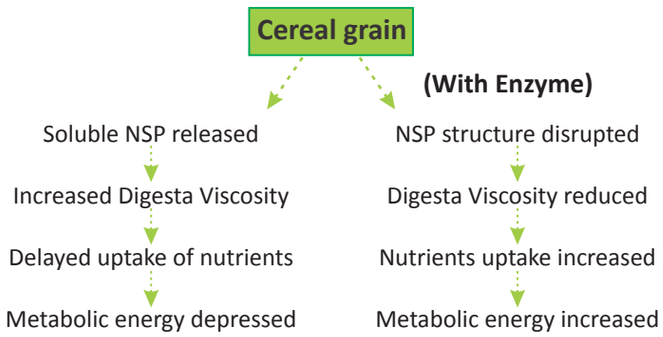
Animal Source :

Fish meal, meat meal, liver meal bone meal, blood meal etc.

These undigestible plant residues may be called as :

1. Non starch polysaccharides
2. Galactosides
3. Phytates
4. Anti-nutritional components like Lectins, Tannins, trypsin inhibitor etc.

1. Non Starch Polysaccharides
(NSP): The term NSPcovers a large class of polysaccharides excluding starch.



NSPcontents in some of the Cereal grains.

S.No.	Feed Ingredients	Total NSP(g/kg)
1	Sun Flower Cake	367
2	DORB	271
3	Soya Meal	234
4	GNC	167
5	Maize	124
6	Jowar	99
7	Wheat	94
8	Rice Polish	87
9	Bajra	80

2. Galactosides: These are short chain carbohydrates usually found in legumes like soybean. Galactose being the main subunit is cross linked to raffinose, stachyose and verbascose.

3. Phytates: Any Poultry feed generally contains phosphorus in organic form as phytate phosphorus & non-phytate phosphorus. The non-phytate phosphorus is easily available and well digested by the chicken. However it is found that phytate phosphorus is not available due to negligible amounts of phytase enzyme in the intestine of the bird not sufficient to hydrolyse the phytate bond. Due to this most of the organic phosphorous is passed undigested through faeces causing environmental pollution.

4. Anti nutritional factors: (ANFs) like Lectins, tannins, trypsin inhibitors etc.: This class includes chemically varied type of residues which usually occur in very low concentrations.

Antinutritional effects of undigested residues:

1. Soluble NSPs:

A.Increases gut viscosity there by reducing digestion of feed.

B.Modify gut physiology to reduce internal secretion of water, proteins, electrolytes & lipids.

C.Bind bile salts, lipids & cholesterol there by changing digestive & absorptive dynamics of the gut.

D.Increases retention time of digesta in the intestine thus decreasing oxygen tension to favor growth of anaerobic toxigenic micro flora causing deconjugation of bile.

All these interactions lead to :

I. Poor feed conversion
ii. Loose droppings
iii.Chronic deficiencies and other health related problems in poultry.

2. Galactosides:

Interfere with the gut physiology leading to flatulence and poor assimilation of nutrients.

3. Phytates:

They chelate minerals like Ca, Fe, Mg, starch, amino acids etc. making them biologically unavailable. Hence, there is an extra supplementation of inorganic phosphorous in feed to maintain the mineral level in bird which again increases the feed cost.

4. OtherANFs:

a. Hampers digestion by interfering with endogenous enzyme present in the digestive track.
b. Inhibit action of trypsin, tannins, lectins etc

Benefits of CockXyme:

- Optimizes the use of conventional and no conventional feed ingredients.
- Improves feed conversion ratio (FCR).
- Increase in weight gain of broilers, number of eggs in layers.
- Reduces wet droppings, odor and improves litter quality (Less microbial contamination) leading to cleaner eggs.
- Improves absorption efficiency of antibiotics, methionine & lysine etc

Application of Enzymes in CockXyme:

a - Amylase: Hydrolyzes α-1, 4-glycosidic bonds from starchy material liberating metabolizable sugar.

Xylanase: Hydrolyzes arabinoxylans in simple sugar.

Cellulase: Hydrolyzes ß-1, 4-glycosidic bonds randomly from cellulosic fraction of Soya, maize, SFC, DORB etc. to release easily metabolizable glucose.

Pectinase: Hydrolyzes pectic acid In a random fashion from SFC, DORB to release metabolizable galacturonate sugars.

Phytase: Hydrolyzes phytic acid to myo inositol & phosphoric acid to reduce antinutritional effect and release bioavailable phosphorus, amino acids &minerals.

Protease: Acts on proteins to liberate peptides & amino acids.

Lipase: Breakdown of the vegetable & animal fats to free fatty acids, triglycerides & glycerol to give metabolizable energy.

Hemicellulase: Acts on ß-1 , 4 linked xylanopyranosyl residues of arabinoxylans & mannans releasing pentose sugars & metabolizable hexose sugars from SFC, wheat, DORB, causing reduction in internal digesta viscosity.

ß-Galactosidase: Hydrolyzes galacto-oligosaccharides from Soya like raffinose & stachyose into sucrose & galactose to reduce antinutritional effect and release metabolizable sugars.

Glucanase: Decreases the viscosity of beta glucans in high barley and wheat diets to release metabolizable sugars.

Shelf Life: 24 months from the date of manufacturing under specified condition.

Dosage: 200 grams to 250 grams per ton of feed or as recommended by nutritionist.

Packaging: CockXyme is available in 25Kg paper bag.

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