

# INCREASE PERFORMANCE & PROFIT BY ADDING PHYTASE TO YOUR DIETS

The substrate for phytase is dietary phytate, which is present in varying amounts in a range of vegetable-based raw materials. Recent research has emphasized that phytate is not only a potential phosphorus source – thanks to the action of phytase enzymes – but also a potent anti-nutrient that can reduce the availability of many other nutrients to the animal.

## WITHOUT PHYTASE

Phytate functions as an anti-nutrient by disturbing the gut physiology of the animal.



### PROVENTRICULUS AND GIZZARD

At low pH, solubilized phytate binds directly with proteins and amino acids. This renders these **NUTRIENTS UNAVAILABLE** for digestion and **GROWTH**. In an effort to digest the phytate bound protein the bird produces more pepsin and HCl. This physiological response **USES ENERGY** which is then **UNAVAILABLE** for **GROWTH**.

### INTESTINE

The increased production of pepsin and HCl stimulates the gut to produce more mucin in an attempt to protect the gut cells, and more sodium bicarbonate to try to buffer the excess acid. This adds to maintenance costs and **REDUCES** the **ENERGY AVAILABLE** for **GROWTH**.

The pre-bound protein is less readily digested leading to compromised amino acid uptakes which can **NEGATIVELY** impact **PERFORMANCE**.

PROTEINS	HYDROCHLORIC ACID (HCl)	PEPSIN	CALCIUM
PHYTATE	MUCIN	PHYTASE	PHOSPHORUS

## WITH PHYTASE

Select a phytase that is **EFFECTIVE** at **LOW pH** to cleave the phytate and quickly reduce its anti-nutrient effect, to **MAXIMIZE** digestibility and **PERFORMANCE**.



### PROVENTRICULUS AND GIZZARD

Phytase helps to break down phytate preventing it binding with proteins **ALLOWING DIGESTION** of these beneficial **NUTRIENTS** so they can be used by the bird for **GROWTH**. Fewer phytate-protein complexes reduces the need to secrete additional pepsin and HCl to overcome the anti-nutrient effect of phytate, **ALLOWING** the bird to use its **ENERGY** for **GROWTH**.

### INTESTINE

Degradation of phytate reduces the secretion of additional mucin and sodium bicarbonate to buffer the HCl. **ALLOWING** the bird to use its **ENERGY** for **GROWTH**, rather than maintenance. **PROTEIN** is more readily **DIGESTED** and can be utilized for **GROWTH**.