

WATER & FEED

SUPPLEMENT  
POWDER



NUTREX  
CURRENT NUTRITION TECHNOLOGY EXPONENTS

**ALKACEL 20X**

**Water soluble (ws) or premix**

Targeted Enzyme for Fibers/NSP for Corn soy Rations

## MEASURABLE, QUANTIFIABLE AND VISIBLE FIBER/NSP DIGESTING ACTIVITY

**ALKACEL 20X** is a targeted exogenous enzyme preparation designed to hydrolyze the major fibers/NSP in corn soy rations, releasing and making available the trapped energy and proteins.

**ALKACEL 20X** improves digestibility of corn soy rations, effectively digesting and removing the negative digestive effects of NSPs in the corn soy diet

**ALKACEL 20X** exhibits unequalled, pronounced, quantifiable, measurable and readily visible **xylanase, cellulase and betaglucanase** activities, digesting the major NSPs in corn-soy rations, directly improving FCR and feed costs,

**ALKACEL 20X** elicits visible and tangible fiber digesting activity, **with manure size and volume reduction visible the next day from supplementation.** Field test reveal 8%-13% reduction, depending on feed fiber content



### CONTENTS/kg:

*Xylanase* 700,000 units, *Cellulase* 900,000 units and  
*Beta-glucanase* 40,000 units, min. activity

### RECOMMENDED DOSE AND USE:

Water soluble (ws)      Broilers - one tsp (5gms) /10 liters of drinking water  
   Layers - one tsp/20liters of drinking water

Premix                              300gms—500gms/ton of feed

### PACKAGING

WS                              1kg pe bag , 1 x 15 box

Premix                        20kg pe lined box

**A Performance Enhancing Nutritional Product of:**

**AGRIaccess**

**Bothell WA 98012 USA**

[www.agriaccess.com](http://www.agriaccess.com)

## Non-Starch Polysaccharides

### *Description, Digestive System Impact, Presence in Wheat and other Feedstuffs*

Non-Starch Polysaccharides or NSP are the main storage forms of sugars in aleurons (seeds) of some cereals and the endosperm (meats) of nuts. Although similar to starch in chemical formula, these polymers differ in the way the individual sugars are attached – “**beta**” linkages in NSP and “**alpha**” in starch. NSP are **indigestible** to monogastrics like pigs and poultry, as they lack the enzymes necessary to digest the “**beta**” type of linkages

### **Effect of NSP in the Digestive Tract**

1. Up to 60% of the total sugars and up to 40% of total proteins of NSP containing ingredients are bound and trapped by the NSP, rendering them indigestible and unavailable to the animal
2. NSP increase the viscosity of ingesta in the gut, slowing down nutrient diffusion and hindering absorption of nutrients
3. NSP possess high water absorbing capacity, significantly increasing the ingesta volume once inside the gut, restricting feed intake .

Biochemical screening of common plant sourced ingredients reveal significant levels of NSP – beta-galactomannans, xylans, betaglucans, celluloses, among others.

### **ANALYZED NSP CONTENT OF COMMON PLANT ORIGIN FEEDSTUFFS**

<b>Ingredient</b>	<b>ADF %</b>	<b>HC %</b>
Pollard	11.0	25.0
Wheat bran	13.0	29.1
Rice bran	13.9	9.8
Wheat, hard red	4.0	9.0
DDGS	12.8	30.2
Soybean meal	9.4	4.0
Corn	2.8	6.8
Copra meal	25.0	26.0
Palm kernel cake	39.0	21.0

From: USNRC 98, AGRiaccess data 2001–2008

ADF = Acid Detergent Fiber cellulose+lignin

HC = hemicellulose/soluble fiber

## IMPLICATIONS ON GRAINS, BY-PRODUCTS and RELATED HIGH NSP INGREDIENTS

All plant ingredients contain significant amounts of NSP, from a low of 9% (corn) to high of 60% (PKC). Brans, DDGS and related by-products are relatively nutrient dense (11-15%CP and up to 3400 kcal DE), and lower priced considering their content. But more than 30% of the total sugar and up to 40% of the proteins are bound in NSP, identified primarily as **xylans**, **celluloses** and **betaglucans**. This high percentage of NSP has been traced to be responsible for the reduced productive performance encountered in high usage (>10%), **due to a) reduced actual available nutrients, b) high heat increment (HI) resulting from high energy expense in digestion and utilization, c) increased viscosity of feed, and d) ability to restrict intake.**

### **COMMERCIAL LEVEL (32,000HD) INTEGRATOR BROILER COMPREHENSIVE TRIAL \* REVEAL THAT ALKACEL 20X GENERATES**

**Improved FCR by 9.15%**

**Improved ADG by 6.52%**

**Lower feed intake by 3.79%**

**Higher protein accretion by 6.30%**

**Lower mortality rate by 25.2%**

**Lower manure volume by 11.35%**

**Lower protein excretion 13.11 %**

**Lower excretion of protein origin N by 11.0%**

**Lower manure fiber by 20.66 %**

**Return on investment at 1:8**

*\*Ong, J and Mangalindan J., 2016*

### **ALKACEL 20x**

The ONLY enzyme in the market to be comprehensively tested and proven in commercial integrator level settings