



# MORACID

Acidifier and Antioxidant

## Acids Improve Performance

Adding organic acids to the feeds of young pigs is not new. Research has shown that addition of acids to feeds improved the performance of weaning pigs. Digestive enzymes are more active in acidic conditions. In new born piglets, the gastrointestinal tract is immature and not fully capable of producing sufficient digestive acids, enzymes and microflora necessary for efficient digestion of feeds. The enzyme pepsin hydrolyses certain peptide bonds and initializes the digestion of protein. The proenzyme pepsinogen is secreted from the cells of the stomach wall. Under ACIDIC conditions (pH 1.6 to 3.2) the prozyme pepsinogen is activated to form pepsin. Appropriate gastric pH level will favor the production of pepsin and therefore enhance the digestion of protein.

Trypsinogen and chymotrypsinogen are proenzymes secreted into the duodenum portion of the small intestine from the pancreas in an inactive form to be activated at the site of digestion by means of acidification. Both enzymes can convert protein into digestible amino acids. Addition of acids will effectively acidify the duodenum portion and result in higher enzymatic activity which in turn enhances digestion, growth rate and feed efficiencies.



## Acids and Pathogenic Bacteria

Acidic condition in the digestive tract can prevent the invasion of pathogenic bacteria. Lower pH also favors the growth of lactic acid producing bacteria. Since pathogens and lactic acid producing bacteria compete for nutrients and colonization sites in the digestive tract, lower pH can enhance the lactic acid producing bacteria and reduce the pathogenic bacteria. This condition will benefit animal health related characteristics. The following chart clearly illustrates the benefit of lower pH can enhance the lactic acid producing bacteria and reduce the pathogenic bacteria. This condition will benefit animal health related characteristics. The following chart clearly illustrates the benefit of lower pH on the reduction of pathogenic bacteria

## Directions For Use:

### MORACID

Mix 1-2 kilograms (2-5 pounds) of MorAcid with 1 ton of complete feed.

### MORACID SP

Dissolve 1 kilogram of MorAcid SP in 20 liters of water to make a stock solution. Meter stock solution at a rate of 10 ml per liter of fresh drinking water.








## Advantages of MorAcid

- ◇ Digestive Enzymes - enhancing the activities of digestive enzymes for more efficient digestion of fiber, starch and protein
- ◇ Antioxidant - preventing the oxidation of feed stuff
- ◇ Lower pH - favoring feed digestion in the stomach
- ◇ Beneficial Bacteria - promoting the growth of lactic acid producing bacteria
- ◇ Pathogenic Bacteria - lowering pH decreases the ability of pathogens to grow
- ◇ Feed Utilization - better digestion increases feed utilization.

## Effect of pH on Bacteria Growth

pH	E. coli	Clostridium	Salmonella	Pasteurella
7.4	████████	████████	████████	████████
7.0	████████	████████	████████	████████
6.8	████████	████████	████████	████████
6.5	████████	████████	████████	████████
6.4	████████	████████	████████	████████
6.3	████████	████████	████████	████████
6.2	████████	████████	████████	████████
6.0	████████	████████	████████	████████
5.8	████████	████████	████████	████████
5.7	████████	████████	████████	████████
5.4	████████	████████	████████	████████
5.2	████████	████████	████████	████████
5.0	████████	████████	████████	████████
4.8	████████	████████	████████	████████
4.5	████████	████████	████████	████████
4.3	████████	████████	████████	████████
4.0	████████	████████	████████	████████

Heavy  
Moderate  
Light  
Very Light  
NVG

 TOO NUMEROUS TO COUNT  
 APPROX. 1/2 HEAVY  
 APPROX. 1/2 MODERATE  
 VISIBLE GROWTH  
 NO VISIBLE GROWTH

Source: Alabama Dept. of Agriculture



**JH Biotech, Inc.**  
Corporate Office  
4951 Olivas Park Dr.  
Ventura, CA 93003 USA

**JH Biotech, Inc.**  
Texas Operation  
360 Koepsel Road  
McQueeney, TX 78123 USA

**JH Biotech, Inc.**  
Florida Operation  
1390 80 Foot Road  
Bartow, FL 33830-8765 USA

For labels and MSDS, visit our website at [www.jhbiotech.com](http://www.jhbiotech.com) or call us at 805.650.8933

Copyright © 2014 All rights reserved.