FrontLine
TECHNICAL INFORMATION FOR TODAY'S FEED PROFESSIONAL

Mannan Oligosaccharides

Natural Alternatives for Animal Nutrition (Part 3)

Livestock producers today face a serious problem; what alternatives to antibiotics exist? Consumers and public health officials are fearful that pathogens will develop resistance to antibiotics and will pass that resistance on to human pathogens.

MOS is a Mannanoligosaccharides derived from the cell wall of the yeast Saccharomyces cerevisiae. Mannan is a sugar recognized by certain bacteria, including many strains of *E. coli* and *salmonella*. In the oligosaccharide form however, the mannan is not available for the pathogen to grow. When MOS is added to calf diets, lectins of these pathogens are tricked into attaching to the mannan sugar instead of the carbohydrates attached to the intestinal villi. These lectins are then flushed out without being able to metabolize the sugar, (see diagram) resulting in a "cleansing" effect of the intestinal wall and preventing permanent damage to the villi (finger-like protrusions on the intestinal wall containing sights for nutrient absorption). This allows improved animal performance.

Over 30 trials have looked at the ability of MOS to stimulate faster growth rates in calves and have shown positive results varying from 5 to 35% better growth rates. Many of these trials have been carried out on university farms where the challenge is obviously lower and responses are typically lower.

However, as the summary of 14 trials with 900 calves below shows, MOS has proven effective even in these cases.

	No. Calves	Days	Control	MOS	Improvement
University of Tenn	48	28	25.24	25.63	10.3%
Institute Animal Nutrition, Poland	24	30 d	32.67	44.24	35.4%
North American Biosciences C.	29	35 d	27.95	37.27	33.3%
North American Biosciences C.	28	35 d	26.06	30.82	18.3%
R&L Veal, Ohio	67	42 d	57.32	64.92	13.2%
Nippei, Japan	17	42 d	59.52	76.94	29.3%
Milk Specialties	240	56 d	47.70	50.70	6.7%
North American Biosciences C.	36	56 d	74.07	78.70	6.3%
Federal University R.G.S.	24	56 d	45.67	53.08	16.2%
California State, Fresno	162	60 d	44.71	56.59	26.6%
University of Sao Paulo	36	60 d	41.03	50.22	22.4%
Continental Grain	96	60	58.33	62.96	7.9%
Colorado State University	53	63 d	63.38	66.53	5.0%
Measurement was based on Total Weight Gain (lbs) Mean Average Improvement					17.1%

Milk Products
The Milk Replacer Source™
FOR MORE INFORMATION, CALL OR WRITE MILK PRODUCTS, LLC
P.O. Box 150, Chilton, Wisconsin 53014, (920) 849-2348, Fax (920) 849-9014 www.milkproductsinc.com

A trial conducted at Penn State University looked at how fast calves recover from scours by comparing a non-medicated milk replacer containing MOS to one containing Neo-Terramycin. MOS group had excellent results, showing an improvement in health and reduction in scours. Trials have also demonstrated synergy when MOS and a medication program are used together, often improving performance significantly.

Using just 2 grams per feeding in the milk replacer or 2 - 4 pounds per ton in the calf starter, cost is only $0.01 per feeding or about $0.50 per bag of milk replacer. MOS is an excellent and inexpensive way to naturally improve your calf program.

This is an illustration of how MOS works: