



Is Your Feed Safe?

It is well accepted that feed quality is one of the foundations of a successful operation. The growing, harvesting, and storage of grains are directly affected by unpredictable environmental conditions. Improving the quality and consistency of the nutrients provided by feed is a prime concern of the producer.

One of the most common problems with feed quality is the accumulation of moisture in the grain during harvesting, processing, and storage. A high moisture level is the main cause of the development of harmful molds, bacteria and fungus in the grains and the toxic by-products, including mycotoxins, that they produce. Molds, once established, spread quickly because as the mold's enzymatic process breaks down nutrients, more moisture is produced allowing other molds to germinate. Even when grains have been stored dry, moist spots may develop due to adverse environmental conditions allowing the development of molds.

Today there is another option available to reduce moisture contamination in your feeds. **MMi** is a new, patented product developed and designed specifically for animal health. **MMi** is manufactured using the nanoclay AMADÉITE®, dried yeast cells and diatomaceous earth. The combination of these ingredients, using the best technology available, brings forward a new era in animal health.

Why is **MMi** Distinctly Different From Other Products on the Market?

Through the use of nanotechnology, the natural absorbent quality of clay has been dramatically improved in **MMi**. To accomplish this, the layers of clay have been widely separated to increase the surface area available for absorption. The product is then finely ground to further improve the absorption ability and to allow easy dispersion throughout the feed. The Ohio State University Extension Newsletter states that, "mold inhibitors cannot be effective unless they are completely and thoroughly distributed throughout the feed". Because of the small particle size, less **MMi** will be necessary to obtain better results.

How fast will **MMi** work?

The absorption of the moisture by **MMi** will happen immediately upon contact.

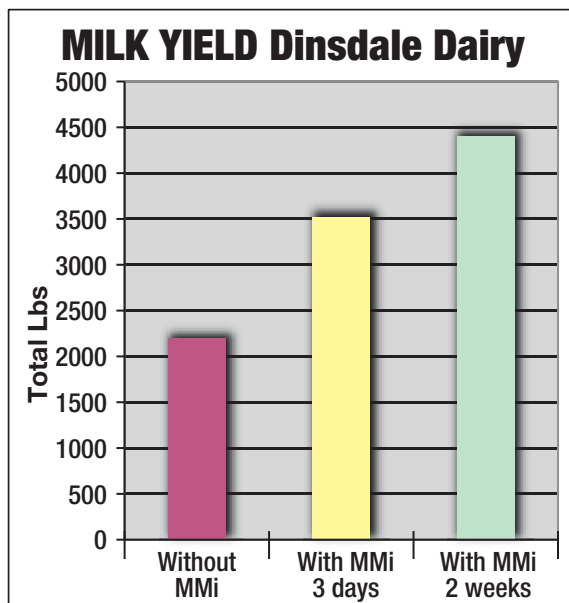
INGREDIENTS: Dried Yeast, Montmorillonite Clay, Diatomaceous Earth, Dried Seaweed Meal. All ingredients are classified as GRAS (Generally Regarded As Safe).

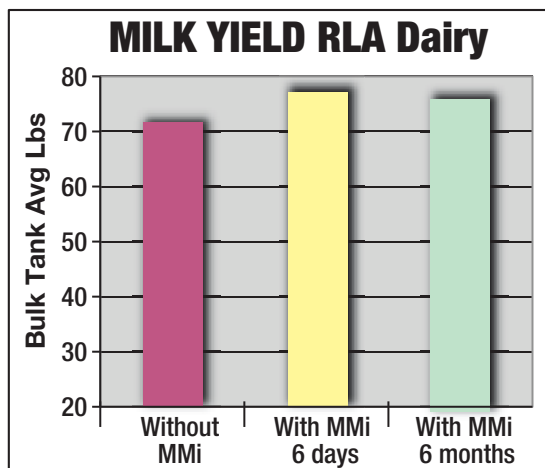
Have Any Research Trials Been Performed on **MMi**?

Field trials have been performed on **MMi** for the past several years. The following results are examples of the improvements in production variables observed with the use of **MMi**.

In 2005, a veterinarian identified a 68-cow dairy that had been experiencing long-term production problems including low milk yields, cystic ovaries, severe scouring and retained placentas. Many different protocols had been attempted for several years with limited success. The feed was analyzed for mold/mycotoxin contamination and results showed a high level of the fusarium mold toxin Vomitoxin DON (Deoxynivalenol) at 642 micrograms/kg, and a lower level of ZON (Zeralenone) at 29 micrograms/kg.

MMi was fed initially at the rate of 30 grams/cow/day with no other nutritional or veterinary changes made. The inclusion level of **MMi** was reduced to 2.2 lbs per ton of grain after one year. Within 3 days, milk yield had increased up to 62%, and after 2 weeks milk yield had increased up to 100%. After one month, there were no new cases of follicular or luteal cysts. A level of 18 cysts had been detected before treatment with **MMi**. No further cases of retained placenta occurred after the addition of **MMi**. Overall improvement of herd health was observed with **MMi** use. The owner of the farm, John Dinsdale commented that he will continue to use **MMi** in his feed because, "**I can't afford to take it out!**"

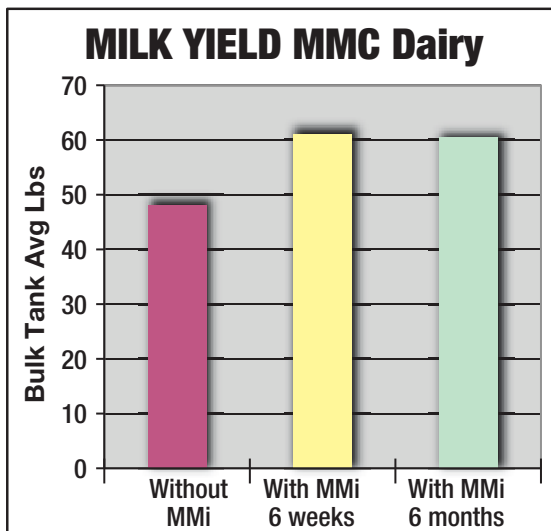




RLA Dairy in 2008 was milking 108 cows and had a bulk tank average of 72 lbs of milk before the use of **MMi**. The dairy had a history of production losses including low intake, ketosis, loose manure and mortality.

Urine samples found a very high level of a metabolite of Vomitoxin (DON), at 200 micrograms/liter. Detectable levels were also found of Fumonisin B1, B2 at 15 micrograms/liter and a metabolite of Zearalenone at 12 micrograms/liter. **MMi** was fed at a rate of 34 grams/day/cow or 1.5 grams per kg DMI. Within 6 days, the bulk tank average increased to 77 lbs. After 6 months of continued use of **MMi** the milk yield has remained consistent.

MMC Dairy in 2008 was milking 60 cows with a bulk tank average of 48 lbs of milk before the use of **MMi**. The dairy was experiencing production issues including ketosis-like symptoms and increased mortality levels. Urine samples found a detectable level of Fumonisin B1,B2 at 7 micrograms/liter. **MMi** was fed at a rate of 35.5 grams/day/cow or an average of 1.75 grams per kg of DMI. Production improved to the highest levels in 5 years and the bulk tank average increased 21% to 61.1 lbs. After 6 months of continued use of **MMi** the milk yield has remained consistent.



What Can You Do To Reduce the Risks of Mold Contamination?

Aeration of grains can help to prevent mold problems, but once the mold has become established, additional oxygen and lower temperatures caused by aeration may actually assist certain molds in their development. Mold inhibitors are another means of reducing the risk of mold contamination, however the effectiveness has been variable for the producer. Once again, if the mold has already been established, the mold inhibitors will not destroy the existing mold, they will only help to prevent development in other areas of the grain supply. The North Carolina Extension Bulletin states that if the concentration of the mold inhibitor is not high enough to stop mold growth, the mold can actually use the inhibitor as a food source, therefore increasing the mold contamination.

The best means of avoiding the risks of mold contamination is to stop the development of molds and the mycotoxin by-products produced by molds. **MMi** is the answer to curing your mold problems.

Feeding Rates for **MMi**

Cows (dry and lactating) 20 - 50 grams/day
Calves 5 grams/day

These are recommended levels, but inclusion rates should be adjusted based on the contamination level of the feed. Maximum inclusion rate is 2% of total feed intake.

Application: **MMi** should be thoroughly mixed into the feed to ensure even distribution. **MMi** can also be used as a top dress.

Benefits of **MMi**

MMi is a superior product to reduce moisture contamination in feed. When moisture levels are lower, the potential for harmful mold, pathogenic bacteria and fungus is also lower. Repeated trials have shown quick and sustained improvements in production with the use of **MMi**. **MMi** is available through Advanced Management Solutions, a company that is already well established in the livestock industry as the distributor of the popular product **Mistral**.



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