An Introductory Guide to QLF Feed Mill Preservation Program

**The problem?**
Mold spores are everywhere in our environment. There are thousands of known species of mold, all of which grow by acquiring their food from their environment. They are critical in helping break down organic matter in the soil, but when found in feed, may also produce harmful toxins which impact animal performance.

Mold is a major concern in a feed mill because mold starts to grow immediately after grinding. Once the seed coat is broken, the starch becomes food for mold. Very quickly, mold colonies grow and multiply and can reach levels high enough that animal performance and health is impacted. Controlling mold and yeast is vitally important if we hope to maximize the performance of livestock and poultry.

**How do yeast and mold grow?**
Mold and wild yeast require four things to grow and multiply: 1). water, 2). a food source, 3). plenty of oxygen and 4). suitable environment (temperature being of primary importance). Remove any one of these four requirements, and we can control mold and wild yeast growth. But how can we eliminate these four requirements for mold growth in a feed mill? In a feed mill, it is not economically possible to eliminate all four requirements for mold growth.

**How can we control these problems in a feed mill?**
Scientists learned many years ago that adding organic acids to grain controlled the growth of mold and yeast. In 1999, Carrie Higgins and Friedhelm Brinkhaus evaluated various organic acid to determine which acids had the biggest impact on mold. They found that propionic acid displayed the highest efficacy against all mold species. In 1973, J. Pelhate evaluated three mold inhibitors comparing their efficacy against both mold and wild yeast. The charts below are the summary of the efficacy of those three acids and the dosage required to reduce survivability of mold and yeast species.
Why use blended acids?
Scientists at Kemin Industries used knowledge of organic acid efficacy to develop blended acid products. Kemin discovered ideal combinations of the right acids, in the right proportions and applied to the right mold produced the best results. Kemin developed a full line of buffered blended acids, each designed to work in various feed formulations.

Four organic acids used in the Kemin mold inhibitor products:
- Propionic acid – one of the most effective organic acids in controlling the growth of a wide range of mold species
- Acetic acid – excels at controlling the growth of wild yeast species
- Sorbic acid – controls mold at lower levels
- Benzoic acid – increases mold and yeast control when blended with other organic acids

Ultra CURB® Liquid (1-4 lb/ton finished feed)
- Wide range of mixed acids, results in more active ingredients for mold and wild yeast
- Particularly effective against Fusarium mold and wild yeast strains
- Effective in total mixed rations (TMR) when wild yeast is a concern

Myco CURB® Liquid (1-4 lb/ton finished feed)
- Three main organic acids for mold protection
- Used extensively to treat feed and feed ingredients when wild yeast is not an issue

QLF/KEMIN CUSTOM MOLD INHIBITOR (1-4 lb/ton finished feed)
- Effective for mold protection

Preservatives used in QLF Feed Mill products are designed to extend the storage life of the liquid under normal storage conditions. QLF offers an additional preservative program to aid in preservation of finished feeds. Contact your local QLF REPRESENTATIVE for information on the QLF preservation program and recommended inclusion rates. To protect finished feeds, recommended inclusion levels of preservatives are dependent upon expected shelf life, grain quality, and environmental conditions. Exact preservative inclusion is predicated on specific customer circumstances. Consistent grain quality monitoring is recommended for optimum finished feed performance. QLF does not warrant that inclusion of preservatives in mill liquids added to finished feeds will maintain mold and/or yeast-free under adverse conditions. Without following good manufacturing procedures (GMP), finished feeds may lose condition regardless of preservative level.

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