



Mixing Fertilizers and MetaGrow™ Microbe Products

Microbes in Stasis are Durable

Microbes in stasis (all **MetaGrow™** products) are protected from high temperatures (up to 120°F), freezing, high osmotic pressures, extreme pH, caustic materials and chemical toxicities. Actively respiring microbe products (short shelf life or require refrigeration) do not have protective coatings and suffer high mortalities if mixed with synthetic fertilizers.

Microbes in Stasis Wake Up

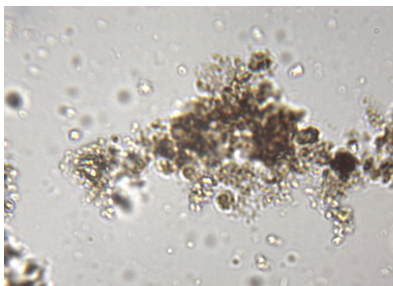
When food and habitat conditions are suitable for microbes in stasis they wake up very quickly. Do not feed (e.g. **MetaGrow MFOOD**, **MetaGrow CFOOD** or any organic fertilizer or input) microbes in stasis before chemical mixing as the food wakes up the microbes making them vulnerable to the chemicals. If mixing microbes with organic fertilizers, the mixture must be applied within 24 hours (preferably 8 hours or less) as the microbes will wake up with exposure to the organic fertilizer food.

Synthetic Fertilizer Mixing

Synthetic fertilizers are typically not suitable habitat for microbes as they are too extreme pH, caustic, high osmotic pressure, toxic, etc. for the microbes so they stay in their protective stasis. **MetaGrow™** microbial products have 95-100% survival rates in synthetic fertilizer mixes and with storage durations over a year. Some successful fertilizer mixes tested at 50% concentrations include: **UN32**, **8-4-10**, **10-34-0** and **K Thiosulfate**. Actively respiring microbe products (not in stasis) suffer 90-100% mortalities if mixed with synthetic fertilizers.

Jar Test Mixes First

For the jar test, use the same mixing order and concentrations as the intended production mix. Let the mix sit in a sealed plastic bottle for 2-3 days at room temperature. If the plastic bottle becomes turgid from off-gassing and/or has a bad smell, then the test indicates the microbes woke up and are no longer stable. If the bottle is not turgid dilute the mix with water by 10:1, feed with **MFOOD** or fish hydrolysate and aerate for 24 hours. Evaluate the microbes under a microscope. If the microbes are active, the mix is successful. If the microbes are ruptured or inactive (see photo lower right) they are incompatible.



MetaGrow ST

50% Mix with UN32

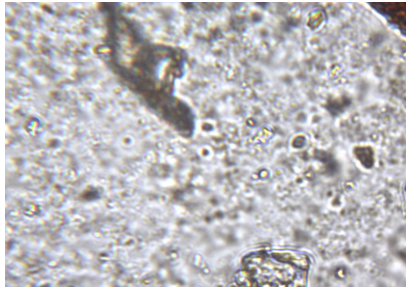
100% survival and in stasis

Active Microbe Product



50% Mix with UN32

90+% mortality
(burst bodies)



We would be happy to assist with the mix testing and evaluation process. Call (916) 284-9706 or email dolson@sgs-ag.com.