Biofix Holding, Inc.

ORGANIC BIOLOGICAL PRODUCTS

Waste Management Division

TREATMENT OF HOG MANURE LAGOONS

Hog farmers throughout the free world have more than one thing in common. Among them, the problems associated with animal waste handling and storage. The concept of recycling the wastes to the land as a possible solution to the waste problem is environmentally sound. It offers a "closed loop" system, where nutrients taken from the soil for plant (feed) production are eventually returned via the waste reuse. While the concept is sound, the reality is that there are several critical problems associated with manure storage.

Some of these problems are obvious. Manure pits/lagoons where the waste is accumulated tend to develop a hard surface (crust) that's difficult to penetrate. In addition, solids build up at the bottom of the pit, making agitation difficult and eventually reducing the pit's holding capacity. Also, the waste odors from the pit can be so foul that they may present a health hazard as well as bring community pressure for relief. Another problem which is not easy to identify is the possible loss of valuable nutrients during the storage process.

A healthy manure pit is one that is biologically active. Little or no crust forms on the surface. Solids are suspended in a slurry solution. While odors may be present, they smell "natural" and are non-offensive. Nevertheless, there are many enemies of a manure pit, including unhealthy mixtures of manure and urine, medications, farm chemicals, and even bedding materials. These products alter the natural process and cause the manure pit to "suffocate". From a biological standpoint, the pit begins to die.

Mechanical agitation is a common method used to bring a pit back to a slurry form. While this makes the manure easier to handle, it can be costly and time consuming. Unfortunately, agitation alone does not get to the root of the problem, and does little to restore lost nutrient value of the manure.

Biofix Holding has developed a simple and "natural" treatment to deal with these problems in hog manure handling. Our treatment literally brings life back to manure pits by providing specific remediation organisms, BIO-CURE Waste Digesting Organisms (Blue Label) plus BIO-CURE Liquid Activator which stimulates growth of these beneficial organisms. As these beneficial organisms are activated, a "chain reaction" takes place which proceeds until the pit is brought back to a healthy, natural state.

RECOMMENDATIONS

INITIAL TREATMENT: Because the BIO-CURE Blue Label product is manufactured in dry form for stability and extended shelf life by applying the organisms to a bran carrier, the organisms must be released before application using a hydration step. For a pit area of 100 square meters mix 1/2 Kg of BIO-CURE Blue Label in 2-4 liters of warm (<38ºC) non-chlorinated water for about 30 minutes prior to application. (Note: the bran carrier used in the BIO-CURE Blue Label will not dissolve, a small residue will remain which must be removed to avoid clogging of spray equipment.) After adding 10 liters of BIO-CURE Liquid Activator to the hydrated organims, increase the volume to 80 liters by adding non-chlorinated water. Apply mixture to 100 m^2 of pit surface. Within one week, users will observe active "bubbling" in the pit. As this activity occurs, solids that have previously accumulated at the bottom as well as the surface of the pit are broken up and mixed back into the pit. Within 3-4 weeks the pit is usually restored to a healthy form.

MAINTENANCE: To maintain a manure pit that has been restored and is continuing to receive manure additions or is being newly placed in service, treat using 2 liters of BIO-CURE Liquid Activator per 100 m^2 of pond surface every two weeks. Mix the Activator in 80 liters of non-chlorinated water and spray on the pit surface.

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Crusted hog manure lagoon when treatment started. The lagoon had a very bad odor and fly problem.

Bubbling bacterial activity started after one week.

Three weeks later the thick crust begins to disappear.

Five weeks later solids are broken up and liquids begin to surface.

Sixth week shows nearly completed liquid surface on the treated half of the lagoon.

Eight weeks from starting treatment on one half of the lagoon all solids are degraded and water restored for agricultural use.