

# **Questions and Answers About Biological Solutions In Dairy Wastewater Lagoon Treatment**

## **1. How does Biological Solutions compare with other biological treatments?**

By producing Biological Solutions on site, the Biological Solutions treatment is more effective and less costly than other treatments. The volume of active product produced promotes greater aerobic biological activity, which causes increased digestion of solids into an aerated liquid compost, which is highly beneficial to soil, and crops.

## **2. How does Biological Solutions reduce problems that lagoon water usually causes on a farm?**

Many dairymen complain that lagoon water causes problems with soils and crops by using raw liquid manure waste. Biological Solutions digests the liquid manure waste into an aerated liquid compost that is a superior product that improves soil fertility and improves crop yields and quality. Most of the solid materials that interfere with irrigation are eliminated with the Biological Solutions digestion.

## **3. How is the cost of Biological Solutions justified in the operation of the dairy?**

Dairies that can utilize the aerated liquid compost from the Biological Solutions treated wastewater lagoons will notice a decided improvement in crops and soils compared to the ordinary raw liquid manure waste. Ordinarily lagoon clean out by dredging or other means can be entirely eliminated or significantly reduced providing a significant cost of savings of manure solids removal.

## **4. What is required to set up a Biological Solutions Bio-Generator on a dairy?**

All that is required is a water supply and a small location to set up the Bio-Generator facility. This facility produces Biological Solutions continuously into the waste stream that flows into the lagoon. Biological solutions personnel regularly check the facility to assure quality control and proper operation of the facility.

## **5. What criteria are established to determine that Biological Solutions is performing?**

Biological Solutions increases the digestive activity in the lagoon. Within two or three weeks of treatment, an increase of "boiling up" of solids brings solids from the bottom of the lagoon to the surface where the digestive activity is the greatest. Gradually the sludge accumulations begin to reduce and eventually the lagoon should be liquid.

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## **6. What changes have to be made in using the aerated liquid compost that Biological Solutions produces?**

To take advantage of the superior product that the aerated liquid compost is, the lagoon should be pumped from the top 12" to 18". Floating pumps that can pump off the surface material will insure that the highest quality product from the lagoon is continuously used.

## **7. What is wrong with pumping the entire lagoon from the bottom?**

A lagoon has three general categories of microbial activity. At the surface the aerobic microbes that require atmospheric oxygen from the air perform. Just below the aerobic microbes layer, facultative microbes that can use atmospheric oxygen or can function without atmospheric oxygen function. At the lower levels of the lagoon, the anaerobic microbes function in the absence of atmospheric oxygen. The problem is that most lagoons are functioning by anaerobic digestion, which is not nearly as efficient as aerobic digestion. The byproducts of anaerobic digestion can be formaldehyde, alcohol, hydrogen sulfide, mercaptans, aldehydes and other materials that are harmful to soils and crops. Many of these compounds have very objectionable odors. The aerobic liquid compost is well-digested humus material that is very beneficial to both soils and crops.

## **8. Does Biological Solutions affect the odors that usually come from the lagoon?**

The aerobic digestion eliminates most of the objectionable odors caused by anaerobic digestion. There is usually a significant reduction in odors from the lagoon within three or four weeks after beginning treatment with Biological Solutions.

## **9. Is there any danger to employees or animals from Biological Solutions?**

No. Biological Solutions has been tested for toxicity by being fed to animals by veterinarians and found to have no toxicity in any way. Care should be taken to prevent small children from falling into or playing around the Biological Solutions Bio-Generators.