GGT Waste AG Manure Treatment System
Nutrient Facts

GGTWASTE
A Green Growth Technology

Natural Biotechnology and GGT Waste, affiliates of Green Growth Technology, Inc. have created a Confined Animal Feeding Operations (CAFO) Manure System that essentially turns organic wastes to water. This is one of several fact sheets that explain that system and its benefits to CAFO operators.

The GGT Waste AG Manure Treatment System uses a proprietary mixture of microorganisms called NBT-100 that:

- **Addresses the concerns associated with NPK nutrient buildup in CAFO lagoons.**
- **Reduces NPK by as much as 95%.**
- **Directly consumes a portion of each of the NPK nutrients.**
- **Converts a portion of each nutrient to a non-pollutant and returns them to the atmosphere.**
- **Causes a portion of phosphorous and potassium to be absorbed by the lagoon clay liner.**
- **Holds the balance in suspension in the lagoon water.**
- **Retains its effectiveness even at low temperatures.**

Addresses NPK Concerns
The buildup, runoff and disposal concerns surrounding nitrogen, phosphorous and potassium in CAFO lagoon water are all major issues for operators. All these factors are addressed by the NBT-100 product.

Reduces NPK Concentrations
The effectiveness of NBT-100 in reducing and controlling nutrient buildup has been demonstrated in a number of tests. The results of a test in a Michigan lagoon are shown in the following tables.

Nutrient Reduction in Lagoon Water

Days elapsed	Phosphorous mg/l	Potassium mg/l
0	Not tested	Not tested
22	57.2	Not tested
40	21.9	233
55	14.1	95.2

Nutrient Reduction in Lagoon Sludge

Days elapsed	Nitrogen Ammonia mg/kg dry	Nitrogen Nitrate + Nitrite mg/kg dry	Nitrogen, Total Kjeldahl mg/kg dry	Phosphorous mg/kg dry	Potassium mg/kg dry
0	2980	26.9	23500	11400	9160
22	1550	13.6	11300	6370	6200
40	1350	18.6	15000	5220	5090
55	1210	19.6	1170	4220	5300

Neutralizes NPK
The various nutrient concentrations are neutralized in several ways. These include consumption of some portions on NPK by the NBT-100 microbes, conversion to non-pollutants and release to the atmosphere, deposit in the clay lagoon liner and suspension in the lagoon water. The result is that treated lagoon water can be safely applied to fields, and PK nutrients absorbed by the lagoon clay liner may be useful as a value-added fertilize product or for other purposes. Concerns about oxygen deprivation, excessive algae growth and distasteful municipal drinking water resulting from runoff are removed.

Works at Low Temperatures
It is important to note that the test results shown above were obtained from a lagoon with temperatures below 40 °F. Even at these low temperatures, the NBT-100 microorganisms were extremely active and effective in reducing nutrient concentrations. This means that the NBT-100 benefits will be available virtually anywhere in the country that CAFO facilities are located.

The NPK nutrient buildup issue and associated health and environmental concerns common to CAFO operations can be effectively addressed by application of NBT-100. The accompanying breakdown of solids allows lagoon liquids to be more easily removed and safely used as fertilizer.