



Enviro Science Technologies

BIOLOGICAL TREATMENT FOR LIVESTOCK LAGOONS

Application/Problem:

In both discharge and closed loop lagoon systems, heavy loadings of organic wastes result in high levels of solids and odors associated with these wastes. The quantity and composition of these wastes influence the livestock and the environment as well as the overall operation of the treatment lagoons. Pumps and lines often become blacked as well, due to mineral deposits from uric salts.

Solution:

Biologically enhanced lagoon treatment products, utilizing Specific Enzyme Bacterial System contain a synergized blend of Bacillus and Pseudomonas organisms, all of which have been stabilized in a concentrated state. Each strain has been selectively adapted for accelerated degradation capabilities of waste compounds found in livestock lagoons. Biologically enhanced products improve settling by consuming TSS (Total Suspended Solids). They also reduce sludge build-up and control malodors. Biologically enhanced products will simultaneously prevent mineral deposits resulting from uric salt build-up the pump and lines.

Biological Process:

SEBS bacterial cultures provide a wide range of degradation in lagoons, effectively treating suspended solids, sludge and odors. The bacterial cultures colonize the interior walls of pumps and lines, creating a “bio-film” which prevent uric salts and other mineral deposits from accumulating. The bacteria are selectively adapted to degrade specific organic compounds found in lagoon systems.

User Market:

Livestock lagoon systems used in the control of dairy cattle, beef cattle, swine, sheep, and chicken wastes.

Culture Series/Features:

SEBS Cultures are vegetative cell product 100% alive bacteria.

- >Highly concentrated bacterial count
- >Works with PH range from 4 to 14
- >Not sensitive to wide temperature variations
- >Wide range of degradation capabilities
- >Instant odor control
- >Non-Voc Non Toxic

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- >Super activator for quick action
- >Non-polluting

Calculation:

1. Derive the pounds of waste per day (Per Animal Size) using the following data: *

Animal <u>Type</u>	Animal Size <u>In Pounds</u>	Waste Per Day <u>In Pounds</u>
Dairy Cattle	150	12
	250	20
	500	41
	1000	82
	1400	115
Beef Cattle	500	30
	750	45
	1000	60
	1250	75
Swine		
Nursery Pig	35	2.3
Growing Pig	65	4.2
Finishing Peg	150	9.8
	200	13
Poultry		
Layers	4	.21
Broilers	2	.14
Sheep	100	4
Horse	1000	45

*Source: American Society of Agricultural Engineers

2. Derive the Total Pounds of Waste Per Day (Per Lagoon) using the above table:

_____ Head of livestock x _____ pounds of waste per day = _____

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Sum Equals Total Pounds of Waste Per Day (Per Lagoon) _____

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3. Calculate the Initial Treatment of SEBS Formulated:

Use 3 gal SEBS, per million gallons of lagoon capacity. For lagoons under one million gallons. Use 1 gal SEBS as the Initial Treatment. Use your own calculations if you know them.

4. Calculate the Dosage Requirement of SEBS Formulated:

(Total Pounds of Waste Per Day (each Lagoon) divide 8.5×0.00025 = Dosage Requirement (In Pound)

Application:

Week 1:

Apply daily the Initial Treatment (From #3 above) Plus the Dosage Requirement (From #4 above) for the first week of treatment.

Week 2:

Apply daily the Dosage Requirement (From #4 above) for the second week of treatment.

Maintenance:

Apply once per week your Dosage Requirement (From #4 above).

Example $100 \text{ head} \times 100\text{lb. waste per day} \times 7 \text{ days} = 70,000 - 8.5 \times 0.00025 = 2 \text{ gal SEBS}$

For optimum results aerate the lagoon by fountain, forced air, etc.