



Expel Laboratories Procedures for Treatment of Swine Waste with Ag-Scent Bacteria.

Background:

Waste and odours emanating from swine operations is a growing concern throughout the world. Several counties within the United States are prohibiting the installation of swine rearing facilities. Those facilities that are now operating, frequently pay large fines and are often involved in litigation over these issues. The use of bacteria blended by the scientists at Expel Products to treat these problems is increasing at an enormous rate. This technical bulletin demonstrates the use of Expels Ag-Scent bacteria for successfully treating this problem.

Treatments:

A study was designed to test the utility of Ag-Scent BCC for reducing total nitrogen, total phosphate and odours emanating from swine waste. The treatments included two dose rates of Ag-Scent BCC and an untreated control. The first dosage of Ag-Scent BCC, Treatment 1, included a shock of 1.2 lb. (545g) followed by weekly treatments of 0.6 lb. (272g). Treatment 2 consisted of a 0.96 lb. (436g) initial shock treatment followed by weekly treatments of 0.16 lb. (73g). The study was conducted utilizing 19,000 gallon (72m³) manure pits. Samples were collected weekly and assayed for total nitrogen, total phosphate, and volatile fatty acids (odour).

Results:

Tables 1, 2, and 3 show the starting concentration, ending concentration, and percentage change of nitrogen, phosphate, and volatile fatty acids (odours) for each treatment at the end of the 8 week study. As demonstrated by the data in the Tables, Expels Ag-Scent bacteria significantly reduced the level of nitrogen, phosphate, and volatile fatty acids (odours) when compared to the untreated control. The conclusion was that Treatment 1, with the higher weekly rate of Expels BCC, performed better than Treatment 2. These differences are shown graphically in the corresponding graphs, Graphs 1, 2, and 3. These graphs include all of the weekly data collected throughout the 8 weeks of study and evaluation.

Summary:

This technical bulletin demonstrates the effective use of Ag-Scent BCC for the reduction of total nitrogen, total phosphate, and volatile fatty acids (odours) in swine waste. While a reduction in these parameters was seen with Treatment 2, the

Biotronics Limited

Unit 1, Moreton Farm, Moreton Eye, Leominster, HR6 0DP, UK

Telephone +44 (0)1568 612402 Fax: +44 (0)1568 616088 e-mail: sales@biotronics.net

Web: www.biotronics.net

superior performance of Treatment 1 demonstrates the importance of maintaining a high concentration of enzyme producing bacteria in the system.

Parameter	Starting Level (mg/l)	Two Month Results (mg/l)	% Decrease
Untreated Control	6438.2	6178.6	4.0
Treatment 1	6423	4602	28.4
Treatment 2	6439.1	5203.3	19.2

Table 1. The Reduction of Nitrogen in a Swine Waste Pit by Expels Ag-Scent Bacteria.

Parameter	Starting Level (mg/l)	Two Month Results (mg/l)	% Decrease
Untreated Control	848.7	772.3	9.0
Treatment 1	846.3	444.8	47.4
Treatment 2	849.3	624.7	26.4

Table 2. The Reduction of Phosphate in a Swine Waste Pit by Expels Ag-Scent Bacteria.

Parameter	Starting Level (mg/l)	Two Month Results (mg/l)	% Decrease
Untreated Control	190.6	176.3	7.5
Treatment 1	144.1	30.6	78.8
Treatment 2	181.3	64.7	64.3

Table 3. The Reduction of Volatile Fatty Acids (Odours) in a Swine Waste Pit by Expels Ag-Scent Bacteria.