# Digest-it® proves its worth at Kingshay

Kingshay, the UK's leading source of independent research for dairy farmers, has recently concluded a trial in which 8 commercially available slurry additives were evaluated for their ability to enhance slurry fertiliser nutrient status, reduce crusting and modify bacterial activity. Bio Ag's Digest-it was one of the slurry additives to be tested over a 12 week period in a replicated, controlled environment trial. The experimental design involved slurry from Bridge Farm being well mixed and added to 60 litre drums, which then received an appropriate dose of the slurry additive. Thereafter, 1 litre of slurry was added at weekly intervals, together with the additive, in an attempt to simulate farm practice. Slurry samples were taken for analysis from each drum at the 4, 8 and 12 week stages.

At the end of the trial, the Total Nitrogen % of the Digest-it treated slurry was significantly higher ($p<0.05$) compared with the untreated control slurry (Figure 1). At the 12 week stage Total Nitrogen averaged 9% higher for the Digest-it treatment compared to control.

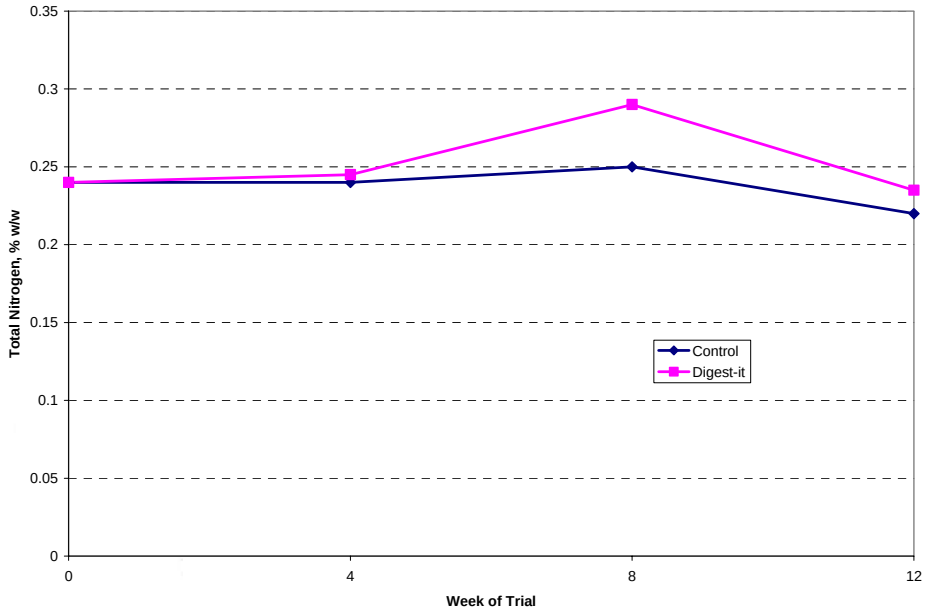


Figure 1. Total Nitrogen percentage of the Digest-it treated slurry compared with control. Kingshay Slurry Additive Trial 2011.

Total Nitrogen % peaked at the 8 week analysis with Digest-it producing a 17% improvement against control. However, the differences were only statistically significant for the final measurements at 12 weeks.

Within the Nitrogen fraction the Total NH4 content increased by an average of 9% ($p<0.05$) compared to control at the 12 week stage. Total NH4 tended to follow the Total N trends, which meant the Organic N fraction also increased in a proportionate manner. This fraction is related to microbial-N, which represents a more sustainable N supply compared with the more immediately available NH4 fraction.

This pattern is supported by the observation that the positive composting Aerobic bacteria had increased on the Digest-it treatment by between 27 and 34%, dependent on the Total Viable Count analysis, compared to Control. Indeed, Aerobic bacterial counts for the 1 day incubation at 37°C were significantly higher ($p<0.05$) for

Digest-it at the 12 week stage. The ability of Digest-it to transform slurry from a putrid Anaerobic condition to an Aerobic composting state is crucial to the capture of Nitrogen and conversion into useful available forms for plant growth.

Slurry crust measurements were also made and while the Digest-it treatment reported a 12%-14% decrease in crust depth, shear and weight, these differences were not significant from the control treatment.

In summary, this replicated trial conducted under experimental conditions has reported the following improvements in the Digest-it treated slurry at the 12 week termination of the trial.

| | Slurry Treatment | | | |
|---|---|---|---|---|
| **Parameter** | **Control** | **Digest-it** | **Difference %** | |
| Total Nitrogen % | 0.217 | 0.237 | +9.2 | (p<0.05) |
| NH4 Nitrogen % | 0.132 | 0.144 | +9.1 | (p<0.05) |
| Organic Nitrogen % | 0.085 | 0.093 | +9.4 | NS |
| | | | | |
| TVC Aerobic Bacteria (5 days 22°C) cfu/gx$10^6$ | 10.33 | 13.07 | +26.5 | NS |
| TVC Aerobic Bacteria (1 day 37°C) cfu/gx$10^6$ | 8.20 | 11.00 | +34.1 | (p<0.05) |
| | | | | |
| Slurry Crust Depth (cm) | 11.83 | 10.33 | -12.7 | NS |
| Slurry Crust Shear (K Pa) | 2.48 | 2.12 | -14.5 | NS |
| Slurry Crust Weight (kg) | 16.61 | 14.58 | -12.2 | NS |

**Digest-it has demonstrated its capability of improving Nitrogen supply from slurry, based on a significant increase in Aerobic bacterial activity, which was also apparent in a marked reduction in crusting after 12 weeks of treatment.**

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