

Compost Teas – 3 Year Trial Report

First year (2015) results appeared to show a big yield increase but it was not statistically significant. This was partly due to a number of trial errors and no replication. Despite this, there was a tentative increase in the total soil fungal biomass.

In 2016 a more scientific trial was set up with replicates which showed a slight but not statistically significant yield increase. Some of this was due to an increase in bushel weight of the oats. Grain analysis showed a reduction in *Michodochoum Nivali* infection, a fusarium species which is a seed borne pathogen- it is significant as a cause of seedling blight in newly planted crops. The levels found were much lower than those found on the seeds bought in for planting on the farm. In conventional farming, seed treatments are commonly used to control this.

In 2017 greater scientific robustness was given with 12 replicated strips in 2 fields, including further analysis of both the brew and soil. Although not statistically significant, there was an upward trend in active bacteria in soil samples over time compared with the control, and a slight increase in fungal levels. All analysis from Cranfield University which involved phospholipid fatty acid analysis, substrate induced respiration, and microbial Biomass showed a lack of statistical response to compost tea application. However, analysis did show that the brewer was multiplying bacteria but reducing fungi. It was also felt that the brew was weak which has raised questions about the brewing technique, water, compost and sprayer.

Sophie Alexander explained that her view was that all farms need to do some experimentation, and her initial capital investment was for that purpose. In 2015 the cost of compost and catalyst was £18.82 per hectare, which reduced to £11.32 in 2017 when she used her own compost this required a 3% yield increase to justify. Her view was that this was less than compost for the whole farm would cost, and compost tea can cover a much larger area than spreading compost, however the compost tea was only as good as the compost it is made from.

Compost tea analysis had showed that there was no change to the microbiology from passing through the sprayer but the cleaning process, particularly the water usage, made it unviable. The sprayer was a contractor's and his investment in a new one meant that the trial would not continue at this site.

There were also questions raised about whether there was no response because the soil was already at optimum levels, but also whether there would be different responses where different levels of soil organic matter were found such as where compost, digestate, cover-crops or non-inversion techniques were used- this could be worth further study. The other area of interest would be where compost tea is used in a fungicidal capacity, to see if the reduction in Fusarium shown in 2016 was due to the compost tea application. Reducing late season ear disease, or reducing the need for a seed

treatment would have longer term benefits.

Innovative Farmers, a not for profit network that gives farmers research support and funding to trial their ideas. The network is part of the Duchy Future Farming Programme, funded by the Prince of Wales's Charitable Foundation through the sales of Waitrose Duchy Organic products. It is backed by a team from LEAF (Linking Environment and Farming), Innovation for Agriculture, the Organic Research Centre and the Soil Association.

