

Brighton ChaMP Foliar N Trial

Project aim

In 2018, the Brighton ChaMP Project began working with Agrovital, Bodle Bros and BD Harris Farm Trust to trial the use of foliar-applied nitrogen (N) through a product called Efficie-N-t 28. The aim is to test whether a foliar-applied N product can;

- 1) Improve nitrogen use efficiency
- 2) Reduce nitrate leaching through the soil profile
- 3) Be financially viable for the farm.

Location of trial plots

A field near Truleigh Hill, north of Shoreham, was selected and a grade 3 milling wheat was grown under four fertiliser programmes.



Monitoring

The crop has been monitored using:

- Spring and autumn soil mineral nitrogen (SMN)
- Yield and grain quality
- Crop tissue testing
- Aerial photography
- Porous pots (underway - results available spring 2020)

The crop was harvested on 11th August and the first set of results are now in!

Results

Plot number	1	2	3	4
Type of application	2 granular; 4 foliar	2 granular; 3 foliar	3 granular	3 granular; 1 foliar
Total N applied (kg N/ha)	136.5	148.5	213.8	177.6
Nitrogen use efficiency*	76.76	74.34	52.07	57.42
Yield (t/ha)	10.48	11.04	11.13	10.20
10.7% milling protein achieved?	No	Yes	Yes	Yes
Gross margin incl fert costs (£/ha)	£1,373.50	£1,545.60**	£1,581.05	£1,434.27
Difference between spring & autumn SMN results (kg available N/ha)	43.98	28.8	3.5	1.6

*Nitrogen use efficiency = kg grain/ha divided by kg N applied/ha

**Adjusted to reflect less field operations required compared to other plots

Key messages and next steps

- 1) **Nitrogen use efficiency** (NUE) was higher on plots receiving increased foliar N applications.
- 2) **Nitrate leaching** potential may be higher on plots receiving increased foliar N applications, evidenced by higher post-harvest SMN. Porous pot monitoring is underway to measure nitrate leaching from these plots this winter.
- 3) **A financial review** highlighted that the plot receiving purely granular N applications had the lowest cost of production. Plots receiving increasing foliar N applications had increased production costs.

The trial will be continued over next year's growing season to help to account for uncontrolled variables

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