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**Project manager & report author: Susie Roques**

*Susie Roques*

Farm location: West Sussex  
Crop: Winter wheat  
Trial type: L-CBF Boost

Variety: Skyfall  
Previous crop: Winter wheat

This trial was part of the AICC Crop Nutrition Club 2023, which has been run in conjunction with the Farm-PEP project led by ADAS. This report contains the results of a winter wheat trial testing the benefits of L-CBF Boost, a 'liquid carbon fertiliser' product from QLF.

## Treatments

	1. Field standard	2. FS + L-CBF Boost	2. FS + L-CBF Boost -10% N	2. FS + L-CBF Boost -20% N
Potashplus	217 kg/ha across all treatments			
N split 1 (urea)	60 kg N/ha across all treatments			
N split 2 (AN)	90 kg N/ha across all treatments			
N split 3 (N37)	81	81	54	27
N split 4 (AN)	40 kg N/ha across all treatments			
N split 5 (Nufol)	30 kg N/ha across all treatments			
Total N (kg/ha)	301	301	274	247

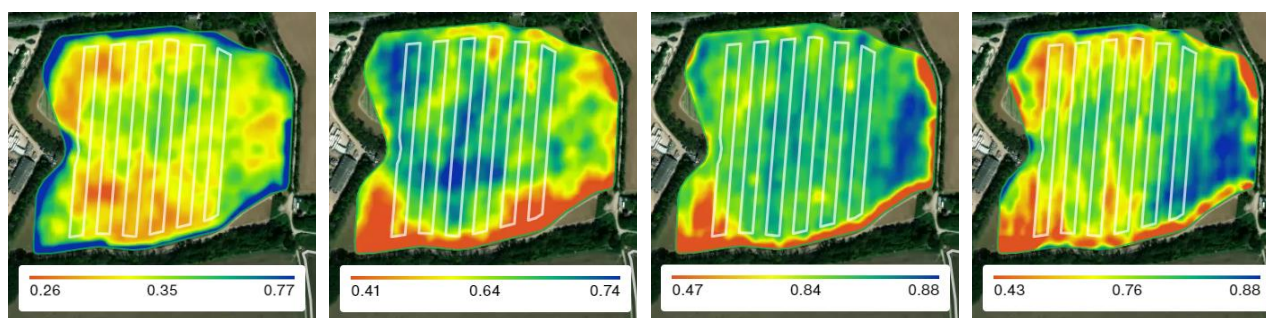


Three applications of 20 l/ha L-CBF Boost (at GS22, GS29 and GS32) were applied to six tramlines, alternating across the field. Differential N rates were then applied by varying the liquid N applied at the third N split.

## Satellite imagery

NDVI (normalized difference vegetation index) is a spectral reflectance index which shows a combination of canopy size and greenness, on a scale from 0 to 1. NDVI images were sourced from [www.datafarming.com.au](http://www.datafarming.com.au), based on freely available 10m resolution data from the Sentinel 2 satellites. The scale varies between images but always runs from red (low) through orange, yellow and green to blue (high). The availability of imagery is constrained by the need for cloudless conditions.

The underlying variation in the field mainly ran across the tramlines, so should not have affected the fairness of the treatment comparison. There were no visible differences in NDVI caused by the treatments.



Previous crop  
15 Jul 2022

Early spring  
11 Jan 2023

After all applications  
13 May 2023

Late season  
25 June 2023

## Yield results

The average measured yield of the control treatment was **11.50 t/ha**, according to weighbridge results.

The addition of L-CBF Boost made negligible difference to yield (**0.01 t/ha** reduction relative to the control).

Within the three L-CBF Boost treatments, N reductions then reduced yield by **0.18 t/ha** and **0.78 t/ha**, for 10% and 20% reductions in N rate respectively. At current grain and fertiliser prices (January 2024), the best gross margin was probably achieved at the 10% reduced N rate.

## Grain quality

L-CBF Boost is marketed as improving the availability and use efficiency of nutrients including N, P and K, by stimulating soil microbes. However, grain analysis did not show any benefits from L-CBF Boost, and grain N was reduced as might be expected in the reduced N treatments.

Treatment	Yield t/ha	Grain nutrient concentration											
		N %	P %	K %	S %	Mg %	N:S ratio	Cu mg/kg	Mn mg/kg	Zn mg/kg	B mg/kg	Ca %	Fe mg/kg
1 Farm standard	11.50	2.05	0.319	0.479	0.12	0.097	17.1	3.56	33.7	19.4	0.75	0.045	36.0
2 L-CBF Boost at std N	11.49	1.96	0.286	0.447	0.11	0.092	17.8	3.92	31.2	17.5	0.78	0.043	31.7
3 L-CBF Boost -10%N	11.32	1.83	0.282	0.448	0.10	0.089	18.3	3.66	30.0	16.2	0.77	0.042	30.1
4 L-CBF Boost -20%N	10.82	1.80	0.287	0.457	0.10	0.090	18.0	3.44	27.6	15.0	0.74	0.044	31.3

## Future trials

The trial was well placed in an even field; any future trial should seek to use similarly even fields, or fields where the variation runs across the tramlines to affect all treatments equally. The treatment replication was a good addition to the trial, but it would have been helpful to weigh the two replicate tramlines of each treatment separately, to give greater confidence in the yield results.