ADAS document ref: 1021801-13 (00)
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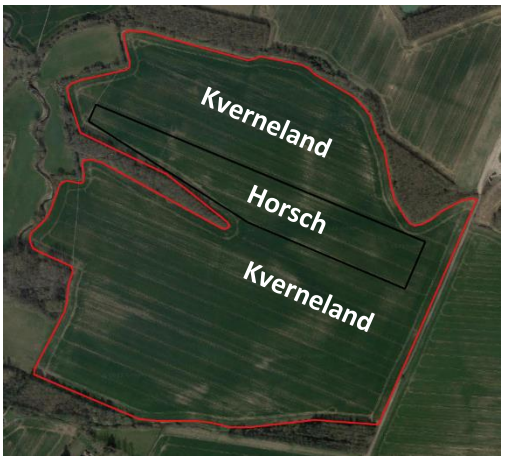
Farm location: Essex

Trial type: Drill comparison
Crop: Spring barley

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 spring barley trial testing the effects of using two different drills.



Treatments

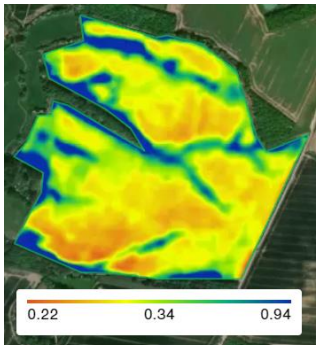
1. Kverneland TS Evo drill
2. Horsch Sprinter drill

The trial occurred in the northern portion of the field: one block was drilled using the Horsch Sprinter and the surrounding field using a Kverneland TS Evo drill.

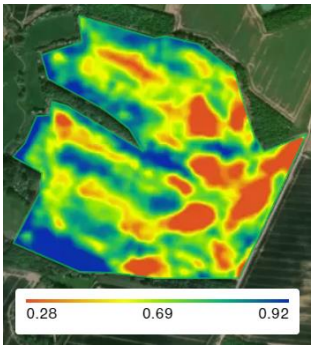
Satellite imagery

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, 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.

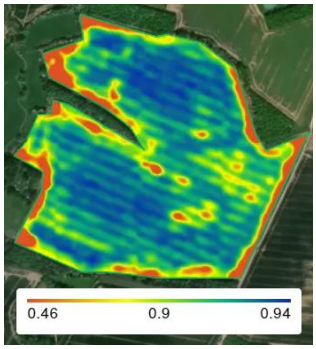
Prior to trial initiation, there was patchy variation in the field probably related to soil water availability, but this variation was not confounded with the treatment area. There were no visible differences in NDVI between treatments.



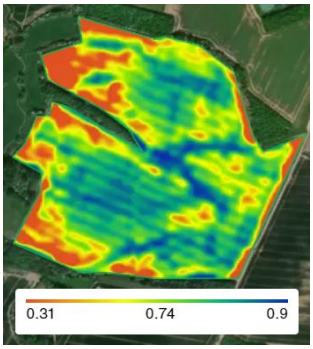
NDVI previous season (10 Jun 2022)



NDVI early season (04 Nov 2022)



NDVI late-season (26 May)



NDVI pre-harvest (26 June)

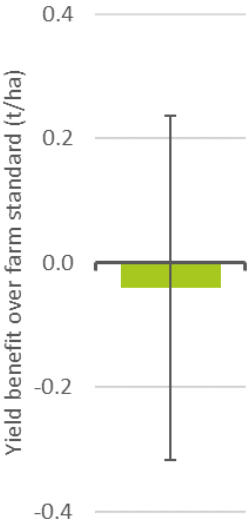
Agronomics analysis

The yield data were analysed using the ADAS Agronomics approach. First the data were cleaned to remove headlands, anomalous combine runs (header not full or spanning two treatment areas), runs close to or on treatment boundaries, and locally extreme data points, and to correct any offset created by changes in combine direction. Then a model of underlying variation was applied to the data to account for spatial variation across rows and along rows, and for the effect of the treatment. The statistical analysis led to estimates of the treatment effects and the associated standard errors. Thus, subject to the assumptions of the underlying statistical model, it was possible to calculate 95% confidence limits for the yield effects and the % probability that the yield effect was greater than any chosen threshold.

Yield results

The average measured yield of the area drilled with the Kverneland TS Evo drill was **7.79 t/ha**, according to yield map data. This is likely to be a little higher than the true average due to the exclusion of headlands from the analysis.

Using the Agronomics analysis to fit a statistical model to the data, we estimate that the Horsch Sprinter drill decreased yield by **0.04 t/ha ± 0.28 t/ha** (95% confidence interval), relative to the Kverneland TS Evo drill. However, measured yield values do vary across a field even when the same treatment is applied everywhere; the bounds of the confidence intervals indicate that, according to the underlying statistical model, the estimated effects could easily have been the result of this unexplained variation.



Error bar shows 95% confidence interval