

BIOMASS BASED FERTILISER PLANNING PAYS OFF

A Warwickshire father and son farming partnership is reaping the benefits of satellite data in nutrient applications. Jeremy Gibbs found out more.

“He hasn’t put enough on, surely” was the first response from John Evans, the father of a Warwickshire based farming partnership after his son and business partner of Evans of Grange Farm, Rugby, returned with half a trailer load of nitrogen after using the satellite based biomass system from My Data Plant (MDP).

On the 625ha farm near Rugby, Evans of Grange Farm are taking stock of the fertiliser saving they experienced in 2019 after using a variable rate system based on the actual plant biomass in the field. Contracting an additional 280ha means the family run business needs to have a sharp eye on margins and an opportunity to improve these is always welcome.

EXTERNAL SUPPORT

After discussions with technology consultant Jonathan Edwards of Farol Ltd, Henry Evans was keen to put the MDP biomass system to the test by adjusting nitrogen applications on part of their



Technology consultant Jonathan Edwards of Farol Ltd explained the process of utilising My Data Plant as part of a move to using more precision farming tools at Grange Farm, Grandborough, Rugby.

wheat crop. The normal farm rotation consists of barley, oilseed rape and first wheats but recent challenges around oilseed rape production have forced the farm to look at alternatives such as peas and winter beans. Henry is keen to use innovative tools and more precision farming solutions to support the sustainable use of inputs

FARM FACTS:



**EVANS OF GRANGE FARM,
RUGBY, WARKS**

AREA: 625_{ha}

PLUS 290ha OF CONTRACTING



CROPPING:

BARLEY, OILSEED RAPE, FIRST WHEATS,
PEAS & WINTER BEANS



APPLICATION EQUIPMENT:

KUHN AXIS 40.1 VR SPREADER

SPLIT FARM TRIAL

In 2019 Henry and his father John decided to split the farm in half and use a traditional nutrient planning approach on one half and the biomass based variable rate on the other. "On the wheat, I put 50kg on first, followed by a second 50kg and a final hit of 120kg a total of 220kg N," says Henry. The N calculator on the tool kept a record of what we were adding. By clicking on the field I could see what had been done. The tool keeps a record of the applications and this provides visibility for ACCS compliance." As the fertiliser savings became apparent concerns began to arise that not enough had been applied or there was a problem, but by working closely with their agronomist the partnership soon realised this wasn't the case and the plants had the right amount of nutrition.

John recalls the findings from the first trial: "The traditional old school approach would have been a mental calculation of the field area x 4.5 - 5 bags per acre, which for that field is 200 bags. I'd go off up the field and I'd put the amount on a trailer thinking well, that will do that 40 acres, and Henry would come back with half of it. I thought 'he hasn't put enough on!' Working with different units of measurement added complexity to the field calculations, but by using the online MDP portal record keeping and planning was easier than in the past, helping save time and administration in the office."



Henry Evans from H. J. Evans partnership of Grange Farm was impressed not only by the fertiliser saving but also the time saved by utilising wireless data transfer of shape files and maps to the spreading tractor

and benefit the environment as part of their farming strategy. Despite past experiences of variable rate not going to plan, Henry embraced the satellite based system and began creating boundaries online in the MDP portal. The software application is provided by Kleffmann Digital Agrisolutions and provides processed satellite imagery which can then be used to create a fertiliser plan.

Weekly satellite images are reprocessed to a 5m x 5m resolution and combine a number of indices EVI (Enhanced Vegetation Index), NDVI (Normalised Difference Vegetation Index), REIP (Fertiliser Response Index) - to show a variance in crop vitality.

The fertiliser plan can then be adjusted and tailored to each field by changing the number of variable rate zones and defining a mean rate / variance threshold to ensure plants receive enough nutrients.

Case Study

USB FREE

"When spreading in the morning I was spending half an hour the night before putting data on a USB stick. Now all I have to do is convert a shape file in the morning, find the field and I'm away," explains Henry. While farmers can be sceptical of cloud-based solutions, suggests Henry, switching to this system of data transfer didn't prove an issue.

"Ease of use and time saved thanks to simplified uploading to machines, helping save considerable time each day." The My Data Plant export shape files can be linked to farm management software and other connective

systems, to wirelessly link prescription maps to machine control panels.



APPLICATION HARDWARE

At Grange Farm, the fertiliser is applied with a Kuhn Axis 40.1 with a Quantron controller, the variable rate is controlled via a JD 2630 display on a John Deere 6930 tractor. There is a JD Field Doc connect harness fitted which enables the 2630 display to take control of the rate and feed the data into the Quantron spreader controller.

The Evans family started out by purchasing the traditionally calculated amount of fertiliser they expected to need. "With a larger acreage of peas and beans last year, some fertiliser savings were realised, but in the end we were left with nearly 100 tonnes of nitrogen in the

shed, and that represents a lot of money" says John.



The Kuhn Axis 40.1 with variable rate functionality ensured the 5m x 5m variable rate maps were applied precisely, helping support the fertiliser saving

PLANT ANALYSIS CROSS REFERENCE

Plant analysis via an N-Sensor leaf tester confirmed the crop didn't need more fertiliser and this was certified by sending tissue samples to be lab tested, helping build confidence in the MDP system, and the decision to move to a satellite based variable rate planning tool. My Data Plant isn't necessarily about saving fertiliser but more about supporting a fertiliser strategy to apply less or more to the weaker parts of the crop and manage crop variability proactively though a needs-based approach.

YIELD CONFIRMATION

The final test was evaluating yield versus expectation. John and Henry were pleased to see that even with a fertiliser saving the crop performed as expected and margins are improving. "This saving of inputs will help the long term business resilience to uncertain times such as the wet autumn of 2019, meaning moving to a variable rate system can help the business in more ways than one by freeing up capital to invest in new technology or having a buffer in cash flow," suggests Henry.