

## 3000H On Combine Analyser ... Push your paddock to its fullest potential

### Case Study 012: How to turn Yield and Protein maps into Variable Rate Fertilization prescriptions

#### Introduction:

Interpreting yield maps to generate Variable Rate Fertilization prescriptions has proven to be difficult for many farmers. A major limitation is that Yield maps do not tell the entire story of how Nitrogen has been utilized by the crop. Protein maps add a layer of information that provides the complete story on Nitrogen utilization and availability across the field.

Figure 1.0 shows a Yield/Protein optimization curve where yield and protein are optimized based on the nitrogen applied (reference GRDC Report - Yield and Protein relationships in Wheat, Neil Fettell, Rohan Brill, Matthew Gardner and Guy McMullen). Low protein zones indicate a sub optimal yield response due to limited nitrogen availability.

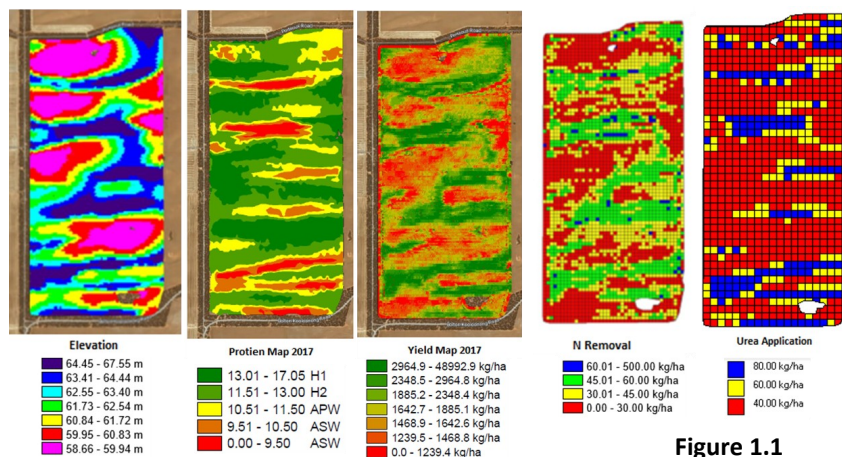
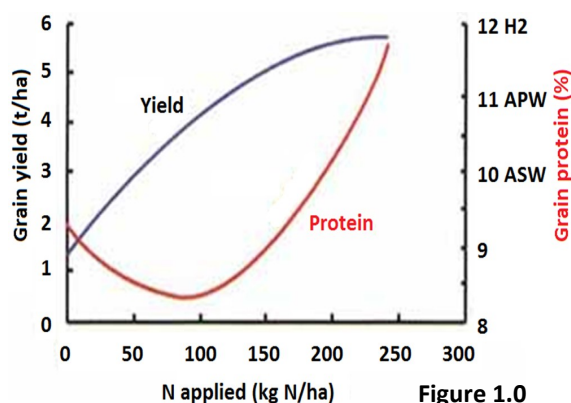


Figure 1.1

Post harvest Leeton uploaded the Protein and moisture files and the yield data from the combine into the AFS Desktop Software. Elevation, yield, protein, Nitrogen Removal maps were generated as shown in Figure 1.1.

The Elevation map shows that this field has a series of sandy ridges. The Protein map shows that the protein levels are lowest on the top of the ridges. The Yield map shows that the high yield areas of the field produced the lowest protein.

#### Results:

Based on the 2017 maps, Leeton has determined three zones in the field whereby he can apply Nitrogen in the form of Urea at rates related to the amount of Nitrogen removed from the field.

#### Urea Application (kg/ha)

- Blue Zone:** Protein < 10.5 = 80 kg
- Yellow Zone:** Protein < 11.5 = 60 kg
- Red Zone:** Protein < 13.0 = 40 kg

Leeton's objectives are to use this simple VRF strategy to top dress his fields so that he can increase his yield and protein payments.

This case study shows how Leeton Ryan, Woomelang, Vic used the Model 3000H On Combine Analyser to generate Protein, Yield, and Nitrogen Removal maps from 2017 harvest and then develop VRF applications for the 2018 crop.

#### Description:

The Model 3000H Grain Analyser was fitted to Leeton Ryan's CaseIH 8240 combine in the 2016. The 3000H records a protein, moisture and oil, along with the longitude and latitude every 8-12 seconds as the combine strips the grain. The yield data is collected by the on board yield monitor.