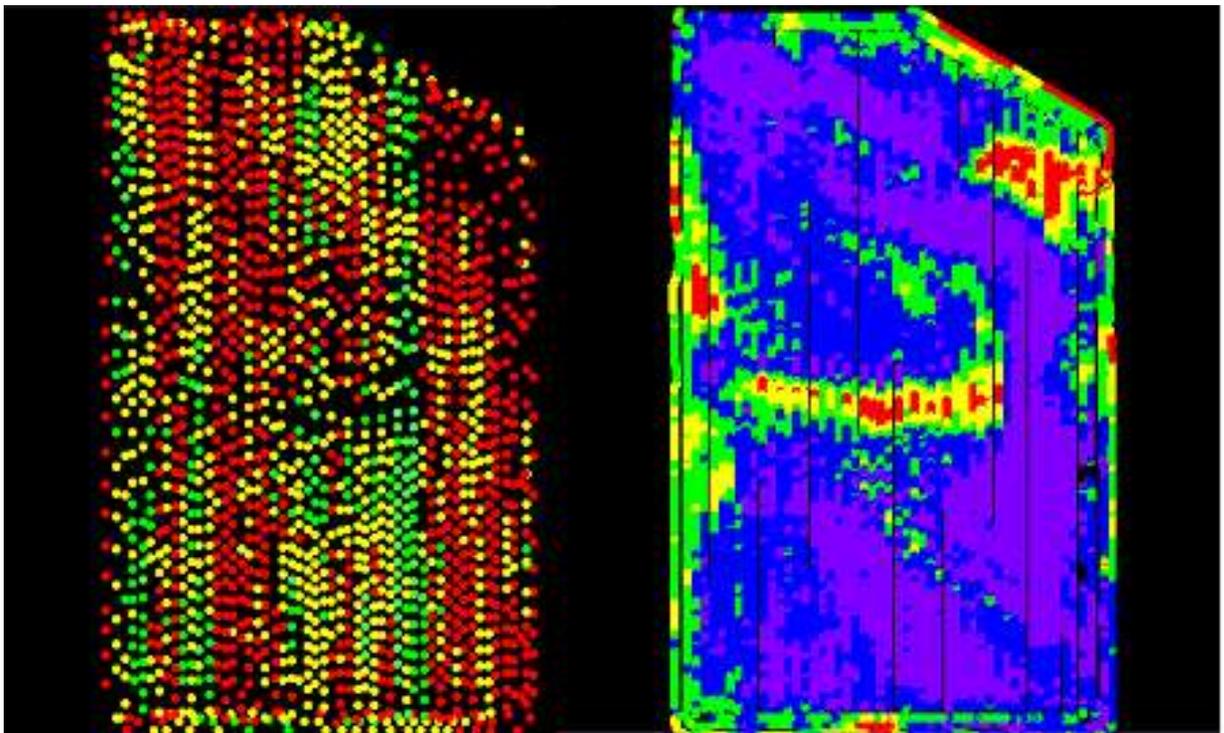# Benefits of using an On Combine Analyser:

o Monitor grain quality at a high spatial density

The Model 3000H provides data at approximately every 17meters down the paddock. In comparison to taking 5 in field samples and analysing them using a benchtop NIR, the Model 3000H provides a comprehensive picture of what is happening across the paddock.

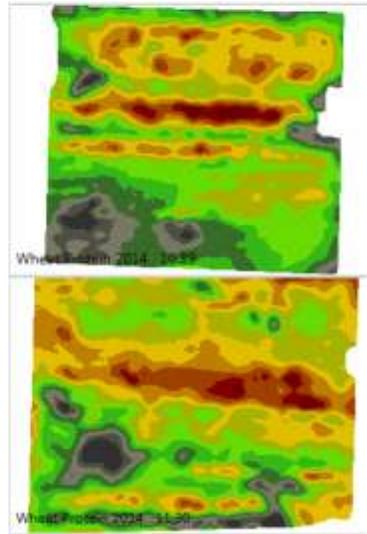Protein Map   Yield Map

o **Differential harvesting and storage based on quality**

The fastest return on investment from using the Model 3000H comes from in paddock segregation of crops. Either by differentially harvesting the paddock, ie, harvesting sections of high protein grain in order to blend with low protein grain and thereby capture a price increase by moving to the next grade, or using the bin average to direct loads into separate storage locations in order to capture the best quality grains and to blend post harvest.

Return on Investment

Ashley Wakefield, Tintara, Urania, SA

- Paddocks 221A & 221B
- Total area 185ha
- Average Yield = 4.5t/ha =832.5t
- Top Half of each paddock was reading below 10.5% protein
- Bottom half of paddock was reading above 10.5% protein
- By blending we delivered 17 out of 18 truck loads as APW grade over ASW
- Increased Profit by blending:
- = $6900 $37.29/ha

o   Protein, Moisture and Yield maps enable creation of true site specific gross margin maps

By creating a Gross Margin Map of paddocks, then farmers can see if they are making money or losing money across their paddocks. There maybe sections of the paddock where the margin is negative. This may lead to some corrective action or to changes in the paddock boundaries or cropping schedules.

o   Nitrogen removal maps to be used in mass balance fertiliser requirement calculations

Using a simple formula: Nitrogen Removed = Yield * Protein% * 17% Nitrogen/Protein
A Nitrogen Removal Map can be created from a Protein Map and Yield Map. Understanding that at the minimum, the same amount of Nitrogen that has been removed from the soil needs to replenished using fertilizer, allows the farmer to develop a Variable Nitrogen Fertilization program for next year. The possible savings in using VNF over blanket fertilization are between 5 and 30% depending on the paddock.

o   Overlaying Protein and Yield maps with other data for better diagnostic insights into availability and uptake of Nitrogen
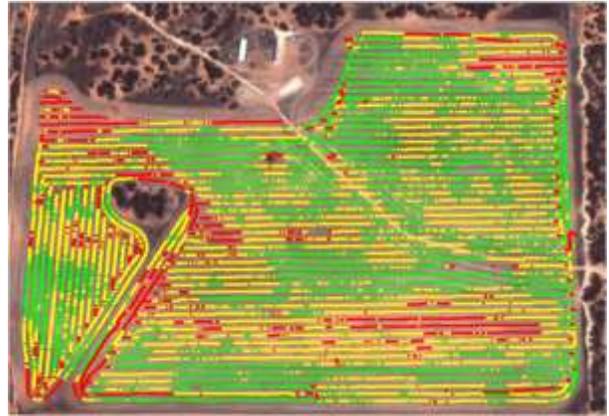
The Dilution Theory suggests that if the Yield is high then the Protein will be low. This may not always be the case and soil and moisture may be the limiting factors rather than Nitrogen availability. By overlaying the Protein and Yield Maps and computing a Correlation Map and a Significance Map, then a simple Green, Red and Blue Zones can be identified. Green is where additional fertilizer will probably not result in significantly higher yields and protein. Red is where additional Nitrogen should realize an increase in both protein and yield. And Blue is where there are other problems effecting the crop, ie, soil, pH, moisture.
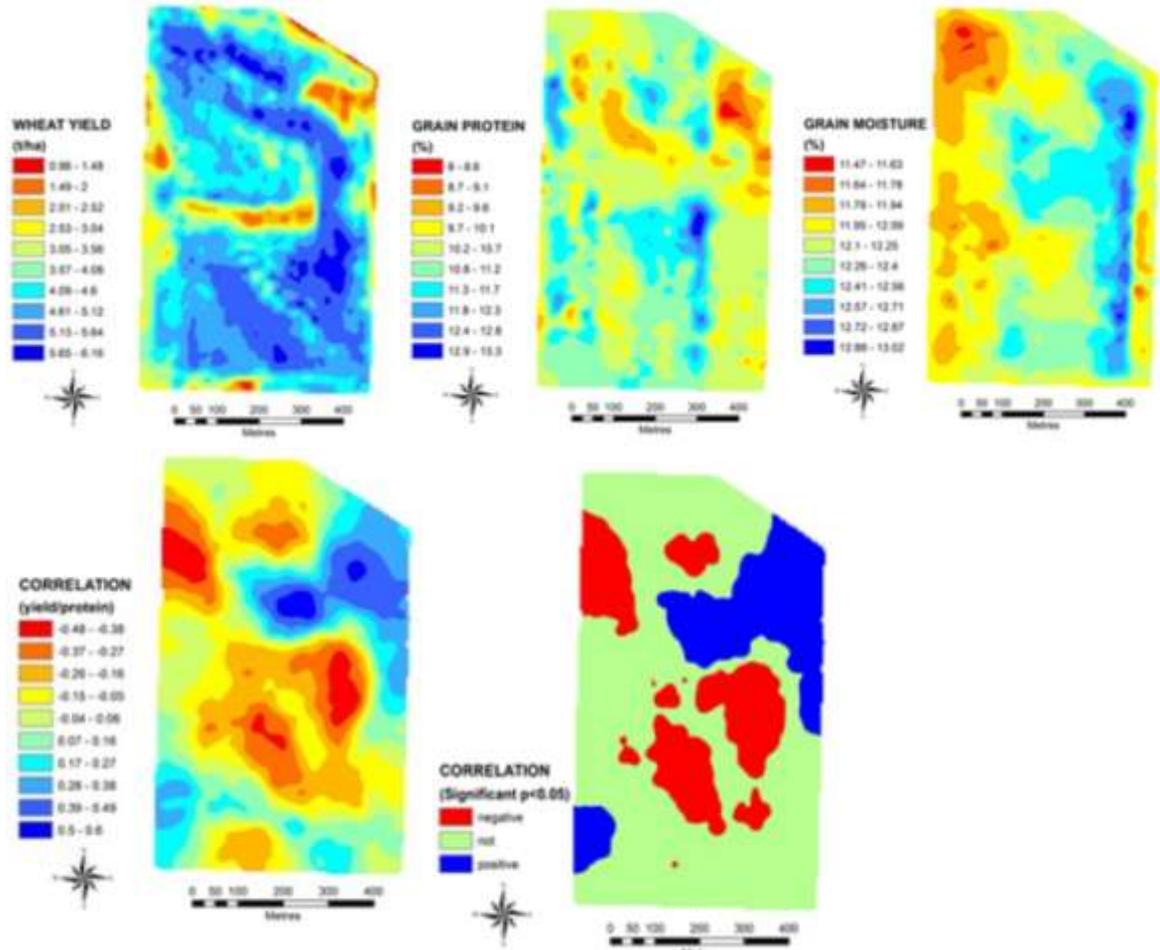
- o Full impact of N trials and VRF applications can be measured

  Many farmers run field strip trials for Nitrogen, Phosphorous, Sulphur and other nutrient. The Model 3000H can provide data which can show the real impact and effects of the strip trials. By combining the Yield and Protein data, the farmer can quantify the benefits of making changes to their fertilization plans or even the varieties of seed they plant.
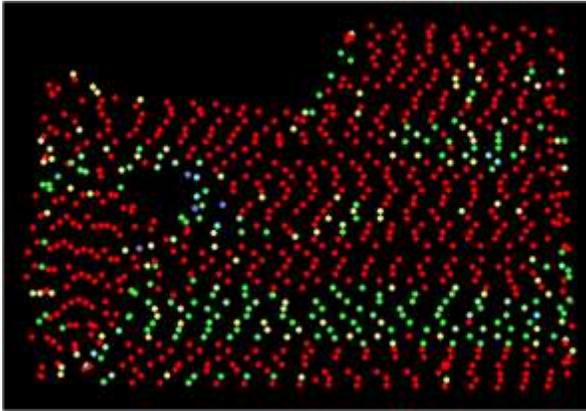
CropScan 3000H Protein Paddock Map   Yield Map

The Protein Map shows a green strip is where additional fertilizer was laid. The Yield Map shows that the additional fertilizer reduce yield .