3000H On Combine Analyser

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Urea Equalisation using the previous year's Protein Maps

Introduction:

Chris and Broden Holland, Young, NSW, have developed a practical way of creating a Variable Rate Nitrogen Fertilization program to use on their farm. After collecting Yield data for 20 years and not knowing what to do with it, the Hollands found that in the second year after they installed a "Protein Meter" on their combine, the Protein maps just made sense. They found that they could look at the Protein maps and understand what was going on in their fields. Using "Gut feel" more than complex calculations, they developed a simple formula to "Essentially give low Protein areas more urea and higher Protein areas less urea, thus aiming to even the Protein." This case study provides the data that led Chris and Broden to realisation.

Description:

Figure 1 shows three fields across their farm. The average Protein and Yield for each field are shown. Broden asks the question; "3 fields, similar Yields but differing Proteins. Would you treat next years Urea application with the same blanket rate or with this information use differing Urea rates?"

Figure 1

Figure 2 shows the same fields but overlayed with the Protein maps from the 2017 harvest. Note the high variation in Protein. The colours show the same variation as in figure 1. but now we have the same variation within each field. Now that you can see this variation, would you apply Urea differently? Would you apply Urea using a Variable Rate prescription?

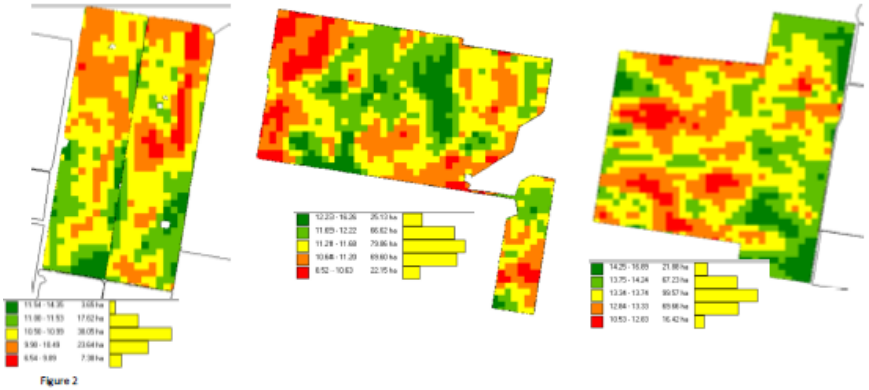

Figure 2

Figure 3. shows the Urea application rates that the Hollands decided upon based on the 2017 Protein maps for these fields. Figure 4. shows the simple formula. The Urea formulas are based on the Protein ranges. The ranges can be changed simply or the average can be adjusted to change the ranges automatically after creating a map.

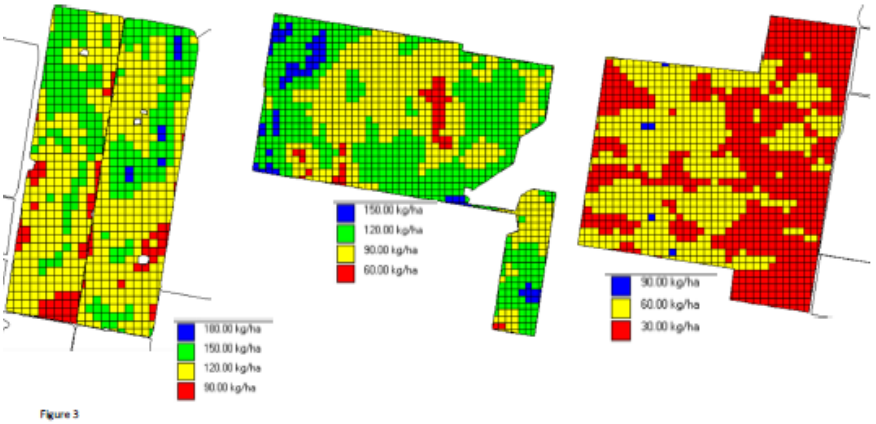

Figure 3

This is a simple and effective way of using the data and maximizing Urea inputs to improve low Protein areas and mining higher Protein areas. The objective was to achieve a more consistent field average Protein between 11.5 and 12%, or whatever Protein average the grower wants to achieve, but with less variability.

Urea equalisation formula used in AFS software (> = greater than)	Urea equalisation formula (> = greater than)
Protein > 13.5 ? 30 :	Protein > 13.5 = 30 kg urea/ha
Protein > 12.5 ? 60 :	Protein > 12.5 = 60 kg urea/ha
Protein > 11.5 ? 90 :	Protein > 11.5 = 90 kg urea/ha
Protein > 10.5 ? 120 :	Protein > 10.5 = 120 kg urea/ha
Protein > 9.5 ? 150 :	Protein > 9.5 = 150 kg urea/ha
Protein > 8.5 ? 180 :180	Protein > 8.5 = 180 kg urea/ha

Figure 4

Next Instruments Pty Ltd
B1 366 Edgar Street, Condell Park, NSW, 2200, Australia
Tel: 612 9771 5444 Email; sales@nextinstruments.net Web: www.nextinstruments.net