In field segregation of wheat generates significant profit for a Kaniva, Vic, based farmer.

Jonathan Dyer operates a 2800 ha family farm in Kaniva Victoria where they grow bread wheat, durum and canola, along with rotation crops such as lentils and chick peas. In 2016, the Dyers upgraded their CropScan 1000G On Farm NIR grain analyser to the CropScan 1000H On Combine Analyser. The original CropScan 1000G was returned to Next Instruments for the upgrade which included new electronics, a Fiber Optic Cable, Remote Sampling Head and a Touch Screen PC. The CropScan 1000H was installed into one of their two John Deere S680 combines.

Jonathan Dyer, a Nuffield Scholar, is a passionate PA practitioner. He set out to use the new instrumentation to generate paddock maps for protein in order to better evaluate the performance of his crops. However once the CropScan 1000H started to generate real-time protein maps on the screen, he could see how much the protein varied across the paddocks.

Jonathan identified the high protein wheat was grown in low lying areas where there had been some frost and the soil was heavier clay, (Figure 1). The protein % in the blue and green areas varied from 11.5 to 16% with an average yield of 4t/ha. The yellow and red areas varied in protein content from 9.5 to 11.5%, but with an average yield of 6t/ha.

The Dyers run 2 John Deere combines, so they used one combine to strip the areas where the protein was low, ie, less than 11.5%. The other combine, which had the CropScan 1000H installed, stripped the high protein areas. The chaser bin used as a means of blending the wheat by alternatively sending the chaser bin to collect the wheat from each combine
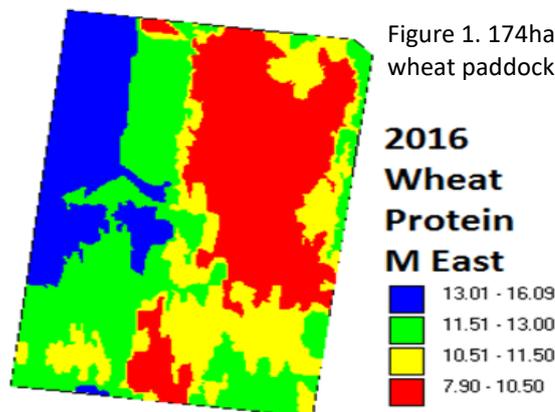

Figure 1. 174ha wheat paddock

Jnathan commented "successful in-paddock grain blending needs good information and good communication between the harvest team."

Blending for Profit:

Figure 1 shows the protein map for a 174ha paddock which produced 800t of wheat for a yield of 4.6t/ha. Table 1. shows the computation of the increase in revenues generated from this paddock by blending as compared to stripping the wheat back and forth.

If there was no in field blending, then the Dyers would have delivered 350t as ASW at $180/t, 200t as APW at $210/t, 200t as H2 at $230/t and 50t as H1 at $240/t. The total revenues would have been $163,000 for this paddock. However by blending the wheat in the field, the Dyers were able to decrease the ASW and APW graded wheat and dramatically increase the H2 grade to 600t. The net result was an additional $12500 in revenues from this one paddock.

Jonathan commented that he has never made an equipment purchase that had such an immediate return on investment. Although he could not expect to realize the same return across all his paddocks, the CropScan 1000H made a 7.0% difference to their bottom line.

Table. 1. Revenue calculations with an without blending.

	If sold as harvested				Blended		
Grade	ASW	APW	H2	H1	ASW	APW	H2
Tonnes	350t	200t	200t	50t	150t	50t	600t
Price	$180	$210	$230	$240	$180	$210	$230
Return	$63,000	$42,000	$46,000	$12,000	$27,000	$10,500	$138,000
Total return	$163,000				$175,500		
% increase	+7%						