



## Agronomy Solutions Ltd



### CASE STUDY

May 2011.

**Paddock Name:** Canterbury DD

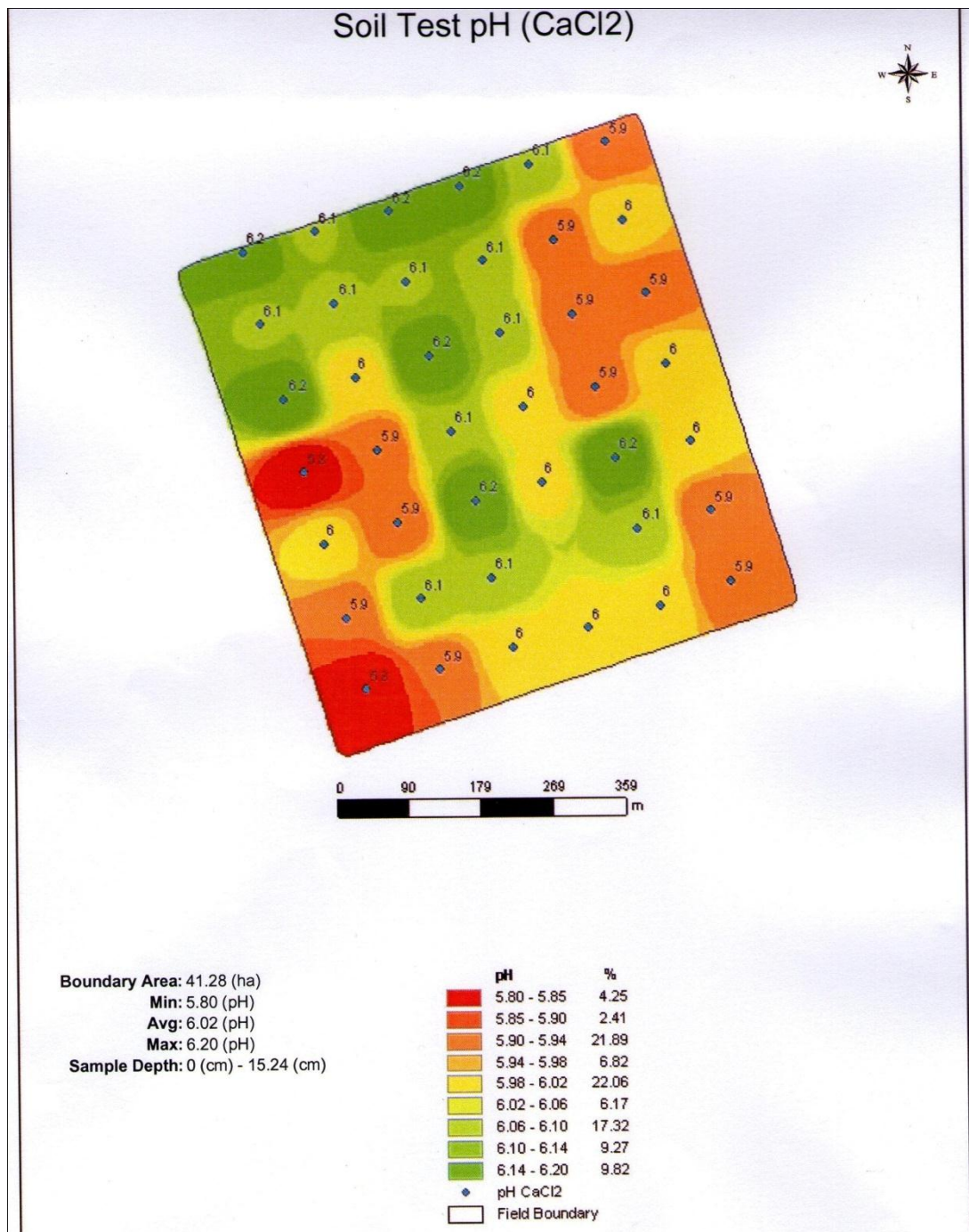
#### Standard Fertiliser Test Results

Paddock Details	Date	Test Type	PH	Olsen P	K (MAFF units)	Mg (MAFF units)
Canterbury DD	19/4/10	Lab A	5.5	35	11	8
	23/6/08	Lab A	6.0	28	11	9
	20/3/07	Lab A	5.8	39	19	11

The above results are those received using the standard NZ practise of one soil test per paddock over a 4 year period.

The first thing to note is variation in ph of 3 soil tests over a 4 year period without any lime being applied in this time. With this information, it raised concern over relying on a single test to make decisions. Therefore the decision was made to test the field on a grid pattern to fully investigate the ph status of the field.

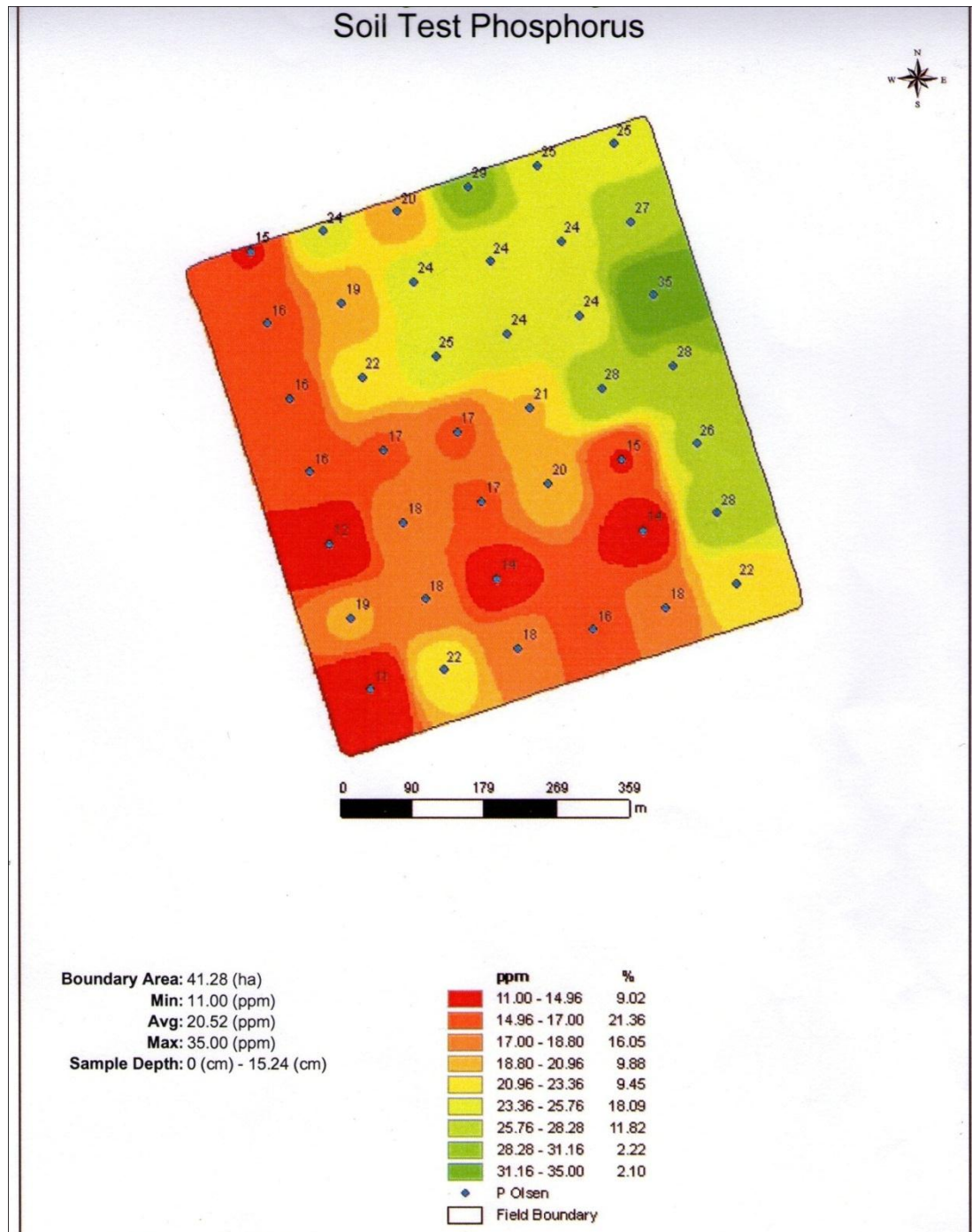
In 2010 the same paddock was tested using Precision Nutrient Management, and samples were analysed at the exact same laboratory as they were for the standard test. The results showed considerable differences to the previous tests that had been taken for the whole paddock, rather than per hectare.



## Lime

If we used the standard result for liming. With a pH of 5.5 in 2010 this would indicate that we needed to use 6 Tonnes Lime per Hectare = 240 Tonnes to give us a required pH of 6.1 (potatoes in rotation).

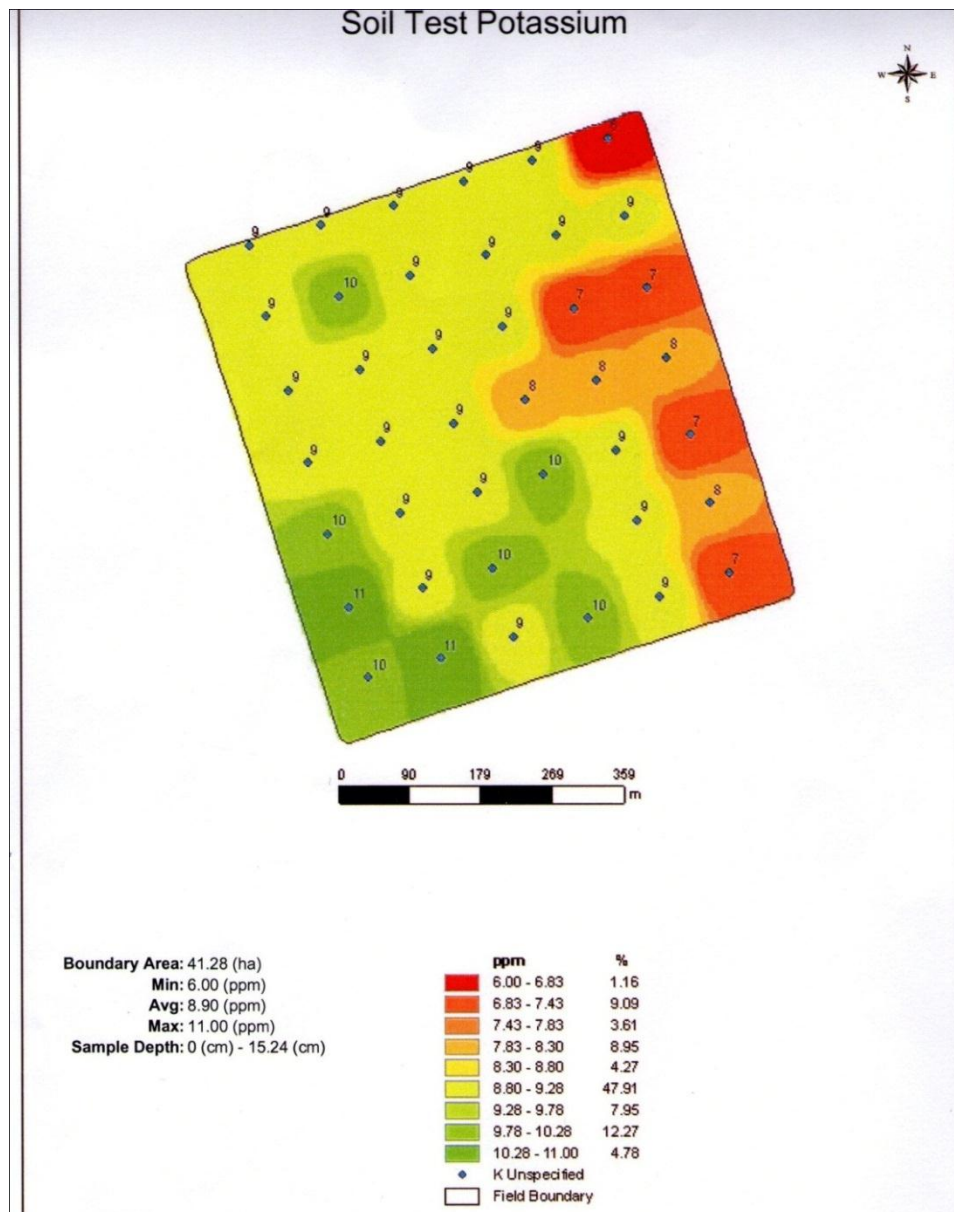
The Precision Nutrient Management results using a Variable Rate application per hectare show that we actually only need to spread a total of 14 Tonnes, averaging just 350kg per Hectare, to get the paddock to 6.1.



## Phosphate

The standard test results show a level of 35 indicating that no Phosphate would be required for a cereal crop. If this result was acted upon and no phosphate applied, then any hectare on that map reading below 20 would be yield limiting and below 15 would be seriously yield limiting. The details on the map show that 9% would be in the seriously yield limiting zone and 37% of the paddock would perform below expectations. Also phosphate levels within the soil would drop away further.

However, because the Precision Nutrient Management results show a much wider variance across the paddock it required an average application of 268kg/Ha to bring it to a suitable level for maximum plant growth.



## Potassium

The red area is where centre pivot overlaps on occasions between paddocks, resulting in higher crop off-take and possibly higher leaching of potassium. There is a dry land corner in the South West of the field and crop off-take would be less, resulting in a build-up of potassium in the soil pool, leaching of nutrient would also be less in this area. Based on this information with the precision nutrient spreading the lower areas would require more fertiliser and the areas of less production would end up getting less fertiliser applied.

Standard soil test result shows that the paddock is MAFF unit 11, which is slightly low to medium. This means an application of 20kg/Ha K or 40 kg/Ha KCL is required for a wheat crop. Total of: 1.6T Kcl

After Precision Nutrient Management testing it was determined that the paddock would benefit from an average application rate of 40kg/Ha (83Kg ha KCL). This would give the areas of lower fertility the opportunity to fully perform without over fertilising areas that have yield limitations.