PLANT TISSUE RECOMMENDATION REPORT

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Purchase Order:	PRDP1303

Grower Name:	Jim Laycock	**Paddock Name:**	KA16-0265A-211-1	**Sample Name:**	30/11/2016 Grenfell Wheat A
Sample Number:	021806737			**Sampling Date:**	22/02/2017
Crop:	WHEAT			**Variety:**	
Plant Appearance:				**Symptoms On:**	
Expected Yield:	2 t/ha			**Expected Protein %:**	10.5
Plant Growth Stage:				**Plant Part Sampled:**	Grain/seed

Advisor Comments

Nutrient status - Nutrient status is supplied for each analyte where referenced data is available. The nutritional status of grain should be used in conjunction with soil and leaf tissue testing to assist in diagnosing nutritional issues. A low grain nutrient status does not necessarily mean the supply of that nutrient to the crop has been low. High yielding crops can cause dilution of nutrients in the grain, therefore recommendations on fertiliser applications or estimates on soil nutritional statuses should not be formulated based on grain samples only.

1000 grain weight - 1000 grain weight is a measure used to determine seed sowing rates. Target plants/m2 is determined by seed sowing rate (kg/ha) that is influenced by 1000 grain weight and germination percentage. To calculate sowing rate the following formula can be used : Desired number of plants/m2 X 1000 grain weight / Germination Percentage

Nutrient Removal - Nutrient removal is based on the nutrient concentration multiplied out to a 1 t/ha yield. Based on the samples paddock of origin yield this number can be further calculated to reflect total removal from that paddock. eg. P removal based on 1 t/ha = 3.2 kgP/ha X 4 t/ha yield = 12.8 kgP/ha removed. Consideration of sampling requires an understanding of spatial variation across paddocks that will lead to different nutrient concentrations, as well as yield variations that ultimately dictate total nutrient removal. Well considered sampling of grain in conjunction with yield can assist in closing nutrient budgets in a nutrient maintenance phase. Regular soil testing forms the basis of firstly, establishing and capital, maintenance or run down nutrient program, and secondly to closely monitor any changes over time that an adopted program maybe having of soil nutrient levels.

Advisor Comments

Seed Phosphorus Content - The benefits to seedling growth of a high seed P content include a greater rate of emergence and larger area of the youngest leaves. The early establishment of a greater leaf area will have cumulative effects on later absolute growth rates, given equivalent relative growth rates. Similarly, the greater root length of seedlings from seed produced at higher P will allow the seedling to acquire more P (and other nutrients) from both soil and fertiliser sources. Root extension rate is a major determinant of plant uptake of soil P (deMarco 1990).

P wheat seed content of > 180ug P/seed would be considered optimal, 130-180ug P/seed marginal and <130ug P/seed very low.

Seed Zinc Content - Early establishment (3 weeks) is impacted by adequate wheat seed zinc content. High zinc content seed has better root and shoot growth in early development, and if supplemented with zinc fertiliser requires a lower rate compared to low wheat seed zinc content . Higher seed zinc improves vegetative growth, especially where plant available zinc in the soil is limited. Sowing seed with high zinc content can potentially overcome problems of insufficient zinc fertilisation as well as spatial and temporal variability in zinc availability. These benefits of growing plants from the high zinc seed are carried throughout the growing period and are measurable as better grain yield (Rengal and Graham 1995)

Zn wheat seed content of >500 ng Zn/seed would be considered optimal.

Conversion Factors

For wheat grain:

Grain Protein % = N% x 5.7

For all other grains:

Grain Protein % = N% x 6.2

PLANT TISSUE ANALYSIS REPORT

Grower Name:	Jim Laycock	**Paddock Name:**	KA16-0265A-211-1	**Sample Name:**	30/11/2016 Grenfell Wheat A
Sample Number:	021806737	**Test code:**	G1	**Sampling Date:**	22/02/2017

Analyte	Unit	Value	Optimum	Low	Adequate	High
Total Nitrogen	%	2.10				
Phosphorus	%	0.25	> 0.5			
Potassium	%	0.42	> 0.53			
Sulphur	%	0.14	> 0.18			
Calcium	%	0.02				
Magnesium	%	0.11				
Sodium	%	<0.01	0.005 - 0.08			
Copper	mg/kg	3.3	> 1.0			
Zinc	mg/kg	18.0	> 20			
Manganese	mg/kg	48.0	15 - 18			
Iron	mg/kg	24.0	> 2.0			
Boron	mg/kg	<1.0	0 - 2			
Dry Matter	%	93.6				
Moisture	%	6.4				
1000 Grain Weight	g/1000 seeds	36.0				
Seed Weight (average)	g	0.036				
Seed Zinc Content	ng Zn/seed	650.0	> 500			
Seed Phosphorus Content	ug P/seed	90.0	> 180			
Phosphorus Removed per 1 t/ha Yield	kg/ha	2.30				
Potassium Removed per 1 t/ha Yield	kg/ha	3.90				
Sulfur Removed per 1 t/ha Yield	kg/ha	1.30				
Calcium Removed per 1 t/ha Yield	kg/ha	0.14				
Magnesium Removed per 1 t/ha Yield	kg/ha	1.00				
Manganese Removed per 1 t/ha Yield	g/ha	45.00				
Iron Removed per 1 t/ha Yield	g/ha	23.00				
Copper Removed per 1 t/ha Yield	g/ha	3.10				
Zinc Removed per 1 t/ha Yield	g/ha	17.00				
Boron Removed per 1 t/ha Yield	g/ha	0.94				

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PLANT TISSUE ANALYSIS REPORT

Grower Name:	Jim Laycock	**Paddock Name:**	KA16-0265A-211-1	**Sample Name:**	30/11/2016 Grenfell Wheat A
Sample Number:	021806737	**Test code:**	G1	**Sampling Date:**	22/02/2017

The results in this report pertain only to the sample submitted. Analyses performed on soil dried at 40°C and ground to 2mm or less, excluding moisture tests, or as otherwise indicated. Analyses performed on plant dried at 70°C and ground to 1mm or less, excluding moisture tests, or as otherwise indicated. Water analyses performed on an 'as received' basis. Analytical results reported by the laboratory as 'less than' the level of reporting, will be deemed by NA Pro as being equivalent to the level of reporting for both calculation and interpretive purposes. This document shall not be reproduced except in full.