

## Proline® Fungicide on Spring Wheat – Small Plot Research Trials

### Purpose:

To evaluate the impact of Proline® fungicide on spring wheat yield and grain quality under a replicated small plot environment.

### Methods:

The trial was located at the Winchester Farm of the Kemptville Campus, University of Guelph. Two rates of Proline® fungicide were compared to an untreated check. Treatments were as follows:

1. Untreated check
2. Proline® low rate (128 mL/a)
3. Proline® high rate (170 mL/a)

All treatments were applied with Agral 90 @ 1.25 L/1000 L to Sable spring wheat on July 4<sup>th</sup>, 2009 at Day 4 (Day 0 is when 75% of the wheat heads are fully emerged). All treatments were replicated 8 times.

### Results:

Yield response to Proline® was 7.67 bu/acre for the high rate treatment and 6.33 bu/acre for the low rate treatment. Yield differences were significant between the treated and the untreated plots, but there was no significant yield difference between the two rates of Proline® (Table 1), despite the small numerical yield gain in the high rate treatment. The percentage of Fusarium Damaged Kernels (FDK) in the grain sample was reduced by an average of 5.45 points or 35% with Proline® fungicide treatments.

**Table 1 - Yield and FDK Response to Proline® application on spring wheat**

Treatments	Yield (Bu/acre)	Percent FDK
Untreated check	60.08 b <sup>1</sup>	15.47
Proline® low rate	66.41 a	10.50
Proline® high rate	67.75 a	9.54

<sup>1</sup>Means in a column followed by the same letter are not significantly different. p=0.1, cv 4.70

### Summary:

2009 received above normal rainfall from the end of June through early August, which favoured leaf diseases and the development of Fusarium Head Blight (FHB). Table 1 gives the yield and FDK ratings for the three treatments under a replicated small plot environment. There was a yield increase of 7.0 bu/ac or 11.7% on average where Proline® fungicide was applied as compared to the untreated check. In 2009, on average the yield impact of applying Proline® under a small plot environment was about 2 bu/ac

greater than when Proline® was applied on a similar field scale plot. This is likely the result of the greater wheat stand uniformity in the small plot environment.

In the grain samples, the amount of FDK was lowered by 5.45 percentage points or 35% by the Proline® fungicide treatments, as compared to the untreated check. Proline® was effective in reducing the FDK levels in the grain sample. However, given the initially high FDK levels in the samples (15.47% in the untreated check), the application of Proline® did not reduce FDK levels enough for the treated wheat samples to make food grade (grade 3 or better at a maximum of 1.5% FDK).

At the current food grade market price of approximately \$ 5.00 per bushel for spring wheat, a yield advantage of 7.0 bu/ac would generate an additional \$35 per acre. The combined fungicide plus application cost is approximately \$36 per acre for Proline® low rate and \$45 per acre for Proline® high rate. With most 90 foot boom sprayers, wheat trampling losses are about 2.6% when applying a fungicide after heading. On a 65 bu/acre crop this represents a 1.7 bu/ac yield loss. At \$5.00 per bushel for spring wheat, trampling adds \$8.50 per acre to the treatment cost.

**Next Steps:**

Note that the above results are based on only one year's data. Proline® fungicide is still a relatively new product available to spring wheat growers. Plans are to continue the project and include additional fungicides treatments.

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**Location of Project Final Report:**