Folicur and Headline Impacts on Wheat

Purpose:

To evaluate the benefit of applying Folicur fungicide alone on winter wheat in Ontario. To further evaluate the use of half rate (80 ml) Headline fungicide applied at weed control timing followed by Folicur at Fusarium timing.

Methods:

Folicur was applied to winter wheat at the recommended rate in field length strip trials over a four year period. Timing was targeted at the Fusarium control window, between Day 1 and Day 4 (Day 0 is when 75% of the heads have fully emerged above the flag leaf). In other plots, Headline fungicide was applied at ½ the full label rate (80 ml/ac applied) followed by Folicur application at Fusarium timing.

Results:

The 2006 results for Folicur alone are listed in Table 1 below. 2006 was not a Fusarium year, thus the average response would be expected to be lower than during a Fusarium outbreak. This outcome is supported by Table 2, the 4 year summary data, where the response in 2005 and 2006 (little Fusarium pressure years) is lower than in 2003 (significant Fusarium pressure). While 2006 was not a Fusarium year, rust was a much larger concern than in past years. There is some concern that the race of leaf rust may have shifted to overcome the tolerance of some varieties, notably Vienna and FT Wonder. This has not been confirmed to date, but undoubtedly more rust was evident at an earlier stage on these varieties, often resulting in very significant yield responses to applied fungicides.

The results are surprisingly consistent. In 2006, Folicur application increased yield in 79% of the trials, a consistent trend over the 4 years of the project. Over the 4 years of the trials, Folicur application improved yield in 75 to 80% of the trials. However, at an average 5.4 bu/ac yield increase, Folicur is not a guaranteed payback. Using $21.50/acre as a cost of product plus application, a grower would need to sell his wheat for more than $4.00/bu in order for the Folicur application to be profitable, on an average basis. This does not factor into account any increase in grade that might occur under a Fusarium outbreak. In 2003, Folicur application improved the grade in 1/3 of the trials. This impacts profitability tremendously, often increasing price by $30 to $50/tonne. In these cases Folicur would prove extremely profitable!

Table 1: 2006 Folicur Trials

Location	Folicur	No Folicur
	Yield (bu/ac)	
Perth	121.9	119.2
Perth	126.3	115.3
Huron	97.4	96.8
Huron	83.3	80.5
Middlesex	116.4	104.1
Middlesex	101.7	101.8
Middlesex	121.2	118.8
Middlesex	123.8	113.3
Perth	116.3	117.0
Middlesex	95.3	94.6
Middlesex	94.7	91.0
Lambton	100.2	103.3
Huron	94.4	93.7
Huron	92.3	90.2
Lambton	106.2	89.7
Lambton	90.5	79.4
Elgin	103.8	103.9
Kent	101.5	97.9
Middlesex	111.4	104.5
Wellington	95.0	87.0
Wellington	109.8	104.3
Middlesex	111.4	108.3
Lambton	77.5	79.2
Lambton	102.0	99.0
Average	**103.9**	**99.7**

Table 2: 2003-2006 Folicur Summary

Year	# Trials	Check	Folicur	Gain
		Yield (bu/ac)		
2003	27	93.8	101.4	8.1
2004	29	83.0	89.6	6.6
2005	23	85.4	88.2	2.8
2006	24	99.7	103.9	4.2
03-06	**103**	**90.3**	**95.7**	**5.4**

The second part of this trial included investigating ½ rate Headline applied with the herbicide, to limit disease development prior to Folicur application. The results are presented in Table 3. On average, yields increased by 1.9 bu/ac. This project will need to be continued in the future to have enough trials to determine if this practice is of real value or not.

Table 3: 2006 Headline plus Folicur

Location	Headline	No Headline
	Yield (bu/ac)	
Lambton	100.0	89.0
Lambton	105.0	106.0
Elgin	85.5	91.5
Middlesex	106.3	104.8
Middlesex	118.5	120.0
Middlesex	115.4	107.5
Middlesex	91.1	89.8
Average	**103.1**	**101.2**

Summary: Over 4 years and 103 trials, Folicur applications increased winter wheat yields an average of 5.4 bu/ac, increasing yield 78% of the time. An initial look at ½ rate Headline applied with the herbicide, followed by Folicur at Fusarium timing, further increased yield 1.9 bu/ac, but only showed yield increase in 4 out of 7 trials. In both cases, profitability is based on the price the wheat crop is sold. When wheat is above $4.00/bu, fungicide applications are generally profitable. The exception is under Fusarium pressure, where Folicur applications showed a grade increase in the crop 1/3 of the time. In these situations, Folicur applications will greatly increase profitability.

Where growers have contracted winter wheat well above $4.00/bu, a Folicur application would be a prudent management inputs. Headline applications at herbicide timing require further study. However, on years with very low disease pressure (i.e.: 2005), growers must recognize that they will not get payback from fungicide application. Unfortunately, it is nearly impossible to forecast when these conditions will occur. When weather appears to be holding in a hot, dry pattern, growers should forgo fungicide applications.

Next Steps: Further trials are required to assess the impact of ½ rate Headline applied with the herbicide. The new Fusarium fungicide Proline needs to be evaluated in field trials if it achieves registered status in time.

Acknowledgements: Many thanks to all the co-operators, the Middlesex Soil and Crop Improvement Association, the Ontario Wheat Producers Marketing Board, BASF the Chemical Company, Bayer, Pioneer Hi-Bred Ltd, and a special thanks to all our student prodigy's over the years of this project.

Project Contacts:

Peter Johnson, OMAFRA, peter.johnson@ontario.ca , 519 271 8180

Location of Project Final Report:

Peter Johnson