3.2.2 BARLEY FUNGICIDE SYSTEMS TRIAL – NUFARM (INVERLEIGH, VIC)

Abstract:
The unusually dry and hot seasonal conditions in October impacted on both the development of barley disease and the final barley yields. Both Impact In furrow ® and Bumper ® appeared to provide varying degrees of visual control of the barley disease scald. The yield of the barley variety Gairdner appeared to react to disease pressure more than Baudin, with the most likely reason being the longer growing season of Gairdner and the date of sowing of the two varieties. Nufarm's Fungicide systems program will continue to analyze the affect of different fungicides on wheat and barley varieties to determine the most strategic fungicide regime.

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Location: Inverleigh SFS trial site
Growing Season Rainfall (April-Nov): 388 mm
Harvested: 15/12/2004
Sowing Date: 29/06/2004
Variety: Gairdner, Baudin

Fertilizer:
100kg/ha Granulock CuZn at sowing and 100kg/ha Urea (46kg/ha N) at GS32.

Foliar Fungicide Application:
Gas propelled hand spray unit. Water rate 105L/ha.
2 Bar pressure, Twinjet TG60 110-02VS nozzles.

Fungicide:
500ml/ha Bumper + 0.2% oil applied at 28/09 (Z31) and 14/10 (Z39-49) Impact treated fertilizer was placed 2cm below the seed.

Background/Objectives:
- To test responses of barley to a range of fungicide disease control regimes using two different timings of the foliar fungicide Bumper and the in-furrow fertilizer treatment Impact.
- To determine which fungicide strategies are optimum for use on barley
- To compare the responsiveness of various barley varieties to different fungicide regimes

Methodology:
The trial was sown on raised beds. A randomized block design with 4 replicates.

Table 1: Treatment List

Trt No	Variety	Seed Trt	At Planting	Z31	Z39-49
1	Baudin	Vincit C	Impact 400ml	NA	NA
2	Baudin	Vincit C	NA	Bumper 500ml	NA
3	Baudin	Vincit C	NA	NA	Bumper 500ml
4	Baudin	Vincit C	NA	Bumper 500ml	Bumper 500ml
5	Baudin	Vincit C	Impact 400ml	Bumper 500ml	NA
6	Baudin	Vincit C	Impact 400ml	NA	Bumper 500ml
7	Baudin	Vincit C	Impact 400ml	Bumper 500ml	Bumper 500ml
8	Gairdner	Vincit C	NA	NA	NA
9	Gairdner	Vincit C	NA	Bumper 500ml	NA
10	Gairdner	Vincit C	NA	NA	Bumper 500ml
11	Gairdner	Vincit C	NA	Bumper 500ml	Bumper 500ml
12	Gairdner	Vincit C	Impact 400ml	Bumper 500ml	NA
13	Gairdner	Vincit C	Impact 400ml	NA	Bumper 500ml
14	Gairdner	Vincit C	Impact 400ml	Bumper 500ml	Bumper 500ml
15	Baudin	Vincit C	NA	NA	NA
16	Gairdner	Vincit C	NA	NA	NA

Discussion:

Table 3 gives the yield results for each treatment for cv Gairdner. Treatment 14 was significantly higher yielding than all other treatments. Impact at sowing with Bumper 500ml applied at Z31 (Treatment 12) was significantly better yielding than the same treatment without the Impact applied at sowing (Treatment 9). Impact applied at sowing did not show any significant effect when Bumper was applied at GS39 (treatments 13 and 10).

Table 4 indicates that there was no significant yield differences between treatments for the variety Baudin. This may be due to the fact that the later maturing Gairdner may have had more time for the disease to develop compared to the earlier maturing Baudin.

The application of the fertilizer treatment Impact In furrow, suggests that there was a visual effect on the level of disease early and late in the season. The Impact fertilizer treatments and the first (Z32) application of Bumper provided sound control of scald (Table 2). The application of Bumper at the Z32 timing generally provided slightly better scald control. The additional Bumper treatments at Z39-Z40 with Impact In furrow or Bumper at Z32, generally provided an increased level of scald control.

While disease ratings showed a reasonable level of scald present, the hot dry period in October reduced the development of the disease and impacted on barley yield.

Table 2: AOV Table for % Scald Disease Assessment

	Assessed 14/09/2004			Assessed 15/11/2004		
Trt.	**Leaf 1 % Scald control**	**Leaf 2 % Scald control**	**Leaf 3 % Scald control**	**Flag % Scald control**	**Leaf 2 % Scald Control**	**Leaf 3 % Scald Control**
1	0 a	0.8 a	4 a	1.5 bc	11 bc	40 bc
2	0 a	1.6 a	2 a	1.8 bc	2.5 bc	11 e
3	0 a	0.4 a	3 a	0.9 c	14 bc	55 ab
4	0 a	0.7 a	4 a	0.5 c	3.4 bc	15 de
5	0 a	0.4 a	4 a	0.6 c	1.8 bc	8.2 e
6	0 a	0.6 a	3 a	0.4 c	5 bc	36 bcd
7	0 a	1 a	3 a	0 c	0.7 c	2.1 e
8	0 a	0.5 a	3 a	0.8 c	3.5 bc	6.2 e
9	0 a	0.6 a	4 a	0.5 c	4 bc	8.3 e
10	0 a	0.6 a	3 a	1.2 bc	3.8 bc	18 de
11	0 a	0.8 a	2 a	0 c	1.2 bc	2.8 e
12	0 a	0.4 a	2 a	0 c	2 bc	2 e
13	0 a	1.6 a	5 a	0.4 c	1.9 bc	11 e
14	0 a	1.6 a	4 a	0 c	0.2 c	1.4 e
15	0 a	0.9 a	4 a	3.5 ab	37 a	73 a
16	0 a	1.4 a	3 a	4.5 a	15 b	33 cd
F- Test	**1**	**0.1946**	**0.5804**	**0.0103**	**0.0001**	**0.0001**
LSD (5%)	**0**	**1.1**	**2.58**	**2.26**	**11.98**	**19.23**
CV	**0**	**76.18**	**46.11**	**130.89**	**107.58**	**56.98**

Notes:
Mean followed by same letter do not significantly differ (P=.05, Duncan's New MRT)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 3: AOV Table for Gairdner Yield

Treatment	Yield t/ha			
14	4.107	I		
11	3.873		I	
12	3.824		I	
10	3.764		I	I
13	3.758		I	I
8	3.702		I	I
16	3.676		I	I
9	3.584			I
LSD (5%)	0.214			
CV	5.15			

Table 4: AOV Table for Baudin Yield

Treatment	Yield t/ha			
2	3.947	I	.	.
1	3.865	I	.	.
6	3.824	I	.	.
7	3.802	I	.	.
5	3.800	I	.	.
4	3.791	I	.	.
15	3.671	I	.	.
3	3.649	I	.	.
LSD (5%)	0.445			
CV	6.6			