

New fungicide options in barley

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Key Findings:

- Disease pressure in the trial was low however, there were measurable differences in SFNB and scald for all treatments compared to the control.
- Systiva (seed treatment) provided similar control compared to all in-season applied foliar fungicides.

Why do the trial?

In previous seasons net form net blotch (NFNB) and spot form net blotch (SFNB) have been difficult to control on some barley varieties. Changes in net blotch strains overcoming cultivar resistance, larger plantings of susceptible cultivars and earlier times of sowing have all helped to elevate the importance of controlling these diseases.

Recently, BASF introduced the SDHI fluxapyroxad fungicide as the seed treatment Systiva® for the control of both NFNB and SFNB. Research has shown this product has the potential to replace the first fungicide timing (generally GS30-31) as this seed treatment has systemic activity and good persistence on foliar disease.

The aim of this trial was to demonstrate newly available fungicide products in comparison to existing standards.

How was it done?

Plot size	1.75 m x 8.0 m	Fertiliser	DAP (18:20) + Zn 2% @ 100 kg/ha
Seeding date	27 th May 2015		

Charger barley was the cultivar selected for this trial (VS and SVS for net form and spot form net blotch respectively) and was sown into a stubble from Commander barley in 2014. The trial was a randomised complete block design with 3 replicates and 10 fungicide treatments (Table 1). Herbicides were applied as necessary to keep the crop canopy free of weeds. All plots were assessed for SFNB infection (October 1st 2015) and selected plots for leaf scald (September 25th 2015).

Table 1. Summary of all fungicide treatment including product name, active ingredient, group and barley growth stage when applied.

	Product and rate	Active ingredient / Group*	Growth stage
1	Nil		
2	Systiva @ 150 mL/100 kg seed	Fluxapyroxad (group 7)	Seeding
3	Systiva @ 150 mL/100 kg seed + Tilt foliar application 0.5 L/ha	Fluxapyroxad (group 7) + propiconazole (group 3)	Seeding + GS49
4	Tilt foliar application 0.5 L/ha	Propiconazole (group 3)	GS31
5	Tilt foliar application 0.5 L/ha	Propiconazole (group 3)	GS31 + GS49
6	Tazer Xpert 1.0 L/ha	Azoxystrobin (group 11)	GS31
7	Experimental 750 mL/ha	-	GS31
8	Prosaro 150 mL/ha	Prothioconazole (group 3) + tebuconazole (group 3)	GS31 + GS49
9	Amistar 400 mL/ha	Azoxystrobin (group 11)	GS31
10	Radial 500 mL/ha	Azoxystrobin (group 11) + epoxiconazole (group 3)	GS31

*FRAC group code list

Results and discussion

The disease pressure in the trial was low due to lack of rainfall and low crop canopy humidity. The number of SFNB lesions were still however, greatest in the nil (Table 2). There were minor variations among the remaining fungicide treatments. The results show that 127 days after sowing the level of infection in the Systiva alone treatment was similar to all foliar applied treatments.

Table 2. Number of SFNB lesions present on the F, F-1 and F-2 leaves on 1st October, 2015.

Treatment	No. of lesions
1. Nil	6.2
2. Systiva 150 ml/ 100 kg seed	3.7
3. Systiva 150 ml/100 kg seed + Tilt 0.5 L/ha @ GS31	3.1
4. Tilt 0.5 L/ha @ GS31	3.7
5. Tilt 0.5 L/ha @ GS31 + GS49	3.9
6. Tazer Xpert 1.0 L/ha @ GS31	4.5
7. Experimental	3.8
8. Prosaro 150 mL/ha @ GS31 + GS49	2.4
9. Amistar 400 mL/ha @ GS31	3.4
10. Radial 500 mL/ha @ GS31	4.2
	Mean
	3.9
	LSD (P≤0.05)
	1.3

Selected treatments were also assessed for scald infection. There was a reduction of the number of large scald foci and incidence on the flag leaf for all fungicide treatments assessed 121 days after sowing (Table 3).

Table 3. Scald infection (%) and hotspot incidence assessed on 25th of September at Hart.

Treatments	Incidence of scald on leaf layer			Hotspot incidence*	
	Flag	Flag-1	Flag-2	Large	Small
1. Nil	20.0 ^a	40.0	33.3	4.3 ^a	0.3
2. Systiva @ 150 mL/100 kg seed	3.3 ^b	36.7	23.3	0.3 ^b	1.0
5. Tilt 0.5 L/ha @ GS31 + GS49	0.0 ^b	13.3	13.3	0.3 ^b	1.3
8. Prosaro 150 mL/ha @ GS31 + GS49	0.0 ^b	6.7	40.0	0.7 ^b	1.3
Mean	5.8	24.2	27.5	1.4	1.0
LSD (P≤0.05)	10	ns	ns	2.8	ns

*Large hotspot >10 infected leaves, small hotspot < 10 infected leaves.

