

Efficacy of Fungicides for Sugarcane Brown Rust Control, 2007

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A field experiment was conducted to compare the efficacy of different fungicides for the control of brown rust of sugarcane caused by *Puccinia melanocephala*. Triazole and strobilurin fungicides were evaluated singly and in combination in naturally infected plant cane of variety Ho 95-988. Fourteen fungicide products were applied in 20 treatments (Table 1). Two applications were made with a CO₂ back-pack sprayer. The Laredo and Laredo + Headline treatments (listed twice each in the tables) were intended to receive a second application at either two or three weeks after the first application; however, the two week application was not made until three weeks.

Rust symptom severity was assessed twice, once at 19-20 days after the first fungicide application (Table 1) (just prior to the second application) and once at 13-14 days after the second application (Table 2). Disease severity was assessed by collecting six leaves per plot and performing image analysis to determine the percentage of leaf area occupied by rust lesions.

Results and Discussion

The disease assessment performed following the first fungicide application indicated that some treatments reduced rust symptom severity (Table 1). The triazole fungicides were generally less effective than the triazole + strobilurin combinations. Pyraclostrobin (Headline) alone was as effective as when combined with metconazole and tebuconazole. At the second disease assessment, rust severity had not increased in the non-treated control, but more rust was evident in the treated plots (Table 2). The same pattern was evident in the treatment comparisons with the strobilurin + triazole combinations providing better rust control than the triazoles alone.

The fungicide testing results from 2006 suggested that strobilurin + triazole combinations provided the best control of brown rust. More fungicides were included in the 2007 testing. The results were similar for the 2007 fungicide efficacy results compared to 2006. The best treatments during 2007 are the same as during 2006. The 2007 results suggest that the addition of a triazole to pyraclostrobin does not significantly improve efficacy. Yield components will be determined and compared at the end of the season.

Table 1. Effect of fungicide treatments on sugarcane brown rust severity in Ho 95-988 plant cane determined on June 7, 2007 in an experiment in St. Mary Parish.

Fungicide treatment	Rust leaf infection (%) ¹
Non-treated control	15.8 a
Absolute (tebuconazole + trifloxystrobin premix) 5 oz/acre	5.3 ef
Absolute (tebuconazole + trifloxystrobin premix) 10 oz/acre	6.1 def
Caramba (metconazole) 9.6 oz/acre	6.8 cde
Domark (tetraconazole) 5 oz/acre	13.2 ab
Folicur (tebuconazole) 6 oz/acre	9.9 bcd
Headline (pyraclostrobin) 9 oz/acre	3.7 ef
Headline (pyraclostrobin) 6 oz + Caramba (metconazole) 8 oz/acre	3.4 ef
Headline (pyraclostrobin) 6 oz + Muscle (tebuconazole) 4 oz/acre	1.6 f
Laredo (myclobutanil) 7 oz/acre	13.4 ab
Laredo (myclobutanil) 7 oz/acre	10.1 bcd
Laredo (myclobutanil) 7 oz/acre + Headline (pyraclostrobin) 6 oz/acre	4.3 ef
Laredo (myclobutanil) 7 oz/acre + Headline (pyraclostrobin) 6 oz/acre	3.9 ef
Proline (prothioconazole) 5.7 oz/acre	7.8 cde
Proline (prothioconazole) 8.6 oz/acre	7.3 cde
Punch (flusilazole) 4 oz/acre	11.0 bc
Punch (flusilazole) 3 oz/acre + picoxystrobin 6 oz/acre	6.1 def
Quadris (azoxystrobin) 9 oz/acre	7.1 cde
Quilt (azoxystrobin + propiconazole premix) 14 oz/acre	5.7 def
Stratego (propiconazole + trifloxystrobin premix) 19 oz/acre	3.4 ef
Topguard (flutriafol) 4 oz/acre	13.9 ab
Prothioconazole + trifloxystrobin (premix) 6 oz/acre	5.7 def
Prothioconazole + trifloxystrobin (premix) 12 oz/acre	5.8 def

¹Rust leaf infection percentage determined by image analysis on second youngest fully emerged leaf at 19-20 days after first application.

Table 2. Effect of fungicide treatments on sugarcane brown rust severity in Ho 95-988 plant cane determined on June 22, 2007 in an experiment in St. Mary Parish.

Fungicide treatment	Rust leaf infection (%) ¹
Non-treated control	14.7 ab
Absolute (tebuconazole + trifloxystrobin premix) 5 oz/acre	8.0 cdefg
Absolute (tebuconazole + trifloxystrobin premix) 10 oz/acre	3.7 g
Caramba (metconazole) 9.6 oz/acre	10.7 abcd
Domark (tetraconazole) 5 oz/acre	12.4 abc
Folicur (tebuconazole) 6 oz/acre	11.9 abc
Headline (pyraclostrobin) 9 oz/acre	4.6 fg
Headline (pyraclostrobin) 6 oz + Caramba (metconazole) 8 oz/acre	4.6 fg
Headline (pyraclostrobin) 6 oz + Muscle (tebuconazole) 4 oz/acre	4.6 fg
Laredo (myclobutanil) 7 oz/acre	13.5 ab
Laredo (myclobutanil) 7 oz/acre	13.0 ab
Laredo (myclobutanil) 7 oz/acre + Headline (pyraclostrobin) 6 oz/acre	5.6 efg
Laredo (myclobutanil) 7 oz/acre + Headline (pyraclostrobin) 6 oz/acre	4.5 fg
Proline (prothioconazole) 5.7 oz/acre	9.8 bcde
Proline (prothioconazole) 8.6 oz/acre	9.8 bcde
Punch (flusilazole) 4 oz/acre	13.6 ab
Punch (flusilazole) 3 oz/acre + picoxystrobin 6 oz/acre	8.4 cdef
Quadris (azoxystrobin) 9 oz/acre	7.2 defg
Quilt (azoxystrobin + propiconazole premix) 14 oz/acre	7.4 defg
Stratego (propiconazole + trifloxystrobin premix) 19 oz/acre	7.2 defg
Topguard (flutriafol) 4 oz/acre	15.1 a
Prothioconazole + trifloxystrobin (premix) 6 oz/acre	9.2 bcde
Prothioconazole + trifloxystrobin (premix) 12 oz/acre	6.8 defg

¹Rust leaf infection percentage determined by image analysis on fourth youngest fully emerged leaf at 13-14 days after second application.