EVALUATION OF FUNGICIDES FOR CONTROL OF CERCOSPORA LEAF SPOT OF TURNIP

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Introduction

Leaf spot diseases directly affect leafy green crops because the plant part that is marketed is the part that is affected. According to the U.S. Department of Agriculture standards for mustard and turnip greens, leaves with more than 10% of the surface area discolored are unsaleable. Also, most leafy greens are harvested mechanically by once-over cutting which means that all foliage must be removed. Hand separation of unacceptable leaves and decayed tissue is time-consuming and expensive. Fungicides that can be used to control foliar diseases of leafy greens are few. Benlate had been an excellent option for control of Cercospora leaf spot of turnip greens (*Cercospora brassicicola*) and has been used under a Section 24C in several southeastern states. DuPont has recently voluntarily removed Benlate from the market within the past 2 years. Maneb has a Section 24C state label for Georgia and Tennessee for leafy greens. However, Maneb is only partially effective in controlling these leaf spot diseases under high disease pressure. Quadris has recently received a full federal label for use on leafy greens and has been shown to be an excellent fungicide for control of many foliar pathogens. However, fungicide resistance to Quadris is becoming more of a problem and there exists no effective rotational fungicide partners in leafy greens to aid in resistance management. New, effective fungicide options must be labeled soon to provide adequate protection for leafy green production in the southeast.

Materials and Methods

Turnip seed were planted in 36 in rows at 4 lb/A on 1 Oct in Hortense, GA. Standard practices for management of fertility, weeds, nematodes and insects were followed throughout the season. The experiment utilized a randomized complete block design with 4 replications. Each fungicide plot consisted of two 20-ft long rows that utilized a 5-ft buffer zone between plot ends. Foliar fungicide treatments were applied on 24 Oct, 3 and 25 Nov. Fungicides were applied using a CO_2-pressurized backpack sprayer calibrated to deliver 40 gal/A at 75 psi through TX-18 hollow cone nozzles.

Results

Weather during the experiment was warm and relatively dry as rainfall was ca. 1 in. below normal for the Oct and Nov 42 year average. Disease was first observed on 25 Nov and reached moderate to high levels by the 1 Dec rating date. Fungicide treatments, once analyzed, separated

into three statistically significant groups. The group that demonstrated the most significant disease suppression contained Pristine, both rates of Cabrio, both rates of Quadris, and Folicur (Table 1). The next group that significantly suppressed disease compared to the non-treated check contained Switch, Topsin M, and Reason. Maneb was the only treatment that did not significantly suppress disease compared to the non-treated check. No phytotoxicity was observed with any of the treatments.

Table 1. Effect of fungicides on Cercospora leaf spot severity.

Treatment and rate/A[z]	Leaf Spot Rating on 1Dec[y]	
Pristine 38WG, 0.78 lb	1.0	c[z]
Folicur 3.6SC, 6.0 fl oz	1.3	c
Cabrio 20EG, 0.5 lb	1.3	c
Cabrio 20EG, 1.0 lb…	1.3	c
Quadris 2.08F, 6.2 fl oz	2.3	c
Quadris 2.08F, 15.4 fl oz	1.5	c
Switch 62.5WDG, 11.0 oz	4.0	b
Topsin M 50WP, 0.5 lb	4.5	b
Reason 500SC, 8.5 flo oz	5.3	b
Maneb 75DF, 2.0 lb	7.8	a
Non-treated check	8.0	a

[z]Spray dates are as follows: 1=24 Oct; 2=3 Nov; 3=25 Nov.
[y]Percent leaf area affected by leaf spot.
[x]Means in columns with letter(s) in common are not significantly different according to Fisher's Protected LSD test at $P \leq 0.05$.