

Evaluating Fungicides for Reducing Gummy Stem Blight in Watermelons



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ABSTRACT

Gummy Stem blight (GSB), caused by the fungus *Didymella bryoniae*, is the most destructive disease in Georgia watermelons. In 2009, research was conducted in Crisp County to evaluate fungicide efficacy for controlling GSB in watermelon. Treatments included seven applications of Bravo Weatherstik, Endura, Inspire Super MP + Vanguard, Topsin + Dithane, Switch, Folicur, Quadris or Regalia. Plots were evaluated for GSB on 6, 13, 20 and 27 July. The most significant reductions in GSB on the 27 July rating were observed in treatments containing Folicur, Switch and Inspire + Vanguard, Bravo Weatherstik, and Topsin + Dithane. All other fungicides had equal to or more GSB compared to the check.

SITUATION

Georgia's subtropical climate creates ideal conditions for plant disease development, especially gummy stem blight (GSB). GSB, *Didymella bryoniae* (fig 1) is the most destructive disease in Georgia watermelon production. Growers have several fungicide options, available but many have had resistance develop to them by the GSB fungus. There are substantial cost differences among these fungicides as well. Economical fungicide efficacy needs to be evaluated for controlling GSB in Georgia to optimize disease suppression while maintaining disease control.



Figure 1. Gummy Stem Blight on Watermelon

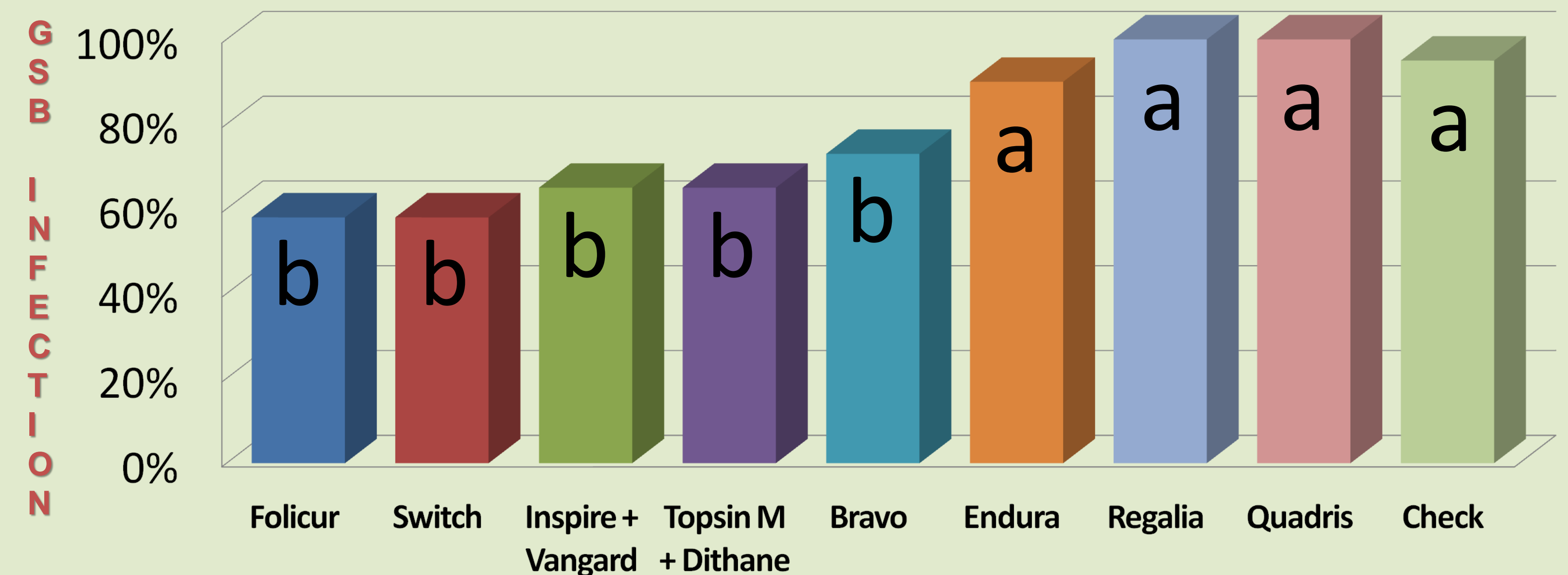
RESPONSE

Research was conducted in Crisp County to evaluate fungicide efficacy for controlling GSB in a watermelon crop. 40 Plots (plot = 20' X 11') were planted using AU Producer watermelon seedlings 1 May. Plants were spaced 2' in row with 15' row centers. Fungicide treatments included Bravo Weather Stik, Regalia, Folicur, Inspire + Vanguard, Quadris, Endura, Topsin M + Dithane DF, and Switch. A control plot was established per block. Each treatment was replicated four times in a randomized complete block design. Fungicide treatments were applied on 27 May, 3, 11, 18, 30, June and 8, 18 July. Individual plots received the same fungicide throughout the season. Yield data was not recorded because disease onset occurred after fruit set and the likelihood of detecting yield differences among treatments was poor.

RESULTS

Treatments were visually assessed for GSB infection 6, 13, 20, 27 July. Folicur, Switch, Inspire + Vanguard, Topsin M + Dithane, and Bravo significantly reduced GSB compared to non-treated plots (fig 2). Regalia, Quadris and Endura did not control of GSB when compared to the check. No phytotoxicity was observed to the foliage or the fruit rinds in any of the treatments.

Figure 2. Comparison of GSB infection relative to fungicide application



IMPACT

When comparing costs of fungicides (fig 3) data generated suggests that Folicur will provide greater control of GSB in watermelon at the least cost per acre. Switch provided excellent control of the disease but has the highest cost of any fungicide tested. Inspire + Vanguard provided good control at a greater cost than Topsin M + Dithane, however control of GSB was equal. It is important to note that the fungicides that significantly suppressed GSB represent 6 different modes of action. This many modes of action allows growers greater flexibility to rotate products for resistance management. Regalia, Quadris and Endura were some of the more expensive treatments tested, however, they provided no disease suppression. These data will be made available to watermelon producers so to base their GSB fungicide decisions on efficacy and cost.

Figure 3. Fungicides cost per acre at recommended rates. (* = double recommended rate)

Product	Rate/Acre	Cost/Acre	% GSB Infection
Bravo Weather Stik	2 Pints	\$11.6	73 %
Regalia	*2 Quarts	\$30	100 %
Folicur	8 fl oz	\$4.80	58 %
Inspire + Vanguard	7 fl oz + 7 oz	\$31.22	65 %
Quadris	12.4 fl oz	\$35.71	100 %
Endura	6.5 fl oz	\$26	90 %
Topsin M + Dithane	10 fl oz + 3 lbs	\$13.71	65 %
Switch	14 oz	\$56	58 %