

CROP: Field Tomatoes cv. Heinz 9478

PEST: Early Blight, *Alternaria solani* (Ell. & Mart.) L.R.Jones & Grout; Septoria Leaf Spot, *Septoria lycopersici*, Speg.; Anthracnose, *Colletotrichum coccodes* (Wallr.) Hughes
Bacterial Spot, *Xanthomonas campestris* pv. *vesicatoria* (Doidge) Dye

NAME AND AGENCY:

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TITLE: THE EVALUATION OF HEADS UP TIMING TO INDUCE FOLIAR DISEASE RESISTANCE IN PROCESSING TOMATOES - 2006

MATERIALS: HEADS UP (disease regulator experimental product), BRAVO 500F (chlorothalonil)

METHODS: Seedling tomatoes were grown commercially in a greenhouse and one day just prior to being transplanted, were treated with HEADS UP according to the treatments listed in Table 1, treatments 1 and 3. Treated and untreated tomato transplants were then planted in a single, twin-row plot, 7m in length with rows spaced 1.65m apart, replicated four times in a randomized complete block design. Seedlings were transplanted, using a commercial transplanter on May 24, 2006. The foliar applications of HEADS UP were applied using a specialized small plot research CO₂ sprayer with a three nozzled hand-held boom applying 200L/ha of spray mixture on June 24, one month after transplanting and on July 11 just prior to bloom. A standard fungicide program of BRAVO 500F was applied on June 24, July 11, 26, August 3 and 15 to treatment 5. Foliar fungal disease assessments were made on August 25 and 30 based on a scale of 0-10 with 0 indicating no control and a rating of 10 indicating perfect foliar disease control. Yields were taken on August 31 by counting and weighing red, green and fruit rots along with counting the number of fruits infected with Anthracnose. Results were analysed using the Duncan=s multiple range test (P# 0.05).

RESULTS: Data are presented in Table 1.

CONCLUSIONS: Applications of HEADS UP induced processing tomato plants to exhibit an increased level of foliar fungal disease resistance towards early blight and Septoria leaf spot. The least effective timing was as a drench in the seedling tray while the most effective application was the single timing just prior to bloom. The level of disease control was less than a standard 5 fungicide spray program of BRAVO 500F but the level of foliar disease control was significantly higher than the unsprayed control. None of the treatments, including the fungicide BRAVO 500F could show an increase in tomato yields or a reduction in fruit anthracnose.

Assessments in the ratio of the two foliar diseases indicated that Septoria Leaf spot was the dominant disease found in 70% of the plot versus early blight found at a 30% level.

Table 1. Fungal foliar and fruit disease control and yield in processing tomatoes.

Treatments	Rate Product	Timing	Fungal Disease Ratings (0-10) ^{1/}		Reds	Greens	Rots	Total Yields	# Fruit Anthracnose
			Aug. 25	Aug. 30	(kg) Aug. 31	(kg) Aug. 31	(kg) Aug. 31	(kg) Aug. 31	Aug. 31
Heads Up	1 g/L	Root drench in tray	7.8 a*	5.0 bc	27.6 a	4.3 a	0.8 a	32.7 a	2.0 a
Heads Up	1 g/L	foliar spray 1-month after transplanting	8.1 a	6.0 b	25.8 a	4.9 a	0.5 a	31.2 a	5.0 a
Heads Up	1 g/L	Root drench in tray + foliar spray 1-month after transplanting	7.8 a	5.6 b	26.2 a	5.0 a	0.7 a	31.9 a	4.0 a
Heads Up	1 g/L	Foliar spray just before bloom	8.1 a	6.6 b	25.4 a	5.1 a	0.7 a	31.2 a	2.8 a
BRAVO 500F	3.2 L/ha	Commercial spray program	8.8 a	8.9 a	26.5 a	5.9 a	0.3 a	32.7 a	1.5 a
Control			7.8 a	3.8 c	25.1 a	5.0 a	0.5 a	30.6 a	2.3 a
ANOVA P#0.05			ns	s	ns	ns	ns	ns	ns
Coefficient of Variation (%)			18.0						

*These values are the means of four replications. Numbers within a column followed by the same small letter are not significantly different according to a Duncan=s Multiple Range Test (P#0.05).

^{1/} Foliage Disease Ratings (0-10) - 0, no control, foliage severely damaged; 10, complete control.