

CAULIFLOWER (*Brassica oleracea* var. *botrytis* 'Skywalker')
 Alternaria blight; *Alternaria brassicicola*

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Evaluation of fungicides allowed for organic production on alternaria blight of cauliflower, 2013.

The trial was conducted on a field managed since 2008 using practices allowed for organic production. Cauliflower was transplanted into raised beds of 1.25 mil black plastic on 8 Jul with a water wheel transplanter, adding a solution of 0.5oz/gal Fertrell fish oil emulsion to each plant. Nine treatments and an untreated control were arranged in a randomized complete block design with four replications. Each plot consisted of ten plants spaced 12 in apart with 7 ft between rows and 3 ft between treatments. Sprays were applied with a CO₂ pressurized backpack sprayer at 40 psi delivering 40 gal/A through two TeeJet 8002VS flat fan nozzles spaced 19 in apart. For the *Trichoderma* treatment transplants were grown in a peat-based potting mix inoculated at a rate of 10⁸ cfu/g with a mixture of two strains of *T harzianum* and one each of *T. virens*, *T. atroviride* and *T. viride*. For each flat, 200 ml were added via drench after seeding. Foliar treatments were initiated 7 Aug and inoculum of the pathogen (10⁵ spores/ml) was applied with a pump sprayer to run-off 48 hrs later. Sprays were continued on a 7 day schedule until 3 Oct (7 applications). All foliar applications included Nu-film P (6 oz/A) for enhanced product adherence and coverage, and it was also applied alone to follow up on a growth chamber study in which disease levels appeared to be enhanced by treatments with formulations that disrupted the waxy surface of the leaf. Entrust was applied on 31 Jul and 4 Sep to control Lepidoptera. A second application of fish emulsion was applied 16 Aug. Average maximum temperatures for Jul, Aug, Sep, and 1-10 Oct were 80, 77, 70, and 72 °F; average minimum temperatures were 63, 58, 49, and 51 °F. Rainfall amounts (in.) were 3.6, 4.1, 1.9 and 1.5 for Jul, Aug, Sep, and 1-10 Oct, respectively. Disease was rated as the percent leaf area displaying lesions of Alternaria on 20 and 27 Aug and 3 Sep. These data were analyzed using ANOVA. Five heads per plot were tied one week prior to harvest which occurred on 2 and 10 Oct. The heads were rated at harvest, stored at 40F and 85% RH, and rated again 7 days postharvest. No yield data were recorded. Head disease ratings were analyzed using the non-parametric Kruskal-Wallis test, and Steel-Dwass All Pairs tests were used to analyze the differences between treatments.

There were no significant differences between any of the treatments and the untreated control plots for any of the foliar or head damage ratings. The variability between repetitions contributed to this result. Slight foliar phytotoxicity was noted as browning on the leaf edges following Regalia sprays, but it did not persist.

Treatment (Rate/A)	Foliar rating (%)			Head rating (%)	
	20-Aug	27 Aug	3-Sep	At harvest	7 days post-harvest
EF 400 EC (64oz/100gal).....	13.8a*	26.3a	31.3a	0.7a	1.6a
Cueva 10 FL (1gal/100gal).....	18.8a	35.0a	35.0a	2.2a	5.5a
Sonata FL (4qt).....	16.3a	20.0a	27.5a	1.2a	2.3a
Serenade Max WP (3lb).....	28.8a	42.5a	46.3a	0.4a	0.6a
Actinovate AG WP 6oz/50gal).....	23.8a	36.2a	42.5a	4.2a	6.8a
Trichoderma (200ml/flat).....	8.8a	27.5a	35.0a	3.9a	8.9a
Regalia SC (3pt/50gal).....	15.0a	35.0a	46.3a	0.8a	1.8a
Sporatec EC (3pt).....	21.3a	35.0a	42.5a	2.3a	3.0a
Nu-film P EC (6oz).....	17.5a	31.3a	38.8a	4.0a	7.3a
Untreated control.....	11.3a	25.0a	38.8a	2.3a	4.9a

* Column numbers followed by the same letter are not significantly different using All Pairs tests.