

Evaluation of products for control of angular leaf spot in annual strawberry, 2007-08.

On 16 Oct 07, bare-root runner plants from Canada were transplanted into methyl bromide:chloropicrin (98:2) fumigated soil in plastic-mulched, raised beds. The beds were 28-in. wide on 4-ft centers. Each bed contained two staggered rows of plants spaced 15-in. apart within rows and 12-in. between rows. Treatments were arranged in a randomized complete block design with four blocks, each in a separate bed. Individual plots were 8.1 ft long and contained 14 plants. Plots were arranged in a staggered pattern for maximum isolation with an unplanted bed between adjacent blocks. Transplants were irrigated by overhead sprinklers for 10 days to aid establishment, then irrigated and fertilized through drip tape. Treatments were applied every 7 or 14 days from 15 Dec to 6 Mar (13 applications) using a CO₂ backpack sprayer calibrated to deliver 100 gal/A at 40 psi through two TeeJet hollow-cone nozzles, 12 in. apart on the boom. To suppress fungal diseases, Captan 80WDG was applied weekly to all plots with a tractor-mounted hydraulic sprayer in 100 gal/A at 200 psi (1.5 lb/A early season; 3.0 lb/A late season). Angular leaf spot severity was assessed on 15 Jan and 21 Mar by rating the eight middle plants in each plot on a 0 - 6 scale, where 0 indicated a healthy plant and 6 indicated a plant with severely-spotted middle foliage, and blighted older leaves. Disease severity values for individual plants were averaged for each plot. Fruit were harvested twice weekly from 2 Jan through 21 Mar (23 harvests). Marketable fruit were counted and weighed to determine yield. Experimental variables were analyzed by two-way ANOVA.

Angular leaf spot severity was relatively low up to mid-season and moderate by the end of the season. Freeze events accompanied by overhead irrigation for frost protection are known to increase angular leaf spot severity. One severe freeze occurred on 3 Jan, causing patchy damage to the plots and uneven yields. Means comparisons for yield were not performed since the treatment term for type III sum of squares was not significant ($P = 0.2068$). Mid-season disease severity (15 Jan) was reduced by the copper products IRF070, Kocide, Kentan, and by tank mixes of Serenade Max and Kocide. Late-season disease severity (21 Mar) was reduced by Actigard (1.5 oz), Kentan, and Kocide. At the rates tested (0.25 - 0.30 lb metallic copper/A), none of the copper products produced visible phytotoxicity. While several copper products and the plant defense promoter Actigard reduced disease severity, corresponding increases in yield were not obtained.

Treatment (product, rate per acre, and spray interval)*	Marketable yield (lb/A)	ALS severity (15 Jan)	ALS severity (21 Mar)
IRF070 (0.9 lb), 7-day.....	14,000	1.69 a	3.32 abc **
Serenade Max (1.0 lb) + Kocide 3000 (0.87 lb), 7-day.....	11,300	1.69 a	3.38 abc
Kocide 3000 (0.87 lb), 7-day.....	12,100	1.72 a	3.25 ab
Kentan (0.75 lb), 7-day.....	12,700	1.91 a	2.97 a
Actigard (1.5 oz), 14-day.....	12,000	2.10 ab	2.97 a
Actigard (0.75 oz), 14-day.....	12,100	2.34 ab	3.50 bc
QRD 800 (1.25 lb), 7-day.....	12,800	2.34 ab	3.60 bc
Badge SC (0.9 pt/A), 7-day.....	12,000	2.41 ab	3.31 abc
QRD 800 (2.5 lb), 7-day.....	11,900	2.63 b	3.72 c
Control.....	12,200	2.69 b	3.72 c

*Plus signs "+" indicate tank mixes of two or more products.

**Means in a column followed by the same letter are not significantly different by Fisher's protected LSD test ($P \leq 0.05$).