

EVALUATION OF FUNGICIDES FOR CONTROL OF FRUIT RUSSET OF APPLE, 1999: Trials were conducted in experimental orchards in Geneva, NY. Orchards #1 and #3 are plantings of 25 year old Golden Delicious and McIntosh trees, respectively, both on MM.106 rootstocks. Orchard #2 is a 20-year-old Golden Delicious planting on M.9 rootstocks. Treatments were arranged in a randomized block design. Three new compounds were tested for efficacy in russet reduction under field conditions; Flint, Ziram 76WDG and Terminator, a quaternary ammonium compound from South Africa. Dilute sprays were applied with a 350 psi single nozzle handgun sprayer. Schedule I for Golden Delicious consisted of 4 sprays: 23 April, 4, 10, 17 May (1/2" green tip, tight cluster, pink, bloom, respectively). Schedule I for McIntosh was similar with 4 sprays applied on 20, 28 April, 6, and 12 May (1/2" green tip, tight cluster, pink, bloom, respectively). Schedule II for Golden Delicious was also 4 sprays but began later in the fruit development period: 4, 10, 17, and 20 May (tight cluster, pink, bloom, petal fall, respectively). Schedule II for McIntosh was comparable, with sprays being applied on 28 April, 6, 12, and 18 May (tight cluster, pink, bloom, petal fall, respectively). Whole fruit and stem end russets were measured using a visual rating system. Whole fruit russet ratings were as follows: 0 = 0-3% fruit surface russeted, 1 = 4-20%, 2 = 21-45%, 3 = 46-74%, 4 = >75% fruit surface russeted. Stem end russet was rated in a similar manner; 0 = 1-10% stem end fruit surface russeted, 1 = 11-35%, 2 = 36-100% stem end fruit surface russeted. Percent stem end or whole fruit russet was calculated as:  $[\sum (\text{rating} \times \text{the number of fruit with that rating}) / \text{highest rating} \times \text{total number of fruit}] \times 100$ . Values in the table represent the average percent russet for 100 fruit from three individual trees from each treatment for Orchards # 1 and 3 and 50 fruit from two individual trees from each treatment for orchard #2. Values in the same column followed by different letters differ significantly at  $P=0.05$  according to the SAS General linear models *t* test.

Due to drought conditions, which persisted for most of the 1999 growing season, whole fruit russet was very mild. Significant differences between treatments in terms of russet reduction were not seen in whole fruit russet for Golden Delicious or McIntosh apple at this lower disease level. Stem end russet was mild to moderate in spite of drought conditions. Captan 50WP and Polyram 80DF on schedule I gave best reduction of stem end russet in orchard #1. Flint and Thiram 75WDF on schedule II gave best russet reduction in Orchard #3. Terminator, Flint and Captan 50WP on schedule I and Captan 50WP on schedule II gave significant stem end russet reduction on McIntosh in orchard #4. Of the new compounds tested, Flint and Terminator showed some promise in russet control. There were no consistent differences in russet reduction for either cultivar for the application schedules used. No definitive decisions on application schedule can be made without further testing under higher disease pressure.

Treatment and rate/100 gal.	Schedule	Orchard #1 Golden Delicious		Orchard #2 Golden Delicious		Orchard #3 McIntosh	
		Whole fruit russet	Stem end russet	Whole fruit russet	Stem end russet	Whole fruit russet	Stem end russet
Thiram 75WDG 24 oz...	I	3.25 ab	43.128 a	1.00 a	37.00 a	2.58 ab	43.17 a
Thiram 75WDG 24 oz...	II	1.67 b	29.17 bcd	2.00 a	12.00 b	3.42 a	41.00 ab
Polyram 80DF 32 oz....	I	0.50 b	24.00 cd	1.50 a	20.50 ab	3.08 ab	42.00 a
Polyram 80DF 32 oz....	II	1.83 b	34.83 abc	1.00 a	23.00 ab	0.83 cd	43.17 a
Captan 50WP 32 oz.....	I	0.33 b	21.67 d	1.50 a	31.00 a	0.67 d	23.33 g
Captan 50WP 32 oz.....	II	0.58 b	25.33 bcd	3.00 a	26.00 ab	0.50 d	29.33 fg
Sovran 0.96 oz.....	I	5.75 a	30.67 bcd	1.50 a	32.00 a	0.92 cd	35.17 abcde
Sovran 0.96 oz.....	II	1.25 b	32.00 bcd	2.00 a	26.00 ab	0.58 d	40.67 ab
Flint 0.64 oz.....	I	2.08 b	28.83 bcd	0.00 a	25.00 ab	2.00 bc	39.00 abc
Flint 0.64 oz.....	II	2.00 b	31.00 bcd	0.00 a	11.50 b	0.42 d	38.50 abcd
Ziram 76WDG 16 oz....	I	...	...	...	...	0.00 d	30.17 defg
Ziram 76WDG 16 oz....	II	...	...	...	...	0.17 d	32.00 cdef
Terminator 10 fl oz.....	I	...	...	...	...	0.17 d	23.67 fg
Nontreated.....	...	3.42 b	35.50 ab	1.50 a	32.50 a	0.25 d	32.67 bcde
LSD	...	3.13	11.63	NS*	18.46	1.30	8.61

\*NS = not significant.