

CONTROL OF FIRE BLIGHT INFECTION OF APPLE BLOSSOMS, 1999: The efficacy of a biocontrol agent, two systemic acquired resistance inducers, a growth regulator, three copper compounds and two antibiotics for control of the blossom blight phase of fire blight was evaluated on 'Idared' apple trees in a research orchard at Geneva, NY. Treatments were replicated five times with 150-200 blossom clusters per replication in a randomized complete block design. The products were applied at 1/2-inch green, pink, 10% bloom, 24 h before inoculation and 24 h after inoculation, depending on their mode of action, using a single nozzle handgun sprayer at 150 psi to run off. The blossom clusters were inoculated on May 12 at full bloom with *E. amylovora* strain Ea 273 at 1×10^7 CFU ml⁻¹ using a Solo backpack sprayer. Infected and healthy blossom clusters were recorded 3 weeks after inoculation and fruit russetting was assessed 7 weeks after the last spray. The data were analyzed by General Linear Model (GLM) procedure (SAS) and the significant difference among treatments was determined by the Waller-Duncan K-ratio T test.

In 1999, the weather during bloom was hotter than usual and bloom lasted for 20 days (7 May-26 May). During this period the MARYBLTY® program predicted 2 high-risk days but no infection period. In our trials, inoculation coupled with high risk days for fire blight infection during bloom resulted in 25.7% of blossom clusters infected, and allowed for efficient screening of products for activity against blossom infection. Pace 17 (streptomycin) at 14.7 g/50L treatment 24 h before and after inoculation gave the greatest control (71.8%), closely followed by the same treatment with Agrimycin-17 (steptomycin), and lower rates of Pace 17 and Agrimycin 17. BlightBan C9-1 applied at 10% bloom and 24 h before inoculation gave 40.5% control, not significantly different from Agrimycin at 7.35 mg/50L. Sprays of Mankocide DF, Nucop 50 DF and Phyton 27, 24 h before and 24 h after inoculation all resulted in significant control of the disease. Mankocide and Nucop caused the greatest amount of fruit russetting, although russetting was significantly less when Mankocide was applied once, 24 h pre-inoculation, followed by Pace treatment. Phyton 27 caused very little russetting. Messenger at 26 g/50L applied at 1/2-inch green and pink resulted in 46.0% control, not significantly different from Agrimycin. Although the level of infection was lower in Apogee treated blossoms, it was not significantly less than in the untreated inoculated check.

Treatment (rate/50L)	Surfactants (rate/50L)	Time of ¹ application	% Infected ² blossom clusters	% Russeted fruit	% Russeted fruit surface
Untreated inoculated check			25.7 a	0.4 b	1.0 bc
Pace 17 14.7 g	Regulaid 15 ml	4,5	7.3 g	0.6 b	2.1 bc
Pace 17 7.35 g	Regulaid 15 ml	5	9.1 efg	1.4 b	1.6 bc
Agrimycin 17 14.7 g	Regulaid 15 ml	4,5	11.3 defg	0.6 b	1.4 bc
Agrimycin 17 7.35 g.....	Regulaid 15 ml	5	8.7 fg	0.6 b	1.6 bc
BlightBan C9-1 13.0 g ..	Break-thru 50 ml	3,4	15.3 bcdef	0.3 b	0.6 bc
BlightBan C9-1 13.0 g ..	Break-thru 50 ml	3,4			
+ Agrimycin 17 7.35 g		5	13.5 bcdefg	0.0 b	0.0 c
BlightBan C9-1 13.0 g ..	Break-thru 50 ml	3,4			
+ Pace 17 7.35 g		5	11.1 efg	1.1 b	1.0 b
Mankocide DF 79.75 g ..	Regulaid 15 ml	4,5	8.6 g	14.3 a	6.7 a
Mankocide DF 79.75 g ..	Regulaid 15 ml	4			
+ Pace 17 7.35 g		5	13.3 bcdefg	0.4 b	2.0 bc
Phyton 27 13.3 ml	Regulaid 15 ml	4,5	13.1 cdefg	0.6	b 1.8 bc
Nucop 50 DF 50.0 g	Regulaid 15 ml	4,5	12.8 cdefg	5.1 b	5.8 a
Actigard 50 WG 10.0 g ..	Regulaid 15 ml	1,2	19.9 ab	0.3 b	1.0 bc
Messenger 13.0 g	Reguard 100 ml	1,2	15.6 bcde	0.5 b	1.3 bc
Messenger 26.0 g	Reguard 100 ml	1,2	13.9 bcdefg	0.6 b	1.2 bc
Messenger 13.0 g	Reguard 100 ml	2	17.8 bcd	1.1 b	2.0 b
Messenger 26.0 g	Reguard 100 ml	2	19.3 abc	0.2 b	1.0 bc
Apogee 22.4 g	Kinetic 31 ml	3	19.2 abc	1.9 b	3.5 ab
Apogee 44.8 g	Kinetic 31 ml	3	19.1 abc	1.3 b	1.0 bc

¹ 1 = 1/2-inch green (27 April), 2 = pink (5 May), 3 = 10% bloom (7 May), 4 = 24 h before inoculation (11 May), 5 = 24 h after inoculation (13 May).

² Treatments followed by the same letter did not differ significantly ($P > 0.05$) as determined by Waller grouping.