

NOT FOR PUBLICATION

Rosenberger

1979

Results of Fungicide Evaluations
for
Control of Apple and Prune Diseases

David A. Rosenberger
Assistant Professor of Plant Pathology
N.Y.S. Agricultural Experiment Station
Hudson Valley Laboratory
Highland, New York 12528

Assisted by

F. W. Meyer, Research Technician III
C. V. Cecilia, C.E.T.A. Trainee

1979 Apple Scab and Cedar Apple Rust Infection Periods
Hudson Valley Laboratory, Highland, New York

Spray dates Protec- tant	Post infection	McIntosh Growth stage	Cumm. % Spores discharged	Wetting periods			Mean temp Of	Anticipated scab severity		Cedar apple-rust inf. period
				Date	Rain (in)	Duration (hr)		Primary	Secondary	
April 20		GT		April 13-17	1.10	56	41	L	4 L	No
April 25		HIG TC	3% - 4/20	April 25	.19	2	57	No	3 H } 12 primary	No
				April 26-28	.63	44	58	H	5 H } 12 primary	Yes
May 3		April 28 - 49 hours after wetting and April 26-28	8% 4/30	April 28	.34	11	55	L		Yes
May 10		Full pink - 60 hours after May 3-4	12% 5/4	May 3-4	.18	12	57	L	16 secondary	Yes
		May 14 - 47 hours after May 12-14		May 12-14	.26	46	60	H		Yes
May 18		Red	30% 5/6	May 16	.01	4	56	No		No
		May 21 - 69 hours after May 18-21		May 18-20	.11	48	58	H		Yes
		White		May 20-21	.05	4	58	No		No
May 28			81% 5/30	May 23-25	3.34	67	58	H		Yes
				May 26	.10	8	52	No		No
				May 28-29	.05	14	55	L		Yes
				May 29-30	.23	16	57	M		Yes
				May 31-June 1	.02	5	59	No		No
				June 3	.03	3	63	No		No
				June 5-6	.95	17	61	M		H
				June 7		3	58	No		No
				June 11-12	1.39	22	56	H		H
				June 17-18	.05	12	68	M		H
June 7			85% 6/6	June 22-23	.02	11	61			M
				June 29-30	.08	9	62			M
				June 30-July 1	.13	12	69			H
				July 2-3	.22	12	63			H
				July 15-16	.12	28	78			H
July 19				July 21-22	.60	9	66			M
				July 23-24	.13	11	76			M
				July 29-30	.01	10	68			M

CR - grown in P.
Lettuce of Spores selected

1" frost from 12-14 N.S.
secondary inf. period
only about 2" rain in 6 week period
Sprayed trees clean

CK: to be sure Mac Clusters are right
; Data and data on June 1

1979 Apple Scab Control with a Protectant Fungicide Program
Hudson Valley Laboratory, Highland, NY
D.A. Rosenberger, F.W. Meyer, and C.V. Cecilia

% leaves infected with apple scab

Treatment and rate/100 gallons ¹	Cluster leaves ²				Terminal leaves ³	
	McIntosh	Cortland	McIntosh	Cortland	Cortland	Golden Delicious
1 Check ⁴	58.8	26.7	94.4	99.6	95.8	
2 Captan 50W	0.2 ab	0 a	1.3 a	0.8 a	0.3 ab	
3 Benlate 50W + Manzate 200 80W	0 a	0 a	1.4 a	0.7 a	0.1 a	
4 CGA-64251 10W	0.8 ab	0 a	2.1 a	0.4 a	0.1 a	
5 Siothane 2EC	13.6 c	0.5 b	1.5 a	0.5 a	2.0 bc	
6 Baycor 50W	3.4 b	0 a	2.1 a	1.4 a	0 a	
7 Funginex 18.2EC	30.9 d	2.0 b	13.0 b	3.0 a	5.2 c	

Siothane + Funginex separate out but still good control

Small letters indicate groupings of treatments that do not differ significantly ($P \leq 0.05$) as analyzed by Waller-Duncan's exact Bayesian K-ratio LSD rule.

¹ 9 sprays? Treatments were applied April 20, 25; May 3, 10, 18, 28; June 7, 21 and July 19. Other sprays applied on all treatments were Sevin 50W 2 lb May 23, Fruitone-II 3.5W 14 ppm on Golden Delicious May 28, Guthion 50W 8 oz July 19.

² Data collected from 20 clusters/replicate (3 single-tree reps) on June 4 (McIntosh) and 11 (Cortland).

³ Data collected from all leaves on 20 terminals/replicate on August 7 (McIntosh), 13 (Cortland), and 20 (Golden Delicious).

⁴ Check not included in analysis.

galls up May 3 - from Col. Co.
May 18

1979 Cedar Apple Rust Control with Protectant and Post-Infection Sprays
Hudson Valley Lab, Highland, NY

D.A. Rosenberger, F.W. Meyer, and C.V. Cecilia

% leaves infected with cedar-apple rust¹

Treatment and rate/100 gallons ⁴	Protectant Program ²		Trt No	Post-Infection Program ³	
	Golden Delicious	Rome		Golden Delicious	Rome
1 Check ⁵	19.1	13.8	-	-	-
2 Captan 50W 2 lb	4.9 b	10.4 c	-	-	-
3 Benlate 50W 2 oz + Manzate 200 80W 12 oz	0 a	0 a	8	0.8 b	0.2 a
4 CGA-64251 10W 2.5 oz	0 a	0 a	9	0 a	0.1 a
5 Sistine 2EC 1 qt	0 a	0 a	10	0 a	0 a
6 Baycor 50W 4 oz	0 a	0 a	11	0 a	0 a
7 Funginex 10 oz	0 a	1.0 b	12	0.2 ab	0.2 a

*little
pressure
multinodal spores
good with way*

Small letters indicate groupings of treatments which do not differ significantly ($P \leq 0.05$) according to Waller-Duncan's exact Bayesian K-ratio LSD rule.

¹ Data collected from all leaves on 20 terminals/replicate (3 single-tree reps) on August 20 (Golden Delicious) and 23 (Rome).

² Sprays applied on April 20, 25; May 3, 10, 18, 28; June 7, 21; July 19.

³ Sprays applied on April 28; May 6, 14, 21 June 7; July 19.

⁴ Other sprays applied to all treatments were Sevin 50W 2 lb May 23, Fruitone-N 3.5W 14 ppm on Golden Delicious May 28, and Guthion 50W 8 oz July 19.

⁵ Check trees not included in analysis.

Results of 1979 Field Fungicide Trials
Grand Prize Prunes, Peter Sturges Farm, Red Hook, NY

D.A. Rosenberger, F.W. Meyer, and C.V. Cecilia

*explain
why data collected*

Treatment and rate/100 gallons ¹	% Blossom ₂ infection ²	% Fruit with quiescent brown rot ³	% Postharvest brown rot ⁴		
			4 days	8 days	
1 Check ⁵	-	75.0	42.0	4.3	55.7
2 Dithane Z-78 75W	2 lb				
Dithane Z-78 75W	2 lb				
+ Captan 50W	1 lb				
Captan 50W	1 lb	13.3 a	9.1 bc	0.4 a	5.4 a
3 Benlate 50W	8 oz	0.2 a	6.7 abc	0.8 a	9.0 a
4 CGA-64251 10W	6 oz	1.6 a	8.3 abc	0 a	7.4 a
5 Baycor 50W	4 oz	0.2 a	2.4 ab	0 a	0 a
6 Difolatan 4F	1 qt	7.2 a	0 a	0.8 a	13.8 a
7 Difolatan 4F	3 qt	78.8 b	33.3 c		

*→ some fruit
dropped
some preservation*

*note lack of significance -
much variation in trial*

*compromised
by rain and drying
before*

*- burned
petals in
lab trial but
no B. rot*

The small letters indicate groupings of treatments which do not differ significantly ($P \leq 0.05$) according to Waller-Duncan's exact Bayesian K-ratio LSD rule.

¹Treatments were applied April 4 (swollen bud), 19 (bud burst), 27 (whitebud), May 1 (bloom), 9 (petal fall), 17, 29, August 8 and 15 (harvest) except that treatment 7, Difolatan 3 qt SAT, was applied April 27 and for treatment 2 Dithane Z-78 2 lb was applied alone April 4 and 19 and with Captan 50W 1 lb April 27, May 1, 9, 17, 29; Captan 50W 2 lb was applied August 8 and 15. Other sprays applied to the entire block were Imidan 50W 1.5 lb May 9 and 17 and Imidan 50W 1 lb + Plictran 50W 4 oz May 29.

²Thirty blossoms picked from each of 4 single-tree replicates immediately following the May 1 spray were placed in moist sand in crispers, were inoculated by misting with a suspension containing 50,000 brown rot conidia/ml, and were observed for brown rot development.

³Quiescent brown rot infections were evaluated by harvesting 30 fruit/replicate on July 10, soaking them in 1% chlorox for 2 minutes, and incubating them at room temperature and 100% relative humidity for 20 days.

⁴Thirty fruit per replicate were harvested immediately after the August 15 spray, incubated at room temp and 100% relative humidity, and observed for brown rot after 4 and 8 days.

⁵Checks not included in analysis.

Disease Incidence in Experimental Planting of Disease Resistant Varieties

Hudson Valley Laboratory, Highland, New York
D.A. Rosenberger, F.W. Meyer and C.V. Cecilia

Cultivar	% Cluster leaves infected ¹		% Terminal leaves infected ²		
	Apple Scab	Cedar Apple Rust	Apple Scab	Cedar	Apple Rust
Coop 5	0 a	5.8 bc	0 a	23.5	fg
→ Priscilla	0 a	0.6 a	0 a	1.4	bc
55158-2	0 a	14.5 de	0 a	26.7	g
Cortland	62.5 c	3.1 abc	99.9 b	3.1	cd
McIntosh	65.0 c	2.5 abc	100.0 b	0	a
58553-1	0 a	1.1 ab	0 a	0	a
Golden Delicious	35.8 b	7.0 cd	99.9 b	17.3	ef
18491	0 a	5.3 bc	0 a	6.0	d
55166-23	0 a	2.6 abc	0 a	11.7	e
→ Prima	0 a	21.4 e	0 a	22.6	fg
Liberty	0 a	0 a	0 a	0.3	ab

Small letters indicate groupings that do not differ significantly ($P \leq 0.05$) according to Waller-Duncan's Exact Bayesian K-ratio LSD rule.

¹ Cluster leaf data was taken on 20 clusters/tree.

² Terminal leaf data was taken on all leaves of 10 terminals/tree on August 29-30.

*Priscilla + Prima - earliest releases
- poor taste in Prima
- very rust susceptible*

Liberty looks good

map not
right??

Scab-Resistant Apple Planting

N ←

15	18491	Nova Easy Gro ¹	18491*	55166-23
14	61345-2 ¹	61345-2	Prima	Priscilla
13	Coop 5	Golden Del.	Priscilla	Prima
12	Cortland	18491	McIntosh	55166-23
11	61345-2	Prima	Golden Del.	Coop 5
10	58553-1	Golden Del.	Priscilla	Priscilla
9	Golden Del.	55166-23	55166-23	Nova Easy Gro
8	58553-1	55158-2	Cortland	Nova Easy Gro
7	McIntosh	McIntosh	58553-1	Golden Del.
6	Cortland	18491	61345-2*	58553-1
5	55158-2	Nova Easy Gro	Prima	Nova Easy Gro
4	61345-2	Cortland	58553-1	McIntosh
3	Priscilla	55158-2	Coop 5	McIntosh
2	Coop 5	18491	55158-2	55158-2
1	Coop 5	Cortland	55166-23	Prima (dead)
0		Liberty		
16	Liberty		Liberty	
15	18491	Nova Easy Gro	61345-2*	55166-23
14	61345-2	61345-2	Prima	Priscilla
13	Coop 5	Golden Del.	Priscilla	Prima
12	Cortland	18491	McIntosh	55166-23
11	61345-2	Prima	Golden Del.	Coop 5
10	58553-1	Golden Del.	Priscilla	Priscilla
9	Golden Del.	55166-23	55166-23	Nova Easy Gro
8	58553-1	55158-2	Cortland	Nova Easy Gro
7	McIntosh	McIntosh+	58553-1	Golden Del.
6	Cortland	18491	18491*	58553-1
5	55158-2	Nova Easy Gro	Prima	Nova Easy Gro
4	61345-2	Cortland	58553-1	McIntosh
3	Priscilla	55158-2	Coop 5	McIntosh
2	Coop 5	18491	55158-2	55158-2
1		Cortland	55166-23	Prima

*Trees are reversed in the two blocks.

+ Summerland variety.

¹ Nova Easy Gro & 61345-2 grafted spring 1979.

Drive