

FRUIT AND NUT CROPS RESEARCH IN TEXAS, 1987

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48	Berry Tompkins	
15	R. D. Marquard	Pecan
17	L. Austin Stockton	Grapes Apples
19, 20, 21, 23	John A. Lipe	Peach
19, 20	Duery Menzies	Pecan

COMPILED AND EDITED BY:

Robert E. Rouse
 Texas Agricultural Experiment Station
 2415 East Highway 83
 Weslaco, TX 78596

David H. Byrne
 Department of Horticulture
 Texas A&M University
 College Station, TX 77843

The Texas Agricultural Experiment Station, Neville P. Clarke, Director,
 Texas A&M University System, College Station, TX.

SUBJECT TOPIC: Effect of PostHarvest Foliage Fungicides on Severity of Peach Rust (Tranzschelia discolor Pers.)

INVESTIGATOR(S): Benard Mitchell - TAEX, Wharton
 Jerral Johnson - TAEX, College Station
 Jerry Trampota - TAEX, Plant Pathology

CROP(S): Peach

ABSTRACT:

Objectives:

To evaluate potential fungicides for the control of peach rust.

General Approach:

Commercial peach production in South Texas will be significantly handicapped if an effective control for rust is not developed. Sulfur is currently the only fungicide approved for control of this fungus disease. Producers using sulfur report poor to no control when it is applied on a regular schedule.

A block of 42 trees was selected on the property of Walter Gundermann to evaluate fungicides for the control of peach rust. The trees were divided into 21, two tree plots. One tree in each plot received 0.23 kg (0.5 lb) of ammonium nitrate on July 31. Each treatment was replicated three times.

All trees were sprayed with a John Bean hydraulic sprayer equipped with a 18.9 l/min (5 gpm) pump and a hand gun. Each tree received 7.6 l (2 gal) of spray solution. This resulted in a coverage near the drip point.

Fungicides and Rates Used:

Bravo 500 5.2 l/ha (4.5 pts/acre) (4 applications)
 Bravo 500 7.0 l/ha (6.0 pts/acre) (4 applications)

Orbit 0.6 l/ha (4 oz/acre) (4 applications)
 Orbit 1.2 l/ha (8 oz/acre) (4 applications)
 Orbit 1.2 l/ha (8 oz/acre) (1 application, Sept. 4)
 Sulfur 4.1 l/ha (3.5 pts/acre) (4 applications)

Spray Dates:

July 3, July 31, Aug. 21 and Sept. 4

FINDINGS:

Effect of Fungicides on Peach Rust.

Fungicide	Rate /ha	Rate/ acre	Nitrogen	Sept. 4	Rust Rating ^{1/}		Oct. 29	% Defol- iation Oct. 29
					Sept. 17	Sept. 29		
Bravo 500	5.2 l	4.5 pts	+	1.1	1.3	1.7	6.0	40
Bravo 500	5.2 l	4.5 pts	-	1.1	1.2	1.2	5.3	52
Bravo 500	7.0 l	6.0 pts	+	1.3	1.4	1.2	2.3	32
Bravo 500	7.0 l	6.0 pts	-	1.1	1.5	1.5	2.8	33
Orbit 3.6E	0.6 l	4 fl oz	+	1.6	2.4	7.4	10.0	95
Orbit 3.6E	0.6 l	4 fl oz	-	1.5	2.5	5.9	10.0	96
Orbit 3.6E	1.2 l	8 fl oz	+	1.3	1.3	2.5	9.8	93
Orbit 3.6E ^{2/}	1.2 l	8 fl oz	-	1.2	1.3	2.2	9.5	92
Orbit 3.6E ^{2/}	1.2 l	8 fl oz	+	2.1	1.8	4.9	10.0	93
Orbit 3.6E ^{2/}	1.2 l	8 fl oz	-	1.8	1.9	3.7	10.0	96
Super Six (sulfur)	4.1 l 379 l	3.5 pts/ 100 gals	+	3.3	8.3	8.9	10.0	98
Super Six	4.1 l 379 l	3.5 pts/ 100 gals	-	2.4	7.8	8.6	10.0	99
Unsprayed		-----	+	2.3	5.9	8.3	10.0	95
Unsprayed		-----	-	2.0	5.8	7.9	10.0	96
LSD probability		0.05%		0.64	1.35	1.43	0.67	11

^{1/} Rust Ratings:

1 = no disease, 2 = 1-5 pustules/leaf, 3 = 6-10 pustules/leaf, 4 = 11-15 pustules/leaf, 5 = 16-20 pustules/leaf, 6 = 21-25 pustules/leaf, 7 = 26-30 pustules/leaf, 8 = 31-35 pustules/leaf, 9 = 36-40 pustules/leaf, and 10 = 41+ pustules/leaf.

^{2/} Single application made on September 4 after pustules were observed on the leaf.

Bravo 500 at 5.2 l/ha (4.5 pts/acre), effectively controlled peach rust for 25 days after the last application. By the last evaluation, which was made at 54 days after the last application, control of rust had increased significantly.

Bravo at 7.0 l/ha (6.0 pts/acre) was still effective after 54 days. Based on these results, it is suggested that the 5.2 l/ha rate be used when the spray program is going to be repeated in 2-3 weeks. The last application should be 7.0 l/ha. This will give protection until normal defoliation.

Orbit 3.6E at 0.6 l/ha (4 fl oz/acre) was effective as long as the spray schedule was on a 2-3 week schedule based on the September 4 to September 17 evaluation. The 1.2 l/ha (8.0 fl oz/acre) rate was more effective and held the fungus under control for 25 days but by the 54-day evaluation, it was not longer effective. If used, it will need to be applied on a 3-week schedule to maintain its effectiveness. The single application of Orbit at 1.2 l/ha was effective for only 2 weeks. It could be used if the fungus has started developing in the tree. Once the initial spray was made, the rate could then be reduced to 0.6 l/ha and used on a 2-week interval.

Super Six is a flowable form of sulfur which is currently cleared for peach rust. In this trial, it was not effective against the rust fungus. Unfortunately, sulfur is the only fungicide currently cleared by EPA for use on rust.

The sulfur and unsprayed plots completely defoliated once and by the last evaluation (October 29), the second crop of leaves had become infected and dropped from the tree. Trees in both the unsprayed and sulfur plots were blooming on October 29. Although the Orbit plots had prematurely defoliated, fruit buds had not forced.

Based on these results, there are fungicides available which will control peach rust if used on a regular schedule and at the correct rate. Bravo 500 is currently cleared on peaches for scab in bloom and shuck split period and as a dormant application for peach leaf curl. Rust needs to be added to this label and this is being pursued by the company.

Orbit is currently not cleared on peaches for any use at this time. The company is pursuing a label for brown rot on peach.

Plot	Rate	Defoliation	Yield	Quality	Notes
1	0.0	10.0	1.0	1.0	Unsprayed
2	0.0	10.0	1.0	1.0	Unsprayed
3	0.0	10.0	1.0	1.0	Unsprayed
4	0.0	10.0	1.0	1.0	Unsprayed
5	0.0	10.0	1.0	1.0	Unsprayed
6	0.0	10.0	1.0	1.0	Unsprayed
7	0.0	10.0	1.0	1.0	Unsprayed
8	0.0	10.0	1.0	1.0	Unsprayed
9	0.0	10.0	1.0	1.0	Unsprayed
10	0.0	10.0	1.0	1.0	Unsprayed
11	0.0	10.0	1.0	1.0	Unsprayed
12	0.0	10.0	1.0	1.0	Unsprayed
13	0.0	10.0	1.0	1.0	Unsprayed
14	0.0	10.0	1.0	1.0	Unsprayed
15	0.0	10.0	1.0	1.0	Unsprayed
16	0.0	10.0	1.0	1.0	Unsprayed
17	0.0	10.0	1.0	1.0	Unsprayed
18	0.0	10.0	1.0	1.0	Unsprayed
19	0.0	10.0	1.0	1.0	Unsprayed
20	0.0	10.0	1.0	1.0	Unsprayed
21	0.0	10.0	1.0	1.0	Unsprayed
22	0.0	10.0	1.0	1.0	Unsprayed
23	0.0	10.0	1.0	1.0	Unsprayed
24	0.0	10.0	1.0	1.0	Unsprayed
25	0.0	10.0	1.0	1.0	Unsprayed
26	0.0	10.0	1.0	1.0	Unsprayed
27	0.0	10.0	1.0	1.0	Unsprayed
28	0.0	10.0	1.0	1.0	Unsprayed
29	0.0	10.0	1.0	1.0	Unsprayed
30	0.0	10.0	1.0	1.0	Unsprayed
31	0.0	10.0	1.0	1.0	Unsprayed
32	0.0	10.0	1.0	1.0	Unsprayed
33	0.0	10.0	1.0	1.0	Unsprayed
34	0.0	10.0	1.0	1.0	Unsprayed
35	0.0	10.0	1.0	1.0	Unsprayed
36	0.0	10.0	1.0	1.0	Unsprayed
37	0.0	10.0	1.0	1.0	Unsprayed
38	0.0	10.0	1.0	1.0	Unsprayed
39	0.0	10.0	1.0	1.0	Unsprayed
40	0.0	10.0	1.0	1.0	Unsprayed
41	0.0	10.0	1.0	1.0	Unsprayed
42	0.0	10.0	1.0	1.0	Unsprayed
43	0.0	10.0	1.0	1.0	Unsprayed
44	0.0	10.0	1.0	1.0	Unsprayed
45	0.0	10.0	1.0	1.0	Unsprayed
46	0.0	10.0	1.0	1.0	Unsprayed
47	0.0	10.0	1.0	1.0	Unsprayed
48	0.0	10.0	1.0	1.0	Unsprayed
49	0.0	10.0	1.0	1.0	Unsprayed
50	0.0	10.0	1.0	1.0	Unsprayed
51	0.0	10.0	1.0	1.0	Unsprayed
52	0.0	10.0	1.0	1.0	Unsprayed
53	0.0	10.0	1.0	1.0	Unsprayed
54	0.0	10.0	1.0	1.0	Unsprayed
55	0.0	10.0	1.0	1.0	Unsprayed
56	0.0	10.0	1.0	1.0	Unsprayed
57	0.0	10.0	1.0	1.0	Unsprayed
58	0.0	10.0	1.0	1.0	Unsprayed
59	0.0	10.0	1.0	1.0	Unsprayed
60	0.0	10.0	1.0	1.0	Unsprayed
61	0.0	10.0	1.0	1.0	Unsprayed
62	0.0	10.0	1.0	1.0	Unsprayed
63	0.0	10.0	1.0	1.0	Unsprayed
64	0.0	10.0	1.0	1.0	Unsprayed
65	0.0	10.0	1.0	1.0	Unsprayed
66	0.0	10.0	1.0	1.0	Unsprayed
67	0.0	10.0	1.0	1.0	Unsprayed
68	0.0	10.0	1.0	1.0	Unsprayed
69	0.0	10.0	1.0	1.0	Unsprayed
70	0.0	10.0	1.0	1.0	Unsprayed
71	0.0	10.0	1.0	1.0	Unsprayed
72	0.0	10.0	1.0	1.0	Unsprayed
73	0.0	10.0	1.0	1.0	Unsprayed
74	0.0	10.0	1.0	1.0	Unsprayed
75	0.0	10.0	1.0	1.0	Unsprayed
76	0.0	10.0	1.0	1.0	Unsprayed
77	0.0	10.0	1.0	1.0	Unsprayed
78	0.0	10.0	1.0	1.0	Unsprayed
79	0.0	10.0	1.0	1.0	Unsprayed
80	0.0	10.0	1.0	1.0	Unsprayed
81	0.0	10.0	1.0	1.0	Unsprayed
82	0.0	10.0	1.0	1.0	Unsprayed
83	0.0	10.0	1.0	1.0	Unsprayed
84	0.0	10.0	1.0	1.0	Unsprayed
85	0.0	10.0	1.0	1.0	Unsprayed
86	0.0	10.0	1.0	1.0	Unsprayed
87	0.0	10.0	1.0	1.0	Unsprayed
88	0.0	10.0	1.0	1.0	Unsprayed
89	0.0	10.0	1.0	1.0	Unsprayed
90	0.0	10.0	1.0	1.0	Unsprayed
91	0.0	10.0	1.0	1.0	Unsprayed
92	0.0	10.0	1.0	1.0	Unsprayed
93	0.0	10.0	1.0	1.0	Unsprayed
94	0.0	10.0	1.0	1.0	Unsprayed
95	0.0	10.0	1.0	1.0	Unsprayed
96	0.0	10.0	1.0	1.0	Unsprayed
97	0.0	10.0	1.0	1.0	Unsprayed
98	0.0	10.0	1.0	1.0	Unsprayed
99	0.0	10.0	1.0	1.0	Unsprayed
100	0.0	10.0	1.0	1.0	Unsprayed

1 = no disease, 2 = 1-5 pustules/leaf, 3 = 6-10 pustules/leaf, 4 = 11-15 pustules/leaf, 5 = 16-20 pustules/leaf, 6 = 21-25 pustules/leaf, 7 = 26-30 pustules/leaf, 8 = 31-35 pustules/leaf, 9 = 36-40 pustules/leaf, and 10 = 41+ pustules/leaf.

Single application made on September 4 after pustules were observed on the leaf. Bravo 500 at 0.25 lbs (4.8 oz/acre), effectively controlled peach rust for 25 days after the last application. By the last evaluation, which was made 24 days after the last application, control of rust had increased significantly.

Bravo at 7.0 lbs (8.0 oz/acre) was still effective after 84 days. Based on these results, it is suggested that the 0.25 lbs rate be used when the spray program is going to be repeated in 2-3 weeks. The last application should be 7.0 lbs. This will give protection until normal defoliation.

Orbit 1.0 lb at 0.5 lbs (4.7 oz/acre) was effective as long as the spray schedule was on a 2-3 week schedule based on the September 4 to September 7 evaluation. The 1.5 lbs (8.0 oz/acre) rate was more effective and held the fungus under control for 25 days but by the 24-day evaluation, it was not longer effective. If used, it will need to be applied on a 3-week schedule to maintain its effectiveness. The single application of Orbit at 1.5 lbs was effective for only 2 weeks. It could be used if the fungus has started developing on the tree. Once the initial spray was made, the rate could then be reduced to 0.8 lbs and used on a 2-week interval.