2003/2004 Studies on Powdery Mildew Control in Watermelons

University of California
Cooperative Extension
420 South Wilson Way
Stockton, California 95205

Control of Powdery Mildew (*Sphaerotheca fulginea* and *Erysiphe cichoracearum*) During 2003 and 2004 in San Joaquin County

Robert Mullen, Scott Whiteley, Donald Colbert and Randall Wittie

During the 2003 and 2004 watermelon growing seasons, trials to evaluate the efficacy of seven fungicides for the control of Powdery Mildew (*Sphaerotheca fulginea* and *Erysiphe cichoracearum*) were established near Thornton, California at Celli Brothers Farms (David Celli, Robert Celli and David Celli, Jr.). The 2003 trial was a strip trial looking at five different fungicides. Treatments were initiated on 7/25/03 with additional spray applications on 8/1/03, 8/8/03 and 8/14/03. The watermelons were at early fruit set stage at the start of treatment. All treatments were made using a handheld CO_2 backpack sprayer utilizing 8004 nozzles at 30 psi in a spray volume of 50 gallons per acre water. The soil type at the trial site was a Columbia silty clay and the field was furrow irrigated throughout the season. Disease pressure was moderate to severe and disease severity ratings were taken 8/14/03, 8/20/03 and 8/26/03. All treatments gave excellent control of Powdery Mildew, relative to the untreated control, led by Procure (triflumizole) at the high rate, Pristine (pyraclostrobin and nicobifen), the low rate of Procure, Quintec (quinoxyfen), Rally (myclobulanil) and Cabrio (pyraclostrobin). No observed phytotoxicity occurred on the crop with any of the treatments. Disease severity ratings for each of the treatments are provided in **Table 1**.

The 2004 trial was a replicated study examining the efficacy and crop phytotoxicity of six different fungicides. Spray applications were begun when the watermelons were at early to mid fruit set on 8/3/04 with following treatments made on 8/11/04, 8/17/04 and 8/25/04. Spray applications were made with a handheld CO_2 backpack sprayer using 8004 nozzles at 30 psi in a spray volume of 50 gallons water per acre. The soil type at the trial site was a Columbia silty loam and the trial field was irrigated with a combination of furrow and buried drip; the field variety was 5244. Disease pressure was moderate. There were four replications of each treatment and the plot design was a randomized complete block. Disease severity ratings were taken on 9/2/04, 9/8/04 and 9/15/04. All treatments gave better control of Powdery Mildew when compared to the untreated control but the best treatments were led by Quintec (quinoxyfen), Pristine (pyraclostrobin plus nicobifen) plus Silwet, Flint (trifloxystrobin) and Procure (triflumizole). All treatments were quite safe to the crop, except Pristine plus Silwet. The trial protocol called for a very high rate of Silwet (1/4% v/v) and this was suspected strongly for having caused crop leaf burn. In a satellite strip, three rates of Silwet (1/4%, 1/8% and 1/16%) were added to Pristine and the amount of crop injury declined to zero when only 1/16% was used with Pristine. Complete data on Disease Severity Ratings are shown in **Table 2.**

Table 1. 2003 Watermelon Powdery Mildew Control
Celli Brothers Farms near Thornton, California

	Treatment	Rate/Acre	Disease Severity Ratings [1] 8/14	8/20	8/26
1. (Yellow)	Procure (4SC)	8 oz. product	1.0	0.5	1.3
2. (Red)	Procure	12 oz. product	0.5	0.5	0.8
3. (Pink)	Quintec (250SC)	4 oz. product	0.5	1.0	1.3
4. (Blue)	Cabrio (20WG)	0.20 lb A.I.	1.0	2.0	2.1
5. (Orange)	Rally (40WP)	0.125 lb A.I.	1.5	2.0	1.7
6. (Green)	Pristine (38WG)	0.30 lb A.I.	1.5	1.0	0.8
7. (White)	Untreated Control	-----	2.8	3.8	4.2

[1] Disease severity ratings – 0 to 5:
0 = no infection present
5 = complete infection/defoliation

Table 2. 2004 Watermelon Powdery Mildew Control
Celli Brothers Farms near Thornton, California

Treatment	Rate/Acre	Disease Severity Ratings [1] 9/2	9/8	9/15
Topsin M (70WP)	0.500	2.3	1.5	2.3
Flint (50WP)	0.125	1.5	1.9	2.0
Rally (40WP)	0.125	2.2	1.9	2.2
Pristine (38WG) + Silwet	0.300 + ¼%	1.9	1.7	1.8
Quintec (250SC)	0.300	1.6	2.0	1.8
Procure (50WS)	0.250	2.0	1.6	2.0
Untreated Control	-----	2.7	2.1	2.8

[1] Average of four replications:
Disease severity ratings – 0 to 5:
0 = no infection present
5 = complete infection/defoliation

CAUTION

This publication is a pest management study conducted in watermelons in San Joaquin County during 2003 and 2004. It should not, in any way, be interpreted as a recommendation of the University of California. Chemical or common names of pesticides are used is this report as well as the trade names of these products. No endorsement of products mentioned or criticism of similar products is intended. The rates of pesticides in this report are always expressed as active ingredients (A.I.) of the material per treated acre, unless otherwise indicated.

Trade Name	Common or Chemical Name	Manufacturer
Cabrio (20WDG)	pyraclostrobin	BASF Corporation
Pristine (38WDG)	pyraclostrobin + nicobifen	BASF Corporation
Quintec (250SC)	quinoxyfen	Dow Agro Sciences
Rally (40WP)	myclobutanil	Dow Agro Sciences
Folicur (3.6F)	tebuconazole	Bayer Ag Chemicals
Topsin M (70WP)	theophanate-methyl	Cerex Agri, Inc.
Procure (4SC and 50WS)	triflumizole	Uniroyal Chemical Co.
Flint (50WG)	trifloxystrobin	Syngenta Crop Protection

University of California Cooperative Extension of San Joaquin County
420 South Wilson Way, Stockton, California 95205-6243 Telephone (209) 468-2085