

Evaluation of Selected chemical for control of Gummy stem Blight (*Didymella byroniae*), Downy Mildew (*Pseudoperonospora cubensis*) on Watermelon cv. Jubilee.

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Materials and Methods:

Seed of Watermelon cv. Jubilee were planted March 3 in the greenhouse for transplant into prepared beds at the Citra, PSREU research farm. The plots were planted in the field on March 19, 2008 in a randomized complete block design with five replicates for each treatment. Each replicated treatment contained 15 plants planted on three foot centers within the row and rows set up on 6 foot centers. Transplants were inoculated on April 4, 2008 by placing potted watermelon plants infected with Gummy Stem Blight (*Didymella byroniae*), at each end of each treatment block. Overhead irrigation was conducted daily for 1.5 hours for a ten day period to insure the spread of the pathogen within the test plots.

Fungicide applications were started 14 days after transplant and continued on a 7-14 day interval until the test was terminated.

Data Collection:

Disease data was collected starting 20 days after inoculation and was continued weekly until the test was terminated June 20, 2008. When the test was terminated marketable fruit were harvested, counted and weighed.



Untreated check plot with Gummy Stem Blight June 20, 2008

Table 1. Application schedule for 2008 Watermelon test

	A	B	C	D	E
	4/25/2008	5/9/2008	5/23/2008	6/5/2008	6/19/2008
T1- Untreated					
T2- Quadris	x	x	x	x	x
T3- Ranmn+Activator	x				
T3- Revus8 oz/A+Dithane F-45Rainshield 2.4Qt/A+ activator		x		x	
T3- Bravo waetherstick 2 pt/A			x		x
T4- Revus 8oz/A+ Dithane 2.4qt/A+ Activator	x		x		x
T4- Bravo Weatherstick 2pt/A		x			
T4- Ranman 2.75 oz/A				x	
T5- Inspire 20 oz/A	x	x	x	x	x

Table 2. Plot Layout

East

BUFFER	T3	T5	T4	T1	T3	BUFFER
BUFFER	T4	T3	T1	T5	T1	BUFFER
BUFFER	T2	T1	T5	T2	T4	BUFFER
BUFFER	T5	T4	T2	T3	T2	BUFFER
BUFFER	T1	T2	T3	T4	T5	BUFFER

Table 3. Severity of Gummy stem Blight on Watermelon on three sample days, AUDPC of Gummy Stem Blight and Marketable fruit Yield in pounds.

	GSB Disease June 5, 2008	GSB Disease June 11, 2008	GSB Disease June 19, 2008	AUDPC	Marketable Fruit count	Marketable Yield (lbs) Mean of 12 fruit
T1- Untreated	14A ^z	40A	54A	695AB	12.4A	25.7A
T2 Quadris	10AB	29AB	70A	892A	11.8A	22.9A
T3- Revus + Dithane F45 rainshield+ activator alternated with Bravo Weather stick	10AB	37AB	52A	631.5B	12.8A	24.7A
T4- Revus + Dithane F45 rainshield+ activator alternated with Bravo Weather stick Alternated with Ranman	9B	27B	70A	610.3B	12.4A	24.9A
T5- Inspire	8B	29AB	40A	510.3B	12.4A	23.9A

^z All data was analyzed using SAS 9.1 and means were separated using ANOVA and Fishers protected LSD.

Values followed by the same letter are not significantly different at P>0.05.

Results and Discussion:

Downy mildew was observed one time throughout the test (May 16, 2008) and only at low levels in the untreated check. Examination on the next sampling date revealed a complete absence of Downy Mildew.

Gummy stem blight was first observed on June 5, 2008 almost 30 days after inoculation. On June 5, 2008 treatment 4, Revus + Dithane+ activator alternated with Bravo and Ranman , and treatment 5, Inspire, had significantly less disease than treatment 1 (untreated check) ,Treatment 2 (Quadris) and treatment 3 (Revus + Dithane rainshield + activator alternated with Bravo Weatherstick). On June 11, 2008 only treatment 4 (Revus + Dithane+ activator alternated with Bravo and Ranman), had significantly less disease compared to the untreated check and the other treatments.

The disease control observed in treatments 4 and 5 was overcome by the increased disease pressure observed the June 19, 2008 sampling date.

An analysis of the Area Under the Disease Progress Curve (AUDPC) showed that the three treatments(T3, T4, and T5) evaluated in this test had significantly less disease than treatment 2 (Quadris). However, these three treatments did not have significantly less disease than the untreated check.

Analysis of Marketable fruit harvested from each treatment and the weight of the harvested marketable fruit showed no significant differences between the test treatments and the untreated check.

Summary: When disease pressure was low to moderate Treatment 4 (Revus + Dithane+ activator alternated with Bravo and Ranman) and Treatment 5 (Inspire) had less disease than the untreated check and the other treatments. When examining disease overtime (AUDPC) Treatments 3, 4, and 5 had significantly less disease than Treatment 2, Quadris but not significantly less than the untreated check. There were no significant differences in any of the treatments in the number or weight of the marketable fruit harvested at the end of the test.