

RESEARCH REPORT TO
OREGON COMMODITY COMMISSION

TITLE: Control of Rust, Cercospora, and Mildew of Table Beets

PROJECT LEADERS: Ross Penhallegon, OSU Extension, Commercial
Horticulture, Lane County

Paul Koepsell, Dept. of Botany and Plant
Pathology, OSU

PROJECT STATUS: Continuing - completion time: December 31, 1991

PROJECT FUNDING by Commission for this report period was \$1750. The funds were used to purchase plot materials, spray equipment, and hire labor to harvest the plots. Funds from Lane County Extension budget (\$500) were also used on this project.

OBJECTIVE: To evaluate the effectiveness of non registered chemicals (Bayleton, Folicur) and registered chemical (Sulfur) for the control of Rust, Leaf Spot, and Mildew in Table Beets (*Uromyces betae*, *Cercospora beticola*, *Peronospora schachtii*, and *Erysiphe polygoni*.)

METHODS: Fungicide trials were replicated on three commercial plantings to control foliar disease on table beets near Junction City and Harrisburg, Oregon. Field tests were conducted on site 1 - Malabon silty clay loam and Salem gravelly silt loam, and site 2 - Cloquato silt loam, site 3 - Camas gravelly sandy loam. Each replication was three rows wide (row spacing 18") and 40 feet long.

Table beets were planted in all three sites, May 5, 6, and 10, 1991. Three fungicides were applied two times during the growing season. The early and late plantings of beets were sprayed September 6 and October 2. A 5 lb. aluminum CO2 cylinder, with three nozzle spray boom was used in the applications. Fungicides were applied at 35 psi in 82 gallons of water/A with a hand held CO2 boom sprayer held 12-15 inches above the foliage. Visual evaluations also were made for leaf spot, rust, downy and powdery mildew. The sites were visually evaluated for phytotoxicity on September 12 and October 9.

RESULTS: Diseases of leaf spot, powdery mildew and rust began in July and August, but due to hot weather the diseases weren't significant until October.

For Leaf Spot (*Cercospora*) Control, Bayleton rated best with only 2.5% average leaf infection. It was followed by Folicur - 3.5%, Sulfur - 8.8%, and control had 10.5% infection.

For Rust Control, Folicur was best with only 6.7% leaf infection, followed by Bayleton - 8.9%, Sulfur - 13.5%, and control

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RESULTS: Diseases of leaf spot, powdery mildew and rust began in July and August, but due to hot weather the diseases weren't significant until October.

For Leaf Spot (*Cercospora*) Control, Bayleton rated best with only 2.5% average leaf infection. It was followed by Folicur - 3.5%, Sulfur - 8.8%, and control had 10.5% average infection.

For Rust Control, Folicur was best with only 6.6% leaf infection, followed by Bayleton - 8.8%, Sulfur - 13.5%, and control with 20.0% average infection.

For Powdery Mildew Control, Bayleton provided excellent control, with Folicur also providing very good control.

The Over-all Disease Control rating showed Bayleton and Folicur with excellent ratings for leaf spot, rust, and powdery mildew.

Treatment Name and Rate/A	Foliage Area w/ <u>Cercopsora*</u>		Foliage Area w/ <u>Rust*</u>		Foliage Area w/ <u>Powdery Mildew*</u>	
	Site 1	Site 2	Site 1	Site 2	Site 1	Site 2
Untreated	0.0a	10.5 b	20.0 b	20.0 b	76.3 b	31.3 bc
Sulfur	0.0a	8.8ab	14.5ab	12.5ab	71.3 b	22.5 bc
Folicur	2.5a	4.5ab	8.75a	4.5a	41.3a	8.8 ab
Bayleton	2.0a	3.0a	12.5a	5.3a	37.5a	6.3 a

* Treatment means within a column followed by the same letter do not significantly differ according to Duncan's Multiple Range Test (P=0.05).

Yield/Weight Ratings

	lb/40 ft./row	Tons / Acre
Folicur	59.69 a	21.67
Bayleton	65.81 ab	23.89
Sulfur	74.92 b	27.2
Control	76.57 b	27.8

SUMMARY: The findings of this years study showed that Bayleton and Folicur did an excellent job of controlling foliar diseases.

SIGNATURES

Redacted for Privacy

Project Leaders _____

Department Head _____