

POTATO VINE DESSICANT STUDY

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ABSTRACT

Two potato vine dessicants, Diquat (1 pt/A) and dinoseb (2 qt/A), were compared with and without vine rolling. Diquat was slower acting than dinoseb, however, after 10 days both compounds produced complete dessication. Vine rolling immediately before dessicant application improved vine killing effectiveness.

METHODS

A randomized, complete block experimental design with four replicates was used to evaluate potato (Russet Burbank) vine dessication. Diquat (1 pt/A) and dinoseb (2 qt/A) were compared with and without vine rolling, and at early (Sept. 6, 1983) and late (Sept. 20, 1983) spray dates. Frosts of 24 degrees F on Sept. 19 and 22 degrees F on Sept. 20, 1983, prevented application of dessicants on the late spray date. Vines were rolled immediately before spraying with a 12-foot wide rubber tire roller mounted on a three-point hitch.

Application data are outlined in Table 1. Dessicants were applied on Sept. 6, 1983. Percent vine kill was evaluated on Sept. 9, Sept. 13, and Sept. 16, 1983. Ten tubers from each treatment were cut and visually evaluated for vascular ring discoloration after two months of storage at 55 degrees F.

RESULTS

Table 2 summarizes the effects of 1 pt/A of Diquat and 2 qt/A of dinoseb on vine dessication of Russet Burbank potatoes. Three days after dessicant application, dinoseb resulted in an average 81% vine kill, Diquat averaged 68% vine kill. After one week, there were no significant (5%) differences in percent vine kill between both compounds. After 10 days, vines in all plots were 100% killed. A frost on Sept. 9, 1983, of 30 degrees F had minimal effects on the treatments.

Vine rolling before application significantly increased dessicant effectiveness. Three days after application, vine rolling produced 25% greater vine kill than plots where the vines were not rolled. After seven days, the effect of vine rolling was not significantly different.

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Table 1. Dessicant application data

LOCATION: Powell Butte, Crook County, Oregon
EVALUATION SCALE: 0 = no effect, 100 = complete kill
EVALUATION DATES: Sept. 6, Sept. 9, Sept. 13, Sept. 16, 1983
CROP (Cultivar): Potatoes (Russet Burbank)
PLANTING DATE: May 17, 1983
HARVEST DATE: Oct. 12, 1983
SEED SPACING: 9 inches
PLOT SIZE; ROW SPACING: 12 x 30 ft.; 36 inches
SOIL SERIES AND TYPE: Deschutes Sandy Loam
SOIL pH: 6.5
FERTILIZER: 1000 lbs/acre 16-16-16
EXPERIMENTAL DESIGN: Randomized Complete Block, 4 Replicates
APPLICATION DATE: Sept. 6, 1983
 TEMPERATURE: 74 degrees F
 SOIL TEMPERATURE (4 in.): 58 degrees F
 PERCENT CLOUD COVER: Clear
 WIND SPEED AND DIRECTION: 0-4 MPH, West
 DEW PRESENT: None
 TIME OF DAY: 10:00 AM
 SOIL MOISTURE: 60-70% Field Capacity
METHOD OF APPLICATION: Broadcast
 TYPE OF SPRAYER: Unicycle
 GROUND SPEED: Approximately 3 MPH
 TYPE OF CARRIER AND VOLUME: Water, 40 gal/acre
 LENGTH OF BOOM AND NOZZLE SPACING: 80 in., 16 in.
 NOZZLE SIZE AND TYPE: 8002 Flat Fan
 BOOM HEIGHT: 24 in.
 PRESSURE: 32 PSI
 SURFACTANT AND RATE: X-77, 12 oz/acre

Tubers from each treatment were cut and evaluated for vascular discoloration. All tubers from all treatments showed very slight stem end vascular discoloration. There were no differences among treatments.

Table 2. Effect of diquat and dinoseb on dessication of potato vines

TREATMENT		RATE/ ACRE*	9/6**	9/9	9/13	9/16
			-----% Vine Kill-----			
DIQUAT	VINES ROLLED	1 PT.	0	81	96	100
DIQUAT	VINES NOT ROLLED	1 PT.	0	54	90	100
DINOSEB	VINES ROLLED	2 QT.	0	90	95	100
DINOSEB	VINES NOT ROLLED	2 QT.	0	73	94	100
AVERAGE			0	74	94	100
LSD 5%			-	15	NS	---
CV%			0	13	4	0

* 12 oz/A of X-77 added.

** Application Date.