

# Fungicides Evaluated for Control of Sclerotinia Leaf Drop of Lettuce in 1991 Field Test

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## Abstract

*Leaf drop of lettuce, caused by the plant pathogenic fungi Sclerotinia sclerotiorum and S. minor, occurs every year in some lettuce fields in Arizona. When environmental conditions are favorable, disease incidence and resulting crop loss can be significant. During the 1990-1991 lettuce season in western Arizona, different fungicides and rates of materials were evaluated in the field for disease control. All tested materials increased yields compared to not using any fungicide for disease control.*

## Introduction

Leaf drop of lettuce, caused by Sclerotinia sclerotiorum and S. minor, occurs in some lettuce fields in Arizona every year. As with other fungal diseases of vegetable crops, environmental conditions have a significant influence on the development of leaf drop of lettuce. Generally, prolonged cool and moist conditions favor disease development. Continuous cropping of lettuce in fields where the disease is found can increase the numbers of pathogen sclerotia present in succeeding plantings of lettuce, which can lead to increasing levels of disease. The fungicides Rovral and Ronilan are currently registered for use on lettuce and can provide significant control of Sclerotinia leaf drop.

## Materials and Methods

In 1990-91, a fungicide trial was established at the Yuma Agricultural Center to evaluate different materials for control of Sclerotinia leaf drop of lettuce. Inoculum of Sclerotinia sclerotiorum was produced in glass containers by seeding moist sterilized barley grain with sclerotia of the fungus. Abundant sclerotia were formed after incubation of the inoculated barley grain for three months at 75-81 F. The mixture of sclerotia and infested grain was used as inoculum. Lettuce (Vanguard 75) was seeded November 14, 1990 in double rows 12 inches apart on beds 40 in. between row centers.

After thinning the lettuce at the 3-to-4-leaf stage to a 12-inch spacing (December 28, 1990), one pint of the dried mixture of sclerotia and infested grain was distributed evenly on each lettuce bed in a band 20 inches wide and 50 feet long. Fungicide treatments were applied to the entire surface of treated beds January 15 and three weeks later (February 4, 1991) with a tractor-mounted boom sprayer with nozzles spaced 12 inches apart that delivered 100 gal/acre at 100 psi. Treatments were replicated four times in a randomized complete block design. Each replicate consisted of 50 ft. of bed, which contained two 50 ft. rows of lettuce. Treatment beds were separated by single nontreated but inoculated beds. Furrow irrigation was used for the duration of this trial. Disease development was monitored by recording the number of collapsed lettuce plants. The percentage of marketable heads was determined at the conclusion of the test at plant maturity.

The results of this trial are presented in Table 1. At an appropriate rate, all tested materials significantly increased the percent marketable heads compared to plots receiving no chemical treatment. No significant differences in the percent diseased plants among the treatments were detected. This could be attributed to highly variable levels of disease control achieved within the replicates of some of the treatments. This variability could be due to the delayed application of fungicide treatments, compared to previous tests.

Table 1.

Results of 1991 Sclerotinia Leaf Drop Test on Lettuce

Treatment and Rate per acre	Percent Diseased Heads	Percent Marketable Heads
Control	40	22 c*
Ronilan 50 DF 0.5 lb. a.i.	28	28 bc
ASC-66825 50WP 1 lb. a.i.	24	31 ab
ASC-66825 50WP 1.5 lbs. a.i.	26	32 ab
Rovral 4F 2 lb. a.i.	29	32 ab
Ronilan 50 DF 1 lb. a.i.	21	37 a

\* Values followed by the same letter are not significantly different (P = 0.05) according to Duncan's Multiple Range Test.