



IN COOPERATION WITH COLORADO STATE UNIVERSITY

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Home Garden Control of Phytophthora Crown Rot of Petunia Douglas J. Phillips

Tests conducted in the past 3 years and concluded in 1964 indicate a possible control of Phytophthora crown rot of petunias under "home garden" conditions. Control of this petunia disease was achieved in 1963 test plots by soil fumigation with Mylone or by a weekly drench of Dexon (2). The major loss of petunia from this disease during the 1964 season was associated with infection of plants in the greenhouse before sale to the home gardener. This is unfortunate since control has been demonstrated under greenhouse conditions by the use of steamed soils and raised benches, or by application of Dexon (1).

Description and Treatment of Plots

Eight locations in the Denver area were selected and the cooperation of the gardeners secured. Two plots with histories of crown rot determined by 1962 isolations were treated with Mylone and Dexon. Three plots with histories of loss, one confirmed by 1962 isolation, were treated only with Dexon. Three plots with no histories of loss were treated only with Dexon as a test for phytotoxicity.

The treatments were: Mylone (dimethyltetrahydro 1,3,5,2 H-thiadiazine-2 thione) at 350 lb active material per acre or 0.8 lb active material per 100 sq ft; or a weekly Dexon (p-dimethylamino-benzenediazo sodium sulfonate) drench of 1 lb of 70% active in 15 gals of water per 50 sq ft. A hose siphon proportioner was used to apply the drench^a.

Plots were inconsistent in size and location. Some contained plants other than the petunias. The gardeners were asked to apply the Dexon drench weekly for 5 weeks, beginning with the date of transplanting, May 20. Mylone was applied by us on April 24 for the gardeners by soil incorporation of the Mylone, and the plots were sealed with plastic. The gardeners were instructed to remove the plastic in three days, and to plant on May 20.

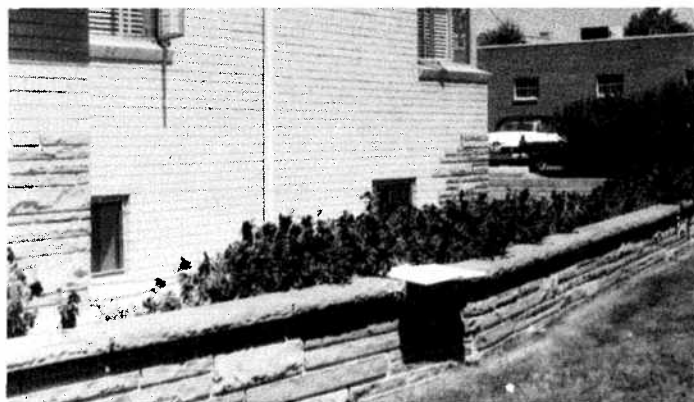


Fig. 1. Mylone-Dexon treated plot where plants were found to have been diseased before transplanting.

^aProportioners supplied by L. P. Quattrochi, Chema-gro Corporation.

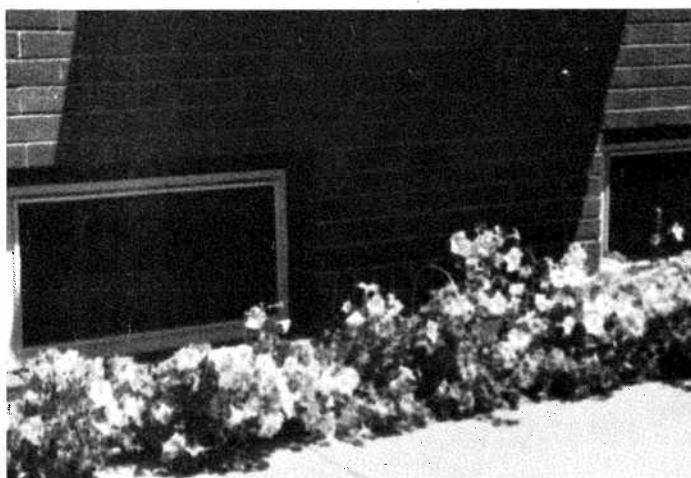


Fig. 2. Mylone-Dexon treated plot where all plants had died from crown rot for four consecutive years. No loss was seen in this plot in 1964.

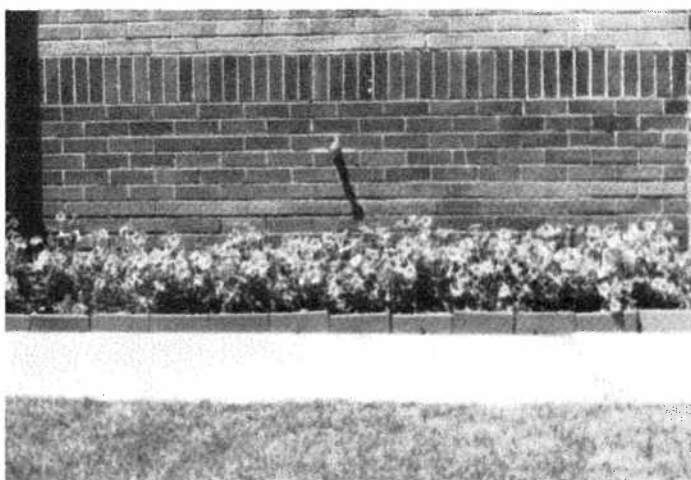


Fig. 3. Dexon treated plot where severe past loss had occurred from crown rot. Only 2% loss occurred in this plot in 1964.

The plots were visited four times during the season. First, on May 20 when the conditions of the transplants were checked. On subsequent visits problems of treatment and disease incidence were checked. Control plots consisted of observations of petunia gardens in the vicinity of each treated plot.

Results

The treated plots suffered little or no loss from *Phytophthora* crown rot, with the exception of a Mylone-Dexon treated plot where the plants were found to have been infected before transplanting to the bed (Fig. 1). No phytotoxicity was observed on the petunias or other annuals from the Dexon drench.

Two plots were of special interest. The first had a history of total loss during each of the past 4 years. Isolation from the plot had shown past losses to be associated with *Phytophthora parasitica*. No loss was seen in 1964 after a Mylone-Dexon drench treatment (Fig. 2). Loss was observed in nearby untreated petunia beds. The second plot, also with a long history of disease, suffered only 2% loss in the 1964 season after weekly Dexon drench treatments (Fig. 3).

The gardeners reported little difficulty in applying the Dexon drench. The schedule of applications did not follow exact weekly intervals, largely due to weather, vacations, etc.

Untreated plots showed little loss during the season. *Phytophthora* crown rot was seldom found. Where present, it appeared to be associated with greenhouse propagation. The unusually cool season during May and June may have contributed to insignificant field infection. The major loss in untreated plots was found associated with planting the crown of the plant below the soil line. No pathogen was consistently found to be associated with the deep planting loss.

Discussion and Home Garden Recommendations

Due to the nature of these tests, it was difficult to include scientifically acceptable controls. Thus these observations may be limited, especially if 1964 was an unusual season. The tests indicate that control of *Phytophthora* crown rot for home gardeners in Colorado may be possible through soil fumigation or weekly Dexon drench treatment. However, since Dexon may not be immediately available to the home gardener, and because of the need to evaluate the treatment for several years, no general recommendations can be given at this time for Dexon treatment.

The consistent association of loss with infection in the greenhouse is important. However, although greenhouse infection was generally observed in past years in Colorado, field infection cannot be minimized. Field losses of petunias from *Phytophthora* crown rot or other diseases may be lowered by recommending: 1) the purchase of plants with no symptoms of disease, especially elimination of plants with blackened lesions on the stems or crown, and 2) careful transplanting with special care not to cover the crown of the plant with soil.

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