REPORT TO THE AGRICULTURAL RESEARCH FOUNDATION
For the
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Title: **Evaluation of the Fungicide, Omega, for the Control of Club Root fungus in Broccoli and Cauliflower**

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Objective: The objective of this project was to evaluate the effectiveness of the fungicide, Omega (fluazinam), in controlling Club Root fungus, (*Plasmodiophora brassicae*) in Broccoli and Cauliflower when applied preplant incorporated or as a transplanting drench.

Procedures: Two trials were established at Battilega Farms on Eilers Rd. in Clackamas County. The field in which the trials were planted had a history of Club Root fungus. Mustard greens, kale and collard green crops have been grown over many years in the field, all of which are hosts to the fungus.

During the month prior to planting, the field was disked twice and left fallow until planting. A directed seeded cauliflower and mustard green trial was established on June 29, 2004. The trial consisted of 3 treatments, an untreated control, Terraclor at a rate of 7.5 gal/acre and Omega at a rate of 55 fl oz/acre. The products were sprayed on the soil surface to areas 12 ft wide by 25 ft long (plots randomly selected) and replicated four times (length of the trial was 360 ft). A 5 ft buffer separated each of the plots to prevent contamination when they were rototilled into the soil following application. Depth of incorporation was 8 to 10 inches. Once incorporated, the trial was seeded by tractor mounted planet juniors with Green Wave mustard green and Snowball Improved cauliflower. One bed was seeded with 4 rows of mustard green and the other bed was seeded with 2 rows of cauliflower. Triple-18 fertilizer was incorporated in a final disking the week prior to planting. No herbicides were applied to the trial area. Emerging weeds were removed by cultivation and hand weeding during the trial period.

A transplanted cauliflower and broccoli trial was established on July 7, 2004 adjacent to the directed seeded trial. Soil treatments were not applied. The two treatments used consisted of just an untreated and an Omega transplant tray-bath. Three hours prior to planting, the trays with the plants still in the cells, were submerged to just below the tray tops to saturate the soil plugs in a water bath solution of 0.1% Omega. The transplant trays were soaked for 1hour and removed to

allow drainage of excess solution. One bed of cauliflower transplants was planted with a tractor mounted 3-row mechanical transplanter. Over the length of the 360ft bed, treated plants alternated with untreated plants every 40 ft with a 5 ft buffer in between each for a total of 4 replications.

The broccoli trays were treated in the same manner as the cauliflower trays, but the plot layout differed because of a shortage of plants. The broccoli plot was not replicated. Instead, the treated plants were planted in the middle row of the three transplanted rows. The length of the plot was 270 ft.

Results:

Direct-seeded Trial

The mustard greens were evaluated on August 8, 2004. Twenty-five plants were dug from each treatment and the roots were examined for the presence of clubbed roots. No diseased roots were found in any plots. The direct-seeded cauliflower plot was evaluated on September 28, 2004, by digging up 25 plants and examining the roots. No evidence of disease was found in the cauliflower either.

Transplant Trial

The transplanted broccoli and cauliflower trials were evaluated on October 21, 2004. Ten plants from the center row of each cauliflower plot were dug up and the roots were examined for the presence of clubs. No diseased roots were found in either the untreated or the treated plants. In order to verify the results an additional 5 plants were dug from the outer row of each plot, with the same results. Because the broccoli trial was not replicated, 50 plants from the treated center row and 50 plants from the outer untreated rows were dug and examined for diseased roots. No infected plants were found in either the treated or untreated rows.

Conclusions:

The absence of disease symptoms in these trials exemplifies the impact of environmental conditions upon pathogen development. In the mid-1990, trials conducted in nearly the same location in this field were used to support an emergency use request for club root control in mustard greens. An earlier grower mustard planting this year, approximately 100 ft from the trial area, was nearly 70 infected with Club Root. A trial conducted in 2003 about 200 ft south of this trial location was infected late in the season, yet provided inclusive results. Based upon what is known regarding Club Root fungus, moist soil conditions are more conducive to infection than are dry conditions, such as we have had the last two years. However, the fact that the grower had problems with earlier plantings this year suggests that temperature and other factors play a role in the development of this obligate parasite.

Omega was not demonstrated to be an effective fungicide in this trial. Terraclor continues to be the only effective registered product. As with most of the older chemistries, this product will face a re-registration decision by the EPA. Although an effective and safer alternative to replace it may not be found, it is prudent to continue evaluating products for which successes have been reported on in other regions or countries.