Title: Carrot Decline

Project Leader and Department: Mary L. Powelson, Department of Botany and Plant Pathology

Project Status: Continuing to 1993

Project Funding: $2000
Funds were used for local travel and for soil fumigation.

Objective: Determine cause of reduction in carrot productivity

Progress:

During the first year of the project, our purpose was two fold: to identify growers who have had a problem with yield decline in carrot and to gain a perspective of this "problem" in the 1991 crop. Based on conversations with several growers, we identified three growers who had fields with a history of yield decline on their farms. These growers were scheduled to plant carrots in 1992 and agreed to have research plots established in these fields. On 11 October 1991, plots were fumigated and tarped with methyl bromide (67%)-chloropicrin (33%) at 350 lbs/acre in three fields. Fumigation and nonfumigated treatments were arranged in a randomized complete block design with four replication. These plots will be monitored for disease symptoms and vigor next summer.

In July and early September, samples of foliage and/or roots were collected from fields with mild or severe symptoms of blight (leaf spot). Fusarium and Alternaria were isolated routinely from root samples regardless of whether or not the field had a history of yield decline. Either Cercospora carotae or Alternaria dauci were isolated from leaf spot symptoms with the former associated more frequently with these symptoms. Severe symptoms of blight were more of a problem in fields with a history of carrot production than those fields newly cropped to carrot. In all fields sampled, both Cercospora and Alternaria were present.

Summary:

In the fields that were sampled, both Cercospora blight and Alternaria blight occurred in the same field. However, Cercospora blight appeared to be more prevalent than Alternaria blight this year. The importance of these two diseases, however, may vary from year to year and from farm to farm. Fungicides that are effective against Alternaria blight are not that efficacious against Cercospora blight and vice versa. The efficacy of different fungicides for control of these diseases should be evaluated. In other words, since both diseases occur in most fields what is the optimum fungicide management program. There appeared to be no organism consistently isolated from roots of carrot collected from fields with a decline problem. Finally, attention should be given to the complex of virus diseases of carrots in the Willamette Valley.

Signatures:

Project Leader Redacted for Privacy Date

Department Head Redacted for Privacy