1960 PEA DISEASE SURVEY IN THE OTTAWA VALLEY

V. R. Wallen

A total of ten fields of field and garden peas were examined for the incidence of disease in an area from Renfrew to Ottawa.

The incidence of virus diseases was particularly noted in fields observed at the Central Experimental Farm, Of the four fields examined, all showed virus infection to some extent. In one field of Chancellor peas three distinct virus diseases were found; pea streak was severe on 50 percent of the plants, common mosaic was moderate on 50 percent of the plants and enation mosaic was slight on 5 percent of the plants. In the same field Fusarium wilt and root rot was severe on 20 percent of the plants. Pea streak was also present in two fields of Arthur and Chancellor field peas and in one field of garden peas, variety Director. Pea virus diseases were noted only on the Central Experimental Farm.

Two fields of Delwiche Scotch field peas grown at Douglas and Shawville were moderately to severely infected with root rot. Subsequent isolation revealed that Ascochyta pinodella was responsible for this condition. One field of this variety grown at Richmond was free of disease.

Trace infections of Septoria leaf spot caused by S. pisi were noted in a field of Chancellor field peas grown at Antrim and a field of Delwiche Scotch grown at Shawville. A moderate infection on the lower leaves of most plants was noted in a field of Delwiche Scotch peas grown at Douglas.

Two fields of the new field pea variety Creamette were found to be free of disease. Information received later revealed that this variety produced over 50 bushels of seed to the acre.

For the first time since I began annual surveys for the incidence of pea diseases, no evidence of the leaf and pod spot disease of peas caused by Ascochyta pisi was noted.

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ASTER YELLOWS IN NOVA SCOTIA IN 1960

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Aster yellows reached epidemic proportions in Nova Scotia in 1960 for the first time since the serious outbreak of 1944, when infection in carrot fields averaged 20 percent and a record high of 40 per cent was found in one field. In fact, although the disease can always be found in weed hosts in the province, it appeared to be on the decline, especially since 1955, with annual losses ranging between 1 and 5 per cent in carrots and occasional outbreaks in beds of Calendula and Callistephus. Aster yellows in 1959 was at a very low ebb except in some fall crops of lettuce in the Grand Pre and Sydney areas where growers for several years have been experiencing a rapid build-up of the disease from July onward, rendering late field plantings of lettuce unprofitable. In the Kentville area there was nothing to indicate that an outbreak would develop in 1960, although the closely-related green petal of strawberries and phyllody of clover were unusually abundant in the spring of 1959.

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The disease was first recorded in 1960 on 12 July in a planting of Callistephus where four of the fifty plants were diseased. A severely diseased plant of Tragopogon pratensis was nearby. Two weeks later the first specimens of diseased carrots were seen and investigation showed the field from which they came to be 15 per cent infected with aster yellows. The number of carrots submitted for diagnosis soon after this brought the realization that a general infection of early-planted carrots had occurred some time in June. Mr. V.R. Vickery, Entomologist, reported that nymphs of Macrosteles fascifrons were present in exceptionally large numbers.

Between 10 and 12 August a survey was made of a number of crops and ornamental plantings in Kings County, Aster yellows infection was rated as follows: carrots, 20-25%; lettuce, 35%; parsnips, 10%; potatoes, trace -3%; tomatoes, trace -5%; squash and buckwheat showed trace infections. Among the ornamentals infection ratings were: Callistephus, 100%; Tagetes, up to 100%; Calendula, 2%; and Petunia, 1%. The following weeds were also found to be infected; fall dandelion (Leontodon autumnalis), wild carrot (Daucus carota), goats-beard (Tragopogon pratensis), pineapple weed (Matricaria matricarioides), daisy flea-bane (Erigeron annuus), ragweed (Ambrosia artemisiifolia), ox-eye daisy (Chrysanthemum leucanthemum), brown-eyed Susan (Rudbeckia hirta), dandelion (Taraxacum officinale), sow thistle (Sonchus arvensis and S. aspera), plantain (Plantago major), lady's thumb (Polygonurn persicaria) and spurrey (Spergula arvensis). Suspicious symptoms were also seen on alfalfa, Dahlia, Dianthus and hardy chrysanthemum,

In early September the extensive plantings of annual flowers in the Grand Pre National Park were examined and symptoms of aster yellows were evident on the following: Callistephus, 50%; Tagetes, 20%; Matthiola, 15%; Matricaria, 5%; annual phlox, 10%; Petunia, 2%; Linaria, Celosia, Nigella, Calendula, Zinnia and perennial phlox, trace. Widely scattered plants of Daucus carota, Leontodon autumnalis and Erigeron annuus in the area were infected.

A survey was made, late in September, in the vegetable growing district of Cole Harbor, 'Halifax County, in response to a request to investigate the complete loss of lettuce and spinach crops by two growers. The lettuce was found to be 95-100% infected and an adjoining spinach field was severely stunted and yellowed. A small carrot field showed 30% hairy root and parsnips showed 1% infection. Parsley and dill were infected in trace amounts. Severe bolting had occurred in several rows of Swiss chard, and aster yellows was suspected to be the cause. Nasturtiums in the vicinity were 10% infected, A number of weed species in the surrounding headlands were heavily infected,

A number of carrot fields were visited at harvest time. The most severely infected, an early planted field, had 30% culls from hairy root and 60% of the plants showed foliage symptoms. Yellows in later planted fields ranged between 15% and 40% with 10 to 25% of the roots showing hairy root, Very late planted fields had few foliage symptoms and no hairy root.

Table 1. Estimated losses expressed as percent of crop.

	Annapolis Valley	Cole Harbor	Sydney
Carrots			
Early	20	-	-
Mid-Season	15	-	-
Late	5	-	-
Lettuce	5	100	15
Spinach	-	100	-
Parsnips	10	-	-
Tomatoes	2	-	-
Potatoes	2	-	-
Squash	trace	-	-

Both the outbreaks in 1944 and 1960 occurred during dry summers. Table 2 shows the amounts of rainfall at Kentville for the period May - August in the two years,

Table 2. Rainfall at Kentville, N.S. Summers 1944 and 1960

	1944	1960	Mean (45 yr.)
May	0.22	2.35	2.75
June	2.88	2.67	2.79
July	2.30	1.55	2.74
August	3.02	2.02	3.44
Total	8.42	8.59	11.72

It is estimated that the most serious spread of aster yellows in carrots occurred in mid-June in fields seeded in early May. Later infections were not so severe. Carrots planted after the middle of June had only 20-40% foliage symptoms and very little hairy root. Plantings made in early July showed only 5% foliage symptoms and no hairy root. It is possible that some of the reduction in disease in the late-seeded crops was due to the widespread use of DDT for control of the leafhopper, The serious outbreak on lettuce at Cole Harbor would indicate that August infection was important in that area,

An interesting observation made in November was that three Calendula plants showed symptoms of phyllody. These were growing in a garden near strawberries with green petal and clover which exhibited symptoms of phyllody. Many of the remaining Calendula plants showed typical yellows symptoms.

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