Apple viruses in Ontario in 1966

T. R. Davidson and Wayne R. Allen[1]

During September and early October of 1966 surveys for visible virus symptoms were conducted in 25 apple orchards in the Aylmer, Brighton, Collingwood, Picton, Simcoe, Smithville and St. Catharines districts of Ontario. With two exceptions these were large orchards of 500 trees or more. Each contained a number of varieties. 'McIntosh', 'Red Delicious' and 'Northern Spy' made up the bulk of these plantings but a number of trees of the following varieties were also observed: 'Red Spy', and other 'Spy' sports, 'Snow', 'Dutchess', 'Golden Russet', 'St. Lawrence', 'R. I. Greening', 'Baldwin', 'Bancroft', 'Golden Delicious', 'Wealthy', 'Tolman's Sweet', 'Red Astrachan', 'Melba', 'Cortland', and lesser numbers of a few others.

Two or three observers, searching somewhat at random, examined a largenumber of trees in each orchard. Fruit deformities and blemishes, as well as leaf and stem symptoms of possible virus origin were the chief concern. The growers were asked if they had noticed any unusual conditions and Extension Specialists in each area also were queried.

In an orchard near Smithville, two apple trees of unknown variety were observed with pronounced apple mosaic symptoms. Fruits were normal on these trees.

In an orchard at Aylmer, two 'Northern Spy' trees had anunexplainable fruit-color break. Green stripes of varying width extended from the calyx towards the stem, and persisted in ripening fruits. This condition was not uniform throughout the tree as some branches bore normal fruits. Some leaves on new growth developed irregular chlorotic sectors.

In the Picton and Brighton areas severe leaf puckering due to early season frost was observed on a number of varieties. Misshapen fruits (elongate, flattened and egg-shaped) were common in McIntosh. This condition has been observed in many apple growing areas of Canada in the past two years. Early frost injury has been suggested as a possible

At Collingwood a fruit deformity of a somewhat different nature was seen in 1965 (Canadian Plant Dis. Survey 46: 7: 1966) and again this year. As before the condition affected a number of varieties on a number of root-stocks. A satisfactory explanation has not been found but this is probably nota virus problem.

These eurveys were concerned with diseases of possible virus nature that resulted inunsalable fruits, extreme reduction yield, or tree injury obvious by reduced vigor or altered habit. On these bases no important virus diseases were encountered.

1 Plant Pathologists, Canada Agriculture Research Station, Vineland Station, Ont.

Plant - parasitic nematode genera associated with crops in Ontario

J. L. Townshend[1], Th. H. A. Olthof[1] and J. E. Staples[2]

One hundred and eighty soil samples were examined by the Ontario Nematode Diagnostic and Advisory Service between Jan. 1 and Oct. 1, 1966. These samples originated from cereal, fruit, ornamental and vegetable crops. The majority of the samples came from tobacco. Data on the plant-parasitic nematode genera detected are compiled in Table 1.

The oat cyst nematode Heterodera avenae caused severe damage in some oat fields. In one field the crop was a total loss. Unfortunately, the root lesion nematode Pratylenchus sp. appears to be compounding the problem.

Among fruit crops, failure of individual trees in cherry and peach orchards because of P. penetrans continues to bother the growers. Tree site fumigation is recommended in the replacement of trees. Fewer samples from strawberry plantings were processed this year. Nevertheless more fumigation may be done this fall for the control of P. penetrans in prospective plantings than ever before. The root knot nematode Meloidogyne hapla was found only once in peach and strawberry.

In floral crops in greenhouses, the dagger nematode Xiphinema diversicaudatum is the most important and destructive nematode on roses. The root lesion nematode P. penetrans has become a problem on roses as well, particularly in ground beds with sandy soil. The occurrence of the stunt nematode Tylenchorhynchus, perhaps T. claytoni and the stubby root nematode Trichodorus christiei on greenhouse azaleas may become important. Both nematodes arrest growth.

The root lesion, root knot and cyst nematodes were all found on vegetables. The sugar beet cyst nematode Heterodera schachtii was found on table beet and rhubarb in the Woodbridge area above Toronto. The root knot nematode Meloidogyne hapla was found mainly on vegetables grown on muck soils. Pratylenchus penetrans was found in all vegetable soils.

Seventy-three of the 80 tobacco soil samples contained P. penetrans. Root samples were included in 67 of the samples. They were rated for severity (0-5) of black root rat (Thielaviopsis basicola). The results were as follows; no black root rot (0) -16; trace (1) -22; light (2) -16; moderate (3) -10; severe (4) -3; and very severe (5) -0.

In summary, almost every crop was attacked by the root lesion nematode. This indicates its wide distribution in Ontario. Cherry, oats, peach, rose, strawberry and tobacco suffered the most damage. The cyst and root knot nematodes occur more sporadically and they have a more specific distribution.

1 Nematologists, Research Station, Research Branch, Canada Department of Agriculture, Vineland Station Ontario.

2 Assistant Technician, Horticultural Experiment Station, Ontario Department of Agriculture, Vineland Station, Ontario.