A new record of stem and bulb nematode in Ontario

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Ditylenchus dipsaci, the stem and bulb nematode, was detected in onions (*Allium* cepa) grown near Cookstown, Ontario, in 1973 and in onions and garlic (*A. sativum*) in the same area in 1974. Care must be taken to avoid introducing the nematode into the nearby onion growing area at the Bradford Marsh.

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On a decele la presence du nematode des tiges et des bulbes, Ditylenchus dipsaci, chez les oignons (*Allium* cepa) cultives pres de Cookstown (Ont.) en 1973, et chez des oignons et de l'ail (*A. sativum*) cultives dans la même region en 1974. Il faut prendre soin de ne pas introduire ce nematode dans la région avoisinante de culture d'oignons du marais Bradford.

In Ontario the stem and bulb nematode ***Ditylenchus dipsaci*** (Kuhn 1857) Filipjev 1936 has been reported to occur on onions at the Point Pelee Marsh (Mountain, 1957) and at the Erieau Marsh (Johnson and Kayler 1972). Observations made by the present authors during 1973 and 1974 have established that a third onion-growing region, a small marsh area near Cookstown, should be added to the record.

In late summer of 1973 a sample of abnormal onion ***(Allium cepa*** L.) bulbs was brought to our laboratory for disease diagnosis. The onions bore symptoms suggesting onion bloat in that the outer layers of scales were split, especially near the base, and the scales at the neck were softer than normal. Microscopic examination with the aid of staining and clearing techniques showed these outer scales to be heavily infected with the stem and bulb nematode. The grower was notified of the diagnosis and advised not to grow onions on that field and to follow recommended controls as outlined in the Ontario Ministry of Agriculture and Food Factsheet, Agdex 258/628, 'Bulb and Stem Nematode in Ontario'. The following summer the authors visited the grower's farm and found heavily infected onions and garlic growing in a field adjacent to that which produced the diseased bulbs the previous year. When other onion fields in the area were examined, nematode-infected plants were found in only one field about 2 miles distant from the original find.

The prevalence of this pest in the Cookstown area has yet to be determined but the occurrence on two farms is cause for concern particularly because of its proximity to the large onion-growing region of the Bradford Marsh. The Bradford Marsh is still considered to be free of this pest and care must be taken to prevent its introduction.

The nematode survives in dry soil, in dried foliage, in dried onion scales, and even on onion seed. In this form it is easily carried from place to place with soil adhering to implements; soil drifted by the wind; dried onion leaves, scales, and soil in trucks, wagons, and unclean containers; on infested seed and in setts. It is therefore

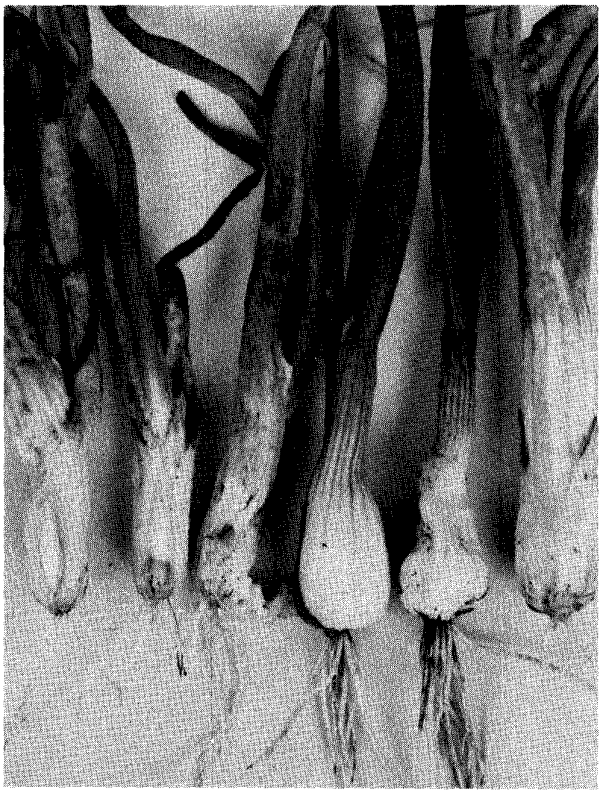

Figure 1. Diseased young onion plants collected from one of the fields at the Cookstown marsh. Note the irregular swelling and distortion of the leaves with the outer leaves dying back from the tips; also splitting of the outer scales on the developing bulbs. Onions affected to this extent in early growth usually die by mid summer.

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Figure 2. Diseased onion bulbs in later growth. Note splitting of the outer layers of scales and swelling of the inner layers which tend to bulge out through the split. The split extends into the root region which often gives rise to distorted, leaf-like shoots as shown in the bulb on the right.

Figure 3. Cross-section of a diseased onion bulb cut just below the neck. Note the porous nature of the outer layers, in this case extending nearly to the centre of the bulb. This is the reason for the soft, spongy texture of diseased bulbs in the neck region. This kind of tissue is very susceptible to attack by fungi and bacteria and may begin to rot in the field but will certainly rot in storage,

important that movement of farm equipment and materials from the Cookstown to the Bradford area be avoided. If movement is necessary, all items should be thoroughly cleaned and disinfected. It is important that growers check the source of their seed and setts to insure that they are clean. Finally, growers should inspect their fields periodically and report occurrence of plants which bear symptoms of this disease in order that any introduction may be recognized early and curbed before it becomes widespread.

Literature cited

1. Johnson, P.W., and W.E. Kayler. 1972. Stem and bulb nematode found in Erieau Marsh, Kent County, Ontario. Can Plant Dis. Surv. 52:107.
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