Ornamentals / Plantes ornementales

CROP: Greenhouse Ornamentals and Vegetables

LOCATION: Alberta

NAME AND AGENCY:
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TITLE: TOMATO SPOTTED WILT VIRUS SURVEY IN ALBERTA - 1992

INTRODUCTION: A survey of commercial greenhouse crops for both the lettuce and impatiens strains of tomato spotted wilt virus (TSWV) was carried out in Alberta during July and August by Brooks Diagnostics Ltd. and the Alberta Special Crops and Horticultural Research Centre. Laboratory confirmation of the presence of the virus and the specific serotype was carried out by Brooks Diagnostics Ltd.

METHODS: Twenty greenhouses representing approximately 20% of the total commercial greenhouse area in the province were surveyed, including 11 tomato houses, 6 ornamental houses, and 3 houses that grew both ornamentals and tomatoes in the same season. The houses were selected on the basis that they grew plants known to be potential hosts of TSWV. The survey area ran from Medicine Hat to Calgary and Edmonton. Foliage samples were collected from each house and consisted of one leaf from each of 50 plants per house. Plants were sampled if they exhibited symptoms that resembled those of tomato spotted wilt or, alternatively, when a group of symptomless plants was encountered, leaves were collected at random from within the group. When tomato crops without symptoms were encountered, 50 leaves were sampled from throughout the entire house, with at least one leaf coming from each planted row. The collected leaves were composited into consecutive groups of five for ELISA testing.

RESULTS: The results are summarized in Table 1. Both the impatiens and lettuce strains of TSWV were found during the survey. The presence of the virus was limited to ornamental houses or to houses that grew both ornamentals and vegetables. TSWV was not found in any tomato houses; however, it was found on tomato plants in three operations that were growing both ornamentals and vegetables.

COMMENTS: Tomato spotted wilt occurred at economically significant levels in 2 of the 20 greenhouses surveyed. One grower who had the disease in his operation and grew a number of different tomato cultivars commented that hybrids, such as Ultragirl and Fantastic, had the highest incidence and severity of the disease. Other cultivars, such as Tiny Tim, appeared to be free of symptoms.

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Table 1. Incidence of tomato spotted wilt virus in twenty commercial greenhouses in Alberta - 1992.

Greenhouse category	No. houses surveyed	No. houses with TSWV	TSWV strain	Host Plant
Ornamental	6	2	Lettuce	Chrysanthemum
Ornamental1 Vegetable	3	3	Impatiens impatiens	New guinea
				Impatiens
				Amaryllis
				Dahlia
				Tomato
			Lettuce	Nlew guinea impatiens
				Impatiens
				Pepper
				Tomato
				Chickweed
Tomato (Vegetable)	11	0	n/a	n/a

CROP: Trees, Elm

LOCATION: Manitoba

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TITLE: INCIDENCE OF DUTCH ELM DISEASE IN MANITOBA IN 1992

METHODS: Results are based on 2,363 samples of American elm, *Ulmus americana* and Siberian elm, *Ulmus pumila* submitted to the Crop Diagnostic Centre from a survey conducted by the Manitoba Department of Natural Resources. Trees were selected for sampling and submissions to the laboratory on the basis of presence of wilted brown leaves and brown staining of the vascular tissues. All samples submitted were cultured on potato dextrose agar medium and incubated for 7 days at 20°C. Fungal identifications were done after 7 days.

RESULTS AND COMMENTS: Branch samples were submitted to the Manitoba Agriculture Crop Diagnostic Centre for culturing. The results of the survey are presented in Table 1. Tree removals are also included as this indicates the total effect of Dutch Elm Disease (DED) in the areas sampled. In many areas where DED is prevalent only a few samples are taken to confirm presence of DED and surrounding elms with similar symptoms of trees with more than 50% of the crown dead were marked for removal. The sampling results do not give a full indication of the impact of DED in rural Manitoba as sampling and tree removals are concentrated in cities, towns and municipal parks and in areas which have a cost sharing agreement with the Manitoba Department of Natural Resources.

Ninety-five percent (95%) of elms sampled were infected with DED caused by *Ophiostoma ulmi* (Ceratocystis *ulmi*). There were 1,149 trees in Winnipeg which were either confirmed in the laboratory as having DED or were highly suspect of being diseased. In addition, 2,011 were classified as hazard trees (ie. more than half dead from disease or other causes) and marked for removal. The 5,847 trees marked for removal in 1992 is virtually identical to last years number of 5,853.

There were less trees marked for removal in the Brandon (78%), Western (-33%), and Eastern (-60%) regions in 1992. There was an increase in trees marked for removal in the Interlake (7%) and Central regions (28%). DED is now almost completely co-existent with the range of native American elm in Manitoba, except for elm trees in the Northwest part of the province North of Dauphin.

Dothiorella dieback (Dothiorella *ulmi*) was found in 32 samples of American elm and Verticillium wilt (*Verticillium* spp.) was found in 28 samples of American elm.

Symptoms of DED did not occur until mid July in most areas of Manitoba in 1992. This is about a month later than normal. Abnormally cool spring and summer weather delayed the initial appearance of symptoms. The delay in appearance of symptoms effectively shortened the survey period **by** close to a month which may have resulted in fewer trees being sampled in 1992 than in 1991.

The control program is keeping the elm tree losses from DED to a very low level of increase in urban centres. The 15 year average for tree losses from DED in Winnipeg is about 2%. The rate of disease loss is much higher in rural areas where there is a reduced or absence of a control program.

Table 1. Incidence of dutch elm disease in Manitoba in 1992.

AREA	TREES SAMPLED		TREES DISEASED		% INFECTED		TREES MARKED FOR REMOVAL		PERCENT CHANGE
	1991	1992	1991	1992	1991	1992	1991	1992	
Winnipeg	1151	1246	1078	1149	94	92	5853	5847	0
Brandon	4	63	3	62	75	98	1111	247	-78
Interlake	172	152	165	126	96	83	515	551	7
Central	538	613	501	601	93	98	3070	3943	28
Eastern	51	113	45	108	88	96	2614	1055	-60
Western	34	176	33	176	97	100	2559	1725	-33
Total	2056	2363	1825	2222	94	95	15722	13368	-15