

## Vegetables / Legumes

**CROP:** Lettuce

**LOCATION:** Ontario

**NAME AND AGENCY:**

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**TITLE: SURVEY OF LETTUCE DROP AT HOLLAND MARSH, ONTARIO**

**METHODS:** Seven fields of lettuce were surveyed for lettuce drop from 1989 to 1991. Twenty plants at each of 10 to 12 sampling sites along a zigzag pattern, with 15 m between sites, were examined for lettuce drop caused by *Sclerotinia minor* and *S. sclerotiorum* in each field. Three of the fields were known to have a history of lettuce drop. The history of the other fields was not known.

**RESULTS AND COMMENTS:** Lettuce drop was present in all fields surveyed. Lettuce drop caused by *S. minor* and *S. sclerotiorum* was present in 71% and 57% of the fields, respectively. *Sclerotinia minor* was the more prevalent of the two species.

Table 1. Incidence and etiology of lettuce drop at Holland Marsh, Ontario.

Year	% Total Lettuce Drop	% Caused by <i>S. minor</i>	% Caused by <i>S. sclerotiorum</i>
1989	50*	50	0
	50*	50	0
1990	17	0	17
	61*	61	0
	9	4	5
1991	1	0	1
	6	4	2

\* Fields known to have a history of lettuce drop.

**CROP:** Potato

**LOCATION:** Southern Alberta

**NAME AND AGENCY:**

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**TITLE: POTATO LATE BLIGHT SURVEY IN SOUTHERN ALBERTA - 1992**

**METHODS:** Eighty-six irrigated commercial potato fields in four districts of southern Alberta were surveyed for late blight between August 26 and 31. The districts surveyed included the County of Newell (Brooks-Bassano-Rosemary), Municipal District of Taber (Taber-Vauxhall), County of Lethbridge (Lethbridge-Coaldale), and County of Forty Mile (Bow Island-Foremost). Only table stock and processing fields were selected for this survey. Seed fields were excluded for reasons of sanitation. The plants at five sample sites in each field were assessed for late blight incidence and severity. These sites were selected by entering individual fields at one corner, walking 200 paces toward the center, then stopping at five equidistant points along an exit transect to the nearest edge of the field. Late blight incidence was determined by counting the number of affected plants out of 10 along a row at each sample site. Severity was estimated visually on the same plants using the following scale: Clean = no late blight, Slight = >0 to 10% of the foliage blighted, Moderate = 11 to 50% blighted, and Severe = >50% blighted. In addition, ten tubers were dug at each sample site and bagged for later observation. Leaf samples were also taken from each field. If a field had been topkilled, foliar blight ratings were not made and leaf samples were not taken. Casual observations of the occurrence of other diseases and disorders were also made during the survey.

Leaf and tuber samples were returned to the ASCHRC for study. Individual samples of foliage were washed and placed in separate plastic bags, which were inflated and incubated at ca. 16-20°C for 3-5 days. After this time, each sample was examined microscopically for signs of the pathogen, *Phytophthora infestans*. Tubers were placed unwashed in cool (15 + 2°C), humid (95 + 5%) storage rooms for a 3 wk incubation period. Afterwards, each tuber was cut and examined for symptoms of late blight tuber rot.

**RESULTS:** Late blight was found in all of the districts surveyed (Table 1). Of 2930 ha examined, 1723 ha or approximately

59% were infested. Assessments of foliar late blight were made in only 45 of the 86 surveyed fields because the remainder had been topkilled. Some of the latter fields were known to have had late blight and were chemically desiccated in an effort to slow the spread of the disease. The percentage of fields surveyed affected by foliar late blight was very high, whereas the proportion with tuber rot was considerably lower.

Foliar late blight incidence (% affected plants) was highest in the Co. of Forty Mile, Co. of Newell and M.D. of Taber, respectively, where up to 100% of the plants in some fields had the disease (Table 2). Levels of tuber rot in the same fields were considerably lower, generally less than 1%; however, in one field in the M.D. of Taber, 18% of the tubers had late blight.

All fields of the cultivars Atlantic, Bintje, Norchip, Shepody and Yukon Gold that were surveyed had foliar late blight (Table 3). Tuber rot was detected in 100% of the fields of Bintje and Sangre. Monona, Norgold Russet and Superior were the only cultivars in which late blight was not confirmed; however, all of these fields had been topkilled and foliar blight could not be assessed.

Other diseases and disorders encountered during the survey were: bacterial ring rot (*Clavibacter michiganensis* subsp. *sepedonicuss*), bacterial soft rot (*Erwinia carotovora* subsp. *carotovora*), blackleg, (*Erwinia carotovora* subsp. *atroseptica*), black dot (*Colletotrichum* sp.), early blight (*Alternaria solani*), leak (*Pythium* sp.), scab (*Streptomyces scabies*), silver scurf (*Helminthosporium solani*), wilt (*Fusarium* and *Verticillium* spp.), frost and hail damage, and early senescence (mainly nitrogen deficiency).

**COMMENTS:** Late blight occurred at epidemic levels in southern Alberta in 1992. This is the first record of such a severe outbreak of this disease in this region. Mild

temperatures during the winter of 1991-92 permitted tubers to survive in the soil and in cull piles, which probably enhanced inoculum levels during the 1992 growing season. Cool temperatures and above-average rainfall during the spring and summer of 1992 provided favorable conditions for foliar late blight development. Repeated fungicide sprays, early topkilling and a two-week period of hot, dry weather in early August arrested foliar late blight for the remainder of the growing season in most of the infested fields. Late blight did

not develop in the potato-growing areas of central and northern Alberta in 1992.

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Table 1. Number and hectareage of potato fields surveyed for late blight, percentage of surveyed area with blight, and number and percentage of fields with foliar blight and tuber rot in four districts of southern Alberta in August, 1992.

District	No. fields surveyed	Area surveyed (ha)	% area surveyed with late blight	Foliar blight		Tuber rot	
				No. fields surv.	%	NO. fields surv.	%
co. of Newell	33	987	46	15	94	33	12
M.D. of Taber	45	1680	67	25	96	45	7
co. of Lethbridge	4	118	41	4	75	4	0
co. of Forty Mile	4	145	66	1	100	4	50
	<u>86</u>	<u>2930</u>		<u>45</u>		<u>86</u>	

Table 2. Late blight incidence on the foliage and tubers of commercial potato crops in four districts in southern Alberta in August, 1992.

District	% affected plants		% affected tubers	
	Average	Range	Average	Range
Co. of Newell	99	98-100	<1	0-2
M.D. of Taber	70	0-100	<1	0-18
Co. of Lethbridge	3.5	0-8	0	0
Co. of Forty Mile	100	100	2.1	0-4.5

Table 3. Percentage of fields affected by foliar late blight and tuber rot, and the percentage of the area surveyed affected by late blight for twelve potato cultivars grown commercially in southern Alberta in August, 1992.

Cultivar*	% Fields with		Area surveyed (ha)	% area surveyed with blight
	foliar blight	tuber rot		
Atlantic (1/0)	100	0	24	100
Bintje (2/0)	100	100	50	100
Monona (1/1)	n/a	0	18	0
Norchip (14110)	100	14	574	34
Norgold Russet (1/1)	n/a	0	8	0
Norland (11111)	n/a	9	298	13
Russet Burbank (4015)	94	23	1543	84
Russet Norkotah (9/7)	50	22	331	22
Sangre (1/1)	n/a	100	14	100
Shepody (2/0)	100	0	13	100
Superior (1/1)	n/a	0	16	0
Yukon Gold (3/2)	100	33	42	24

\* The numbers in parenthesis following the cultivar names represent: Total number of fields surveyed/Number of fields topkilled. The topkilled fields were not surveyed for foliar blight.