VEGETABLE DISEASES ON MUCK SOILS IN THE MONTREAL AREA IN 1962

J. Simard,[1] R. Crête,[2] and T. Simard[1]

A survey of the plant diseases which occur on the most important vegetable crops grown on muck soils of the Montreal area has been carried out each year since 1959, The aim and scope of this annual survey and the methods used have been described (2). The information obtained on the distribution and intensity of the diseases encountered in 1962 are presented in Tables 1-4.

Table 1. Diseases observed in the Ste-Clotilde region

CROP	DISEASES	REMARKS
CARROT (7 fields)	Alternaria leaf blight (Alternaria dauci)	*Sl. to mod, in 4 fields
	Cercospora leaf blight (Cercospora carotae)	Tr. to mod, in 4 fields
	Aster yellows (aster yellows virus)	Tr, in 1 field
	Root-knot nematode (Meloidogyne hapla)	Tr. to sev, in 4 fields
CABBAGE (1 field)	Clubroot (Plasmodiophora brassicae)	Sev, in 1 field
CELERY (5 fields)	Late blight (Septoria apii-graveolentis)	Sev. in 1 field
	Pink rot (Sclerotinia sclerotiorum)	2 plants in exp, plots
	Mosaic (virus)	1 plant in exp, plots
	Aster yellows (aster yellows virus)	Tr, in 2 fields
	Root-knot nematode (Meloidogyne hapla)	Sl. in 1 field
LETTUCE (7 fields)	Downy mildew (Bremia lactucae)	Tr, to sl. in 4 fields
	Drop (Sclerotinia sclerotiorum)	Tr, to sl. in 4 fields
	Bottom rot (Rhizoctonia solani)	Tr, to sl. in 3 fields
	Mosaic (virus)	Tr, in 2 fields
	Aster yellows (aster yellows virus)	Tr, in 4 fields
ONION (3 fields)	Blast (Botrytis squamosa)	Mod, in 2 fields
	Downy mildew (Peronospora destructor)	Sl. in 2 fields
POTATO (3 fields)	Late blight (Phytophthora infestans)	Tr, in 3 fields
RADISH (2 fields)	Downy mildew (Peronospora parasitica)	SI. in 2 fields

[1] Plant Pathologists, Quebec Department of Agriculture, Montreal, Que,

[2] Plant Pathologist,' Research Branch, Canada Department of Agriculture, St-Jean, Que.

* Disease index: Trace - 1 - 10 percent affected plants
Slight - 10-29 percent affected plants
Moderate - 30-59 percent affected plants
Severe - 60-100 percent affected plants

Table 2. Diseases observed in the Sherrington region

CROP	DISEASES	REMARKS
CARROT (4 fields)	Root-knot nematode (Meloidogyne hapla)	Sl. in 2 fields
CELERY (9 fields)	Late blight (Septoria apii-graveolentis)	Sl, in 5 fields
	Bacterial blight (Pseudomonas apii)	Tr, to sl, in 4 fields
LETTUCE (1 field)	Aster yellows (aster yellows virus)	Tr, in 1 field
ONION (9 fields)	Blast (Botrytis squamosa)	Sl. in 2 fields
	White rot (Sclerotium cepivorum)	Sl, in 3 fields
	Root-knot nematode (Meloidogyne hapla)	Tr, in 3 fields
POTATO (3 fields)	Early blight (Alternaria solani)	Tr, .in 1 field
	Magnesium deficiency	Sl. in 1 field

Table 3, Diseases observed in the Napierville region

CROP	DISEASES	REMARKS
CARROT (2 fields)	Alternaria leaf blight (Alternaria dauci)	Tr. in 2 fields
ONION (3 fields)	Blast (Botrytis squamosa)	Sl. in 3 fields
	Purple blotch (Alternaria porri)	Tr, in 1 field
	Fusarium basal rot (F, oxysporum f. cepae)	Tr. in 3 fields
	Root-knot nematode (Meloidogyne hapla)	Tr. in 1 field
POTATO (1 field)	Early blight (Alternaria solani)	Tr, in 1 field
	Late blight (Phytophthora infestans)	Tr. in 1 field
	Rhizoctonia (Rhizoctonia solani)	Sl. in 1 field

Table 4, Diseases observed in the Farnham region

CROP	DISEASES	REMARKS
CARROT (2 fields)	Alternaria leaf blight (Alternaria dauci)	Tr, in 1 field
	Aster yellows (aster yellows virus)	Tr. in 2 fields
	Calcium deficiency	Tr. in 1 field
ONION (5 fields)	Fusarium basal rot (F. oxysporum f. cepae)	Sl. in 2 fields
	Aster yellows (aster yellows virus)	Tr, in 1 field
	Root-knot nematode (Meloidogyne hapla)	Sl. in 1 field
	Calcium deficiency	Tr. in 2 fields
POTATO (2 fields)	Late blight (Phytophthora infestans)	Tr, in 1 field

The general characteristics of the 1962 observations may be summarized as follows: most of the diseases appeared about one month later, and the intensity of the diseases observed in July and August was less severe, than in 1961. It was not possible to visit all the stations in September as was done in 1961, therefore, disease intensities, as shown, may be lower than they might have appeared in September.

The intensity of leaf blights of carrot (Alternaria dauci and Cercospora carotae) varied from one region to another; being much more severe at Ste-Clotilde. Neither of the diseases were observed at Sherrington and only Alternaria blight was observed at Napierville and Farnham.

Late blight of celery (Septoria apii-graveolentis) was observed in only one field in the Ste-Clotilde region and in 5 fields at Sherrington, It appeared that the same transplants were used in all the fields where the disease was observed in the Sherrington region,

Late blight of potato (Phytophthora infestans), and downy mildew (Peronospora destructor) and blast (Botrytis squamosa) of onion, reached epidemic proportions in fields where no fungicide was applied and in disease observation gardens, during September.

The acreage of muck soil infested with the root-knot nematode (Meloidogyne hapla) is still increasing. Some growers have to fumigate their fields in order to grow carrots, Root-knot damage on onion, celery, and lettuce was observed for the first time on muck soils in Quebec.

Aster yellows (aster yellows virus) was more prevalent this year than in 1961, The disease was observed on lettuce, carrot, celery, and onion, The development of aster yellows was related to a heavy population of six-spotted leaf-hopper throughout the growing season, It is the first record of the disease on onions in Quebec.

Bacterial blight of celery (Pseudomonas apii) reported for the first time on muck grown celery in 1961 (2), was observed again this year at Sherrington in 4 fields of the variety Utah 10-B. It could not be determined if the transplants were already infected when set out.

Fusarium basal rot of onion (Fusarium oxysporum f, cepae) is increasing in fields seeded to onion for 3 or more consecutive years, Rotation must be adopted on such infested fields,

An outbreak of downy mildew of radish (Peronospora parasitica) developed this year for the first time at Ste-Clotilde.

White rot of onion (Sclerotium cepivorum) was observed for the first time on muck soils in Quebec. The disease was found in 3 fields at Sherrington, Whether or not the disease was seedborne could not be determined. These onions were started from seed and not from sets. The disease was previously reported on garlic received from Thetford Mines, Que., by Leblond in 1961 (1).

It is suggested that the rainfall in June may be an important factor involved in the delayed build-up of inoculum and the consequent late appearance of the diseases in muck soil districts during 1962.

Outbreaks of vegetable diseases occurring late in the growing season are usually not as destructive as those occurring in the early part of the season, Therefore, a forecast of disease occurrence made from rainfall in June should enable a better timing of fungicidal applications and permit more effective and more economical control,

Since the rainfall in June may be an important factor in the time of appearance and severity of vegetable diseases in muck soils, it should be taken into account in the timing of visits to observe diseases at the stations in each of the four regions of the muck soils of the Montreal area, If the month of June is dry, as it was in 1962, the survey should be continued into September, If the rainfall is abundant in June, as it was in 1961, the survey should be initiated earlier, and should be continued as long as necessary, depending on conditions during July and August.

It is hoped that observations obtained from the survey will supplement those obtained from disease observation gardens (3) and will help to understand the factors involved in disease development of vegetables in muck soils.

Literature cited

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MUCK CROPS PROTECTION STATION,
QUEBEC DEPARTMENT OF AGRICULTURE,
STE-CLOTILDE DE CHATEAUGUAY, QUE,

and

RESEARCH STATION, RESEARCH BRANCH,
CANADA DEPARTMENT OF AGRICULTURE,
ST-JEAN, QUE,