VEGETABLE DISEASES ON MUCK SOILS IN THE MONTREAL AREA IN 1961

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A survey of the plant diseases which occur on vegetable crops grown on muck soil in the Ste. Clothilde and Sherrington districts was initiated in 1959. It was extended to include other muck soil vegetable-producing areas in 1960. The aim of the annual survey was to determine the most important diseases attacking the crops grown in these areas. It was noted **(4, 5)** that the same diseases were not important in all the areas surveyed, nor did they necessarily occur in successive years. The scope of the survey does not include an estimation of losses caused by the various diseases; its intention is rather to obtain information on the distribution and intensity of diseases which attack the most important of the vegetable crops grown on muck soils as part of a study of the epidemiology of these diseases. It is hoped that the information obtained can eventually be used to forecast disease occurrence and the necessity of control measures.

For convenience, the muck soils of the Montreal area were divided into 4 regions: Ste. Clothilde, Sherrington, Napierville and Farnham. Observation stations were established in each region, taking into account the principal vegetable crops grown and the acreages involved, The stations were visited from time to time during the summer and records taken of the diseases encountered. The diseases observed in 1961, and their intensity, are presented in Tables **1-4.**

Table 1 - Diseases observed in the Ste. Clothilde region

CROP	DISEASES	REMARKS
CARROT (10 Fields)	Alternaria leaf blight (Alternaria dauci)	Mod, in 3 fields
	Cercospora leaf blight (Cercospora carotae)	Mod. in 3 fields
	Root-knot nematode (Meloidogyne hapla)	Sl. to sev. in 3 fields
	Bacterial blight (Xanthomonas carotae)	Mod. in 1 field
CABBAGE (1) Field)	Black Leaf Spot (Alternaria spp.)	Sl. in 1 field
CELERY (6 fields)	Early blight (Cercospora apii)	Tr. to sl. in 3 fields
	Late blight (Septoria apii-graveolentis)	Sl. to sev. in 3 fields
LETTUCE (3 Fields)	Downy mildew (Bremia lactucae)	Tr. in 1 field
	Drop (Sclerotinia sclerotiorum)	Sl. to mod. in 2 fields
ONION (6 Fields)	Downy mildew (Peronospora destructor)	Tr. to mod, in 3 fields
	Blast (Botrytis spp.)	Tr. to mod, in 3 fields
POTATO (6 Fields)	Late Blight (Phytophthora infestans)	Mod. in 4 fields
	Leaf roll (virus,)	Sl. in 2 fields

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Table 2. - Diseases observed in the Sherrington region

CROP	DISEASES	REMARKS
CARROT (7 Fields)	Alternaria leaf blight (Alternaria dauci)	Sev. in 3 fields
	Cercospora leaf blight (Cercospora carotae)	Sev. in 3 fields
	Root-knot nematode (Meloidogyne spp.)	Sl. in 1 field
CELERY (7 Fields)	Early blight (Cercospora apii)	Mod. in 3 fields
	Bacterial blight (Pseudomonas apii)	Mod. in 2 fields
	Aster yellows (aster yellows virus)	Tr. in 2 fields
LETTUCE (11 Fields)	Downy mildew (Bremia lactucae)	Sl. in 2 fields
	Drop (Sclerotinia sclerotiorum)	Tr. in 1 field
	Bottom rot (Rhizoctonia solani)	Tr. in 1 field
	Mosaic (virus)	Tr. in 1 field
	Aster yellows (aster yellows virus)	Tr. in 1 field
	Calcium deficiency	Sev. in 3 fields
	Tip burn	Mod. in 2 fields
ONION (9 Fields)	Downy mildew (Peronospora destructor)	Mod, to sev. in 4 fields
	Blast (Botrytis spp.)	Tr. to sev. in 5 fields
POTATO (6 Fields)	Late blight (Phytophthora infestans)	Mod. to sev. in 5 fields
	Blackleg (Erwinia carotovora)	Tr. in 1 field

Table 3 - Diseases observed in the Napierville region

CROP	DISEASES	REMARKS
CARROT (6 Fields)	Alternaria leaf blight (Alternaria dauci)	Tr. in 3 fields
	Gercospora leaf blight (Cercospora carotae)	Sl. in 3 fields
ONION (3 Fields)	Downy mildew (Peronospora destructor)	Tr. in 2 fields
	Blast (Botrytis spp.)	Sev. in 1 field
TURNIP (1,Field)	Downy mildew (Peronospora parasitica)	Sl. in 1 field
POTATO (2 Fields)	Late blight (Phytophthora infestans)	Mod. in 2 fields

Table 4 - Diseases observed in the Farnham region

CHOP	DISEASES	REMARKS
CARROT (10 Fields)	Alternaria leaf blight (Alternaria dauci)	Tr. to mod. in 5 fields
	Cercospora leaf blight (Cercospora carotae)	Sl. in 3 fields
	Root-knot nematode (Meloidogyne spp.)	Tr. in 2 fields
LETTUCE (3 Fields)	Aster yellows (aster yellows virus)	Tr. in 2 fields
	Calcium deficiency	Tr, in 1 field
ONION (4 Fields)	Downy mildew (Peronospora destructor)	Tr. to sl. in 2 fields
	Blast (Botrytis Spp.)	Sl. to mod. in 2 fields
POTATO (5 Fields)	Late blight (Phytophthora infestans)	Sl. to sev, in 3 fields
	Blackleg (Erwinia atroseptica)	Tr. in 2 fields

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

The intensity of leaf blights of carrot (Alternaria dauci and Cercospora carotae) varied from one region to another, being much more severe at Ste. Clothilde and Sherrington than at Napierville and Farnham. Late blight of celery (Septoria apii-graveolentis) was observed only in 3 fields in the Ste. Clothilde region, while onion downy mildew (Peronospora destructor) and late blight of potato (Phytophthora infestans) were observed for the first time since the survey was initiated in 1959. It appeared that weather conditions favorable for late blight were also favorable for downy mildew of onion. The acreage of muck soil infested with the root-knot nematode (Meloidogyne spp.) is increasing. The root-knot nematode in the Ste. Clothilde area has been identified as M. hapla. Blast (Botrytis sp., probably B,, cinera) was severe in fields where no fungicide was applied.

Two uncommon bacterial diseases were observed for the first time on muck soils, bacterial blight of carrot (Xanthomonas carotae) and bacterial blight of celery (Pseudomonas apii). The carrot blight occurred in plots at the Ste. Clothilde Experimental Substation in a field where carrots had been grown the previous year. Whether or not the disease was seedborne could not be determined, This disease, according to Conners (2) occurred at La Trappe in 1938, The only other report of its occurrence in Quebec is by Jacuqes (3).

Pseudomonas apii on celery was first reported from Quebec in 1923 (1); it has not been observed again until this year. It was observed at Sherrington in 2 fields transplanted with plants of the variety Utah 10-B grown from the same lot of seed. It could not be found in other fields of the same variety, A greenhouse test is underway to determine whether or not that particular lot of celery seed was infected,

It is hoped that information obtained from this annual survey and from other /epidemiological studies underway will be useful in understanding the

different factors that influence disease development on vegetable crops in muck soils. Such information should enable a better timing of fungicidal applications and permit more effective and economical control of vegetable diseases and consequently the expansion of production on muck soil in southern Quebec,

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