The Weather and its Influence on Diseases

The season on Vancouver Island, B. C., was abnormally dry from June to November. Rainfall at Saanichton in September was 0.17 in. compared with the average of 1.35 in. A mild winter resulted in little or no injury to overwintering crops or to ornamental shrubs. It was cool in May and June, and some damping-off of slow-growing seedlings occurred. The dry summer and fall stimulated powdery mildews, notably that of strawberries, but curbed most other foliage diseases. Late blight of potatoes was not seen (W. Jones).

On the lower mainland, the spring and early summer were unusually cool and June, in addition, was very wet. The rest of the summer and the fall were extremely dry. There was no winter injury to small fruits. Phragmidium rubi-idai was heavy on Washington raspberries, and powdery mildew of strawberries became epidemic before the fruit was ripe. Late blight of potato, which has not been of significance since 1949, started to develop early in the summer in a few locations, but the scarcity of inoculum and the dry weather from July onward prevented serious losses (R. E. Fitzpatrick).

In the Okanagan Valley, April and May were drier than usual, which may account for the light blossom infection by fire blight. Unusually heavy rains in June resulted in heavy apple scab infections at Salmon Arm and Penticton and are believed to be partly responsible for heavy powdery mildew of cherry on the upper benches at Penticton. Little rain fell from July to October and losses from late scab and bull's-eye rot of apple, late blight of celery, and downy mildew of onion were negligible (H. R. McLarty).

In the Creston Valley, the weather conditions of winter and early spring were normal, causing no injury or predisposition to disease. Late spring was cloudy and with prolonged wet periods. From late June to November the weather was very dry. Early apple scab, peach leaf curl and blossom blight were severe; but late scab and brown rot of cherry fruit were almost completely absent (M. F. Welsh).

At Saskatoon, Sask., temperature, rainfall and sunshine were high in May and normal in June. July was cool with high rainfall and normal sunshine. In August and September, temperatures were normal and high, respectively, rainfall was low and sunshine high. Humidity was abnormally high and evaporation low in every month from May to September. The season was generally uniform, with no extremes of any factor. Flax rust and potato black leg were heavy. Septoria leaf spots were again heavy on cereals, and take-all continued to be a problem in areas where a strict rotation is not followed. All these diseases reflect the fairly abundant moisture (T. C. Vanterpool).

In many other parts of Sask., rainfall was low until late August, although the heaviest rains occurred in the periods 9-30 June and 14-21 July. Warm, dry weather in early May allowed harvesting of the residue of the 1951 grain crop in much better condition than anticipated. In most districts, the soil was moist at seeding time, but in central Sask., particularly, continued dry weather caused uneven germination. Widespread rains in June speeded growth and by the middle of the month the wheat crop was 10-14 days ahead of 1951.

Stem rust appeared in s. e. Sask. in the second week of July, but infection remained light in spite of ideal conditions for its spread. Leaf rust developed fast in the same area and occurred on 80-100% of plants by late August. Dry weather then hastened maturity. The crop was of high quality and was harvested under excellent conditions (R. C. Russell).

In Essex Co., Ont., June to August, the critical period for crop growth and disease development, was unusually hot and dry, as the following tabulation for records at Harrow shows:

July-Aug. (incl.)	1949	1950	1951	1952
Total Rainfall (in.)	10.01	8.27	8.73	4.89
Mean Daily Max. (°F.)	84.08	80.24	80.02	83.79

These conditions significantly reduced the incidence and severity of black root rot of tobacco, stem canker of soybean, Septoria leaf spot of tomato and blue mould of tobacco. They also appeared to favour certain diseases, notably rust of alfalfa, brown root rot of tobacco, powdery mildew of cucurbits, dry root rot of field bean, and root rot of corn (L. W. Koch).

In the Niagara Peninsula, the first discharge of apple scab spores occurred on 22 April, and the main discharge 10-15 May, during which a 30 hour rain occurred. Other marked infection periods occurred on 20 and 24-25 May. Primary infection was seen on 28 May. June, July and August were dry and little further scab development occurred.

The weather was generally fine during the bloom of stone fruits and little blossom blight occurred. A shower at the end of the bloom period of sour cherries caused some stem and green fruit rot. Five days of wet or humid weather during harvest of the mid-season peaches initiated brown rot infection, and delays in marketing resulted in heavy losses. Little brown rot was seen in adequately sprayed orchards (G. C. Chamberlain).

At Ottawa, the temperature for January to April, inclusive, was milder than average, notably February with a mean of 20.8°F. (8°F. above average). Precipitation was normal, and snow cover adequate, in January and February, but rainfall was heavy in March and, despite considerable snow, the ground became bare at the end of the month. April was relatively dry. From May to September, inclusive, the temperature remained near normal without conspicuously hot or cool spells; the maximum for the year was 91°F. on 6 July. May and August precipitation was nearly twice the normal rainfall and that of June and July slightly above average. From 22 to 30 Aug. was the only rainless period exceeding 6 days from May to September. Sunshine was about 1 hr./day above average in April, June, July and August, much below average in May and normal in September. Although the sunny weather and low humidity allowed conspicuous development of some powdery mildews, the frequent rains stimulated many other foliage diseases. October was cool, but virtually rainless after the 14th, which facilitated late harvesting operations. November and December were very mild and such snow as fell melted quickly. Damage from ice or standing water seemed likely to be serious (D. B. O. Savile).

In the Quebec and lower St. Lawrence districts, Que., heavy snow cover persisted from late November to the end of March, and there was no killing of alfalfa and clover; but about Montreal, several thaws in December and January resulted in serious damage to meadows. Seeding was early in the Montreal region, but late in eastern Que. May and early June were cold and wet at Ste. Anne de la Pocatiere, and orchard spraying was difficult. Primary apple scab infection was consequently heavy. July and August were warm and relatively dry, although with adequate rain to allow good growth of all crops. No diseases became epidemic and cereal rusts were virtually absent. Late September and October were wet and cold, favouring late blight of potatoes and interfering with harvesting (A. Payette).

At Fredericton, N.B., January, February, and March were mild and cloudy, with abundant, continuous snow cover. Snowfall in February was 56.5 in., the highest on record. About 8 in. of snow remained at the end of March. Rainfall in April was 3.07 in., the mean temperature was above average, the St. John River opened on 13 April, and work started on the land on the 21st. Early May was fine, allowing a good start in seeding and planting on some farms; but heavy rains delayed work for the rest of the month and the first three weeks of June. May was very cloudy and slightly cooler than average, but June was slightly warmer than average. July was very warm, and sunshine was 65 hr. above average. Of 2.05 in. of rain, nearly all fell on 19-20 July. August was warm but with slightly more rain better distributed. September was cooler, with well-distributed rains, and root crops made excellent growth. October was wet and November relatively dry. Ploughing continued until 30 Nov. and the St. John River froze on 2 Dec. December was mild with considerable rain, but little snow. Apple scab spore discharges occurred on 7, 12, 21 and 22 May and primary infection was seen on 5 June. Spraying was difficult and, where coverage was not achieved on schedule scab was heavy. Potato stands were very uneven. The sudden drought starting late in June was serious for all crops except hay of which a bumper crop was harvested in good condition. The August rainfall did not fully alleviate the effects of the drought (J. L. Howatt).

In N.S., a heavy snowfall (154.6 in. at Kentville) provided abundant moisture in spring. Rainfall for May and June was slightly below average, but dull weather favoured disease and several wet spells made spraying difficult. Wet spring weather favoured the development of late blight from infected potato sets. The disease was found on a cull pile on 8 July, the earliest date on record. July was too dry to permit much spread; but August, with 5.21 in. of rain on 14 days, including 2.59 in. on 17 Aug., allowed considerable development; and a repetition of the epidemic of 1951 was feared. Ten days of dry weather in early September checked the disease, and light frosts on 9 and 15 Sept. killed foliage in some fields. Rains 10-20 Sept. allowed further serious spread in frost-free areas. Late September was dry, but dews were heavy enough to allow some spread. Although spraying was general after mid August; growth was rank and, owing to late planting, vines were succulent and highly susceptible. Control was therefore sometimes disappointing (J. F. Hockey, K. A. Harrison).

Almost continuous wet weather from late May to mid June delayed planting in P. E. I. and aggravated the severity of apple scab and several other foliage parasites. The small amount of frost in the ground caused volunteer potato plants to be numerous, but hot, dry weather from mid June until late in the season prevented what might have been a severe epidemic of late blight. Seed-piece decay and black leg were negligible, but potato scab was unusually severe. Fusarium wilt was found in one potato field, a further result of the warm, dry soil. Cucumber scab was very light, in contrast to 1951, as were smuts of oats and barley and crown rust of oats. Several cases of blossom-end rot of tomato and one of black heart of celery were reported late in the season (J. E. Campbell).

Notes on Some Nematode Problems, 1952

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The cyst-forming nematodes, belonging to the genus Heterodera, are plant parasites that are difficult to control, and once populations of these species have established themselves in a field eradication is usually considered practically impossible. In such cases control measures are aimed at the reduction of the nematode population, chiefly by suitable crop rotations, and, to a lesser extent, by fumigation. The cost of fumigation must be balanced against the value of the crop, and, when the same measure of control may be obtained by less expensive cultural methods, it is not recommended. Many of these species are responsible for important crop loss, and this, coupled with the known difficulty of control, tends to focus a justified interest in new outbreaks of these pests and the status of those already established within our borders.

The sugar-beet nematode, Heterodera schachtii Schmidt, 1871, did not spread appreciably in Ontario in 1952, but in the Sarnia area the populations remained at a high level. Steps have now been taken to enforce recommendations for adequate crop rotation more thoroughly. New host records for this species from Sarnia, Ontario, were obtained by R. H. Mulvey in 1952. These were Swiss chard, Beta cicla., and horseradish, Armoracia lapathifolia. This species has not yet been recorded in Canada in any province except Ontario. The oat nematode, Heterodera avenae Lind, Rostrup, and Ravn, 1913, is more widely distributed in Ontario but does not occur in areas where the sugar-beet nematode is found. The indications are that this nematode is continuing to spread and continuing to cause crop loss of importance. The oat nematode is not found elsewhere in North America. The wheat nematode, Heterodera punctata Thorne, 1928, was named and described from specimens found in wheat in Saskatchewan and Alberta. The present status of this pest in the Western Provinces is unknown. The pea nematode, Heterodera goettingiana Liebscher, 1892, was identified from British Columbia in 1952, and possibly an additional form is present there; this may be Heterodera schachtii var. trifolii Goffart, 1932, although the host plants recorded make the situation somewhat obscure. In examinations of clover plants growing on the Central Experimental Farm at Ottawa