The Weather and its Influence on Disease

The winter on Vancouver Island, B.C., was noticeably mild and wet, the precipitation in January being the highest on record. Also the average number of hours of sunshine was lower than usual throughout the 1953 season. During the mild wet winter there was considerable systemic downy mildew infection in alfalfa and Phytophthora basal rot in overwintered cabbage, turnip and wallflower about Saanichton. Tulip fire was more general than usual as a result of showery, dull weather in the spring. A moderate epidemic of late blight developed in mid-August in the Comox district, where dry weather kept the disease in check in the previous three years. The season was also favourable for other diseases such as apple scab. On the other hand, soil moisture was ample as indicated by the virtual absence of drought necrosis in the potato crop (W. Jones).

On the lower mainland, the winter was unusually mild and there was no winter injury to small fruits. The spring was early but April was very dull and wet. A sharp frost on 30 May discoloured the flesh of the fruit of the high bush blueberries on Lulu Island, but the fruit outgrew the injury and the loss was slight. Rainfall during the summer was above normal and late blight of potato was more prevalent than in the last few years (H.N.W. Toms).

In the Kootenays, the winter was unusually mild. The ascopores of the apple scab fungus were fully mature before the apple buds opened; even the pre-pink spray was often too late to prevent early infection. Dry sunny weather prevailed in March and early April followed by abnormally wet weather until June. In consequence peach leaf curl was severe and Coryneum blight, cherry leaf spot, blossom blight, brown rot and apple scab were prevalent. The summer and autumn were dry except a prolonged wet period in mid-September (M.F. Welsh).

In Alberta rainfall was above average until mid-August. Moisture was so abundant in the Calgary area that spring planting was delayed and as a result crops were late. Leaf diseases were unusually severe particularly in heavy crops of barley. A 5-inch rain on 31 July-1 August in the Edmonton area caused severe flooding of fields. Many plantings of potatoes rotted in the ground and large areas of cereal crops were drowned out. Warm nights and high humidity favoured late blight, which caused considerable damage about Edmonton. Cooler weather beginning 13 September checked its further advance. The high incidence of ergot in cereals and grasses appears to be associated in part with high rainfall over the last 3 years in central Alberta (W.P. Campbell).

At Saskatoon, Sask., the rainfall from May to September was about normal, but the crops were benefited more than usual by the moisture because evaporation was low and during the first half of the season the temperature and the amount of sunshine were less than usual. As a result yields of all crops were remarkably good (T.C. Vanterpool).

The season was late in most areas of Saskatchewan. Except for a few days early in May temperature was below normal until after mid-July. Rainfall was above normal in all parts of the province and was so abundant in parts of southern and eastern Sask. that seeding was delayed appreciably. However, in the western areas rainfall was below normal and germination was delayed. Late in June heavy rains in south and east central Sask. flooded and destroyed many crops. Cool weather in late June and early July delayed the development of stem rust, which

eventually caused considerable damage in the south-east corner of the province. Lack of moisture and some short periods of high temperature in the western areas favoured the development of common root rot. Considerable blasting of heads of wheat also occurred following a short heat wave in late July. The crop matured slowly but in good condition and was harvested during almost perfect fall weather (H.W. Mead).

Development of cereal rusts in the Prairie Provinces, in 1953, was greatly favoured by the weather conditions which prevailed during the growing season. The spring and summer precipitation was much above normal throughout the agricultural areas of Manitoba and eastern Saskatchewan. Most districts in the above mentioned region also received excessive amounts of rainfall. Both high precipitation and heavy dews, which occurred practically every night during the whole of the growing season including the moderately dry month of August, provided conditions extremely favourable for the germination of rust spores. Temperatures were also quite favourable for rust development. They were almost exactly normal for May, June, and July, and about 4°F. above normal for August over most of the Prairie Provinces. Evidence of the favourable influence of the high rainfall on rust development in the Prairie Provinces is indicated by the fact that the area of severe rust infection coincided almost exactly with the area that received precipitation in excess of 4 inches for each of the months of June and July (B. Peturson).

The unusually hot and dry conditions experienced in the vegetable growing areas in the southern part of Essex Co., Ontario, from June to October reduced the incidence of certain vegetable diseases and favoured others. Septoria leaf spot caused negligible damage in all fields of tomatoes except some irrigated early crops. On the contrary, sunscald and blossom-end rot of tomato and pepper were worse than usual. Powdery mildew was severe on cucumbers and muskmelons. Etch virus in tobacco and pepper crops was much less prevalent than in the last 2 or 3 years. Its low incidence may have resulted from the absence of succulent growth in these crops, a condition unfavourable to vector (aphid) feeding (C.D. McKeen).

Showery cool weather in April interfered with timely and thorough application of the dormant peach spray in many orchards in the Niagara Peninsula. As a result peach leaf curl was often epidemic particularly in orchards not sprayed by 15-16 April. Excellent control was obtained in orchards where the dormant spray was applied in the fall of 1952. Rainfall in May totalled 5.74 inches, a 25-year record at St. Catharines. Moreover, there were several prolonged wet periods during which numerous apple scab infections occurred. The first scab spots began to appear on 15 May when the trees were in full bloom. Rainy periods in late May and again in June permitted the disease to become very prevalent and severe by the end of June. Hot dry weather checked further development during mid-summer. However, late in the season new infections appeared on the terminal growth and pin-point scab showed on the fruit at harvest. Downy mildew of grapes developed rapidly in mid-August, during a spell of unusually warm damp weather. Hail caused injury to grapes and fruit trees on 21 May and sour cherries were bruised on 1 July, permitting brown rot to develop. The fall was featured by good weather. Many growers applied the dormant spray for peach leaf curl in the fall this year (G.C. Chamberlain).

At Ottawa, the winter was mild and with light snow cover. Temperatures were far above average in January, February and March, and slightly so in April.

Sunshine was above average in February, but far below in January, March and April. The snow disappeared quickly in March. From May onward growing conditions were generally good with temperatures at or slightly above average, and adequate moisture except for mid-July and late August. September and early October were unusually wet, favouring late blight of potato, Colletotrichum phomoides on late tomato fruits, and pin-point apple scab. However, the last three weeks of October were warm and dry, providing good conditions for late harvesting. November and December were exceptionally mild, but December was wet. Dandelions produced flowers and seeds sporadically until mid-December. Light snowfalls in late December left the ground covered at the year's end (D.B.O. Savile).

Weather conditions in southwestern Quebec were generally favourable for diseases that develop early in the season as the spring was wet and several long rains occurred in April, May, and June. On the other hand, long dry hot spells in August and September were unfavourable to disease development except for the powdery mildews, which were prevalent on cultivated and wild plants (L. Cinq-Mars).

The 1953 growing season was particularly dry in eastern Quebec. Snow disappeared rapidly and no serious frost injury occurred. Vegetative growth began early. May was cool and the latter half of the month was also dry. The Gymnosporangium rusts were conspicuous on native Juniperus as was blister rust on white pine. Other plant diseases were negligible. Despite the hot dry weather in June aecia were abundant on the common barberry and the European buckthorn. Crops such as strawberries and raspberries suffered greatly from drought as July was hot and dry. A few light rains fell in August, and it was not until the end of September that there was sufficient moisture for late blight to become active on potatoes to cause some tuber rot in the harvested crop. October and November were mild. On 9 Dec. snow covered the unfrozen ground at Ste. Anne de la Pocatiere (A. Payette).

At Fredericton, N.B., January, February and March were exceptionally mild, the mean temperature for January was a record high of 23.2°F. and that for February was a near record. Most of the precipitation was in the form of rain. In consequence, snow coverage was very light and frost penetrated deeply into the ground and many plants suffered severe winter or spring injury. Most of the clover was killed off over the entire province. Temperature and rainfall were above average in April. A week of fine weather beginning 10 May allowed considerable planting. A severe drying wind storm over eastern N.B. caused severe damage, particularly on the windward side, to the half-opened buds of trees and shrubs. A poor set of apple fruits occurred in many localities apparently as a result of poor weather during pollination. Over 7 inches of rain fell in July resulting in enhanced growth of grasslands but strawberry root rot caused severe losses in many plantings. August was fairly dry. September and October were fine months providing excellent harvest conditions. Some frost damage occurred in the potato crop in Victoria Co. November was mild with abundant rain. A light blanket of snow covered the frost-free ground the third week of December. Apple scab spore discharge occurred first on 14 May with additional infection periods in the last two weeks of May and the second week of June (J.L. Howatt).

In N.S. a very open winter with little snow cover was followed by an early development of vegetation in the spring of 1953. Temperature and rainfall were slightly above normal. Rainy periods were favourable for apple scab, tulip fire, peony blight, and lily blight, and wet weather in August and September favoured outbreaks of late blight and powdery mildew and black spot of roses as

well as late infections of apple scab. The summer was known locally as "wet and cool" in spite of average rainfall and nearly normal mean temperatures. The hurricane "Carol" was more destructive to crops mechanically than in providing conditions favourable to pathogenic organisms. The autumn was open, but most trees were fully dormant before the frosts in November with the exception of some apple orchards in which the foliage was frozen on the trees (J.F. Hockey).

At Charlottetown, P.E.I. mean temperatures were above normal for the first four months of 1953. Little or no injury to overwintering crops or ornamentals occurred despite the frequent lack of snow cover. Snow on 13 March covered the ground to the depth of 5 inches but had disappeared by 23 March. Although growth made an unusually early start it received a setback early in May. On 3 May six degrees of frost were recorded at Charlottetown; it caused slight injury to the foliage of some maple and horsechesnut trees.

Because of the unusually dull, wet weather that prevailed throughout the growing season, several plant diseases caused more than the normal amount of damage. Apple scab was severe in all orchards, both on foliage and fruit. Black leg was general in potato fields. A severe epidemic of late blight developed on the potato foliage, but the disease did not cause as much tuber rot as expected on account of the rapid death of the vines in unsprayed and poorly sprayed fields. In the few areas where club root is a problem, fields of Laurentian swedes were completely destroyed. Verticillium wilt, which normally takes its toll in certain potato varieties, did not present as serious a problem as usual. Good growth was maintained throughout the season and pastures, in particular, provided excellent herbage (J.E. Campbell).

The early part of the winter was mild in eastern Newfoundland. Some snow fell in January, but rain on 17 days in the month quickly melted the snow. March was the coldest month of the year with a mean temperature of 26.2°F. and a low of 7.5°F. As a result of the low temperatures, winter killing was severe in clover, orchard grass, strawberries, lilac and birch trees. From December to April a total of 70.3 inches of snow and 19.52 inches of rain were recorded. Rain and snow fell on 25 days in April. May was cool with rainfall slightly above average. June was relatively warm with rainfall below average. Frequent showers during the late summer and autumn favoured late blight development, but a frost in early August caused some damage to the vines and seemed to check its further spread. The weather was warm into October but frosts on 1, 21 and 22 October caused defoliation of potato plants and some injury to the tubers (G.C. Morgan).

Notes on Some Nematode Problems, 1953

A.B. Baker

Nematode Laboratory, Entomology Division, Ottawa

The golden nematode, Heterodera rostochiensis (Wollenweber, 1923) Franklin, 1940, has not yet been found in Canada and considerable attention has been given to measures aimed at preventing its introduction. It has been recorded from the northern part of Mexico. Some interest has been focused on what appeared to be very similar forms that have been encountered elsewhere, but these have since been found to be distinct species. One of these forms was found