The weather and Its Influence on Plant Diseases

On Vancouver island and the lower Mainland, B.C. the season began much later in 1935 than in 1934. In general diseases were much less prevalent with the exception of the powdery mildews and the anthracnose of apple, which was severe on Vancouver island as the result of early autumn rains in 1934, which fell before the trees were sprayed.

Most of the diseases appeared about 3 weeks later than in 1934 and caused considerably less damage. This fact was noted for early and late blights of potato, downy mildew of onions, late blight of celery, shot hole of cherries, and snapdragon rust. Usually snapdragon rust and downy mildew of onions seriously reduce the amount of seed of these crops harvested.

Tulip blight was appreciably checked by the dry weather in the spring, the total precipitation during April and May at Saanichton being 0.59 inches. Powdery mildews were fairly prevalent; that on apple caused some damage when the trees were in bloom. (W. Jones)

In Alberta the season began fully two weeks later than usual, the temperature in June being often near freezing. Soil moisture was excessive in the western half of central Alberta and northward into the Peace River area and in consequence seeding of wheat was delayed from 10 days to 2 weeks. In the eastern half of central Alberta moisture was about normal. The season was considerably delayed by the late spring precipitation in southern Alberta, but the weather was very dry during June, July and August and in consequence cereal crops were light except in the irrigated districts. In central and northern Alberta rain fell frequently during the season keeping the soil moisture high and the temperature low. A killing frost occurred in the area on August 16, being most severe along a line running east and west through Edmonton, the lowest temperature being near Lloydminster. This area extended from High River, Olds, Stettler, and Provost on the south to the Peace river on the north. A similar frost occurred on September 3 over roughly the same area. On the other hand the wheat area north of the Peace river mostly, escaped severe frosts until September 23.

The winter of 1934-35 began with a heavy fall of snow early in the fall, which remained until an unusually late date in the spring with little attendant alternate freezing and thawing. Conditions were apparently favourable to winter wheat and legumes since these crops came through in splendid condition. (G.B. Sanford)

Seeding began about the usual time with a fair supply of moisture available in the Saskatoon district and eastward, but the soil was very dry in west central Saskatchewan. The weather was mostly cool during May with a temperature considerably below that of several years previous. There was frost on 4 nights early in the month. In June it was alternately cool and warm with 1.8° frost on June 4. July was hot especially the 2nd and 3rd weeks while August was cool.

Rainfall was only 0.52 inches in May and poorly distributed. In June 4.56 inches fell and it was well distributed. This rainfall was above average and restored much of the moisture lost in May. It was dry in July, there being 23 days without rain and a total fall of only 2.32 inches. In August 2.28 inches of rain fell on 14 days. In this district and east and north of here, the abundant rains of June provided sufficient moisture to mature the crop, but in a large area in west central Saskatchewan (zones 3, 9, and 11) rain was nearly absent and in consequence of the severe drought a very poor crop was harvested.

High winds prevailed during 10 days in May, 12 days in June, 8 days in July, and 10 days in August. Much moisture was lost in May, particularly in the western dry areas, and soil drifting was also severe there. The high, hot winds in July were devastating to the crops.

Soil temperatures as compared with 1934 were low in May and June, high in July, and average in August. The low soil temperatures in May probably checked infection by common foot rot which caused little damage this year. (H.W. Mead)

Seeding in general was somewhat later than usual in southern Saskatchewan and a delay of a week or more occurred following heavy rains in the first few days of May when approximately 50% of the wheat was sown. May and June were several degrees cooler than in the past 2 years and 2° and 3°F. cooler respectively when compared with the means for the 10-year period, 1922-31 at Indian Head. July on the other hand was 6°F. warmer than the 10-year period. The rainfall for May, June, and July was 11.13 inches and fairly well distributed, an increase of 65% of the 10-year period. The relative humidity was high from May to August.

Soil temperatures taken at a 6-inch depth at Indian Head would indicate that they were relatively low in May and June, particularly in the former month, when air temperatures were also low and rainfall high.

Conditions were favourable for the development of stem rust. Crop development was retarded by 10 days to 2 weeks, stem rust spores arrived earlier, and high temperatures and heavy precipitation occurred during July. Leaf spots were abundant compared with their scanty prevalence in the past few years. Low soil temperatures in the spring months apparently retarded infection by the common foot-rotting fungi for these diseases were less prevalent and injurious than they were in the drier years. (B. J. Sallans)

In Manitoba the temperature was about normal for May. Rainfall in the western half of the province was considerably above the average, while in the eastern section it was 20-30% below the usual amount. In June both temperature and precipitation were decidedly abnormal. Temperatures throughout the province were 2-5° F. below the average and rainfall was 1½ to 3 times in excess of the normal amount. The heaviest rains occurred in the south-western corner of Manitoba in the so-called dry area. Towards the end of June temperatures were higher than usual and hot weather prevailed throughout July, the average being 4-7°F. above normal. In the same month rainfall was 1½ to 3 times the usual amount. During August temperatures were normal or slightly below, but rainfall was much above the average in some localities. As pointed out more fully in the discussion on stem rust of wheat the weather conditions prevailing in 1935 were particularly favourable for the development of an epidemic. (B. Peturson)

In the Niagara Peninsula of Ontario the cool moist weather of the early spring checked early growth. It favoured the development of leaf curl (Taphrina deformans) and the disease was very common throughout the peninsula. Where the trees were sprayed late or the spraying was poorly done, every leaf was infected. May and June were also cool with a fair amount of rainfall. A rainy spell in early May was favourable for Venturia inaequalis and scab lesions were common by the end of May. The disease spread rapidly during June and heavily infected fruits were common before the season was far advanced. Fire-blight (Erwinia amylovora) was quite prevalent and widespread on apples particularly on Greening, while it was of little importance on pears. Possibly this might have been due to a week's difference in the date of blooming this year. The greater amount of moisture in the early season favoured both powdery and downy mildews. Powdery mildew (Sphaerotheca Humuli) of strawberry was important in some plantations. Downy mildew (Plasmopora viticola) of grape appeared in the vineyards, but was kept in check by spraying. Powdery mildew (Sphaerotheca pannosa) of peach, which is usually of little importance was conspicuous

especially on the fruit. Powdery mildew (Sphaerotheca Humuli) of raspberries was extremely prevalent and appeared earlier than usual. Latham is extremely susceptible. Mildews attacking ornamental shrubs and flowers were also prevalent. The weather was favourable during the peach harvest and little brown rot was evident in the early crop. Some rot appeared in the late crop but losses were negligible. The hot weather in midsummer seemed to mask the symptoms of virus diseases of raspberries. (G.C. Chamberlain)

In the Ottawa district the early spring was cold and backward so that it was late before heavier soils were warm and dry enough to work. Although it was hot in the latter part of May, much of June was cool and rainy. In consequence crops were late and heavy and when hot weather came in July, stem rust (Puccinia graminis) was fairly heavy on wheat and crown rust (P. coronata) was decidedly more prevalent than usual. Also head blight (Helminthosporium sativum and Fusarium spp.) was distinctly noticeable in the wheat plots. Other diseases which were probably favoured by the season were dollar spot (Rhizoctonia solani) on turf and Cercospora leaf spot of sugar beets.

At Ste. Anne de la Pocatière and in eastern Quebec the winter was long and snowfall heavy. May was dry and cold, at least at night throughout the month. As a result, apple trees did not bloom until June 2. During the growing season rainfall was higher than in 1934, especially in the district about Quebec city, where precipitation was extremely high in June, July, and August. In this district late blight appeared in July, while elsewhere in the province it was not found until August. Apple scab was difficult to control and was present to some extent in every orchard. The second and third weeks of August were unusually hot, and cold north to north-east winds were entirely absent. Crops were very good, but owing to frequent and heavy rains haying was difficult. Rust and leaf spots were abundant. (C. Perrault)

In New Brunswick the winter of 1934-35 was colder than usual, however it was neither so prolonged or so extreme as the previous winter. Fruit trees or shrubs suffered little or no injury.

The spring was cool, June was wetter than usual and the amount of sunshine was considerably below average. Weather conditions in June were most favourable for the development of damping-off; mangel seedlings in particular suffered severely from root rot. In July and the first 3 weeks of August the average temperature was high and rainfall was at a minimum, 101.5° F. being recorded on August 18. This resulted in an

almost complete masking of mosaic symptoms in the potato throughout the province. Cooking of tomatoes and cucumbers on the vines was commonly reported from garden areas in York and Sunbury counties. Blossom-end rot of tomato and bean anthracnose was much more prevalent and destructive than usual.

Moderately heavy rains fell the last week of August and the first week of September and at the same time the temperature declined sharply. These conditions were favourable for an outbreak of late blight of potato, which, however, was checked by the dry weather that followed. Mosaic symptoms, previously masked, now began to show up on the new growth that the potato plants made. October was fairly warm and very dry, and frost was recorded on only 2 nights. The month was ideal for harvesting, and garden crops, potatoes, and turnips were lifted without damage by frost. (J.L. Howatt)

At Kentville, N.S. the early spring was cold and vegetation was slow in commencing growth. May and June were about normal. On account of dull weather and rain, some difficulty was experienced in putting on the first two orchard sprays after the trees had bloomed. During August temperature records were broken at Kentville when 90° F. was registered for 7 consecutive days and 99° F. on one day. A good rain followed this warm spell and little drought injury was experienced. September was cool and precipitation was above normal, while in October rainfall was below and hours of sunshine were above the 20-year average for that month. (J.F. Hockey)