The Weather and Its Influence on Plant Diseases

Spring growth commenced about the same time this year as in 1935 in the coastal section of British Columbia. The temperatures were very similar during the two years, but there was considerable variation in the monthly rainfall. During 1936, most of the common diseases were general and more severe than in 1935. Their greater prevalence was attributed to the heavier rainfall in the months April to July in 1936 as compared with the corresponding months of last year. Severe losses were sustained from blossom blight and brown rot of stone fruits, and splitting of sweet cherries; grain rusts, late blight of potato and the downy mildews were more abundant. On the other hand, March was drier this year than last, which probably retarded the development of tulip blight during the earlier stages of growth. The disease, however, spread rapidly in May in some fields where sanitary precautions were not taken. In the Okanagan valley the winter was exceptionally severe with heavy falls of snow in January and February. Both apricot and peach suffered from the low temperatures in February. Spring was very late with heavy rains for this district. The months of May, June, and early July, were also wet, while the latter part of the summer was dry with high temperatures. Fire blight was unusually prevalent. The fall was mild and exceptionally dry.

Snow fell early in Alberta from Calgary northward, it was unusually heavy and in the North, remained late in the spring. On account of its early arrival, the ground was scarcely frozen at Christmas and the frost penetrated but a short distance. In the south the fall of snow was considerable, but most of it had evaporated by late winter. The soil moisture at seeding time south of Calgary was ideal, but there was little in reserve. Where the snow had persisted the soil was unusually wet, making the season one of the latest for seeding. In Alberta, south of Lacombe-Vegreville-Lloydminster, the grain made rapid growth throughout the seedling stage, but as practically no rain fell during June, July, and August, the yields were very low, except in the irrigated districts. North of this scarcely any rain fell, but there was sufficient reserve moisture so that good yields and well matured grain were harvested.

Seeding began late (after May 1st) in many parts of Saskatchewan, notably the northeastern and west central districts. Portions of the south central district were about 70 per cent seeded on May 4. About 12 per cent of the wheat

acreage of the province was seeded on this date. Moisture conditions varied greatly over the province. Generally, the surface moisture was good due to late snows, but subsoil moisture was very scarce in the southwestern and west central Sask. The weather during the first two weeks in May was cool and growth was slow. Killing frosts occurred at some points on May 19th. Warmer weather including three days of extreme heat at the end of the month promoted rapid growth of early sown wheat. Lack of rain to replace the moisture caused deterioration of the growing crops and poor germination of the late grains. A very small amount of soil drifting occurred in patches on high light land, but taking the province as a whole, the damage was not great. Soil temperatures during May were higher than in 1935, but lower than in 1934. Rainfall amounted to 1.24 inches which was well distributed. This was heavier than in the two previous years.

Cool weather during the first week in June followed by rains over most of southern Sask. checked, to a very large extent, crop deterioration which had set in due to extremely high temperatures and lack of rainfall in late May. Growth was slow and late crops patchy, due to uneven germination and growth. Drought became serious in Southern and Western Sask. Only a few places reported damage from soil drifting. The last 10 days of the month brought warmer weather but very little rainfall. The total rainfall for the month was 2.61 ins. This was much lower than that of the same month in 1934 and 1935. Soil temperatures were slightly higher than in those years. The lack of moisture very likely controlled browning root rot of wheat which did very slight damage.

Hot weather and drought continued to damage the crops throughout July. Very little rain fell over the province, except in one or two localities. The deterioration which followed this continued drought masked the effect of root rots and no doubt checked them somewhat. Stem rust appeared early this year. Traces of it were found on July 8th at Saskatoon and on July 2nd in the Weyburn area. The disease made little progress except in portions of south central Sask. (zone 2) and east central Sask. (zone 3). Continued dry weather and heat in the rest of the province prevented its spread. Rainfall at Saskatoon during August amounted to .98 ins. which was much below average. Soil temperatures were slightly higher than average.

The weather conditions in Manitoba are described in some detail under Stem Rust of wheat. The crop was later than usual and moisture and temperature were favourable for rust development during the latter part of June. However,

all of July was hot and dry and stem rust made little headway. Instead, the crops ripened prematurely and only in the northern part of the agricultural area did rust cause any damage.

The 1936 season was generally hot and dry in the Niagara Peninsula of Ontario. It was unfavourable for the development of apple scab, peach leaf curl, brown rot of stone fruits, which are usually important in the fruit district. Late frosts in May did some damage to strawberries, but were particularly injurious to grapes causing considerable reduction in crop in localized areas.

The extreme and record hot spell of early July caused much loss to bush fruits and truck crops. Maturing small fruit suffered sun scald or dropped off, resulting in a crop failure. Wilt diseases appeared to be more prevalent and were probably favoured by the heat and drought.

The winter of 1935-36 was comparatively mild in New Brunswick. Despite the earliest break-up on record, spring was delayed due to cool dull weather and heavy rainfall. Considerable damping off occurred in early plantings of beets and mangels. An unusually heavy ascospore discharge of Venturia inaequalis began on May 1st and in consequence, apple scab was more prevalent than usual. A killing frost on May 16 caused considerable injury to the tender foliage. Rainfall was half an inch below normal, but well distributed. The growing season, unlike the previous year, was not marked by extremes of heat or drought. Late blight was reported the last week of July and although it was effectively held in check by dry weather in August, conditions were favourable in September for its development. As a result, it caused greater losses in 1936 than it has for severeal years. Due to wet weather in late September and in October difficulty was experienced in some districts in harvesting the grain and potato crops.

Weather conditions in the Annapolis Valley, N.S. were decidedly abnormal in 1936. March was extremely warm and wet, the mean temperature being that normal for April and the precipitation nearly equal the maximum for that month. April was practically normal, the rainfall being 2 inches less than the previous month. Growth started early, but slowed up during May. Ascospores of the apple scab fungus (Venturia inaequalis)were liberated from the perithecia three weeks earlier than usual. Very heavy discharges took place from the time the buds had reached the green tip stage until after the flowers had bloomed. Spraying was

retarded by wet soils in the early season and winds and rain later on prevented satisfactory timing of applications. Temperatures of 23°-28°F. during the period of early bloom caused considerable bud and blossom injury and reduced the crop. Late varieties were the least injured. September and October were wet and very favourable to the spread of late scab infection. Storage scab was evident before December 1, 1936. Early frosts during harvest further reduced the marketable crop. Temperatures as low as 18°F. were reported by some orchardists. Rainfall for September and October was 5.6 ins. above the 20-year mean. The 1936 season was not favourable to good apple production.

The winter of 1935-36 was comparatively mild in Prince Edward Island. Amply protected by a heavy covering of snow, most garden and field plants wintered well. The weather was mild from early March. As a result growth began at that time only to receive a set back by cold weather in April and May. Early June was seasonable except that the last two weeks were unusually wet. Rots of garden plants due to Sclerotinia and Botrytis became markedly prevalent. In July, which was cloudy, rusts and leaf spots became general. The first part of August was cool and rainy and favoured further spread of these diseases, so that some were severe by the end of the month. Wheat was damaged by leaf rust and to a much lesser extent by a root rot caused by an undetermined fungus.

Late blight of potatoes first appeared at Charlottetown on July 28 and it occurred generally over the Province by Aug. 15.

Potatoes suffered some low temperature injury when the temperature fell to 26°F. on Oct. 15. This was followed by snow and severe frost on Oct. 27 and 28. Large quantities of unharvested turnips and mangels were affected.