Entre autres item nouveaux ou intéressants dans le rapport sur les maladies des plantes ornementales, il y a lieu de mentionner les suivants: l'Ascochyta majalis et le Botrytis cinerea sur le muguet dans l'Ontario; la tache de bronze (virus) sur le Dahlia au Manitoba et dans le Québec; l'Urocystis Anemones sur l'Eranthis en C.-B.; le Phyllosticta Ulmariae sur le Filipendula, le Colletotrichum Liliacearum sur l'Iris et le Cercosporella inconspicua sur le lis au Manitoba; l'Uromyces Holwayi sur le lis en C.-B.; le Cercospora antipus sur le chèvrefeuille en C.-B.; le Xanthomonas papavericola sur le pavot dans l'Ontario et le Québec; le Pseudomonas syringae à l'état grave sur le lilas en Alberta et au Manitoba; le Botrytis Tulipae sévissant sur les tulipes à Ottawa, Ont.; le Colletotrichum Violae-tricolorus sur les pensées à Ottawa.

The Weather and Its Influence on Plant Diseases

In Alta., winter conditions were very favourable for the successful overwintering of plants. Very little winter killing occurred in winter wheat and legumes, and crown rot of alfalfa and snow mould of grasses did not cause severe damage. Seeding was delayed by a cold spring, and conditions were unfavourable for growth during a large part of the season. Except for scattered showers, there was no rain in the central areas until late July and drought was widespread. As a result, rusts and most other stem and foliage diseases did not develop until late in the season and were much less prevalent than usual. Root rot damage was also relatively slight and, in general, was obscured by drought injury. Other diseases that were retarded by the dry, cool season were bacterial blight of alfalfa on non-irrigated land, the bacterial blights of beans, and late blight of potatoes. Crop yields were generally below average, and considerable hail and frost damage occurred during the latter part of the season (M.W. Cormack).

In Sask., the weather during seeding was unusually cold, with high winds and night frosts. Soil moisture conditions were generally good over the province except in the southern portions of the southeastern, Regina, Weyburn districts and the east half of south-central and southwesterd districts. Some soil drifting occurred in these areas, and was severe at times also on the plots at Saskatoon. In the northeast, flooded fields delayed seeding until June. Germination and growth were slow until late in June, when warm weather soon dissipated the scant supply of moisture in the dry areas, but caused rapid growth in the east and northeast. Much damage was done by drought in parts of the south-central, southwest and west-central areas. In these areas, drought and browning root rot symptoms were confused. Some extremely high temperatures at the end of the second week in June intensified damage by browning. Rapid deterioration of the crops west of a line running through Regina and Saskatoon occurred during July due to continuous dry weather. Abundant moisture in the eastern zones enabled leaf rust of wheat and oats to develop and cause moderate damage. A careful survey of wheat crops in the west-central, southwest, and south-central areas revealed the presence of considerable bunt, although most of the crops were suffering from drought. The conclusion drawn is that the cold spring weather favoured early development of bunt. Smuts of coarse grains were scarce for the same reason. Moisture conditions in the northeast favoured development of leaf spots such as that caused by Septoria nodorum on wheat and Ascochyta spp. on peas (H.W. Mead).

The growing season in Sask. could generally be described as windy and cool. At Saskatoon wind velocity was above average for every month from May to September inclusive. Average temperatures were below normal for May and June, normal in July and August, and below normal in September. The west and south of the province were dry, but the east and northeast had ample moisture (T.C. Vanterpool).

During April and early May, rainfall throughout nearly all of Man. was considerably above normal; consequently seeding of cereals was delayed a week or more beyond the normal seeding dates, in most areas. The progress of the crop was further delayed by abnormally cool weather during May, June and the first two weeks in July. The average temperatures in Man. were 7° below normal for May, 5° below normal for June, and 6° below normal for the early part of July; consequently all plant growth was greatly retarded. The earliest sown wheat crops in the Winnipeg area headed about July 11, almost three weeks later than usual. From mid-July until the beginning of harvest in mid-August temperatures were slightly above normal and rainfall considerably below normal. The maturing stage of the crop (heading to harvest) was hastened by the high temperatures and low rainfall of that period, and cereal crops, in spite of their slow development during early summer, ripened only about a week to ten days later than normal.

The weather, particularly during the early part of the season, had a marked effect on the initiation and development of cereal rusts. Very heavy leaf rust infections, equalling, or even exceeding, those of the heavy leaf rust year of 1938, had developed at an early date throughout the winter wheat area of the United States, creating one of the conditions necessary for a rust epidemic in the spring wheat area, namely, the early initiation of extensive infection centres from which wind-borne spores can be carried northward. However, steady northerly winds were associated with the cool spring weather and conditions were unfavourable for the northward spread of rust spores throughout all of May and during the first week in June. During that period no rust spores were observed on spore-trap slides exposed in Man., indicating the scarcity or absence of wind-borne inoculum in the air. From mid-June onward southerly winds prevailed and wind-borne inoculum began to arrive in Man. by June 21. In early July field infections of the cereal rusts began to appear, and, although rainfall was scanty, heavy dews during the remainder of the season were favourable for spore germination, while high temperatures favoured rapid rust development; and cereal rusts, particularly leaf rust of wheat, crown rust of oats, and stem rust of oats, became very prevalent on susceptible varieties before the end of the season. However, the damage by these rusts was greatly minimized by the late arrival of spores in the spring and the consequent delay in their establishment (B. Peturson).

In the Niagara Peninsula, Ont., an unusual feature of the winter of 1944-45 was the lack of frost in the ground and the heavy snow cover that persisted from Dec. 12 to the end of February. The heavy snow cover was responsible for extensive damage to young orchards by rabbits. Winter temperatures at St. Catharines were favourable for the fruit trees, a minimum of 9° below zero being recorded. However, in areas outside the peninsula lower temperatures were experienced and injury to peach buds occurred.

Mild weather in late February melted the snow, the moisture being readily absorbed by the soil. With continued mild weather in early March fruit buds commenced to swell and dormant sprays were well advanced by the end of the month. On March 31 an all day and night rain provided conditions for peach leaf curl infection. In orchards where the dormant sprays had not been completed by this time a moderate leaf curl infection developed.

Sweet cherries were largely in full bloom the second week in April, during fair weather, and escaped loss from blossom blight. However, cool weather late in the bloom period was responsible for russeting that became apparent later as the fruit developed, and for an unusually heavy drop of fruit shortly after the shucks were shed.

Plums and sour cherries, with a somewhat later bloom period, encountered two spells of very wet weather, April 24-27 and May 3-6, the latter period being of more importance to sour cherries. Owing to low temperatures the incidence of blossom blight was small (2-19% and 15-23%) respectively. Fruit injury such as occurred on sweet cherries was induced by the low temperatures. Early Richmond cherries were markedly deformed and pitted.

May was characterized by an excessive rainfall of 4.89", the second greatest for the month in 16 years' records at St. Catharines. It rained on nineteen days and was almost continually wet from May 10-19. These conditions coincided with the latter part of the bloom period of apples and the appearance of primary scab infection. The weather favoured abundant secondary infection, as well as delaying spraying operations. Consequently scab was very serious before the end of May. It continued to develop freely with further wet weather in June, much of the foliage being completely infected. Leaf fall was quite heavy by the end of June.

The bloom period of all tree fruits was unusually extended by the abnormally low temperatures, excessive moisture and cold winds. These conditions were responsible for poor fruit set, delayed and irregular development and heavy "June drop". Strong winds and gales of May 21 caused extensive foliage injury to pears and apples, lacerating the leaves severely and causing marginal scorch. Growers confused the backened pear leaves with fire blight. This disease however, was less serious than in recent years, possibly because abnormally low temperatures during bloom checked the activity of pollinating insects, and small diurnal temperature fluctuations were unfavourable to the production of bacterial exudate.

The prolonged rain of July 14-15 was responsible for splitting of maturing cherries with consequent heavy losses. This wet spell favoured the development of cherry leaf spot (Higginsia hiemalis), which completely defoliated many orchards by late August.

Rainfall in September totalled 8.17 in., more than twice any previous figure for the month. As a result, grapes were of poor quality and growers experienced great difficulty in harvesting the crop. The wet weather brought on a late development of cherry leaf spot in orchards where adequate spraying had protected the trees against earlier infection.

The weather was generally fair during the peach harvest, with no prolonged period of high humidity; consequently brown rot did not cause undue losses, except where there was heavy insect damage (G.C. Chamberlain).

At Ottawa, Ont., there was permanent snow cover from Nov. 29 and the depth of snow built up rapidly through December to 26 in. November was mild, but from mid-December through January the weather was intensely cold. The January mean temperature of 2.9°F. was 8° below average; sunshine was unusually high at 4.2 hrs. per day. February was slightly warmer than average, but there was still 23 in. of snow at the end of the month. In March the mean temperature was 9° above average; the melting snow was quickly absorbed by the dry, unfrozen ground, and there was considerable blowing of soil from bare fields in a gale on Mar. 28. Heavy rains at the end of the month restored soil moisture and growth was rapid up to mid-April. The weather then turned cold and wet and did not improve greatly until the second week of June (v.i. under Phenological Data). Farm work was at a standstill during most of this period, and frosts caused much damage to fruit buds and to many garden plants. The average daily sunshine in May was 4.9 hrs., equal to that in March and little above the figure for January. In late June and in July rainfall was light, and temperature and sunshine were close to the average, but there were no periods of hot, dry weather. In August and September rainfall was again high but temperatures were close to normal. The warmest weather of the year occurred in early September when a maximum of 90°F. was recorded.

Some grain fields were seeded in early April; the better-drained of these produced good crops, but many others had to be reseeded. Little other seeding could be done until June. The early fields contrasted markedly with the late ones, in many of which rust infections were heavy.

The early spring and the succeeding 8 weeks of wet weather caused many foliage diseases to be unusually severe. Tulip fire was exceptionally serious and Botrytis spp. were also heavy on peony, lily and lily-of-the-valley. Development of the leaf smuts of poppy and gaillardia and of powdery mildew of phlox seemed to be hindered by the excessive rainfall (D.B.O. Savile).

Apple trees in western Que. blossomed unusually early, and the severe frosts that occurred in some sections during and immediately after bloom killed a high percentage of flowers. These late frosts were followed by exceptionally wet weather that did not permit timely sprays; consequently the apple crop reached a low mark rarely seen before. Scab was so severe in certain sections as to cause heavy defoliation. In eastern Que., where spring is later, no such damage occurred. After a hot spell in early May the weather remained cool for the rest of the month without, however, showing the extremes experienced in western Que. The flowering period extended over a month, and this condition favoured severe outbreaks of fire blight in certain localities. Infection was restricted to trees and branches in bloom. Apple scab was controlled without any difficulty by the regular sprays but was extremely severe in unsprayed orchards.

Late blight on tomatoes developed rather late in eastern Que. and caused damage to green fruit only after they were taken in for ripening. Late blight on potatoes was observed about the middle of July in western Que. but was checked by a short period of drought which favoured the spread of early blight, and leaf hoppers and other insects that were responsible for most of

the damage to potato tops. Except for a few isolated areas late blight was not of any importance in that part of the province. In eastern Que. late blight was observed in the latter part of July in a few fields, but there also it was checked until September when it became severe in many localities. However, in the Manicouagan district on the north shore of the St. Lawrence, heavy frosts about Sept. 20 killed the foliage before any late blight appeared in the fields.

During summer, heavy showers accompanied by wind caused some lodging of flax and cereals in certain localities. The excessive rains in May considerably delayed seeding operations in western Que. and on many farms growers had to re-seed their fields once or twice. September was exceedingly wet and in the eastern part of the province late blight rot of potato tubers caused much damage. Flax growers in some localities had great difficulty in harvesting the crop and consequently flax was overretted, fiber and seed being of poor quality (R.O. Lachance).

In N.B., January opened with a thaw, 1.13 in. of rain and a warm wind removing almost all of the 16 in. of snow that had covered the ground. Occasional light and moderate snowfalls occurred from Jan. 7 to Feb. 21, resulting in a coverage of 47 in. A rainstorm beginning Feb. 22 reduced the depth of snow to 31 in. but light falls increased it to 35 in. by the end of the month.

Unseasonably warm weather in March rapidly melted the snow and by the end of the month the fields were almost bare. Warm rains in late March and early April and an extremely warm second week of April rapidly thawed the ground and gave promise of an early spring. The fields dried out rapidly, meadows and pastures became distinctly green, and buds of trees and shrubs swelled considerably. However, a frost on April 15 damaged some buds, particularly of apple and raspberry, in certain locations. In the Grand Lake district strawberry plantations wintered poorly. Some growers lost as high as 75% of their plants.

May was cold, wet and dull, and little work could be done except on well drained, light, sandy soil. On May 11, 6 in. of snow accompanied by rain soaked the fields. Further frequent rains during the month resulted in the greatest precipitation, 8.61 in., for May in the thirty-two years that records have been kept. Orchard spraying was conducted under the most unfavourable conditions and much apple scab and russeting occurred as a result.

June was cool with almost 5 in. of rain. Sunshine totalled only 150 hours, 54 hours below the thirty-two year average. At the end of the month many fields were still too wet to work. Bright, windy, weather during July rapidly dried out the soil. Considering the late seeding, most crops developed well and looked promising by the end of the month. August was hot, dry and sunny with less than 1 in. of rain. Grain crops matured rapidly and potatoes and root crops suffered severely from drought.

The weather during late August and early September was excellent for harvesting. Late September was wet and cloudy. Late blight of potatoes began to develop in epidemic proportions about Sept. 14, but a frost on Sept. 18 killed the potato tops. Over 5½ in. of rain fell in October. However, the

potato and root crops were harvested in a clean condition except on very heavy land. Light snowfalls occurred on and after Nov. 15. The ground froze for the winter on Nov. 16 and the St. John River froze over Nov. 26. Light scattered snowfalls and rainstorms occurred during December. The weather was quite mild and the year closed with little snow and ice on the fields (J.L. Howatt).

Growth of vegetation was encouraged in N.S. early in April, approximately two to three weeks ahead of average. On April 16 and again on May 3 the thermometer dropped to 19°F. in many sections of the apple-growing area. Severe blossom bud injury occurred. It has been estimated that at least 50% of the apple blossom buds were killed by these frosts. During May and June a total of 14 inches precipitation was recorded. For a period of ten days during full bloom the thermometer did not reach 60°F. Bee activity was practically nil and hence pollination did not take place. Apple crops were obtained on trees that reached full bloom before the cool spell, as well as on the late blooming varieties, but very few apples set on main crop trees. July, August and September were comparatively dry and drought conditions prevailed on the lighter soils. Bitter pit of apples was very prevalent (J.F. Hockey).

Winter conditions in P.E.I. were favourable for tree fruits, small fruits, and field crops. The snow cover was abundant and there was little frost in the ground. There was not sufficient ice formation on trees and bushes at any time to cause wood injury. Unusually warm, clear weather from early to mid-April gave promise of excellent growing conditions, but subsequent cold, wet weather retarded growth and halted farm work. Orchard and small fruit development was delayed at least two weeks. Spring frosts caused some injury to strawberries and blueberries.

Initial fruit sprays were applied during the first week of May. Later applications were delayed well beyond the regular schedule, flotation sulphur being used generally. By mid-June spraying of commercial orchards had become general, there being good evidence of satisfactory disease control at that time. Apple scab spore discharge was first noted June 18. Infection was seen on July 2 and by late July scab was general in unsprayed orchards and was causing some concern in the Charlottetown area, although only 1.51 in. of rain fell during the month. Control measures later turned out to be quite effective.

Late blight of potatoes became active during early July, inoculum having been supplied from cull piles of tubers. With prolonged dry weather in August and early September, late blight did not become serious. Wet weather during late September, however, brought on sufficient blight to promote considerable losses by tuber rot in storage. Killing frosts first occurred on Sept. 30, but not before late blight became general in many poorly sprayed fields. Cold weather during October made digging difficult, and some low temperature injury to potatoes was reported.

Blossom-end rot of tomatoes was unusually destructive in 1945 due to the marked irregularity of moisture supply. The "potato sickness" disease, a magnesium deficiency disorder aggravated by dry hot weather, caused severe injury in many potato fields during July (R.R. Hurst, L.C. Callbeck).