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W. L. SLATE, JR., *Director.*

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PREMATURING AND OTHER POTATO TROUBLES.

G. P. CLINTON.

PREMATURING AND WILT.

Potatoes and lawns are very good indicators of lack of moisture in the soil, as they show evidence of injury usually before other plants. With a wet, cold, backward spring one would not expect drought to become a serious factor this early in the year were it not a fact that June and July, so far, have been quite deficient in rainfall. As a result most crops are beginning to show the effects of insufficient moisture, and early potatoes are the first to suffer severe injury. The complaint, so far, this year is largely limited to Irish Cobblers.

The potato needs considerable moisture in the soil, especially when it reaches full foliage growth, as the leaves at the tips and margins are not well fitted to retain moisture during very bright warm weather. If water is not supplied to the roots as fast as it is lost by the leaves, either tip burn of the foliage or prematuring of the vines results. This year has been very favorable for the latter trouble, and has caused many to suspect that some unusual disease has been injuring the vines.

The vines when in their prime begin to turn yellow and die down. This dying may be very irregular over the field. It is somewhat similar to natural death, except it occurs too early, and before the tubers have reached their full growth. Sometimes there is a dropping over and partial wilting of the vines before they have lost their green color. This latter character was not very prominent this year, and may be taken as an indication of unbalanced fertilization. During the war, when it was impossible to obtain a sufficient amount of potash salts to make a balanced fertilizer, mixtures were often used that contained no potash, and, especially in 1918, a very dry season caused much trouble similar to the present, except that the wilting was a more pronounced feature. There was also some loss last year from prematuring because of the dry season.

What confuses growers as to the cause of the trouble is that early varieties like the Irish Cobbler go down where Green Mountain or other late varieties, sometimes in the same field, will look all right. This is

simply because the latter have not yet reached the state of maturity that favors prematuring from drought. Prematuring occurs in that stage of the plant when foliage growth has been completed and the plant is bending all its energy in the formation of tubers. This means that a lot of water is used, and when this is deficient in the soil during bright warm weather, the potatoes yellow and die prematurely. Let the drought continue and the late varieties reach the same stage of growth, they will go down in a similar manner. This was what actually happened in 1918.

Some fields premature sooner than others of the same variety, depending on such factors as earliness of planting, amount of humus in the soil, type of soil, and such other factors that lessen moisture in the soil. A gravelly knoll in a field may have the vines on it dead before the rest of the field shows much trouble. Vines at the edge of a field shaded by trees may still be green when those elsewhere are gone. The shading has held back their development.

Most Irish Cobbler fields we have seen are now almost too far gone to be benefitted to any great extent by rain. However where fields are not over half dead there will still be a considerable addition to the tubers before they finally die, especially if the dying takes place slowly. We have seen no serious injury yet to the Green Mountain potatoes. If abundant rain comes before long the late potatoes will pull through. If it comes a little late, they will show the injury partly through a decreased crop and partly through irregular knobs on the large tubers. If the drought continues long enough, they will suffer the same as the early ones have.

OTHER TROUBLES.

Up to the time of the drought potatoes had looked fairly well. In some cases, there had been a little rot of the seed before coming up. Black Leg and Rhizoctonia canker, minor troubles, possibly are somewhat more prevalent than usual. There has also been a little complaint of Scab. Early Blight so far has been inconspicuous, and there is no evidence yet of the Late Blight, as June and July have been too dry for these troubles. Tip Burn has not been conspicuous because we have had few very hot days. Lice have been fairly common in some of the premature fields, but their presence was not the cause of the prematuring though possibly aiding it somewhat. There is some complaint of irregular stands and stunted plants due to Mosaic and related diseases. With better inspection in the seed producing states we may expect this to decrease. Certified seed is the only remedy for these troubles.