

The Mosaic Disease of Potatoes

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THE Mosaic disease of potatoes is not generally recognized by farmers, or the extent of the loss it causes appreciated. Particularly in the potato-raising sections of the Maritime Provinces in which the Green Mountain variety is largely grown the ravages due to this disease form a large and steady drain on the profits of the industry. The Plant Pathological Laboratory for New Brunswick estimates that ten per cent. of the value of the potato crop in that province is lost each year as a result of the disease. Calculating the New Brunswick losses on the basis of 1916 prices, this would amount to about \$768,900. The same would hold good for all the neighbouring provinces where varieties liable to the disease are generally grown.

Mosaic is easily recognized once one knows what to look for. If an average field of Green Mountain potatoes be examined, say at the end of July or thereabouts, there will be noticed a certain proportion of plants with leaves not so smooth as those of other plants nearby. The foliage, instead of being a smooth glossy green, is somewhat wrinkled or corrugated. The feature varies considerably, being very marked in some cases and not so marked in others, but it is always present to such an extent as to be easily recognized. These wrinkled leaves will on closer examination be found to be mottled with faint light green or yellowish spots. The spotting is also variable, but it can generally be seen, particularly if the observer stands in such a position as to place the plant being examined in his shadow. Occasionally it is strik-

ingly evident, depending on the severity of the attack and also apparently on the weather conditions at the time of the examination. Diseased plants often show more bare stalk near the ground than normal ones, partly because the affected foliage does not spread out and droop down as in the normal case, and partly because the lowest leaves sometimes fall off in the last stages of severe attacks. No other marks will be found on any parts of the affected plants, or on the tubers. The latter are normal looking and sound, and their keeping or eating qualities are not impaired. From a casual examination of a few plants in the field the yield does not seem to be reduced materially, but such is not the case, as the experiments to be recorded will show.

The cause of the trouble is unknown. A somewhat similar disease affects other plants of the same family, such as tobacco and tomato. No parasites have been found responsible in any case. In the case of tobacco mosaic, at least, it has been shown clearly that the sap of mosaic-diseased plants contains an infective principle which when transmitted to healthy tobacco plants reproduces the disease in them. The cause of the malady in potatoes is probably of the same nature, although infection has not been conveyed artificially from one plant to another. It has been proved, however, that infection takes place through the tubers of mosaic plants when used for seed, and this result is borne out by experiments carried out at Charlottetown in 1916. The product of some diseased plants was planted in hill units, and in