SPRAYING POTATOES ACCORDING TO TWO METHODS OF FORECASTING LATE BLIGHT

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Abstract

Late blight on foliage was effectively controlledby 7, 5 and 9 sprays applied, respectively, according to Hyre's and Wallin's methods of blight forecasting and to normal farm practice. Sprays applied before July 26 were of no value. It appeared that the first appearance of blight on late varieties was more accurately forecast when favorable periods occurring before the last week of June were disregarded. The data indicated that the yield was substantially decreased in unsprayed plots.

Introduction

Under the conditions prevailing in southwestern Quebec, late blight of potato varies in its development and intensity from year to year. In order to obtain the best control with a minimum of fungicide sprays, it is important to be able to predict when and how the disease will occur and to spray accordingly. This involves the use of a method or methods for predicting late blight infection periods for proper timing of fungicide applications. This paper is a report of the initial year of an experiment dealing with this problem.

Methods and Procedure

This experiment was carried out on muck soil at the Canada Agriculture Substation at Ste. Clothilde. It included 12 plots of the late variety Green Mountain, randomized in 3 replicates. The plots, consisting of 8 rows, were 50 feet long and bordered by 2 unsprayed rows.

The two methods of late blight forecasting used in this experiment were those developed by Hyre and Wallin (1). Hyre's method was modified slightly regarding the temperature criteria, as explained in (1). The recording of the data for Hyre's method started on potato emergence, on June 12. Those for Wallin's method two weeks later, on June 26. The treatments were as follows:

A - Spraying according to Hyre's method of forecasting
B - Spraying according to Wallin's method of forecasting.
C - Spraying according to normal. farm practice.
D - Unsprayed.

The fungicide used was Maneb 50-W, 2 lb. per acre, except for one application of a copper dust in treatment C. Due to soil conditions, the fungicide applications were usually made by hand with a spray gun, Otherwise, a high power potato sprayer was used. The tops were chemically killed on September 5, two weeks before harvest. Yield records were taken in the 4

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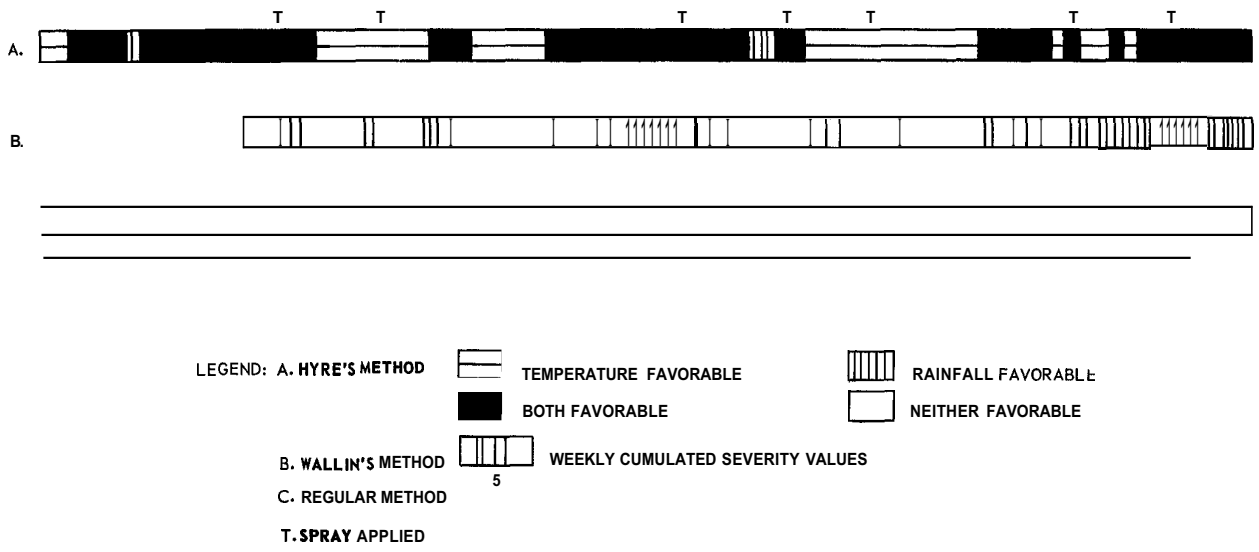

FIGURE 1. SPRAYING POTATOES IN ACCORDANCE WITH TWO METHODS OF FORECASTING LATE BLIGHT

centre rows of each plot. A summary of blight infection periods and fungicide applications are given in Figure 1.

Results

Figure 1 shows that 7 treatments were applied according to Hyre's method, 5 according to that of Wallin and 9, according to normal farm practice.

With respect to blight on the foliage, there was no difference between treatments A, B and C, there being only traces of the disease in all three treatments at the end of August. Readings in check plots were as follows: August 9, about 10%; August 24, about 40%; August 28, 95%.

These results show that sprays applied before July 26 were not of value and that Wallin's method was more accurate for the forecasting of the first appearance of blight. This is in agreement with the results of another study (1) which indicated that blight-favorable periods occurring before the last week of June might be disregarded for forecasting the disease on late varieties. The yield records are given in Table 1.

Due to the nature of the land used (floodings, damage by machinery), the figures in Table 1 are not statistically significant. It is obvious, however, that the yield in unsprayed plots was substantially decreased by late blight.

Table 1 - Yield in pounds of sound No. 1 marketable potatoes

Treatment	Replicate 1	2	3	Total
A	173	238	393	804
B	246	397	188	831
C	69	381	397	1073
D	57	137	94	288

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Literature Cited

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