

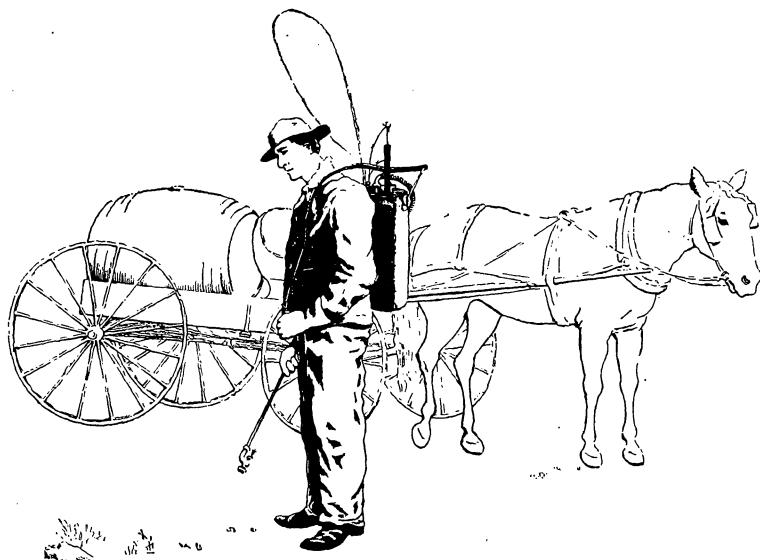
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THOROUGHNESS PAYS IN POTATO SPRAYING.

SUMMARIZED BY
F. H. HALL
FROM BULLETIN BY
F. C. STEWART

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POPULAR EDITION*
OF
BULLETIN No. 379.

THOROUGHNESS PAYS IN POTATO SPRAYING.

F. H. HALL.

**Potato
spraying
neglected.**

New York State potato-growers still have much to learn about spraying. Many of them apparently know little about the benefits from this practice, since they fail to spray at all. Others evidently believe in spraying, but make too few applications or put them on too carelessly to obtain the most profitable results. In one of the most important potato-growing sections of the State, near Rush, the Station sprayed small areas in 66 fields, in only 19 of which, or less than 29 per ct., did the owners spray at all. It is probable that not much over one-fourth of the potato-growers of the State spray. This is somewhat surprising, for the Station has urged the practice for many years, and in two series of tests, one extending over nine years and the other ten, has proved clearly that spraying is a most profitable insurance investment. In the ten-year tests under Station conditions the average increase was at the rate of $97\frac{1}{2}$ bushels per acre annually; while in the farmers' business experiments extending over nine years, spraying gave a net profit in 94 cases out of 114, or 82.4 per ct., and the average annual net gain, financially, was \$14.43 per acre on over 1,500 acres. Thus there is a certainty of a nice gain from spraying, if made a regular practice, with only slight possibility of loss in a few cases, as the average loss in the 20 cases where any occurred was only \$5.78 an acre on $233\frac{1}{2}$ acres.

**Station work
enforces
thoroughness.**

The average gain in yield in the Station tests, almost 100 bushels to the acre, is much better than the average in the farmers' business tests, 36 bushels; which seems to indicate a difference in thoroughness between Station spraying and applications made on the farm. It is probably true, however, that yields at the Station, on strong soil and with good culture, are better than yields generally and the gains from spraying therefore greater. Hence, to test the

* This is a brief review of Bulletin No. 379 of this Station on Potato Spraying Experiments at Rush in 1913, by F. C. Stewart. Anyone interested in the detailed account of the investigations will be furnished, on application, with copies of the complete bulletins, so long as these are available.

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effect of thoroughness it is necessary to do the work on farms where all conditions, except the spraying, are such as the average farmer would meet.

Work at Rush. Accordingly arrangements were made by which the Station secured the right to spray one-fiftieth of an acre in each of many potato fields near Rush. The Station employed a man (a Cornell student, during his summer vacation) to measure the required area in each field and to spray the vines thoroughly every two weeks. As already stated, no bordeaux spraying was done by the owner in 47 of the 66 fields selected; while in the other 19 fields the Station spraying was in addition to from one to eight treatments by the owner. The Station work was done with a knapsack sprayer, thoroughly and repeatedly, so that five applications were made on late-planted fields and six on those planted earlier.

Results. The season was a very poor one for testing any spray treatment, as dry weather restricted growth and prevented development of fungus diseases, while a frost on the night of Sept. 14, when the sprayed vines were still green and vigorous, cut the season short two or three weeks. Very little early blight appeared and no late blight, so that the greatest factors in spray benefit were absent; yet by a somewhat better control of "bugs" in a few instances, some repression of tip-burn and by the little-understood stimulus of the copper sulphate on potato plants, spraying resulted in increased yields in 41 out of 47 unsprayed fields and in 15 out of 19 of those sprayed more or less frequently and thoroughly by their owners. The average net gain, as measured by the difference between the actual weighed yield of the sprayed row and of an equal length of check row beside it, was at the rate of $17\frac{3}{4}$ bushels per acre where no spraying was done by the owner and 15 bushels where the owner sprayed and the gain came from the added applications or more thorough work in the Station spraying.

Lesson of the test. These tests confirm the belief gained from previous potato spraying experiments, that this operation is seldom performed at a loss and is generally very profitable. Certainly conditions would rarely be as unfavorable for showing benefit from spraying as in these cases, yet in probably more than one-third of the fields there was a financial profit from the spraying, no gain or very slight loss in another third of the fields, and a small loss on most of the remaining fields. This applies with almost equal force to sprayed and unsprayed fields.

The work also enforces the necessity for careful, thorough and repeated applications if the greatest benefit is to be secured; for there was apparently, in this dry season, little gain from much of the spraying done by the growers themselves.