United States are sold on regulation it will be mighty unhealthy for any one to become a slacker.

Now, in conclusion, I will say, there is one thing certain—we cannot be any worse off than we already are. Something must be done or the government will have to start building more poor houses. There must be a way out of the wilderness, and I have faith that the combined wisdom and good sense of the potato industry will find it.

THE RELATION OF SPRAYING AND DISEASE-FREE SEED TO HIGH YIELDS IN PENNSYLVANIA

L. T. DENNISTON


Nineteen thirty-four marks the tenth year during which definite records have been kept on high acre potato yields in Pennsylvania. It seems fitting that these records should be summarized at the end of the tenth year and some of the more striking results presented at this time. In studying the early literature on potato culture in Pennsylvania, I find high or record yields recorded as early as 1852. Such records at this early date are, however, decidedly few in number. The period from 1900 to 1905, often referred to as the years of the “great potato boom” is productive of many records, especially on newly developed varieties. It was not, however, until 1922 when Dr. E. L. Nixon conceived and started “Pennsylvania’s 400 Bushel Club” that a systematic and complete record of high yields was kept. Three years later, 1925, definite records on the practices and methods by which these record yields were grown were begun. We have then the period from 1925 to 1934 inclusive as the ten year period for summarization and study. This particular summary and study will be confined to the relation of spraying and disease-free seed to these high yields.

I might be challenged in saying that thorough and timely spraying is more vital to the potato industry of Pennsylvania than it is to the industry of any other state. We have in times past been questioned as to the efficacy of our recommendations in Pennsylvania as to materials, methods, number of applications and as to the pressure at which the sprays are applied. These recommendations were founded or established largely on the basis of observation, trial, and practice, but with results in favor of the potato grower as the goal, we in Pennsylvania do not feel that we have been far off the course, especially for our Pennsylvania conditions. Recognizing that elevation, temperature, precipitation, length of growing season and varieties influence the effective-
ness or results of spraying, we have stated that there can be no set rule
as to the number of applications required. In a general way, 10 to 12
applications have returned the greatest profit. Even under our most
favorable conditions less than eight sprays have never given the most
profitable returns. Under adverse conditions, as high as sixteen ap-
plications have proved to be economical. With these wide variations
within a state, it is reasonable to assume that there are still wider vari-
atations as to climate, temperature, precipitation and varieties between
more distant areas or the different states with possibly similar vari-
ations in the requirements as to spraying practices.

Influence of Spraying

That spraying has been widely adopted in Pennsylvania is evi-
denced by the 12,000 sprayers now in use. We have no bona fide com-
mercial growers attempting to produce potatoes without spraying except
a small number who are dusting. A difference of 50.3 bushels per acre
on 35 demonstrations in favor of spraying over dusting is the reason
we have not been enthusiastic about dusting in Pennsylvania. Results
in recent years are even more in favor of spraying than in earlier years.
The demonstrations in 1931 showed a difference in favor of spraying
of 50.7 bushels per acre; in 1933, 82.6 bushels, and in 1934 the dif-
fERENCE was 98 bushels in favor of spraying. During the thirteen
years, 1922 to 1934, that the “400 Bushel Club” has been in existence
only 3.2 per cent of the membership have used a dust. It is signifi-
cant that over this period of thirteen years, with eight to ten times as
many farmers eligible to the club who neither sprayed nor dusted as
those who did spray, that only three qualified with a 400 bushel yield.
Yet many of these farmers must have planted on good soil and practiced
reasonably good culture.

Results of potato spraying demonstrations in Pennsylvania
1918-1934

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Demonstrations</th>
<th>Av. Increase Yield per Acre</th>
<th>Av. Increase Yield per Acre</th>
<th>Av. Number Sprays Applied</th>
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<tr>
<td>1918-1922</td>
<td>1423</td>
<td>58.5</td>
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<td>51.0</td>
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<td>93.1</td>
<td>53.9</td>
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<td>1933</td>
<td>45</td>
<td>121.9</td>
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<td>46</td>
<td>94.5</td>
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<tr>
<td>1918-1934</td>
<td>2713</td>
<td>83.3</td>
<td>48.6</td>
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