SPROUT INHIBITORS AS A MEANS OF REDUCING LEAF ROLL IN POTATOES

Walter C. Sparks
Horticulturist, Aberdeen Branch Station, University of Idaho

Washington is blessed with a long growing season, and diversified farming including fruit trees, such as the peach. This blessing of being able to grow peaches and other related fruit crops in the same areas where you grow potatoes may instead be a detriment to the potato farmer. The green peach aphid is the most common carrier of leaf roll in potatoes, thus, in those areas where peaches can be grown and the population of aphids is great, the likelihood of leaf roll to potatoes is also great.

As Dr. Landis, Dr. Bishop, and Mr. Powell have pointed out, even though the aphid can be 99 percent controlled, that remaining one percent can spread a lot of leaf roll virus.

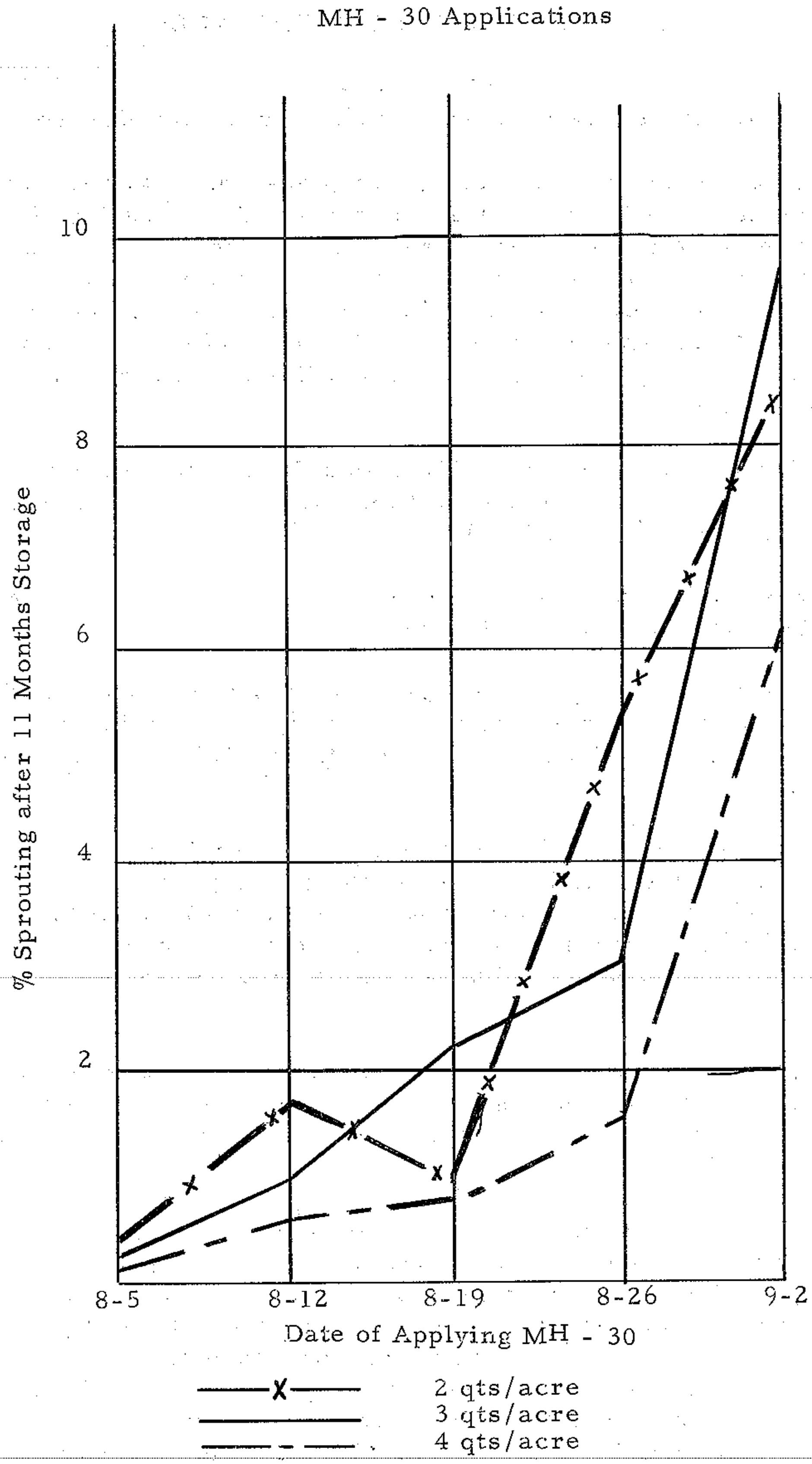
Mr. Chambers has related some of the difficulties in controlling volunteer potatoes by mechanical means.

It is my part on the program to explore the possibility and practicability of eliminating volunteer potatoes as a source of leaf roll virus by chemical means. First, let us consider the possibility of eliminating volunteer potatoes.

We have at the present time one chemical sprout inhibitor (MH-30 Maleic Hydrazide) which can be applied to the green growing plant about 2 or 3 weeks after full bloom, and which will prevent the tubers from that plant from sprouting and growing. Thus, the tubers from sprayed plants cannot produce volunteer plants, and therefore cannot transmit leaf roll.

This may be an oversimplification of the problem, because certain requirements must be met before the application of MH-30 will be successful. Some of these are the date and rate and in some cases the method of application.

The following graph points out the necessity for the proper timing of the application of MH-30. As can readily be seen, the proper timing of the application was more important than the rate as far as eliminating sprouts was concerned. Two or 3 quarts of MH-30 properly applied and properly timed resulted in fewer sprouted potatoes than 4 quarts applied too late. Application by ground rig has given more uniform and better results than application by airplane. It should be noted that MH-30 is compatible with most fungicides and can be mixed in with the fungicide to reduce the cost of application.



MH - 30 Applications
10
8
6
4
2
% Sprouting after 11 Months Storage
8-5
8-12
8-19
8-26
9-2
Date of Applying MH - 30
2 qts/acre
3 qts/acre
4 qts/acre

The next logical question - "Will MH-30, when applied 2 or 3 weeks after full bloom, reduce yields?" In several years of trials at the University of Idaho Aberdeen Branch Station, no reduction in yield was experienced when MH-30 was applied 2 or 3 weeks after full bloom. If applied sooner than this, a slight reduction occurred.

It goes without saying that before a chemical is used by industry it must be approved by FDA. MH-30 is approved by the FDA with a tolerance of 50 ppm.

Another benefit of this particular sprout inhibitor is that it is internal and is not external; therefore, is not removed when the tubers are washed and no additional inhibitor need be added to extend the shelf life of tubers sent to the terminal markets.

Is it practical? Depending on quantity used and application costs, it should cost from $12 to $18 per acre. With a yield of 300 cwt. per acre this makes the cost of application from 4 to 6 cents per cwt. This cost covers the following benefits:

1) Eliminates, to a large extent, volunteer potato plants which might aid in the spread of leaf roll.

2) Reduces sprouting in storage so tubers can be stored at a warmer temperature, thus reducing sugar build-up, and increasing processing quality.

3) Eliminates the need to treat tubers at grading time to increase shelf life on retail market.