GROWER USE OF CALCIUM CYANAMIDE AS A CROWN TREATMENT FOR HOP DOWNY MILDEW

by

C. R. Hoerner, Agent, Division of Drug and Related Plants
Bureau of Plant Industry, United States Department of Agriculture

Introduction

From 1934 to 1937, inclusive, 1,407,025 pounds of calcium cyanamide were reported used in hop yards in British Columbia, California, Oregon and Washington.

On October 19, 1937, a questionnaire was mailed to each of 131 hop growers who used it, requesting specific information relative to his use of the material. Fifty-two grower-users in British Columbia, California and Oregon replied. No replies were received from Washington. The reports covered the use of 638,525 pounds on 847 acres of Early Clusters, 999 acres of Puggles, 16 acres of Goldings and 2064 acres of Late Clusters.

All British Columbia users and a number of those in California and Oregon reported that the material had been applied in a ring around the hills, that is, as a fertilizer instead of over the tops of the crowns as recommended for downy mildew control. Information secured from growers who had used the calcium cyanamide in this manner is not included in the summary of grower reports.

The time of application ranged from January 1 to April 20 in California and from January 10 to May 8 in Oregon. A number of users made applications after hoeing. Some growers used appreciably larger amounts than 2 ounces per hill, which may, in part at least, account for some of the injury reported. Several growers treated replants, many of which were severely injured. Few growers apparently left untreated hills for comparison with those treated and as a result were unable in most cases, to state definitely whether or not downy mildew control had been secured or what percentage of control had been effected. Only a relatively few growers -- those who had used no other fertilizers -- were able to estimate the increase in yield per acre due to the treatment.

Summary of Grower Reports

The following summary is based on the reports of 35 growers who used 465,625 pounds of calcium cyanamide as a crown treatment on 735 acres of Early Clusters, 178 acres of Puggles and 2137 acres of Late Clusters.
California

In 1935, one grower made application before and one after hoeing. An average of 337 pounds per acre was used. No injury resulted and no downy mildew control was evident.

In 1937, one grower applied eight ounces per hill before hoeing. No injury resulted and some evidence of downy mildew control was secured.

Oregon

In 1934, one grower made application before and three after hoeing using an average of two ounces per hill. One grower reported injury. Two growers reported an average of forty-five per cent downy mildew control.

In 1935, six growers made application before and one after hoeing, using an average of four ounces per hill. One grower reported injury. One grower reported no downy mildew control and four reported control, two of whom averaged ninety-five per cent control. An average of twenty-five per cent increase in yield was secured by two growers reporting on yields.

In 1936, two growers made application before and one after hoeing, using an average of 2.5 ounces per hill. One grower reported injury. One grower reported no downy mildew control and two reported control. An average of fifty per cent increase in yield was secured by the one grower reporting on yields.

In 1937, twelve growers made application before and six after hoeing. Sixteen growers used an average of 2.8 ounces per hill and two growers used an average of one hundred fifteen pounds per acre. Four growers reported injury. One grower reported no control. Eleven growers reported control of downy mildew, two of whom averaged seventy-four per cent control. One grower reported ten per cent increase in yield and four growers reported an average yield increase of two hundred seventy-five pounds per acre.

Conclusion

In general it may be stated that when calcium cyanamid was used as a crown treatment for downy mildew control according to direction -- two ounces before hoeing applied to the surface of the soil over the crown in a circle approximately two feet in diameter, avoiding replants -- little injury resulted, the development of basal spikes was suppressed and increases in yields were secured.