

Gibberellic Acid Sizing Trial on Table Grapes, 1987

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Introduction

The acreage of table grapes in Western Arizona has increased to 2,500 acres. With an estimated annual gross income of \$5 million. Early maturity is imperative to desert grape growers since the price can fall dramatically during the first few weeks of the season. To meet the early market, growers must have grapes with adequate size and sugar. Gibberellic acid (Gibb) is a growth regulator used to increase the size of the berries, as well as to thin and elongate the bunches. Grape growers in the desert southwest have found that increasing the rates of Gibb above those commonly used in the industry has been effective in promoting the desired early maturity. Recent label changes have also reflected this move to higher rates. The bottom line to growers, however, is the cost effectiveness of an additional increase in the rates.

The objective of this research is to determine if higher rates than commonly used in desert grape production continue to increase early maturity, and if they are cost effective. With growers currently spending nearly \$40 per acre on Gibb applications, the result of this 4-year study could have a significant economic impact on the Arizona grape industry.

Methods and Materials

The 4-acre plots used in this study contained 40 rows of 57 vines spaced 12 feet apart. The Gibb applications were applied with an over-the-row high pressure sprayer at a rate of 300 gallons of water per acre. Two ounces of a wetting agent (Triton B-1956) were used per 100 gallons of water. The 7 treatments applied to Perlettes and Thompson Seedless grapes contained the following grams per acre: two 48-gram, two 64-gram, two 64- and a 48-gram, two 80-gram, and two 80- and a 64-gram application. The first application for all treatments was applied when 70 percent of the berries were 8mm in diameter. The second of the double applications was made 7 days after the first, while the second and third of the triple applications were 4-5 days apart.

At the time of harvest the 20 center rows of the 40-row plots were evaluated. Samples to determine berry size, weight, and sugar content (Brix count) were taken from every second plant on a diagonal across the plot between the tenth and forty-eighth vines. Twenty vines per plot were sampled with 10 berries taken from the top shoulder of the bunch nearest the trunk on the west side. After being weighed and sized, the berries were mashed, and a refractometer was used to determine the Brix count.

A count was made during harvest of the total number of boxes per treatment for the first picking, as well as a breakdown of those graded #1.

Results and Discussion

The results of the study are contained in Tables 1 and 2. With the Perlettes there were no significant differences in berry size and weight, while the lowest rate (48g x 48g) appears to have a higher Brix count than the other treatments. The harvest data indicate that the number of both grade 1 and total boxes for the first picking increased with an increase in grams of Gibb applied.

On the Thompson Seedless, there appears to be a consistent increase in berry size and weight with an increase in Gibb rates to two 80-gram applications. The rates above two 80-gram applications also reduced the sugar content of the berries. As with the Perlettes, the yields consistently increased with an increase in Gibb rate.

Table 1. Evaluation Results of Gibb Sizing Sprays on Perlette Grapes, 1987.

Treatment (grams)	Berry Weight (lbs/200 berries)	Berry Size (16th of an inch)	Sugar Content (Brix count)	First Pick Boxes	
				#1 Grade	Total
48 x 48	1.20	10.7	16.8	135	195
64 x 64	1.20	10.8	16.3	211	281
80 x 80	1.25	10.8	16.4	237	348
64 x 64 x 48	1.25	10.8	16.5	256	396
80 x 80 x 64	1.20	10.8	16.4	286	396

Table 2. Evaluation Results of Gibb Sizing Sprays on Thompson Seedless Grapes, 1987.

Treatment (grams)	Berry Weight (lbs/200 berries)	Berry Size (16th of an inch)	Sugar Content (Brix count)	First Pick Boxes	
				#1 Grade	Total
48 x 48	1.15	9.42	16.3	236	684
64 x 64	-	9.60	15.7	259	706
80 x 80	1.35	10.04	16.9	445	933
64 x 64 x 80	1.30	9.85	16.4	462	1003
80 x 80 x 64	1.40	10.18	16.3	684	1083