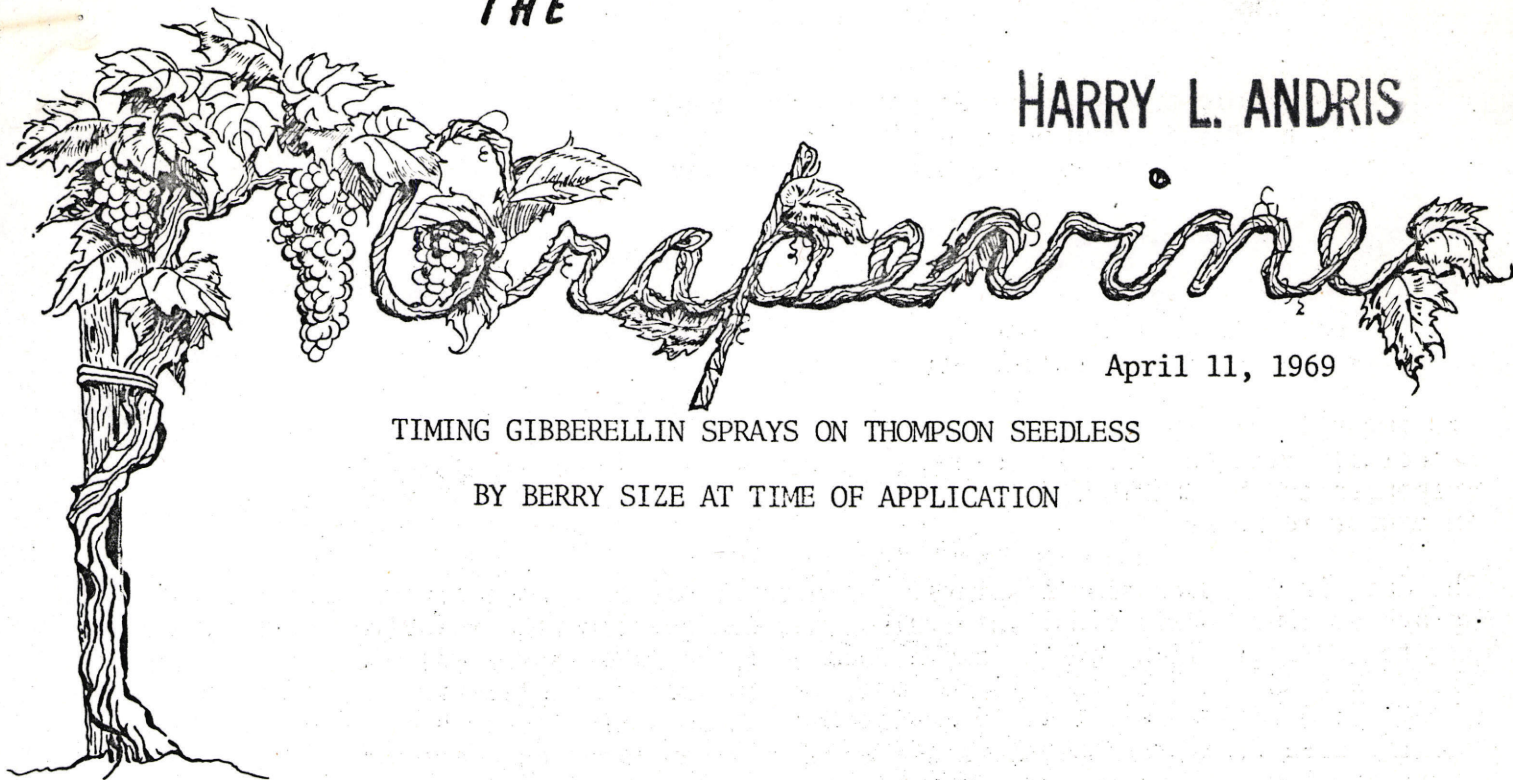




April 11, 1969

TIMING GIBBERELLIN SPRAYS ON THOMPSON SEEDLESS

BY BERRY SIZE AT TIME OF APPLICATION

In 1968 a test on timing was conducted to follow up on preliminary data collected in 1967.

The test was replicated four times and seven to eleven vines were used for each plot. All sprays were applied with an inverted U boom, at 200 gallons per acre, 200 psi. Sprays were applied at four to seven day intervals from May 11, 1968 through June 13, 1968.

Twenty-five clusters were tagged in each plot. Four to five berries were selected from each cluster, composite made and fruit maturities determined. The plot was sampled at weekly intervals from July 24 through August 6. The results in Table I and Figure 1 were from the August 6 sampling. Results obtained on the other two dates were comparable to that obtained on August 6.

The berry diameter at the time of spraying was determined by use of a drill gage graduated in $1/64$ " increments. The largest, intermediate and smallest berries on the cluster part to be saved were measured. An estimation was made as to the uniformity within the cluster. The process was repeated throughout the plot area and a range of sizes were developed.

For example, on the second spray date of May 20, 1968, few berries were $5/32$ " (approximately 15%), most were $8/64$ " to $9/64$ " (approximately 80%), largest berries in the middle of the cluster were $11/64$ " (approximately 5%).

Since most of the berries to be retained were $8/64$ " to $9/64$ ", this is considered the size range at time of gibberellin application.

Table I summarizes the results of a single 30 ppm sizing spray. Note the final berry weight, and cluster characteristics as they relate to the approximate berry diameter at spraying time.

As berry diameter at time of spraying was increased, changes in cluster characteristics were observed.

a. Early sprays resulted in erratic berry size both within clusters and

between clusters. Intermediate sprays resulted in greater uniformity both within clusters and between clusters. Late sprays had somewhat less uniformity than intermediate sprays, but did not approach the degree of variation that was observed with early sprays.

b. Capstems on fruit sprayed intermediate were much larger and thicker than on fruit sprayed early or late. (See photographs). This heavier, thicker capstem could be less prone to shatter or dessication than the smaller, thinner one obtained by treating early or late.

Treatment later 9/64" to 15/64" (3.6 to 6 mm) would be preferable to early treatment. Especially with an irregular bloom such as occurred in 1967. The data indicates that responses can be obtained from later treatments but too early a treatment can result in a poor response.

The data is based on single sprays. No attempt has been made to evaluate multiple sprays at four to eight day intervals. One can question the relative merits of spraying too early in light of the above data. If the first spray was made when the berry size was 3/32" to 1/8" (2.3 to 3.2 mm), and the second application was made 9/64" to 15/64" (3.6 to 6.0 mm), I would expect the second spray to do the most good. In reviewing data from previous plots where multiple applications were made, most tests start at normal shatter and cannot be used for comparison purposes.

A series was run with a second 20 ppm sizing spray applied on June 13, 1968. The response ranged between .12 to .29 gram increase over a single sizing spray. Any late clusters or berries in the range of 9/64" to 15/64" probably benefitted, but for practical purposes an application this late would have little real advantage.

TABLE I THE EFFECT OF GIBBERELLIN TIMING ON THOMPSON SEEDLESS GRAPES

<u>Date Siz.</u> <u>Spray</u> <u>Applied</u>	<u>Approx. Berry*</u> <u>Diameter at</u> <u>Spray. Time</u>	<u>mm</u>	<u>Estimated</u> <u>Berry Size</u>	<u>Uniformity**</u> <u>Within</u> <u>Bunches</u>	<u>Est. Fruit</u> <u>Color***</u>	<u>Berry</u> <u>Wt. in</u> <u>Grams</u>	<u>OB</u>
5/16	3/32" or less	2.4 or less	small +	2.8	2.5	3.62	19.5
5/20	1/8"-9/64"	3.2-3.6	medium	4.0	2.6	4.19	18.2
5/24	9/64"-11/64"	3.6-4.3	large -	5.5	2.5	4.43	19.1
5/29	3/16"-15/64"	4.8-6.0	large	5.9	3.2	4.27	18.2
6/6	17/64"-11/32"	6.8-8.7	medium +	4.3	3.6	3.88	19.0
6/13	11/32"-25/64"	8.7-9.9	small +	3.8	2.5	3.67	18.8
check	15 ppm bloom spray only		small	3.3	1.3	3.16	19.4

15 ppm bloom spray applied on May 11, 1968 (70-80% bloom). Shatter May 20, 1968.
Single 30 ppm sizing spray applied on date indicated

* Note 3/32" or 2.4 mm is the approximate berry diameter at bloom time.

** Rated on a scale of 1-10; one poor uniformity, 10 very uniform.

*** Rated on scale of 1-5; one yellow or amber, five green color.

Figure 1 is a graphic response showing the relationship of berry diameter at time of spraying to berry weight at harvest. From Figure 1 it could be observed that if single application of gibberellin were to be made, higher concentrations could possibly be used early and late (shaded areas) to obtain comparable berry sizes.

Note: The word comparable is used because this will not necessarily result in uniformity between bunches or within a bunch.

Weather, availability of spraying equipment, irrigation schedules and size of operation all have their effect on the application of gibberellin. These factors sometime necessitate the application at times before or after the optimum period of response. However, it is quite obvious from the data that every effort should be made to properly time a gibberellin operation.

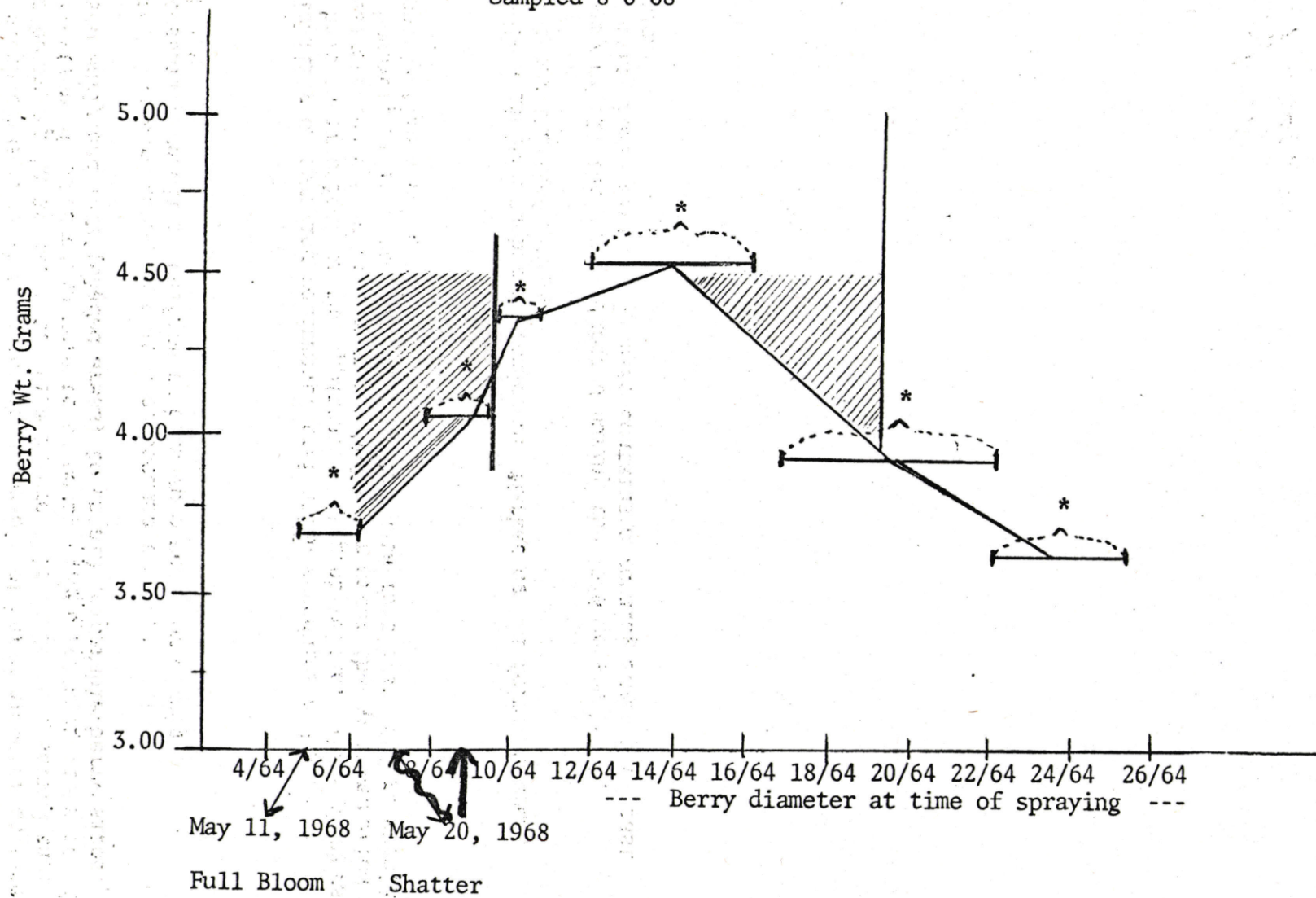
We have available a limited number of copies of "Marketing California Grapes, Raisins and Wine for the 1966 Season".

This is a summary of all the data collected during the 1966 season by the Federal State Market News Service. It also contains a running summary of past years information.



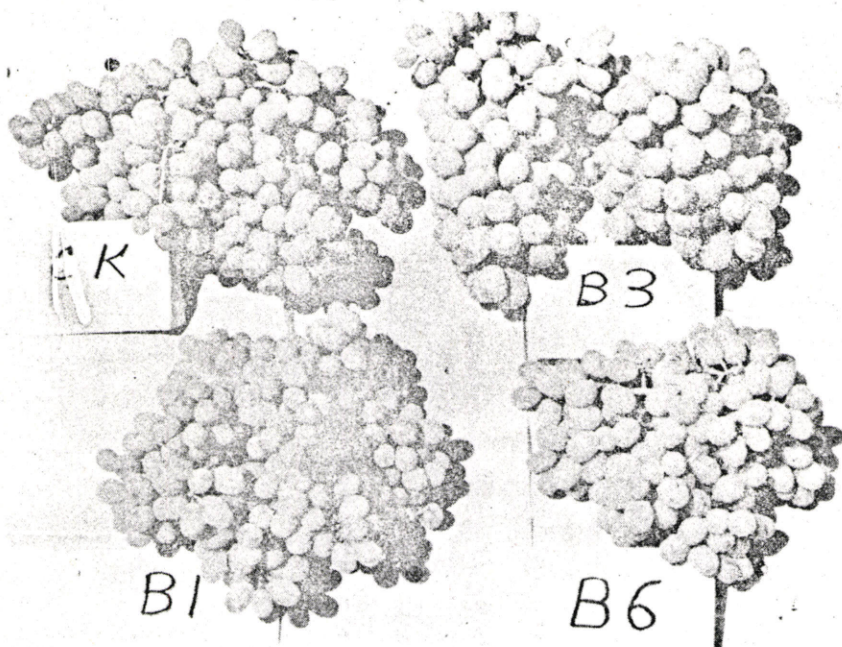
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Farm Advisor

FIGURE 1. BERRY DIAMETER VS. BERRY WEIGHT
Sampled 8-6-68



GIBBERELLIN TIMING BY BERRY SIZE

Bloom Spray - 15 ppm applied May 11, 1968
Single Sizing Spray - 30 ppm
applied at berry size noted



CK - Bloom spray only
15 ppm 5/11/68

B1 - Bloom spray + 30 ppm
sizing when berry size
3/32" or less (sprayed
5/16/68)

B3 - Bloom spray + 30 ppm
sizing when berry size
9/64 - 11/64"

B6 - Bloom spray + 30 ppm
sizing when berry size
11/32 - 25/64"

Berry sizes indicate diameter
of berry.

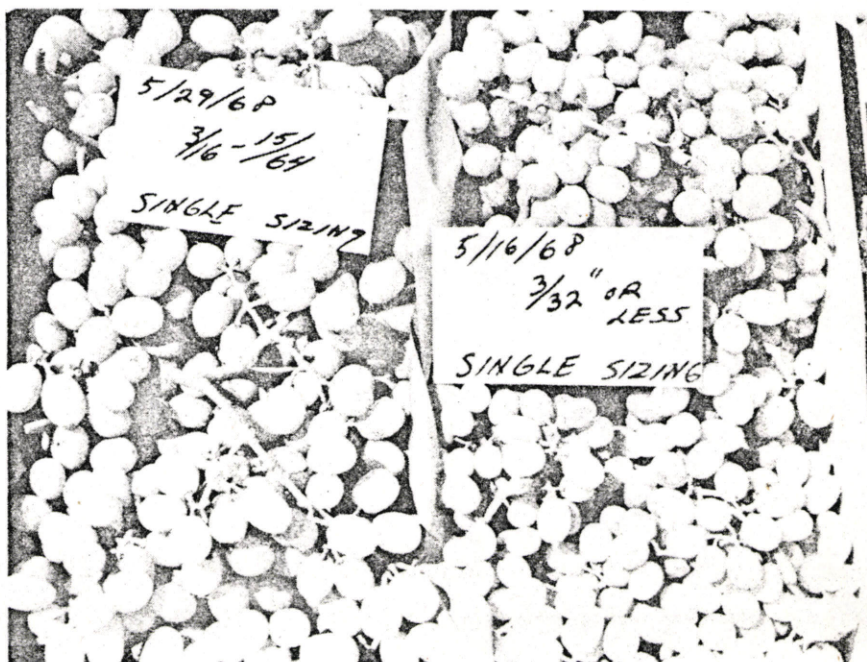
ABOVE: Note the effect of size at time of application
on cluster appearance, uniformity of berry
size and uniformity of cluster.

COMPARISON OF TWO HALF BOXES
OF THOMPSON SEEDLESS.

Left half 3/16 - 15/24" when
sprayed.

Right half 3/32" or less.

Note difference in berry
size, uniformity and
capstems.



A SUMMARY OF 1968 GIBBERELLIN PLOT

1968

May 11
SINGLE SIZING -- BLOOM 15 ppm PLUS ONE SIZING 30 ppm

Date	Estimated Berry Size	Uniformity Within Bunches	Estimated * Fruit Color	Berry Wt. in Grams	°B	Approx. Berry Size at Spraying Time
5/16	small +	2.8	2.5	3.62	19.5	3/32 or less <i>72.4</i>
<i>Shatter</i> -5/20	medium	4.0	2.6	4.19	18.2	1/8 - 9/64 <i>3.0-3.6</i>
5/24	large -	5.5	2.5	4.43	19.1	9/64 - 11/64 <i>3.6-4.4</i>
5/29	large	5.9	3.2	4.27	18.2	3/16 - 15/64 <i>4.8-6.0</i>
6/6	medium +	4.3	3.6	3.88	19.0	17/64 - 11/32 <i>6.7-8.0</i>
6/13	small +	3.8	2.5	3.67	18.8	11/32 - 25/64 <i>8.7-10.0</i>

DOUBLE SIZING -- BLOOM 15 ppm PLUS SIZING 30 ppm PLUS 2nd SIZING 20 ppm 6/13/68

5/16	small +	4.5	2.0	3.75	17.8	3/32 or less
5/20	large -	6.5	2.7	4.48	17.5	1/8 - 9/64
5/24	large	7.1	3.5	4.58	17.0	9/64 - 11/64
5/29	large -	5.9	3.5	4.39	17.6	3/16 - 15/64
6/6	medium +	3.8	4.3	3.78	17.8	17/64 - 11/32

check small 3.3 1.3 3.16 19.4
(bloom spray only)

Vines girdled about May 24-29, thinned 1 week later

* Range 1-5; 1 yellow or amber, 5 green

Luvisi believes best gib. timing 9/64 (3.6mm) to

16/64 (6.4 mm) best

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2/27/69