THE Grapevine

May 15, 1984

Cooperative Extension University of California

BAYLETON® TANK MIX OR SEPARATE

During the past 30 days, I have encountered many discussions on whether or not Bayleton should be combined with gibberellin since it is purported to have some anti-gibberellic properties. The only article I have seen discussing the subject, discusses it in very general terms and from my reading from this one article, would not feel that it was a factor in the reduced berry size that was encountered during the 1983 year.

I realize that most growers and myself included, would like to know without doubt what happened to the berry size during the 1983 crop year. I encountered several vineyards, especially the younger vineyards, where bloom spray was applied and it looked as if it were totally ineffective, no thinning and no size increase and no elongation of the berry. Another point encountered was that the size increase sprays were not extremely effective during 1983, especially in the Arvin area.

There still much information that we don't know regarding the effect of temperature on the response of gibberellic acid. It appears to me as an observation, that high temperatures during bloom or berry sizing time seemed to have an adverse effect on the final size increase on Thompson Seedless grapes. In 1983 we had very cool weather through the start of bloom and then we had some 90-95° days, there was a 105° day right during bloom, and I feel that for some reason this adversely affected the thinning response and maybe even carried over into the size increase response of our gibberellin applications.

Following are the results of three experiments, two conducted by me and one by Fred Jensen where gibberellin was combined with Bayleton and applied to Thompson Seedless grapes with the size increase sprays. Basically, I have not been able to obtain any noticeable adverse effect from the combination spray of Bayleton and gibberellin in the two trials that I have conducted and the one trial Fred Jensen conducted. I want to emphasize though, that this is strictly Bayleton-gibberellin combination and does not include some of the many combinations that are utilized by growers. I feel prudence dictates that only the minimum number of compounds should be mixed in a tank at any one time. For advance planning you should be testing one or two tanks of mixes in 1984 that you would anticipate future use in 1985.

Plot No. 1.

Spray sequence, Thompson Seedless, Delano area, Drip irrigated - 1983

3 May, 1983
First spray. Shoots, 15 - 24", few 36 - 40" and few 12 - 15"
(a) Chemical at rate specified (Table 1)
(b) 4 oz. Triton B1956/100 gallons water

2 June, 1983
Second spray - 200 gallons/acre
Berries 4 - 5 mm berry diameter
(a) Chemical at rate specified (Table 1)
(b) 40 ppm gibberellin
(c) 4 oz. Triton B1956/100 gallons water

28 June, 1983
Third spray - 250 gallons/acre
(a) Chemical at rate specified (Table 1)
(b) 4 oz. Triton B1956/100 gallons water

The grower applied the bloom spray at 15 ppm and the second sizing spray of 40 ppm. Data collected in Table 1. indicates that there was no noticeable effect from combining Bayleton or other fungicides for powdery mildew control with gibberellin. Storage tests were conducted, fruit quality was evaluated, and cluster counts were made in 1984. None of the data collected was statistically different.

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Table 1.

Fungicide test, 1983
Thompson Seedless, Delano

		Maturity Index				
		Berry Wt. Grams	Titratable Grams	pH	°Brix	Ave. Cluster/ Vine 1984
1.	Untreated	4.52	.58	3.20	17.4	26.4
2.	Bayleton 6 oz. formulated/acre	4.77	.62	2.65	16.9	23.7
3.	Rubigan 1st spray 2 fl. oz./acre 2nd spray 4 fl. oz./acre 3rd spray 6 fl. oz./acre	4.74	.60	3.18	17.1	21.5
4.	RO 15-1297 1 oz. a.i./acre	4.84	.58	3.12	17.3	23.9
5.	RO 15-1297 2 gms. a.i./acre	4.95	.62	3.20	16.8	22.0
6.	DPX-H6573 .25 oz. a.i./acre	4.67	.62	3.18	17.1	23.9
7.	DPX-H6573 1.0 oz. a.i./acre	4.62	.61	3.20	17.5	22.2
8.	CGA-71818 15 gms./acre	4.71	.61	3.17	17.1	24.5
		N.S.	N.S.	N.S.	N.S.	N.S.

No noticeable effect was obtained by any of the treatments on fruit quality or berry size.

Plot No. 2.

Tests were established in a table Thompson Seedless vineyard in the Delano district. Treatments and timing in 1981.

Treatments	Rate	Timing		
1. Bayleton	3 oz. ai/acre	May 1	May 27	1981
2. EL-222	12 grams/acre	"	"	"
3. BASF 9018	0.22 lb. ai/acre	"	"	"
4. BASF 9018	0.22 lb. ai/acre	"	"	"
5. CGA-71818	15 grams ai/acre	"	"	"
6. KEYON 20 EC	250-500 ppm	"	"	"
7. Check	No control			

Spray date:
May 1, 1981 - shoots 18 - 24"
May 27, 1981 - Gib sizing spray. 40 ppm gib added to all sprays + 4 oz. Triton B1956/100 gallons water.
June 11, 1981 - checks - reps III, IV, and II checked for powdery mildew, not found.
July 15, 1981 - all untreated checks counted for mildew, few isolated berries found.

After evaluating the untreated checks it was decided to abandon further data collection on powdery mildew control. Berry samples were collected and two boxes of fruit from each test was evaluated for decay development after storage for 53 days (Table 1.)

Table 2. Thompson Seedless table grapes maturity data and decay evaluation after 53 days cold storage

Treatment	Berry N Wt. Grams	°Brix	°Brix/ Acid	No. rotten Berries/Box	No. Rot Sites/Box
1. Bayleton	4.97	17.1	29.7	11.6	10.5
2. EL-222	5.03	16.9	27.6	25.6	15.2
3. BASF 9018	5.01	16.5	27.7	20.6	15.1
4. BASF 9018	5.07	16.3	27.3	16.4	10.7
5. CGA-71818	4.93	16.5	27.2	43.5	20.5
6. KEYON 20EC	4.94	16.8	28.5	15.4	12.3
7. Check	5.14	16.0	26.2	10.6	8.9
	N.S.	N.S.		N.S.	N.S.

No significant effect on berry size was noted.

Plot No. 3.

The Effects of Treating Table Thompson Seedless with Bayleton Fungicide

Fred Jensen, Extension Viticulturist, Parlier
Larry Bettiga, Staff Research Associate, Parlier
Denise Raphael, Laboratory Assistant, Parlier

The results of the trial, Table 1., show no difference in any factor between the treatments. The titratable acidity was significantly different at the 10% level with the Bayleton treatment lower.

The vines and fruit were observed several times after the Bayleton sprays were applied. No difference was ever noted between the vines receiving the Bayleton treatments and those not treated.

Two methods of assessing the amount of fruit set were compared, the standard method which gives number of berries per centimeter of shoulder length and a more rapid method of weighing the shoulders and calculating the weight of berries per centimeter of shoulder. Both methods proved satisfactory. Such a result would only be expected if no significant differences in berry weight were found.

The weight per berry from the 400 berry samples was higher than the weight from the shoulder sample. Such differences are always encountered because the field samples are taken from the berries on the outside of the cluster. These are larger as compared to shoulder samples which include a number of internal berries as well as a few exterior berries. The shoulder sample is probably a more accurate measure of the true berry weight of the population.

Table 1. Details of Bayleton Treatments

1. April 15, 1981	115 gallons per acre 6 oz. Triton B1956 per 100
2. May 13, 1981 Bloom thinning spray	300 gallons per acre 15 ppm gibberellin (2% Pro-Gibb) 1 lb. Dipel per 1000 4 oz. Triton B1956 per 100 3 oz. Bayleton a.i. per acre 1/
3. June 2, 1981 The third and last berry enlarging spray	400 gallons per acre 40 ppm gibberellin 4 oz. Triton B1956 per 100 3 lbs. Thiodan 50W per a00 3 oz. Bayleton a.i. per acre 1/

1/ Six oz. of Bayleton 50W per acre.
All treatments were applied with a two-row inverted "U" fixed boom high pressure sprayer.

Table 2. A comparison of the fruit characteristics of table Thompson Seedless treated with Bayleton fungicide and those not treated. Sampled August 3, 1981.

Treatment	Weight per berry grams	Soluble solids °Brix	Tritratable acidity
1. Check	5.36a 1/	16.6a	.60a 2/
2. Bayleton	5.27a	16.5a	.58a

1/ Mean separation in columns by Duncan's multiple range test, 5% level.
2/ Significantly different at the 10% level.

Table 3. A comparison of the fruit characteristics of table Thompson Seedless treated with Bayleton fungicide and those not treated. Sampled August 3, 1981.

Treatment	No. berries/ cm shoulder length	Wt. berries/ cm shoulder length grams	Wt. per berry from shoulder sample grams
1. Check	3.71a	17.7a	4.90a
2. Bayleton	3.66a	17.8a	4.99a

1/ Mean separation in columns by Duncan's multiple range test, 5% level.
2/ Significantly different at the 10% level.

After reviewing the data presented in the three preceding tests it would appear that Bayleton in combination sprays with gibberellin is not affecting berry size. These tests were minimal tank mixes of any two materials. Growers should always pre-test the more exotic tank mixes containing fungicides, miticides, leafhopper control and minor nutrients. Many of these mixes contain too many materials and should be applied in separate sprays containing less materials each time.

Sincerely,

Donald A. Luvisi

Donald A. Luvisi
Farm Advisor

For the sake of clarity, trade names have been used in some instances. This is not to be interpreted as endorsement of a particular brand of product, nor is it intended to discriminate against similar products which are not mentioned by name.