

Grape Bunch Rot Management

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Summer bunch rot, a disease complex involving *Acetobacter* bacteria (sour rot), *Aspergillus niger*, *Botrytis cinerea*, and several other fungal taxa, can significantly reduce yield and wine grape quality in the warm San Joaquin Valley. Many of the organisms associated with bunch rot in our area are secondary pathogens that colonize wounded or leaky berries. Previous trials have shown that “conventional” fungicides generally have limited efficacy against the sour rot component of the disease.

I have conducted several field trials in local ‘Zinfandel’ vineyards to test strategies for bunch rot management. These trials included “conventional” and “microbial” fungicides as well as strategies to reduce berry crowding and splitting. Plant growth regulator treatments such as gibberellic acid and cytokinin (CPPU) which can elongate berry stems to reduce crowding were applied at 1-2 inch flower length. In 2001, three application timing scenarios were tested with Elevate® fungicide: bloom + pre-bunch closure, pre-bunch closure + preharvest, or bloom + preharvest. Microbial materials (Blight Ban® and Serenade®) were applied four times and foliar calcium sprays five times through the season.

Results:

Typically, the summer bunch rot complex in Stanislaus County vineyards is about 1/3 Botrytis bunch rot and 2/3 sour rot. However, in 2001 *Botrytis cinerea* was uncharacteristically the dominant rot in this trial. Untreated vines had an average of 6.8% sour rot, 10.9% Botrytis, and 18.6% total rot. Many materials reduced Botrytis bunch rot significantly but only gibberellic acid plus leaf removal reduced sour rot. Cytokinin (CPPU) applied at 2 grams per acre significantly increased sour rot in this trial. When compared against untreated vines, all three treatments with Elevate applied at different cluster developmental stages significantly reduced Botrytis rot and total rot but did not reduce sour rot. All three timings were statistically equal in effectiveness. Treatment effects are listed in the table on the next page.

Berry stems in the gibberellic acid treatment were significantly longer than in bunches from untreated vines. The CPPU and Symspray treatments did not increase pedicle length.

Discussion:

As in past trials, the combination treatment of gibberellic acid and leaf removal most significantly reduced rot and was the only treatment proven to reduce sour rot in this trial. In almost every trial I have conducted over the past several years, leaf removal has been the single best rot reduction treatment. Foliar calcium sprays did not reduce sour rot or total rot in this trial, although it sometimes has helped in past trials. This was my first attempt at using CPPU cytokinin for bunch rot control and rates tried were no more than educated guesses. Table grape growers are looking at this product as an alternative to gibberellic acid. Elevated levels of sour rot in the two grams per acre treatment raise concerns about using this product. More research is needed with this material. It is possible if CPPU and/or Symspray® were applied a little earlier in flower development, results may have been more favorable.

Most conventional fungicides have proven to be ineffective in past sour rot trials. Materials like Elevate® and Vanguard® are very effective against Botrytis but not sour rot. Dithane® reduced Botrytis and total rot and the combination of Dithane® and Elevate® was even better. Blight Ban®, a microbiological material (*Pseudomonas inflorescens*) reduced Botrytis and total rot. The addition of Breakthru® surfactant did not improve efficacy. QRD 131 & QRD 137 (formulations of Serenade®), did not reduce total rot.

2001 Winegrape Bunch Rot Trial Summary

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Treatment	% Total Rot	% Botrytis	% Sour Rot
CPPU KT-30 @ 2 grams per acre	27.0 a	9.7 ab	16.5 a
Untreated	18.6 ab	10.9 a	6.8 b
Elite @ bloom + preharvest	16.8 bc	8.5 abc	7.2 b
CPPU KT-30 @ 1 g	14.0 bcd	4.2 cdef	8.5 b
QRD 131 (AgraQuest)	14.0 bcd	5.7 bcde	8.2 b
Vigor Cal [®] foliar calcium	12.4 bcd	3.6 cdef	8.6 b
Organic Serenade [®]	11.6 bcde	4.3 cdef	6.3 bc
Symspray [®] + foliar nutrients	10.7 bcde	6.4 abcd	3.1 bc
Elevate [®] bloom + preclose	9.8 bcde	0.9 ef	7.8 b
Symspray [®]	9.7 bcde	3.8 cdef	5.6 bc
Elevate [®] @ bloom + preharvest	8.8 bcde	3.4 def	4.8 bc
Blight Ban [®] + Breakthru [®]	8.8 bcde	3.4 def	5.0 bc
Vanguard @ bloom + preharvest	7.5 bcde	1.2 ef	6.1 bc
Dithane[®]	7.4 cde	3.8 cdef	2.8 bc
Blight Ban[®]	7.3 cde	2.8 def	4.0 bc
Elevate @ preclose + preharvest	6.7 cde	2.0 def	3.0 bc
Leaf removal	5.8 cde	4.0 cdef	1.6 bc
Dithane + Elevate[®]	4.3 de	0.7 ef	3.2 bc
Gibberellic Acid	2.8 de	1.1 ef	1.3 bc
GA + leaf removal	0.4 e	0.2 f	0.3 c

Data followed by similar letters are not significantly different at $P \leq 0.05$.