

MUSCADINE GRAPE (*Vitis rotundifolia* ‘Carlos’)
 Ripe rot; *Colletotrichum* sp.
 Bitter rot; *Greeneria uvicola*
 Macrophoma rot; *Botryosphaeria* sp.
 Angular leaf spot; *Mycosphaerella angulata*

W. O. Cline, North Carolina State University,
 Raleigh, NC 27695. P. M. Brannen and S. Breeden,
 University of Georgia, Athens, GA 30602

Evaluation of fungicides for control of muscadine grape diseases in North Carolina and Georgia, 2020.

Experiments were conducted on 12-yr-old ‘Carlos’ vines at the Horticultural Crops Research Station in Castle Hayne, NC. Plots consisted of single vines, and a randomized complete block design was utilized with four replications. Treatments were applied using a CO₂-powered backpack sprayer delivering the equivalent of 50 gallons per acre (gpa) at ~ 55 psi with two hollow cone nozzles vertically spaced 20 inches apart. On each spray date, applications were made in a timed pass down the west (windward) side of each plot. Applications were made on 20 May (pre-bloom), 4 Jun (bloom), 26 Jun (small green fruit), and 28 Jul (green fruit). Treatments were also applied to nearby mixed cultivar rows as an additional non-replicated screen for phytotoxicity. Phytotoxicity was rated visually on 19 Aug and 9 Sep. Leaf spot incidence and severity was recorded on 28 Aug, and fruit was collected for rot evaluations on 9 Sep. Fruit was randomly obtained along the length of each plot by catching hand-detached fruit in a gallon bucket until approximately two-thirds full. Buckets of fruit were held at 75°F for 48 hrs, then sorted into marketable vs rots. Marketable fruit were weighed and the number calculated using a standard weight for ‘Carlos’ of 6 g/berry. Because infected fruit are often lighter in weight, the incidence of ripe rot, bitter rot, and macrophoma rot were calculated by counting the number of symptomatic fruits for each disease and then dividing by the total (marketable and rotted) number of fruits collected. Statistical analysis was performed using PROC ANOVA (SAS version 9.4, www.sas.com) and means were separated using Fisher’s Protected LSD ($\alpha=0.05$). A companion trial was conducted in Georgia on 2-yr-old vines, but due to the low level of disease the data from the GA trial was not presented. Treatments were the same in NC and GA, except that Badge SC (copper oxychloride + copper hydroxide) was tested only in NC, and Elite (tebuconazole) was tested only in GA.

Only NC data is shown. Disease pressure was adequate in NC for evaluation of fungicides against bitter rot, macrophoma rot and angular leaf spot. Incidence of ripe rot was low although treatment effects were visible. With the exception of Badge, all fungicides reduced bitter rot, and Aprovia Top, Procure and Merivon were particularly effective. Similarly, for Macrophoma rot, all fungicides were active. Likewise, Angular leaf spot was suppressed by all fungicides, though Topguard EQ and Luna Experience allowed no visual disease whatsoever. Most fungicides, with the exception of Badge, Gavel and Luna Experience, increased marketable yield significantly. No phytotoxic effects were observed in either NC or GA from any treatment.

| Treatment and rate per acre applied 5/20, 6/4, 6/26 and 7/28 | Ripe rot incidence | Bitter rot incidence | Macrophoma rot incidence | Marketable % | Angular leaf spot ^y | |
|--|-----------------------|----------------------|--------------------------|--------------|--------------------------------|----------|
| | % ^z | % | % | | incidence | severity |
| Untreated control | 2.9 abcd ^x | 5.6 a | 8.1 a | 86.8 a | 80.0 a | 15.0 a |
| Aprovia 10.5 fl oz | 1.4 abcd | 2.6 bc | 1.4 cd | 94.8 cd | 12.5 bc | 2.2 bc |
| Aprovia Top 13.3 fl oz | 1.4 abcd | 0.1 c | 0.9 cd | 97.4 cd | 1.2 c | 1.2 c |
| Gavel 75DF 2.5 lb | 2.0 abcd | 2.0 bc | 3.8 bc | 92.2 abc | 0.2 c | 0.2 c |
| Switch 62.5WG 14.0 oz | 0 d | 1.0 c | 0.2 d | 98.9 d | 23.8 b | 5.0 b |
| Miravis Prime 13.4 fl oz | 0.3 d | 1.2 c | 1.1 cd | 97.7 cd | 7.5 c | 1.5 bc |
| Luna Experience 8.6 fl oz | 4.1 a | 2.0 bc | 3.6 bc | 92.2 abc | 0 c | 0 c |
| Topguard EQ 8.0 fl oz | 0.6 bcd | 1.0 c | 1.8 cd | 97.0 cd | 0 c | 0 c |
| Kenja 400SC 22.0 fl oz | 0.5 cd | 1.7 c | 0.8 cd | 97.4 cd | 13.8 bc | 2.0 bc |
| Badge SC 3.5 pt | 3.5 abc | 4.6 ab | 6.0 ab | 87.7 ab | 8.8 bc | 2.8 bc |
| Procure 480SC 8.0 fl oz | 3.8 ab | 0.6 c | 2.6 cd | 92.7 bc | 10.0 bc | 3.5 bc |
| Merivon 5.5 fl oz | 0.8 bcd | 0.2 c | 1.5 cd | 97.4 cd | 0.2 c | 1.2 c |
| LSD | 3.2 | 2.8 | 3.3 | 5.9 | 15.8 | 3.7 |

^z Percent rots by row (plus marketable) may not total 100 since some fruits had more than one pathogen present.

^y Incidence = percent leaves with at least one lesion; Severity = average number of spots per infected leaf.

^x Means in columns followed by the same letter are not significantly different; Fisher’s Protected LSD ($\alpha=0.05$).