

NYWGF RESEARCH REPORT

Funding for fiscal year: 2024-2025

SECTION 1:

Project title: Efficacy of strobilurin fungicides as alternatives to ziram for Phomopsis control in the Lake Erie Region

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New Research ☒ **Continued Research** ☐

Amount Funded \$ \$11,429

SECTION 2:

Project Summary Impact Statement: The US EPA is in the process of phasing out old standard fungicides. Ziram will no longer be available after the 2025 season, and even mancozeb is being targeted by the EPA to be phased out in subsequent years, possibly after 2026. These older, multisite inhibitor fungicides, which also includes captan, are essential chemistries for the control of Phomopsis cane and leaf spot, an important disease of grapes in the Lake Erie region of New York and Pennsylvania; no other fungicides are recommended for this disease. In response to the loss of ziram and potentially, all of these “old standards”, it is imperative that we examine the efficacy of newer, single site inhibitors as alternatives for Phomopsis control. Indeed, for several years, we examined several fungicides in FRAC classes 3 (sterol inhibitors) and 7 (succinate dehydrogenase inhibitors) that list Phomopsis on their labels. Unfortunately, our initial results with these materials have indicated that they have very limited efficacy against this disease. On the other hand, the strobilurin fungicides (FRAC 11) - single site inhibitors, introduced about 28 years ago - were tested for Phomopsis control when they first became available to grape growers in the late 1990s, and results showed that they could provide commercially useful control of Phomopsis. However, the testing and data were limited and only the performance of lower label rates was examined.

Funding from the New York Wine and Grape Foundation in 2024, enabled us to reexamine the efficacy of strobilurin fungicides, Abound and Sovran, at low AND high rates, against Phomopsis, and compare their efficacy directly against ziram and mancozeb, in experimental vineyards of Niagara and Chancellor grape, which are very susceptible to Phomopsis cane and leafspot. The results reconfirmed the commercial useful efficacy of lower rates of Abound and Sovran, but also the somewhat better performance of higher label rates, more comparable to control levels achieved with old multisite inhibitors, Ziram and Mancozeb. These results have expanded our understanding of the utility of the strobilurins for Phomopsis control and how these newer fungicides might be used as substitutes for EPA canceled old standard materials, in commercial grape disease management

programs. An additional year of testing in 2025 will help us paint a more complete, science-based picture of the activity of FRAC 11 fungicides for Phomopsis control.

Objectives: This project addressed the industry priority: Disease & Pest management: Develop effective, efficient and sustainable disease and pest management materials and techniques that minimize development of resistance and provide resilience to climate change. There were two objectives.

Objective 1: Determine the efficacy of strobilurin fungicides (Abound and Sovran) in comparison to a water sprayed check, against Phomopsis cane and leaf spot.

Objective 2: Compare the efficacy of strobilurin fungicides (Abound and Sovran) with current standard fungicides, mancozeb and ziram, against Phomopsis cane and leaf spot.

Materials & Methods: In spring of 2024, two fungicide trials were set up in mature vineyards at the Lake Erie Regional Grape Research and Extension Center, North East, PA. Vines were trained to a single curtain, (no tie) system. Treatments were applied to 6-8 vine plots in a randomized complete block design with 4 replications. The first prebloom fungicide applications were made with a backpack sprayer at 60 psi, and later, with a Friend covered-boom plot sprayer at 100 psi, applying 50 gal/A pre-bloom (three sprays) and 100 gal/A post bloom (one spray). Applications commenced at 2-5" shoots and were repeated every 7-14 days through one post bloom spray. Hourly weather was recorded with an onsite weather station to determine the timing of infection periods and the severity of disease pressure for the 2024 season.

Trial 1: Five treatments were evaluated and compared on Vitis labrusca 'Niagara': i) Abound at the highest label rate, ii) Sovran at the highest label rate, iii) Manzate prostick (prebloom only), followed by ziram (post bloom), iv) Ziram (pre and post bloom), and v) water sprayed check. This trial enabled us to evaluate the highest potential for the strobilurins, Abound and Sovran, and to compare that to a typical full season program on Juice grapes (manzate prebloom, ziram post bloom) for Phomopsis control.

Trial 2: Six treatments were evaluated and compared on Vitis interspecific hybrid 'Chancellor': i) Abound at lowest label rate, ii) Abound at highest rate, iii) Sovran at lowest label rate, iv) Sovran at highest rate, v) Manzate prostick, vi) water sprayed check. This trial enabled us to evaluate the whole range of activity of the strobilurins, Abound and Sovran, and to compare that to a typical full season program on wine grapes (manzate through 2nd post bloom) for Phomopsis control.

Flint was not included in the testing as it actually appeared less efficacious than Abound and Sovran in limited earlier testing AND Flint is phytotoxic to Concord grapes (and is not as commonly used in the Lake Erie grape region). This enabled us to focus more attention on the more commonly used strobilurins for the Lake Erie grape belt.

As was done in previous testing, the incidence (% infected) and severity (% area infected) of *Phomopsis* were determined on the 4 most basal leaves and internodes of each of 10 primary shoots per plot. There was little or no fruit rot to be rated later during ripening. Downward oriented shoots under old wood (cordons) were targeted for disease assessment, as these shoots were likely to be the most challenged and severely affected tissues. The severity (% area infected) of disease on leaves was

rated using the Barratt-Horsfall scale and converted to % area infected using Elanco conversion tables. Disease data was collected on June 24-25 (Chancellor) and July 1 (Niagara) and subjected to analysis of variance (ANOVA) using the general linear model function in Minitab 20.

Results/Outcomes/Next Steps:

Fifty percent budbreak for Niagara and Chancellor grape occurred on April 25 and 28, respectively. Weather conditions during early shoot growth (May and early June) were not conducive to heavy *Phomopsis* development and disease was rather limited. May rainfall was below average in 2024, and rain periods were limited in terms of duration of leaf wetness and therefore, infection. Nevertheless, infection periods for *Phomopsis* did occur on May 6, 18, 25-26, and 30 and June 2, 3, 6, 26, and 29. The results obtained in the two trials were encouraging: the two strobilurins, Abound and Sovran, at both low and high rates, were capable of maintaining significant control of this disease on leaves and shoots, equivalent to the use of the old standard multisite inhibitors, mancozeb and ziram (Tables 1 and 2, and Figure 1 below). The next steps are i) retest these fungicides in 2025 to potentially broaden the database of *Phomopsis* control by strobilurins, and ii) make these initial findings better known to growers, through presentation of data at extension meetings and newsletters. This is especially essential should we lose access to fungicides containing mancozeb or even captan.

Bottom line: In 2024, the strobilurins, Abound and Sovran, at low and especially at high rates, provided control of *Phomopsis* cane and leaf spot, *equivalent to* the more typically recommended mancozeb and ziram programs on both Chancellor and Niagara grapes (Figure 1).

Technology Transfer Plan: The results of this trial were presented to extension and research colleagues at Penn State and Cornell Universities, and growers and industry reps on December 3, 2024 at the online meeting entitled “**2025 Pest Management Spray Schedule – What’s Your Plan?**” and on March 20, 2025 at the annual Lake Erie Grape Growers Conference entitled “**2025 Disease Management: what does the future of disease control in grapes look like**”. It will also be discussed at future extension based/grower meetings (coffee pot meetings, processor rep meetings, field days, extension meetings) and newsletters in 2025.

Attachments:

Table 1: *Phomopsis* internode and leaf infection on Chancellor grape in 2024. Disease pressure was very limited due to generally drier than average conditions in May and early June.

Treatment/rate	% internodes	% leaves	% area leaves ^z
Abound 11 fl oz	17.5 b ^y	78.8 b ^y	3.31 b ^y
Abound 15.5 fl oz	16.3 b	61.3 c	2.69 b
Sovran 3.2 oz	16.9 b	66.9 c	2.64 b
Sovran 6.4 oz	18.8 b	61.3 c	2.09 b
Manzate/Ziram 3 lbs	20.6 b	50.6 d	2.98 b
Water sprayed	46.3 a	94.4 a	6.66 a

^zSeverity was rated using the Barratt-Horsfall scale (0-11) and converted to % area infected (0-100 %) using Elanco conversion tables.

^yMeans followed by the same letter within columns are not significantly different according to Fisher’s LSD ($P \leq 0.05$).

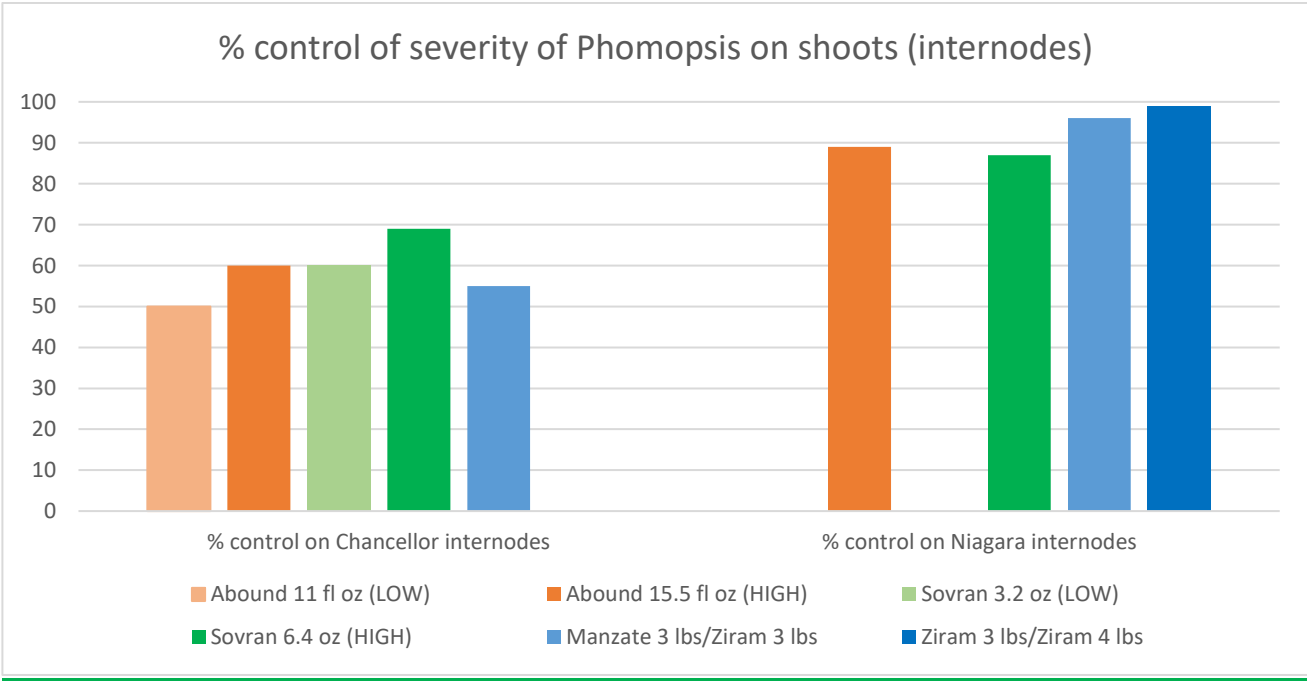
Table 2: Phomopsis internode infection on Niagara grape in 2024. Disease pressure was very limited due to generally drier than average conditions in May and early June.

Treatment/rate	% internodes	% area internodes ^z
Abound 15.5 fl oz	1.9 b ^y	0.24 b ^y
Sovran 6.4 oz	6.9 b	0.28 b
Manzate 3 lbs pre/Ziram 4 lbs post	3.1 b	0.08 b
Ziram 3 lbs pre/Ziram 4 lbs post	0.6 b	0.02 b
Water sprayed	35.0 a	2.19 a

^zSeverity was rated using the Barratt-Horsfall scale (0-11) and converted to % area infected (0-100 %) using Elanco conversion tables.

^yMeans followed by the same letter within columns are not significantly different according to Fisher’s LSD ($P \leq 0.05$).

Figure 1. The percent control of Phomopsis severity (% area of internodes 1-4) on shoots on Chancellor and Niagara grapes.



SECTION 3:

Project summary and objectives:

Phomopsis cane and leaf spot is an important disease of grapes in the Lake Erie region of New York and Pennsylvania, and applications of fungicides are recommended every year during early shoot growth stages for control of this disease. The US EPA is phasing out old standard fungicides like

ziram and mancozeb, that have traditionally been used for the control of this disease in early spring. In response, we proposed two trials to i) reexamine the efficacy of strobilurins Abound and Sovran, at low AND high rates, against Phomopsis, and ii) compare their efficacy against the old standards, ziram and mancozeb, in experimental vineyards of susceptible grape varieties, Niagara and Chancellor. The results will enable us to draft new recommendations as we determine how these alternatives to Phomopsis control might be used as substitutes for EPA canceled fungicides, in commercial grape disease management programs.

Importance of research to the NY wine industry:

As we continue to lose the old multisite inhibitors, we will need to develop recommendations for the use of alternatives for Phomopsis control. Our first year of results have helped to reconfirm the commercially useful efficacy of Abound and Sovran at low label rates but also provided information regarding efficacy at maximum label rates, which we did not have from prior trials. This expands our understanding of the utility of the strobilurins for Phomopsis control and their use in commercial grape disease management programs. This is especially essential should we lose access to fungicides containing mancozeb or even captan.

Project Results/next steps:

The results obtained in the two trials were encouraging: the two strobilurins, Abound and Sovran, at both low and especially high rates, were capable of maintaining control of this disease on leaves and shoots, *equivalent to* the use of the old standard multisite inhibitors, mancozeb and ziram. Though we did not see a significant jump in disease control when going from low to high label rates, it is possible that higher disease pressure would have created greater separation of the results of the two rates. The next steps are i) retest these fungicides in 2025 to broaden the database of Phomopsis control by strobilurins, and ii) make these initial findings better known to growers, through presentation of data at extension meetings and newsletters. Since strobilurins are no longer recommended for control of powdery and downy mildew (due to widespread fungicide resistance), this data will help to provide new recommendations for the continued use of this FRAC 11 class of fungicides in the Lake Erie region and elsewhere.

Supporting attachments: See the tables and figure above.