

2007 Extension-Research Report

Delivery of IPM Information to Increase Adoption of Reduced-Risk Practices in Michigan Vineyards

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Executive Summary

During 2007, we set up four demonstration vineyards that were used to showcase the effectiveness of reduced-risk insecticides and fungicides. IPM workshops were held at three of the four demonstration vineyards, allowing for hands on training of growers in vineyard scouting practices and education on the use of reduced-risk pesticides. Scouting at each of the demonstration vineyards took place each week with scouting data compiled into a weekly report that was made available online at www.grapes.msu.edu. Analysis of scouting data indicates that the reduced-risk insecticide Intrepid[®] provided better protection against grape berry moth than standard insecticides and the reduced-risk fungicide ProPhyt[®] provided excellent control against downy mildew. Dormant fungicides were used in these vineyards, but their contribution to disease control is not clear given the other treatments applied. Information from this project has been distributed widely to the Michigan grape industry in meetings and workshops to educate growers on the benefits of reduced-risk insecticides and fungicides. The findings of this project are being integrated into an IPM Workbook being developed at MSU. We hope to continue this extension effort to allow greater opportunities for education of growers about scouting, performance of these new tools, and to track their adoption.

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SUMMARY BY OBJECTIVE

Objective 1. Provide weekly updates of vineyard pest and disease conditions during the growing season.

The scouting information from the four demonstration sites (Lawton, Berrien Springs, Old Mission, Sutton's Bay) was compiled each week into an online scouting report. This report was designed to provide a wider audience of growers with timely scouting information from around the growing region, including southwest and northwest Michigan vineyards. Growers were able to see how pest pressure was increasing or decreasing around the region and were encouraged to scout their own vineyards for the pests. Each report contained the most recent scouting information in addition to current grape growth stages, weather information, and information on insects and diseases that would be useful to growers at that current point in the season.

The four demonstration sites set up as part of this project including two juice grape growers and two wine grape growers. Each of the growers had a vineyard that was split in half, and scouted from April until grape harvest. Before the season began each grower was given a suggested insecticide and fungicide program that was based on the grape variety and the grower's spray program in previous years. One half of the vineyard (IPM) had a program designed to increase the use of reduced risk insecticides, while the other half (Standard) had a program that was based on what the grower would normally do. Scouting for insect and disease pests took place on a weekly basis. Scouting information from the IPM vineyard was given to the grower each week so they could make spray timing decisions based on the information.

Weekly Vineyard IPM Scouting Summary
Report for the week of July 27, 2006

Site	Average Number of Insects in Traps (Average of 4 Traps Per Site)				Site	Percent Clusters Infested With Ood (Of Clusters Scouted at a Location at Each Site)				Site	Avg. # JBPs Per Vine (Of 45 Clusters Scouted at a Location at Each Site)			
	7/7	7/13	7/20	7/27		7/7	7/13	7/20	7/27		7/7	7/13	7/20	7/27
Allegan	1	0	0	1	Allegan	1	5	4	0	Allegan	0.5	0.0	3.1	
Berrien 1	8	1	3	1	Berrien 1	3	6	3	9	Berrien 1	7.6	11.2	4.8	
Berrien 2	3	4	4	5	Berrien 2	5	4	9	3	Berrien 2	6.2	6.7	2.7	
Van Buren	24	11	11	10	Van Buren	28	30	18	16	Van Buren	4.6	2.1	6.2	
Average	9	4	5	4		9.3	11.3	8.5	7.9	Average	4.7	5.0	4.2	
2005 Average	6	7	6	7		7.5	8.4	9.2	8.4	2005 Average	6.6	2.6	1.0	
2004 Average	4	2	4	2		0.4	1.2	2.8	3.9	2004 Average	2.7	3.2	0.5	

Grape Berry Moth Notes:
** Infested clusters stayed the same or decreased at all sites except Berrien 1 where they increased by 6 percent. The slight decreases are probably indications that older infestations are falling off and egg-laying is occurring. Take a close look in your vineyards for GBM infestation, especially along woods edges. If you find a lot of infested clusters you may want to apply a spray now. [Click here to see GBM infestations in different varieties.](#)

Japanese Beetle Notes:
** Japanese beetle numbers were down at two sites and up at two sites. If you haven't seen high numbers of beetles yet you probably won't have a problem with them this year. Keep a close eye on younger vineyards, though, as young vines can be defoliated in a hurry by the voracious beetles.

Disease Level Rankings: None, Trace, Low, Moderate, High, Very High

Farm	Variety	Black Rot		Botrytis		Powdery Mildew	
		Cluster-Berry	Bunch-Rot	Cluster-Berry	Rachis-Berry	Cluster-Berry	Mildew
Allegan	Chardonnay	Moderate	Low	Trace	Trace	Trace	High
Berrien 1	Vignoles	Trace	None	Low	Trace	Trace	Trace
Berrien 2	Concord	None	None	None	Trace	Trace	Trace
Van Buren	Concord	Moderate	None	Low	Trace	None	None

Current Growth Stages: Concord-Berrien 2, Chardonnay-Allegan, Concord-Van Buren, Vignoles-Berrien 1

Other Notes:
** For pictures of some of the other insects that may show up in your vineyard [click here](#).
[Click Here](#) for more detailed growth information from the sites.

Growing Degree Days (Base 50)	Starting March 1:			Starting April 1:		Previous Year GDDs on July 30 (March 1 Start)	Click here for more information on GDDs				
	2005	2004	2003	2005	2004		2005	2004	2003	2002	2001
Allegan	1352	1534	1524	1505	1685	1675	1381	1269	1760	1467	1512
Berrien 1	1583	1774	1542	1521	1733	1878	1659	1522	1550	1593	1633
Lawton	NA	NA	1347	1521	1671	1859	1504	NA	NA	NA	NA
SWMichigan	1489	1652	1496	1617	1694	NA	NA	NA	NA	NA	NA
Waterlot	1523	1707	1487	1671	1671	1851	1640	1495	1747	1683	1683

This report is a summary of weekly scouting from winegrape and juicegrape vineyards in southwest Michigan. It should be used only as a general guide, because pests vary greatly in their abundance from site to site. Scouting your own vineyards is the best way to know whether pest problems are developing in your farm.

For more information on this project, contact Steve at (517) 242 1282
More information on Vineyard IPM is available online at: www.grapes.msu.edu
All photos: Steven Van Timmeren

Weekly web site scouting report available from the www.grapes.msu.edu website.

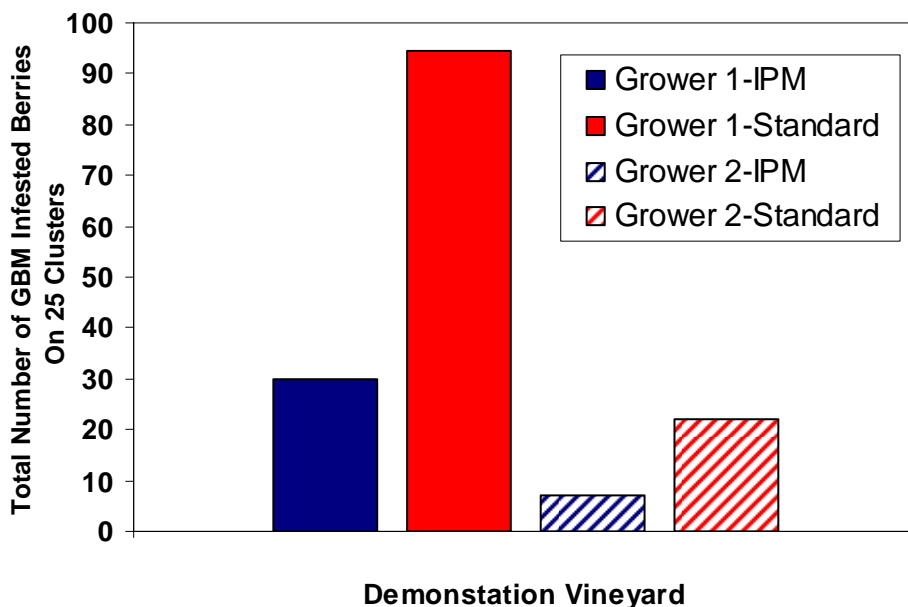
Objective 2. Train grape growers and other vineyard decision-makers on the optimal use of regionally-appropriate reduced risk IPM practices. Workshops were held at three of the four demonstration sites during the summer of 2007. The workshops took place over the course of the summer (June, July, and August) so participants could see how pest management changes over the course of a growing season. Growers were provided with hands-on training in scouting for insects and diseases in their vineyards as well as information on reduced-risk pesticides that they could use for the pests they might encounter in their own vineyards. These meetings provided a social atmosphere for growers to exchange information and also for the hosts of the meetings to describe how effective the reduced-risk IPM programs were on their vineyards.



Growers receiving hands-on training in disease and insect scouting at one of the northwest Michigan workshops in 2007.

A central goal of this project is to increase grower confidence in the efficacy of reduced-risk insecticides and fungicides. The demonstration vineyards in this study provided an opportunity to show how effective some of these pesticides could be. Reduced-risk insecticides applied at each of the demonstration sites included Intrepid insecticide for grape berry moth (GBM) control. The figure below shows how using this insecticide not only compared favorably to standard program, but was able to provide better control. We also tested Venom insecticide for leafhopper control in the vineyards in the Traverse City area, and its level of control compared favorably with that provided by Provado and by Sevin.

One of the reduced-risk fungicides applied at two of the four demonstration sites was ProPhyt[®] (phosphorous acid).



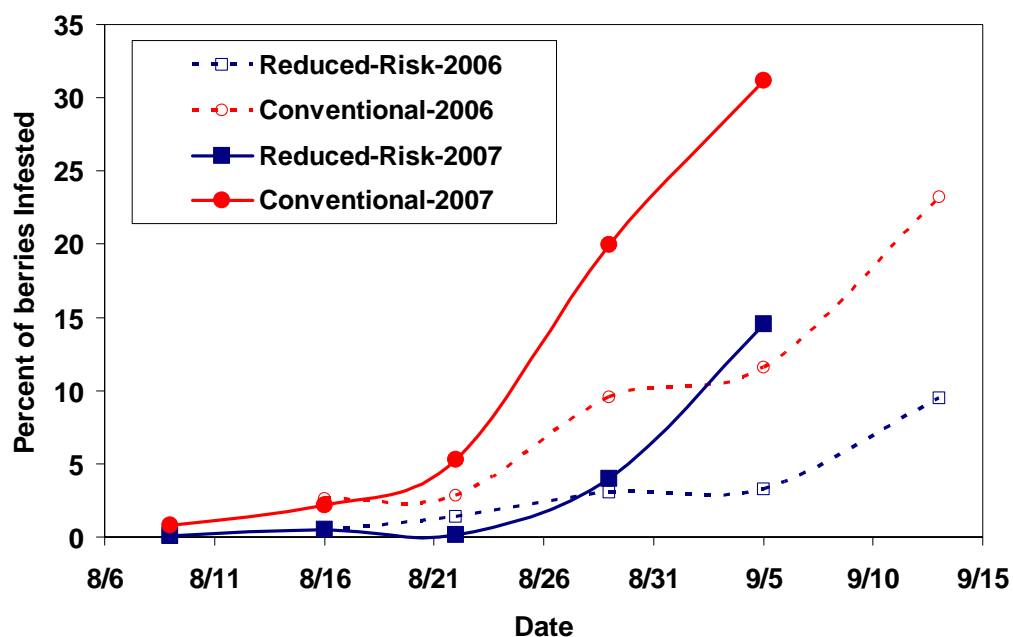
Comparison of demonstration vineyards which received Intrepid[®] insecticide sprays (IPM) with those that did not (Standard) at two grower's farms (grower 1 and grower 2).

This fungicide provides control against some of the main diseases that cause problems in the grape industry, including downy mildew, phomopsis, and black rot. The picture below illustrates its effectiveness against downy mildew at one of the demonstration sites. The left half of the vineyard (IPM) received a ProPhyt application during the middle of the growing season while the right half (Standard) did not. The right side ended the season with an extensive downy mildew infection, as shown by the yellowing and dying of the leaves on the right half of the vineyard.



Demonstration of ProPhyt® reduced-risk fungicide spray effect on downy mildew. The leaves on the left side that received this application (IPM) remained healthy and green while those on the right side that did not receive this fungicide (Standard) ended up with yellowing and dying leaves as a result of an extensive downy mildew infection.

One of the demonstration sites in this project has historically had a difficult time controlling phomopsis, a disease that can cause significant economic damage to grapes. In 2006 and 2007 the IPM half of the vineyard received two reduced-risk fungicides, Pristine® (boscalid and pyraclostrobin) and Prophyt® (phosphorous acid) in place of the grower's conventional program. Assessments show that the reduced-risk



Percent of grapes with phomopsis at the Vignoles demonstration site in 2006, showing the effectiveness of a Reduced-Risk fungicide program compared to a Conventional program.

program was able to suppress phomopsis infections on the grapes in both years (see figure).

OUTREACH ACTIVITIES

The results of this project have been used in winter grower meetings (NW Orchard and Vineyard Show, SW Michigan Hort Days), to provide growers with information regarding the benefits of reduced-risk insecticides and fungicides.

Three summer workshops were held at project vineyards (June, July, and August), where we provided an overview of the project and its aims, discussed scouting, reduced risk insecticides, reduced risk fungicides, and updated the growers on the latest pest issues for that time of the season. These meetings were attended by an average of 60 growers in SW Michigan and 20 growers in NW Michigan. Handouts were given out at the meeting on these topics too, and the information was posted at the www.grapes.msu.edu website.

An additional benefit of the project is the linkage between campus-based projects, the regional extension offices and the NW Michigan station. These interactions should continue as we aim to continue this project with additional funding from Project GREEN and the Viticulture Consortium during 2008.