

# Introduction of GrapelPM.org: An Online Pesticide Management Tool for Grape Growers



Mizuho Nita and Robert Burgholzer  
Virginia Polytechnic Institute and State University,  
Corresponding author: nita24@vt.edu



## Overview

- Selecting proper fungicides at appropriate times can be confusing for grape growers. Especially in the east of the Rockies, grape growers must manage multiple diseases throughout the season due to environmental conditions.
- Limiting the number of applications of high-risk fungicides is often recommended to reduce fungicide resistance risks. However, it can be confusing when the product contains two or more modes of action.
- Spray records must be posted and kept to meet requirements set by the Worker Protection Standard (WPS) and the Environmental Protection Agency (EPA), respectively. This can be time-consuming work for growers.
- To assist growers with these tasks, we developed an online pesticide management tool, GrapelPM.org (<http://www.grapeipm.org>).

GrapelPM.org Dashboard

User Menu

Login

User login

Username \*

Password \*

Log in

- Create new account
- Request new password

This grape disease/insect management decision support system is maintained by Nita Lab at Virginia Tech. We thank these Funding Agencies:

- Virginia Wine Board (2013 - current)
- USDA/NIFA EIP (2016 - current)
- USDA/NIFA EIPM (2010 - 2015)
- Virginia Agricultural Council (2010 - 2011)
- VDACS Specialty Crop Research Initiative (2012 - 2014)

grapelPM.org is a part of SmartFarm Innovation Network led by College of Agriculture and Life Sciences of Virginia Tech

If you wish to access trunkdiseaseID.org's database, please click on this link.

URL →

Users can keep track of their pesticide inventory, plan application schedules, share the plan via iCal or Google Calendar

You can record activities and information related to viticulture (e.g., phenological stages, diseases, etc.) and enology (e.g., total soluble sugar content, pH, etc.).

## IPM Dashboard

Show Vineyard:

Fungicide workshop

Below is a list of upcoming events for Fungicide workshop.  
Click here to add a new spray event.

Date: 08/02/2023 - 00:00 Fungicide workshop - Planned Spray

Print WPS Report / Print Work Order

Blocks: Chardonnay  
Volume: 100 gals

Materials:

- Captan 4L @ 2 qt
- Mettle 125 ME @ 4 floz
- Rovral Brand 4 Flowable Fungicide @ 1.5 pt
- Vanguard WG @ 7.5 oz

PHI: 2023-08-16 (Mettle 125 ME)  
REI: 2023-08-04 1:00 AM ( Captan 4L, Rovral Brand 4 Flowable Fungicide)  
Note: Pre-Harvest Interval (PHI) and Re-Entry Intervals (REI) are based on the material with the longest interval.

Function List (adds sprays events, reports, etc.):

- Choose -

The upcoming spray schedule tells you the date, location, materials, rates, PHI, and REI, which are calculated based on the most extended requirement for the spray.

Exports to a Google Calendar

Calendar Today

May 2023

Reservation at TowneP

AHS AREC GP (Maintenance):  
Planned Spray on AREC Organic 2...  
Monday, May 15

What:AHS AREC GP (Maintenance) - Planned Spray on AREC Organic 20, AREC TB21 - 18.7 gals H2O w/Scorpion 35SL @ 2.2 floz  
PHI:2023-05-16 (Scorpion 35SL)  
REI:2023-05-15 1:00 PM (Scorpion 35SL)  
Note: Pre-Harvest Interval (PHI) and Re-Entry Intervals (REI) are based on the material with the longest interval.  
View:<http://www.grapeipm.org/d.live/ipm-live-events/467/sprayquan/7308&finaldest=ipm-home>

AHS Vineyards GrapIPM.org

Busy

- Choose -

Spray Events

Add a Spray

Manage Spray Materials

Go to Season Spray Planner

Disease/Insect/Weather Recording

Disease Report

- Frost Damage
- Hail Damage
- Insect Damage
- Spray Injury
- Vineyard Scouting Form

Growth Stage Recording

- Bloom
- Bud Break
- Bud Swell
- Bunch Closure
- Median Shoot Length
- Veraison

Canopy Management/Fruit Sampling/Harvest

- Fruit chemistry sample
- Harvest
- Petiole Sample
- Pruning/Canopy Management

It has a series of entry forms:

- Record events and activities in your vineyards.
- Manage your pesticide inventory.
- It can track the volume of pesticides and aid in estimating your next purchase.

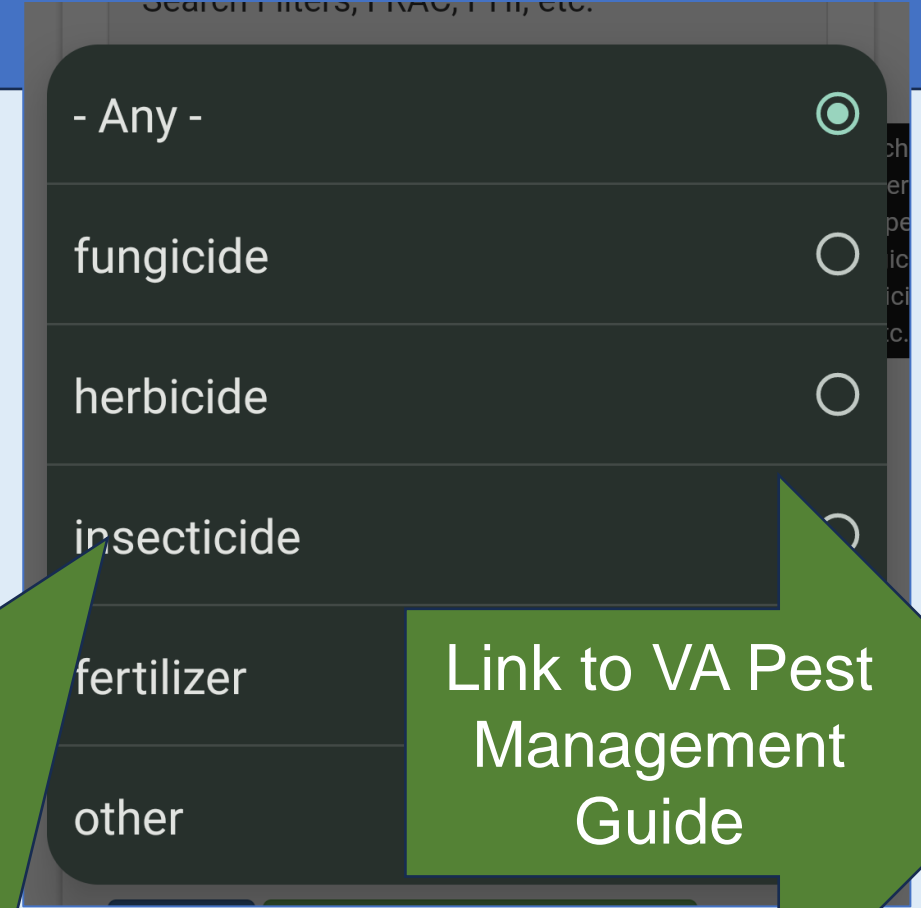
This tool also aids growers in selecting appropriate materials by providing relative efficacy of common fungicides against critical grape diseases (Phomopsis cane and leaf spot, black rot, downy mildew, powdery mildew, Botrytis gray mold, and ripe rot) based on the material combination for the spray.

Week Beginning	Add	Event Info	FRAC	PM	DM	BR	Pho	Bot
04-30 to 05-07	Add Spray	<b>Date:</b> 05/03/2023 - 00:00 Fungicide workshop - Planned Spray <b>Print WPS Report</b> / <b>Print Work Order</b> <b>Blocks:</b> Chardonnay <b>Volume:</b> 50 gals <b>Materials:</b> • Rally 40 WSP @ 4 oz <b>PHI:</b> 2023-05-17 ( Rally 40 WSP) <b>REI:</b> 2023-05-04 1:00 AM ( Rally 40 WSP) <small>Note: Pre-Harvest Interval (PHI) and Re-Entry Intervals (REI) are based on the material with the longest interval.</small>	3	Good	N/A	Excellent	Poor	N/A
05-07 to 05-14	Add Spray	--	--	--	--	--	--	--
05-14 to 05-21	Add Spray	<b>Date:</b> 05/17/2023 - 00:00 Fungicide workshop - Planned Spray <b>Print WPS Report</b> / <b>Print Work Order</b> <b>Blocks:</b> Chardonnay <b>Volume:</b> 100 gals <b>Materials:</b> • Dithane 75DF Rainshield @ 3 lbs • Zampro(R) Fungicide @ 13 floz <b>PHI:</b> 2023-07-22 (Dithane 75DF Rainshield) <b>REI:</b> 2023-05-18 1:00 AM (Dithane 75DF Rainshield) <small>Note: Pre-Harvest Interval (PHI) and Re-Entry Intervals (REI) are based on the material with the longest interval.</small>	40, 45, M03	N/A	Excellent	Good	Good	N/A
05-21 to 05-28	Add Spray	--	--	N/A	N/A	N/A	N/A	N/A
05-28 to 06-04	Add Spray	<b>Date:</b> 05/31/2023 - 00:00 Fungicide workshop - Planned Spray <b>Print WPS Report</b> / <b>Print Work Order</b> <b>Blocks:</b> Chardonnay <b>Volume:</b> 100 gals <b>Materials:</b> • Manzate Pro-Stick @ 3 lbs • Microthiol Dispers @ 4 lbs • Rally 40 WSP @ 4 oz <b>PHI:</b> 2023-08-05 (Manzate Pro-Stick) <b>REI:</b> 2023-06-01 1:00 AM (Manzate Pro-Stick, Microthiol) <small>Note: Pre-Harvest Interval (PHI) and Re-Entry Intervals (REI) are based on the material with the longest interval.</small>	3, M02, M03	Good	Excellent	Excellent	Good	N/A

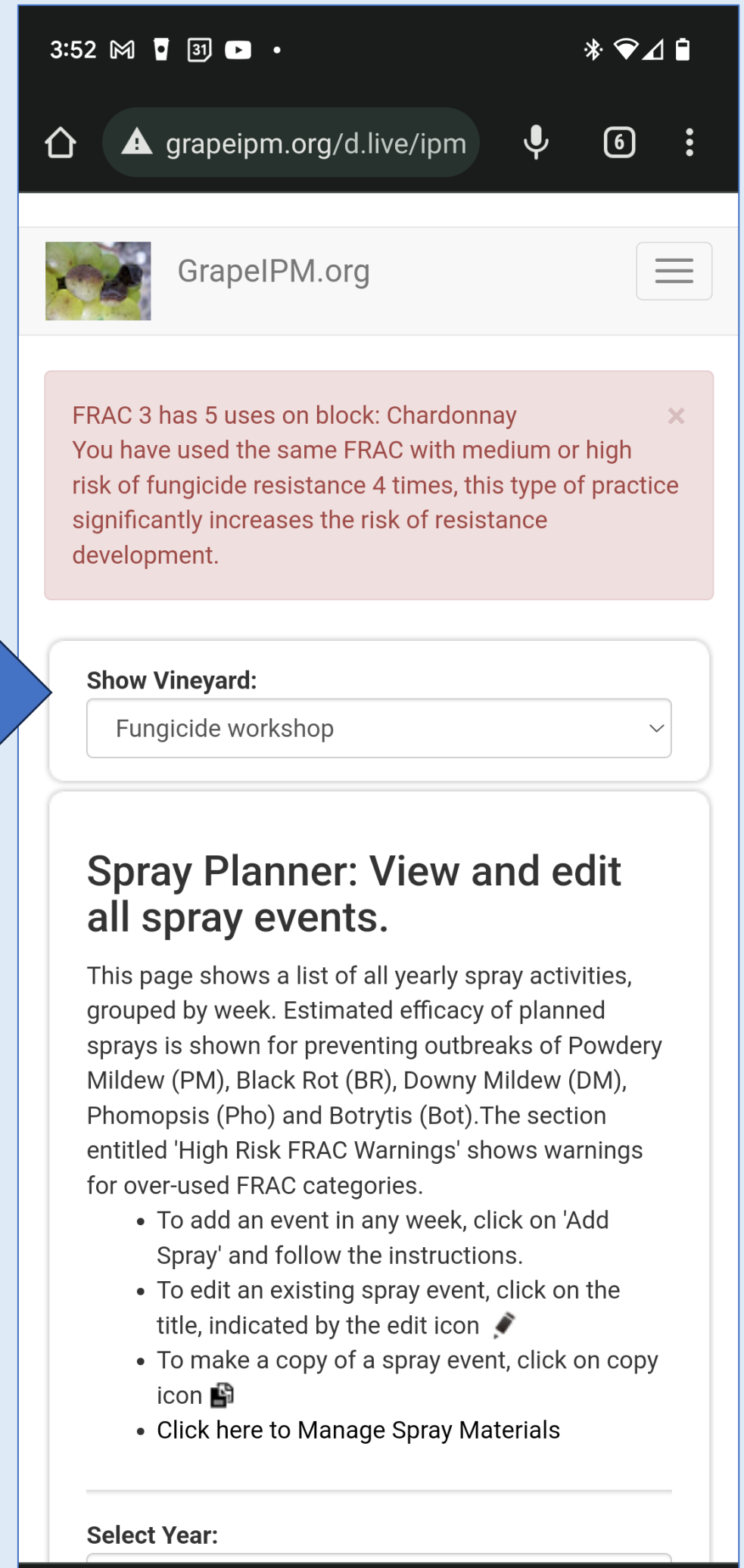
• The system recognizes modes of action grouping set by the FRAC (Fungicide Resistance Action Committee) for each material and provides visual warnings if the same mode of action is planned more than twice a season.

• And yes, it is mobile-friendly!

You can copy and paste a spray event



Link to VA Pest Management Guide



• Its product database includes not only fungicides, but also herbicide, insecticides, and fertilizers.

• Note: we only cover products and regulations in Virginia, USA, based on our Pest Management Guide (QR code above).

• Users can add their own materials, which won't be shared with the other users.

• Once you are done with a spray, you can print out an application record that contains information required for the Worker Protection Standard (WPS).

• You can post this at the central location without looking for the EPA numbers!

• This tool can also print out a work order style page to be shared with others.

### Pesticide Application Event Record

(Click here for work order format [1])

Date: 08/02/2023 - 00:00

Location & Description of Treated Area: Chardonnay - Chardonnay

Brand or Product Name	Target Pest	Active Ingredients	EPA Registration Number	Size or Units Treated	Rate	Total Material	Volume of Water	Applicator Information (name and certificate #)	REI Duration (#hours) / Expiration (date/time)
Vanguard WG	fungicide	, Cyprodinil	100-828	1 acres	7.50 oz/acre	7.50 oz	100 gals	Mizuho Nita, #111453-G	12 hrs / 2023-08-02 01:00
Rovral Brand 4 Flowable Fungicide	fungicide	, Iprodione	279-9564	1 acres	1.50 pt/acre	1.50 pt	100 gals	Mizuho Nita, #111453-G	48 hrs / 2023-08-04 01:00
Mettle 125 ME	fungicide	Tetraconazole	80289-8	1 acres	4.00 floz/acre	4.00 floz	100 gals	Mizuho Nita, #111453-G	12 hrs / 2023-08-02 01:00
Captan 4L	fungicide	Captan	42750-236	1 acres	2.00 qt/acre	2.00 qt	100 gals	Mizuho Nita, #111453-G	48 hrs / 2023-08-04 01:00

**Benefits for Plant Pathologists**

In the short term, it helps Extension Specialists to aid communications and education. When the database expands to include a wide range of growers over several seasons, this tool can provide the history of diseases and spray records to our research project needs.

Source URL: [http://www.grapeipm.org/d.live/dh\\_adminreg\\_feature/7114/print/agchem\\_app](http://www.grapeipm.org/d.live/dh_adminreg_feature/7114/print/agchem_app)

Links

[1] <http://www.grapeipm.org/d.live/print/ipm-live-events/1162/workorder/7114>