

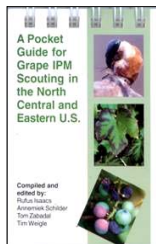
Scouting for Vineyard Insect Pests and Natural Enemies

focus on early – season pests

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IPM Pocket Scouting Guide



- Designed for use in the vineyard
- Provides clear pictures and text
- Four main sections:
 - insect and mite pests
 - natural enemies
 - diseases
 - physiological and chemical disorders
- Scouting calendar
- Also available at www.grapes.msu.edu

Why scout vineyards?

- Provides early detection of pests
- Reduce risk of pest outbreaks
- Information on other vineyard issues
- Improve timing of sprays
- Identify hot-spots

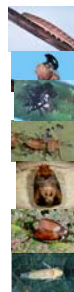
Best approaches to scouting

- Regular weekly scouting
 - Sample multiple vines on border and interior
 - 100 vines per vineyard (100 across 4 rows)
 - Return to same vineyards each week
 - Randomize the position of the samples
 - Keep clear records of what you find

Key times for grape insect scouting and management

- **Bud swell**
Cutworms/flea beetle
- **Pre-bloom**
Rosechafer, cane girdler
- **Postbloom**
GBM, leafhoppers, rosechafer
- **mid-July**
GBM, leafhopper, Japanese beetle
- **mid-August**
GBM, leafhopper, Japanese beetle

Key Insect Pests to Monitor for...



- Cutworm
- Flea Beetle
- Cane girdler
- Rosechafer
- Grape Berry Moth
- Japanese beetle
- Leafhoppers



Larvae are night feeders of many plants, including grape vines, damaging mainly buds and young leaves.

"Cutworm" can be any of a large number of moths.



Climbing cutworm damage

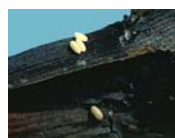


Grape Flea Beetle

Altica chalybea



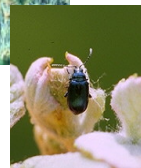
Appearing at bud swell, these beetles feed on buds and can cause yield loss and stunt vine growth. Summer adults and immatures feed on tender leaves.



Eggs are laid mainly under bark, but some are laid on bud scales and top of leaves.



Larvae eat leaves but not the veins; fall to the ground to pupate less than 1/2 inch deep.



Grape flea beetle

Grape cane girdler

Ampelogypter ater



Females girdle new shoots (10 to 15 inches long) into which they lay eggs usually before bloom.

Larval feeding inside the shoot causes it to break off at the girdled point or die back to the first node below the egg cavity and drop to the ground.

Beetles come out in August and spend the winter in ground litter

Grape cane girdler

Rose chafer

Macrodactylus subspinosus



This 1/2 inch, tan beetle appears in time for grape bloom.



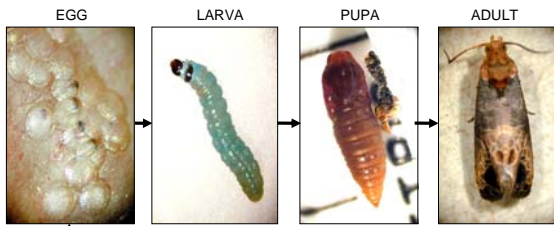
They skeletonize leaves and damage buds. They eat plants other than grapes too.

Vinifera and hybrid vines are at greater risk than labruscas



Rose chafer

Grape Berry Moth



Larvae inside the berry grow and cause visible damage: webbing, discoloration.



A single larva can damage many berries

Entrance points are easy to spot.



Inside, the grown larva



Grape berry moth

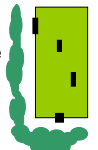
MONITORING FOR GRAPE BERRY MOTH

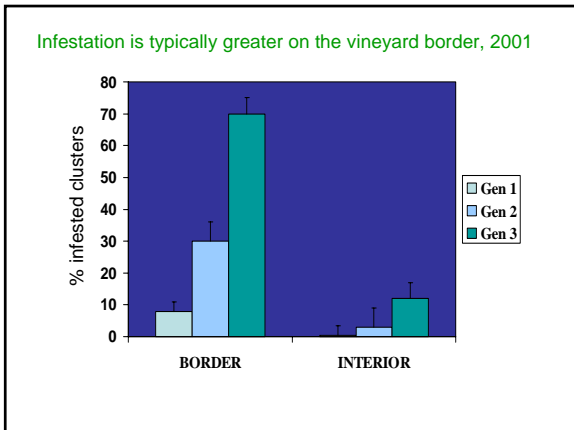


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- Think about vineyard 'risk'
- Use trap with insect sex pheromone lure
- Place at vineyard borders and interiors
- Include borders with wooded edges
- Check traps weekly or more often
- Once moths are trapped, check clusters for eggs, larvae, and webbing
- Check 100 clusters, calculate % infestation
- Track infestation over time





Leafhoppers


Grape Leafhopper
Erythroneura comes



Overwinters near vineyards and moves to grapes in late May-June.

Affects labrusca vineyards more

Potato Leafhopper
Empoasca fabae




Comes with the wind in spring, washed onto crops by rain showers. Probably dies in winter.


Affects vinifera and hybrids more

Grape Leafhopper


ADULT
3 mm




NYMPH
1-2 mm




ALL STAGES PLUS CAST SKINS





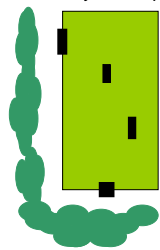

DAMAGE





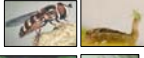



Leafhoppers tend to stay on undersides of leaves
Damage is visible as discoloration.

Establish monitoring sites for pests

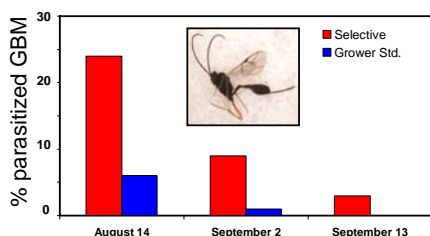
- Place monitoring stations near woods and inside vineyard (2 in each position)
- Check weekly, mid April to harvest

Vineyard Natural Enemies

predator		prey
	Predatory mites	Pest mites
	Lady beetles	Soft-bodied insects
	Hoverflies	Soft-bodied insects
	Lacewings	Soft-bodied insects
	Parasitic wasps	Leafhoppers, moth larvae
	Ground predators	Varied prey on ground and on the vine

Greater parasitism in Intrepid-treated vineyards



MONITORING / SCOUTING

- Provides up-to-date, vineyard-specific information on pests.
- Monitor carefully for key pests and beneficials
- Consider adjacent habitats for GBM/GLH risk assessment
- Target and time controls accurately
- Well-timed, well-covered insecticides for first generation GBM in high risk vineyards, then monitor for later generations



Maintain scouting until harvest

Prevent late-season surprises

Some key pests may continue to harvest

- GBM
- JB

Some sporadic pests appear at harvest

- Multicolored asian ladybeetle
- Yellowjackets
- Fruit flies
- Ants
- Mealybug

Making Vineyard IPM Work for You

NOW

- Develop scouting plan
- Learn strengths and weaknesses of insecticides
- Map hot spots (high risk vineyards)
- Consider cultural controls

EARLY SEASON

- Put pheromone traps in high risk vineyards
- Check weekly for grape berry moth and other key pests

MID SEASON

- Check weekly for leafhoppers, grape berry moth and other key pests
- Look for natural enemies
- In vineyards with GBM history, plan on a post-bloom spray

LATE SEASON

- Scout clusters for GBM eggs and larvae July thru harvest
- Look for natural enemies
- If detected, be prepared to address GBM after veraison
- Increase gallonage (cover those clusters!)
- Spray every row

Information Resources



Management Guide
www.msue.msu.edu/epubs/pestpubs/E154/

CAT Alert
www.ipm.msu.edu/fruitCAT.htm

MSU Viticulture Information
www.grapes.msu.edu