

Did you miss the first two webinars on the fail chapter Management Plans (Human Resources, Ecosystem Management, & Nutrient Management), the Soil Conservation Plan, and the Water Management Plan? No worries - the webinars were recorded and can be viewed at [lodigrowers.com](http://lodigrowers.com) under the Education - Videos, Presentations, & Handouts Tab. That is also where all webinar handouts are available. Thank you for your participation this morning and please let us know what worked and didn't work for you so we can improve! [stephanie@lodiwine.com](mailto:stephanie@lodiwine.com)

As a reminder, please be sure to **read the introductory material in the Binder (pages 1-6)** which explains a lot about the Standards and about which person to contact with questions. To prepare for your audit, use the Audit Prep Checklist (Tab 10 in the Binder and available at [lodirules.com](http://lodirules.com)). After reading the Audit Prep Checklist, if you are still unsure of whether or not something counts as a verification document, then contact Heather Muser. If your grape buyer has strong ties to the Lodi Rules program, they may be willing to spend some time helping you with the program too.

**Hosts:**

**Dr. Stephanie Bolton**, Sustainable Winegrowing Director, Lodi Rules Program/Lodi Winegrape Commission  
**Lee Caton**, Lodi Rules Committee Member and Grower

**Today we will cover three management plans & monitoring records:**

**Insect & Mite Pest Management Plan (LR 6.1, 6 pts) | Monitoring Records (CH 6, 1-8 pts)**  
**Powdery Mildew Management Plan (LR 6.11, 4 pts) | Soil Borne Pest Management Plan (LR 6.17, 4 pts)**

Other Management Plans will be covered in a future webinar this month.

**General Tips:**

- If this is your first year in the Lodi Rules program, keep your plans simple.
- Add the corresponding LR Standard and Title at the top for easy filing.
- List visions and goals, describe the current situation in detail, then list overall management strategies.
- Use the headings in the Standard and organize the plan around those.
- If you haven't written anything longer than an email for years, don't worry - bullet points work too!
- Always include a section at the end for "plan review and update" with lines for dates and signatures
- Review Management Plans at your annual Manager's Meeting (LR 1.3)
- Every year, focus on one area to improve for each plan OR a few plans to improve
- Share your plans with employees and ask for input - retention is EXTREMELY difficult and important these days, and you will be surprised at how effective creating a teamwork environment is at employee satisfaction!

**6.1 Insect and Mite Pest Management Plan**

The farming operation has a written and implemented <b>insect and mite pest management plan</b> containing the following components: goals; guidelines for written monitoring records; frequency and location of monitoring; action and economic thresholds for each pest based on pest numbers, natural enemy type/number considerations, amount of leaf and/or fruit damage present, time of year, canopy vigor, winegrape variety; timing of treatments; and a plan review and update schedule.	<b>YES = 6</b>
	<b>NO = 0</b>



## Lodi Rules 6.1: Insect & Mite Pest Management Plan

Written 1.13.2014, Updated 3.10.2017

**GOALS:** We strive to make wise, environmentally conscious, socially responsible, and economically feasible pest treatment decisions that our operation is proud of. We utilize integrated pest management tools such as biocontrol, dust control, and sanitation in conjunction with plant protectants, and annually evaluate pest management decisions and new options for pest control. We pay close attention to emerging and invasive pests, follow label instructions, rotate chemistries, and employ non-chemical control as efforts to reduce resistance build up in pathogen populations. Employees are trained in recognition of both pests and beneficial insects. When possible, spot treatments are used.

### **GUIDELINES FOR WRITTEN MONITORING RECORDS including FREQUENCY & LOCATION:**

The PCA monitors the vineyard for insect and mite pests at least once every 10 days during the growing season (May - Harvest) and keeps written records, which are then transferred to us via email upon request (LR 6.2). Vineyards are monitored in a systematic way to include the edges as well as several different locations within the block. Pacific Spider mites and leafhoppers are occasionally an issue, as are vine mealybugs.

### **ACTION & ECONOMIC THRESHOLDS: LEAFHOPPERS**

<2 nymphs per leaf and no leaf damage	between 2-5 nymphs per leaf, low leaf damage, low adult population present	moderate-heavy leaf damage and moderate-heavy adult population present	>5 nymphs per leaf
<b>NO TREATMENT</b>	<b>MONITOR (watch low vigor varieties more closely since they have less leaves)</b>	<b>TREAT</b>	<b>TREAT</b>

*(Examples only, do not use as pest control guidance)*

### **ACTION & ECONOMIC THRESHOLDS: SPIDER MITES**

<50% of leaves infested with mites	50-70% of leaves infested with mites	>70% of leaves infested with mites
Release predatory mites to keep the population under control.	If predatory mite populations are on the rise, MONITOR; if not, TREAT with a biocontrol-friendly product (avoid Fujimite and Nexter; use Acromite or Nealta)	TREAT with a biocontrol-friendly product (avoid Fujimite and Nexter; use Acromite or Nealta)

*(Examples only, do not use as pest control guidance)*

### **ACTION & ECONOMIC THRESHOLDS: VINE MEALYBUGS**

Mealybugs and Argentine or Gray ants are present but sparsely and in low numbers	Mealybugs and Argentine or Gray ants are present in moderate-high numbers on trunk and leaves
Release <i>Anagyrus</i> wasps, TREAT for ants (Esteem), use pheromone disruption, and MONITOR.	TREAT with Movento, TREAT for ants (Esteem), and MONITOR populations (including parasitized MBs)

*(Examples only, do not use as pest control guidance)*

### **TIMING of TREATMENTS:**

Treatments are timed to provide maximum levels of control - for example, at the more vulnerable life stages of the pest and in a proactive manner to prevent a high population rather than attempt to decrease a large, damaging pest population once it has grown out of control. As harvest approaches, moderate pest levels are more tolerated than

earlier in the season. Earlier ripening varieties (Chardonnay) can sometimes avoid treatment. Old Vine Zinfandel ripens later and thus needs to be more closely monitored and treated earlier.

**HISTORY OF INSECTS & PESTS IN THIS BLOCK:**

2013		2014		2015		2016		2017	
mites	LOW	mites	HIGH	mites	MOD	mites	HIGH	mites	
leafhoppers	LOW	leafhoppers	LOW	leafhoppers	LOW	leafhoppers	LOW	leafhoppers	
VMB	LOW	VMB	MOD	VMB	HIGH	VMB	HIGH	VMB	
predatory mites		Fujimite, Movento		predatory mites, Fujimite, Movento		Nealta, Movento, ant control			

This plan will be reviewed on an annual basis in February. Review Date: \_\_\_\_\_

Signatures and Written Names of All Present:

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**QUESTIONS??**

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General Example:



## LR CH. 6: Monitoring Records

Work with your PCA or vineyard scout to get the records in an organized, easy to use format that works for you and for verification purposes.

### What monitoring records are needed for the Lodi Rules verifications?

- Any insects and mites listed in your Insect & Mite Pest Management Plan (LR 6.1-6.4; at least leafhoppers and mites)
- Powdery Mildew (LR 6.11)
- Weeds (LR 6.19-6.20)
- Vertebrates (LR 6.21-6.22)

It is okay to include “extra” columns for things like rots, viruses, etc. **BE SURE TO EXPLAIN YOUR SCORING OR RATING SYSTEM, INCLUDING ANY SYMBOLS OR ABBREVIATIONS USED.** If you use LOW - MODERATE - HIGH, be sure to repeat those explanations from your plans into a footnote in your monitoring records submitted for verification to the auditor (what does “LOW” mean? less than 3/10 vines affected?). Pretend that a stranger is going to read the table and be sure that everything needed for it to make sense is included.

### LUNA VINEYARD - BLOCK A. Scouted every 7 days from April - Harvest.

DATE	WEEDS	PACIFIC SPIDER MITE	LEAFHOPPER [ADULT (A) & NYMPH (N)]	VINE MEALYBUG	SHARPSHOOTER	POWDERY MILDEW	LEAFROLL VIRUS	GOPHERS
4.3.17	10%	0%	A = 0, N = 0	0/15	0/15	0%	-	2/10
4.10.17	5%	0%	A = 0, N = 0	1/15	0/15	0%	-	3/10
4.17.17	5%	0%	A = 0, N = 0	2/15	0/15	0%	-	2/10
4.24.17	15%	0%	A = 0, N = 0	3/15	0/15	0%	-	1/10

*Any % score indicates the estimated vineyard block percentage affected. For the leafhoppers, the score is an average per leaf of 10 randomly selected healthy leaves. For the vine mealybugs and sharpshooters, the score is the number of vines where mealybugs or sharpshooters are present out of 15 randomly selected vines. For gophers, the score is the number of areas where gopher holes can be spotted out of 10 random spots in the block. Any block with a dash indicates that the timing is not ideal for the pathogen or its symptoms to appear.*

## QUESTIONS???

### 6.11 Powdery Mildew Management Plan

The farming operation has a written and implemented <b>powdery mildew management plan</b> which contains the following components: goals, preventative measures, varietal susceptibility, canopy characteristics, treatment decision factors, treatment measures, and a plan review and update schedule.	<b>YES = 4</b>
	<b>NO = 0</b>

General Example:



## Lodi Rules 6.11: Powdery Mildew Management Plan

Written 6.22.2012, Updated 3.4.2017

**GOALS:** We seek to proactively manage powdery mildew risk by early season detection and treatment, as well as canopy management for maximum air flow (shoot thinning, leaf pulling, crop thinning, and gibberellin sprays where needed depending on the grape variety and vigor). Fungicides with different modes of action are rotated along with sulfur to reduce the potential for resistance to develop in the pathogen population.

**PREVENTATIVE MEASURES:** Starting in April, the vineyard is monitored for powdery mildew and the weather is closely watched (daily emails from Western Weather). Powdery mildew online forecasting tools are used as needed. Regular sulfur treatments have historically been sufficient in controlling powdery mildew, although with this year being so wet we will have to be extra watchful for pathogen development. All vineyards are on a drip irrigation system which minimizes pathogen spread.

### VARIETAL SUSCEPTIBILITY:

<b>Susceptible</b>	Bacchus, Cabernet Franc, Cabernet Sauvignon, Chancellor, Chardonnay, Chasselas, Gamay, Gewurztraminer, Grenache, Himrod, Madeleine Angevine, Madeleine Sylvaner, Malbec, Muller Thurgau, Pearl of Csaba, Petit Verdot, Rkatzeteli, Riesling, Sauvignon blanc, Schonburger, Siegerebe, Syrah, Viognier
<b>Intermediate</b>	Chelois, Chenin Blanc, Concord, Foch, Pinot blanc, Malbec, Merlot, Ortega, Pinot Noir, Perlett, Sheridan, Vidal Blanc, Weissburgunder
<b>Least Susceptible</b>	Auxerrois, Malvoisie, Melon, Pinot Gris, Semillon

The above table is from a British Columbia Powdery Mildew guidance document available at: [http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/animal-and-crops/plant-health/grape\\_powdery\\_mildew.pdf](http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/animal-and-crops/plant-health/grape_powdery_mildew.pdf). You can use it to determine your varietal susceptibility to powdery mildew.

This vineyard is planted to Cabernet Sauvignon, which is susceptible to powdery mildew, and Merlot, which is somewhat susceptible to it.

### CANOPY CHARACTERISTICS:

The canopy is managed for maximum air flow by employing shoot thinning, leaf pulling, crop thinning (when needed), gibberellin sprays (Cabernet only), and a trellis design which opens the canopy.

### TREATMENT DECISION FACTORS & MEASURES:

Fungicides are applied when the new shoot growth (which is highly vulnerable) is between 2-4 inches long and at regular intervals based on disease pressure levels, as determined by risk models and weather conditions. When mildew is present in greater than 30% of the vineyard, eradicant and/or systemic fungicides are considered. Effectiveness of treatments is noted on an annual basis - including whether or not the mildew pressure decreased, remained the same, or increased, and the total costs of the treatments is also calculated.

This plan will be reviewed on an annual basis in February. Review Date: \_\_\_\_\_

Signatures and Written Names of All Present:

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**QUESTIONS??**

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## 6.17 Soil Borne Pest Management Plan

The farming operation has a written and implemented **soil borne pest management plan**, focusing on nematodes and *Phylloxera*, which contains the following components: management goals, a post-planting soil sampling program, site-specific control measures, and a plan review and update schedule.

YES = 4

NO = 0

*General Example:*

### Lodi Rules 6.17: Soil Borne Pest Management Plan

*Written 6.22.2012, Updated 3.4.2017*



**GOALS:** To efficiently reduce soil borne pests to a manageable level while maintaining balanced, microbially active and nutrient-available soils. In addition to nematodes and *Phylloxera*, we look out for atypical soil pathogens such as *Phytophthora* which may be an indication of a hardpan.

**SOIL SAMPLING PROGRAM:** Before planting, soil samples were taken and analyzed by a professional laboratory to determine varietal and rootstock choices. We believe that choosing the correct rootstock and variety for a given soil type is an important step in defending the grapevines against soil borne and other pests.

After planting, soils are sampled for nutrients and pests (*Phylloxera*, nematodes, *Phytophthora*) every three years or as recommended by our PCA. If any soil borne pathogens are present, appropriate actions will be taken. So far, soil borne pathogens have not been an issue in the 5-yr old vineyard.

**SITE-SPECIFIC CONTROL MEASURES:** Vine health and balance is maintained in order to provide a strong defense against soil borne pests. Drip irrigation is applied such that it never pools in any areas of the vineyard, and the soils are well-drained. Cover crops which add organic matter back to the soil are used year-round.

This plan will be reviewed on an annual basis in February. Review Date: \_\_\_\_\_

Signatures and Written Names of All Present:

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### QUESTIONS??

Here is the topic schedule for the last Webinar:

**Wednesday, April 26th 1-2pm:** Weed Management Plan (LR 6.19, 4 pts) | Vertebrate Management Plan (LR 6.21, 4 pts) | Spray/Dust Drift Management Plan (LR 6.27, 4 pts)

Please register for this session at the following website:

<https://attendee.gotowebinar.com/rt/4582072153939863811>

Need to attend a Sustainable Vision Workshop? Email [stephanie@lodiwine.com](mailto:stephanie@lodiwine.com) ASAP to get on the list!

## Questions??



*Pictured: Bokisch Vineyards picnic area*