

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 1	LODI RULES Standard	Examples of Verification	X
Business Management	<p><i>This Audit Prep Checklist was created to assist with the certification process. Items and suggestions, under each section, are provided as a helpful tool but are in no way a complete list of items needed to complete each Chapter. They are merely helpful hints on what you should be looking for to assist with obtaining your certification. Using time and date stamps on photos is recommended.</i></p>		
	LR 1.1 Sustainability Vision	Written sustainable management vision plan document with a vision statement. Certificate of completion from Sustainable Vision Workshop.	<input type="checkbox"/>
	LR 1.2 Succession Plan	Written plan outlining the succession of the business. A copy of the "title page of an existing family trust" will work as evidence for a succession plan.	<input type="checkbox"/>
	LR 1.3 Management Planning Meetings	Management meeting records. Sign-in sheets for any meeting that the company may have. Topics that may be covered could be: farm policies, environmental concerns, safety, or healthcare to name a few.	<input type="checkbox"/>
	LR 1.4 Risk Management Plan	Written risk management plan document.	<input type="checkbox"/>
	LR 1.5 Operating Budget	A written annual operating budget that encompasses all aspects of vineyard management, such as operation efficiency, expenditures, etc. (the actual dollar amounts can be blacked out)	<input type="checkbox"/>
	LR 1.6 Management Training and Development	Proof of attendance for training seminars or educational meetings. These may include breakfast meetings, workshops, classes, Lodi Winegrape Commission seminars and workshops, Sustainable Ag Expo, etc.	<input type="checkbox"/>
	LR 1.7 Staying Informed With Industry	Photos or copies of sign-in sheets to grower/vintner associations, subscription to trade journals, receipts/proof of attendance for industry meetings, etc.	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 1	LODI RULES Standard	Examples of Verification	X
Business Management	LR 1.8 Neighbor Relations	What have you done to ensure good relations with neighbors? Delivery of wine or gifts, notification on vineyard activities, morning breakfast get togethers, emails between neighbors, copy of notice or email about upcoming spray dates, etc.	<input type="checkbox"/>
	LR 1.9 Energy Management	Tracking of energy management through electricity invoices (PG&E has a graph which shows the past year's energy use), fuel receipts, solar, propane, spreadsheets or QB reports, etc.	<input type="checkbox"/>
	LR 1.10 Alternative Energy Use Bonus Points	Photos of alternative energy sources include solar, wind, hydroelectric, biofuel, propane natural gas, and green energy purchases. To assist with verification of alternative energy sources, documentation from companies that provided the service or infrastructure for the projects can be helpful.	<input type="checkbox"/>
	LR 1.11 Mechanical Operation Efficiency	Documentation in the form of photos assists with the verification process. Examples of mechanical efficiency could be having a double high sprayer to spray two rows in a single pass, attaching a trimmer to the front and a disc to the back of your tractor (two functions with one pass), etc.	<input type="checkbox"/>
	LR 1.12 Disposal of Materials	Recycling is the key component to this section. Having designated recycling areas and containers will assist with certification. Items that can be recycled include but are not limited to metal, paper, cardboard, glass, t-bar, and plastic. Include photos of recycling areas.	<input type="checkbox"/>
	LR 1.13 Knowledge Sharing	A written explanation of the knowledge sharing experience, including the date and number of people who learned from the experience (one paragraph), copies of emails or texts to schedule the event, or photos taken during experience, etc.	<input type="checkbox"/>
	LR 1.14 On-Site Sustainable Viticulture Research Bonus Points	Dated data records or photos from the research, which may include an interview.	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 1	LODI RULES Standard	Examples of Verification	X
Business Management	LR 1.15 Sustainability Communication Meetings	Management meeting records, including a sign-in sheet and topics covered.	<input type="checkbox"/>
	LR 1.16.1 Sustainability Marketing: Vineyard Signage	Photo of certified sustainable signage.	<input type="checkbox"/>
	LR 1.16.2 Sustainability Marketing: Grape Marketing	Marketing materials showing promotion of sustainability, including website, social media, vineyard tech sheet, brochure, business card, and/or presentations.	<input type="checkbox"/>
	LR 1.16.3 Sustainability Marketing: Winery Communication	Email communication with wineries to share the Winery Handbook, to talk about using a seal on a wine label, and/or proof that a buyer is already using a certified sustainable seal on a wine label containing grapes from the vineyard.	<input type="checkbox"/>
	LR 1.17 Automation Efficiencies	Photo of novel, innovative equipment, data generated by innovation, and/or receipts or emails with company providing innovation.	<input type="checkbox"/>
	LR 1.18 Paper-Free LODI RULES Audit Bonus Point	Paper-free, electronic audit documents submitted for on-site audit.	<input type="checkbox"/>
	LR 1.19 The Carbon Cycle	Carbon cycle training materials and/or training records.	<input type="checkbox"/>
Chapter 2	LODI RULES Standard	Examples of Verification	X
Human Resources Management	Note: In the instance that the farming operation has no employees other than yourself, you have no payroll, and you have not received any IRS I-9 Forms, skip this Chapter and proceed to Chapter 3.		
	LR 2.1 Human Resources Plan	A written human resources plan document. *Fail Chapter*	<input type="checkbox"/>
	LR 2.2 Employee Handbook	An employee handbook that outlines the company/farming policies, available in all languages needed by employees.	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 2	LODI RULES Standard	Examples of Verification	X
Human Resources Management	LR 2.3 Employee Orientation	A written formal orientation program, which should include items such as company policies, meetings, and tour operation dates. A copy of attendance sheets will assist with documentation.	<input type="checkbox"/>
	LR 2.4 Employee Job Descriptions	A written document that clearly states an employee's role in the company and expectations. Names can be blacked out for privacy concerns.	<input type="checkbox"/>
	LR 2.5 Employee Performance Evaluation	An employee evaluation process document and records of employee evaluations. Names can be blacked out for privacy concerns.	<input type="checkbox"/>
	LR 2.6 Safety Training	Written safety training records, including dates, times and those in attendance. It is important to document/track safety statistics, lost time accidents, etc.	<input type="checkbox"/>
	LR 2.7 Safety Rewards Program	A written safety incentive program document, including a section that recognizes an employee's safe job performance with incentive levels.	<input type="checkbox"/>
	LR 2.8 Employee Training and Development	An inspection of seminar and educational attendance records. Seminars or workshops that could apply are grower meetings, Farm Safety Days, Grape Days, etc.	<input type="checkbox"/>
	LR 2.9 Teambuilding	Written team building activity records. These could include notices of harvest gatherings, holiday parties, employee lunches, etc.	<input type="checkbox"/>
	LR 2.10 Employee Bonus System	A visual inspection of employee bonus records. Items that apply are holiday/annual bonus checks, harvest bonuses, gift cards, QB printouts, etc.	<input type="checkbox"/>
	LR 2.11 Employee Health Care Benefit	Inspection of documents that show employees are being offered health insurance benefits.	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 2	LODI RULES Standard	Examples of Verification	X
Human Resources Management	LR 2.12 Employee Benefits Package	Inspection of benefit records which show the benefit package that an employee is receiving in excess of government requirements.	<input type="checkbox"/>
	LR 2.13 Salary Survey Participation	An inspection of survey documentation from Wine Business Monthly/Western Management Group, Western Growers, AgCareers.com, or FELS, which may include a participation thank you email.	<input type="checkbox"/>
	LR 2.14 Social Responsibility	Written social responsibility policy document.	<input type="checkbox"/>
	LR 2.15 Employee Satisfaction Bonus Point	Photo of non-mandated safety or comfort enhancements.	<input type="checkbox"/>
Chapter 3	LODI RULES Standard	Examples of Verification	X
Ecosystem Management	LR 3.1 Watershed Management	Attendance records of watershed stewardship group meetings and/or local, county or state presentations that speak to the matter.	<input type="checkbox"/>
	LR 3.2 Environmental Survey	Written environmental survey and monitoring program document. *Fail Chapter*	<input type="checkbox"/>
	LR 3.3 Ecosystem Management Plan	Written ecosystem management plan document based on survey from LR 3.2. *Fail Chapter*	<input type="checkbox"/>
	LR 3.4 Enhancing Plant and Soil Inhabitant Biodiversity Within the Vineyard	Floor management records. To assist in verification, take photos of cover crops in the off season and keep receipts for seeding purchases.	<input type="checkbox"/>
	LR 3.5.1 Woodland Buffer Type	Visual inspection of woodlands. Auditors will be looking to see if buffer zones have been created. Aerial photos are very helpful and acceptable.	<input type="checkbox"/>
	LR 3.5.2 Woodland Buffer Dimensions	Visual inspection of the buffer zones around woodlands and tree canopies.	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 3	LODI RULES Standard	Examples of Verification	X
Ecosystem Management	LR 3.6.1 Individual Tree Buffer Type	Visual inspection to see what buffer types are currently used to preserve trees, which may include photos.	<input type="checkbox"/>
	LR 3.6.2 Individual Tree Buffer Dimensions	Visual inspection of buffer zones created around tree canopies (i.e. drip lines), which may include photos.	<input type="checkbox"/>
	LR 3.7.1 Management of Vegetation (other than trees) Adjacent to Vineyards	Visual inspection of individual farming units. Looking for shrubs, roses or low-stature vegetation on headland, end of rows, or along roadsides.	<input type="checkbox"/>
	LR 3.8.1 Native Vegetation: Maintained Vegetation Bonus Point	Visual inspection of native vegetation planted on non-farmed headlands adjacent to vineyard, which may include photos.	<input type="checkbox"/>
	LR 3.8.2 Native Vegetation: Maintained Hedgerows Bonus Point	Visual inspection of native hedgerows along headlands and roadsides, which may include photos.	<input type="checkbox"/>
	LR 3.8.3 Native Vegetation: Planted Buffers Bonus Point	Visual inspection of native vegetation planted around individual, preserved trees, which may include photos.	<input type="checkbox"/>
	LR 3.9.1 Delineated Seasonal Wetland (including vernal pools) Management	Visual inspection of buffer strip in and around seasonal wetlands. Looking for type of buffer strip (native vegetation, non-native vegetation, or non-vegetated).	<input type="checkbox"/>
	LR 3.10.1 Riparian Habitat Management	Visual inspection of the riparian vegetation practices in and around perennial waterways for the entire course of the waterway.	<input type="checkbox"/>
LR 3.11.1 Intermittent Water Body Habitat Management	Visual inspection of intermittent water bodies. Looking for type of buffer strip and for a distance of at least nine feet between the vineyard and water body.	<input type="checkbox"/>	

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 3	LODI RULES Standard	Examples of Verification	X
Ecosystem Management	LR 3.12.1 Habitat: Nesting Boxes for Raptors	Visual inspection of nesting boxes for owls, hawks, or other raptors adjacent to vineyards, which may include photos.	<input type="checkbox"/>
	LR 3.12.2 Habitat: Natural Nesting Sites for Raptors	Visual inspection of nesting sites for owls, hawks, or other raptors adjacent to vineyards, which may include photos.	<input type="checkbox"/>
	LR 3.12.3 Habitat: Nesting Boxes for Bats	Visual inspection of nesting boxes for bats, which may include photos.	<input type="checkbox"/>
	LR 3.12.4 Habitat: Nesting Boxes for Non-Raptor Birds	Visual inspection of nesting boxes for bluebirds, ducks, or other non-raptors adjacent to vineyards, which may include photos.	<input type="checkbox"/>
	LR 3.12.5 Habitat: Nesting Habitat for Non-Raptor Birds	Visual inspection of nesting sites for bluebirds, ducks, or other non-raptors adjacent to vineyards, which may include photos.	<input type="checkbox"/>
	LR 3.12.6 Habitat: Bees	Visual inspection of bee boxes, gardens, or shelters, which may include photos.	<input type="checkbox"/>
	LR 3.12.7 Habitat: Snakes	Visual inspection of nesting sites for beneficial snakes, which may include photos.	<input type="checkbox"/>
	LR 3.13 Managing Livestock Access	Visual inspection of livestock exclusion measures in and around vineyards and adjacent waterways, which may include photos. Goats count as livestock.	<input type="checkbox"/>
	LR 3.14 Livestock Grazing Management Plan	Written livestock grazing management plan document.	<input type="checkbox"/>
	LR 3.15 Invasive Species Training and Recognition	Written training documents, including meeting agendas and attendance sheets, with date and topics covered.	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 4	LODI RULES Standard	Examples of Verification	X
Soil Management	LR 4.1 Nutrient Management Plan	Written nutrient management plan document. *Fail Chapter*	<input type="checkbox"/>
	LR 4.2 Soil Erosion and Compaction: Soil Conservation Plan	Written soil conservation plan document.	<input type="checkbox"/>
	LR 4.3 Soil Mapping	Soil survey maps, which are provided by NRCS Soil Survey or other mapping methods. www.websoilsurvey.sc.egov.usda.gov	<input type="checkbox"/>
	LR 4.4 Soil Analysis for General Soil Characteristics	Soil analysis reports which include analysis of pH, EC, CEC, OM, and base saturation. Results should be incorporated into the nutrient management plan.	<input type="checkbox"/>
	LR 4.5.1 Non-Tillage (every row)	Visual inspection of vineyard floors within managed areas, which may include photos or floor management records.	<input type="checkbox"/>
	LR 4.5.2 Partial Tillage (every other row)	Visual inspection of vineyard floors within managed areas, which may include photos taken at the time of tillage, or floor management records.	<input type="checkbox"/>
	LR 4.5.3 Complete Tillage (every row)	Visual inspection of vineyard floors within managed areas, which may include photos taken at the time of tillage, or floor management records.	<input type="checkbox"/>
	LR 4.6 Amendments for pH	Soil analysis reports showing pH, and if applicable, records of action taken on results of report such as mineral amendments or acidifying agent additions, etc.	<input type="checkbox"/>
	LR 4.7 Organic Matter	Cover crop and/or soil amendment records. Copies of purchase receipts or content labels from bags/boxes can assist in certification.	<input type="checkbox"/>
LR 4.8 Water Penetration Mitigation	Soil amendment, cover crop, irrigation, and/or ripping records showing methods taken to enhance water penetration.	<input type="checkbox"/>	

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 4	LODI RULES Standard	Examples of Verification	X
Soil Management	LR 4.9 Water Analysis	Water analysis reports that are incorporated into the nutrient management plan (LR 4.1) and soil amendment program.	<input type="checkbox"/>
	LR 4.10 Soil Analysis for Mineral Nutrients	Soil analysis reports that are incorporated into the nutrient management plan (LR 4.1).	<input type="checkbox"/>
	LR 4.11 Plant Analysis	Tissue analysis (blade or petiole) report.	<input type="checkbox"/>
	LR 4.12.1 Nitrogen Application	Vineyard observation records, tissue analysis reports, water analysis reports, and nitrogen application records.	<input type="checkbox"/>
	LR 4.12.2.1 Nitrogen from Finished Compost	Organic finished compost amendment records, which may include purchase records.	<input type="checkbox"/>
	LR 4.12.2.2 Nitrogen from Non-Composted Material	Organic non-composted amendment records, which may include purchase records.	<input type="checkbox"/>
	LR 4.12.3.1 Fertility Analysis Report	Fertility analysis report for each non-mined, biologically sourced nitrogen material.	<input type="checkbox"/>
	LR 4.12.3.2 Incorporation of Material	Records of non-mined, biologically sourced nitrogen application and incorporation.	<input type="checkbox"/>
	LR 4.12.3.3 Material Spreader Calibrated	Spreader calibration application rates/reports (copy of graph on spreader).	<input type="checkbox"/>
	LR 4.12.3.4 Material Application Timing	Non-mined, biologically sourced nitrogen application records showing timing.	<input type="checkbox"/>
LR 4.12.4 Manufactured or Mined Nitrogen	Fertilizer application records with timing. Points are awarded based upon the units of nitrogen that are applied to the vineyard (lower amounts get higher points).	<input type="checkbox"/>	

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 4	LODI RULES Standard	Examples of Verification	X
Soil Management	LR 4.13.1 Soil Erosion by Wind: Vineyard Floor	Visual inspection of permanent vegetative cover, which may include photos, and/or copies of cover crop seed bag tags.	<input type="checkbox"/>
	LR 4.13.2 Soil Erosion by Wind: Headlands	Visual inspection of vegetative cover on headlands, which may include photos.	<input type="checkbox"/>
	LR 4.13.3 Soil Erosion by Wind: Windbreaks	Visual inspection of tree hedgerow on upwind edge of vineyard, which may include photos.	<input type="checkbox"/>
	LR 4.14 Soil Erosion by Water	Written erosion control plan document and/or official document specifying vineyard slope. Google Earth reports accepted.	<input type="checkbox"/>
	LR 4.14.1.1 Soil Erosion by Water - Sloped Vineyards: Vineyard Floor	Visual inspection of permanent vegetative cover, which may include photos, and/or copies of cover crop seed bag tags.	<input type="checkbox"/>
	LR 4.14.1.2 Soil Erosion by Water - Sloped Vineyards: Headlands	Photos documenting use of waterbars, straw wattles, etc.	<input type="checkbox"/>
	LR 4.14.1.3 Soil Erosion by Water - Sloped Vineyards: Berms	Visual inspection of cross slope berms or row contours, which may include photos.	<input type="checkbox"/>
	LR 4.14.1.3 Soil Erosion by Water - Sloped Vineyards: Downslope Edge	Visual inspection of vegetative filter strip on downslope edge, which may include photos.	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 5	LODI RULES Standard	Examples of Verification	X
Water Management	LR 5.1 Water Management Plan	Written water management plan document. *Fail Chapter*	<input type="checkbox"/>
	LR 5.2 Irrigation Water Source	An in-field inspection of the vineyard irrigation system and/or system design plans. If nothing has changed after the first on-site audit for a specific vineyard block, photos are acceptable.	<input type="checkbox"/>
	LR 5.3 Monitoring Water Quality	Laboratory water analysis reports which are incorporated into the water management plan (LR 5.1). The reason for this document is to determine the levels of chemical clogging agents and salts.	<input type="checkbox"/>
	LR 5.4 Irrigation System	Soil moisture sensor records for the growing season.	<input type="checkbox"/>
	LR 5.5 Irrigation Power Plant	An in-field inspection of the actual irrigation power plant. Points are awarded based on the type of power plant used for irrigation. If nothing has changed after the first on-site audit for a specific vineyard block, photos are acceptable.	<input type="checkbox"/>
	LR 5.6 Back Flow Prevention	An in-field inspection of the irrigation system pump station and back flow device. If nothing has changed after the first on-site audit for a specific vineyard block, photos are acceptable. *Fail Chapter*	<input type="checkbox"/>
	LR 5.7 Irrigation System Maintenance	An in-field inspection of the vineyard irrigation system. If nothing has changed after the first on-site audit for a specific vineyard block, photos are acceptable.	<input type="checkbox"/>
	LR 5.7.1 Maintenance for Low Volume - Surface Irrigation Systems	Irrigation system maintenance records. Looking for the thoroughness of irrigation system efforts to optimize the use of water and resources. A spreadsheet that includes line items such as date, location of maintenance, and function of completed work (tubing work, emitters, etc.) is helpful. *Fail Chapter*	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 5	LODI RULES Standard	Examples of Verification	X
Water Management	LR 5.7.2 Maintenance for Low Volume - Subsurface Irrigation Systems	Irrigation system maintenance records. Looking for the thoroughness of irrigation system efforts to optimize the use of water and resources. A spreadsheet that includes line items such as date, location of maintenance, and function of completed work (tubing work, leaks, etc.) is helpful. *Fail Chapter*	<input type="checkbox"/>
	LR 5.7.3 Maintenance for Overhead Sprinkler Systems	Irrigation system maintenance records. Looking for the thoroughness of irrigation system efforts to optimize the use of water and resources. A spreadsheet that includes line items such as date, location of maintenance, and function of completed work (head rotation, clogs, etc.) is helpful. *Fail Chapter*	<input type="checkbox"/>
	LR 5.7.4 Maintenance for Flood and Furrow Systems	Irrigation maintenance records. Looking for the thoroughness of irrigation system efforts to optimize the use of water and resources. A spreadsheet that includes line items such as date, location of maintenance, and function of completed work (breaks, flow distribution, etc.) is helpful. *Fail Chapter*	<input type="checkbox"/>
	LR 5.8 Pump Efficiency	Pump efficiency monitoring records. Checking that pump efficiency and/or Amp reading on pump is at the same level as when purchased (Amp rating must be authenticated by outside source). PG&E may conduct free evaluations when requested.	<input type="checkbox"/>
	LR 5.9 Distribution Uniformity	Irrigation system maintenance and distribution uniformity records. *Fail Chapter*	<input type="checkbox"/>
	LR 5.10 Flow Meters	An in-field inspection of pump station and irrigation system flow records. Looking for efforts to optimize the use of water resources. If nothing has changed after the first on-site audit for a specific vineyard block, photos are acceptable.	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 5	LODI RULES Standard	Examples of Verification	X
Water Management	LR 5.11 Soil Water-Holding Capacity	Soil moisture monitoring records, including identification of the full point or field capacity. Accepted procedures are neutron probes, capacitance sensors, or soil moisture tension, etc.	<input type="checkbox"/>
	LR 5.12.1 Irrigation: Soil Moisture Depletion Monitoring	Vineyard monitoring records showing soil moisture used to schedule irrigation times.	<input type="checkbox"/>
	LR 5.12.2 Irrigation: Vine Water Status Monitoring	Vineyard monitoring records showing vine water status used to schedule irrigation times.	<input type="checkbox"/>
	LR 5.12.3 Irrigation: Evapotranspiration Usage	Vineyard monitoring records, including weather station CIMIS records, etc., showing scheduling of irrigation for optimal water use efficiency.	<input type="checkbox"/>
	LR 5.13.1 Water Budget for Mature Vines	Irrigation records. Looking to determine the level of irrigation water conservation efforts.	<input type="checkbox"/>
	LR 5.13.2 Water Budget for Young Vines	Irrigation records. Looking to determine the level of irrigation water conservation efforts.	<input type="checkbox"/>
	LR 5.14 Offsite Irrigation Water Movement	Visual inspection of vineyard, vineyard floor management, and irrigation frequency/duration records. Looking to see if irrigation creates runoff and if so, if it is recycled.	<input type="checkbox"/>
Chapter 6	LODI RULES Standard	Examples of Verification	X
Pest Management	LR 6.1 Insect and Mite Pest Management Plan	Written insect and mite pest management plan document. *Fail Chapter*	<input type="checkbox"/>
	LR 6.2 Vineyard Monitoring for Insect and Mite Pests	Insect and mite pest monitoring reports, from the Pest Control Advisor if applicable. These should be from the appropriate time period for risk, as stated in the insect and mite pest management plan (LR 6.1). *Fail Chapter*	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 6	LODI RULES Standard	Examples of Verification	X
Pest Management	LR 6.3 Economic Threshold for Leafhoppers	Leafhopper pest monitoring reports and insecticide application records (PEAS report). Treatment threshold as defined in the insect and mite pest management plan (LR 6.1). *Fail Chapter*	<input type="checkbox"/>
	LR 6.4 Economic Threshold for Spider Mites	Spider mite pest monitoring reports and control measure records (may include PEAS report and/or photos of/receipts for predatory mites). Treatment threshold as defined in the insect and mite pest management plan (LR 6.1). *Fail Chapter*	<input type="checkbox"/>
	LR 6.5 Prescriptive Treatments	Insecticide and miticide application records (PEAS report). Looking to see if or when applications are necessary, that only the problem area or hotspot is treated and not the entire vineyard.	<input type="checkbox"/>
	LR 6.6 Dust Abatement for Mite Management Within the Vineyard	Visual inspection of vineyard floors and/or vineyard floor management records. Looking for vegetative cover in vineyard rows. A good rule of thumb is to take photos of vegetative cover/dust abatement practices and keep them in your LODI RULES binder.	<input type="checkbox"/>
	LR 6.7 Dust Abatement for Mite Management for On-Farm Roads and Avenues	Visual inspection of road surfaces and/or road maintenance records. If using vegetative cover, take photos of roads and avenues. If using a sealant, oil, water, magnesium chloride, or other items, keep receipts and record dates of application.	<input type="checkbox"/>
	LR 6.8 Dust Abatement for Mite Management for Headlands	Visual inspection of vegetation in and around the vineyard, which may include photos, and/or non-farm vegetation maintenance records.	<input type="checkbox"/>
	LR 6.9 Training for Recognition of Pests and Their Natural Enemies	Pest and natural enemy training records, including meeting agendas and attendance sheets. If there is an area or breakroom for employees, posting of pictures of pests and beneficials on the walls is another type of proof towards certification.	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 6	LODI RULES Standard	Examples of Verification	X
Pest Management	LR 6.9.1.1 Beneficial Insects: Releases	Beneficial insect application records, including receipts and invoices.	<input type="checkbox"/>
	LR 6.9.1.2 Beneficial Insects: Monitoring	Written beneficial insect monitoring reports. May include photos of beneficials in the vineyard and/or a beneficial insect risk chart used for pesticide application decisions.	<input type="checkbox"/>
	LR 6.10 Vineyard Sanitation for Disease Inoculum Reduction	Visual inspection of the vineyard, which may include photos, and/or labor records for pruning, chopping, berm cleaning, and wood removal.	<input type="checkbox"/>
	LR 6.11 Powdery Mildew Management Plan	Written powdery mildew management plan document. *Fail Chapter*	<input type="checkbox"/>
	LR 6.12 Deciding When to Initiate First Powdery Mildew Treatments for the Season	Comparison of powdery mildew model reports and mildew treatment records, which may include PEAS reports.	<input type="checkbox"/>
	LR 6.13 Timing of Powdery Mildew Treatments	Comparison of powdery mildew model reports and mildew treatment records, which may include PEAS reports.	<input type="checkbox"/>
	LR 6.14 Choice of Powdery Mildew Fungicides for Resistance Management	Fungicide application records (PEAS reports) for the certification year showing fungicide rotation.	<input type="checkbox"/>
	LR 6.15.2.1 Bunch Rot: Early Season Thinning	Visual inspection of early season shoot thinning, which may include photos with dates.	<input type="checkbox"/>
LR 6.15.2.2 Bunch Rot: Gibberellin Application	Growth regulator application records.	<input type="checkbox"/>	

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 6	LODI RULES Standard	Examples of Verification	X
Pest Management	LR 6.15.2.3 Bunch Rot: Leaf and Shoot Removal	Visual inspection of leaf and/or lateral shoot removal, which may include photos with dates.	<input type="checkbox"/>
	LR 6.15.2.4 Bunch Rot: Fungicide Application	Fungicide application records, which may include PEAS reports.	<input type="checkbox"/>
	LR 6.16.1 Canker Disease: Pruning Schedule	Pruning schedule records showing prioritization based on canker risk.	<input type="checkbox"/>
	LR 6.16.2 Canker Disease: Pruning Methods	Photos showing double or cane pruning.	<input type="checkbox"/>
	LR 6.16.3 Canker Disease: Protecting Pruning Wounds	Pruning wound protectant/fungicide application records, which may include photos.	<input type="checkbox"/>
	LR 6.16.4 Canker Disease: Remove/Dispose of Infected Wood	Wood disposal records with timing, which may include photos.	<input type="checkbox"/>
	LR 6.16.5 Canker Disease: Shoot Thinning	Visual inspection of early season shoot thinning, which may include photos with dates.	<input type="checkbox"/>
	LR 6.17 Soil Borne Pest Management Plan	Written soil borne pest management plan document.	<input type="checkbox"/>
	LR 6.18 Soil Borne Pest Control Strategies	Nematode assay results and/or <i>Phylloxera</i> monitoring records with corresponding control strategies, which may include nematicide or insecticide application records.	<input type="checkbox"/>
	LR 6.19 Weed Management Plan	Written weed management plan document.	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 6	LODI RULES Standard	Examples of Verification	X
Pest Management	LR 6.20 Vineyard Monitoring for Weeds	Written weed monitoring reports. Points are awarded depending upon frequency of monitoring. A helpful tip is to have the vineyard manager or pest control advisor create a spreadsheet for all scouting/monitoring needed by LODI RULES , including insects, mites, weeds, vertebrates, virus, etc. *Fail Chapter*	<input type="checkbox"/>
	LR 6.21 Vertebrate Management Plan	Written vertebrate management plan document.	<input type="checkbox"/>
	LR 6.22 Vineyard Monitoring for Vertebrate Pests	Vertebrate pest monitoring reports. Points are awarded depending upon frequency of monitoring. *Fail Chapter*	<input type="checkbox"/>
	LR 6.23 Predatory Birds	Visual inspection of predatory bird boxes and/or perches in and around the vineyard, which may include photos. Boxes should be in good condition and cleaned out every year.	<input type="checkbox"/>
	LR 6.24 Sprayer/Duster Maintenance Plan	Written sprayer/duster maintenance plan document.	<input type="checkbox"/>
	LR 6.25 Sprayer/Duster Calibration	Written sprayer/duster calibration records. *Fail Chapter*	<input type="checkbox"/>
	LR 6.26 Spray Coverage	Written spray coverage monitoring records with photos of results. Points are awarded depending upon frequency of coverage checks using moisture sensitive paper, kaolin clay, or dye.	<input type="checkbox"/>
	LR 6.27 Spray/Dust Drift Management Plan	Written spray/dust drift management plan document.	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 6	LODI RULES Standard	Examples of Verification	X
Pest Management	LR 6.28.1 Mealybug Management: Monitoring Effectiveness	Mealybug, mealybug predator, and mealybug parasite scouting/monitoring reports. May include mealybug trapping data.	<input type="checkbox"/>
	LR 6.28.2 Mealybug Management: Mitigating Spread	Vineyard and/or labor records showing scheduling of work based upon infestation levels or showing disinfection/sanitation of equipment between blocks. If using a management company, records of such requests being made.	<input type="checkbox"/>
	LR 6.28.3 Mealybug Management: Marking Hotspots	A map with any mealybug hotspots marked or photos showing hotspot marking in the vineyard.	<input type="checkbox"/>
	LR 6.28.4 Mealybug Management: Mating Disruption	Vineyard and/or labor records showing mating disruption application. Receipts for mating disruption products may be included.	<input type="checkbox"/>
	LR 6.29 Grapevine Virus Management Plan	Written virus management plan document.	<input type="checkbox"/>
	LR 6.30 Virus Status of Vineyard Block	Written lab results for transmissible viruses, emails shared among management discussing virus presence, labor records/invoices for vector spread mitigation practices, and/or photos taken during rogueing/removal of infected vines.	<input type="checkbox"/>
	LR 6.30.1.1 Virus Management: Scouting	Written virus scouting records and/or labor invoices for virus scouting.	<input type="checkbox"/>
	LR 6.30.1.2 Virus Management: Testing	Written lab results for virus testing, with an indication that healthy-appearing vines were included in the sampling.	<input type="checkbox"/>

LODI RULES Fourth Edition Audit Prep Checklist

Chapter 6	LODI RULES Standard	Examples of Verification	X
Pest Management	LR 6.30.1.3 Virus Management: Rogueing Vines Infected With Leafroll	Written virus rogueing records, a rogueing map, labor invoices for rogueing, photos of rogueing, and/or invoices for replacement vines. Proof of mealybug vector control (LR 6.28.1-6.28.4). A simple economic feasibility analysis is helpful if rogueing is delayed.	<input type="checkbox"/>
	LR 6.30.1.4 Virus Management: Rogueing Vines Infected With Red Blotch	Written virus rogueing records, a rogueing map, labor invoices for rogueing, photos of rogueing, and/or invoices for replacement vines. A simple economic feasibility analysis is helpful if rogueing is delayed.	<input type="checkbox"/>
	LR 6.31 Neighborhood Pest and Disease Communication	Written communication records such as emails, texts, phone call logs, and/or photos of neighborhood communication events.	<input type="checkbox"/>
	LR 6.32 Replants	Written certification or testing documentation from the nursery and/or laboratory, labor records showing inspection of new vines, and/or written protocol for arrival inspection.	<input type="checkbox"/>
	LR 6.33 Pesticide Risk Threshold	PEAS 2.0 reports with calculation of pesticide risk below the maximum threshold. PEAS reports must be submitted to the auditor every year by the deadline, and need to be in the requested format. See lodigrowers.com/standards for more info. *Fail Chapter*	<input type="checkbox"/>

LODI RULES Management Plans & Requirements to Pass

Management Plan List:

LR 1.1	Sustainable Management Vision Plan & Vision Statement
LR 1.2	Succession Plan
LR 1.4	Risk Management Plan
LR 2.1	Human Resources Plan (Fail Chapter, required)
LR 3.3	Ecosystem Management Plan (Fail Chapter, required)
LR 3.14	Livestock Grazing Plan
LR 4.1	Nutrient Management Plan (Fail Chapter, required)
LR 4.2	Soil Conservation Plan
LR 4.14	Erosion Control Plan
LR 5.1	Water Management Plan (Fail Chapter, required)
LR 6.1	Insect and Mite Pest Management Plan (Fail Chapter, required)
LR 6.11	Powdery Mildew Management Plan (Fail Chapter, required)
LR 6.17	Soil Borne Pest Management Plan
LR 6.19	Weed Management Plan
LR 6.21	Vertebrate Management Plan
LR 6.24	Sprayer/Duster Maintenance Plan
LR 6.27	Spray/Dust Drift Management Plan
LR 6.29	Grapevine Virus Management Plan

Additional Requirements for Certification:

LR 3.2, 3.3	Environmental survey (Fail Chapter)
LR 4.1	Soil analysis (Fail Chapter , also useful for LR 4.4, 4.6, 4.10)
LR 4.1	Plant tissue analysis (Fail Chapter , also useful for LR 4.11, 4.12.1)
LR 4.1	Water analysis (Fail Chapter , also useful for LR 4.9, 4.12.1, 5.1, 5.3)
LR 5.6	Back flow prevention (Fail Chapter)
LR 5.7.1-4	Irrigation system maintenance (Fail Chapter)
LR 5.9	Distribution uniformity records (Fail Chapter)
LR Ch 6	Vineyard scouting/pest monitoring reports for insects and mites (LR 6.2, 6.4 Fail Chapter), leafhoppers (LR 6.3 Fail Chapter), powdery mildew (LR 6.11), weeds (LR 6.20 Fail Chapter), vertebrate pests (LR 6.22 Fail Chapter)
LR 6.25	Calibration records for sprayer/duster within the last year (Fail Chapter)

A PEAS 2.0 report with a risk score per acre below the maximum threshold (LR 6.33 **Fail Chapter**, see **LODI RULES** Binder Tab 7 or lodigrowers.com/standards for detailed info)

Growers must earn at least 50% of the total points available in each of the six Chapters and at least 70% of the total points available overall across all Chapters.

General Tips for Management Plan Writing:

- 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 given in the LR 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 difficult and important these days, and you will be surprised at how effective creating a teamwork environment is at employee satisfaction!

General Tips for a **LODI RULES** audit:

- Be prepared and organized!
- The auditor is looking for documentation and evidence to support the answers that you provide in the self-assessment.
- There are a number of different organizational strategies that growers use: these vary from fully digital (which gives you a bonus point for LR 1.18) to only paper... choose the structure that works best for you.
- Have the people involved in certification present at the audit.
- Review the Audit Prep Checklist (**LODI RULES** Binder Tab 10 and lodigrowers.com/standards) beforehand.
- Create a notebook or file folder, organized by Chapter and Standard, with verification documents.
- Photos are recommended – these can be organized electronically by Chapter and Standard.
- Remember that this is not an inspection where the Auditor is out to "get" you or is trying to find mistakes – this is a respectful visit to verify all of the wonderful sustainable practices you are proud of implementing, which ultimately adds to the merit of the program.

2.1 Human Resources Plan

<p>The farming operation has a written and implemented human resources plan containing the following components: company mission, vision, and values; company strategy for human resources; staffing and recruiting procedures; training and development protocols; employee performance management and employee relations strategies; compensation and benefits; record keeping policies; and a plan review and update schedule.</p>	<p>YES = 6</p>
	<p>NO = Fail Chapter</p>

General Example:

LR 2.1: Human Resources Plan

Written 5.23.2011, Updated 1.12.2022

MISSION: To demonstrate environmental stewardship through efficient resource utilization and attentive management of agro-ecological processes in vineyards, to promote social equity, and to enhance long-term viability through increased crop value and reduced risk.

VISION: To be the preeminent sustainable winegrape certification program and to promote sustainable vineyard practices, informed consumer decision making, and economic viability for winegrape growers.

VALUES: Vineyard management competency, operational efficiency, sustained profitability, environmental stewardship.

HUMAN RESOURCES STRATEGY: We strive to foster a true teamwork effort utilizing the Lodi Winegrape Commission Staff, the volunteer **LODI RULES** Committee, and the **LODI RULES** Winegrowing Community.

STAFFING & RECRUITING: We seek to create a positive, supportive working environment for all Lodi Winegrape Commission Staff with exceptional leadership coming from the Board of Directors and from the **LODI RULES** Committee. The Sustainable Winegrowing Director should possess strong leadership and communication skills, as well as general viticulture knowledge, and efforts will be made to retain the Director in place long-term. **LODI RULES** Committee Chairperson and Members are chosen on the basis of dedication to sustainability, history with the program, farming intelligence, and innovative leadership.

TRAINING & DEVELOPMENT: Opportunities abound for Lodi Winegrape Commission Staff, **LODI RULES** Committee Members, and the **LODI RULES** Winegrowing Community to receive training and education to foster professional development. All entities are strongly encouraged to seek relevant educational experiences and to take ownership of their lifelong learning in sustainable viticulture. The Lodi Winegrape Commission is committed to aiding in that process.

EMPLOYEE PERFORMANCE MANAGEMENT: New employees receive a formal performance review after 6 months. Thereafter, all employees receive performance reviews on an annual basis. These performance reviews are conducted to provide supervisors and employees the opportunity to discuss job-

3.3 Ecosystem Management Plan

The farming operation has a written and implemented ecosystem management plan based on the findings of the environmental survey (Standard 3.2), which includes consideration of vegetation, wildlife, soil, surface waters, adjacent infrastructure (roads, etc.), adjacent neighboring properties, and other environmental features. The plan is organized into the following components: ecosystem management goals, challenges, and strategies, as well as a plan review and update schedule.	YES = 6
	NO = Fail Chapter

3.2 Environmental Survey

The farming operation uses a written environmental survey and monitoring program to determine and document the presence of environmental features (vernal pools and swales, trees, woodlands, drainages, and riparian areas) that affect farming and farmable acres.	YES = 4
	NO = 0

General Example:

LR 3.3: Ecosystem Management Plan

Written 2.24.2008, Updated 1.14.2022

ENVIRONMENTAL SURVEY: The following environmental survey was conducted during the summer of 2007 and is still relevant to the current farming operation. Include environmental survey results (photos from Google Earth or aerial images, etc.) and state who conducted the survey. Use cardinal directions in descriptions.

{include a photo map from Google Earth and draw in boundaries, owl boxes, water, habitat for other wildlife or beneficial insects, etc. – the Lodi public library computer lab volunteers can help you with Google Earth if needed}

DESCRIPTION OF VINEYARD BLOCK:

VEGETATION: Include a brief description of any riparian habitats (or lack thereof), cover crops, trees and woodlands, landscaped plants, buffers for roads, grasses, etc.

WILDLIFE: Include relevant birds, squirrels, moles, deer, coyotes, beavers, bears, sheep if used for grazing, etc.

SOIL: Briefly describe soil types and erosion potential (water, wind, slope). Refer to the nutrient management plan and/or the soil conservation plan if applicable.

SURFACE WATERS: Include a description of any wetlands (or lack thereof), ditches, groundwater recharge basins, rivers, streams, creeks.

ADJACENT INFRASTRUCTURE: Include very brief descriptions of any sheds, homes, shops, wineries or other businesses, power lines, pumps, and roads.

ADJACENT NEIGHBORING PROPERTIES: Briefly describe the number and types of neighboring properties - residences, schools, daycares, other agricultural land, etc. Possibly list contact information if known.

OTHER ENVIRONMENTAL FEATURES: Anything relevant to the farming operation not described above (weather stations, owl/bird/bat boxes, aquifer, etc.).

GOALS:

- To create an optimal environment for premium, sustainable viticulture while remaining profitable
- To consider and conserve natural resources to the best of our ability, educating our children to respect the environment and be proud of how we farm
- To improve the local ecosystem, including soils, air, living organisms, and water sources, through our farming practices
- To create a healthy, vibrant vineyard block which is visually appealing to both growers and the general public

CHALLENGES:

- Maintaining riparian areas near vineyards
- Neighbor relations
- Erosion
- Rodent control

MANAGEMENT STRATEGIES:

- Enhance the biodiversity of the vineyard block by maintaining healthy trees, cover crops, and riparian areas
- Test the soil profile as needed to promote active beneficial microbes
- Get vertebrate populations under control so that owl boxes are effective alone
- Attend local watershed stewardship meetings to stay informed
- Educate employees on reasons ecosystem management is important to us

PLAN REVIEW & UPDATE SCHEDULE: This plan will be reviewed and updated annually at the January Management Meeting, with input from all relevant employees.

Review Date: _____

Signatures and Written Names of All Present:

4.1 Nutrient Management Plan

<p>The farming operation has a written and implemented comprehensive nutrient management plan containing the following components: field parameters and vineyard design specifications; vine nutrient demand considerations (growth, recent yields, and target yield); mineral nutrient supply considerations (soil analysis, water analysis); planned mineral nutrient applications (form, rate, timing, placement); monitoring activities (visual observations, tissue analysis); and a plan review and update schedule.</p>	<p>YES = 6</p>
	<p>NO = Fail Chapter</p>

General Example:

LR 4.1: Nutrient Management Plan

Written 4.12.2011, Updated 1.4.2022

FIELD PARAMETERS & VINEYARD DESIGN SPECIFICATIONS: This vineyard block is 235 acres on San Joaquin Loam, a soil type with moderately well drained soils formed in alluvium derived granitic rock sources. The land is nearly flat with 0-1% slope. The wind direction is generally W/NW and the block is on a drip irrigation system. Leaching potential is low while run-off potential is moderate. Fertilization management is a blend of nutrient replacement and needs-based.

GOALS:

- Balanced vine growth and high quality fruit production
- Right source, right rate, right time, and right place

VINE NUTRIENT DEMAND CONSIDERATIONS.

GROWTH: Nutrient needs are calculated based on the removal of 3 lbs. nitrogen and 6 lbs. potassium per ton of grapes harvested. Vigor is generally high for this block.

RECENT YIELDS: 11 tons/acre (2022), 8 tons/acre (2021)

TARGET YIELD: 10 tons/acre

MINERAL NUTRIENT SUPPLY CONSIDERATIONS.

SOIL ANALYSIS:

- Nitrogen, potassium, sulfur, and boron are deficient
- pH is suitable
- Nitrogen is 12.4# / acre ft
- Base saturation in acceptable range

WATER ANALYSIS:

- Nitrogen contribution = 7.67#/acre ft
- No toxic issues with salinity, EC, chlorides, or boron
- Bicarbonates will require treatment to prevent emitter clogging
- The amount of nitrogen added through irrigation is calculated and deducted from total nitrogen added throughout the season

MINERAL NUTRIENT APPLICATIONS.

FORM: Nutrients are applied as a blend of liquefied urea, ammonium thiosulfate, and potassium chloride. Boric acid is blended with nitrogen and potassium.

RATE: Low rates are used for pre-harvest and moderate rates are used post-harvest.

TIMING: About 2/3 of the seasonal requirements are applied in three equal applications between May and July, then the last 1/3 is applied post-harvest. Applications are made during a 6-8 hour window.

PLACEMENT: Nutrients are applied through the drip irrigation system with back-flow prevention and check valves in place.

MONITORING ACTIVITIES.

VISUAL OBSERVATIONS: Canopy leaves will be monitored by trained employees for typical nutrient deficiencies.

TISSUE ANALYSIS: Occurs at least twice per year. Petiole analysis (taken at early veraison & full bloom) indicates that nitrogen, potassium, and sulfur levels are low.

PLAN REVIEW & UPDATE SCHEDULE: This plan will be reviewed and updated annually at the January Management Meeting, with input from all relevant employees.

Review Date: _____

Signatures and Written Names of All Present:

4.2 Soil Erosion and Compaction: Soil Conservation Plan

The farming operation is aware of the erosion and compaction risks to the vineyard soils and has a written and implemented soil conservation plan which addresses these risks and includes the following components: site and soil factors contributing to soil erosion by water and air (including the wind erodibility group and water erodibility or K_w factor), best management practices to minimize soil erosion and compaction, and a plan review and update schedule.	YES = 6
	NO = 0

General Example:

LR 4.2: Soil Conservation Plan

Written 5.23.2011, Updated 1.21.2022

GOALS: We value soil as an important resource for our vineyard operation and are committed to managing our soils appropriately and effectively, practicing proactive soil erosion control and compaction prevention, and actively regenerating the soil.

Field specifics are described in the Ecosystem Management & Nutrient Management Plans. (Otherwise, consider including a table of pertinent NRCS soil survey information, a soil map, an NRCS generated soil conservation plan, the presence or absence of a cover crop and its composition, and soil, water, and plant tissue analysis results, followed by a written summary of significant soil factors identified in them.)

As you summarize **EROSION AND COMPACTION RISKS**, consider:

- Are any of your soil types prone to erosion and/or compaction?
- What is the slope and does it lead to a greater erosion risk?
- What is the wind erodibility group and water erodibility or K_w factor for each soil type?
- Does the vineyard site experience strong winds, rains, or storms? What is your policy for re-entry after rainfall or irrigation leaks?
- Is the irrigation method a factor in erosion?
- Are certain areas in the vineyard block more or less prone to erosion and/or compaction?
- Is drainage adequate?

Soil maps can be downloaded for free from the USDA - NRCS - Web Soil Survey.

BEST MANAGEMENT PRACTICES TO MINIMIZE SOIL EROSION AND COMPACTION:

- Describe your cover crop use - what types of cover crops are used and are they in place year-round?
- Do you sometimes need to till the soil for certain reasons (frost protection, soil aeration, vigor control, etc)?
- Do you use special equipment such as a ring roller to follow the tilling tractor to lightly compress the soil, minimizing wind erosion?
- Do you calculate the number of tractor passes each year and try to minimize these?
- How do you check for soil compaction problems?

PLAN REVIEW & UPDATE SCHEDULE: This plan will be reviewed and updated annually at the January Management Meeting, with input from all relevant employees.

Review Date: _____

Signatures and Written Names of All Present:

5.1 Water Management Plan

The farming operation has a written and implemented water management plan containing the following components: soil moisture management goals and strategies; soil water holding capacity, water intake rate, and water permeability; irrigation suitability* analysis of applied water; irrigation system design and performance; and a plan review and update schedule.	YES = 6
	NO = Fail Chapter

*See Standards 4.9 and 5.3 for more information on *irrigation suitability*. *Irrigation suitability* refers to a water panel analysis available from most agricultural laboratories, which typically includes pH, electrical conductivity, sodium adsorption ratio, calcium, magnesium, bicarbonate, iron, manganese, sodium, chloride, boron, nitrate-nitrogen, sulfate-sulfur, and/or bacterial counts.

General Example:

LR 5.1: Water Management Plan

Written 1.24.2014, Updated 1.20.2022

SOIL MOISTURE MANAGEMENT GOALS & STRATEGIES: To make the best use of our water resources through careful management and attention to detail. We strive for continuous improvement using annual metrics while optimizing water conservation and using deficit irrigation. Irrigation events are closely monitored and systems are maintained and repaired as needed. Cover crops are maintained year-round. Attention is paid to developing grapevines throughout the season, noting any water stress (visual observations, water potential measurement, ET) and any corrective action is based on vine needs. Daily weather forecasts are also taken into consideration.

You may also want to list any challenges here and how you plan to overcome them.

MANAGEMENT CHALLENGES: This field has some water purity issues which can lead to decreased water penetration over time. Gypsum is added when necessary.

WATER RESOURCE & USE INVENTORY: The sources of irrigation water are a private groundwater well and surface water through the Woodbridge Irrigation District. All pumps have a back-flow device and time of use meters.

SOIL WATER HOLDING CAPACITY: The root zone moisture holding capacity when full for our sandy loam soil, with root depths at 4 ft, ranges from approximately 5-6 in/ft = 20-24 in.

For more information on this topic (including a table), see Stan Grant’s blog post at:

lodigrowers.com/comprehensive-vineyard-water-management/.

Also, soil available water capacity maps can be downloaded for free from the USDA - NRCS - Web Soil Survey.

SOIL WATER INTAKE RATE: Except in the case of excessive rains, water does not collect on the surface and soil water intake rate is adequate.

SOIL WATER PERMEABILITY: Deep tillage was performed prior to planting to improve water storage capacity and conductance, in the hopes to promote deep roots. No problems with permeability exist at this time.

IRRIGATION SUITABILITY ANALYSIS OF APPLIED WATER: Irrigation suitability analyses are performed at least every two years and actions are taken to adjust the water qualities based on the results of the analysis. The last analysis was performed in May of 2021 and the results are attached as part of LR 4.9 & LR 5.3.

IRRIGATION SYSTEM DESIGN, SCHEDULING & PERFORMANCE: Irrigation is applied through a drip system, and irrigation system flow and pressure are monitored at every irrigation. Action to repair the system, if needed, is taken immediately and spare parts for the irrigation system are kept on-hand. At least every two years, irrigation distribution uniformity is measured professionally and the records are filed.

PLAN REVIEW & UPDATE SCHEDULE: This plan will be reviewed and updated annually at the January Management Meeting, with input from all relevant employees.

Review Date: _____

Signatures and Written Names of All Present:

6.1 Insect and Mite Pest Management Plan

<p>The farming operation has a written and implemented insect and mite pest management plan containing the following components: goals; guidelines for written vineyard scouting/pest monitoring reports; 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.</p>	<p>YES = 6</p>
	<p>NO = Fail Chapter</p>

General Example:

LR 6.1: Insect & Mite Pest Management Plan

Written 1.13.2014, Updated 1.10.2022

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 VINEYARD SCOUTING/PEST MONITORING REPORTS 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

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

(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 of mealybugs and beneficials

(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 needs to be closely monitored and treated earlier.

HISTORY OF INSECTS & PESTS IN THIS BLOCK:

2018		2019		2020		2021		2022	
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		Nalta, Movento, ant control			

PLAN REVIEW & UPDATE SCHEDULE: This plan will be reviewed and updated annually at the January Management Meeting, with input from all relevant employees.

Review Date: _____

Signatures and Written Names of All Present:

General Example:

LR CH. 6: Vineyard Scouting/Pest Monitoring Reports

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

6.11 Powdery Mildew Management Plan

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

General Example:

LR 6.11: Powdery Mildew Management Plan

Written 6.22.2012, Updated 1.4.2022

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, and this effort is coordinated with neighboring vineyards.

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:

Susceptible	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
Intermediate	Chelois, Chenin Blanc, Concord, Foch, Pinot blanc, Malbec, Merlot, Ortega, Pinot Noir, Perlett, Sheridan, Vidal Blanc, Weissburgunder
Least Susceptible	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. 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 & PREVENTATIVE 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.

MONITORING PROTOCOL AND SCHEDULE: As soon as powdery mildew risk is present for the growing season, as determined by the Gubler model and vineyard history, the Cabernet Sauvignon is scouted every 7 days by the PCA through veraison. This is usually when the green tissue has about 2-3 inches of growth. The Merlot is scouted every 10 days through veraison. Based on historical observations, we focus on hotspot areas around the edges and we also scout every 10 rows, looking for symptoms on leaves and shoots.

PLAN REVIEW & UPDATE SCHEDULE: This plan will be reviewed and updated annually at the January Management Meeting, with input from all relevant employees.

Review Date: _____

Signatures and Written Names of All Present:

6.17 Soil Borne Pest Management Plan

The farming operation has a written and implemented soil borne pest management plan , focusing on nematodes and <i>Phylloxera</i> , 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:

LR 6.17: Soil Borne Pest Management Plan

Written 6.22.2012, Updated 1.4.2022

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 13-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.

PLAN REVIEW & UPDATE SCHEDULE: This plan will be reviewed and updated annually at the January Management Meeting, with input from all relevant employees.

Review Date: _____

Signatures and Written Names of All Present:

6.19 Weed Management Plan

The farming operation has a written and implemented weed management plan containing the following components: management goals, monitoring techniques and record keeping, control measures, herbicide resistance avoidance strategies, and a plan review and update schedule.	YES = 4
	NO = 0

General Example:

LR 6.19: Weed Management Plan

Written 4.20.2019, Updated 1.5.2022

GOALS: We strive to make wise, environmentally conscious, socially responsible, and economically feasible weed management decisions based on current technologies. We pay close attention to emerging and invasive weeds, follow label instructions on herbicides, rotate chemistries, and employ non-chemical control as efforts to reduce resistance build up in pathogen populations when possible. Employees are trained in recognition of weeds. When possible, spot treatments are used.

MONITORING TECHNIQUES and RECORD KEEPING: The PCA visually monitors the vineyard for weeds 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 6.20). Weed monitoring occurs both within the vineyard block and around the edges. We also train all employees on weed recognition, as they spend a lot of time in the vineyard and may spot a weed issue before the PCA. Our own employees monitor the vineyards for weeds at least once per month during the winter, and we keep written records in our files from those months. Employees use the SEEK app to identify weeds.

In general, we try to follow these **UC IPM Weed Monitoring Guidelines**:

- Survey the vineyard in late winter to identify winter annuals and again in summer after perennials and summer annuals have germinated.
- Pay particular attention to perennials. Sketch a diagram of the vineyard and mark areas where perennials are found. A handheld GPS unit also works well for recording locations of perennials. Check for re-growth of perennials a few weeks after cultivation.
- Pay attention to low-lying areas or where water tends to accumulate. These are usually problem areas for weed growth.
- Survey areas around the vineyards as potential sources for wind disseminated weed seeds such as marehail, fleabane etc.
- Keep records of your survey results (including species) and control techniques used.

CONTROL MEASURES: We maintain a healthy cover crop between every vineyard row, which naturally outcompetes some of the weeds for space. Underneath the vines, we use a pre-emergent herbicide mix once per year in the early Spring. In some cases we also mechanically remove the weeds.

LODI RULES Tab 10

List problem weed species in a table to keep track of their progression over time, noting control methods and tips for management:

2017	2018	2019	2020	2021	2022
Summer:	Summer:	Summer:	Summer:	Summer:	Summer:
Winter:	Winter:	Winter:	Winter:	Winter:	Winter:
Herbicides:	Herbicides:	Herbicides:	Herbicides:	Herbicides:	Herbicides:
Mechanical control:	Mechanical control:	Mechanical control:	Mechanical control:	Mechanical control:	Mechanical control:

HERBICIDE RESISTANCE AVOIDANCE STRATEGIES: We rotate the mode of action for any herbicides according to HRAC and follow some of their Best Management Practices for preventing herbicide resistance: employing cultural, mechanical, and chemical controls and mixing at least three herbicide chemistries in one application.

<http://hracglobal.com/files/Management-of-Herbicide-Resistance.pdf>

PLAN REVIEW & UPDATE SCHEDULE: This plan will be reviewed and updated annually at the January Management Meeting, with input from all relevant employees.

Review Date: _____

Signatures and Written Names of All Present:

6.21 Vertebrate Management Plan

The farming operation has a written and implemented vertebrate management plan containing the following components: management goals, species of concern, monitoring strategies, control strategies, and a plan review and update schedule.	YES = 4
	NO = 0

General Example:

LR 6.21: Vertebrate Management Plan

Written 4.25.2018, updated 1.2.2022

GOALS: We seek to minimize the impact of vertebrate pests on the economic value of our vineyard operation. Employees are trained in recognition of vertebrate pests and their symptoms/presence indicators. When possible, cultural means of control and biocontrol are used.

SPECIES of CONCERN: Ground squirrels, pocket gophers, meadow voles

MONITORING STRATEGIES: The PCA visually monitors the vineyard for vertebrates 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 6.22). Vertebrate monitoring occurs both within the vineyard block and around the edges. We also train all employees on vertebrate identification, as they spend a lot of time in the vineyard and may spot an issue before the PCA.

Clues we train employees to look for:

- Holes in the ground
- Chewing of drip irrigation lines
- Soil mounds

From "Vertebrate Pests" by Desley A. Whisson and Gregory A. Giusti, <http://www.iv.ucdavis.edu/files/24450.pdf>:

Species	Signs	Cover crop management	Alternate controls
Pocket gopher	Plugged burrow systems; earth mounds; girdling of vines below ground; stunted vines; damage to irrigation lines	Species selection (grass rather than legumes); mowing to reduce cover and facilitate early detection of mounds	Flood irrigation; toxic baits; trapping
Meadow vole	Runways and open burrow entrances; presence of scats; girdling of vines above ground	Species selection (erect bunch-type growth or short plants, avoid high-moisture plants); maintenance of a cover-free strip around bases of vines; mowing to reduce cover	Vine guards; toxic baits
Rabbits and hares	Feeding on foliage and fruit; girdling or complete cutting of vines above ground; observation of activity	In morning and evening delay planting cover crop until vines are approximately 1 year old	Exclusion fence; vine guards; shooting; toxic baits (black-tailed jackrabbit)
Ground squirrel	Girdling of vines above ground; feeding on foliage and fruit; gnawing on irrigation lines; observation of day activity; burrow systems, especially on perimeter of vineyard	None	Toxic baits; burrow fumigation

CONTROL STRATEGIES:

- In our large vineyard blocks (>50 acres), we have one wooden owl box for every 25 acres (LR 6.23). In the small vineyard blocks (<50 acres), we have one wooden owl box per 15 acres. These boxes are mounted on metal poles to prevent predation of the owls and cleaned following manufacturer instructions once per year when they are empty.
- Only when absolutely necessary will we use toxic baits.
- For larger, rare vertebrate issues we will use trapping and removal from the area into an appropriate habitat.

PLAN REVIEW & UPDATE SCHEDULE: This plan will be reviewed and updated annually at the January Management Meeting, with input from all relevant employees.

Review Date: _____

Signatures and Written Names of All Present:

6.24 Sprayer/Duster Maintenance Plan

The farming operation or the custom applicator has a written and implemented sprayer/duster maintenance plan containing a cleaning and maintenance regime for filters, pumps, control units, pressure gauges, nozzles, hoses, the power take off (PTO), booms, and tanks, and a plan review and update schedule.	YES = 4
	NO = 0

General Example:

LR 6.24: Sprayer/Duster Maintenance Plan

Written 4.26.2017, updated 1.15.22

GOALS:

- To ensure proper working order of all sprayers and dusters
- To train employees on the importance of properly working machines
- To properly calibrate our machines before every use

CLEANING AND MAINTENANCE REGIME:

- Cleaning happens after each use (water flushing)
- We keep extra parts on hand for timely repairs (filters, valves, hoses, nozzles, etc.)
- Filters are removed and visually inspected for damage and wear (and replaced as needed)
- Valves on pumps are inspected and repaired as needed
- Control units are tested for leaks and kept lubricated for proper functioning
- Pressure gauges are checked when new nozzles are installed by measuring flow rate and comparing it with a manufacturer’s nozzle table
- Nozzles are checked by visual observation before and during applications and worn nozzles are replaced as needed. Applicators are trained on the importance of proper nozzle function.
- Hoses/booms are checked frequently for wear and replaced as needed; hose clamps are tightened before each use
- The PTO shaft is lubricated and the safety guard is checked before each use
- Tanks are checked for cracks and leaks before each use; tanks are emptied and rinsed after each use by spraying out the rinse water in the treated vineyard block
- All metal parts are protected with rust prevention oil
- We have good communication with our applicators on all cleaning and maintenance

PLAN REVIEW & UPDATE SCHEDULE: This plan will be reviewed and updated annually at the January Management Meeting, with input from all relevant employees.

Review Date: _____

Signatures and Written Names of All Present:

6.27 Spray/Dust Drift Management Plan

The farming operation has a written and implemented spray/dust drift management plan containing the following components: spray/dust drift management goals, identified sensitive areas, good neighbor policies, established buffers, pesticide rate selection guidelines, equipment operation, weather condition considerations, timing of applications, drift reduction adjuvants, and a plan review and update schedule.	YES = 4
	NO = 0

General Example:

LR 6.27: Spray/Dust Drift Management Plan

Written 1.12.2011, Updated 1.26.2022

GOALS:

- To use the minimum number of pesticide applications per year while maintaining effective, cost-efficient disease prevention and control
- To optimize the physical application of pesticides (maximizing the amount of active ingredient applied to the target location)
- To prevent drift incidents (both stemming from our vineyards and into our vineyards)
- To stay informed of current spray technologies which may improve application and reduce drift

IDENTIFIED SENSITIVE AREAS:

- Neighbor’s home located east of the Cabernet Sauvignon block on Lester Road

GOOD NEIGHBOR POLICIES: We maintain personal, friendly communication with our neighbors and the community at large in regard to pesticide applications. We visited our neighbors (mentioned above) and let them know that we need to use pesticides to stay in business but that we carefully manage the applications to reduce drift and if they have any questions or concerns, we are open to communication. We also invite the neighbors to our annual Harvest Dinner in the vineyard. In the community, we attend local grower meetings where drift issues are discussed and represent responsible use of pesticides.

ESTABLISHED BUFFERS: There is at least a 30-foot buffer present along all roadways.

PESTICIDE RATE SELECTION GUIDELINES: We follow label recommendations and apply only the amount needed for effective control, based upon years of experience, canopy vigor, and talking with our PCA and other growers.

EQUIPMENT OPERATION: Sprayers are properly maintained and calibrated (see the Sprayer/Duster Maintenance Plan, LR 6.24). Sprayers and dusters are turned off at the ends of the vineyard rows as appropriate. All applicators are licensed and trained above and beyond what is required by law. We trust the applicators to make wise decisions regarding pesticide applications (for example, if they determine that a spray needs to be delayed to reduce drift then we support that decision) and have a system of checks and balances in place for added safety and risk reduction.

WEATHER CONDITION CONSIDERATIONS: Weather conditions are monitored before and during applications. As a company policy, we do not apply pesticides when wind speeds are over 8 mph, when air pollution risk levels are high (the AQI is greater than 201), or when there is an inversion layer.

TIMING OF APPLICATIONS: When possible, we apply pesticides during the night or in the early morning hours.

DRIFT REDUCTION ADJUVANTS: The use of drift reduction adjuvants is considered, as recommended by our PCA.

PLAN REVIEW & UPDATE SCHEDULE: This plan will be reviewed and updated annually at the January Management Meeting, with input from all relevant employees.

Review Date: _____

Signatures and Written Names of All Present:

6.29 Grapevine Virus Management Plan

The farming operation has a written and implemented virus management plan (for leafroll virus and red blotch virus, plus any other economically important viruses of concern – fanleaf virus, vitiviruses/sudden vine collapse, etc.) which includes training employees who work in the vineyard, staying informed, scouting, testing, mapping, vine removal, and prevention of spread to other vineyards, plus a plan review and update schedule.	YES = 4
	NO = 0

General Example:

LR 6.29: Virus Management Plan

Written 1.12.2023

ECONOMICALLY IMPORTANT VIRUSES OF CONCERN:

- Leafroll virus
- Vitiviruses (because of sudden vine collapse)
- Red blotch

The 4-yr old vineyard is located in a region where vine mealybugs, leafroll virus, vitiviruses, and sudden vine collapse are present. There has been no indication of red blotch in any virus testing and red blotch does not appear to be spreading in this location at this time. Fanleaf virus has also not been a problem.

EMPLOYEE TRAINING: All employees who regularly work in the vineyard are trained to look for vine mealybugs and signs of their presence (including ant activity), plus beneficial insect activity of their parasites and predators. We use the vine mealybug scouting cards (in English and Spanish) provided by the Lodi Winegrape Commission and our own internal hands-on training once a year in August.

Our PCAs understand that we want to ensure we are not accidentally killing our beneficials and they recommend pesticides with this goal in mind.

The vineyard manager and owner receive more extensive training on viruses and vectors by attending grower meetings. Both of them have read the red virus book that the Commission provides, and they understand the main differences between leafroll virus, red blotch virus, and fanleaf virus.

SCOUTING AND TESTING: Although the vineyard block is a white variety, Sauvignon blanc, it is still monitored for signs of leafroll virus and sudden vine collapse, such as delayed ripening, vines that hold their leaves greener after harvest, and stunted growth, although the main focus right now is on vector scouting since virus has not been found in this vineyard yet. If virus symptoms become present, those vines will be photographed, their locations recorded, and they will be tested for leafroll 3 virus and/or vitiviruses.

In the absence of symptoms, spot virus testing for leafroll 3 is conducted every other year around the vineyard edges and randomly inside the block using a five-vine composite method in the fall. Records are

kept of which vines are sampled with the test results. If composite samples come back positive, we will have the lab retest the vine samples individually.

Before propagation at the nursery, we asked the nursery to do extra full panel virus tests for a random sample of scion and rootstock wood, which came back negative. We also ensured that the rootstock and scion were CDFA-certified virus tested.

MAPPING AND ROGUEING: Once vines test positive for leafroll virus, assuming that is a small percentage of the vineyard, we will begin mapping the infections and will immediately rogue those vines in the winter to get as many roots out of the ground as possible.

If a large percentage of sampled vines start testing positive for leafroll virus and it appears that there is a bigger economically relevant problem in the entire vineyard, we will make a plan to use the Tree Assistance Program for a replant and consider crop rotation.

PREVENTION OF SPREAD: Right now we are most concerned about virus-infected mealybugs entering into this block, rather than the block spreading leafroll virus and vitiviruses. Thus, prevention is focused on keeping vine mealybugs out. We ask custom applicators to either start in this block or to sanitize their machines before entering our block. We use pheromone mating disruption from the first signs of mealybug flights until November. We also proactively apply imidacloprid through the drip since it is known that there are widespread vine mealybugs in the area.

PLAN REVIEW & UPDATE SCHEDULE: This plan will be reviewed and updated annually at the January Management Meeting, with input from all relevant employees.

Review Date: _____

Signatures and Written Names of All Present:

