

The Lodi Rules For Sustainable Winegrowing Farming Practices Standards

Chapter 1: Ecosystem Management

1.1 Sustainability Vision ^F

I have attended an LWWC workshop for developing and writing a sustainable management vision (plan) for my farm. I have a written vision statement and it contains the elements outlined in the <i>Companion Document for the Lodi Rules</i> .	YES = 6
	NO = 0

1.2 Watershed Management ^F

I attended at least one a meeting of my local watershed stewardship group in the last 12 months (i.e. a watershed group that deals with issues not necessarily related to the Ag Waiver).	YES = 2
	NO = 0

1.3 Environmental Survey for a New or Existing Vineyard ^V

I use a written environmental survey and monitoring program to determine and document the presence of vernal pools, oak trees, wet swales, drainages, endangered species, and other environmental features, which affect farming and actual farmable acres. For more details see the <i>Companion Document for the Lodi Rules</i> .	YES = 4
	NO = 0

1.4 Woodlands ^F (A woodland is at least a half an acre of land with more than 10% tree cover)

I have woodlands in or adjacent to my vineyard block on property that I own.	If YES , go to issue 1.4.1
	If NO , go to Issue 1.5

1.4.1 Woodland Management (including oak woodland)^F

a. I preserve woodland with a minimum 9 foot <u>native</u> ¹ vegetation buffer strip present around the woodland.	3
b. I preserve woodland with a minimum 9 foot vegetation buffer strip present around the woodland.	2
c. I preserve woodland with a minimum 9 foot non-vegetated buffer strip present around the woodland.	1
d. I do no use buffer strips in my woodland management.	0

1.4 Individual Trees^F (e.g. Less than half an acre of land with individual trees, small groups of trees, or hedgerows)

I have individual trees in or adjacent to my vineyard block on property that I own.	If YES , go to issue 1.5.1
	If NO , go to Issue 1.6

1.5.1 Individual Tree Management^F

a. I preserved established native trees or have planted native trees with a minimum 9 foot <u>native</u> ¹ vegetation buffer strip present around the tree(s).	3
b. I preserved established trees or have planted trees, with a minimum 9 foot vegetation buffer strip present around the tree(s).	2
c. I preserve established trees or have planted trees, with a minimum 9 foot <u>non-vegetated</u> buffer strip present around the tree(s).	1
d. I have no trees in and/or adjacent to my vineyard or if present there is no buffer strip around them.	0

1.6 Habitat Other Than Trees^F

I maintain low stature vegetation other than grapevines in and/or around my vineyard on property that I own (cover crops, hedgerows, shrubs, etc.).	If YES , go to Issue 1.6.1
	If NO , go to Issue 1.7

¹ Native plants are species that were present in the region prior to European colonization.

1.6.1 Enhancing Biodiversity and Soil Microbial Communities within the Vineyard^V

a. I maintain between at least every other vine row a permanent cover crop (i.e. non-tilled) of <u>California native species</u> .	4
b. I maintain between at least every other vine rows a permanent <u>seeded</u> cover crop (i.e. non-tilled) <u>or a resident species</u> (i.e. non-planted) cover crop.	3
c. I maintain between at least every other vine row an <u>annual seeded cover crop</u> and I do <u>not till during the winter months</u> .	2
d. I maintain between at least every other vine row an <u>annual resident species</u> (non-planted) cover crop and I do <u>not till during the winter months</u> .	1
e. I <u>do not allow a cover crop</u> to grow between the vine rows.	0

1.6.2 Vegetative Habitat Management around Vineyard^F

a. I maintain hedgerows of California <u>native</u> plants <i>and</i> I maintain California <u>native</u> grasses and shrubs along roadsides.	3
b. I maintain hedgerows with flowering plants <i>and</i> I maintain grasses and shrubs along roadsides.	2
c. I allow vegetation other than noxious weeds to grow on headlands.	1
d. I keep headlands clean of any vegetation.	0

1.7 Vernal Pools^F

I have vernal pools or swales in or adjacent to this vineyard block on property that I own.	If YES , go to issue 1.7.1
	If NO , go to Issue 1.8

1.7.1 Vernal Pool and Swale Management^F

a. I preserve vernal pools and swales with a minimum 9 foot buffer strip of California <u>native</u> vegetation around the vernal pools and/or swales.	3
b. I preserve vernal pools and swales with a minimum 9 foot buffer strip of vegetation around the vernal pools and/or swales.	2
c. I preserve vernal pools and swales with a minimum 9 foot <u>non-vegetated</u> buffer strip around the vernal pools and/or swales.	1
d. I follow no more than minimum legal requirements for vernal pools and swales management.	0

1.8 Riparian Habitat ^F

I have riparian habitat on my property.	If YES , go to Issue 1.8.1
	If NO , go to Issue 1.9

1.8.1 Riparian Habitat Management ^F

a. I preserve riparian vegetation with banks of the watercourses having California <u>native</u> vegetation buffer strips adjacent to waterway with a row of California <u>native</u> trees and shrubs.	3
b. I preserve riparian vegetation with banks of the watercourses having vegetation buffer strips adjacent to waterway with a row of trees and shrubs that shade part or the entire watercourse.	2
c. I did not preserve riparian vegetation along banks of watercourses but non-woody vegetation buffer strips are adjacent to waterway.	1
d. I did not preserve riparian vegetation along banks of watercourses and non-woody vegetation buffer strips are not adjacent to waterway.	0

1.9 Moving Water Aquatic Habitats ^F

I have aquatic habitats like rivers, streams, creeks, sloughs, or seasonal watercourses on my property.	If YES , go to Issue 1.9.1
	If NO , go to Issue 1.10

1.9.1 Moving Water Aquatic Habitat Management ^F

a. I have a buffer strip of California <u>native</u> vegetation at least 9 feet wide between vineyards and aquatic habitats.	3
b. I have a buffer strip of vegetation at least 9 feet wide between vineyards and aquatic habitats.	2
c. I have a <u>non-vegetated</u> buffer strip at least 9 feet wide between vineyards and aquatic habitats.	1
d. I have no buffer strip around aquatic habitats.	0

1.10 Nest Boxes for Wildlife that Prey on Vineyard Pests^F

a. I have placed nesting boxes for raptors (e.g. owls, hawks, kestrels, etc.) <i>and</i> bats in or around my vineyard <i>and</i> natural nesting sites and perches for the above predators are present in or around my vineyard (e.g. oak trees) <i>and</i> nest sites and perches are monitored and maintained.	3
b. I have placed nesting boxes for raptors (e.g. owls, hawks, kestrels, etc.) <i>and</i> bats in or around my vineyard and boxes are maintained <i>or</i> natural nesting sites and perches, for the above predators are present in or around my vineyard (e.g. oak trees).	2
c. I have placed nesting boxes for bats <i>or</i> raptors (e.g. owls, hawks, kestrels, etc.) in or around my vineyard and they are maintained.	1
d. I have not placed nesting boxes on my property and no perches have been established or exist for birds of prey or bats.	0

1.11 Nest Boxes and Plant Habitat for Birds Other than Raptors^F

a. I have placed and maintained nesting boxes for <u>multiple</u> bird species in or around my property (e.g. western blue bird, owls, wood duck).	3
b. I have established and maintained nest boxes <i>and/or</i> other nesting habitat for <u>one</u> bird species (e.g. western blue bird)	2
c. I have done no habitat enhancement for other wildlife	0

1.12 Managing Livestock Access^V Skip if you do not graze livestock in the vineyard

a. When I use livestock to graze in my vineyard, I <u>prevent</u> access to rivers, streams, and other surface water bodies, and sink holes, unprotected wells, or other direct conduits to ground water by using fencing or other exclusionary devices.	3
b. When I use livestock to graze in my vineyard, I <u>limit</u> access to rivers, streams, and other surface water to only a small portion of the water body by using fencing or other exclusionary devices <i>and</i> exclude livestock from sink holes, unprotected wells, or other direct conduits to ground water.	2
c. When I use livestock to graze in my vineyard I <u>take no measures to exclude</u> access to rivers, streams, and other surface water bodies by using fencing or other exclusionary devices.	0

1.13 Livestock Grazing Plan ^V Skip if you do not graze livestock in the vineyard

<p>a. I have a written livestock grazing management plan for my farm containing the following elements: goals, site description and criteria for maintaining the health and vigor of the plant communities, maintaining or enhancing water and soil quality, and maintaining food and cover for wildlife species. For more details see the <i>Companion Document for the Lodi Rules</i>.</p>	<p>YES = 4</p>
	<p>NO = 0</p>

Chapter 2: Education, Training and Team Building

(Note: If you do not have any employees take 10 points and answer **only** issues 2.5 and 2.6)

2.1 Human Resources Plan ^F

My company/farming operation has a written human resources plan containing the following elements: company mission; company values; company strategy; human resources strategy; staffing and recruiting; training and development; performance management and employee relations; compensation and benefits; and record keeping. For more details see the <i>Companion Document for Lodi Rules</i> .	YES = 6
	NO = 0

2.2 Employee Orientation ^F

a. My company/farming operation provided an orientation program for permanent employees within the last 12 months which included an overview of the company purpose, operations, culture and commitment to sustainability.	2
b. My company/farming operation provided an orientation program for permanent employees within the last 12 months.	1
c. My company/farming operation does not have an annual orientation for permanent employees.	0

2.3 Safety Training ^F

a. My company/farming operation conducted safety and training meetings at least four times in the last 12 months and Job Hazard Safety Analyses (JHSAs) have been completed.	2
b. My company/farming operation conducted safety and training meetings at least two times in the last 12 months and as the season progressed and as safety issues changed.	1
c. My company/farming operation does not exceed the minimum legal requirement (SB198) for safety training.	0

2.4 Safety Rewards Program ^F

a. My company/farming operation has a written incentives program that recognizes individuals for safe job performance.	2
b. My company/farming operation has provided written recognition or bonuses for safe job performance.	1
c. My company/farming operation provides no recognition for safe job performance.	0

2.5 LWWC and University-Sponsored Professional Training and Development ^F

<p>a. I or a company/farming operation representative has attended <u>at least six</u> LWWC training seminars or other educational programs within the last 12 months (e.g. breakfast meetings, field days, workbook workshops, research seminars, University of California or California State University classes or meetings).</p>	<p>2</p>
<p>b. I or a company/farming operation representative has attended <u>at least three</u> LWWC training seminars or other educational programs within the last 12 months (e.g. breakfast meetings, field days, workbook workshops, research seminars, University of California or California State University classes or meetings).</p>	<p>1</p>
<p>c. I or a company/farming operation representative has attended <u>less than three</u> LWWC training seminars or other educational programs within the last 12 months (e.g. breakfast meetings, field days, workbook workshops, research seminars, University of California or California State University classes or meetings).</p>	<p>0</p>

2.6 Staying Informed With Industry ^F

<p>a. I subscribe to trade journals <i>and</i> have current membership in local growers and/or vintner’s associations and have attended meetings <i>and</i> attended, LDGGA, LAWA, UCCE, CAWG, ASEV and other regional and statewide industry meetings, seminars and symposia.</p>	<p>2</p>
<p>b. I subscribe to trade journals <i>or</i> have current membership in local growers and vintner’s associations and have attended meetings <i>and/or</i> attended, LDGGA, LAWA, UCCE, CAWG, ASEV and other regional and statewide industry meetings, seminars and symposia.</p>	<p>1</p>
<p>c. I do not subscribe to trade journals <i>or</i> have current membership in local growers and vintner’s associations and have not attended meetings <i>nor</i> attended, LDGGA, LAWA, UCCE, CAWG, ASEV and other regional and statewide industry meetings, seminars and symposia.</p>	<p>0</p>

2.7 Teambuilding for Sustainability ^F

<p>My company/farming operation provided a formal team-building activity within the last 12 months.</p>	<p>YES = 1</p>
	<p>NO = 0</p>

2.8 Employee Handbook ^F

a. My company/farming operation provides an employee handbook in languages understood by all employees that includes information on the company’s sustainability policies and practices.	2
b. My company/farming operation provides an employee handbook.	1
c. My company/farming operation does not provide an employee handbook.	0

2.9 Employee Meetings ^F

a. My company/farming operation held a meeting for owners/management within the <u>last 12 months</u> to discuss winegrape-growing philosophies, review the company’s sustainable mission/vision statement, and long and short-term work goals.	2
b. My company/farming operation held a meeting for owners/management within the <u>last 24 months</u> to discuss winegrape-growing/sustainability philosophies and long and short-term work goals.	1
c. My company/farming operation <u>has not held</u> an employee meeting within the <u>last 24 months</u> .	0

2.10 Salary Survey Participation ^F

a. My company/farming operation has participated in an annual salary survey, (e.g., Wine Business Monthly, Practical Vineyard Management, Western Management Association, etc.).	1
b. My company/farming operation does not participate in salary surveys.	0

2.11 Sustainability Bonus System ^F

a. My company/farming operation has provided bonuses to employees (e.g. Christmas bonus check, turkey, harvest bonus, etc.)	1
b. My company/farming operation has not provided any type of bonus for employees.	0

Chapter 3: Soil Management

3.1 Nutrition Management Plan ^F

I have a comprehensive nutrition management plan containing the following elements: field parameters; soil analysis; water analysis; petiole or other tissue analysis; vineyard yield history; sources and forms of nutrients; sensitive areas; recommended rates and timing; methods of application; and a review and update schedule. For more details see the <i>Companion Document for the Lodi Rules</i> , and Appendix B.	YES = 6
	NO = Fail Chapter

3.2 Soil Series ^V

a. I have mapped the soil series in my vineyard using a soil auger, soil pits, or both.	2
b. I used an NRCS Soils Series Map to diagram the soil series in my vineyard.	1
c. I do not have a soil series map for my vineyard.	0

3.3 Soil Analysis for Micronutrients ^V

a. I sent a soil sample from the vineyard to a lab for micronutrient analysis <u>within the last 3 years</u> , or within the last 12 months if undergoing a soil amendment program.	3
b. I sent a <u>soil sample</u> from the vineyard to a lab for micronutrient analysis <u>within the last 5 years</u> , or <u>within the last 3 years</u> if undergoing a soil amendment program.	2
c. I took a soil sample and had it analyzed for micronutrients at some point since the vineyard was planted, but <u>more than five years ago</u> .	1
d. I have never taken soil samples from my vineyard and had them analyzed for micronutrients.	0

3.4 Soil Analysis for Macronutrients ^V

a. I sent a soil sample from the vineyard to a lab for macronutrient analysis <u>within the last 12 months</u> .	3
b. I sent a soil sample from the vineyard to a lab for macronutrient analysis <u>within the last 3 years</u> .	2
c. I sent a soil sample from the vineyard to a lab for macronutrient analysis <u>within the last five years</u> .	1
d. I have never taken soil samples from my vineyard and had them analyzed.	0

3.5 Plant Analysis ^v

a. I've taken a <u>bloom-time sample</u> of petioles or leaf blades and sent it to a lab for analysis <u>within the last 12 months</u> or I sampled at bloom and also other times during the season and sent the samples to a lab for analysis.	2
b. I've taken a <u>bloom-time sample</u> of petioles or leaf blades and sent it to a lab for analysis <u>within the last 2 years</u> .	1
c. I <u>haven't taken</u> a petiole or leaf blade sample <u>within the last 2 years</u> .	0

3.6 Monitoring Water Quality ^v

a. I tested my irrigation water <u>within the last 12 months</u> and soil amendment and nutrition management plans and programs are altered according to the results.	3
b. I tested my irrigation water <u>at least once in the last 5 years</u> and soil amendment and nutrition management plans and programs are altered according to the results.	2
c. I tested my irrigation water <u>more than 5 years ago</u> and soil amendment and nutrition management plans and programs are altered according to the results.	1
d. I <u>have never tested</u> my irrigation water.	0

3.7 Nitrogen Application ^v

3.7.1

I did not need to fertilize my vineyard with nitrogen this year because adequate amounts were provided by the soil, cover crop and/or irrigation water and vine tissue analyses indicated the vines had adequate amounts of N.	Take 16 points and go to Issue 3.8
I applied some form of nitrogen to my vineyard this year including the use of a legume cover crop.	Go to issue 3.7.2

3.7.2 If I applied nitrogen fertilizer, I used a:

a. Non-mined, biological source	Take 7 points and go to Issues 3.7.3 and 3.7.4
b. Synthetic or mined source	Take 9 points and go to Issues 3.7.5
c. Combination of non-mined, biological and synthetic or mined sources	Take 1 point and go to Issues 3.7.3, 3.7.4, and 3.7.5

3.7.3 I applied the following non-mined biologically sourced nitrogen to my vineyard (Circle all that apply):

Legume cover crop	2
Fully processed compost (Dairy, Steer, Chicken, Green Waste, Grape pomace, or any combination)	2
Raw grape pomace ²	1

3.7.4 If I applied non-mined/biologically sourced nitrogen as fully processed compost, or pomace² (C/P) then (Circle all that apply):

a. I have a copy of the fertility analysis report for the material.	1
b. C/P is applied to a three foot band below the vines or to every other row if applied to centers, but not broadcasted across the vineyard.	1
c. My C/P spreader is calibrated so that discharge rate per acre is known.	1
d. C/P is applied after harvest in the fall and/or in the spring before bud break.	1

3.7.5 If I use synthetically-produced or mined nitrogen:

a. I apply it in <u>at least three</u> separate applications, throughout the growing season or post-harvest, but never when the vine is dormant.	5
b. I apply it in <u>at least two</u> separate applications, during the growing season or post-harvest, but never when the vine is dormant.	3
c. I apply it <u>all at one time</u> , but never when vine is dormant.	1
d. I apply it <u>when the vine is dormant</u> .	0

² Do not apply white grape pomace from vineyards infested with vine mealybug.

3.8 Amendments for Water Penetration ^v

a. Water penetration is adequate in my vineyard, (e.g. does not puddle or run off when soil is dry underneath).	2
b. If irrigation and/or rain water penetration is poor (water puddles and runs off when soil is dry underneath), I have <u>used two or more</u> of the following to improve water penetration: adding gypsum, compost, manure, a cover crop, or soil ripping between the vine rows.	2
c. If irrigation and/or rain water penetration is poor (water puddles and runs off when soil is dry underneath), I have <u>used one</u> of the following to improve water penetration: adding gypsum, compost, manure, a cover crop, or soil ripping between the vine rows.	1
d. Irrigation and/or rain water penetration is poor (water puddles and runs off when soil is dry underneath), but I have <u>taken no corrective action</u> .	0

3.9 Amendments for pH ^v

a. The pH of my vineyard soil is between 5.5 and 8.5	2
b. I have measured the pH of my soil and if it is less than 5.5 (acidic), or above 8.5 (alkaline), I have taken action to bring the pH closer to 7, such as adding lime if pH is less than 5.5 (acidic) or an acidifying agent (e.g. sulfuric acid or soil sulfur) is added if above 8.0 (alkaline) or by planting a cover crop. I measure the pH in the soil every two years to measure the progress of the amendment program.	2
c. I do not know the pH of my vineyard soil <i>or</i> I know the pH of my soil, it is less than 5.5 or above 8.5 and I have taken no action to improve the pH.	0

3.10 Organic Matter (OM) ^v

a. I have <u>added organic matter</u> to my vineyard soil <u>within the last 12 months</u> using an annual cover crop that contains grass species <i>and/or</i> applied fully processed compost or manure (applied to every row, or every other row, etc.).	2
b. I have <u>added organic matter</u> to the vineyard soil <u>more than 12 months ago</u> using a cover crop that contains grass species or applied fully processed compost or manure (applied to every row, or every other row, etc.).	1
c. I have <u>not added organic matter</u> to the vineyard soil other than vineyard prunings and fallen grape leaves.	0

3.11 Tillage of Vineyard Floor ^v

a. I <u>tilled and/or aerated</u> the vineyard soil <u>no more than once within the last 5 years</u> , if at all <i>or</i> I use only biological amendments for my nutrient management program and till the vineyard floor no more than three times to incorporate the amendment.	4
b. I <u>tilled and/or aerated</u> the vineyard soil <u>no more than once within the last 2 years</u> <i>or</i> I use only biological amendments for my nutrient management program and till the vineyard floor no more than four times to incorporate the amendment..	3
c. I <u>tilled and/or aerated every other row</u> of the vineyard soil <u>in either spring and/or early summer of this year</u> .	2
d. I <u>tilled all vineyard rows in either spring and/or early summer</u> , but not for the remainder of the growing season.	1
e. I <u>tilled the vineyard throughout the growing season</u> .	0

3.12 Soil Erosion: Soil Conservation Plan ^v

I have a soil conservation plan that includes the following elements: site description; soil description; list of vineyard floor management practices; practices to minimize soil erosion by water and also by air; and practices employed to reduce air pollution and dust. For more details see the <i>Companion Document for the Lodi Rules</i> .	YES = 6
	NO = 0

3.13 Cover Cropping to Minimize Soil Erosion ^v

a. I maintain a <u>permanent</u> cover crop (i.e. non-tilled) in every row.	3
b. I maintain <u>permanent</u> cover crop (i.e. non-tilled) <u>every other row</u> .	2
c. I maintain an <u>annual crop</u> and I do <u>not till during the winter months</u> .	1
d. I <u>do not allow a cover</u> crop to grow between the vine rows.	0

Chapter 4: Water Management

4.1 Irrigation System ^v

What type of irrigation system does your vineyard have?

a. I did not irrigate my vineyard this past year because the soil moisture was adequate to ensure healthy vines and quality fruit.	Take 16 points and Go to Next Chapter
b. Low volume (e.g. Drip, Micro-sprinklers).	2
c. Other (e.g. furrow, overhead sprinkler).	0

4.2 Irrigation Pumps ^v

What type of irrigation pump is used to deliver water to your vineyard?

a. Solar powered electric pump.	3
b. Water is delivered by canal	3
c. Electric, propane, or Tier 2 diesel pump.	2
d. All other pumps.	0

4.3 Offsite Irrigation Water Movement ^v

a. My irrigation practices create <u>no run-off</u> or runoff is recycled.	2
b. <u>Run-off occurs</u> when I irrigate and it is not recycled.	0

4.4 Irrigation System Maintenance ^v

What type of irrigation system does your vineyard have?

a. Low volume	Go to issue 4.4.1 and skip 4.4.2 and 4.4.3
b. Overhead Sprinkler	Go to issue 4.4.2 and skip 4.4.1 and 4.4.3
c. Surface	Go to issue 4.4.3 and skip 4.4.1 and 4.4.2

4.4.1 Maintenance for Low Volume Irrigation Systems ^v

a. I checked filters, lines, lateral lines, and emitters <i>and</i> repaired line leaks, breaks, and free clogging every irrigation.	3
b. I checked filters, lines, lateral lines, and emitters <i>and</i> repair line leaks, breaks, and free clogging every other irrigation.	2
c. I checked filters, lines, lateral lines, and emitters <i>and</i> repair line leaks, breaks, and free clogging within the last 12 months.	1
d. I haven't done any type of system maintenance within the last 12 months.	FC

4.4.2 Maintenance for Sprinkler Systems ^v

a. I checked head rotation and nozzle clogging <i>and</i> repair line leaks, breaks, free clogging, and fix head rotation problems every irrigation.	3
b. I checked head rotation, and nozzle clogging <i>and</i> repair line leaks, breaks, free clogging, and fix head rotation problems every other irrigation.	2
c. I checked head rotation, and nozzle clogging <i>and</i> repair line leaks, breaks, free clogging, and fix head rotation problems within the last 12 months.	1
d. I have never done any type of system maintenance for more than 12 months.	FC

4.4.3 System Maintenance for Surface Irrigation Systems ^v

a. During every irrigation, the system is monitored for leaks, breaks, clogging, and distribution problems and repairs or adjustments are made if problems are found.	3
b. While irrigating, leaks, breaks and flow distributions were monitored <i>and</i> leaks, breaks, clogging, and distribution problems were repaired at least once in the last 12 months.	2
c. Leaks, breaks, and flow distributions are monitored <i>and</i> leaks, breaks, clogging, and distribution problems were repaired at least once in the last 5 years.	1
d. I haven't done any type of system maintenance for more than 5 years.	FC

4.5 Distribution Uniformity* ^V

a. I tested and recorded distribution uniformity of my irrigation system <u>within the last 12 months.</u>	3
b. I tested and recorded distribution uniformity of my irrigation system <u>within the last 2 years</u>	2
c. Some time in the life of my irrigation system I have tested the distribution uniformity.	1
d. I <u>have never tested</u> the distribution uniformity of my irrigation system.	FC

*For suggestions on evaluating distribution uniformity of drip and micro irrigation systems see page 42 in the *Lodi Winegrower’s Workbook*

4.6 Flow Meters ^F

a. I have installed flow meters on wells or other pumps, and monitor and <u>record flows at least monthly</u> during irrigation season and they are in proper working order.	3
b. I have installed flow meters on wells or other pumps, and monitor and <u>record flows at the beginning and end of the irrigation season</u> and they are in proper working order.	2
c. I test my pump and calculate water flow by recording the pumping time and multiplying this by the results of the pump test.	1
d. I have <u>no flow meters installed</u> on wells or other pumps and I never test my pump.	0

4.7 Pump Efficiency ^V

I have measured pump efficiency within the last 5 years or my pump is less than 5 years old.	YES = 3
	NO = 0

4.8 Soil Water-Holding Capacity ^V

The soil root zone water-holding capacity (soil type plus rooting depth) of my vineyard soil and annual rainfall is documented and used in irrigation scheduling.	YES = 2
	NO = 0

4.9 Irrigation Initiation and Scheduling* ^v

a. I have installed soil moisture monitoring devices (e.g. gypsum blocks, tensiometers, neutron probe, or bucket auger [judging by feel]) and use them to track soil moisture depletion and I use a device (e.g. pressure bomb) or visual inspection of shoot tips to initiate and schedule irrigation during the growing season and I measure ETo from a local weather station and/or use CIMIS.	4
b. I use visual inspection of shoot tips and a device (e.g. pressure bomb) to initiate and schedule irrigation during the growing season and I measure ETo from a local weather station and/or use CIMIS.	3
c. I measure ETo from a local weather station and/or use CIMIS and use plant-based evaluation (visual) to initiate and schedule irrigation.	2
d. I use shoot tips and tendrils to schedule irrigation (visual plant-based monitoring).	1
e. I use calendar-based irrigation scheduling.	0

*For a discussion of different approaches to irrigation scheduling see pgs. 44 - 47 in the *Lodi Winegrower's Workbook*.

4.10 Water Budget ^v

How long ago was your vineyard planted?

a. Less than 5 years ago	Go to Issue 4.10.2 and skip 4.10.1
b. More than 5 years ago	Go to Issue 4.10.1 and skip 4.10.2

4.10.1 Water Budget for Fully Mature Vines ^v

a. I know and record the amount of water used by the vines between each irrigation (cumulative ETo) and I <u>apply less than this amount to the vines</u> during the next irrigation (e.g. regulated deficit irrigation [RDI]) unless the forecasting of a heat wave or varietal requirements necessitate the use of more water.	3
b. I know and record the amount of water used by the vines between each irrigation and I <u>apply this amount to the vines</u> during the next irrigation unless the forecasting of a heat wave or varietal requirements necessitate the use of more water.	2
c. I know and record the amount of water used by the vines between each irrigation and I <u>apply more than this amount to the vines</u> during the next irrigation even if weather forecasting does not predict its need.	0
d. I <u>do not know the amount of water</u> used by the vines between irrigations.	0

4.10.2 Water Budget for Young/Newly Planted Vines ^v

a. I know and record the amount of water used by the vines between each irrigation (cumulative ETc) and I <u>apply this amount</u> to the vines during the next irrigation unless the forecasting of a heat wave requires the use of more water.	2
b. I know and record the amount of water used by the vines between each irrigation (cumulative ETc) and I apply <u>less than this amount</u> to the vines during the next irrigation.	0
c. I <u>do not know the amount</u> of water used by the vines between irrigations.	0

4.11 Fertigation ^v

a. When I fertilize I use fertigation and I calculate the frequency and timing of applications to meet vine demand and back-flow prevention devices are installed in my irrigation system.	2
b. When I fertilize I use fertigation and back-flow prevention devices are installed in my irrigation system.	1
c. I do not use fertigation when I fertilize.	0
d. I do not use fertigation because I use a biological source, such as compost, pomice or a cover crop, to add nutrition to my soil.	2

Chapter 5: Vineyard Establishment

5.1 Soil profile inspection ^v

I have inspected the soil profile of my vineyard, using a hand auger or backhoe, for plowpan, hardpan, claypan, or any other restricting layer.	YES = Take 1 point and go to Standard 5.2
	NO = 0 Go to Standard 5.3

5.2 Soil profile modification ^v

a. When present, the: plowpan or hardpan is ripped, or claypan slip-plowed, or subsurface drainage installed or, for all three problems, a deep-rooted cover crop is planted.	2
b. No action is necessary because the presence of a plowpan, hardpan, claypan, or any other restricting layer is not detected.	2
c. Modification is needed but is not done.	0

5.3 Soil tested for chemical properties and amended pre-planting ^v

a. I tested the soil for pH, Organic Matter, Cation Exchange Capacity (CEC), Sodium Adsorption Ratio (SAR), and Base Saturation, as well as for any possible deficiencies or toxicities (boron, sodium, chlorides, zinc) <i>and</i> amended with lime if acidic, sulfur (or acids in drip) if alkaline, gypsum if low in calcium, and compost/manure or cover crop if low in organic matter.	3
b. I tested the soil for pH, Organic Matter, CEC, SAR, and Base Saturation, as well as for any possible deficiencies or toxicities (boron, sodium, chlorides, and zinc) <i>and</i> amended with lime if acidic, sulfur if alkaline, and/or gypsum if low in calcium.	2
c. I did not test the soil pre-planting <i>or</i> modification was done without adequate knowledge of the soil factors at that site (the modification is potentially not necessary).	0

5.4 Soil sampled for biological problems pre-planting ^v

a. I sampled and analyzed the soil for nematodes and phylloxera prior to planting.	3
b. I took no soil samples prior to planting.	0

5.5 Addressing soil biological problems pre-planting ^v

a. Soil samples taken pre-planting revealed no biological problems such as nematodes, phylloxera or root fungi.	3
b. Soil was fallowed or rotated to other non-host crops for at least <u>three</u> years.	3
c. Soil was fallowed or rotated to another non-host crop for at least <u>one</u> year.	2
d. I fumigated the soil after a biological problem such as nematodes or phylloxera was identified by testing.	1
e. I fumigated the soil without testing the soil to determine if a problem exists.	FC

5.6 Rootstocks* ^v

a. I chose the rootstock to resist the soil-borne pests at my site <i>and</i> to provide adequate but not excessive vigor when matched with the soil and the scion.	4
b. I chose the rootstock to resist the soil-borne pests at my site.	2
c. I chose the rootstock to provide adequate but not excessive vigor when matched with the soil and scion.	2
d. I chose the rootstock solely because of its availability or custom <i>or</i> the vines I planted are on their own roots.	0

*For descriptions of the characteristics of common winegrape rootstocks see pg. 20 in the *Lodi Winegrower’s Workbook*.

5.7 Scion ^v

I used scions that were virus tested and certified.	YES = 2
	NO = 0

5.8 Grafting vines to change varieties* ^v

I used grafting material that was virus tested and certified.	YES = 2
	NO = 0

*For vineyards where no grafting has been done after planting take 2 points for this standard.

Chapter 6: Pest Management

6.1 Vineyard monitoring for insect, mite and disease pests ^v

a. My PCA and/or I monitor(s) the vineyard for insect, mite and disease pests <u>at least once every 10 days</u> from bud break to harvest and I keep a written record.	6
b. My PCA and/or I monitor(s) the vineyard for insect, mite, and disease pests <u>at least once every 14 days</u> during the growing season and I keep a written record.	4
c. My PCA and/or I monitor(s) the vineyard for insect, mite, and disease pests <u>at least once every 21 days</u> and I keep a written record.	2
d. My PCA and/or I monitor(s) the vineyard for insect, mite, and disease pests <u>at least once a month</u> and I keep a written record.	0
e. I keep no vineyard monitoring records for insect and mite pests.	FC

6.2 Economic thresholds and natural enemy ratios for insect and mite pests ^v

I have a written economic threshold plan containing the following components: keep written monitoring record; frequency and location of monitoring; action thresholds for each pest based on pest numbers, natural enemy numbers, amount of leaf damage present, time of year, canopy vigor, winegrape variety; and the timing of the treatment. For more details see the <i>Companion Document for The Lodi Rules</i> .	YES = 6
	NO = 0

6.3 Economic threshold for leafhoppers ^v

a. I did not spray for leafhoppers this growing season.	5
b. I sprayed for leafhoppers this growing season and the number of nymphs per leaf at the time of treatment was greater than 5 or I had moderate to heavy leaf damage due to leafhopper feeding and there was a moderate to heavy population of adults present.	5
c. I sprayed for leafhoppers this growing season and the number of nymphs per leaf at the time of treatment was between 3 and 5.	3
d. I sprayed for leafhoppers this growing season and the number of nymphs per leaf at the time of treatment were between 1 and 3	1
e. I sprayed for leafhoppers when there was less than 1 nymph per leaf.	FC

6.4 Economic threshold for spider mites ^V

a. I did not spray for mites this growing season or I used predatory mites as a biological control tactic.	5
b. I sprayed for mites this growing season and greater than 60% of the leaves were infested or I used a miticide, such as Agrimek, that requires treating before numbers get too high but more than 20% of the leaves were infested.	5
c. I sprayed for mites this growing season and greater than 40% of the leaves were infested or I used a miticide, such as Agrimek, that requires treating before numbers get too high but more than 10% of the leaves were infested.	3
d. I sprayed for mites this growing season and more than 20% of the leaves were infested	1
e. I sprayed for mites but none were found during monitoring.	FC

6.5 Prescriptive spraying ^V

When an insect or mite spray is necessary, I treat only that portion of the vineyard where a problem exists, such as edges or ‘hot spots’, not the whole vineyard.	YES = 2
	NO = 0

6.6 Dust abatement for mite management within the vineyard ^V

a. I grow a natural or planted cover crop <u>in every</u> vineyard row during the growing season.	4
b. I grow a natural or planted cover crop <u>at least every other</u> vineyard row during the growing season.	3
c. I do not disk, but chemically treat vineyard row middles during the growing season.	1
d. During the growing season, I disk the vineyard floor and keep no cover crop.	0

6.7 Dust abatement for mite management for on-farm roads, avenues and equipment yards ^F

a. I grow a California native cover crop during the growing season on roads and equipment yards.	3
b. I grow a cover crop during the growing season or use an environmentally acceptable sealant (e.g. Soil-Sement®, EnviroKleen®, Lignobond 50®, etc.) on roads and equipment yards.	2
c. I use oil, water, or asphalt on all roads and equipment yards during the growing season.	1
d. I take no dust abatement measures on my farm roads, avenues or equipment yard(s) during the growing season.	0

6.8 Dust abatement for mite management for headlands, ditches, roadsides, and avenues^F

a. I grow a (year round) hedgerow and/or a cover crop using <u>California native plants</u> on headlands and along ditches.	4
b. I grow a (year round) hedgerow and/or a cover crop headlands and along ditches.	3
c. I allow resident vegetation to grow during the growing season on headlands and along ditches.	2
d. I keep headlands free of all vegetation.	0

6.9 Training of employees for pest recognition^F

I have evidence of training (e.g. farm safety training records) of farm labor for recognition of vineyard pests.	YES = 2
	NO = 0
I do not have any employees.	2

6.10 Vineyard sanitation for disease inoculum reduction^V

I practice vineyard sanitation, such as cleaning berms, chopping prunings, pruning out infected and dead wood and removing it from the vineyard every year.	YES = 2
	NO = 0

6.11 Powdery mildew management^V

I have a written powdery mildew management plan that contains the following components: preventative measures; treatment decision factors; treatment measures; and plans for review and update of plan. For more details see the <i>Companion Document for the Lodi Rules</i> .	YES = 4
	NO = 0

6.12 Deciding when to initiate first powdery mildew treatment for the season^V

I use the Powdery Mildew Model to initiate my first powdery mildew treatment for the season.	YES = 2
	NO = 0

6.13 Timing of powdery mildew treatments ^V

I use the Powdery Mildew Model to time my powdery mildew treatments.	YES = 2
	NO = 0

6.14 Choice of powdery mildew fungicides for resistance management ^F

For fungicides other than sulfur*, I practice resistance management by ‘rotating’ my fungicides and not using chemicals with the same mode of action consecutively (see Table 8 in the <i>Companion Document for the Lodi Rules</i> for a list of modes of action and FRAC numbers).	YES = 2
	NO = 0

*Powdery mildew has never developed resistance to sulfur despite over a hundred years of its use to control mildew.

6.15 Soil-borne pests* ^V

6.15.1 I have a written management plan for soil-borne pests, particularly nematodes and Phylloxera, that contains the following components: management goals; site description; soil sampling program pre-planting; soil sampling program post-planting; schedule for reviewing and updating the plan. For more details see the <i>Companion Document for the Lodi Rules</i> .	YES = 4
	NO = 0
6.15.2 I have monitored my vineyard soil within the last 3 years, for soil borne pests, particularly nematodes and Phylloxera.	YES = 2
	NO = 0

*For suggestions on taking nematode samples see pg. 18 in the *Lodi Winegrower’s Workbook*.

6.16 Weed Management ^F

6.16.1 Weed management plan ^F

I have a written weed management plan for my farm containing the following components: management goals; monitoring technique and record keeping; schedule for reviewing and updating the plan. For more details see the <i>Companion Document for the Lodi Rules</i> .	YES = 4
	NO = 0

6.16.2 Vineyard monitoring for weeds ^V

a. My PCA and/or I monitor(s) the vineyard for weeds <u>at least once every 10 days</u> during the growing season and at least monthly during the winter season and I keep a written record.	3
b. My PCA and/or I monitor(s) the vineyard for weeds <u>at least once every 14 days</u> during the growing season and at least every two months during the winter season and I keep a written record.	2
c. My PCA and/or I monitor(s) the vineyard for weeds <u>at least once every 21 days</u> during the growing season and at least once during the winter season and I keep a written record.	1
d. My PCA and/or I monitor(s) the vineyard for weeds <u>at least once a month</u> during the growing season and at least once during the winter season and I keep a written record.	0
e. I keep no vineyard monitoring records for weeds.	FC

6.17 Vertebrate Management ^F

6.17.1 Vertebrate management plan ^F

I have a written vertebrate management plan containing the components specified in the <i>Companion Document for the Lodi Rules</i> .	YES = 4
	NO = 0

6.17.2 Vineyard monitoring for vertebrate pests ^V

a. My PCA and/or I monitor(s) the vineyard for vertebrate pests <u>at least once every 10 days</u> from bud break to harvest and I keep a written record.	3
b. My PCA and/or I monitor(s) the vineyard for vertebrate pests <u>at least once every 14 days</u> during the growing season and I keep a written record.	2
c. My PCA and/or I monitor(s) the vineyard for vertebrate pests <u>at least once every 21 days</u> and I keep a written record.	1
d. My PCA and/or I monitor(s) the vineyard for vertebrate pests <u>at least once a month</u> and I keep a written record.	0
e. I keep no vineyard monitoring records for vertebrate pests.	FC

6.17.3 Predatory birds ^F

Owl and/or kestrel boxes and/or raptor perches are provided and maintained.	YES = 2
	NO = 0

6.18 Pesticide Application ^F

6.18.1 Sprayer/duster maintenance plan ^F

I have a written sprayer/duster maintenance plan containing the following components: cleaning; filters; pump; control unit; pressure gauge; nozzles; the boom; the PTO; the boom tube and hoses; and rust prevention. For more details see the <i>Companion Document for the Lodi Rules</i> .	YES = 4
	NO = 0

6.18.2 Sprayer/duster calibration ^F

a. I monitor the amount of spray/dust being applied per acre <u>during each</u> application to ensure that the correct amount is being applied. My procedure includes immediate calibration of my sprayer/duster if any correction is indicated.	4
b. I monitor the amount of spray/dust being applied per acre <u>every other</u> application to ensure that the correct amount is being applied. My procedure includes immediate calibration of my sprayer/duster if any correction is indicated.	3
c. I monitor the amount of spray/dust being applied per acre <u>every three months</u> to ensure that the correct amount is being applied. My procedure includes immediate calibration of my sprayer/duster if any correction is indicated.	2
d. I monitor the amount of spray/dust being applied per acre every <u>12 months</u> to ensure that the correct amount is being applied. My procedure includes immediate calibration of my sprayer/duster if any correction is indicated.	1
e. I have not calibrated my sprayer/duster within the last 12 months.	FC

6.18.3 Spray coverage ^F

a. I checked the coverage of my sprayer at least once within the last <u>6 months</u> with moisture sensitive paper.	4
b. I checked the coverage of my sprayer at least once within the last <u>12 months</u> with moisture sensitive paper.	3
c. I checked the coverage of my sprayer at least once within the last <u>18 months</u> with moisture sensitive paper.	1
d. I have <u>not</u> checked the coverage of my sprayer within the last <u>18 months</u> .	0

6.18.4 Spray/dust drift management plan ^F

I have a written drift management plan containing the following components: spray drift management goals; identifying sensitive areas; being a good neighbor; establishing buffers; selecting pesticide rates; equipment operation; weather conditions; and timing applications. For more details see the <i>Companion Document for the Lodi Rules</i> .	YES = 4
	NO = 0