SIP Certified® Standards 2019

SIP Standards Preview 2019

Sustainable agriculture is based on the three “E’s” of sustainability. In the vineyard and winery, managers must address these three “E’s” - economic viability, environmental stewardship, and social equity. An important theme of integrated wine production is the ability for winegrowers to evaluate their practices as a whole - from block to bottle. Sustainability in Practice (SIP) Certified is a measurable and recordable set of practices which encompass fourteen chapters comprised of Vineyard Conservation and Enhancement of Biological Diversity, Vineyard Establishment and Management, Winery Facility Establishment and Management, Vineyard Soil Conservation and Surface Water Quality, Water Conservation and Quality, Energy Conservation and Efficiency, Pollution and Waste, Social Equity, Pest Management, Grape Sourcing and Fruit Quality, Continuing Education, and Business Management.

The certification Standards include both Requirements and Management Enhancements. Requirements are practices which must be completed on a foundational level before acquiring Management Enhancement points. In the vineyard, Requirements include a Prohibited Materials List (listed by active ingredient) based on the Department of Pesticide Regulation’s following lists: Groundwater Protection, Cholinesterase Inhibiting, Toxic Air Contaminants, California Restricted Materials and Federally Restricted Materials. In order to achieve certification, a grower must not use any of the active ingredients on this list. Management Enhancements are scores assigned to practices which allow winegrowers to earn points based on additional, non-required, but suggested management strategies. Also included within the document is a farm/winery plan which is required for certification – the plan includes documentation, reporting, and written examples of practices throughout the certification standards.

Certification will be awarded based on the applicant complying with all Requirements as well as achieving a minimum of 75% of the total available points. A winegrowers practices and documentation are verified through an independent audit and reviewed by an advisory committee. The purpose of certification is for winegrowers to evaluate and substantiate their practices on a whole-operation level. This allows for marketplace authenticity and differentiation. SIP Certified also recognizes the need for continual improvement both in practices and certification standards. The SIP Certified Standards are considered to be part of a living document; they will improve over time with advances in science and research.

SIP Certified evolved from the innovative and award winning Positive Points System - the first self-assessment utilizing a whole farm, integrated approach to vineyard management. The shift from self-evaluation to third-party certification began in 2003 when a group of dedicated growers and advisers began developing a set of standards, with measurable and verifiable requirements and certification for vineyards piloted in 2008. Because sustainable winemaking does not stop in the vineyard, a program for wineries was piloted in 2016/17. The program is peer reviewed every five years by over 50 environmental, regulatory, and academic representatives.

Applicants can choose to certify their vineyard or winery or both by implementing the rules covered in the Standards. Wines can carry the SIP Certified seal on their packaging when they are made with at least 85% SIP Certified fruit as verified by an inspection.

SIP Certified applies to individual vineyards, wineries and year specific wines and does not certify organizations.

1 — Conservation and Enhancement of Biological Diversity

“To conserve biodiversity is to maintain and enhance the capacity of the land to sustain a variety of native species and functioning ecosystems that support farms and wild communities.” (www.wildfarmalliance.org)

Sustainable agriculture is founded on the principle that farming practices influence a much larger system than just the vineyard, more commonly referred to as the whole farm system. The whole farm system includes the vines, the rows between the vines, wildlife habitat, adjacent oak and riparian areas, surrounding wetlands, receiving waters, and other non-cropped areas.

The vineyard manager works within this whole farm system to promote and protect the balance of ecological resources in the vineyard. Conserving and enhancing biodiversity can support a pest management program by enhancing beneficial insect habitat or providing nest boxes for owls and raptors that prey on vertebrate pests. Planting filter strips and maintaining covered soil protects water quality by keeping sediment on site and out of surface water.

Sustainable agriculture is based on the stewardship of natural resources. Biological diversity is a valuable component and should be managed to benefit the natural ecosystems which support a wide variety of plant and animal species. Increased on-farm diversity is indicative of a healthy, balanced ecosystem where varied ecological processes thrive. The conservation and enhancement of biological diversity should be the goal of the vineyard manager with the objective of operating in an environmentally responsible manner.

1.1 Conservation and Enhancement of Biological Diversity

Requirements

1. You must have and update at least every five years a conservation plan based on the type(s) of habitat affected by new vineyard development and/or ongoing vineyard operations. A Natural Resource Conservation Service Conservation Plan **or equivalent** qualifies.

   Equivalent plans will address the following sections. Download template (http://www.vineyardteam.org/files/resources/2_1.1.1_Conservation%20Plan_Template_Written.pdf).

   - Short and long term
   - Natural resource objectives
   - Production and economic objectives
   - Resource inventory and resource concerns
   - Soil
   - Erosion potential and management plan
   - Streams and/or waterbodies
   - Air quality
   - Cover crops, filter strips, and vegetated buffers
   - Snag and cavity trees
   - Noxious or invasive plants
   - Hedgerows and windbreak shelter trees
   - Forest/woodland areas
   - Wetland areas
   - Wildlife areas
   - Animals, fish and wildlife
   - Rare or endangered plant and animal species
   - Prioritized resource concerns and projects

   Attach conservation plan including identification of habitat areas on your ranch map and document below what sensitive species, if any, exist in your area.

   When was the plan last completed?

🤝 Onsite Inspection Required

Management Enhancements

3.	Did you consult with your local agencies (i.e. Natural Resources Conservation Service (NRCS), Resource Conservation District (RCD), University of California Cooperative Extension (UCCE), or use agency resources (websites, etc.) to complete a conservation plan? 🍁	[ ] Yes(6 pts.) [ ] No If yes, list the Agency and your contact or resource used.
4.	What percent of the property is maintained as non-vineyard habitat (i.e. native and naturalized grasses, flowering plants, shrubs and trees in corners, edges and corridors)? 🍁 🤝 Onsite Inspection Required	[ ] >30% (6 pts.) [ ] 20-29% (4 pts.) [ ] 10-19% (2 pts.) [ ] <10% (0 pts.) Attach ranch map marked with percent of property maintained in non-vineyard habitat.
5.	Do you alternately mow or till row middles for maximum biodiversity during the season? 🍁 📷 Photo(s) Required 🤝 Onsite Inspection Required	If yes, attach mowing and/or tillage records and photo documentation of practices. [ ] Yes(5 pts.) [ ] No [ ] Not Applicable Not Applicable only if vineyard is located in a frost sensitive area. Provide written statement.
6.	Are insectary rows maintained every 5 – 10 rows? 🍁 🤝 Onsite Inspection Required	[ ] Yes(5 pts.) [ ] No If yes, indicate Insectary plantings on ranch map. Provide documentation of insectary row species composition.
7.	Do you have bat boxes as a means of insect pest control and/or raptor perches or owl boxes as a means of vertebrate pest control? 🍁 **D+O** — Req'd for Documentation+Onsite renewals 📷 Photo(s) Required 🤝 Onsite Inspection Required	[ ] Yes(5 pts.) [ ] No Provide photo documentation of bat box, owl box, and/or raptor perch.
8.	Do you manage adjacent habitat areas, outside the vineyard, to control the spread of noxious weed species? 🍁	[ ] Yes(5 pts.) [ ] No If yes, describe management practices. Reference Pest Management, Weed Management, Management Enhancement 8.5.4.

9.	Are you participating in an agricultural resource preservation program? 	[ ] Yes(4 pts.) [ ] No If yes, provide documentation of your participation.
10.	Have you established a conservation easement for a portion of your property? 	[ ] Yes(4 pts.) [ ] No If yes, provide documentation of your easement agreement.
11.	Does the site take advantage of natural landscape features (e.g. shade, hillsides, orientation, etc.)?  Onsite Inspection Required	[ ] Yes(5 pts.) [ ] No Describe how site takes advantage of natural landscape and attach site map or topography plan.
12.	If there was a landfill or hazardous material on your property, did you have a remediation or hazardous material removal process? Not applicable if there was no landfill or hazardous material. 	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Describe remediation or hazardous material removal process. If not applicable, explain.

2 — Vineyard Acquisition, Establishment and Management

In order for growers to sustainably produce high quality fruit, they must understand that every aspect of viticultural management affects other components of the vineyard system. From identifying the optimal vineyard site to harvesting the fruit, there are many decisions that affect the vineyard's ability to sustainably produce high quality fruit with minimum inputs and manipulations. With an understanding of the farm's unique site characteristics, the viticulturist makes decisions about rootstock, clone, spacing, orientation, trellis system and irrigation, among other variables, that will support an environment which optimizes the production of quality fruit in a responsible manner. Each decision affects many aspects of the grapevine's unique environment, and the viticulturist must be vigilantly aware of those interactions. The interrelated nature of all vineyard management practices creates an interconnected relationship from viticultural management to water quality to air quality to social equity.

In operating a vineyard, the grower manages an ecosystem dominated by vines and cover crops – this system is supported by a complex soil ecosystem and populated by a diverse group of organisms that are natural members of the agricultural ecosystem and the ecosystems surrounding it. Most of these organisms are beneficial, in fact essential, to the functions of a healthy vineyard. Sustainable farming requires that the vineyard system be managed to produce an optimum crop of consistently high quality fruit while minimizing adverse impacts to the environment and human health associated with vineyard operations.

Maintaining and enhancing this dynamic ecosystem is at the heart of sustainable viticulture and should be the goal of the vineyard manager.

2.1 Pre-Plant/Purchase

Requirements

1.	You must document the soil series, permeability (Ksat), drainage class, runoff, and T Erosion Factor of your soils by using the USDA Web Soil Survey (https://casoilresource.lawr.ucdavis.edu/gmap/ (https://casoilresource.lawr.ucdavis.edu/gmap/)) or contacting your local USDA Natural Resource Conservation Service office.	Document information below Provide your own record with equivalent information.

Management Enhancements

2.	Before developing the vineyard when you acquired it, did you have a vineyard soil suitability test performed including pH, salinity, nutrients, toxic elements, Ca/Mg ratio, soil organic matter, texture?	[ ] Yes(2 pts.) [ ] No Attach and provide description of soil suitability test results.
3.	When conducting the vineyard soil suitability test prior to planting or purchasing, did you test each soil horizon separately?	[ ] Yes(2 pts.) [ ] No If yes, attach soil horizon test results. ...and describe.
4.	Did you examine the soil to the potential rooting depth prior to planting and/or purchasing to analyze the soil profile's physical and chemical characteristics?	[ ] Yes(2 pts.) [ ] No If yes, describe soil examination method(s) and date(s) performed. Provide written description of the soil physical and chemical characteristics.

5.	If soil test results revealed conditions that would limit vine growth, did you: 	[ ] Map those areas. (3 pts.) [ ] Design and implement corrective action(s). (3 pts.) Explain and document. [ ] Not applicable if tested soil conditions do not limit vine growth. [ ] No
6.	If the soil harbored vine pests, was it planted to a non-host crop or fallowed to reduce the pest populations prior to vineyard planting? 	[ ] For 2+ years (2 pts.) [ ] For 1 year (1 pts.) [ ] For less than 1 year [ ] Not Applicable If yes, attach lab results listing vine pests and discuss actions. If Not Applicable, provide written explanation.
7.	If there were physical impediments to root growth, did you deep-rip or slip plow to correct them? 	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable If yes, attach management records. If not applicable, provide written explanation.
8.	Was organic matter incorporated into the soil prior to planting? 	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable If yes, provide documentation of organic matter incorporation. If not applicable, explain.
9.	Did you utilize aerial photographs (either infrared or standard film) or other GPS technologies in the development and mapping of your vineyard site?  Photo(s) Required	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable If yes, attach photographs or other mapping tool. If not applicable, explain.
10.	Prior to planting or purchasing the property, did you check with the Regional Water Quality Control Board for any 303(d) listed impaired water bodies located in or around the vineyard? 	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable If yes, identify the water body. Not applicable only if current owner did not establish the vineyard; provide statement.

2.2 Rootstock, Scion, and Clone Selection

Requirements

1.	You must document rootstock, scion, and clone choices. 	Indicate rootstock, scion, and clone combinations on the ranch map. Document choices below or provide your own documentation with equivalent information.
2.	Prior to planting previously cultivated agricultural land you must test for soil-borne pests. 	Attach test records. Explain if land was not previously cultivated.

Management Enhancements

3.	Prior to planting, are blocks with a history of pest problems or a documented pest planted with disease and/or pest resistant rootstocks? 	[ ] Yes(5 pts.) [ ] No [ ] Not Applicable If yes, document disease and/or pest history and the subsequent resistant rootstocks planted. If not applicable, provide written explanation.
4.	Are (were) certified grapevine materials used? 	[ ] Greater than 75% of grapevine materials (3 pts.) [ ] Between 50% and 75% of grapevine materials (2 pts.) [ ] Between 25% and 50% of grapevine materials (1 pts.) [ ] Less than 25% of grapevine materials (0 pts.) [ ] Not Applicable If yes, provide documentation from grapevine supplier. Not applicable only if certified grapevine material was not available at time of planting. Provide written explanation.
5.	Were the soil physical and chemical characteristics considered when rootstock(s) were chosen? 	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Provide a written description of soil series and the rationale for rootstock selections. If not applicable, explain.
6.	Prior to receipt of plant material, did you test for virus? 	[ ] Yes(2 pts.) [ ] No Attach virus tests.

2.3 Spacing, Orientation, and Trellis Selection

Requirements

(No requirements in this section.)

Management Enhancements

1.	Prior to planting or purchasing the property, did you determine the percent slope and aspect of each potential planting block and the total acres of land within ranges of slope having different levels of erosion risk?	[ ] Yes(2 pts.) [ ] No Provide a written description of slope and soil erosion potential considerations.
2.	Did you choose spacing based on soil type, rootstock, terrain, variety, and clone? Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Explain.
3.	Was your trellis and training system designed to optimize canopy microclimate, sunlight exposure, and minimize disease and insect pressure? Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Provide a written description of your trellis system(s) and how it addresses these issues.
4.	Have you modified or retrofitted your existing trellis system in order to improve canopy microclimate and improve grape quality?	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Describe modification(s) and/or retrofit(s). Include how the changes improved your canopy microclimate and grape quality. If Not Applicable, provide written explanation.
5.	Does your vineyard design allow for mechanization?	[ ] Yes(2 pts.) [ ] No Provide a written description of how your vineyard design allows for mechanization.

2.4 Canopy Management

Requirements

(No requirements in this section.)

Management Enhancements

1.	Is your canopy microclimate monitored? Onsite Inspection Required	[ ] No [ ] Yes – Point Quadrant Method – Number of leaf layers, % gaps, % interior leaves, and % interior clusters (2 pts.) [ ] Yes – Light bar/Ceptometer – % light penetration or degree of shading (2 pts.) [ ] Yes – Datalogger – air temperature and/or humidity (relative to outside the canopy) (2 pts.) [ ] Yes – Other Describe monitoring.
2.	Is the fruit-to-pruning weight ratio between the ranges of 4-12:1?	[ ] Yes(2 pts.) [ ] No Provide records of fruit-to-pruning ratios.
3.	Is shoot density managed to promote fruit quality and reduce pest and disease pressure?	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Provide a written description of how shoot density is managed to promote fruit quality and reduce pest and disease pressure. If not applicable, provide written explanation.
4.	If needed, are you removing leaves and/or laterals in the fruit zone to reduce disease and pests or improve wine quality? If not, explain why leaf pulling is not necessary. Photo(s) Required	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Provide leaf and/or laterals removal records and before and after photo documentation. If not applicable, provide written explanation.

2.5 Tissue Analysis

Requirements

1.	You must provide tissue samples based on management zones from within the last 12 months. **D** — Req'd for Documentation renewals	Attach analysis results from within the last year. When were the tissue samples gathered?

Management Enhancements

2.	If your vines exhibit nutritional problems, have you correlated them with your tissue tests and taken corrective action? 	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Document nutritional problems, tissue tests (reference 2.5.1), and your corrective action(s). If not applicable, provide written explanation.
3.	If you answered yes to 2.5.2, did you resample tissue after taking corrective action for nutritional problems? 	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Attach tissue tests.
5.	Have you tested the vineyard for virus? 	[ ] Yes(2 pts.) [ ] No Attach virus tests.
6.	Did you test vines for virus prior to grafting? 	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Attach virus tests. Not applicable if the vineyard was not grafted.

2.6 Fertilization

Requirements

1.	You must base **nutrient** applications on the vineyard's nutrient application plan including nutrient content from soil, water and tissue samples and timing to optimize utilization.  **D** — Req'd for Documentation renewals	Attach nitrogen or other nutrient budget. Provide a written description of how your nutrient applications correlate with your nutrient budget. When was the nitrogen / nutrient plan last updated?
2.	You must annually add organic matter to the soil, such as compost, manure, municipal green waste, green manure from your cover crop, and/or mulch. Organic matter must be managed in such a way to prevent the introduction of unwanted pests, pathogens, and weed species as well as to prevent nutrient leaching.  **D** — Req'd for Documentation renewals	Attach organic matter application records. Provide written description of management practices that prevent the introduction of unwanted pests, pathogens, and weed species as well as prevent nutrient leaching. When were the organic matter application records completed?

Management Enhancements

3.	If you are utilizing winery pomace, are you using effective composting techniques such as the National Organic Program compost standards to prevent the introduction of excess nutrients, pests and diseases?	[ ] Yes(3 pts.) [ ] No [ ] Not Applicable Provide a written description of your green waste composting techniques.
4.	Do you utilize any properly composted local green waste and incorporate it into your vineyard operation (i.e., municipal green waste or other crop or food processing residues)?	[ ] Yes(2 pts.) [ ] No Attach records for green waste.
5.	If your vineyard has a nitrogen requirement, as determined by a soil or tissue test, does your cover crop include a nitrogen-fixer (clovers, vetches, legumes, etc.)? Onsite Inspection Required	[ ] Yes(3 pts.) [ ] No [ ] Not Applicable Provide a written description of nitrogen fixing cover crop and management practices. If not applicable, provide written explanation.
6.	Are fertilizer applications timed to maximize nutrient uptake and to reduce the potential for non-point source water pollution?	[ ] Yes(5 pts.) [ ] No [ ] Not Applicable Attach fertilizer application records. Provide written description of timing decisions to maximize nutrient uptake and to reduce the potential for non-point source water pollution.
7.	Are winter cover crops employed to sequester nutrients and reduce leaching losses?	[ ] Yes(2 pts.) [ ] No Provide written description of winter cover cropping practices and how they sequester nutrients and reduce leaching losses.
8.	Is irrigation managed to reduce moving nutrients out of the effective root zone?	[ ] Yes(3 pts.) [ ] No Attach irrigation scheduling records including quantity of water applied. If yes, provide written description of irrigation timing and quantity in relation to reducing nutrient movement out of the root zone.

3 — Winery Facility Establishment and Management

Wineries come in all shapes, sizes, ages, and capabilities. While the basic focus on wine production unifies all wineries, the similarity often stops there. When a winery owner embarks on either new construction or remodels an existing facility, thought must be given to the site, design, materials, and how best to incorporate sustainable practices. Facility design and management practices affect both the local environment and people involved with the winery.

According to the American Institute of Architects, an estimated 25-40% of the entire United States national solid waste stream comes from construction-related waste (http://www.aia.org/aiaucmp/groups/secure/documents/pdf/aiap072739.pdf ()). Using alternative materials, recycling building waste, and overall using fewer materials are important steps in reducing construction impacts in landfills.

Much as in planning a vineyard, the winery site needs to take into account topography, weather patterns, and aspect in order to maximize efficiency. Wineries need to remain cool and utilizing site advantages, such as hillsides for underground storage rooms, can greatly assist with demands for cooling and humidification.

Incorporating natural light into workspaces has been shown to be important for overall worker health and productivity and also cuts down energy use (http://www.northwestern.edu/newscenter/stories/2014/08/natural-light-in-the-office-boosts-health.html ()).

It is important that wineries do their part to provide safe working environments for workers and to be good neighbors. Noise from equipment and operations must be managed to fulfill both of these aspects.

3.1 Facility Planning and Construction

Requirements

1.	Your ventilation system(s) must be designed to handle all chemicals and gasses used in production. Onsite Inspection Required	Describe the ventilation system.

Management Enhancements

2.	Did you use a pre-existing structure when developing the winery? Not Applicable if you did not have a pre-existing structure. Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Describe renovations made to the pre-existing structure.
3.	Did you consult with a sustainable building design or construction professional prior to construction?	[ ] Yes(3 pts.) [ ] No [ ] Not Applicable Describe.

4.	Is your building located to take advantage of solar orientation for daylighting, passive heating and/or cooling, etc.? Onsite Inspection Required	[ ] Yes(3 pts.) [ ] Not Applicable [ ] No Describe how passive solar was incorporated into the building design and attach an architectural floor plan or details showing how passive solar elements were constructed. If Not applicable, explain.
5.	Did/do you recycle your construction waste? Not applicable only if you have never had construction. 	[ ] Yes(3 pts.) [ ] No Attach receipt and list materials recycled. [ ] Not Applicable
6.	Does the building have glazing, high U-value, or other high efficiency windows installed and/or solar shading? Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No [ ] Not applicable only if facility was constructed prior to ownership and windows have not been retrofitted since purchase. List or show on facility map where windows are installed and U-value rating.
7.	Does the winery have sloped/free draining floors? Not applicable only if facility was constructed prior to ownership. Not applicable only if facility was constructed prior to ownership. Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Describe percent slope and drain location(s).
8.	Is gravity flow incorporated into your production areas? Onsite Inspection Required	[ ] Yes(2 pts.) Describe the use of gravity flow and show on attached facility map. [ ] No
9.	Do you have subsurface or naturally cooled rooms? Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Outline the square footage of applicable rooms on a facility map.
10.	Is your facility equipped with temperature control devices? Onsite Inspection Required	[ ] Yes(2 pts.) Describe devices and locations. [ ] No
11.	Are work areas designed to take advantage of areas with natural daylight? Onsite Inspection Required	[ ] Yes(2 pts.) Attach daylight analysis or architectural floor plan and highlight natural light sources. [ ] No

3.2 Alternative, Recycled, and Local Materials

Requirements

(No requirements in this section.)

Management Enhancements

1.	Did you incorporate a living roof on any buildings?	[ ] Yes(4 pts.) [ ] No Describe what soil and plant materials were used for the living roof.
2.	Did you use certified sustainable or recycled materials during construction/remodel? Onsite Inspection Required	[ ] Yes(6 pts.) [ ] No If yes, describe materials used.
3.	Did you use locally produced/harvested materials (within 100 mile radius) during construction/remodel? Onsite Inspection Required	[ ] Yes(6 pts.) [ ] No If yes, describe materials used.

4 — Vineyard Soil Conservation and Surface Water Quality

In order to maintain a long-term and thriving vineyard, growers must protect the resources necessary for plant life including land, soil, and water. Healthy soils are vital for optimal vine growth, development, and production. They play a critical role in determining site suitability, ease of establishment, and in maintaining healthy, balanced vines throughout the vineyard life. It is essential that vineyard owners and managers steward their soil and water resources effectively and consider the effects of management decisions and vineyard practices on soil characteristics and water quality.

Soil Conservation

Premium wine grapes are cultivated in a diverse array of soil types throughout the world. In order to protect and enhance these soil resources, growers must be knowledgeable about the unique soil characteristics specific to a given site. These characteristics include, but are not limited to the following: soil texture, structure, organic matter, pH, nutrient content, rooting depth, permeability, infiltration rate, and runoff rate. Soil structure and nutrient content affect vine health and vigor. In many cases, a healthy vine can tolerate more pest damage or compete better with weeds than a less healthy one; a vine is more likely to be “healthy” in healthy soils.

The objective of sustainable soil management is to understand soil characteristics as much as possible, to conserve and/or improve naturally occurring beneficial soil attributes, and use best management practices to correct any deficiencies in soil tilth, water quality, or nutrient status. In order to achieve this objective, growers and managers must take appropriate measures prior to planting a vineyard to reduce the need for avoidable soil management challenges later in the life of the vineyard. Once the vineyard is planted, it is necessary to monitor soil health routinely and correct deficiencies when necessary. Soil management can contribute significantly to vine health and premium wine grape production and should therefore be considered carefully when making vineyard management decisions.

Surface Water Quality

Growers who minimize their impacts beyond their fence line recognize that their farm is part of a larger, complex watershed. Almost every farming operation has consequences that can reverberate next door or even further downstream. Soil loosened by cultivation can escape with rainfall and add to stream sedimentation and increase nutrient concentrations that affect aquatic populations and impair receiving waters. In addition, this soil can carry other agricultural chemicals with it, transporting and depositing them downstream.

Farms no longer have just a street address they now have a watershed address. A watershed address represents the growers’ responsibility for eliminating off site movement of soil, chemicals, and pathogens, therefore eliminating impacts on downstream water bodies and ground water. Growers must understand that their farming decisions affect others in the watershed – they can no longer operate on the assumption that their practices only impact their property. Cultivation must be minimized or eliminated to reduce erosion. Cover crops must be present to help keep soils in place and promote biodiversity. The grower should select management practices that meet his/her management objectives with the least impact on the environment and human health. To the extent feasible, the grower should select a natural control mechanism. The grower should document the basis for his/her decision.

Soil and water are valuable resources that growers must respect, protect, and use responsibly. They are intimately related parts of the planet’s ecosystem and are directly responsible for sustaining all life. Sustainable growers make responsible choices that conserve soil resources -- choices based not just locally on their own farming operations, but holistically on the entire watershed of which they are a part.

Eliminating the risks of offsite movement of soil, water, and chemicals should be the goal of the vineyard manager.

Chapter notes for drought conditions

If the grower can document a lack of irrigation water due to serious drought, declared water emergency, or specific location with documented long term water issues, the Requirements and Management Enhancements for planting and maintaining cover crops and/or vegetative strips will be modified to meet pressing water sustainability issues on a case by case basis. Modifications must be discussed with SIP staff and approved by the Certification Advisory Committee at the beginning of the certification cycle.

4.1 Post-Plant/Purchase

Requirements

1.	The soil must be sampled and tested at least every five years for nutrient content and monitored for pH, Electrical Conductivity (EC), and toxicities. 	Attach results of soil samples within the last five years. If toxicities or deficiencies were detected, describe action taken. When were the soil samples last taken?

Management Enhancements

2.	Do you use tractors and/or vineyard equipment that minimize soil compaction, such as high floatation tires, track-layers, or over the row equipment?  Onsite Inspection Required	[ ] Greater than or equal to 75% of total equipment (2 pts.) [ ] Between 25% and 75% of total equipment (1 pts.) [ ] Less than 25% of total equipment If yes, list equipment.
3.	Is your soil amendment program based on visual, tissue, water, and soil sampling? 	[ ] Based on a four of the above (2 pts.) [ ] Based on two or more of the above (1 pts.) [ ] Based on none or one of the above If yes, attach soil, water, and/or tissue sample results. Describe observed nutritional problems. Describe how observed nutritional problems correlate with sample results and the corrective actions taken.
4.	If there is a soil permeability problem, have management practices been used to improve water infiltration? 	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable If yes, describe soil permeability problem and implemented management practices. Attach management records supporting corrective actions. If Not Applicable, provide written explanation.
5.	If soil tests reveal increases in salt content as measured by electrical conductivity (EC), have you taken corrective action? 	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Attach sample results and describe corrective actions.

6.	Do you use GIS/GPS equipped pesticide/fertilizer application systems that enable variable rate chemical application and/or do you use target-sensing pesticide application equipment that reduce pesticide and fertilizer use while preserving efficacy? Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No If yes, describe equipment and how it relates to reduced pesticide and fertilizer use and increased efficacy.
7.	Are pesticide storage facilities designed for containment of spills? Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No If yes, attach photo documentation. Provide written description of spill containment design.
8.	Do you store liquid materials separately from dry materials, and are dry materials elevated above the spill zone? **D+O** — Req'd for Documentation+Onsite renewals Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No If yes, provide photo documentation.
9.	Is mixing and loading performed on sites with low runoff hazard? **D+O** — Req'd for Documentation+Onsite renewals Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No If yes, explain.
10.	Do your diesel and gas tanks have secondary containment? Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable If yes, indicate containment basins on the ranch map. Provide photo documentation.

4.2 Erosion Control and Prevention of Offsite Movement

Requirements

1.	You must know the watershed and subwatershed where your vineyard is located. (see EPA watershed (https://cfpub.epa.gov/surf/locate/index.cfm))	Specify watershed and subwatershed and attach map or documentation.

2.	A winter cover crop (resident or planted) must be maintained. **D** — Req'd for Documentation renewals Photo(s) Required Onsite Inspection Required	Provide close-up photo and large scale photo from a block level. Describe winter cover cropping practices. When were the photos last taken?
3.	You must have a minimum of two management practices in place to minimize the offsite movement of sediment and organic soil amendments and to minimize non-point source pollution of surface waters. Photo(s) Required Onsite Inspection Required	[ ] Cover crop (resident or planted) [ ] Filter Strip (resident or planted) [ ] Mulching [ ] Hay bales/straw [ ] Jute netting [ ] Silt pond [ ] Waddles [ ] Vegetated Ditches [ ] Other Provide photo documentation for each selected. If you selected other, describe.
4.	You must have vegetated perimeter buffers of no less than 25 feet from the setback of perennial streams and/or wetland areas. Onsite Inspection Required	Indicate perimeter buffers on ranch map. Not Applicable only if there are no perennial streams and wetland areas on the property. Provide written statement.

Management Enhancements

5.	Did you develop a comprehensive erosion control plan to prevent the offsite movement of soil?	[ ] If yes, provide written description of erosion control plan and indicate any erosion prone locations on your ranch map. (4 pts.) [ ] No
6.	Do you maintain a filter strip to reduce off site movement of soil?	[ ] Researched and implemented with the assistance of a technical resource provider (3 pts.) [ ] Researched and implemented without technical assistance (1 pts.) [ ] Do not maintain a filter strip Provide written description of filter strip determination and implementation.

7.	Do you utilize water runoff diversions?  Photo(s) Required Onsite Inspection Required	[ ] Engineer recommended runoff diversions (3 pts.) [ ] Researched and implemented without technical assistance (1 pts.) [ ] No [ ] Not Applicable Provide photo documentation of runoff diversions and indicate their location(s) on your ranch map. If you are involved with an engineered project, attach brief project description in place of photo documentation. If not applicable, provide written explanation.
8.	What percentage of the non-cropped area (from the end-posts outward including roads) is covered with vegetation? 	[ ] 70% or more (3 pts.) [ ] 50% or more (1 pts.) [ ] Less than 50% If yes, indicate covered areas on ranch map.
9.	Is a cover crop or its residue maintained during the entire year? 	[ ] Every row (4 pts.) [ ] Every other row (2 pts.) [ ] No Provide written description of cover crop and/or cover crop residue maintenance.
10.	Are devices in place to prevent runoff and/or soil movement to public roads?  Photo(s) Required Onsite Inspection Required	[ ] Yes(3 pts.) [ ] No [ ] Not Applicable Provide photo documentation of devices. Indicate placement on the ranch map. Not Applicable only if vineyard does not border any public roads. Provide statement.
11.	If vegetation is excluded below the vines during winter, the vegetative free area is:  Photo(s) Required Onsite Inspection Required	[ ] < 30” (4 pts.) [ ] 30 – 48” (2 pts.) [ ] > 48” If yes, provide photo documentation with measuring tape.

5 — Water Conservation and Quality

In order for winegrowers to manage their water resources effectively and efficiently, they must understand the various issues affecting water use.

In the Vineyard

Irrigation management is one of the most effective tools of quality wine grape production and is one of the few inputs that the grower has significant control over. Irrigation decisions are influenced by a number of often interrelated factors including energy conservation, water conservation, water quality, water runoff and their related environmental impacts and regulations.

Proper irrigation design must account for several issues: water availability, soil type, terrain, climate, variety, rootstock, drainage/runoff, cultural practices, labor availability, fertilization requirements and backflow protection.

Optimizing irrigation operations requires not only an efficient design, but vigilant system maintenance, assessing pump characteristics, and ongoing consideration of soil water content and crop water requirements. Following installation, growers must maintain system hardware to achieve the highest distribution uniformity possible in order to ensure that vines receive equal amounts of water and to prevent the need for excessive run times. Using tools like pump efficiency and distribution uniformity tests on a regular basis will help identify problems within the system, which can then be addressed with the proper corrective actions.

Proper irrigation scheduling – matching the amount applied with the amount needed based on weather, soil capacity and water content, and plant requirements based on growth stage – is another important consideration when effectively and efficiently delivering water to the vines. There are many tools available to assist with irrigation scheduling, and each vineyard has different water requirements. Understanding these relationships allows the vineyard manager to apply water in the most effective manner possible, conserving water resources, minimizing or eliminating runoff, while producing premium fruit.

In the Winery

Water conservation is a reality for all businesses and is especially important in many wine-producing areas. While the exact amount of water necessary to make a bottle of wine may vary, it is known that conservation methods can significantly reduce the amount of water used in the winery.

Monitoring water use on a regular basis will allow timely response to leaks or inefficiencies. Water quality must also be addressed as it is in direct contact with people, equipment, winery surfaces and wine.

Wastewater, storm water, and groundwater management are important parts of the overall water equation and require monitoring and maintenance. Treating and using wastewater on site are opportunities for water reuse.

Water conservation efforts both in the cellar and laboratory are important as small changes can make a big impact in overall water use. Landscaping plans and irrigation maintenance are important so site beautification can be done in a water wise manner.

5.1 Vineyard Water Quality and Analysis

Requirements

1. You must have a backflow prevention device installed on your well(s) or water source(s). 📷 Photo(s) Required 🤝 Onsite Inspection Required	Provide photo documentation.

2.	Well heads must be protected from chemical contamination. (DPR Wellhead Protection Requirements (https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwi01fnfspTYAhWoqlQKHUXSDekQFggnMAA&url=http%3A%2F%2Fwww.cdpr.ca.gov%2Fdocs%2Femon%2Fgrndwtr%2Fwellhead_protection.pdf&usg=AOvVaw3hLr79oxnTbS6QJOVj3hZE)) Photo(s) Required Onsite Inspection Required	Provide photo documentation. Describe well head protection from chemical contamination.
3.	Unused wells must be properly abandoned in accordance with state and county ordinances.	Provide a written description of well abandonment actions. Not applicable only if you have no abandoned wells.
4.	You must provide well water quality analysis from within the last five years.	Attach analysis results from within the last five years. When was well water quality last analyzed?

Management Enhancements

5.	Is well water quality analysis conducted more than every five years?	[ ] Annually (5 pts.) [ ] Every 3 years (3 pts.) [ ] No Attach analysis results.
6.	If testing indicates your irrigation water has a pH problem, are you adjusting pH to optimal levels?	[ ] Yes(4 pts.) [ ] No [ ] Not Applicable Reference water test results and document corrective actions. If not applicable, reference water test results and provide written statement.
7.	Was irrigation water quality considered when determining well perforation levels to exclude poor quality water?	[ ] Yes(3 pts.) [ ] No [ ] Not Applicable Provide written description of your considerations and perforation levels to exclude poor quality water. Not applicable only if well was not dug by current owner. Provide written statement.

5.2 Vineyard Water Use Efficiency

Requirements

1.	You must test the irrigation system for distribution uniformity at least every five years by monitoring emitter outflows and pressure differences. 	Attach records of distribution uniformity tests. When was the irrigation system last tested for this?
2.	You must use a low-volume irrigation system (drip or micro-sprinkler) for irrigating during the growing season.  Onsite Inspection Required	Provide a written statement of your low-volume irrigation system including emitter spacing, tube gauge and emitter flow rate.
3.	You must inspect and clean the water filters at throughout the season.  **D** — Req'd for Documentation renewals	Attach records of filter inspections and cleanings. When were these records last completed?
4.	You must flush the irrigation lines at least annually throughout the irrigation season.  **D** — Req'd for Documentation renewals	Y N Attach records of irrigation line inspections. When was this last done?

Management Enhancements

5.	Do you have a system in place to communicate with your irrigators and field employees to identify and address issues affecting irrigation system performance? 	[ ] Yes(2 pts.) [ ] No Provide written statement of your reporting and communication system. Not applicable only if you conduct all irrigation operations yourself. Provide written statement.
6.	Do your use wind machines or a low-volume (less than or equal to 30 gallons/acre/minute) watering system used for frost protection? 	[ ] Yes(3 pts.) [ ] No [ ] Not Applicable Provide documentation. Not Applicable only if frost control is not used. Provide written statement.
7.	Is the distribution uniformity of your irrigation system greater than or equal to 85%? 	[ ] DU is greater than or equal to 85% (6 pts.) [ ] DU is greater than or equal to 75%, but less than 85% (4 pts.) [ ] DU is less than 75% (0 pts.) Attach calculations. Reference Requirement 5.2.1.

8.	Are irrigation applications occurring at night when evaporation losses are at their lowest?	[ ] Yes(2 pts.) [ ] No Attach irrigation records that include time interval of application.
9.	Was your drip irrigation system designed to eliminate double pumping?	[ ] Yes(2 pts.) [ ] No Provide a written statement explaining how your irrigation system is designed.
10.	Do you use late pruning to delay bud break to reduce frost risk?	[ ] Yes(3 pts.) [ ] No Describe.

5.3 Vineyard Irrigation Scheduling

Requirements

1.	You must have soil based monitoring devices to track soil moisture depletion, or plant based monitoring devices to monitor the moisture status of your vineyard, or use evapotranspiration (ET) calculations and an ET budget as one of the tools to determine irrigation requirements.	List monitoring devices, either soil- or plant-based, and data from the previous year OR attach ET budget from previous year. Attach ET budget from previous year. When were the devices last used or ET budget compiled?
2.	You must track total water the vineyard receives during the season from rainfall, frost protection, and irrigation. **D** — Req'd for Documentation renewals	Attach records of total water received. When were these records last compiled?
3.	You must measure the effective rooting depth of your soils and estimate the vineyard's soil water holding capacity.	Provide written description of method used to determine the effective rooting depth and the results.

Management Enhancements

4.	Do you utilize aerial images in your long-term irrigation management decisions?	[ ] Yes(3 pts.) [ ] No Attach sample of aerial images.

5.	Are there flow meters on all the wells or other pumps to monitor water usage over the season and are logs kept? Onsite Inspection Required	[ ] Yes(4 pts.) [ ] No Provide written description of flow meter locations.

5.4 Winery Water Conservation

Requirements

1.	You must record your monthly water use for the winery and tasting room (if applicable). **D** — Req'd for Documentation renewals	Attach water use records.
2.	You must check for water leaks at least monthly and report/repair immediately. **D** — Req'd for Documentation renewals	Attach monitoring schedule and repair log.

Management Enhancements

3.	Do you have a separate meter installed to track water used for vineyard and landscape irrigation?	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable List meters and their sources.
4.	Is there a lead employee responsible for promoting and implementing water conservation practices?	[ ] Yes(2 pts.) [ ] No List name and title of person responsible.
5.	Is water conservation information posted in the language understood by your worker(s)? Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Attach photo of postings.
6.	Is one person on your team responsible for reviewing each water bill and/or well pumping records to find and address unusual reporting and compare historic water use?	[ ] Yes(2 pts.) [ ] No List name and title of person responsible.

7.	Do you have high-efficiency/low-flow toilets (e.g. less than 1.6 gallons per flush) and low-flow aerators installed on sink faucets and/or showerheads? Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Describe.

5.5 Winery Water Quality

Requirements

1.	You must inspect and maintain your water treatment system throughout the year as required by your permit. **D** — Req'd for Documentation renewals	Attach maintenance logs and permit.

Management Enhancements

2.	Do you have a non-chemical water treatment system?	[ ] Yes(2 pts.) [ ] No Indicate which method(s) you use: [ ] Coarse filtration [ ] Tight filtration [ ] Reverse osmosis [ ] Ozone [ ] Ultraviolet filtration Other:
3.	Do you treat your water for hardness?	[ ] Yes(1 pts.) [ ] No [ ] Not Applicable Describe treatment.
4.	Do you treat your water pH?	[ ] Yes(1 pts.) [ ] No [ ] Not Applicable Describe treatment.
5.	Do you monitor Total Dissolved Solids?	[ ] Yes(1 pts.) [ ] No Attach monitoring records.

5.6 Wastewater Ponds and Process Tanks

Requirements

1.	You must have a wastewater measurement plan including measurement method and schedule or adhere to municipal regulations.	Attach plan.
2.	Sumps and/or traps must be inspected monthly. **D** — Req'd for Documentation renewals	Attach maintenance records.

Management Enhancements

3.	Do you use an alternative disposal method for legally compliant wastewater (e.g. fire protection, fountains, ponds, wetlands or irrigation?	[ ] Yes(4 pts.) [ ] No [ ] Not Applicable Document which disposal method(s) are used. If not applicable, explain.
4.	Do you test the Dissolved Oxygen (DO) of your wastewater on a routine basis?	[ ] Yes(1 pts.) [ ] No If yes, provide schedule.
5.	Do you test the pH of your wastewater on a routine basis?	[ ] Yes(1 pts.) [ ] No If yes, provide schedule.
6.	Do you monitor Total Suspended Solids?	[ ] Yes(1 pts.) [ ] No If yes, attach monitoring records.
7.	Is wastewater information included in worker training?	[ ] Yes(2 pts.) [ ] No If yes, attach training records with worker signature.

5.7 Winery Septic Systems

Requirements

1.	You must inspect your septic system every three years and maintain written operations and maintenance procedures.	Attach procedure and maintenance records. na

Management Enhancements

2.	Are separate septic tanks and leach fields maintained for processed wastewater?	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Show location of tanks and leach fields on site map.
3.	Are management and workers trained on the correct operation and use of septic tanks and leach fields?	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Attach training materials.

5.8 Winery Storm Water

Requirements

1.	You must map storm drains on a site map and show that they drain to known sources.	Attach map.

Management Enhancements

2.	Do you separate storm and process water drains? Photo(s) Required	[ ] Yes(2 pts.) [ ] No Attach photo.
3.	Are management and workers trained in storm water diversion valve operation? Not applicable if all water goes to the same location.	[ ] Yes(1 pts.) [ ] No [ ] Not Applicable Attach training records or standard operating procedures.

5.9 Winery and Lab Water Conservation

Requirements

1.	Tanks and transfer lines must be cleaned and sanitized using a known quantity of water.	Attach tank cleaning and sanitizing protocol indicating how water use is measured.
2.	Water for cleaning must be applied using a high-pressure/low-volume nozzle fitted with a shut-off valve. Photo(s) Required	Attach photo.

Management Enhancements

3.	Is wastewater from tank cleaning and barrel washing collected and reused?	[ ] Yes(3 pts.) [ ] No Attach protocol.
4.	Is water used for cleaning and sanitizing tanks applied from either the top or bottom of the tank using a spray ball or rotating device that circulates the water in the tanks? Photo(s) Required	[ ] Yes(2 pts.) [ ] No Attach photo.
5.	Is tank cleaning designed for tank size to help reduce water use?	[ ] Yes(2 pts.) [ ] No Describe.
6.	Is barrel washing timed?	[ ] Yes(2 pts.) [ ] No Describe.
7.	Is the temperature of water used in barrel washing monitored and adjusted according to the situation?	[ ] Yes(2 pts.) [ ] No Describe barrel washing water temperature adjustments.
8.	Is a measured amount of hot water/steam used for barrel leak detection?	[ ] Yes(2 pts.) [ ] No Describe procedure to use a measured amount of water for barrel leak detection.
9.	Are barrels filled with five gallons or less water for soaking?	[ ] Yes(2 pts.) [ ] No Describe.
10.	Do you have a lab water conservation plan including but not limited to: • Amount of water and rinse time for lab equipment • Trialing new lab techniques that reduce water • Re-circulated condenser water	[ ] Yes(4 pts.) [ ] No Attach plan.

11.	Is an Energy-Star dishwasher in use for glassware?  Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Attach photo.

5.10 Winery and Lab Sanitization

Requirements

1.	You must pre-clean crush operations, equipment and floors using brushes, push brooms and/or squeegees in a timely fashion to prevent grape material from drying on equipment surfaces before wash-down.  **D** — Req'd for Documentation renewals Onsite Inspection Required	Describe or attach pre-cleaning procedure.

Management Enhancements

2.	Have you trialed and/or implemented alternative cleaning technology(ies) (e.g. UV, hydrogen peroxide)? 	[ ] Yes(2 pts.) [ ] No Describe.
3.	Do you use steam for barrel and/or bottling line sanitation? 	[ ] Yes(2 pts.) [ ] No Describe.
4.	Are bottling line filler sanitation procedures developed with set cleaning times and temperatures? 	[ ] Yes(2 pts.) [ ] No Describe.

5.11 Winery Landscaping

Requirements

1.	You must do at least three of the following to prevent erosion on the grounds. Onsite Inspection Required	[ ] Plant appropriate plant materials to slow or prevent water runoff [ ] Use mulches, ground covers, or other semi-permeable materials to cover and retain soil [ ] Replant bare soil as necessary [ ] Use sand bags and fiber rolls when necessary to keep water from gaining speed, and to hold water on property [ ] Use diversion ditches when necessary to keep water from gaining speed, and to hold water on property Check all that apply and describe measures taken.

Management Enhancements

2.	Are water flow meters installed on landscape irrigation systems? Photo(s) Required	[ ] Yes(2 pts.) [ ] No Attach photo.
3.	Are moisture sensors and/or rain shut-off devices installed to override automatic sensors? Photo(s) Required	[ ] Yes(2 pts.) [ ] No Attach photo.
4.	Is your irrigation scheduled for early morning hours?	[ ] Yes(2 pts.) [ ] No Describe schedule.
5.	Is landscape irrigation on an appropriately timed, drip irrigation system?	[ ] Yes(2 pts.) [ ] No Show irrigation system zones on a map and describe how and when timers are set.
6.	Are irrigation lines checked regularly for leaks, defective emitters, and broken sprinkler heads?	[ ] Yes(3 pts.) [ ] No List name and title of person responsible for inspections.
7.	Do you have a grey water or rainwater collection system for irrigation use?	[ ] Yes(2 pts.) [ ] No Describe system and percentage of irrigation water provided.

8.	Do you have a groundwater replenishment plan (e.g. natural basin spreading, spreading grounds, or runoff containment systems)?	[ ] Yes(2 pts.) [ ] No Describe groundwater replenishment plan.
9.	Are drought-tolerant or native plant species used for at least 75% of the landscaping?	[ ] Yes(2 pts.) [ ] No Describe plants.
10.	Is mulch applied regularly?	[ ] Yes(2 pts.) [ ] No List materials applied and application schedule.

Onsite Inspection Required

Onsite Inspection Required

6 — Energy Conservation and Efficiency

Striving for energy conservation and efficiency should be the goal of every winegrower.

In the Vineyard

On-farm energy usage is of critical importance in today's environment of increased and uncertain fuel costs, additional scrutiny of greenhouse gas emissions, and concerns around air quality from engines. Vineyard operators must approach this situation with a rigorous and measured energy efficiency planning perspective. It makes good business sense to review all aspects of the vineyard operation to ensure that energy conservation is being practiced. This includes pursuing methods to increase the efficiency of equipment and modifying vineyard practices where appropriate to do so.

Equipment and pump operations are the highest energy usage components in the vineyard. Minimizing the number of hours equipment is used and the overall fuel use are key elements of an on-farm energy plan. Note that this also relates to the air quality management plan as discussed in the next chapter. Alternatives to diesel should be evaluated both from an efficiency and emissions standpoint. Regular equipment maintenance schedules help ensure optimal operating efficiencies. Replacing older less efficient motors and equipment should be considered. Efficient and "greener" technologies (e.g., solar and wind) are being developed and are being used in an increasing number of farming operations.

Irrigation systems are a key energy consumer in the vineyard. Coupled with water conservation and efficiency practices described in the previous chapter, system designers should also target minimizing energy usage and air pollution. This can be achieved by collectively matching the designed water delivery system needs to the peak efficiencies of the pump/engine or pump/motor system. If an electric motor is used, a motor should be selected that will run at the desired speed or, if the pump speeds need to vary, the motor should include a programmable variable frequency drive (VFD).

For those vineyards with a shop, office facility and/or winery, there are a number of ways to conserve energy. Often local utility companies will provide energy auditing services (or direct you to companies that will) which can help individual operations identify and maximize opportunities to conserve energy and increase efficiency.

In the Winery

The consumption of energy inevitably comes at a cost and the goal of a sustainable winery is to minimize that cost in financial, ethical, and environmental realms. Energy efficiency is paramount and a critical first step in addressing energy use. Energy conservation can be achieved through efficient and judicious energy use.

A thorough energy use audit will facilitate an efficiency roadmap for each unique winery. Regular monitoring of energy use will capture both seasonal swings and potential equipment malfunctions.

Refrigeration is often one of the largest uses of energy in the winery. Insulating tanks and lines as well as utilizing alternatives to refrigerated cold stabilization will lower energy use.

Properly sized equipment and HVAC systems can increase their longevity and decrease energy consumption. Regular cleaning and maintenance of facility equipment is necessary to run at peak efficiency.

Energy-efficient lighting is widely available and new technologies are continually being developed to maximize lighting efficiency. The use of thermostats and automatic controls can reduce unnecessary energy consumption.

Alternative sources of energy are becoming widespread and more advanced in their technology. Switching to or incorporating energy from sources other than non-renewable fossil fuels has far-reaching impact.

6.1 Energy Use

Requirements

(No requirements in this section.)

Management Enhancements

1.	Do you have an energy use assessment addressing the following (A PG&E energy use assessment or equivalent qualifies) and compare energy use annually? Energy Source • Electricity • Gasoline/Diesel • Liquefied Petroleum Gas • Renewable Energy • Other fuels Energy Draw • Production cooling and heating • Motors, drives, and pumps • HVAC • Lighting • Office Equipment 	[ ] Yes(1 pts.) [ ] No Attach energy use assessment.
2.	Does your shop/office policy... 	[ ] Include at least two of the following (1 pts.) [ ] Does not include two of the following [ ] Radiant barriers/reflective materials [ ] Energy efficient light bulbs [ ] Automatic sensors [ ] Natural lighting [ ] Other If you checked Other, describe. [ ] Not Applicable
3.	Are light duty jobs done with All Terrain Vehicles (ATVs) instead of tractors or trucks?  Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Provide photo documentation of ATVs and a list of practices which utilize ATVs.
4.	Do you use grazing animals within your vineyard or buffer zones to reduce mechanical workload?  Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Describe practices.

5.	Are irrigation applications occurring off peak when energy demand is at its lowest?	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Attach irrigation records that include time of day, which demonstrate irrigation applications occurred during non-peak energy demand periods. Not applicable only if vineyard is not running on the grid. Provide written statement.
6.	Is the company(s) that provides shipping and transportation services for vineyard operations registered with the Environmental Protection Agency's SmartWay Program?	[ ] Yes(2 pts.) [ ] No Provide documentation showing the shipping and/or transportation services provider's involvement in the SmartWay Program.
7.	Have you implemented recommendations from your energy use assessment in 6.1.1? Not applicable if no recommendations were made.	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Describe actions taken.
8.	Do you set annual goals for energy use per ton of grapes and/or gallon of wine produced?	[ ] Yes(3 pts.) [ ] No Attach goals.
9.	Is there a lead employee responsible for reviewing each energy bill to address unusual reporting?	[ ] Yes(2 pts.) [ ] No List name and title of person responsible.
10.	Have you explored ways to reduce energy use at peak load times?	[ ] Yes(1 pts.) [ ] No Describe.
11.	Do you have an interval meter such as a PG&E Smart Meter installed for energy monitoring? Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No List name and title of person responsible for reviewing monitoring results.
12.	Are you participating in PG&E's Demand Response Program or similar program? Not applicable if you have solar.	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Describe program.
13.	Is all electrical or mechanical equipment, including office equipment, turned off or unplugged when not in use?	[ ] Yes(1 pts.) [ ] No Describe.

14.	Does office equipment have an Energy Star or similar rating? Onsite Inspection Required	[ ] Yes(1 pts.) [ ] No [ ] 76-100% [ ] 1%-25% [ ] 51-75% [ ] 26-50% Select appropriate box for the percentage of equipment with Energy Star or similar rating..
15.	Is energy conservation and efficiency part of worker training?	[ ] Yes(1 pts.) [ ] No Attach training procedures or records.
16.	Is energy conservation and efficiency information posted and/or made available in the language understood by your worker(s)? Photo(s) Required Onsite Inspection Required	[ ] Yes(1 pts.) [ ] No Attach photo.

6.2 Refrigeration

Requirements

1.	The chiller system must be designed and sized appropriately for your winery. Onsite Inspection Required	Describe how the chiller system was selected.
2.	You must employ measures to reduce chiller loads (e.g. building and tank insulation, night air cooling, off-peak evaporative cooling).	Describe how chiller loads are reduced.
3.	You must inspect your refrigeration system weekly and keep inspection logs when in use. **D** — Req'd for Documentation renewals	Attach inspection logs.

Management Enhancements

4.	Do you have a dual condenser system allowing for variable cooling rates and incorporating selective cooling stages?	[ ] Yes(2 pts.) [ ] No Describe system.
5.	Does your refrigeration system incorporate any of the following efficiency measures: Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No [ ] Parallel systems [ ] Close approach heat exchangers [ ] Groundwater cooling [ ] Head pressure control [ ] Evaporative condensers or cooling tower [ ] Variable frequency drives [ ] Condenser flow control Check all that apply and attach photos. [ ] Condenser temperature regulation

6.3 Tanks and Lines

Requirements

1.	All hot water pipes and glycol transfer lines must be insulated with at least one inch thick insulation. Photo(s) Required Onsite Inspection Required	Attach photo(s).
2.	At least 85% of outside, jacketed fermenters must be insulated. Not applicable only if you do not have jacketed fermenters outside. Photo(s) Required Onsite Inspection Required	Attach photo and list percent of outside insulated fermenters by volume, describe jacketing material, and R-value of insulation.
3.	Tanks must be inspected for coolant leaks and leaks must be recorded and promptly repaired.	Attach inspection procedure.

Management Enhancements

4.	What percentage of all outside tanks are insulated? Photo(s) Required Onsite Inspection Required	[ ] 76-100% (4 pts.) [ ] 51-75% (3 pts.) [ ] 26-50% (2 pts.) [ ] None Attach photo and describe. [ ] Not applicable if there are no outside tanks.
5.	Do you use any of the following energy efficient technologies? Photo(s) Required Onsite Inspection Required	[ ] Yes(1 pts.) [ ] No [ ] Stacked tanks [ ] Pre insulated pipe with hard outer shell Attach photo(s).
6.	Do you utilize an alternative method of cold stabilization (i.e. electro dialysis, mannoproteins, or carboxymethyl-cellulose products)? Not applicable only if you do not cold stabilize.	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable List method(s) used.
7.	Do you research and trial new technologies that improve energy efficiency of cooling and heating tanks? Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Explain research or trials.

6.4 Pumps, Motors, Drives, Air Compressors, and Dryers

Requirements

1.	Well and pump performance must be tested at least every three years.	Attach most recent pump efficiency test results. When were the pump tests last completed?
2.	Air compressors must be sized correctly and provide your winery with efficient and optimal performance. Onsite Inspection Required	List air compressor associated with winery operations and describe how you determine appropriate sizing for your needs.
3.	Air compressors must be turned off when not in use.	Describe procedure.

Management Enhancements

4.	Based on your results from 6.4.1, if your Overall Pumping Efficiency (OPE) was under 50% did you take corrective action?	[ ] Yes(4 pts.) [ ] No Document corrective action taken. [ ] Not Applicable if OPE was over 50%.
5.	Do you use a variable speed drives to manage energy use efficiency? Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Attach photo and specify model, serial number, and location of variable speed drive.
6.	Do you have a vineyard pass reduction protocol?	[ ] Yes(2 pts.) [ ] No Provide explanation of pass reduction protocol.
8.	Do you conduct monthly inspections of air compressor oil level, air lines, dryer filters, and condensation drainage?	[ ] Yes(2 pts.) [ ] No Attach inspection logs.
9.	Do you have multiple-sized pumps and motors and use whichever is most appropriately sized for each job?	[ ] Yes(2 pts.) [ ] No Describe.

6.5 HVAC

Requirements

1.	You must reduce heating and cooling loads by utilizing at least four of the following: Onsite Inspection Required	[ ] Temperature controlled cellars [ ] Louvered ventilation panels [ ] Timed automatic door openers [ ] Insulated doors/roll-up doors [ ] Strip doors/high-speed roll-up doors [ ] Weather stripping
2.	You must have a schedule for regularly cleaning/replacing air filters and condenser coils.	Attach maintenance schedule.

Management Enhancements

3.	Do you conduct quarterly scheduled maintenance inspections to check insulation, weather stripping, window film, etc. for leaks, dust sealing, and obstructions?	[ ] Yes(2 pts.) [ ] No Attach maintenance schedule.
4.	Do you research and/or trial new technologies which would result in HVAC-related energy savings?	[ ] Yes(2 pts.) [ ] No Describe research or trials.
5.	Are unused or seasonally-used areas closed and secured, have utilities turned off and/or equipment unplugged when not in use? Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Describe procedure.

6.6 Lighting

Requirements

1.	At least 50 percent of electric lighting must be from energy-efficient bulbs (e.g. LED).	Describe energy-efficient bulb use and provide a written procedure to use energy efficient bulbs as existing bulbs expire.

Management Enhancements

2.	Do you have a written plan outlining how to increase lighting energy efficiency?	[ ] Yes(4 pts.) [ ] No Attach plan.
3.	Do you have a regular schedule for cleaning lighting fixtures and lamps?	[ ] Yes(2 pts.) [ ] No Describe schedule.
4.	Are workers trained to turn off lights when not in use?	[ ] Yes(2 pts.) [ ] No Attach procedure or training records.
5.	Are motion detector and/or daylight dimming light banks in low traffic areas with automatic turn-off installed?	[ ] Yes(2 pts.) [ ] No Describe.

6.	Is natural lighting used where available?  Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Describe.
7.	Are outside production lights shielded to direct light onto task areas and away from neighbors?  Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Describe.
8.	Is outdoor lighting attached to photocells so that they only run during darkness?  Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Describe and show on facility map.

6.7 Thermostats

Requirements

1.	All temperature controlled rooms, including office and hospitality spaces, must have functioning thermostats that are programmed to conserve energy.  Onsite Inspection Required	Attach procedure for room thermostats.
2.	Heating and cooling jackets must be turned off when tanks are not in use. 	Attach procedure.

Management Enhancements

3.	When in use, are tank and room thermostats checked for correct settings and operation? 	[ ] Yes(2 pts.) [ ] No Describe.
4.	Do you have on-demand hot water heater(s) at point of use locations?  Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Describe location(s) and use.

6.8 Alternative Energy

Requirements

(No requirements in this section.)

Management Enhancements

1.	Do you use renewal energy sources including solar, wind, or other alternative power for a portion of your vineyard energy needs?  Photo(s) Required Onsite Inspection Required	[ ] Yes(5 pts.) [ ] No Provide documentation of alternative energy use (photo documentation is sufficient).
2.	Do you have alternative energy aerators installed for wastewater processing?  Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Attach photo.
3.	Do you have a solar photovoltaic or passive solar water heater/pre-heater?  Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Attach photo.
4.	Do you have electric vehicle charging stations?  Photo(s) Required Onsite Inspection Required	[ ] Yes(1 pts.) [ ] No Attach photo.

7 — Pollution and Waste

It is to the winegrowers' own benefit to stay up to date and alert regarding any and all pollution, waste, and air quality regulations.

In the Vineyard

In order for growers to minimize their effect on the environment, they must understand how their farming practices affect air quality. Agricultural air quality concerns generally focus on diesel particulate matter, dust production and sulfur dust use. One way growers can address diesel particulate matter is to exchange diesel engines for electric or clean burning engines. Programs exist to assist growers with exchanging polluting engines for ones that contribute to cleaner air. Growers can also change their cultivation practices, soil cover, and road maintenance to reduce dust production.

In the Winery

While some waste generation is an inevitable part of production, efforts to reduce waste are exceedingly important. Pollution in the air, on the ground, and in waterways must be avoided.

Procedures regarding hazardous and solid waste management, including storage, use, disposal, and emergency plans for both, are necessary for a sustainable operation. Filtration materials must be handled and disposed of properly. Cellar sanitation, lab chemicals and cleaning agents need to be labeled, stored, and disposed of appropriately.

7.1 Vineyard Air Quality

Requirements

1.	You must have a written program to eliminate offsite spray drift.	Provide written spray program.
2.	You must have speed limit signs posted on main vineyard access roads to reduce dust. Photo(s) Required Onsite Inspection Required	Y N na Indicate speed limit signs on ranch map or attach photo.

Management Enhancements

3.	Do you have a dust abatement plan?	[ ] Yes(3 pts.) [ ] No Provide documentation.
4.	Are all vineyard non-cropped areas managed for dust control?	[ ] Yes(3 pts.) [ ] No Describe dust management practices.
5.	Do you take measures to prevent dust on heavily traveled roads and staging areas?	[ ] Yes(3 pts.) [ ] No Describe.

7.2 Pollution

Requirements

1.	You must have annual trainings and/or signs posted in the language understood by your worker(s) explaining practices to prevent litter, debris, soil, and pollution from reaching storm drains and streams. **D** — Req'd for Documentation renewals Photo(s) Required	Attach photo of signs and/or training logs.
2.	You must have a maintenance schedule in place to regularly check and maintain storm drains and basins.	Attach maintenance schedule.

Management Enhancements

3.	Do you provide information on transportation alternatives, such as carpooling, vanpooling, use of public transportation, and/or bicycle commuting to workers for their daily commute? Not applicable only if all workers live on-site.	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Provide sample of transportation information. If not applicable, describe.
4.	Do you calculate and record air quality metrics (i.e. CO2, ethanol)?	[ ] Yes(4 pts.) [ ] No Attach records.
5.	Do you capture carbon dioxide emitted by fermentation?	[ ] Yes(2 pts.) [ ] No State percent of fermenters collected from (by tonnage) and describe method of capture.
6.	Do you capture ethanol from fermentation vapors?	[ ] Yes(2 pts.) [ ] No If yes, state percent of fermenters collected from (by tonnage) and describe method of capture and whether you distill it or have it distilled by a licensed off-site facility.
7.	Do you use electric forklifts indoors? Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No List equipment.

8.	Do you conduct equipment, vehicle, and material washing in areas where runoff is directed to a sewer drain, sump, or clarifier (as opposed to a storm drain)?	[ ] Yes(2 pts.) [ ] No Describe.
9.	Are storm drains equipped with shut-off valves, berms, and/or drain plugs in case of contamination from spills and are they regularly inspected?	[ ] Yes(2 pts.) [ ] No Describe.
10.	Do you have a safe, clean area for unused/retired equipment? This area should protect possible pollutants from leaching into air, ground, and landscape. Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Attach photo or show on map and explain pollution prevention methods.

7.3 Hazardous Material Management

Requirements

1.	You must perform an annual hazardous material and waste assessment. **D** — Req'd for Documentation renewals	Attach recent assessment. When was this assessment last completed?
2.	You must have written procedures for addressing chemical spills, hazardous material, and emergency situation management and conduct annual worker training.	Y N Attach chemical spill procedure and training logs. When were the training logs last updated?
3.	You must label, store and dispose of chemicals, solvents, lubricants, coolants, batteries, oils, paints, florescent lighting ballasts, and coatings properly and train employees on hazardous waste handling and disposal.	Include employee training information.

4.	You must store hazardous materials in a safe, secure location and use oldest materials first. Onsite Inspection Required	Indicate storage location on a facilities map.
5.	All lubricants and wine production contact surfaces must be food grade. Onsite Inspection Required	List products used.

Management Enhancements

6.	Are cellar and laboratory thermometers mercury-free? Photo(s) Required	[ ] Yes(2 pts.) [ ] No Attach photo.
7.	Have you decreased your overall hazardous waste in the last three years?	[ ] Yes(2 pts.) [ ] No Describe.

7.4 Winery Solid Waste Management

Requirements

1.	You must have a written procedure addressing organic solid waste.	Attach procedure including which materials are disposed of, composted, used for farm feed, fertilizer or other use.

Management Enhancements

2.	Are your dumpsters covered by lids or an overhang/roof? Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Attach photo.

3.	Are your dumpsters on a concrete pad?  Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Attach photo.
4.	Is an employee responsible for routinely checking dumpster area for leaks, spills, and litter and trained to identify materials that may be unintentionally placed in the wrong dumpster? 	[ ] Yes(2 pts.) [ ] No List name and title of person responsible.
5.	Do you have signs in a language understood by the employee(s) posted on dumpsters indicating which material are allowed/restricted?  Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Attach photo.
6.	Are lees filtered to recover wine? 	[ ] Yes(2 pts.) [ ] No List filter type.
7.	Do you use low-waste filtration technology such as cross-flow filtration?  Onsite Inspection Required	[ ] Yes(3 pts.) [ ] No Name low-waste filtration system.
8.	Are filter pads composted or used in vineyard or landscaping? 	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Describe.
9.	Are tires taken to a recycling facility or traded in when no longer usable? 	[ ] Yes(2 pts.) [ ] No Describe.

7.5 Winery Cleaning and Sanitizing Agents

Requirements

1.	Cleaning chemicals must be clearly marked and stored in a clean, dry location in appropriate secondary containment and stored separately from wine addition chemicals. Photo(s) Required Onsite Inspection Required	Attach photos of chemical containers and show locations on facility map.

Management Enhancements

2.	Is safe handling of all agents and chemicals included in worker training?	[ ] Yes(2 pts.) [ ] No Attach training procedures and/or records.
3.	Are low risk/low toxicity cleaning and sanitizing alternatives trialed or in use in the winery? Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Describe and list products.
4.	Are low toxicity cleaning products chosen for janitorial use? Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No List products.

7.6 Lab Chemicals

Requirements

1.	You must have a program in place listing all reagents and chemicals used in the lab and their proper disposal method as per MSDS/SDS. Onsite Inspection Required	Attach list and disposal procedure.
2.	All laboratory chemicals must be labeled and stored in appropriate, marked areas. Flammables, acids and bases must be stored separately. Photo(s) Required Onsite Inspection Required	Attach photos of laboratory chemical storage areas.

3.	Personal Protection Equipment (PPE) must be a part of written laboratory procedures for each analysis and chemical solution preparation.	Attach procedures.
4.	Chemicals removed from their original containers must be properly re-labeled. Photo(s) Required	Attach photo.

Management Enhancements

5.	Are chemicals marked with open and expiration dates? Photo(s) Required	[ ] Yes(2 pts.) [ ] No Attach photo.
6.	Do you have chemical resistant countertops?	[ ] Yes(2 pts.) [ ] No Describe.
7.	Do you have dedicated glassware for trials and tastings?	[ ] Yes(2 pts.) [ ] No Describe.
8.	Do you have reagent preparation procedures and maintain calibration records for your lab equipment?	[ ] Yes(2 pts.) [ ] No Attach procedures and records.

8 — Purchasing, Recycling, and Waste Reduction

Where you spend your money makes an impact. Having a purchasing plan that favors environmentally friendly materials sourcing, production, packaging, and shipping sends a message to both businesses and consumers that these methods matter. Inquiring about the packaging methods and recyclability of packaging materials used by vendors also encourages others to thoughtfully consider their own practices.

Overall waste reduction efforts and reusing or recycling all possible items will have lasting impact towards achieving the goal of less material heading into the waste stream.

8.1 Recycling

Requirements

1.	You must have a written recycling program including but not limited to paper, plastic, oil containers, oil filters, tires, batteries, and pesticide containers and educate your workers on your program.	Y N Provide written description and attach worker training.

Management Enhancements

2.	Do you recycle your used bird netting and/or drip hose?	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable if you do not use netting are are not replacing drip hose. Explain your recycling program.
3.	Did you work with your local waste management company to develop your recycling program?	[ ] Yes(2 pts.) [ ] No List name and date of meeting.
4.	Do you regularly examine waste streams to ensure that all waste is properly recycled?	[ ] Yes(2 pts.) [ ] No List name and title of person responsible.
5.	Do you train your workers and post signs on proper waste disposal in the language understood by your employee(s) at trash and recycling areas? Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Attach training records and/or photo(s).

6.	What percent of sample bottles for tasting and laboratory analysis are washed and reused?	[ ] 70 - 100% (3 pts.) [ ] 33 - 70% (2 pts.) [ ] 1 - 33% (1 pts.) [ ] No
7.	Is all broken, unusable laboratory glass sorted into specifically marked containers for disposal or recycling? (Borosilicate glass (Pyrex) and leaded glass cannot be recycled. All other glass, sample bottles, and tasting glasses are recyclable.) Photo(s) Required	[ ] Yes(2 pts.) [ ] No Attach photo of collection containers.
8.	Do you have other uses for excess and/or obsolete glass from bottling (e.g. sold to other wineries or home winemakers, etc.)?	[ ] Yes(2 pts.) [ ] No Describe.
9.	Is cardboard recycled, reused, returned to supplier for reuse, shredded, composted, and/or sheet mulched onsite?	[ ] Yes(2 pts.) [ ] No Describe.
10.	Is waste from bottling operations recycled or reused (this includes sending capsule boxes, trays, and end caps back to manufacturer)?	[ ] 51 - 100% (2 pts.) [ ] < 50% (1 pts.) [ ] No Describe.
11.	Do you recycle or repurpose natural cork?	[ ] Yes(2 pts.) [ ] No If yes, describe recycling or reuse.
12.	Are obsolete or unused capsules sold or given to a metal recycler for reuse?	[ ] Yes(2 pts.) [ ] No Describe.
13.	Are all metals separated into recyclable materials, steel drums, and scrap metal?	[ ] Yes(2 pts.) [ ] No Describe.
14.	Are unusable barrels sold, donated, or for repurposed (chipping, furniture, planters, etc.)?	[ ] Yes(2 pts.) [ ] No Describe.

15.	Do workers use scrap paper for notes and double-sided printing to reduce paper use?	[ ] Yes(2 pts.) [ ] No Describe how this is encouraged.

8.2 Waste Reduction

Requirements

1.	You must have a written waste reduction policy including targeted goals to reduce overall waste production.	Attach waste reduction policy.

Management Enhancements

2.	Do you have a water and energy conservation program in place for your farm operation, and do you educate your workers on your program?	[ ] Yes(2 pts.) [ ] No Provide written description. Document worker training(s).
3.	Do you use recycled oil for vehicles and equipment?	[ ] 50 - 100% (2 pts.) [ ] < 50% [ ] No If yes, describe.
4.	Do you use rechargeable batteries for flashlights, radios, remote controls, and other devices that use standard batteries?	[ ] 50 - 100% (2 pts.) [ ] < 50% (1 pts.) [ ] No
5.	Are wood pallets reused or picked up by a vendor or other recycling company?	[ ] Yes(2 pts.) [ ] No Describe.
6.	Are wine shippers reused as long as possible?	[ ] Yes(2 pts.) [ ] No Describe.
7.	Is compostable food waste and tableware items (e.g. cups, plates, bowls, utensils) collected separately from trash and composted?	[ ] Yes(2 pts.) [ ] No Describe.

Onsite Inspection Required

8.	Are at least 75% of break room cups, plates, and utensils washable? Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Describe and attach photo.
9.	Is Styrofoam prohibited from catering and kitchen use?	[ ] Yes(2 pts.) [ ] No Describe.

8.3 Packaging and Materials

Requirements

1.	You must have a written policy outlining when and how to distribute promotional materials (e.g. press packets, price lists) and do so electronically whenever possible.	Attach policy.
2.	You must use at least 50% recycled content in your paper packaging materials (e.g. case boxes, labels, etc.).	Attach documentation.

Management Enhancements

3.	Are your packaging and promotional materials printed using vegetable/soy or other low-VOC inks?	[ ] Yes(3 pts.) [ ] No Attach documentation.
4.	Do you use lightweight glass (less than 440 grams) to cut down on weight of freight and carbon footprint? Onsite Inspection Required	[ ] 75 - 100% of production (3 pts.) [ ] 50 - 75% of production (2 pts.) [ ] 25 - 50% of production (1 pts.) [ ] 0 - 25% of production
5.	Is all packaging used for shipping made from recycled material (no Styrofoam)?	[ ] Yes(3 pts.) [ ] No List materials.

6.	Is all packaging used for shipping the minimum size allowable, while still conforming to the carrier's requirements? 	[ ] Yes(2 pts.) [ ] No Describe package sizes used (shipper bottle number).
7.	Have you implemented a paperless policy that replaces traditional invoicing, correspondence, and purchasing in administration and/or the tasting room (e.g. email, e-fax)? 	[ ] Yes(3 pts.) [ ] No Attach policy.
8.	Do you purchase unbleached and/or chlorine-free paper products such as copy paper, paper towels, napkins, and coffee filters? 	[ ] Yes(3 pts.) [ ] No List products.
9.	Are wood products (e.g. barrels, corks, wooden wine boxes, or display materials) sourced from companies certified by the Forest Stewardship Council (FSC), Programme for the Endorsement of Forest Certification (PEFC) or other certifying agency? 	[ ] No List products and certification. [ ] Yes(2 pts.)

9 — Pest Management

A winegrowers' goal is to establish an Integrated Pest Management system to deter and manage pest issues in the most ecologically safe way.

In the Vineyard

In order for growers to protect their crop, they must manage the dynamic pest complex to minimize economic damage. The use of pesticides is one of the major challenges facing agriculture today. Public perception, worker safety, as well as state and federal regulation provide challenges to growers using pesticides.

Pest management, rather than pest control, is the focus of a sustainable farming operation. Integrated Pest Management (IPM) has been actively practiced since the 1960s and is a crucial part of vineyard management. Major advances have been made in the last 40 years to assist today’s viticulturist in this arena.

The vineyard manager must consider several issues when deciding if and when a pest needs to be controlled. The stage in the pest’s life cycle, abundance of beneficial insects, economic thresholds, potential crop injury, chemical alternatives, water quality impact, and potential impacts on non-target organisms are just a few factors to be considered when addressing pest management issues. The use of intensive field scouting, disease modeling, and insect trapping are necessary tools for managing vineyard pests.

Use of the proper equipment for management is also an important factor. Controlling weeds, root insects, canopy insects and diseases all require different scouting approaches and have different equipment needs. The vineyard manager must be knowledgeable about all the facets of these unique challenges.

In addition, trellis type, plant material, canopy management, vineyard floor management, fertilization, and irrigation are all factors that must be taken into account to prevent, mitigate, or manage pest, weed, and disease outbreaks.

Sustainable vineyard management addresses overall balance, and dealing with pests is no different. Giving attention to the interactions of irrigation, soils, cover crop, and canopy factors with pests is key; it allows for a comprehensive approach to maintain the balance of the whole farm system.

The Vineyard Team Technical Committee supports and encourages low-input farming practices. The standards are considered a “living document” meaning they will evolve over time as new science and technology develops and becomes available. Requirements include a Prohibited Materials List (listed by active ingredient) based on the Department of Pesticide Regulation’s following lists: Groundwater Protection, Cholinesterase Inhibiting, Toxic Air Contaminants, California Restricted Materials and Federally Restricted Materials Lists. In order to achieve certification, a grower must not use any of the active ingredients on this list. In the area of chemical use, growers should strive to limit their inputs and impacts.

In the Winery

Pest management is a reality for all property owners, using Integrated Pest Management practices to deter pests can decrease unwanted populations.

Reduction or elimination of chemicals for pest management is important for both employee and ecological safety. Increased demand for alternatives to toxic chemicals for pest control fuels innovation and strengthens the need for these services.

9.1 Vineyard Best Management Practices

Requirements

1.	No Active Ingredients (AI) on the Prohibited Materials List (PML) (../../../prohibited-materials) can be used. Records are required for all certified acres (December-June/July). **D** — Req'd for Documentation renewals	Attach December 1 to June/July pesticide use reports with trade names and active ingredients listed. June/July to November pesticide use reports due December 15. When were the first set of pesticide use reports completed?
3.	You must monitor and record the following: • Population dynamics of vineyard pests and insect/mite natural enemies at a minimum of every week during the vineyard growing season • Presence and severity levels of diseases or disease vectors at a minimum of every two weeks during the vineyard growing season • Presence and severity levels of weeds at least once per month • Presence and identification of vertebrate pests at least once per month **D** — Req'd for Documentation renewals	Attach Records. Describe your monitoring program. When were records last updated?
4.	The sprayer must be calibrated annually, adjusted and recalibrated for changing vineyard conditions; worn screens and nozzles must be replaced in order to insure the best coverage and efficacy of agricultural chemical applications.	Attach calibration records. When were your calibration records completed?
5.	Pesticides (insecticides, fungicides, and herbicides) with different modes of action must be alternated within the seasonal spray program in order to minimize the risk of pesticide resistance development. **D** — Req'd for Documentation renewals	Attach spray records which include target pest, disease, or weed and pesticide mode of action. Provide an example from your vineyard. When were your spray records completed?

Management Enhancements

6.	Do you apply treatments over the smallest possible area to achieve control (spot sprays or hot spot sprays)?	[ ] If spot sprays and/or no sprays are used in three programs (8 pts.) [ ] If spot sprays and/or no sprays are used in two programs (4 pts.) [ ] If spot sprays and/or no sprays are used in one program (2 pts.) [ ] No Attach spray records that include applied acres and total acres.
7.	Are sanitation practices used to prevent introduction or spread of pests, weeds, and diseases? (http://www.ipm.ucdavis.edu /PMG/selectnewpest.grapes.html (http://ipm.ucanr.edu /PMG/selectnewpest.grapes.html))	[ ] Yes(4 pts.) [ ] No Attach sanitation records and describe sanitation practices.

9.2 Insect, Mite and Nematode Pest Management

Requirements

1.	Key workers must be knowledgeable about the insect, mite, and nematode pests found in your vineyard, including understanding the pest's life cycle and natural enemies (predators, parasites, or pathogens) to make management decisions.	List the most significant insect, mite and/or nematode pests found in your vineyard, and give a brief description or diagram of their lifecycle and an example of a natural enemy.

Management Enhancements

2.	Do you time treatments to control the appropriate insect/mite brood hatch for maximum effectiveness?	[ ] Yes(5 pts.) [ ] No Reference scouting and spray records. Provide brief example, based on your attached records, which demonstrates your spray timing.
3.	Do you track weather data and degree days during the season? (http://ipm.ucanr.edu/WEATHER/index.html (http://ipm.ucanr.edu /WEATHER/index.html))	[ ] Yes(4 pts.) [ ] No Record use frequency and source of weather data. Provide reference for degree day model(s). (e.g. on-site weather station, regional weather station, degree day model)

4.	Do you have a standardized sampling protocol for pests? 	[ ] Yes(5 pts.) [ ] No Provide protocol.

9.3 Beneficial Insect Management

Requirements

1.	Key workers must be knowledgeable about the life cycle and habitat requirements of, and environmental conditions favorable to, predators and parasitoids that are the natural enemies of pests to make management decisions. 	List the natural enemies, including life cycle, habitat requirements, for the pests you listed in Requirement 9.2.1.

Management Enhancements

2.	Do you sample for the presence of beneficial insects and monitor for their activity in your vineyard? 	[ ] Yes(2 pts.) [ ] No Attach insect monitoring records including at least presence/absence of beneficial insects.
4.	Do you provide year-round refuge other than your cover crop for beneficial insects and pollinators? 	[ ] Yes(1 pts.) [ ] No [ ] Oak woodlands [ ] Riparian areas [ ] Grasslands [ ] Hedgerows [ ] Insectary plantings If you checked Other, describe: [ ] Other If yes, select other year-round refuges and indicate the location on the ranch map.
5.	Are beneficial organisms released in your vineyard as a supplement to or in lieu of needed pesticide treatments? 	[ ] Yes(1 pts.) [ ] No List beneficial organism(s), target pest(s), release date(s) and correlate with 8.1.2 monitoring records.
6.	Are selective pesticides and spray timing used to minimize adverse impacts to beneficial insect/mite populations? (http://www.ipm.ucdavis.edu/PMG/r302900111.html ()) 	[ ] Yes(4 pts.) [ ] No [ ] Not Applicable Provide written explanation of selective pesticides and spray timing including reference to pesticide use report. Not Applicable only if pesticides are not used. Provide written statement.

9.4 Disease Management

Requirements

1.	Key workers must be knowledgeable about the diseases that are likely to be found in your vineyard, including knowledge of the life cycle and vectors of the causal agent, and predisposing factors for infection and disease epidemiology to make management decisions. 	List the key diseases found in your vineyard. Provide a diagram or written description of the disease's life cycle, vectors, and other predisposing factors.

Management Enhancements

2.	Are disease models used to help schedule spray applications? 	[ ] Yes(5 pts.) [ ] No [ ] Not Applicable Provide disease model reference. Not Applicable only if you do not spray fungicides. Provide written statement.
3.	Are canopy and fruit density managed to optimize air movement, light penetration, and spray coverage? 	[ ] Yes(5 pts.) [ ] No Attach canopy and fruit density management records.

9.5 Weed Management

Requirements

1.	Key workers must be knowledgeable about the weed species common in your vineyard and their most susceptible life stage to make management decisions. 	List key weed species found in your vineyard and their most susceptible life stage.

Management Enhancements

2.	Are spot spraying methods used when applying contact herbicides? 	[ ] Yes(6 pts.) [ ] No Provide written statement describing the timing of your weed control program and attach herbicide spray records. [ ] Not applicable if herbicides were not used.

3.	Is the width of the weed free swath under the vine throughout the growing season:  Photo(s) Required Onsite Inspection Required	[ ] < 30” (3 pts.) [ ] 30 – 48” (2 pts.) [ ] > 48” [ ] No Provide photo documentation of close-up with swath measurement shown and large scale photo from a block level during the growing season.
4.	Are there programs in place to help eliminate or prevent the introduction or spread of noxious weed species? Programs can include but are not limited to on-site detection and elimination, purchasing weed-free cover crop seed, hay, and mulch. (Reference Management Enhancements 1.1.8) 	[ ] Yes(3 pts.) [ ] No Describe program specifics and attach program records.
5.	Are weed control programs implemented when the weeds are most susceptible? 	[ ] Yes(4 pts.) [ ] No Provide written statement describing the timing of your weed control program. Attach herbicide spray records.

9.6 Vertebrate Pest Management

Requirements

(No requirements in this section.)

Management Enhancements

1.	Do you identify and protect existing wildlife corridors to allow movement between habitats? 	[ ] Yes(3 pts.) [ ] No Indicate wildlife corridor on ranch map.
2.	Are selective exclusion methods used for vertebrate pest control? Selective exclusion methods include, but are not limited to, fencing that is used for targeted pest only and allows smaller animals to migrate through the fence, pest specific traps, and sound machines. Not applicable if no exclusion methods are used. 	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Indicate selective exclusion methods on ranch map and explain. If not applicable, explain.
3.	Do you use non-chemical methods of vertebrate pest control? 	[ ] Yes(3 pts.) [ ] No Provide written description/documentation of alternative methods.

9.7 Winery Pest Management

Requirements

1.	You must have an Integrated Pest Management (IPM) system. This should include a list of winery pests, monthly monitoring, and strategies for prevention and control.	Attach plan.

Management Enhancements

2.	Do you use nontoxic and/or ecologically friendly pest control methods?	[ ] Yes(4 pts.) [ ] No Describe pest control methods.
3.	If you contract with a pest control operator, did you choose one that is EcoWise Certified, ()or specify in the contract that Integrated Pest Management (IPM) and methods using non-chemical pest prevention and pest control are used?	[ ] Yes(2 pts.) [ ] No Describe or attach contract details.
4.	Do you keep drains, hoses, valves, manways, ladders, catwalks and fixed lines clean to deter pests?	[ ] Yes(2 pts.) [ ] No Explain standard operating procedures for each.
5.	Do you store winery waste, byproducts, and wood pallets offsite or away from the winery buildings in order to deter pests? Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Describe storage location and show on map.
6.	Do you store all barrels inside? Photo(s) Required Onsite Inspection Required	[ ] Yes(2 pts.) [ ] No Attach photo or show on map.

10 — Grape Sourcing and Fruit Quality

Growing and using quality wine grapes is essential to a winegrower's long-term profitability.

In the Vineyard

Practices such as vineyard development, soil and fertility management, viticulture practices, and fair treatment of employees have been addressed throughout the Standards. Each of these considerations contributes an additional layer to a quality product. Through whole farm system management, wine grape growers can produce quality fruit grown in a biologically diverse agricultural ecosystem. Fruit quality is determined over the course of many seasons and is affected by numerous factors. Quality is the result of viticultural practices such as pruning, canopy management, and fruit thinning; irrigation and water management; soil and fertility management; effective pest and disease management; harvest decisions, and more. It is important for growers to evaluate fruit quality indicators (including but not limited to Brix, pH, and TA). Evaluating annually allows the producer to analyze maturity parameters and use those results to adjust the farming practices during the next season.

In the Winery

Maintaining healthy relationships with grape growers, whether they are farming an estate vineyard or contracted grapes, is beneficial to both growers and wineries.

Fruit quality must be measured against contracts and/or winemaking protocols in order to meet desired parameters for the target wine quality level. Requesting or mandating that growers farm sustainably further adds to the reach of winery sustainability initiatives and sends a clear business message.

10.1 Fruit Quality

Requirements

1.	You must record fruit quality parameters on an annual basis, including Brix, pH, and TA. **D** — Req'd for Documentation renewals	Provide fruit quality parameter records from the previous year. When were your records completed?
2.	You must have receiving records for all grapes received.	Attach three samples of grape receiving records.

Management Enhancements

3.	Did a vineyard, winery, and/or buyer representative visit the vineyard pre-harvest?	[ ] Yes(1 pts.) Include vineyard, winery and/or buyer representative name. [ ] No
4.	Do you review annual crop projections prior to harvest?	[ ] Within 10% of projection (3 pts.) [ ] Within 20% of projection (2 pts.) [ ] No Attach records of projection and actual yield.

11 — Social Equity

The Social Equity section is designed to be completed based on policies toward workers. A worker is defined as any person (both in house and contractor provided labor) working at your winegrowing operation at any point during the year.

One of the three major tenets of sustainability is social equity. The health and wellbeing of all people connected to the business, not just employees, is as important as the health of the environment and the business enterprise itself.

In the Vineyard

In order for winegrowing businesses to be truly sustainable, they must provide a safe and fair working environment for their employees and interact successfully with the surrounding community. These goals can best be achieved when winegrowing businesses are realistic about the challenges they face, forthright in their communication with both groups, and incorporate social equity issues as an integral part of their sustainable practices.

A safe and fair work environment is particularly important in winegrowing businesses where a heavy reliance has been placed on human labor. The interaction between winegrowing business owners, community leaders, concerned citizens, and winegrowing workers offers the sustainable winegrowing employers the opportunity to continue to develop and continuously implement safety programs, effective communication with their workers, and fair employment practices that eliminate discrimination. Providing fair compensation, rewarding workers for superior performance, and providing competitive benefits can promote a positive work environment where emphasis is on accomplishment. In order to promote a positive work environment, winegrowers should understand cultural issues and emphasize an open dialogue between worker and employer.

Positive interaction between winegrowing businesses and their urban and non-urban neighbors is critically important to sustainable winegrowing. An honest interchange of information is essential. Educating surrounding communities regarding SIP Certified, Integrated Pest Management (IPM), and sustainable wine making practices will help mitigate ag-urban interface issues. When winegrowers provide their community a clear picture of how their sustainable practices enhance and protect the neighboring environments they preempt misunderstanding and unwarranted fear. Not only do winegrowers need to practice good stewardship of their human and natural resources, they need to communicate these efforts to the community at large. A properly managed vineyard or winery is a healthy sustainable ecosystem that provides environmental, economic, and social benefits that reach well beyond the borders of that operation.

11.1 Worker Orientation and Human Resources Policies

Requirements

1. You must include the following within the Employee Handbook(s) and provide a copy to each new employee: • Harassment Policy • Salary, Benefits, and Incentives • Employee Orientation • Ongoing Training • Employee Safety Policies and Practices • Employee Evaluations, Grievance Policy and Disciplinary Actions	Provide copy of Employee Handbook.

2.	You must develop and implement a safety program addressing injury and illness prevention including the following: • A system for ensuring that employees comply with safe and healthy work practices • A system for communicating with employees on safety and health matters, including provisions designed to encourage employees to report hazards without fear of reprisal • Procedures for identifying hazards including scheduled periodic inspections • A procedure to investigate occupational injury or occupational illness • Methods and/or procedures for correcting unsafe or unhealthy conditions • Provide training and instruction to employees and supervisors to familiarize them with the hazards to which employees under their control may be exposed 	Attach the program and Identify the person(s) with authority and responsibility for implementing the program.
3.	All new employees must receive an introduction to the company prior to starting work. Company introduction includes, but is not limited to: • Long and short term work goals • Benefits and eligibility requirements • Policies • Job descriptions 	Provide documentation of employee orientation meeting and employee manual in a language understood by the employee(s).
4.	Management training seminars concerning workplace harassment and discrimination must be conducted at least every two years. Attach training records. 	Y N Attach verification form or other proof of attendance. When was the most recent seminar held?
5.	If your employees are minors (17 years of age or younger) you must do the following: • Prevent children under the age of 13 in an Agricultural Zone of Danger • Ensure minors work days and hours in compliance with requirements of state and federal regulations • Obtain and have on file a work permit from each minor any time of year 	Attach copy of work permit.
6.	If you pay a piece rate, you must have a mechanism to properly compensate break time. 	Provide documentation. If you do not pay piece rate, explain.

Management Enhancements

7.	Do you pay all workers competitive salaries for your region?	[ ] Yes(3 pts.) [ ] No Document average salaries per job category benchmarked to the most recent salary survey results for workers in your region.
8.	How much of your medical insurance premium do you cover?	[ ] 100% premium coverage (6 pts.) [ ] 75% premium coverage (4 pts.) [ ] 50% premium coverage (2 pts.) [ ] Less than 50% premium coverage (0 pts.)
9.	Do you provide the following insurance plans?	[ ] Dental & Vision (4 pts.) [ ] Dental (3 pts.) [ ] Vision (1 pts.) [ ] No
10.	Do you provide family support services for your workers?	[ ] Three or more services provided (4 pts.) [ ] Two services provided (2 pts.) [ ] One service provided (1 pts.) [ ] No [ ] Housing opportunities referral information and resources [ ] Community resources referral information [ ] Childcare referral program [ ] Nutrition, health, and wellness resources and/or referrals [ ] Employer participation in community groups dedicated to increasing housing opportunities [ ] Employer donates money and other resources to local housing groups [ ] Other If you checked Other, describe:
11.	Do you offer retirement benefits to your workers?	[ ] Offered to 75% - 100% of employees (6 pts.) [ ] Offered to 50% - 75% of employees (4 pts.) [ ] Offered to 25% - 50% of employees (2 pts.) [ ] Offered to less than 25% of employees Describe worker retirement benefits.

12.	Do you offer bonuses and rewards to your workers? 	[ ] Offered to 75% - 100% of workers (3 pts.) [ ] Offered to 50% - 75% of workers (2 pts.) [ ] Offered to 25% - 50% of workers (1 pts.) [ ] Offered to less than 25% of workers Describe worker bonuses and rewards.
13.	Do you hold team building exercises, retreats, or educational field trips at least one work day annually? 	[ ] Yes(2 pts.) [ ] No Provide documentation for most recent activity.
14.	Do you have a formalized process for handling performance evaluations with your workers including setting specific goals and timelines? 	[ ] Yes(3 pts.) [ ] No Describe formalized process for worker performance evaluations.
15.	Do you have a written complaint process in place for your workers? 	[ ] Yes(4 pts.) [ ] No Provide written documentation of worker complaint process or provide your own equivalent documentation.

11.2 Worker Development and Ongoing Training

Requirements

1.	Employee safety trainings must be given every time an employee starts work and/or enters a new working environment. Training meetings include: • Personal hygiene • Daily change of clean clothing • Recognizing and avoiding unsafe working environments or conditions • Safe use and handling of pesticides for handlers and applicators • Pesticide safety and awareness • Pesticide use notification • Heat illness prevention • Equipment and ergonomics • Other types of ergonomic/musculoskeletal safety issues (lifting, carrying, etc.)  **D** — Req'd for Documentation renewals	Provide documentation of employee safety training meetings.

2.	You must provide annual training on confined space, fall protection, heat stress prevention, respiratory/pesticide awareness and ammonia safety (if applicable), and biannual forklift training. **D** — Req'd for Documentation renewals	Attach training records from the past 12 months.

Management Enhancements

3.	Do you hold meetings at least annually to include your workers in your sustainable strategies and long- and short-term goals?	[ ] Meeting includes all workers (3 pts.) [ ] Meeting includes managers & supervisors (2 pts.) [ ] No Provide documentation of worker meetings on sustainable strategies and long- and short-term goals.
4.	Do you offer your workers new skills training programs?	[ ] Yes(3 pts.) [ ] No [ ] ESL courses [ ] Sustainable agriculture practices courses [ ] Integrated Pest Management courses including, but not limited to, weed, insect and disease identification [ ] Equipment training courses [ ] Water conservation courses [ ] Energy conservation courses Explain training programs offered. [ ] Other
5.	Do you have a system in place that encourages workers to submit suggestions for improving workplace conditions, job training and worker development opportunities, and business performance and operational efficiencies?	[ ] Yes(3 pts.) [ ] No Provide written description.
6.	Do you conduct regular production meetings?	[ ] Monthly (2 pts.) [ ] Daily (4 pts.) [ ] Weekly (3 pts.) [ ] Less than 1 time/month (1 pts.) [ ] No Describe.

7.	Do you conduct pre- and post-harvest meetings? 	[ ] No [ ] Yes(3 pts.) Describe.

11.3 Safe Work Environment

Requirements

1.	You must have a written Emergency Preparedness and Evacuation Plan including but not limited to: • Internal and external contact information (e.g. 911, doctor, ambulance, fire department, hospital, urgent care) • Employee contact information • Location of nearest phone (phone must be accessible at all times) • Location of emergency exits 	Attach Emergency Preparedness and Evacuation Plan and annual training records.
2.	Facilities must have warning signs for all potential hazards (e.g. chemical storage areas, electrical equipment, fuel tanks, toxic material, etc.) posted in the language understood by your worker(s). 	Y N Attach photo(s).
3.	You must inspect and record the following: • Daily forklift log • Secured storage of compressed gas cylinders (daily when used) • Equipment safety checks at least monthly (seasonally for equipment used annually) • Eye wash and shower station inspections at least monthly (if applicable) • First Aid kit inspection and restocking at least quarterly • Fire extinguisher inspections monthly and recharge at least annually • Fire suppression system inspection at least annually 	Attach inspection records.
4.	You must test your facility for noise output every three years during peak daytime and nighttime operations. Noise 100 feet away from the facility must be kept below 45dB Hourly Equivalent Sound Level between the hours of 10pm and 7am. Submit by **December 15.** 	Attach documentation showing noise levels at the facility and 100 feet away.

5.	Hearing protection must be provided to employees exposed to noise levels above 80dB. 	Document what type of hearing protection is provided.
6.	If your wells are used for drinking water, you must conduct drinking water suitability tests at least every three years. If water quality does not meet suitability test you must provide an alternative source of drinking water or take corrective action. 	If applicable, provide copies of the sampling results and alternate source/corrective action, if nedeed. When were the water suitability tests completed?

Management Enhancements

7.	Do you conduct a workplace safety inspection, document problems, and take corrective action? 	[ ] Weekly (6 pts.) [ ] Monthly (4 pts.) [ ] Annually (2 pts.) [ ] No Describe workplace safety inspection process.
8.	Is one member of management clearly identified as the person responsible for worker health and welfare issues? 	[ ] No [ ] Yes(3 pts.) List name and title of person responsible.
9.	Do you offer incentives or have a worker safety rewards program in place that recognizes and appreciates individuals for safe job performance? 	[ ] Yes(5 pts.) [ ] No Describe your incentive program for safe job performance.
10.	Do you offer CPR and First Aid training to your employees? 	[ ] No [ ] Yes(2 pts.) Attach records.
11.	Have you performed ergonomic assessments for various jobs throughout the winery? 	[ ] Yes(2 pts.) [ ] No If yes, describe and/or attach records.
12.	Do you regularly review and update your standard operating procedures (SOP)? 	[ ] Annually (2 pts.) [ ] Every two years (1 pts.) [ ] Never If yes, describe and/or attach records.

11.4 Community Involvement

Requirements

1.	You must have a plan in place that addresses neighbor and community communication. Plan must include: • Participation in neighbor and community forums • Notification of major changes to practices • Procedures for neighbors to express their concerns regarding farming practices • Program addressing the proper use of bird frightening devices including neighbor considerations (if applicable) • Procedures to log and follow-up on neighbor and community complaints • Worker training regarding the neighbor and community communications program 	Attach written plan.
2.	You must train tasting room and/or sales workers on how to communicate your sustainable practices to customers. 	Attach training records.

Management Enhancements

3.	Have you participated in at least two events during the last 12 months that include community members on sustainability issues (e.g. wine events, public hearings, etc.)? 	[ ] Yes(4 pts.) [ ] No List events you have participated in during the last 12 months.
4.	Do you have a system in place to notify neighbors of major changes to farming practices? 	[ ] Yes(4 pts.) [ ] No [ ] Postcards or other mailings [ ] Notification board with regular postings at the property entrance or other convenient location for neighbors [ ] Website or blog [ ] Other If you checked Other, describe:
5.	If you use noise makers for bird abatement do you only use them during daylight hours? 	[ ] Yes(2 pts.) [ ] No [ ] Not Applicable Describe.

12 — Continuing Education

New technologies for sustainable winegrowing are constantly being adopted by the industry. Continuing Education (CE) programs are important for both small and large vineyard and winery owners and managers to improve practices, enhance worker safety, and reduce environmental impacts. CE credits are available from a wide range of organizations on topics including worker safety procedures, pest and disease management, wine quality, regional and statewide laws and regulations, personnel management and the latest research results in viticulture and oenology. Credits in CE are also required for many license holders, such as Pest Control Advisors, Private Applicators, and Certified Crop Advisors.

Continuing Education is available through a variety of organizations including the Vineyard Team (VT), local Vintner's and Grower's groups, and statewide groups, universities, and the California Association of Pest Control Advisors (CAPCA). Winegrowers must take advantage of opportunities to educate themselves over the length of their career and seek deeper knowledge of wine growing and making practices, from pre-plant habitat conservation to water savings in the winery, and everything in between. In addition, owners and managers must remain open to alternative and innovative practices being developed within the industry in order to compete in both the local and world markets.

Continually seeking new information and resources regarding every aspect of winegrowing operations should be the goal of managers.

12.1 Continuing Education

Requirements

1.	You must participate in at least 20 hours (40 hours if certifying both vineyard and winery) of continuing education pertaining to farming, winemaking, business practices and/or sustainability issues each year. **D** — Req'd for Documentation renewals	Attach Continuing Education verification forms totaling 20 hours from the past 12 months. When was the Continuing Education completed?
2.	You must have a procedure in place to maintain your certification including personnel responsible for certification compliance, contact information, database login information, documentation maintenance and deadlines.	Attach procedure.

Management Enhancements

3.	Do you attend at least four local vintners, growers, Chamber of Commerce or other environmental, conservation, or business association meetings keep up to date on grape growing and winemaking issues?	[ ] Yes(3 pts.) [ ] No If yes, provide documentation of meeting attendance.
4.	Do you read trade, university, farming, and industry journals?	[ ] Yes(3 pts.) [ ] No If yes, list journals.

5.	Do you have current membership in local growers' and vintners' associations and attend the meetings to keep informed on local issues? 	[ ] Yes(3 pts.) [ ] No If yes, list associations of which you are a member.
6.	Do you attend annual trainings on human resource issues? 	[ ] Yes(5 pts.) [ ] No [ ] Not Applicable If yes, attach verification form or other proof of attendance. Not Applicable only if you have no employees; provide written statement.
7.	Do you or your workers volunteer, sit on a board or committee, help organize or provide presentations for industry or community organizations? 	Describe your involvement. [ ] No [ ] Yes(3 pts.)
8.	Do you and/or your workers provide summaries of seminars attended in order to share knowledge with others? 	Explain how knowledge is shared. [ ] No [ ] Yes(2 pts.)
9.	Do you use any of the resources below? • The most recent Grape Pest Management, UC DANR Publication 3343 and the UC IPM Pest Management Guidelines: Grapes, UC DANR Publication 3448 • UC Davis IPM website (www.ipm.ucdavis.edu (www.ipm.ucdavis.edu)) • UC Year Round IPM Program (http://www.ipm.ucdavis.edu/PMG/C302/m302yi01.html (http://www.ipm.ucdavis.edu/PMG/C302/m302yi01.html)) 	[ ] Yes(3 pts.) [ ] No
10.	Do you attend annual CA DPR-approved pesticide laws and regulations meetings? 	[ ] Yes(3 pts.) [ ] No [ ] Not Applicable If yes, attach verification form or other proof of attendance. If Not Applicable, explain.
11.	Do you receive notices from the Alcohol and Tobacco Tax and Trade Bureau (TTB) or your local Department of Alcoholic Beverage Control (ABC) office regarding process or regulation changes? 	[ ] No If yes, attach most recent documents. [ ] Yes(2 pts.)

13 — Business Management

A healthy, functioning business is a critical component of a sustainable operation. A business must be economically viable to be sustainable long term. Budgets are a critical tool for every operation and are required for certification. Other issues related to the economic aspect of sustainability include succession planning, actual to budget comparisons, long-term financial planning, record keeping, information technology security, and inventory management.

13.1 Economic Viability

Requirements

1.	You must have an annual or multi-year budget. 	Provide documentation of the budget. You do not need to disclose sensitive financial information. Indicate the year the budget is for; any date.
3.	You must have a sales and marketing plan. 	Attach plan.
4.	You must document that winery records are maintained (e.g. analysis, work completed, additions, wine tracking by lot and bottling). 	Name the method or program you use and provide an example of your records.
5.	You must have an inventory management system for dry goods and additives, bulk wine, and case wine. 	List system used and provide a copy of most recent inventory.

Management Enhancements

6.	Do you have a system in place to track, review, and compare your cost efficiencies over time? 	[ ] Yes(3 pts.) [ ] No Provide a written description of your tracking and review system.
7.	Do you review your budget to actual on a monthly basis? 	[ ] Yes(3 pts.) [ ] No Provide documentation of monthly budget versus actual comparisons. You do not need to disclose sensitive financial information.
8.	Do you meet with a financial or business advisor annually? 	[ ] Yes(3 pts.) [ ] No Provide name and affiliation of financial or business advisor and date of most recent meeting:

9.	Do you have a succession plan in place? 	[ ] Yes(3 pts.) [ ] No [ ] Not Applicable Provide statement.
10.	Do you have a plan in place to maintain business operations in case of a disaster or IT failure? 	[ ] Yes(2 pts.) [ ] No Attach plan.
11.	Do you have an internship program? 	[ ] Yes(2 pts.) [ ] No Describe.
12.	Do you have long term redevelopment plan for your vineyard? 	[ ] Yes(2 pts.) [ ] No Attach plan.
13.	Do you have crop insurance? Not applicable for nonbearing vineyards. 	[ ] Yes(3 pts.) [ ] No [ ] Not Applicable Provide proof of current crop insurance.

14 — Year End Water and Nitrogen Use Reports

- Chapter 14 Year End Reports are due by **December 15** of the certification year for all acres in the program.
- Calculations include water and nitrogen use from December 1 through November 30 of the certification year.
- Calculations are on a per acre basis.
- Attach documentation and/or calculations with specified units.
- You can use the Water and Nitrogen Use Report Workbook (http://www.vineyardteam.org/files/resources/Water%20and%20Nitrogen%20Use%20Reports_SIP%20Certified%20Ch.%2014.xlsx) to complete your calculations.

14.1 General Parameters

Requirements

1. Total Area — In Acres

   D — Req'd for Documentation renewals

2. Total Yield — In Tons

   D — Req'd for Documentation renewals

14.2 Water Use Report

Requirements

1. Applied Irrigation Water — (ac-ft/ac)

   To convert water units per acre to acre feet, download the UCCE Irrigation Converter (http://cesanluisobispo.ucanr.edu/files/164586.xlsx).

   Explain

   D — Req'd for Documentation renewals

2. Applied Frost Water — (ac-ft/ac)

   Explain

   To convert water units per acre to acre feet, download the UCCE Irrigation Converter (http://cesanluisobispo.ucanr.edu/files/164586.xlsx).

   D — Req'd for Documentation renewals

3. Rainfall (ac-ft/ac)

Explain

Example: Inches per acre can be converted to acre feet per acre by dividing by 12.

$$\frac{10.7 \text{ in/ac}}{12.0 \text{ in/ac-ft}} = \frac{0.89 \text{ ac-ft}}{\text{ac}}$$

D — Req'd for Documentation renewals

14.3 Nitrogen Use Report

Requirements

1. Fertilizer (Lbs N/ac)

Explain

Example for Solid Fertilizer: Ammonium sulfate [(NH4)2SO4] fertilizer contains 21% N or 0.21 lbs N/lb of fertilizer. If 100 lbs of ammonium sulfate are applied per acre, the total N application is 21 lbs/acre.

$$\frac{100 \text{ lbs (NH4)2SO4}}{\text{ac}} \times \frac{0.21 \text{ lbs N}}{1.0 \text{ lb (NH4)2SO4}} = \frac{21 \text{ lbs N}}{\text{ac}}$$

Example for Liquid Fertilizer: Ammonium nitrate liquid fertilizer (AN 20) has a density of 10.76 Lbs/gal, and 21% nitrogen.

$$\frac{10.76 \text{ lbs}}{\text{gal of fertilizer}} \times \frac{0.21 \text{ Lbs N}}{\text{lb of fertilizer}} \times \frac{5 \text{ gal applied fertilizer}}{\text{ac}} = \frac{11.3 \text{ lbs N}}{\text{ac}}$$

D — Req'd for Documentation renewals

2. Compost

(Lbs N/ac)

Explain

Presumptions (if not provided by your producer or lab): Two methods are presented below for converting compost applications per acre to lbs N per acre. The presumption for %N availability is based on an industry standard of 30% (0.30) availability of total N content of compost, and an average weight of 900 lbs per cubic yard of compost.

Example for Tons/Acre Compost Applied: Wet (as is) compost with 1.7% N content, applied at a rate of 5 tons per acre.

Step 1: Convert %N content to lbs N per ton of compost.

$$\frac{1.7 \text{ lbs N}}{100 \text{ lbs}} \times \frac{2000 \text{ lbs}}{\text{ton of compost}} = \frac{34 \text{ lbs N}}{\text{ton of compost}}$$

Step 2: Convert lbs N per ton of compost to lbs available N per ton of compost.

$$\frac{34 \text{ lbs N}}{\text{ton of compost}} \times \frac{0.30 \text{ lbs available}}{1 \text{ lb total N}} = \frac{10.2 \text{ lbs available}}{\text{ton of compost}}$$

Step 3: Multiply lbs of available N per ton by total tons applied per acre.

$$\frac{10.2 \text{ lbs available N}}{\text{ton of compost}} \times \frac{5 \text{ tons compost}}{\text{ac}} = \frac{51 \text{ lbs N}}{\text{ac}}$$

Example for Cubic Yards (CY)/Acre Compost Applied: Wet (as is) compost with 1.7% N content, applied at a rate of 5 cubic yards per acre.

Step 1: Convert %N content to lbs N per cubic yard of compost.

$$\frac{1.7 \text{ lbs N}}{100 \text{ lbs compost}} \times \frac{900 \text{ lbs}}{\text{cy of compost}} = \frac{15.3 \text{ lbs N}}{\text{cy of compost}}$$

Step 2: Convert lbs N per cubic yard of compost to lbs available N per cubic yard of compost.

$$\frac{15.3 \text{ lbs N}}{\text{cy of compost}} \times \frac{0.30 \text{ lbs available N}}{1 \text{ lb total N}} = \frac{4.6 \text{ lbs available N}}{\text{cy of compost}}$$

Step 3: Multiply lbs of available N per cubic yard by total cubic yards applied per acre.

$$\frac{4.6 \text{ lbs available N}}{\text{cy of compost}} \times \frac{5 \text{ cy of compost}}{\text{ac}} = \frac{23 \text{ lbs N}}{\text{ac}}$$

D — Req'd for Documentation renewals

3. Water (Lbs N/ac)

Explain

Presumptions: Two methods are presented below for converting irrigation water applications per acre to lbs N per acre. Nitrogen content of water is most commonly reported in ppm NO3 or ppm NO3-N. NO3 is converted to lbs N/acre foot of water by multiplying by 0.62. NO3-N is converted to lbs N/acre foot of water by multiplying by 2.74. A detailed description of these conversion factors can be viewed online (http://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=7744).

Example for lab report of ppm NO3: Report from lab shows 45ppm NO3 and a total of 0.89 acre feet (ac-ft) of irrigation water was applied.

Step1: Convert ppm NO3 to lbs N/acre foot of irrigation water applied.

45 ppm NO3 x 0.62 = 27.9 lbs N/ac-ft

Step 2: Multiply lbs N/ac-ft by total irrigation water applied per acre.

$$\frac{27.9 \text{ lbs N}}{\text{ac-ft}} \times \frac{0.89 \text{ ac-ft irrigation water}}{\text{ac}} = \frac{24.8 \text{ lbs N}}{\text{ac}}$$

Example for lab report of ppm NO3-N: Report from lab shows 45ppm NO3-N and a total of 0.89 acre feet (ac-ft) of irrigation water was applied.

Step1: Convert ppm NO3-N to lbs N/acre foot of irrigation water applied.

45 ppm NO3 x 2.74 = 123.3 lbs N/ ac-ft

Step 2: Multiply lbs N/ ac-ft by total irrigation water applied per acre.

$$\frac{123.3 \text{ lbs N}}{\text{ac-ft}} \times \frac{0.89 \text{ ac-ft irrigation water ac}}{\text{ac}} = \frac{109.7 \text{ lbs}}{\text{ac}}$$

*Efficiency of fertilization and of irrigation are not factored into the above equations.

D — Req'd for Documentation renewals