

Sustainability in Practice (SIP)

Vineyard Certification Program



Standards

2015

Sustainable agriculture is based on the three “E’s” of sustainability. In the vineyard, farming managers must address these three “E’s” - economic viability, environmental stewardship, and social equity.

An important theme of integrated farming is the ability for growers to evaluate their practices on a whole-farm level. Available throughout California, Sustainability in Practice (SIP)[™] Certification is a measurable and recordable set of farming practices which encompass ten chapters comprised of Conservation and Enhancement of Biological Diversity, Vineyard Establishment and Management, Soil Conservation and Water Quality, Water Conservation, Energy Conservation and Efficiency, Air Quality, Social Equity, Pest Management, Continuing Education, and Product Assurance and Business Sustainability.

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. 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 growers to earn points based on additional, non-required, but suggested management strategies. Also included within the document is a farm plan which is required for certification – the farm 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 grower’s farming practices and documentation are verified through an independent audit and reviewed by an advisory committee. The purpose of certification is for growers to evaluate and substantiate their farming practices on a whole-farm level. This allows for marketplace authenticity and differentiation.

SIP Certification also recognizes the need for continual improvement both in farming practices and certification standards. The SIP Standards are considered to be part of a living document; they will improve over time with advances in science and research.

SIP Certification 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. The program was peer reviewed by over 30 environmental, regulatory, and academic representatives and piloted in 2008.

Instructions

Timeframe:

The SIP certification cycle is December 1 through November 30. Certification applies to the vintage within which the Standards' practices were third-party audited. For example, an applicant who submits completed Standards and documentation for practices occurring December 1, 2010 through November 30, 2011 would be eligible for certification for the 2011 vintage.

Points:

The Standards are based on a 1,000 point scale and questions are made up of Requirements and Management Enhancements (ME). In total, the applicant needs at least 75% of the total available points from Requirements and Management Enhancements to be eligible for certification. All documentation must be present at the time of audit.

Requirements are mandatory. Meeting all Requirements will result in being awarded 500 points. Failure to meet any one Requirement or provide proper documentation will result in automatically not achieving certification eligibility.

Management Enhancements are assigned various point values totaling 500 points. Vineyards must receive a minimum of 50% of the applicable ME points. Some questions have Not Applicable answers. If a Not Applicable answer is selected that question's point value is subtracted from the total available ME points. For example, if a Not Applicable answer is selected on a question worth 5 points the total available ME points goes from 500 to 495.

Documentation:

Login to the SIP database (<https://app.sipcertified.org>) to begin documenting the Standards.

Inspections:

Find your inspection Cycle type, Documentation and Documentation & Onsite Standards in the online database.

- Cycle 1 Inspection - Full: Complete entire Standards plus onsite inspection.
- Cycle 2 & 3 Inspection - Documentation: Complete all Standards marked with "D".
- Cycle 2 & 3 Inspection - Documentation & Onsite/Impromptu: Complete all Standards marked with "D" and "D+O" plus onsite inspection.

*Note: If you are in Cycle 2 or 3 with a Documentation inspection and have not received a Documentation & Onsite OR Impromptu inspection in the past 6 years, you are eligible for an Impromptu inspection.

Table of Contents

1	CONSERVATION AND ENHANCEMENT OF BIOLOGICAL DIVERSITY	5
1.1	Conservation and Enhancement of Biological Diversity	5
2	VINEYARD ACQUISITION, ESTABLISHMENT AND MANAGEMENT	9
2.1	Pre-Plant/Purchase	9
2.2	Rootstock, Scion, and Clone Selection	13
2.3	Spacing and Orientation Selection	16
2.4	Trellis Selection	17
2.5	Canopy Management	19
2.6	Tissue Analysis	20
2.7	Fertility Management	22
3	SOIL CONSERVATION AND WATER QUALITY	27
3.1	Soil Management	28
3.2	Erosion Control and Prevention of Offsite Movement	32
4	WATER RESOURCES AND CONSERVATION.....	37
4.1	Water Quality and Analysis	37
4.2	Water Use Efficiency	39
4.3	Irrigation Scheduling and Water Use Tracking	42
5	ENERGY CONSERVATION AND EFFICIENCY	45
5.1	Energy Conservation and Efficiency	45
6	AIR QUALITY	49
6.1	Air Quality	49
7	SOCIAL EQUITY	53
7.1	Human Resources	53
7.2	Worker Ongoing Training	55
7.3	Worker Salaries and Benefits	56
7.4	Worker Safety	59
7.5	Worker Development	60
7.6	Worker Evaluations, Complaint Policies, and Disciplinary Actions	61
7.7	Sustainable Practices and Worker Training Programs for Recycling, Water, and Energy	62
7.8	Worker Involvement	64
7.9	Community Involvement	65
8	PEST MANAGEMENT	69
8.1	Program Best Management Practices	69
8.2	Insect, Mite and Nematode Pest Management	72
8.3	Beneficial Insect Management	74
8.4	Disease Management	76
8.5	Weed Management	78
8.6	Vertebrate Pest Management	80

9	CONTINUING EDUCATION	83
9.1	Continuing Education.....	83
10	PRODUCT ASSURANCE AND BUSINESS SUSTAINABILITY	87
10.1	Fruit Quality.....	87
10.2	Economic Viability.....	89
11	YEAR END WATER AND NITROGEN USE REPORTS	93
	SIP™ VINEYARD CERTIFICATION STANDARDS POINT SUMMARY.....	96
	2015 SIP™ STANDARDS PHOTO LIST	97
	2015 SIP™ CERTIFICATION PROHIBITED MATERIALS LIST (PML).....	98

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

Goal: Create a biologically diverse agricultural ecosystem in vineyards.

Requirement(s)

1.1.1 You must have 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:

- Streams and/or waterbodies
- Wildlife areas
- Animals, fish, and wildlife
- Wetland areas
- Forest/Woodland areas
- Rare or endangered plant and animal species on your property
- Cover crops, filter strips, and vegetated buffers
- Snag and cavity trees
- Hedgerows and windbreak shelter trees
- Noxious or invasive plants

Identify habitat areas on your ranch map. Document below what sensitive species, if any, exist in your area. (<http://www.cdpr.ca.gov/docs/endspec/prescint.htm>)

1.1.2 Farming practices must allow for botanical diversity in and/or around the vineyard.

List species by habitat type(s) you are fostering or establishing on your property and include habitat type(s) on your farm map.

Habitat	Species

Management Enhancement(s)

1.1.3 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 NO: 0

If yes, list the following:

Agency(s)	Contact(s)/Resources

1.1.4 From the onset of your involvement with the vineyard, were existing oak habitat, riparian areas, wetlands, and other natural habitats conserved or restored when developing your vineyard site?

YES: 6 NO: 0

If yes, list conserved or improved areas and document conserved or restored areas on the ranch map.

1.1.5 Do you alternately mow or till row middles for maximum biodiversity during the season?

YES: 5 NO: 0 NOT APPLICABLE: NA

If yes, attach mowing and/or tillage records and photo documentation of practices. Not Applicable only if vineyard is located in a frost sensitive area. Provide written statement.

1.1.6 Are insectary rows maintained every 5 – 10 rows?

YES: 5 NO: 0

If yes, indicate Insectary plantings on ranch map.

Provide documentation of insectary row species composition.

1.1.7 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?

YES: 5 NO: 0

Provide photo documentation of bat box, owl box, and/or raptor perch.

1.1.8 Do you avoid the spread of noxious weed species by using clean cover crop seed?

YES: 3 NO: 0

If yes, include sample copy of cover crop seed bag tag indicating test results of cleaning process. Reference Pest Management, Weed Management, Management Enhancement 8.5.2.3

1.1.9 Do you manage adjacent habitat areas, outside the vineyard, to control the spread of noxious weed species?

YES: 2 NO: 0

Conservation and Enhancement of Biological Diversity

If yes, describe management practices. Reference Pest Management, Weed Management, Management Enhancement 8.5.2.2.

1.1.10 Are you participating in an agriculture preservation program including but not limited to the Williamson Act, Ag Preserves, or Ag Security Zones?

YES: 4 NO: 0

If yes, provide documentation of your participation.

1.1.11 Have you established a conservation easement for a portion of your property?

YES: 4 NO: 0

If yes, provide documentation of your easement agreement.

1. CONSERVATION AND ENHANCEMENT OF BIOLOGICAL DIVERSITY POINT SUMMARY				
	A Total Chapter Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
1.1 Conservation and Enhancement of Biological Diversity	40			
Total Points	40			

Additional chapter comments for auditor review:

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 managing a vineyard, the grower manipulates 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

Goal: To ensure that vineyards are located on sites appropriate for sustainable farming.

Requirement(s)

2.1.1 You must have documentation of the soil series, permeability, and runoff rates of your soils, or have contacted your local USDA Natural Resource Conservation Service office to determine your soil series and its erosion hazard. (<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>)

Document information below or provide your own record with equivalent information.

Soil Series	Permeability	Runoff Rates

Management Enhancement(s)

2.1.2 Before acquiring or developing the vineyard, did you have a vineyard soil suitability test performed? This test should include: pH, salinity, nutrients, toxic elements, Ca/Mg ratio, and texture.

YES: 2 NO: 0

Attach and provide description of soil suitability test results.

2.1.3 When conducting the vineyard soil suitability test prior to planting or purchasing, did you test each soil horizon separately?

YES: 2 NO: 0

If yes, attach soil horizon test results and describe.

2.1.4 Did you examine the soil to the effective rooting depth prior to planting and/or purchasing to analyze the soil profile's physical and chemical characteristics?

YES: 2 NO: 0

If yes, describe soil examination method(s) and date(s) performed. Provide written description of the soil physical and chemical characteristics.

Date (s)	Method	Soil Characteristics

Vineyard Acquisition, Establishment and Management

2.1.5 If the soil was alkaline (Sodium Adsorption Ratio ≥ 13), did you take corrective action?

YES: 2 NO: 0 NOT APPLICABLE: NA

If yes, describe corrective actions taken. If Not Applicable, reference soil test and provide written explanation.

2.1.6 If the soil was saline (Electrical Conductivity > 4 dS/m), did you take corrective action?

YES: 2 NO: 0 NOT APPLICABLE: NA

If yes, describe corrective actions taken. If Not Applicable, reference soil test and provide written explanation.

2.1.7 If your soil was acidic (pH < 5.5), did you take corrective action?

YES: 2 NO: 0 NOT APPLICABLE: NA

If yes, describe corrective actions taken. If Not Applicable, reference soil test and provide written explanation.

2.1.8 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	<input type="checkbox"/> YES:	2
For 1 year	<input type="checkbox"/> YES:	1
For less than 1 year	<input type="checkbox"/> NO:	0
NOT APPLICABLE:	<input type="checkbox"/> NA	

If yes, attach lab results listing vine pests and discuss actions. If Not Applicable, provide written explanation.

2.1.9 If there were physical impediments to root growth, did you deep-rip or slip plow to correct them?

YES: 2 NO: 0 NOT APPLICABLE: NA

If yes, attach management records. If Not Applicable, provide written explanation.

2.1.10 Was organic matter incorporated into the soil prior to planting?

YES: 2 NO: 0 NOT APPLICABLE: NA

If yes, provide documentation of organic matter incorporation.

2.1.11 Did you utilize aerial photographs (either infrared or standard film) or other GPS technologies in the development and mapping of your vineyard site?

YES: 2 NO: 0 NOT APPLICABLE: NA

If yes, attach photographs or other mapping tool.

2 SOIL CONSERVATION AND WATER QUALITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
2.1 Pre-Plant/Purchase	20			

Additional section comments for auditor review:

2.2 Rootstock, Scion, and Clone Selection

Goal: To select a rootstock and scion that will result in vine balance, improved water and disease management, and optimal wine quality while reducing the need for chemical or cultural intervention.

Requirement(s)

2.2.1 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.

Block	Rootstock	Scion	Clone

2.2.2 Prior to planting previously cultivated agricultural land you must test for soil born pests.

Attach test records.

Management Enhancement(s)

2.2.3 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 NO: 0 NOT APPLICABLE: NA

Vineyard Acquisition, Establishment and Management

If yes, document disease and/or pest history and the subsequent resistant rootstocks planted. If Not Applicable, provide written explanation.

Disease/Pest History	Planted Rootstock(s)
Not Applicable explanation:	

2.2.4 Are (were) certified grapevine materials used?

- Greater than 75% of grapevine materials YES: 3
- Between 50% and 75% of grapevine materials YES: 2
- Between 25% and 50% of grapevine materials YES: 1
- Less than 25% of grapevine materials YES: 0
- Not Applicable NOT APPLICABLE: NA

If yes, provide documentation from grapevine supplier. Not applicable only if certified grapevine material was not available at time of planting. Provide written explanation.

2.2.5 Were the soil physical and chemical characteristics considered when rootstock(s) were chosen?

- YES: 2
- NO: 0
- NOT APPLICABLE: NA

Vineyard Acquisition, Establishment and Management

Provide a written description of soil series and the rationale for rootstock selections.

Block	Soil Series	Rootstock	Rationale

2.2.6 Do you have a rootstock and/or clonal selection trial on your site (Note: This does not have to be a replicated trial.)?

YES: 2 NO: 0

If yes, describe rootstock and/or clonal trial:

2 VINEYARD ACQUISITION/ESTABLISHMENT AND MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
2.2 Rootstock, Scion, and Clone Selection	12			

Additional section comments for auditor review:

2.3 Spacing and Orientation Selection

Goal: To establish a vineyard which uses natural conditions to promote a healthy microclimate within the canopy, conserves soil and water resources, and enhances native habitats.

Requirement(s)

None

Management Enhancement(s)

2.3.1 Prior to planting or purchasing the vineyard, 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 NO: 0

Provide a written description of slope and soil erosion potential considerations.

2.3.2 Prior to planting or purchasing the vineyard, 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 NO: 0 NOT APPLICABLE: NA

If yes, identify the water body.

2 VINEYARD ACQUISITION/ESTABLISHMENT AND MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
2.3 Spacing and Orientation Selection	4			

Additional section comments for auditor review:

2.4 Trellis Selection

To select a trellis design that optimizes vine balance, wine quality and minimizes the need for chemical application.

Requirement(s)

None

Management Enhancement(s)

2.4.1 Was your trellis and training system designed to optimize canopy microclimate, sunlight exposure, and minimize disease and insect pressure?

YES: 2 NO: 0

Provide a written description of your trellis system(s) and how it addresses these issues.

Trellis system(s)	Selection Reason

2.4.2 Have you modified or retrofitted your existing trellis system in order to improve canopy microclimate and improve grape quality?

YES: 2 NO: 0 NOT APPLICABLE: NA

Vineyard Acquisition, Establishment and Management

If yes, describe modification(s) and/or retrofit(s). Include how the changes improved your canopy microclimate and grape quality. If Not Applicable, provide written explanation.

2.4.3 Do you have a trellis trial plot?

YES: 2 NO: 0

If yes, describe trellis trial.

2.4.4 Does your vineyard design allow for mechanization?

YES: 2 NO: 0

Provide a written description of how your vineyard design allows for mechanization.

2 VINEYARD ACQUISITION/ESTABLISHMENT AND MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A – C)
2.4 Trellis Selection	8			

Additional section comments for auditor review:

2.5 Canopy Management

Goal: To have a canopy in place that insures quality fruit and reduces pesticide use.

Requirement(s)

None

Management Enhancement(s)

2.5.1 Is your canopy microclimate monitored?

YES: 2 NO: 0

If yes, indicate monitoring method and/or instrumentation:

- Point Quadrant Method – Number of leaf layers, % gaps, % interior leaves, and % interior clusters
- Light bar/Ceptometer - % light penetration or degree of shading
- Datalogger – air temperature and/or humidity (relative to outside the canopy)
- Other:

2.5.2 Is the fruit-to-pruning weight ratio between the ranges of 4-12:1?

YES: 2 NO: 0

If yes, provide records of fruit-to-pruning ratios.

2.5.3 Is shoot density managed to promote fruit quality and reduce pest and disease pressure?

YES: 2 NO: 0 NOT APPLICABLE: NA

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.

2.5.4 If needed, are you removing leaves in the fruit zone to reduce disease and pests or improve wine quality? If not, explain why leaf pulling is not necessary.

YES: 2 NO: 0 NOT APPLICABLE: NA

Provide leaf removal records and before and after photo documentation. If Not Applicable, provide written explanation.

2 VINEYARD ACQUISITION/ESTABLISHMENT AND MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
2.5 Canopy Management	8			

Additional section comments for auditor review:

2.6 Tissue Analysis

Requirement(s)

None

Management Enhancement(s)

2.6.1 Do you take annual tissue samples?

YES: 3 NO: 0

Provide results of the most recent tissue sample.

2.6.2 If your vines exhibit nutritional problems, have you correlated them with your tissue tests and taken corrective action?

YES: 4 NO: 0 NOT APPLICABLE: NA

If yes, document nutritional problems, tissue tests, and your corrective action(s). If Not Applicable, provide written explanation.

Nutritional Problems	Tissue Sample Tests	Corrective Action(s)
Not Applicable explanation:		

2.6.3 If you answered yes to 2.6.2.2, did you resample tissue after taking corrective action for nutritional problems?

YES: 1 NO: 0 NOT APPLICABLE: NA

Attach tissue tests.

2.6.4 Are your annual tissue samples based on management zones (i.e. vigor, varietal, soil, etc.)?

YES: 2 NO: 0

Provide sample tissue test results based on management zones.

2 VINEYARD ACQUISITION/ESTABLISHMENT AND MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
2.6 Tissue Analysis	10			

Additional section comments for auditor review:

2.7 Fertility Management

Goals: To manage nutrients in the most efficient manner possible to maintain optimum vine growth while limiting non-point source pollution of surface and groundwater. Sustainable agriculture is based, in part, on the premise that healthy vines are typically less vulnerable to plant diseases and pests.

Requirement(s)

2.7.1 You must provide well water quality analysis, soil analysis, and tissue samples from within the last five years.

Attach analysis results from within the last five years.

2.7.2 You must base **nutrient** applications on the vineyard's nutrient application plan.

Attach nitrogen or other nutrient budget.

Provide a written description of how your nutrient applications correlate with your nutrient budget.

2.7.3 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.

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.

Management Enhancement(s)

2.7.4 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 NO: 0 NOT APPLICABLE: NA

Provide a written description of your green waste composting techniques.

2.7.5 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 NO: 0

Provide a written description of your local green waste diversion program.

2.7.6 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.)?

YES: 3 NO: 0 NOT APPLICABLE: NA

Provide a written description of nitrogen fixing cover crop and management practices. If Not Applicable, provide written explanation.

2.7.7 Are fertilizer applications timed to maximize nutrient uptake and to reduce the potential for non-point source water pollution?

YES: 5 NO: 0 NOT APPLICABLE: NA

Attach fertilizer application records. Reference Requirement 2.7.1.2.

Provide written description of timing decisions to maximize nutrient uptake and to reduce the potential for non-point source water pollution.

2.7.8 Are winter cover crops employed to sequester nutrients and reduce leaching losses?

YES: 2 NO: 0

Provide written description of winter cover cropping practices and how they sequester nutrients and reduce leaching losses.

2.7.9 Is irrigation managed to reduce moving nutrients out of the effective root zone?

YES: 3 NO: 0

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.

2 VINEYARD ACQUISITION/ESTABLISHMENT AND MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
2.7 Fertility Management	18			

Additional section comments for auditor review:

Vineyard Acquisition, Establishment and Management

2 VINEYARD ACQUISITION/ESTABLISHMENT AND MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Available Points (A - C)
2.1 Pre-Pant/Purchase	20			
2.2 Rootstock, Scion, and Clone Selection	12			
2.3 Spacing and Orientation Selection	4			
2.4 Trellis Selection	8			
2.5 Canopy Management	8			
2.6 Tissue Analysis	10			
2.7 Fertility Management	18			
Total Chapter Points	80			

3 Soil Conservation and 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.

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.

3.1 Soil Management

Goal: To maintain or improve the tilth and fertility of the soil for sustainable production. To correct soil-related impediments to vine health and growth and to reduce farming practices that contribute to deterioration of soil structure.

Requirement(s)

3.1.1 The soil must be sampled and tested at least every three years for nutrient content and monitored for pH, Electrical Conductivity (EC), and toxicities.

Attach results of soil samples within the last three years.

If toxicities or deficiencies were detected, describe action taken.

Management Enhancement(s)

3.1.2 Do you use tractors and/or vineyard equipment that minimize soil compaction, such as high floatation tires, track-layers, or over the row equipment?

- Greater than or equal to 75% of total equipment YES: 2
- Between 25% and 75% of total equipment YES: 1
- Less than 25% of total equipment NO: 0

If yes, list equipment.

3.1.3 Is your soil amendment program based on visual, tissue, water, and soil sampling?

- Based on a four of the above YES: 2
- Based on two or more of the above YES: 1
- Based on none or one of the above NO: 0

If yes, attach soil, water, and/or tissue sample results.

Describe observed nutrient related problems.

Describe how observed nutrient related problems correlate with sample results and the corrective actions taken.

3.1.4 If there is a soil permeability problem, have management practices been used to improve water infiltration?

YES: 2 NO: 0 NOT APPLICABLE: NA

If yes, describe soil permeability problem and implemented management practices. Attach management records supporting corrective actions. If Not Applicable, provide written explanation.

3.1.5 If soil tests reveal increases in salt content as measured by electrical conductivity (EC), have you taken corrective action?

YES: 2 NO: 0 NOT APPLICABLE: NA

If yes, attach sample results and describe corrective actions.

3.1.6 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?

YES: 2 NO: 0

If yes, describe equipment and how it relates to reduced pesticide and fertilizer use and increased efficacy.

3.1.7 Are chemical storage facilities locked, secured and posted?

YES: 2 NO: 0

If yes, attach photo documentation.

Indicate storage facilities on ranch map.

3.1.8 Are pesticide storage facilities designed for containment of spills?

YES: 2 NO: 0

If yes, attach photo documentation.

Provide written description of spill containment design.

Soil Conservation and Water Quality

3.1.9 Do you store liquid materials separately from dry materials, and are dry materials elevated above the spill zone?

YES: 2 NO: 0

If yes, provide photo documentation.

3.1.10 Is mixing and loading performed on sites with low runoff hazard?

YES: 2 NO: 0

3.1.11 Do your diesel and gas tanks have secondary containment?

YES: 2 NO: 0 NOT APPLICABLE: NA

If yes, indicate containment basins on the ranch map. Provide photo documentation.

3 SOIL CONSERVATION AND WATER QUALITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
3.1 Soil Management	20			

Additional section comments for auditor review:

3.2 Erosion Control and Prevention of Offsite Movement

Goal: To conserve soil resources by eliminating erosion and the off-site movement of sediment. To maintain a well-designed water runoff management system, resulting in reduced non-point source pollution of surface and ground water.

Requirement(s)

3.2.1 You must know the watershed and subwatershed where your vineyard is located.
(<http://water.epa.gov/type/watersheds/address.cfm>)

Specify watershed and subwatershed and attach map or documentation.

3.2.2 A winter cover crop (resident or planted) must be maintained.

Provide close-up photo and large scale photo from a block level. In drought years, document that a cover crop was planted.

Describe winter cover cropping practices.

3.2.3 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.

- | | | |
|---|--|------------------------------------|
| <input type="checkbox"/> Cover crop (resident or planted) | <input type="checkbox"/> Hay bales/straw | <input type="checkbox"/> Silt pond |
| <input type="checkbox"/> Filter Strip (resident or planted) | <input type="checkbox"/> Jute netting | <input type="checkbox"/> Waddles |
| <input type="checkbox"/> Mulching | <input type="checkbox"/> Vegetated Ditches | <input type="checkbox"/> Other: |

Provide photo documentation.

3.2.4 You must have vegetated perimeter buffers of no less than 25 feet from the edge of perennial and intermittent (per USGS definition) streams and wetland areas (as per EPA definition).

Indicate perimeter buffers on ranch map. Not Applicable only if there are no perennial or intermittent streams and wetland areas on the property. Provide written statement.

Management Enhancement(s)

3.2.5 Did you develop an erosion plan to prevent the offsite movement of soil?

YES: 4 NO: 0

If yes, provide written description of erosion plan and indicate any erosion prone locations on your ranch map.

3.2.6 Do you maintain a filter strip to reduce offsite movement of soil?

Researched and implemented with a technical resource provider YES: 2
Researched and implemented without technical assistance YES: 1
Do not maintain a filter strip NO: 0

Provide written description of filter strip determination and implementation.

3.2.7 Do you utilize water diversions on longer slopes to manage runoff?

Engineer recommended water diversions YES: 2
Researched and implemented without technical assistance YES: 1
 NO: 0
 NA

Provide photo documentation of water diversions and indicated 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.

Soil Conservation and Water Quality

3.2.8 What percentage of the non-cropped area, from the end-posts outward (including roads) is covered with vegetation?

- 70% or more YES: 2
- 50% or more YES: 1
- Less than 50% NO: 0

If yes, indicate covered areas on ranch map.

3.2.9 Is a cover crop or its residue maintained during the entire year?

- Every row YES: 4
- Every other row YES: 2
- NO: 0

Provide written description of cover crop and/or cover crop residue maintenance.

3.2.10 Are devices in place to prevent runoff and/or soil movement to public roads?

- YES: 2
- NO: 0
- NOT APPLICABLE: NA

Provide photo documentation of devices. Indicate placement on the ranch map. Not Applicable only if vineyard does not border any public roads. Provide statement.

3.2.11 If vegetation is excluded below the vines during winter, the vegetative free area is:

- < 30" YES: 4
- 30 – 48" YES: 2
- > 48" NO: 0

If yes, provide photo documentation with measuring tape.

Soil Conservation and Water Quality

3 SOIL CONSERVATION AND WATER QUALITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
3.2 Erosion Control and Prevention of Offsite Movement	20			

Additional section comments for auditor review:

3 SOIL CONSERVATION AND WATER QUALITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Available Points (A - C)
3.1 Soil Management	20			
3.2 Erosion Control and Prevention of Offsite Movement	20			
Total Chapter Points	40			

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4 Water Resources and Conservation

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

4.1 Water Quality and Analysis

Goal: To monitor and protect the quality of the irrigation water.

Requirement(s)

4.1.1 You must have a backflow prevention device installed on your well(s) or water source(s).

Provide photo documentation.

4.1.2 Well heads must be protected from chemical contamination.

Provide photo documentation and a written description of well head protection from chemical contamination.

4.1.3 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.

Management Enhancement(s)

4.1.4 Do you periodically conduct ag suitability tests for your irrigation water from accredited labs?

- Annually YES: 5
- Every three years YES: 3
- NO: 0

If yes, attach most recent test results.

4.1.5 If testing indicates your irrigation water has a pH problem, are you adjusting pH to optimal levels?

- YES: 4
- NO: 0
- NOT APPLICABLE: NA

If yes, reference water test results and document corrective actions. If Not Applicable, reference water test results and provide written statement.

4.1.6 Was irrigation water quality considered when determining well perforation levels to exclude poor quality water?

- YES: 3
- NO: 0
- NOT APPLICABLE: NA

If yes, 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.

4 WATER CONSERVATION POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
4.1 Water Quality and Analysis	12			

Additional section comments for auditor review:

4.2 Water Use Efficiency

Goal: To use available water resources in the most efficient and uniform manner possible.

If you dry farm, Requirements 4.2.1.1 and 4.2.1.2 are NOT APPLICABLE. Take 28 points for section 4.2.2.

Requirement(s)

4.2.1 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.

4.2.2 You must use a low-volume irrigation system (drip or micro-sprinkler) for irrigating during the growing season.

Provide a written statement of your low-volume irrigation system including emitter spacing, tube gauge and emitter flow rate.

Management Enhancement(s)

4.2.3 Do you inspect and clean the water filters throughout the season?

YES: 3 NO: 0

If yes, attach records of filter inspections and cleanings.

4.2.4 Do you flush the irrigation lines at least twice throughout the irrigation season?

YES: 3 NO: 0

If yes, attach records of irrigation line flushes.

4.2.5 Do you have a system in place to regularly inspect, identify and repair irrigation system problems?

YES: 2 NO: 0

Provide written statement of your irrigation inspection and repair system.

4.2.6 Is a low-volume (less than or equal to 30 gallons/acre/minute) watering system used for frost control?

YES: 3 NO: 0 NOT APPLICABLE: NA

If yes, provide a written description of low-volume watering system used for frost control. Not Applicable only if no water is used for frost control. Provide written statement.

4.2.7 Is the distribution uniformity of your irrigation system greater than or equal to 85%?

DU is greater than or equal to 85% YES: 6
DU is greater than or equal to 75%, but less than 85% YES: 4
DU is less than 75% YES: 0

If yes, attach calculations. Reference Requirement 4.3.1.1.

Water Conservation

4.2.8 If chemical maintenance of your irrigation system is used to prevent plugging, do you have documentation to justify use?

YES: 3 NO: 0 NOT APPLICABLE: NA

If yes, attach the results from irrigation water quality test used to determine if chemical maintenance is required. Provide an explanation of chemical maintenance based on the test results.

Not Applicable only if chemical maintenance is not conducted. Provide written statement.

4.2.9 Are irrigation applications occurring at night when evaporation losses are at their lowest?

YES: 2 NO: 0

If yes, attach irrigation records that include time interval of application.

4.2.10 Was your drip irrigation system designed to allow direct pumping from the well including enclosed storage systems?

YES: 2 NO: 0

Provide a written statement explaining how your irrigation system is designed to allow direct pumping from the well.

4.2.11 Is legally compliant winery waste water reused in your vineyard operations?

YES: 4 NO: 0 NOT APPLICABLE: NA

If yes, attach documentation.

4 WATER CONSERVATION POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
4.2 Water Use Efficiency	28			

Additional section comments for auditor review:

4.3 Irrigation Scheduling and Water Use Tracking

Goal: To achieve the most beneficial use of applied irrigation water while conserving water resources, reducing energy use and associated air pollution, and reducing or eliminating non-point source pollution of surface and groundwater.

Requirement(s)

4.3.1 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.

4.3.2 You must track total water the vineyard receives during the season from rainfall, frost protection, and irrigation.

Attach records of total water received.

4.3.3 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 Enhancement(s)

4.3.4 Do you utilize aerial images in your long-term irrigation management decisions?

YES: 3 NO: 0

If yes, attach sample of aerial images.

Water Conservation

4.3.5 Are there flow meters on all the wells or other pumps to monitor water usage over the season and are logs kept?

YES: 4 NO: 0

If yes, provide written description of flow meter locations.

4.3.6 If you use ETc estimates, have you modified or refined published Kc values or shading methods for your site?

YES: 3 NO: 0

If yes, explain.

4 WATER CONSERVATION POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
4.3 Irrigation Scheduling	10			10

Additional section comments for auditor review:

4 WATER CONSERVATION POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Available Points (A - C)
4.1 Water Quality and Analysis	12			
4.2 Water Use Efficiency	28			
4.3 Irrigation Scheduling	10			10
Total Chapter Points	50			

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5 Energy Conservation and Efficiency

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.

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

5.1 Energy Conservation and Efficiency

Goal: To conserve energy with efficient practices and technologies.

Requirement(s)

5.1.1 Well and pump performance must be tested at least every 3 years.

Attach most recent pump efficiency test results.

Management Enhancement(s)

5.1.2 Based on your results from 5.1.1, if your Overall Pumping Efficiency (OPE) was under 50% did you take corrective action?

YES: 1 NO: 0

Document corrective action taken.

5.1.3 Have you implemented a vineyard equipment energy efficiency plan which includes recording your total vineyard fuel use per year and conducted an annual per acre fuel usage analysis?

YES: 5 NO: 0

If yes, provide documentation of your plan.

Energy Conservation and Efficiency

5.1.4 Have you implemented an irrigation equipment energy efficiency plan which includes recording your total vineyard irrigation energy use per year and conducted an annual per acre energy usage analysis?

YES: 5 NO: 0

If yes, provide documentation of your plan.

5.1.5 Have you implemented a shop/office equipment energy efficiency plan which includes recording your total shop/office energy use per year and conducted an annual per acre energy usage analysis?

YES: 3 NO: 0

If yes, attach shop/office equipment energy efficiency plan and per acre energy usage analysis.

5.1.6 Does your shop/office policy include at least two of the following:

YES: 1 NO: 0

Radiant barriers/reflective materials

Energy efficient light bulbs

Automatic sensors

Natural lighting

Other:

5.1.7 Have you had an energy audit conducted by your local utility provider?

YES: 1 NO: 0

If yes, attach audit.

5.1.8 Do you periodically have your well tested for pump energy efficiency and monitored for changes in standing water level, water yield (gallons per minute) and drawdown?

Every 2 years YES: 3

Every 3 years YES: 2

More than every 3 years YES: 0

If yes, list date of most recent test result. This date must match that of the documentation provided for Requirement 5.1.1.

5.1.9 Do you use a variable speed drive for irrigation pumping to manage energy use efficiency on your vineyard?

YES: 2 NO: 0

If yes, attach photo and specify model, serial number, and location of variable speed drive.

5.1.10 Are light duty jobs done with All Terrain Vehicles (ATVs) instead of tractors or trucks?

YES: 2 NO: 0

If yes, provide photo documentation of ATVs and a list of practices which utilize ATVs.

5.1.11 Do you have a vineyard pass reduction protocol?

YES: 2 NO: 0

If yes, provide explanation of pass reduction protocol.

5.1.12 Do you use grazing animals within your vineyard or buffer zones to reduce mechanical workload?

YES: 2 NO: 0

If yes, describe practices.

5.1.13 Are irrigation applications occurring off peak when energy demand is at its lowest?

YES: 2 NO: 0 NOT APPLICABLE: NA

If yes, 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.

5.1.14 Do you use renewable energy sources including solar, wind, or other alternative power for a portion of your vineyard energy needs?

YES: 5 NO: 0

If yes, provide documentation of alternative energy use (photo documentation is sufficient).

Energy Conservation and Efficiency

5.1.15 Is the company(s) that provides shipping and transportation services for vineyard operations registered with the Environmental Protection Agency's SmartWay Program?

YES: 2 NO: 0

Provide documentation showing the shipping and/or transportation services provider's involvement in the SmartWay Program.

5 ENERGY CONSERVATION AND EFFICIENCY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Available Points (A - C)
5.1 Energy Conservation and Efficiency	36			
Total Chapter Points	36			

Chapter comments for auditor review:

6 Air Quality

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.

It is to the growers' own benefit to stay up to date and alert regarding any and all air quality regulations. Growers can access air quality information through their local Air Pollution Control District.

Protecting air quality should be a goal of every vineyard manager.

6.1 Air Quality

Goal: To minimize the creation and offsite movement of dust, diesel particulate matter, pesticide spray drift and pesticide volatilization.

Requirement(s)

6.1.1 You must have a written program to eliminate offsite spray drift.

Provide written spray program.

Management Enhancement(s)

6.1.2 Do you have a dust abatement plan?

YES: 3 NO: 0

If yes, provide documentation.

6.1.3 Are all vineyard non-cropped areas managed for dust control?

YES: 3 NO: 0

If yes, describe dust management practices.

6.1.4 Are all stationary and mobile engines on a documented maintenance program?

YES: 3 NO: 0

If yes, attach maintenance program documentation.

6.1.5 Do you use alternate energy sources including bio-fuels, solar, or wind for your vineyard energy needs?

YES: 3 NO: 0

Air Quality

If yes, provide documentation of alternative energy use. Documentation can include, but is not limited to, bio-fuel invoices and photo documentation. (Reference Management Enhancement 5.1.2.6)

6.1.6 Have you been able to eliminate the use of sulfur dust?

YES: 4 NO: 0

If yes, provide pesticide use records.

6.1.7 Do you have management practices or technologies for reducing or eliminating tracked mud from the vineyard onto paved roads?

YES: 3 NO: 0 NOT APPLICABLE: NA

If yes, describe management practices or technologies and include documentation (may include photos). Not Applicable only if there are no paved roads adjacent to the vineyard.

6.1.8 Do you utilize chipping or mulching instead of burning on more than 90% of your vineyard wood residue?

YES: 6 NO: 0

If yes, provide a written description of vineyard wood residue management practices.

6.1.9 Do you have speed limit signs posted on vineyard roads to reduce dust?

YES: 2 NO: 0

If yes, indicate speed limit signs on ranch map.

6.1.10 If you have purchased new motors in the last five years, do they run on natural gas or electricity rather than diesel?

YES: 6 NO: 0 NOT APPLICABLE: NA

Air Quality

If yes, list new engines and their power source. Not Applicable only applies if you have not purchased new engines in the last five years. Provide a written explanation.

New Engines	Power Source
Not Applicable explanation:	

6.1.11 Have you switched or added electric, hybrid or ultra-low emission vehicles to your fleet?

- Greater than 50% of fleet YES: 3
- More than one vehicle, but less than 50% of fleet YES: 2
- One vehicle YES: 1
- NO: 0

If yes, provide photo documentation of electric, hybrid or ultra low emission vehicle(s).

6.1.12 What percentage of your stationary power source equipment is electric?

- Greater than 70% YES: 3
- Between 30 – 70% YES: 2
- Less than 30%, but at least 1% YES: 1
- None NO: 0

If yes, provide documentation of your stationary power sources and whether or not they are electric.

6.1.13 Are your spray operators and foreman equipped with wind speed measurement devices?

- YES: 2
- NO: 0

If yes, list wind speed measurement device(s):

6.1.14 Do you have and document training for your equipment operators to be aware of creating particulate matter pollution and to adjust their operations to reduce that pollution?

- YES: 3
- NO: 0

If yes, attach training records.

Air Quality

6 AIR QUALITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Available Points (A - C)
6.1 Air Quality	44			
Total Chapter Points	44			

Chapter comments for auditor review:

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7 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 in your vineyard at any point during the year.

In order for agricultural 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 be achieved only when agricultural businesses are realistic about the challenges they face, forthright in their communication with both groups, and progressive in their thought process.

A safe and fair work environment is particularly important in agricultural businesses where a heavy reliance has been placed on human labor. The interaction between agricultural business owners, community leaders, concerned citizens, and agricultural workers has been strained in the past, and it continues to be a potential area of conflict. In order to lessen this strain, progressive agricultural employers must 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, growers should understand cultural issues and emphasize an open dialogue between worker and employer.

Positive interaction between agricultural businesses and their urban and non-urban neighbors remains challenging primarily due to a general misunderstanding of issues facing both groups. An honest interchange of information is essential to lessen potential conflicts resulting from this misunderstanding. Educating surrounding communities regarding Integrated Pest Management (IPM) programs and general farming practices will help mitigate ag-urban interface issues. When growers provide a progressive response to complaints, they encourage mutual respect and understanding where confusion and distrust have existed in the past. Not only do vineyard managers 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 is a healthy sustainable ecosystem that provides both environmental and social benefits that reach well beyond the borders of that vineyard.

Addressing issues of social equity and community relationships should be the goal of the vineyard manager.

7.1 Human Resources

Goal: To promote the vineyard as a safe and desirable place to work where the employer is concerned about fair wages, benefits, and the health, safety, and continuing education of his/her employees. This chapter applies to any persons, both in house and third party provided labor, working in vineyard operations.

Requirement(s)

7.1.1 You must include the following within the Employee Handbook(s):

- Harassment Policy
- Salary, Benefits, and Incentives
- Employee Orientation
- Ongoing Training
- Employee Safety Policies & Practices
- Employee Evaluations, Grievance Policy and Disciplinary Actions

Provide copy of Employee Handbook.

7.1.2 You must develop and implement an Injury and Illness Prevention Program (IIPP) including the following:

- A system for ensuring that employees comply with safe and healthy work practices
- A system for communicating with employees on safety & 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 IIPP and Identify the person(s) with authority and responsibility for implementing the Program.

7.1.3 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).

7.1.4 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
- Emergency Action Plan training
- Safe use and handling of pesticides for handlers and applicators
- Pesticide safety and awareness
- Pesticide use notification
- Equipment safety & ergonomics
- Other types of ergonomic/musculoskeletal safety issues (lifting, carrying, etc.)

Provide documentation of employee safety training meetings.

7.1.5 You must have a written heat illness prevention plan.

Attach heat stress prevention plan.

Social Equity

7.1.6 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.

7 SOCIAL EQUITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
7.1 Human Resources				

Additional section comments for auditor review:

7.2 Worker Ongoing Training

Requirements

None

Management Enhancement(s)

7.2.1 Do you hold meetings at least annually to include your workers in your growing philosophies and long- and short-term goals?

- Meeting includes all workers YES: 3
- Meeting includes managers & supervisors YES: 2
- NO: 0

Provide documentation of worker meetings on growing philosophies and long- and short-term goals.

Social Equity

7.3.3 If you offer medical insurance to all of your workers, how much of the premium do you cover?

- 100% premium coverage YES: 6
- 75% premium coverage YES: 4
- 50% premium coverage YES: 2
- Less than 50% premium coverage YES: 0
- I do not offer medical insurance. NA

7.3.4 Do you provide family support services for your workers?

- Three or more services provided YES: 4
- Two services provided YES: 2
- One service provided YES: 1
- NO: 0

If yes, select services:

- 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:

7.3.5 Do you offer retirement benefits to your workers?

- Offered to 75% - 100% of employees YES: 6
- Offered to 50% -75% of employees YES: 4
- Offered to 25% - 50% of employees YES: 2
- Offered to less than 25% of employees YES: 0

If yes, describe worker retirement benefits.

Social Equity

7.3.6 Do you offer bonuses and rewards to your workers?

- Offered to 75% - 100% of workers YES: 3
- Offered to 50% - 75% of workers YES: 2
- Offered to 25% - 50% of workers YES: 1
- Offered to less than 25% of workers YES: 0
- NO: 0

If yes, describe worker bonuses and rewards.

7.3.7 Do you provide information for transportation alternatives, such as carpooling or vanpooling, to workers for their daily commute?

- YES: 2
- NO: 0
- NOT APPLICABLE: NA

If yes, provide sample of transportation information. Not applicable only if all vineyard workers live on-site; provide written statement.

7 SOCIAL EQUITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
7.3 Worker Salaries and Benefits	30			

Additional section comments for auditor review:

7.4 Worker Safety

Requirement(s)

7.4.1 If your wells are used for drinking water, you must conduct drinking water suitability tests at least every three years.

If applicable, provide copies of the sampling results.

Management Enhancement(s)

7.4.2 Do you have a written emergency response plan?

YES: 3 NO: 0

If yes, attach emergency response plan.

7.4.3 Do you offer incentives or have a worker safety rewards program in place that recognizes and appreciates individuals for safe job performance?

YES: 5 NO: 0

If yes, describe your incentive program for safe job performance.

7.4.4 Do you have regular safety training meetings for your workers?

Weekly YES: 3

Social Equity

Once every two weeks YES: 2

Less than once every two weeks NO: 0

If yes, provide sample documentation of regularly scheduled safety training meetings.

7 SOCIAL EQUITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
7.4 Worker Safety	11			11

Additional section comments for auditor review:

7.5 Worker Development

Requirement(s)

None

Management Enhancement(s)

7.5.1 Do you offer your workers new skills training programs?

YES: 3 NO: 0

If yes, select offered training programs:

- 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
- Other:

Social Equity

7 SOCIAL EQUITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
7.5 Worker Development	3			3

Additional section comments for auditor review:

7.6 Worker Evaluations, Complaint Policies, and Disciplinary Actions

Requirement(s)

7.6.1 You must have a written and uniformly implemented disciplinary program with stepped and progressive procedures in place. The program must describe a process to improve performance problems that includes opportunity for worker input.

Attach written disciplinary program.

Management Enhancement(s)

7.6.2 Do you have a formalized process for handling performance evaluations with your workers?

YES: 3 NO: 0

If yes, describe formalized process for worker performance evaluations.

7.6.3 Do you have a written complaint process in place for your workers?

YES: 4 NO: 0

Social Equity

If yes, provide written documentation of worker complaint process or provide your own equivalent documentation.

7.6.4 Do you attend annual management training concerning workplace harassment and discrimination issues?

YES: 3 NO: 0

If yes, attach verification form or other proof of attendance.

7 SOCIAL EQUITY SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
7.6 Worker Evaluations, Grievance Policies, and Disciplinary Actions	10			10

Additional section comments for auditor review:

7.7 Sustainable Practices and Worker Training Programs for Recycling, Water, and Energy

Requirement(s)

None

Management Enhancement(s)

7.7.1 Do you have a recycling program for oil containers, oil filters, tires, batteries and pesticide containers in place for your farm operation and do you educate your workers on your program?

YES: 2 NO: 0

Social Equity

If yes, provide written description. Provide documentation of worker training(s).

7.7.2 Do you recycle your used bird netting and/or drip hose through the Crop Recycling Program or at another recycling facility?

YES: 2 NO: 0

If yes, explain your recycling program.

7.7.3 Are your procurement procedures based on specific criteria including price, dependability and environmental considerations?

YES: 2 NO: 0

If yes, attach written procurement policy.

7.7.4 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 NO: 0

If yes, provide written description. Provide documentation of worker training(s).

Social Equity

7 SOCIAL EQUITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
7.7 Sustainable Practices and Worker Training Programs for Recycling, Water, and Energy	8			8

Additional section comments for auditor review:

7.8 Worker Involvement

Requirement(s)

None

Management Enhancement(s)

7.8.1 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 NO: 0

If yes, provide written description.

Social Equity

7 SOCIAL EQUITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
7.8 Worker Involvement	3			3

Additional section comments for auditor review:

7.9 Community Involvement

Goal: To actively engage with neighbors and the larger community to develop a common understanding of vineyard IPM and other sustainable farming practices.

Requirement(s)

7.9.1 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 farming practices
- Procedures for neighbors to express their concerns regarding farming practices
- Program addressing the proper use of bird frightening devices including neighbor considerations
- Procedures to log and follow-up on neighbor and community complaints
- Worker training regarding the neighbor and community communications program

Provide written plan.

Management Enhancement

7.9.2 Have you participated in at least two events during the last 12 months that include community members on IPM and sustainability issues?

YES: 4 NO: 0

Social Equity

If yes, list events you have participated in during the last 12 months.

7.9.3 Do you have a system in place to notify neighbors of major changes to farming practices?

YES: 4 NO: 0

If yes, select notification system:

- Postcards or other mailings
- Notification board with regular postings at the property entrance or other convenient location for neighbors
- Website or blog
- Other:

7.9.4 If you use noise makers for bird abatement do you only use them during daylight hours?

YES: 2 NO: 0 NOT APPLICABLE: NA

If yes, explain.

7.9.5 Do you log neighbor complaints and document how each issue was resolved?

YES: 2 NO: 0 NOT APPLICABLE: NA

If yes, attach neighbor complaint log including description of how complaints were resolved. Not Applicable only applies if you have not had any neighbor complaints. Provide written explanation.

Social Equity

7 SOCIAL EQUITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
7.9 Community Involvement	12			

Additional section comments for auditor review:

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Social Equity

7 SOCIAL EQUITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
7.1 Human Resources				
7.2 Worker Ongoing Training	3			3
7.3 Worker Salaries and Benefits	30			
7.4 Worker Safety	11			11
7.5 Worker Development	3			3
7.6 Worker Evaluations, Grievance Policies, and Disciplinary Actions	10			10
7.7 Sustainable Practices and Worker Training Programs for Recycling, Water, and Energy	8			8
7.8 Worker Involvement	3			3
7.9 Community Involvement	12			
Total Chapter Points	80			

8 PEST MANAGEMENT

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 around since the 1960s and is a crucial part of pest management in the vineyard. 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 goal of vineyard manager should be effective management of pests, weeds, and disease using cultural practices and integrated pest management based on the biological 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.

8.1 Program Best Management Practices

Requirement(s)

8.1.1 No Active Ingredients (AI) on the Prohibited Materials List (PML) can be used. See attached Prohibited Materials List.

Attach December 1 through June 30 pesticide use reports with trade names and active ingredients listed. July 1 through November 30 pesticide use reports are due to your inspector on December 15 of the certification year.

8.1.2 You must monitor and record the following:

- Population dynamics of vineyard pests and insect/mite natural enemies at a minimum of every two weeks 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

Attach records and describe your monitoring program.

8.1.3 The sprayer must be calibrated annually, adjusted, and recalibrated for changing vineyard conditions during the growing season; worn screens and nozzles must be replaced in order to insure the best coverage and efficacy of agricultural chemical applications.

Provide calibration records.

8.1.4 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.

Attach Spray Records which include target pest, disease, or weed and pesticide mode of action.

Provide an example from your vineyard.

Management Enhancement(s)

8.1.5 Do you apply treatments over the smallest possible area to achieve control (spot sprays or hot spot sprays)?

Insecticides Fungicides Herbicides

If spot sprays and/or no sprays are used in three programs YES: 8

If spot sprays and/or no sprays are used in two programs YES: 4

If spot sprays and/or no sprays are used in one program YES: 2

NO: 0

Attach spray records that include applied acres and total acres.

8.1.6 Are sanitation practices used to prevent introduction or spread of pests, weeds, and diseases? (<http://www.ipm.ucdavis.edu/PMG/selectnewpest.grapes.html>)

YES: 4 NO: 0

If yes, attach sanitation records and describe sanitation practices.

8 PEST MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
8.1 Program Best Management Practices	12			

Additional section comments for auditor review:

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8.2 Insect, Mite and Nematode Pest Management

Goal: To use sustainable farming methods which minimize the need for pesticide inputs.

Requirement(s)

8.2.1 You must be knowledgeable about the pests found in your vineyard, including understanding the pest's life cycle and natural enemies (predators, parasites, or pathogens).

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.

Insect/Mite/Nematode	Life Cycle	Natural Enemies

Management Enhancement(s)

8.2.2 Do your management practices, pest monitoring programs, and IPM practices allow you to avoid the use of insecticides?

If yes, take full points for 8.2.2 and proceed to Section 8.3

YES: 14 NO: 0

If yes, reference Pesticide Use Report.

8.2.3 Do you time treatments to control the appropriate insect/mite brood hatch for maximum effectiveness?

YES: 5 NO: 0

If yes, reference scouting and spray records.

Provide brief example, based on your attached records, which demonstrates your spray timing.

8.2.4 Do you track weather data and degree days during the season?

<http://www.ipm.ucdavis.edu/WEATHER/degreedays/index.html>

YES: 4 NO: 0

If yes, record use frequency and source of weather data. Provide reference for degree day model(s).

On-site weather station Regional weather station
 Online weather service/data Degree Day model (specify):

8.2.5 Are leaf counts and cluster examinations used to monitor insects?

YES: 5 NO: 0

If yes, provide records or other documentation.

8 PEST MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
8.2 Insect, Mite and Nematode Pest Management	14			14

Additional section comments for auditor review:

8.3 Beneficial Insect Management

Goal: To promote environmentally sound pest management through the conservation and release of beneficial insects rather than pesticides; to maintain habitat that encourages the establishment and survival of a variety of beneficial insect species.

Requirement(s)

8.3.1 You 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.

Provide the following information on the natural enemies you listed in Insect Pest Management Requirement 8.2.1.1.

Natural Enemy	Life Cycle	Habitat Requirements

Management Enhancement(s)

8.3.2 Do you sample for the presence of beneficial insects and monitor for their activity in your vineyard?

YES: 2 NO: 0

If yes, attach insect monitoring records including at least presence/absence of beneficial insects.

8.3.3 Do you train your field workers to recognize both pests and beneficials?

YES: 2 NO: 0

If yes, attach training records.

Pest Management

8.3.4 Do you provide year-round refuge other than your cover crop for beneficial insects and pollinators?

YES: 1 NO: 0

If yes, select other year-round refuges and indicate the location on the ranch map.

Oak woodlands Riparian areas Grasslands Hedgerows
 Insectary plantings Other (specify):

8.3.5 Are beneficial organisms released in your vineyard as a supplement to or in lieu of needed pesticide treatments?

YES: 1 NO: 0

If yes, attach monitoring records for target pest and natural enemies (see Management Enhancement 8.1.1.2).

List beneficial organism(s) release date(s) and correlate with monitoring records.

Target Pest	Beneficial (s)	Date of Release	Correlation with Monitoring Records

8.3.6 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 NO: 0 NOT APPLICABLE: NA

If yes, 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.

Pest Management

8 PEST MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
8.3 Beneficial Insect Management	10			

Additional section comments for auditor review:

8.4 Disease Management

Goal: To use sustainable farming methods which reduce the use of chemicals for disease control.

Requirement(s)

8.4.1 You 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.

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.

Disease	Life Cycle	Vectors	Predisposing Factors

Management Enhancement(s)

8.4.2 Are disease models used to help schedule spray applications?

YES: 5 NO: 0 NOT APPLICABLE: NA

Not Applicable only if you do not spray fungicides. Provide written statement.

Provide disease model reference:

8.4.3 Are canopy and fruit density managed to optimize air movement, light penetration, and spray coverage?

YES: 5 NO: 0

If yes, attach canopy and fruit density management records (Reference Vineyard Acquisition/Establishment and Management 2.4.2.3 and 2.4.2.4)

8 PEST MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
8.4 Disease Management	10			

Additional section comments for auditor review:

8.5 Weed Management

Goal: To use sustainable farming methods that minimize weed growth.

(<http://www.ipm.ucdavis.edu/PMG/r302700111.html>)

Requirement(s)

8.5.1 You must be knowledgeable about the weed species common in your vineyard and their most susceptible life stage.

List key weed species found in your vineyard and their most susceptible life stage.

Weed Species	Most Susceptible Life Stage

Management Enhancement(s)

8.5.2 Are spot spraying methods used when applying contact herbicides?

YES: 6 NO: 0

If yes, attach herbicide spray records.

8.5.3 Is the width of the weed free swath under the vine throughout the growing season:

< 30" YES: 3
 30 – 48" YES: 2
 > 48" NO: 0

If yes, provide photo documentation of close-up with swath measurement shown and large scale photo from a block level during the growing season. This Management Enhancement expands on the Requirement found in Soil Conservation and Water Quality 3.3.1.2

8.5.4 Are there programs in place to help eliminate or prevent the introduction or spread of noxious weed species?

YES: 3 NO: 0

Programs can include but are not limited to on-site detection and elimination, purchasing weed-free cover crop seed, hay, and mulch. (Reference Conservation & Enhancement of Biological Diversity 1.1.2.6 and 1.1.2.7)

Pest Management

If yes, describe program specifics and attach program records:

8.5.5 Are weed control programs implemented when the weeds are most susceptible?

YES: 4 NO: 0

Provide pesticide use records and written statement describing the timing of your weed control program.

8 PEST MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
8.5 Weed Management	16			16

Additional section comments for auditor review:

8.6 Vertebrate Pest Management

Requirement(s)

None

Management Enhancement(s)

8.6.1 Do you identify and protect existing wildlife corridors to allow movement between habitats?

YES: 3 NO: 0

If yes, indicate wildlife corridor on ranch map.

8.6.2 Are selective exclusion methods used for vertebrate pest control?

YES: 2 NO: 0 NOT APPLICABLE: NA

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.

If yes, indicate selective exclusion methods on ranch map. If no exclusion methods are used, select "Not Applicable" and provide written explanation.

8.6.3 Do you use non-chemical methods of vertebrate pest control?

YES: 3 NO: 0

If yes, provide written description/documentation of alternative methods.

Pest Management

8 PEST MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
8.6 Vertebrate Pest Management	8			

Additional section comments for auditor review:

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8 PEST MANAGEMENT POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
8.1 Program Best Management Practices	12			
8.2 Insect, Mite, and Nematode Management	14			14
8.3 Beneficial Insect Management	10			
8.4 Disease Management	10			
8.5 Weed Management	16			16
8.6 Vertebrate Pest Management	8			
Total Chapter Points	70			

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9 Continuing Education

New technologies for sustainable wine grape farming are constantly being adopted by the industry. Continuing Education (CE) programs are important for both small and large vineyard owners and managers to improve farming 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, regional and statewide laws and regulations, personnel management and the latest research results in viticulture science. 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 such as the California Association of Winegrape Growers (CAWG), University of California Cooperative Extension (UCCE) and the California Association of Pest Control Advisors (CAPCA). Growers must take advantage of opportunities to educate themselves over the length of their career and seek deeper knowledge of wine growing practices, from pre-plant habitat conservation to post harvest vineyard floor management, and everything in between. In addition, vineyard 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 farming operations should be the goal of managers.

9.1 Continuing Education

Goal: To remain aware of the latest developments in order to effectively manage a sustainable and environmentally sound vineyard operation.

Requirement(s)

9.1.1 You must participate in at least 20 hours of Continuing Education pertaining to farming sustainability issues each year.

Attach Continuing Education verification forms totaling 20 hours from the past 12 months.

9.1.2 You must have a procedure in place to maintain your SIP Certification including personnel responsible for certification compliance, contact information, database login information, documentation maintenance, and deadlines.

Attach procedure.

Management Enhancement(s)

9.1.3 Do you attend at least four Vineyard Team, UCCE, CAWG, ASEV, CAPCA or other environmental, conservation or pest management related meetings, seminars, and symposia to keep up to date on grape growing and winemaking issues?

YES: 3 NO: 0

If yes, provide documentation of meeting attendance.

9.1.4 Do you read farming, trade, university, and industry journals?

YES: 3 NO: 0

If yes, list journals.

Continuing Education

9.1.5 Do you have current membership in local growers' and vintners' associations and attend the meetings to keep informed on local issues?

YES: 3 NO: 0

If yes, list associations of which you are a member.

9.1.6 Do you own and use a copy of Grape Pest Management, 2nd or 3rd Edition, UC DANR Publication 3343, or the most recent edition; and the UC IPM Pest Management Guidelines: Grapes, UC DANR Publication 3448; or the UC Davis IPM website (www.ipm.ucdavis.edu); or the UC Year Round IPM Program (<http://www.ipm.ucdavis.edu/PMG/C302/m302yi01.html>)?

YES: 3 NO: 0

9.1.7 Do you attend annual CA DPR-approved pesticide laws and regulations meetings?

YES: 3 NO: 0 NOT APPLICABLE: NA

If yes, attach verification form or other proof of attendance.

9.1.8 Do you attend annual trainings on human resource issues?

YES: 5 NO: 0 NOT APPLICABLE: NA

If yes, attach verification form or other proof of attendance. Not Applicable only if you have no employees; provide written statement. Not applicable only if you do not use pesticides.

Continuing Education

9 CONTINUING EDUCATION POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
9.1 Continuing Education	20			
Total Chapter Points	20			

Additional section comments for auditor review:

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10 Product Assurance and Business Sustainability

Growing quality wine grapes is essential to a vineyard's long-term profitability. 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.

Fruit quality is one important component of economic viability, but sound business practices are also important for economic sustainability. 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 for family owned operations, actual to budget comparisons, long-term financial planning, and crop insurance.

Product assurance and business sustainability are ultimately the goal of every vineyard manager.

10.1 Fruit Quality

Goal: To provide the winery with grapes in the best possible condition.

Requirement(s)

10.1.1 You must record fruit quality parameters on an annual basis, including Brix, pH, and TA.

Provide fruit quality parameter records from the previous year.

Management Enhancement(s)

10.1.2 Did you and your winery representative visit the vineyard pre-harvest?

- Five or more visits YES: 3
- Three to four visits YES: 2
- Less than three visits NO: 0

If yes, include winery and winery representative name:

Winery Name	Print Name of Winery Representative

10.1.3 Prior to harvest, are you able to provide the winery with a crop projection?

- Within 10% of projection YES: 3
- Within 20% of projection YES: 2
- NO: 0

If yes, attach records of projection and actual yield.

10.1.4 Do you provide weekly maturity analysis to your winery customers?

- YES: 2 NO: 0

If yes, attach weekly maturity analysis reports.

10.1.5 Do you provide full pesticide use reporting to the winery upon their request?

YES: 2 NO: 0

10.1.6 Do you know what block(s) each load of fruit was picked from?

YES: 2 NO: 0

If yes, attach records.

10.1.7 Do you maintain and compare your yield and fruit maturity data on a multiple year basis?

YES: 3 NO: 0

If yes, attach records for the last three years.

10.1.8 If your winery is providing objective analysis (Brix, TA, pH), do you maintain and correlate the data?

YES: 3 NO: 0 NOT APPLICABLE: NA

If yes, attach objective analysis records including variety(s), parameters, and results. Not Applicable only if the winery does not provide the grower with objective analysis.

10.1.9 Do you taste and evaluate the wines from your vineyard and discuss which of your viticulture practices contribute to wine quality, both positively and negatively?

YES: 3 NO: 0

If yes, list the date, location, and who attended the wine tasting.

Date	Location	Attendance

10.1.10 Do you have documented trials in your vineyard assessing the effects of vineyard practices on wine quality?

YES: 2 NO: 0

If yes, describe trial(s).

10 Product Assurance and Business Sustainability				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
10.1 Fruit Quality	23			

Additional section comments for auditor review:

10.2 Economic Viability

Requirement(s)

10.2.1 You must have an annual or multi-year farming budget.

Provide documentation of the budget. You do not need to disclose sensitive financial information.

Management Enhancement(s)

10.2.2 Do you review your budget to actual on a monthly basis?

YES: 3 NO: 0

Provide documentation of monthly budget versus actual comparisons. You do not need to disclose sensitive financial information.

10.2.3 Do you have long term redevelopment plan for your vineyard?

YES: 2 NO: 0

Attach plan.

10.2.4 Do you meet with a financial or business advisor annually?

YES: 3 NO: 0

Provide name and affiliation of financial or business advisor and date of most recent meeting:

Financial or Business Advisor and Affiliation	Date

10.2.5 Do you have a system in place to track, review, and compare your financial status over time?

YES: 3 NO: 0

Provide a written description of your tracking and review system.

10.2.6 If you are family owned, do you have a succession plan in place?

YES: 3 NO: 0 NOT APPLICABLE: NA

Not applicable only if not family owned.

Provide statement.

10.2.7 Do you have crop insurance?

YES: 3 NO: 0

Provide proof of current crop insurance.

10 PRODUCT ASSURANCE AND BUSINESS SUSTAINABILITY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
10.2 Economic Viability	17			

Additional section comments for auditor review:

10 PRODUCT ASSURANCE AND BUSINESS SUSTAINABILITY POINT SUMMARY				
	A Total Section Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
10.1 Fruit Quality	23			
10.2 Economic Viability	17			
Total Chapter Points	40			

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11 Year End Water and Nitrogen Use Reports

Attach documentation and/or calculations with specified units. Final use numbers will be based on acres certified in the SIP Certification program on a per acre basis. You can submit multiple reports to reflect use based on multiple management areas or ranches. The following reports reflect practices from December 1 through November 30 of the certification year. Year End Reports are due to your inspector by December 15 of the certification year.

CALCULATIONS	CONVERSIONS AND EXAMPLES
General Parameters	
Total Area (ac) _____(y)	
Total Yield (ton) _____(z)	
Tons/Ac _____(x = z / y)	
Water Use Report	
Total Water on a per acre basis .	
Applied Irrigation Water (ac-ft/ac) _____(a)	To convert water units per acre to acre feet, download the UCCE Irrigation Converter .
Applied Frost Water (ac-ft/ac) _____(b)	To convert water units per acre to acre feet, download the UCCE Irrigation Converter .
Rainfall (ac-ft/ac) _____(c)	<p>Example: Inches per acre can be converted to acre feet per acre by dividing by 12.</p> $\frac{10.7 \text{ in/ac}}{12.0 \text{ in/ac-ft}} = \frac{0.89 \text{ ac-ft}}{\text{ac}}$
Total Water (ac-ft/ac) _____(d = a + b + c)	
Efficiency	
Water Efficiency (ac-ft/ton) _____(d / x)	

Nitrogen Use Report

Total Nitrogen on a **per acre basis.**

Fertilizer (lbs N/ac) _____ (e)

Example for Solid Fertilizer: Ammonium sulfate $[(\text{NH}_4)_2\text{SO}_4]$ 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.

$$\frac{100 \text{ lbs } (\text{NH}_4)_2\text{SO}_4}{\text{ac}} \times \frac{0.21 \text{ lbs N}}{1.0 \text{ lb } (\text{NH}_4)_2\text{SO}_4} = \frac{21 \text{ lbs N}}{\text{ac}}$$

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

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

Compost (lbs N/ac) _____ (f)

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.

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

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 yard 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.

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

Year End Water and Nitrogen Use Reports

Water (lbs N/ac) _____ (g)

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](#).

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.

Step 1: Convert ppm NO₃ to lbs N/acre foot of irrigation water applied.

$$45 \text{ ppm NO}_3 \times 0.62 = 27.9 \text{ lbs N/ ac-ft}$$

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.

Step 1: Convert ppm NO₃-N to lbs N/acre foot of irrigation water applied.

$$45 \text{ ppm NO}_3 \times 2.74 = 123.3 \text{ lbs N/ ac-ft}$$

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

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

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

Total Applied Nitrogen (lbs N/ac) _____ (h = e + f + g)	
Efficiency	
Nitrogen Efficiency (lbs N/ton) _____ (h / x)	

SIP™ VINEYARD CERTIFICATION STANDARDS POINT SUMMARY

MANAGEMENT ENHANCEMENT POINT SUMMARY				
	A Total Chapter Points	B Points Received	C Not Applicable Points	D Total Available Points (A - C)
1 Conservation and Enhancement of Biological Diversity	40			
2 Vineyard Acquisition/Establishment and Management	80			
3 Soil Conservation and Water Quality	40			
4 Water Conservation	50			
5 Energy Conservation and Efficiency	36			
6 Air Quality	44			
7 Social Equity	80			
8 Pest Management	70			
9 Continuing Education	20			
10 Product Assurance and Business Sustainability	40			
11 Year End Water and Nitrogen Use Reports	NA			
Total Management Enhancement Points	500			

STANDARDS POINT SUMMARY		
	E Received (Total from Column B above)	F Available (Total from Column D above)
Requirements (If all Requirements are met assign 500 points; all else 0)		500
Management Enhancements		
Total Points Score (Requirements + Management Enhancements)		
Total Percentage Score (E ÷ F)		
Year End Water and Nitrogen Use Reports	<input type="checkbox"/> Completed	

2015 SIP™ Standards Photo List

This document provides a list of photograph documentation for the SIP Vineyard Certification Standards. Questions marked the “REQ” are Required for certification.

Photos

- 1.1.5. Alternate row mowing and tilling of row middles
- 1.1.6. Insectary plantings
- 1.1.7. Owl/bat box

- 2.1.11. Arial Photographs
- 2.5.4. Before and after leaf removal

- 3.1.7. Chemical storage facility locked and posted
- 3.1.8. Pesticide storage spill containment design
- 3.1.9. Store liquid and dry materials separately. Dry materials above spill zone.
- 3.1.10. Mixing and loading site with low runoff
- 3.1.11. Diesel and gas tank secondary containment
- 3.2.2. REQ Winter cover crop
- 3.2.3. REQ Offsite movement of sediment and organic soil amendments (cover crop, filter strip, mulching, hay bales/straw, jute netting, slit pond, waddles, vegetated ditches, other)

- 4.1.1. REQ Backflow prevention device
- 4.1.2. REQ Wellhead protection
- 4.3.5. Aerial images for irrigation decisions

- 5.1.9. Irrigation pumping variable speed drive
- 5.1.10. All Terrain Vehicles (ATVs)
- 5.1.14. Renewal energy sources including solar, wind, or other alternative power

- 6.1.5. Alternate energy sources including bio-fuels, solar, or wind
- 6.1.9. Speed limit signs

- 8.5.3. Width of the weed free swath under the vine throughout the growing season

2015 SIP™ CERTIFICATION PROHIBITED MATERIALS LIST (PML)

Information obtained from the Department of Pesticide Regulation sources based on flagged materials registered for use on grapes. Due to the fluctuating registrations of many materials, trade names are not listed. It is the responsibility of the applicant to list trade names and active ingredients on documentation.

Active Ingredient	Cholinesterase Inhibiting	Groundwater Protection	Toxic Air Contaminant	CA DPR Restricted	Federal EPA Restricted
(S)-CYPERMETHRIN					X
2,4-D, DIMETHYLAMINE SALT			X	X	
4-AMINOPYRIDINE				X	X
ABAMECTIN					X
ACEPHATE	X				
ALUMINUM PHOSPHIDE			X	X	X
BETA-CYFLUTHRIN					X
BIFENTHRIN					X
CAPTAN			X		
CARBARYL	X		X	X	
CHLOROPICRIN			X	X	X
CHLORPYRIFOS	X				X
CYFLUTHRIN					X
DIAZINON	X				X
DIMETHOATE	X				
DIURON		X		X	
ENDOSULFAN			X	X	X
ETHEPHON	X				
FENBUTATIN-OXIDE					X
FENPROPATHRIN					X
HYDROGEN CYANAMIDE					X
MAGNESIUM PHOSPHIDE			X	X	X
MALATHION	X				
MANCOZEB			X		
META-CRESOL			X		
METHIOCARB	X				X
METHOMYL	X			X	X
METHYL BROMIDE			X	X	X
NALED	X				X
NORFLURAZON		X			
OXYDEMETON-METHYL	X			X	X
PARAQUAT DICHLORIDE				X	X
PHOSMET	X				
POTASSIUM N-METHYLDITHIOCARBAMATE			X	X	X
PROPARGITE					X
PROPYLENE OXIDE			X		X
PROPYZAMIDE					X
SIMAZINE		X		X	
SULFUR DIOXIDE					X
SULFURYL FLUORIDE			X	X	X
TRIFLURALIN			X		
ZINC PHOSPHIDE			X	X	X