



Protected Harvest Certification Standards: Strawberry Crop Management Certification Standards

APPROVED BY BOARD 11-05

1. Whole Farm Management

1.1. Grower Knowledge and Educational Activities (Select all that apply)

1.1.1. Membership in at least two organizations that provide information or support for biointensive IPM practices.	1
1.1.2. Attendance at two Department of Pesticide Regulation or university training sessions within the last 12 months.	1
1.1.3. Internet-based pest management resources from local sources are used.	1
1.1.4. Membership/participation in at least one conservation organization that provides information on regional or state natural resource conservation priorities.	3
1.1.5. Participation in current university, USDA or non-governmentally supported on-farm research project. BONUS POINTS:	3

1.2. Farm Practices Evaluation (Select all that apply) – Grower has prepared an annual evaluation of both pesticide usage and water/soil conservation practices based on field notes from the last three years to determine where biointensive IPM improvements can be made in future years.

1.2.1. Has written evaluation of pesticide usage.	5
1.2.2. Has written evaluation of soil/water conservation practices.	3
1.2.3. Has written natural resource conservation plan.	5

1.3. Commitment to Wildlife Management and Biodiversity Around the Farm (Select all that apply)

1.3.1. BONUS POINTS. At least 3% of farmland is established and maintained as permanent wildlife area.	3
1.3.2. Farm practices accommodate wildlife.	3
1.3.3. Riparian areas are conserved and continue to exist.	3
1.3.4. Nesting areas are provided or conserved for birds such as hawks and owls, bats and bees.	3

1.3.5. Grower has available published state, federal or local guidelines for protecting endangered species that exist in the area, and knows what species occur near the farm.	5
1.3.6. Invasive plants and animals are controlled.	3

2. Irrigation Management

2.1. Management Practices (Select all that apply)

2.1.1. Irrigation equipment is inspected and maintained weekly.	2
2.1.2. Irrigation events are scheduled with compensation for rain events and evapotranspiration estimates.	3
2.1.3. Grower knows the water holding capacity of the soil.	4
2.1.4. Vegetated buffer areas (filtering zones) and/or catch basins are used around fields (steeper than 3% grade).	5
2.1.5. Pump efficiency has been measured within the last 24 months.	2
2.1.6. Flow meters are use to determine water usage.	2
2.1.7. Grower uses soil probes and/or moisture sensors on a weekly basis to help determine soil moisture levels and records this information.	4
2.1.8. Irrigation water has been tested for pH, electrical conductivity, sodium absorption ratio, nitrates, sodium, chloride, and iron within the last 2 years.	2
2.1.9. Drip irrigation uniformity is managed with check valves, pressure compensating tape or system design.	3
2.1.10. During plant establishment overhead sprinkler irrigation is managed by a method that minimizes runoff.	2

2.2. Pump type (Select One)

2.2.1. For electric pumps, variable frequency pump controlers are used.	3
2.2.2. Low emission diesel, natural gas or propane pumps are used.	3

3. Sediment Management Practices

3.1. Containment of Runoff Sediment (Select all that apply; note if erosion control is not an issue on this field, reduce overall points for this grower)

3.1.1. Engineered and constructed catch basins are in place	4
3.1.2. Underground drainage pipe is used.	4
3.1.3. Non-engineered catchment structures are used.	3
3.1.4. During heavy rainfall periods, fields are patrolled.	3

3.1.5. Sloping ditches with a slope of 3%-5% are planted to grass and maintained, and ditches with slope greater than 5% are lined with a minimum of 4 millimeter plastic and maintained.	3
3.1.6. Vegetated field borders are established.	2
3.1.7. Roadways are seeded with grass during the winter.	4
3.1.8. In soils prone to crusting, furrow bottoms are cultivated or chiseled prior to rain events.	3

3.2. Sediment from Catch Basin is Redistributed to Field Annually

3.2.1. Yes.	4
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3.3. Filter Strips

3.3.1. Vegetative filters are planted in furrow bottoms on the steepest slopes in the field (steeper than 5% grade).	3
3.3.2. Vegetative filter strips are planted at the ends of all furrows.	2

3.4. Soil Permeability

3.4.1. Soil permeability is monitored on a yearly basis and amendments such as compost are added each crop season.	3
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4. Annual Nutrient Management Practices (Select all that apply)

4.1. A written nutrient management plan for the production season is developed outlining the approach to soil and tissue testing and used for managing soil fertility.	4
4.2. Both soil tests and tissue analysis are used for each growing cycle and these records are maintained.	2
4.3. Cover crop or rotational crop is grown.	5
4.4. Soil pH is known and amendments are added prior to planting the crop.	3
4.5. Fertilizer and irrigation water applications are timed to minimize runoff and leaching losses.	2
4.6. The salinity of both soil and irrigation water is monitored annually.	3
4.7. Fertigation and chemigation are used to apply chemicals and fertilizers.	1
4.8. A nitrogen budget is used to adjust overall nitrogen application.	3
4.9. Compost is used and its nutrient and salt levels are known.	4
4.10. Nitrate level in irrigation water is known and is used to adjust the amount of nitrogen applied to the field.	3
4.11. Crop residue and cover crop nitrogen values are part of the nitrogen budget.	3
4.12. Nutrient application equipment has been calibrated within the current growing season.	4
4.13. Raw manure is used.	NQ

5. Air Quality Practices

5.1. Dust and PM10 Management (Select one)

5.1.1. All roads are oiled with an environmentally acceptable material.	4
5.1.2. Roads are watered daily when dust is visible.	4
5.1.3. Wind barriers are established with fences, hedge rows and/or annual plantings.	2
5.1.4. Roadways are planted to perennial grass.	4
5.1.5. Roadways are kept covered with a mulch.	3

6. Pest Control Strategies

6.1. Pest Monitoring and Field Management Procedures

6.1.1. Record Keeping Activities (Select one)

6.1.1.1. Complete management records for pest levels and control, field fertility measurements and fertilizer application, and irrigation schedules and amounts are retained for 3 years with accessible storage and retrieval of records.	5
6.1.1.2. Informal production inputs and pest level records maintained.	2
6.1.1.3. No records of production inputs or pest levels maintained.	NQ

6.1.2. Scouting Practices

6.1.2.1. Who Scouts Crop? (Select One)

6.1.2.1.1. Independent (non-commission agents) or in-house farm employed pest control advisor (PCA) gives written report to grower.	5
6.1.2.1.2. Dealer/co-op employed PCA gives written report to grower.	2
6.1.2.1.3. In-house scouting (non-PCA) with complete report to grower.	1

6.1.2.2. What Scouting System is Used? (Select all that apply)

6.1.2.2.1. Scouting patterns based on experience using university recommendations as guidelines for scouting procedures.	4
6.1.2.2.2. Scouting focused on hot spots and previous problem areas.	2
6.1.2.2.3. Scouting focusing on field edges.	1

6.1.2.3. Scouting Frequency

6.1.2.3.1. Southern California (Select One)

6.1.2.3.1.1. Fields are scouted at least weekly starting one month after planting.	5
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6.1.2.3.1.2.	Fields are scouted at least every 10 days starting one month after planting and at least weekly during bloom and fruit period.	2
6.1.2.3.1.3.	Fields are scouted at least every 10 days starting one month after planting.	1
6.1.2.3.1.4.	No scouting is done.	NQ

6.1.2.3.2. North Central Coast, California (Select One)

6.1.2.3.2.1.	Fields are scouted at least weekly after March 1.	5
6.1.2.3.2.2.	Fields are scouted at least every 10 days after March 1.	2
6.1.2.3.2.3.	No scouting is done.	NQ

6.1.2.4. Weather Data and Degree Day Calculations Are Used for Managing Lygus (Select one, Note: Southern California growing regions currently have no Lygus bug, so total point scale should be adjusted to not include these points).

6.1.2.4.1.	Maximum and minimum temperatures are used to determine degree day accumulations and to predict when Lygus nymphs will appear in strawberries. The UC IPM website is used to assist in managing Lygus bug. www.ipm.ucdavis.edu .	4
6.1.2.4.2.	Weather data is taken into consideration but no formal calculations are made.	2

6.1.2.5. Scouting and Monitoring Technique (Select all that apply)

6.1.2.5.1.	Beneficial insects that impact pest dynamics are monitored during scouting activities, and population densities (and ratios with respect to key pests) are taken into account in determining the choice of control methods to be used.	5
6.1.2.5.2.	Scouting includes key pest monitoring only.	3
6.1.2.5.3.	Field personnel not involved with scouting are trained to identify and observe pest problems and report to the grower or PCA.	3
6.1.2.5.4.	Scouting report provides grower with information to allow for the treatment of spots in field and partial blocks.	3

6.2. Pesticide Choices (Select all that apply)

6.2.1.	Pesticide Use Reports have been maintained for the last 3 years.	2
6.2.2.	Products chosen with lowest EIU (Environmental Impact Unit) rating where possible.	4

6.3. Pesticide Applications (Select all that apply)

6.3.1.	Pesticide applications are timed with consideration of effects on bees and beneficial insects.	4
6.3.2.	All pesticide applicators have Private Applicators License.	3
6.3.3.	Equipment calibration has been completed and documented at the beginning of the season and during the application season.	4

6.4. Pesticide Mode of Action (MOA) Management (Select all that apply)

6.4.1. Herbicide MOA management

6.4.1.1. Herbicide classes with different modes of action are used within the rotation of crops.	5
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6.4.2. Insecticide MOA Management

6.4.2.1. Insecticides with the same mode of action are not applied consecutively within the growing season.	4
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6.4.2.2. BONUS POINTS. When control failures are suspected, resistance levels are evaluated at a diagnostic lab.	3
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6.4.3. Fungicide MOA management

6.4.3.1. Fungicides with single mode of action activity are not applied consecutively.	4
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6.4.3.2. BONUS POINTS. Pathogen resistance to fungicides is tested by a diagnostic lab when control failures occur.	3
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6.5. Drift Management Plan

6.5.1. A drift management plan has been developed and a applicator training with workers has been conducted and documented.	4
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6.6. Fumigation Plan (Select one from first four choices, fifth choice available as bonus)

6.6.1. No use of fumigants.	5
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6.6.2. Alternative (non-methyl-bromide) fumigant.	4
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6.6.3. Fumigation with methyl bromide.	NQ
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6.6.4. BONUS POINTS: Grower participates in on-farm methyl bromide alternatives research.	3
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6.7. Trap Cropping (Alfalfa or Other) for Suppression of Lygus (Select one, Note: Southern California growing regions currently have no Lygus bug, so total point scale should be adjusted to not include these points).

6.7.1. Intercropped trap managed with a vacuum device.	5
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6.7.2. Intercropped trap managed with insecticide treatment.	4
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6.7.3. Field edge trap cropping used to calibrate Lygus development and movement.	2
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6.8. Beneficial Insect Habitat Conservation (Select one)

6.8.1. Installation, maintenance, irrigation and monitoring of beneficial insect habitat (flowering perennials or annuals).	3
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6.8.2. Annual and perennial habitat species are planted.	2
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6.8.3. Resident plant populations are maintained on field edges (not planted).	1
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6.9. Crop Rotation (Select one)

6.9.1. Strawberries are not planted after strawberries.	3
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6.9.2. Strawberries are not planted more than two years in a row.	2
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6.9.3. Strawberries are not planted more than three years in a row.	1
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6.10. Weed Control (Select all that apply)

6.10.1. Field is pre-irrigated to germinate weeds, then disced, before forming beds.	2
6.10.2. After pre-irrigation, disking and bedding up, opaque plastic mulch is used to control subsequent germination of weeds.	2

6.11. Mite Control (Select one)

6.11.1. Spider mites are controlled exclusively with predacious mites (no acaricides are used).	5
6.11.2. Acaricides are used only in concert with predacious mites.	3
6.11.3. Acaricides that harm predacious mites are not used.	2

6.12. Pest Natural Enemy Ratios Are Used in Pest Control Decisions (Select all that apply)

6.12.1. Pest control decisions are made based on the natural enemies that are present.	4
6.12.2. Pest mite control decisions are made based on the balance or presence of all natural enemies to pest mites.	3

6.13. Disease Management Practices (select all that apply)

6.13.1. Transplant Management

6.13.1.1. Grower inspects nursery prior to purchasing plants.	3
6.13.1.2. Grower has documentation of disease resistance characteristics of cultivars planted.	3

6.13.2. Site preparation

6.13.2.1. BONUS POINTS. Soil solarization is used to reduce pathogens in soil.	3
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6.13.3. Irrigation source

6.13.3.1. When surface water used for irrigation, water is monitored for <i>Phytophthora</i> inoculum.	5
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6.13.4. Field Sanitation

6.13.4.1. Equipment is disinfested between fields by steam cleaning or power wash.	3
6.13.4.2. Equipment is disinfested between fields by washing off with a hose.	2
6.13.4.3. Weeds are removed from the field before weeds flower.	1
6.13.4.4. Diseased leaves are removed from field at least once during season.	3
6.13.4.5. All plant residues are incorporated within a month after harvest is complete.	1