



Natural Resources Conservation Service

WASHINGTON

# SQL11 – Cover cropping in orchards, vineyards and other woody perennial horticultural crops

## CSP Enhancement Washington State Supplement

Land Use Applicability: Cropland

January 2014

Client/Operating Unit:

Tract Number:

Farm/Ranch Location:

Farm Number:

Specifications Date:

Field Number(s):

Planned Installation Date:

Proposed Treatment Acres:

### Enhancement Description:

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Grow perennial or annual cover crop mixtures of grass, legumes, native flowering plants and/or other forbs year round to provide soil coverage, organic mulch, beneficial insect habitat, and other conservation benefits in orchards, vineyards or other perennial horticultural crops. Cover crops, once planted, are replanted annually or maintained year after year.

### Benefits

Maintaining orchard and vineyard floors or row middles of perennial horticultural crops with continuous cover protects the soil resource from erosion, enhances soil quality, reduces compaction and rutting from field operations, and suppresses weeds. Cover crops provide habitat for pollinators and natural enemies of crop pests, fix nitrogen (legumes), and conserve moisture via organic mulch and suppress weeds.

### Conditions Where Enhancement Applies

This enhancement only applies to acres of orchards, vineyards, and other woody perennial cropping systems

### Criteria for the cover cropping in orchards, vineyards and other woody perennial horticultural crops

1. Plant cover crops in the inter-row spaces to be compatible with optimum yield and quality of the fruit crop. Grow cover crops on a minimum of 60% of the field area year annually. When annual cover crops are used, plant each succeeding cover crop within as soon as possible after termination of the preceding cover. Residue from the previous cover crop must be left on the soil surface until immediately before the next cover crop is planted.

2. Areas near crop rows or young, establishing trees that must be kept free from competing vegetations shall be maintained with organic mulch to control erosion, conserve soil moisture, and sustain soil quality. Select mulching material, application rate, and placement compatible with needs of the production crop. Total soil coverage (living cover + mulch) shall be maintained at a minimum of 85% of the field area. Replenish mulch as needed. Exception: In lieu of using mulch to meet the 85% minimum requirement, the area beyond the 60% minimum shall be seeded to a cover crop for systems where the mulching material would hinder harvest operations.

3. Select and seed cover crop mixtures at rates and within planting date ranges as determined or agreed to by the NRCS State Agronomist. Perennial mixtures must consist of at least two species from different plant families. Annual cover crops must include at least three species from a minimum of two different plant families.

4. Select a mixture and sequence of cover crop species to accomplish two or more of the following objectives:
  - a. High biomass and root mass to build soil organic matter. Expect at least 2 tons/ac of above ground biomass annually.
  - b. Biologically fixed nitrogen for the production crop. Choose a mixture that will provide sufficient but not excessive amounts of N to the crop. Schedule mowing or termination of the cover to optimize rate and timing of N release for crop needs. Leave clippings near crop rows for desired N delivery.
  - c. Mulch generation. Plant mixtures which can be cut periodically to generate mulch material for application to crop rows or areas not protected by living cover.
  - d. Weed suppression. Select covers that establish rapidly form a heavy canopy and suppress weeds without competing excessively with the production crop. Schedule mowing of perennial covers to optimize weed control and prevent weed propagation.
  - e. Habitat for beneficial insects. Select a mixture of flowering plants based on the habitat needs of key predators or parasitoids to control the most economically important pests of the crop to be protected.
  - f. Pollinator habitat. Select a mixture of flowering plants to provide food and habitat for desired pollinators. Time mowing and other management operations to minimize competition for pollinators while the fruit crop is blooming.

#### **Layout Sketch & Drawing** (Provide sketch, drawings, maps, and/or aerial photographs.)

- Geo-referenced field map with all delineated treatment areas where CSP Enhancement SQL11 is to be applied.

#### **Adoption Requirements**

This enhancement is considered adopted when cover crop mixture are established and total ground coverage (living cover + organic mulch) reaches 85% of the field area.

#### **Documentation Requirements**

1. Cover crop species mix, planting dates, mowing dates and (for annual species) termination dates and methods.
2. Pattern and layout of production and cover crops plus mulch used to document how soil coverage criteria were reached.
3. The accomplished items from "Criteria #4."
4. Photographs of representative fields showing cover crops added to the rotation, timing and method of cover crop establishment, and cover crop management.
5. Seed and legume inoculant tags and receipts.

## References\*:

Ames, G. K., G. Kuepper, and A. Baier. 2004. Tree Fruits: Organic Production Overview. National Sustainable Agriculture Information Service. <http://attra.ncat.org>.

[Dufour, R. 2006. Grapes: Organic Production. National Sustainable Agriculture Information Service. pp 44. <http://attra.ncat.org>](#)

[Hinman, T., and G. Ames. 2001. Apples: Organic Production Guide. National Sustainable Agriculture Information Service. pp 40. <http://attra.ncat.org>](#)

Kuepper, G. L., S. Diver, K. Adam, M. Guereña, and P. Sullivan. 2004. Blueberries: Organic Production. National Sustainable Agriculture Information Service. pp 26.

<http://attra.ncat.org>

Kuepper, G.L., H. Born, and J. Bachman. 2003. Organic Culture of Bramble Fruits. National Sustainable Agriculture Information Service. pp 20.

<http://attra.ncat.org>

USDA Sustainable Agriculture Research and Education (SARE) Handbook Series Book 9. Managing Cover Crops Profitably, 3rd Ed.

<http://www.sare.org>.

### **Field Office Technical Guide:**

[eFOTG, <http://www.nrcs.usda.gov/technical/efotg/>](http://www.nrcs.usda.gov/technical/efotg/)

**\* Some online documents may take several minutes to download.**

USDA-NRCS Plant Materials Program. Plants for Pollinators.

[http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/plantsanimals/pollinate/?cid=nrcs143\\_022326](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/plantsanimals/pollinate/?cid=nrcs143_022326)

Xerces Society Pollinator Conservation Program. Pollinator Conservation Resource Center.

<http://www.xerces.org/pollinator-resource-center/>

## State Supplemental Information

**States need to develop a list of approved cover crops or cover crop mixes and planting date ranges.**

**Utilize Plant Materials Technical Note 1 – Seeding Guide** (To make the best use of the Seeding Guide load it onto your desktop, see directions in box below).

### **Loading and Using the Seeding Guide**

The Seeding Guide is a Microsoft Access database and can be found in Washington State's **efotg** in the **Section I/Reference Lists/Technical Notes by discipline/Plant Materials** folder.

To load the Seeding Guide on your desktop:

1. Go to Section I/Reference Lists/Technical Notes by Discipline/Plant Materials folder in efotg.
2. Double click on the Seeding Guide, and then click OPEN
3. Select the Seeding Guide and then click EXTRACT. Extract the Seeding Guide to your desktop folder.
4. Go to your desktop and double click to open the Seeding Guide (PM\_TN1\_Seeding\_Guide\_113010.accdb)
5. The first time you use the Seeding Guide you will need to do the following:
  - A. Click on the Microsoft Office button in the upper left hand corner.
  - B. Click on "Access Options".
  - C. Click on "Trust Center", select (click on) "Trust Center Settings".
  - D. Click on Macro Settings and select "Enable all Macros"
  - E. Close, then reopen the Seeding Guide.

**With a click of the mouse you will have access to seed mixtures and plant data.**





application to crop rows or areas not protected by living cover.

d. Weed suppression. Select covers that establish rapidly form a heavy canopy and suppress weeds without competing excessively with the production crop. Schedule mowing of perennial covers to optimize weed control and prevent weed propagation.

e. Habitat for beneficial insects. Select a mixture of flowering plants based on the habitat needs of key predators or parasitoids to control the most economically important pests of the crop to be protected.

f. Pollinator habitat. Select a mixture of flowering plants to provide food and habitat for desired pollinators. Time mowing and other management operations to minimize competition for pollinators while the fruit crop is blooming.

**4. Photographs of representative fields showing cover crops added to the rotation, timing and method of cover crop establishment, and cover crop management.**

**5. Seed and legume inoculant tags and receipts.**

**Client's Acknowledgement** (To be signed before the Enhancement is applied.)

By signing below, I acknowledge that I:

- have reviewed and understand the site specific design, installation specifications and operation/maintenance requirements in this State Supplemental Sheet and have an understanding of the purpose(s) of this Enhancement;
- will install, operate, and maintain this Enhancement in accordance with the National Sheet, the Washington State Supplemental Sheet and the site specific specifications.
- will make no changes to the planned design and installation without prior written approval of the Natural Resources Conservation Service.
- will obtain all necessary permits and/or rights, and comply with all ordinances and laws pertaining to the installation, operation, and maintenance of this Enhancement, prior to the start of installation; and
- will assume responsibility for notifying all Utilities affected by the installation, operation and maintenance of this Enhancement.

Signature

Date