Natural Resources Conservation Service
WASHINGTON

SQL04 – Use of cover crop mixes

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:

Table of Contents

This enhancement is for the use of cover crop mixes that contain two (2) or more different species of cover crops or cultivars of a single species.

Benefits

The use of a cover crop mixture that contains two (2) or more species is often more effective than a planting of single species cover crop. Cover crop mixtures adapt to variation in soils, increase biomass production, provide broader spectrum of weed control, have better winter survival and ground cover and attract a range of beneficial insects. Nutrients can be trapped or produced depending on existing soil conditions and plants used. Mixes can be a grass/legume, multiple cultivars of a single species, or a mix containing plants with different growth patterns, e.g. fast and slow, tall and short.

Conditions Where Enhancement Applies

This enhancement applies to all crop land use acres.

Criteria for the use of cover crop mixes

1. Cover crop mixes must contain a minimum of two (2) different plant species or cultivars of a single species with different maturity dates.
2. Cover crop species will be selected from state specific lists. The list of approved cover crops is available at the local NRCS Field Office.
3. Crops planted following cover crop must be no-tilled.
4. Nutrient applications for crops following cover crop should consider nitrogen fixation from leguminous cover crops.

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

- Geo-referenced field map with all delineated treatment areas where CSP Enhancement SQL04 is to be applied.

Adoption Requirements

This enhancement is considered adopted when two different plant species or cultivars of a single species are being grown on the land use acre.

Documentation Requirements

1. Written documentation for each year describing, in detail, the following items:
   a. Cover crop species used and dated planted,
   b. Date and amount of fertilizer applied,
   c. Method to kill cover crop and date completed, and
   d. Crop planted after cover crop and method used.
2. A map showing fields where the enhancement is applied.
3. Photographs of a representative number of fields showing cover crop mix.

References*:

Sainju, U.M., W.F. Whitehead and B.P. Singh. 2005. Biculture Legume–Cereal Cover Crops for Enhanced Biomass Yield and Carbon and Nitrogen. Agron. J. 97:1403–1412.

Field Office Technical Guide:

eFOTG, http://www.nrcs.usda.gov/technical/efotg/

Plant Materials Technical Notes:
http://efotg.nrcs.usda.gov/references/public/WA/PM_TECHNOTE_INDEX.pdf

#18 Green Manure and cover crops for the Inland Pacific Northwest
#1 Washington Seeding Guide

Agronomy Technical notes:

http://efotg.nrcs.usda.gov/references/public/WA/AGRONOMY_TECHNICAL_NOTES_INDEX.pdf

#2 Winter cover crops for irrigated sandy soils in the Columbia basin
#9 Management of residual nitrogen with cover crops
#10 Planting dates for fall cover crops in the irrigated Columbia basin
#8 Fall seeded cover crop trials

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

State Supplemental Information

States need to develop a list of approved cover crop mixes.

Cover crop mixes are grown between primary cropping seasons. Crops planted following cover crop must be no tilled and have a STIR of no greater than 20. Termination may be done chemically or non-chemically (not tilled). Species on the county noxious weed lists will not be allowed for that county. Cover crops should be given as much growing time as possible to maximize plant growth while retaining adequate soil moisture for the subsequent crop. Low rainfall areas need to take into consideration moisture availability of the following crop and any insurance requirements producers may have for termination. Recommended termination in low rainfall is at least 60-90 days before planting of next crop. For all cover crops termination is recommended at a minimum of 2-3 weeks prior to planting of the next crop to avoid any insect or disease infestations associated with green tissue (green bridge effect). Ensure legumes used for nitrogen fixation have the appropriate Rhizobium inoculant. Cover crop mixes are highly dependent on irrigation and climate regions, consult the State Agronomist for further guidance. Possible duplicate enhancements and practices include PLT20, SQL12, ENR10, 328, or 340.

There are no State approved or specific mixes for cover crops.

All species in a cover crop mix will be adapted to the site and climatic regime.

The cover crop mix must be planted in a timely manner:

Cover crop mix is established prior to the critical erosion period or the time period when the mix is intended to function for the designed purposes.

Weeds and especially noxious/invasive weeds and volunteer plants are not considered cover crops.

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.

Documentation Form

Producer:		**Date:**	
Tracts:		**County:**	

1. Written documentation for each year describing, in detail, the following items:

a. Cover crop species used and dated planted,

b. Date and amount of fertilizer applied,

c. Method to kill cover crop and date completed, and

d. Crop planted after cover crop and method used.

Field Number(s):					
Acres:					
Cover Crop Planted:					
Cover Crop Planting Date:					
Fertilizer Application Rates for Cover Crop (if used):					
N:					
P_2O_5:					
K_2O:					
Application Date(s):					
Cover crop Termination Method Used:					
Date Cover Crop Terminated:					
Cash Crop:					
Cash Crop Planting Method:					

2. Attach map showing where activities are applied

3. Attach photographs of a representative number of fields showing roller crimping of cover crop.

WSU Analytical Laboratories Database:

http://www.puyallup.wsu.edu/analyticallabs/

Commercial and Agricultural Resources:

http://extension.wsu.edu/wsprs/Pages/AgResources.aspx

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**

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