

## **Plant Enhancement Activity – PLT20 – High residue cover crop or mixtures of high residue cover crops for weed suppression and soil health**



### **Enhancement Description**

Utilize biomass from a cover crop or cover crop mixture as a living or killed mulch to suppress weed seed germination and to add carbon to the terrestrial carbon pool.

### **Land Use Applicability**

Cropland

### **Benefits**

Cover crop or cover crop mixtures when managed properly can physically and/or chemically control weeds. Physically, a live cover crop competes with weeds for water, nutrients and sunlight. A killed cover crop physically prevents the germination of weed seed by changing the micro environment around the weed seed (temperature and light). Chemically, certain legume, cereal or brassica cover crops suppress weed seed germination and seedling development via plant-produced natural herbicides upon decomposition (i.e., allelopathy). By implementing this enhancement, the major resource concerns of soil quality, soil erosion, plants and water quality will be improved and maintained to a high level.

### **Conditions Where Enhancement Applies**

This enhancement applies to all acres of annually planted cropland. These acres can be organic, transitioning to organic, or non-organic.

### **Criteria**

1. Between each crop in the rotation, except double cropped situations, seed a high residue cover crop or mixture of high residue cover crops. Each cover crop or mixture shall meet the following requirements:
  - a. Seed a cover crop or cover crop mixture at a rate and within a planting date range as determined or agreed to by the NRCS State Agronomist.
  - b. Cereal grain cover crops or mixtures shall be top dressed with nitrogen at rates determined or agreed to by the NRCS State Agronomist.
  - c. The cover crop or mixture shall reach a maturity level (i.e., growth stage) to ensure 100% soil coverage in the row middles for 3 months of the growing season. For example, cereal rye shall reach the soft dough stage before termination. The NRCS State Agronomist can determine a specified maturity level or desired residue quantity (dry matter basis) for the selected cover crop cultivar.
  - d. Termination of all cover crops shall be accomplished by chemical methods, non-chemical methods (such as flail mowing or roller crimper), or a combination of both.

2. The crop rotation must be grown in a manner to maintain a minimum Soil Tillage Intensity Rating (STIR)  $\leq 10$  as determined by RUSLE2.

### **Adoption Requirements**

This enhancement is considered adopted when all of the criteria have been met on the land use acre.

### **Documentation Requirements**

Written documentation for each year of this enhancement describing the following items:

1. Cover crop or mixture used
2. Cover crop or mixture seeding rate and seeding date
3. If applicable, nitrogen top dress rate and date for the cover crop or mixture
4. Cover crop or mixture termination stage
5. Method used to terminate cover crop or mixture and date of termination

### **References**

Price, A.J., K.S. Balkcom, L.M. Duzy and J.A. Keltron. 2012. Herbicide and Cover Crop Residue Integration for *Amaranthus* Control in Conservation Agriculture Cotton and Implications for Resistance Management. Weed Technology. In press.

Price, A.J., K.S. Balkcom, R.L. Raper, C.D. Monks, R.M. Barentine, and K.V. Iversen. 2008. Controlling Glyphosate-Resistant Pigweed in Conservation Tillage Cotton Systems. Conservation Systems Research. Special Publication No. 09. USDA-ARS-NSDL, Auburn, AL.

Sustainable Agriculture Research and Education (SARE). 2010. Managing Cover Crops Profitably. 3<sup>rd</sup> ed. Handbook #9. College Park, MD.

USDA-NRCS, 2014. NRCS Cover Crop Termination Guidelines. Version 3

**Utah State Supplement 2015 for PLT20**

**Notes:** This enhancement is designed for weed suppression, therefore the cover crop needs to have substantial biomass and height for competition and shading.

1. Cover crops on irrigated cropland will be irrigated as needed to achieve the purpose of the cover crop.
2. Grazing cover crop at the end is strongly recommended but not required.
3. Warm season cover crop mixes will be planted before June 1, and terminated after Sept 30 or before soft dough stage.
4. Cool season cover crop mixes will be planted before April 10, and terminated after July 10 or before soft dough stage.
5. Winter season cover crop mixes will be planted before September 15, and terminated after June 10 or before soft dough stage.
6. Cover crop seed mixes will not exceed 35 lbs per acre.
7. Non leguminous cover crop shall be top dressed with at least 50 lb/ac N fertilizer.

The following conservation measures are required to be planned and implemented with this enhancement in all sage grouse habitat:

<b>Enhancement Name</b>	<b>Enhancement Code 2015 (Old Code<sup>^</sup>)</b>	<b>Associated SGI Practices (Code)</b>	<b>Conservation Measures<sup>+</sup></b>
High Residue Cover Crops or Mixtures of High Residue Cover Crops for Weed Suppression and Soil Health	PLT20	328, 340, 645	1, 6

See full table complete list of conservation measures in FOTG for more information.



**Operations & Maintenance, Conservation Measures, and Client Acknowledgement**

<b>Operation and Maintenance</b>	
Operation:	
Maintenance:	
<b>Conservation Measures</b>	
Actions that must be implemented by the landowner/manager during enhancement implementation:	
<b>Client's Acknowledgement Statement</b>	
The Client acknowledges that:	
a. They have received a copy of the enhancement and understand the contents and requirements.	
b. It shall be the responsibility of the client to obtain all necessary permits and/or rights, and to comply with all ordinances and laws pertaining to the application of this enhancement.	
<b>Planner:</b>	<b>Date:</b>
_____	_____
<b>Client:</b>	<b>Date:</b>
_____	_____