

Water Quality Enhancement Activity – WQL33 – Use of non-chemical methods to kill cover crops



Enhancement Description

Use non-chemical methods to kill cover crops prior to no-tilling, direct seeding or strip-tilling the normal production crop. These methods include mowing, rolling, undercutting and weather kill.

Land Use Applicability

Cropland

Benefits

The use of non-chemical methods to kill cover crops provides a dense bio-mass that controls erosion, increases soil organic matter, reduces soil water evaporation, suppresses weeds along with other improvements in soil and water quality while eliminating potential water quality problems or other concerns from the use of herbicides.

Conditions Where Enhancement Applies

This enhancement applies to all crop land use acres, not including hayland.

Criteria

General

1. Use different methods within the cropping rotation.
2. After cover crop termination, no-till, direct seed or strip-till the normal production crop.
3. Use of herbicides is prohibited to terminate cover crop.
4. All crops shall be killed using one of the methods described below:
 - a. **Mowing**
 - i. Mowing must be done using a “Flail” or “Sickle Bar” mower
 - ii. Time mowing to ensure plant re-growth is minimized, e.g. after flowering in rye or midbloom or later in hairy vetch
 - b. **Roller Crimping**
 - i. Delay crimping until after early milk stage in cereal grain cover crops to ensure successful termination
 - ii. Manage cover crops for high bio-mass production through proper selection of seed, fertilizer application and timing of planting in the fall
 - iii. Cover crop must be crimped not cut
 - c. **Undercutting**
 - i. Use “V” blade cultivators that are run just under the surface of the soil (<2’)
 - ii. Most suitable for bed production
 - d. **Weather Kill**
 - i. Select cover crop based on those that are most reliably killed by temperature shifts

- ii. Use both summer or winter kill cover crops based on crop rotation

Adoption Requirements

This enhancement is considered adopted when one of the cover crop termination methods described above has been implemented on the land use acre.

Documentation Requirements

1. Written documentation for each year of this enhancement describing the following items:
 - a. Cover crop used and date planted,
 - b. Date and amount of fertilizer applied (if used),
 - c. Date on which cover crop was terminated, and
 - d. Cash crop planted and method used,
2. A map showing fields where the enhancement is applied.
3. Photographs of a representative number of fields showing roller crimping of cover crop.

References

Creamer, N.G. and S.M. Dabney. 2002. Killing cover crops mechanically: Review of recent literature and assessment of new research results. *Amer. J. Alt. Ag.* 17:32-40.

Hulugalle, N.R., L.A. Finlay and T.B. Weaver. 2011. An integrated mechanical and chemical method for managing prostrate cover crops on permanent beds. NSW Department of Primary Industries. Australian Cotton Research Institute. Australia.



Utah Supplement for WQL33

Note: none

Operations & Maintenance, Conservation Measures, and Client Acknowledgement

Operation and Maintenance	
Operation:	
Maintenance:	
Conservation Measures	
Actions that must be implemented by the landowner/manager during enhancement implementation:	
Client's Acknowledgement Statement	
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.	
Planner:	_____
	Date:
Client:	_____
	Date: