Conservation Crop Rotation (CPS 328)

Add Perennial Crops to Rotations


Photo by USDA NRCS

NRCS Conservation Practice Standard Summary

DEFINITION: A planned sequence of crops grown on the same ground over a period of time (i.e. the rotation cycle).

PURPOSE:

- Reduce sheet, rill and wind erosion
- Maintain or increase soil health and organic matter content
- Reduce water quality degradation due to excess nutrients
- Improve soil moisture efficiency
- Reduce the concentration of salts and other chemicals from saline seeps
- Reduce plant pest pressures
- Provide feed and forage for domestic livestock
- Provide food and cover habitat for wildlife, including pollinator forage, and nesting

CONDITIONS WHERE PRACTICE APPLIES: This practice applies to all cropland where at least one annually-planted crop is included in the crop rotation.

COMET-Planner Practice Implementation Information

COMET-Planner estimates assume scenarios of decreasing fallow frequencies and/or adding perennial crops to rotations. Cropland management practices for annual crops in rotation remain the same with adoption of the conservation practice. The greenhouse gas impacts of this practice include an increase in soil carbon from higher carbon inputs from plant residue.

GHG Estimation Methods

Values for dry climates were averaged from soil carbon sequestration rates from eliminating summer fallow (Eagle et al. 2012, Sherrod et al. 2003) and adding perennial crops to rotations (Eagle et al. 2012). Nitrous oxide emissions from these scenarios average to essentially zero, since increased cropping intensity may lead to an increase in nitrogen application, whereas perennial crops in rotation likely result in a decrease in nitrogen fertilization.

Estimates are not meant to apply to any specific site conditions but rather represent the range of expected values to be found over the multi-county region and reflect the assumptions stated.