OneCert Crop Rotation Policy

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1. Purpose

The purpose of the OneCert Crop Rotation Policy is to provide consistent interpretation and implementation of the National Organic Program Crop Rotation Standard (7 CFR 205.205) to potential/existing clients and OneCert staff.

2. Scope

The OneCert Crop Rotation Policy provides the requirements of annual and perennial crop rotation to potential and existing clients along with guidance to OneCert staff.

3. Policy

Crop rotations must fulfill the requirements of the Crop Rotation Standard (7 CFR 205.205) --to maintain or improve soil organic matter content, provide for pest management, manage deficient or excess plant nutrients, and control erosion--and are not obligated to use any specific management practice. [NOP Preamble–Crop Production, par. 5, pg. 24].

> **§205.2 Terms defined.**
>
> *Crop rotation.* The practice of alternating the annual crops grown on a specific field in a planned pattern or sequence in successive crop years so that crops of the same species or family are not grown repeatedly without interruption on the same field. Perennial cropping systems employ means such as alley cropping, intercropping, and hedgerows to introduce biological diversity in lieu of crop rotation.
>
> **§205.205 Crop rotation practice standard.**
>
> The producer must implement a crop rotation including but not limited to sod, cover crops, green manure crops, and catch crops that provide the following functions that are applicable to the operation:
>
> (a) Maintain or improve soil organic matter content;
>
> (b) Provide for pest management in annual and perennial crops;
>
> (c) Manage deficient or excess plant nutrients; and
>
> (d) Provide erosion control.

All producers are required to implement a crop rotation, including but not limited to sod, cover crops, green manure crops, and catch crops. The implemented crop rotation must maintain or improve soil organic matter content, provide for effective pest management in perennial crops, manage deficient or excess plant nutrients, and control erosion to the extent that these functions are applicable to the operation.

Producers crop rotations must be considered within the context of site-specific environmental conditions including climate, hydrology, soil conditions, and the crops being produced [NOP Preamble–Crop Production–Clarifications (1), par. 2, pg. 39].

Producers must submit their crop rotation that is consistent with the National Organic Program definition of crop rotation and the Crop Rotation Standard (7 CRF 205.205), be established in their Organic System Plan, and approved by OneCert.

3.1 Organic System Plan

All producers are required to implement an Organic System Plan that provides a description of annual crop rotations, nurse crops, green manures, fallow periods and perennial crop management along with a description of how the crop rotation meets all functions listed in 7 CFR 205.205.

3.2 Types of Crops (annual/bi-annual/perennial)

A certified operator may plan for the production of annual, bi-annual, or perennial crops on their operation. Operators may also include other types of croppings in their Organic System Plan including but not limited to cover crops, intercropping, hedgerows, bunds, CRP and fallow.

3.2.A Annual & Bi-annual Crops

Annual crops are those that are grown in a field for one year or less and have a harvestable production within that growing season (e.g. corn, soybeans, and sorghum). Annual crops must be interrupted within the crop rotation plan by one of the following means:

- Planting and harvesting a crop:
    - From a different species or family in the subsequent crop year
    - From a different species or family within the same production year
- Planting a cover crop and:
    - Incorporating the residue of the cover crop into the soil as a green manure.
    - Leaving the land covered and fallow per the definition in Point 3.2.D.

Bi-annual croppings are those that grow their vegetative structures (leaves, stem, roots) one year and then the following year enter a dormant period (e.g. vegetables/herbs such as parsley, fennel, and carrot, flowers such as Black-eyed Susan and Sweet William). Bi-annual cropping systems will be evaluated under this policy.

3.2.B. Perennial Crops

Perennial crops are those that are managed over two or more growing seasons and have harvestable production over multiple years (e.g. alfalfa, fruit/nut bushes or trees, asparagus, strawberries, coconut). Perennial cropping systems employ means such as alley cropping, intercropping, and hedgerows to introduce biological diversity in lieu of crop rotation (205.2).

Alley cropping is the planting of trees or shrubs in two or more sets of single or multiple rows with agronomic, horticultural, or forage crops cultivated in the alleys between the rows of woody plants. Alley cropping can diversify farm income, improve crop production and provide protection and conservation benefits to crops.

Intercropping is the practice of growing two or more crops in close proximity to each other during part of all of their life cycles. This practice will help to promote interactions that improve soil and water quality via increased biodiversity and contribute to pest management.

Hedgerows are dense woody vegetation planted in a linear design to achieve a natural resource conservation purpose. Use of hedgerows will help to protect water quality and shelter wildlife, improves aesthetic value and air quality, and reduces noise.

Note that perennials managed as annual crops (e.g. strawberry production in south eastern US) will be evaluated under Point 3.2.A above.

3.2.C. Cover Crops

Cover crops are grasses, legumes, and other forbs that are planted in annual or perennial cropping systems to provide erosion control, improving soil structure, moisture, and nutrient content, increasing beneficial soil biota, suppressing weeds, providing habitat for beneficial predatory insects, facilitating crop pollinators, providing wildlife habitat, and as

forage for farm animals. Cover crops can also provide energy savings both by adding nitrogen to the soil and making more soil nutrients available, thereby reducing the need to apply fertilizer

3.2.D. Fallow

Fallow is a period of time in which soil that is left unsown is later plowed and harrowed in order to restore its fertility. A compliant fallow period can be no less than twelve months, including nine months of a growing period. A green fallow may be implemented on a producer's operation if the ground is planted to an intended crop and later incorporated into the soil while the crop is still in a vegetative state. Incorporation of a fallow period builds soil organic matter, provides nutrients, stores water for the next growing season, provides for erosion control, and is a home for beneficial insects.

3.3. Crop Rotation Functions

The Crop Rotation Practice Standards (7 CFR 205.205) indicates that a producer must implement a crop rotation "including but not limited to" those which allows the producer to include alternative management practices in their organic system plan. Additionally, the regulation states that the producer must implement a crop rotation that provides the required functions "that are applicable to the operation."

Below are examples of ways the producer can implement the functions of the Crop Rotation Practice Standards:

a) Maintain or improve soil organic matter content

- Applications of:
  - Crop and animal residues (may also be incorporated)
  - organic mulches
- Planting any of the below types of crops:
  - Sod crops after annual crops to build organic matter
  - Cereals and green manures in the open soil between rows of cultivated crops
  - Cover crops with deep root systems after/between annual row crops
  - Perennial grasses, legumes
  - Cover crops between rows of perennials (planting/maintaining/re-seeding)
- Practices included in the NRBC OSP considered to improve soil organic matter content in portions of the organic operation producing organic crops

b) Provide for pest management

For annual cropping systems:

- Planting crop varieties/families to interrupt and/or encourage suppression of diseases
- Introduce microorganisms by applying compost (pest/disease)
- Establish a long term plan with green fallow/green manures to reduce insect and disease levels.
- Incorporate sod crops to support weed control
- Other cultural methods:
  - Selection of appropriate varieties and planting sites
  - Timing and density of plantings
  - Irrigation
  - Use of trap crop plantings
  - Wind breaks

For perennial cropping systems:

- Planting cover crops between rows of perennials (brambles, grapevines, blueberries, tree fruits, and nut trees) to ensure biodiversity and reduce pests.
- *Legumes should be used as cover crops when possible. Legume shrubs/trees can replace herbaceous legumes.*

For both annual and perennial cropping systems:

- Avoiding the use broad-spectrum pesticides.
- Providing shelter, water and habit for birds coyotes, owls, and foxes to keep rodent populations under control.
- Providing shelter, water and habit for birds, bats, raptors to keep insect populations low and interrupt insect life cycles.
- Any practices in the NRBC OSP that manage pest management in portions of the organic operation producing organic crops

c) <u>Manage deficient or excess plant nutrients</u>

- Planting of the below types of crops:
  - Nitrogen fixing legumes, such as alfalfa, clovers, beans, and peas
  - Nutrient sequestering cover crops (with rotations known to produce excess nutrients)
- Establishing any of the below:
  - A long term rotation designed to increase soil fertility
  - A crop sequence with soil-improving crops to counterbalance soil-depleting crops.
- Introducing livestock
- For perennial croppings l*ow intensity crops (low yield,* low nutrient export, low nitrogen fertilization) can usually be considered sustainable.
  - Crops with a large amount of nitrogen applied externally should be replaced through effort to promote biological fixation by legumes.
- Practices in the NRBC OSP that manage deficient or excess plant nutrients in portions of the organic operation producing organic crops

d) <u>Provide erosion control</u>

- Reducing tillage
- Establishing fallow periods that include green crop residue
- Sowing cover crops at high rates to cover the ground quickly and increase percentage of ground that remains covered.
- Planting cereals and other cover crops that have more extensive root systems and are more closely spaced (than row crops for example) to reduce the amount of soil exposed to degradation
- Planting perennial crops such as alfalfa to develop a canopy that covers the ground and prevents soil erosion
- For perennial croppings
  - L*egumes should be used as cover crops when possible. Legume shrubs/trees can replace herbaceous legumes.*
  - *Inter-row spaces should be covered in vegetation when possible (exceptions are forestry systems with multiple stories and ecosystems where water is scarce) Mulches can be used as an alternative.*
- Practices in the NRBC OSP that manage soil erosion in portions of the organic operation producing organic crops

3.4. Deviation and Justifications

A justification, written statement that is supported by facts and/or documentation, is required when there is a planned deviation from your approved Organic System Plan crop rotation. When a producer wishes to deviate from their approved or planned crop rotation plan, they must submit a written description of how the requested crop rotation deviation meets all functions listed in 7 CFR 205.205.

Justifications to planned or implemented crop rotations are required when:

- The producer's crop rotation plan is not in compliance with the OneCert Crop Rotation Policy.
- A deviation from the approved OSP crop rotation plan is requested.
- Cover crops interrupt the same cash crop.
- Multiple harvested cash crops includes a combination of the same cash crop with no cover crop
- Additional and/or updated justifications may be required for any crop rotation if/when deemed necessary by OneCert.

The producer requesting a deviation from their planned or implemented crop rotation must submit the following:

- Written Justification (OSP #8) addressing all functions listed in the 7 CRF 205.205 Crop Rotation Practice Standard.
- Documented evidence to support written justifications, for example (but not limited to):
    - Field Activity Records (yield/harvest amounts, cultivation, planting)
    - Input invoices (fertility/pest/weed/disease inputs, beneficials, seeds)
    - Soil/Tissue tests
    - Recognized scientific studies/research

NOTE: Deviation Requests are required annually or at the discretion of OneCert.

OneCert will evaluate the crop rotation deviation request based on the justifications provided by the client and the below, but not limited to, variables:

- Geography (soil type, average rainfall, topography)
- Total length of rotation described
- Length of time between each crop
- Crop type (varieties/families of crops, heavy/light feeder, root systems)
- Soil / Tissue Tests
- Input use (pest, weed, disease, fertility, seed, beneficials)
- Review of the producer's OSP-Crops and OSP-NRBC, specifically but not limited to: 205.205, 205.203, 205.206
- Observations made by inspectors including those areas of input use, soil condition, erosion, and pest/weed/disease management.
- Any other documentation submitted demonstrating the crop rotation maintains or builds soil organic matter, works to control pests, manages and conserves nutrients, and protects against erosion.

Deviation Request will not be approved when justifications regarding economical (income, pre-existing contracts, etc.), use of inputs as the sole method to address crop rotation functions, and repeated requests of the same nature will not be approved year after year.

4. Definitions

Cover Crop: may include but not limited to grasses, legumes, and other forbs that are planted in annual or perennial cropping systems to provide erosion control, improving soil structure, moisture, and nutrient content, increasing beneficial soil biota, suppressing weeds, providing habitat for beneficial predatory insects, facilitating crop pollinators, providing wildlife habitat, and as forage for farm animals

Crop Rotation: The practice of alternating the annual crops grown on a specific field in a planned pattern or sequence in successive crop years so that crops of the same species or family are not grown repeatedly without interruption on the same field. Perennial cropping systems employ means such as alley cropping, intercropping, and hedgerows to introduce biological diversity in lieu of crop rotation.

Crop residues: The plant parts remaining in a field after the harvest of a crop, which include stalks, stems, leaves, roots, and weeds.

Deviation: the act of departing from the established (approved) crop rotation plan as described in the OSP.

Deviation Request: a written description of an alternative crop rotation(s) including the crop(s), field number(s), estimated planting dates, and if applicable justifications.

Fallow: fallow ground that is is not worked, and allows germination of residual plant material which is allowed to build biomass before incorporation into the soil.

Fallow Period**:** the length of time starting from the date a crop is harvested through the date of planting the next crop intended for harvest.

Green Fallow**:** fallow ground which is planted with a crop intended to be incorporated into the soil.

Justification**:** Written statements supported by facts and/or documentation that the planned or implemented crop rotation is in compliance with 205.205. Justifications must be updated annually.

Multiple Crop Rotation: a crop rotation that includes crops from different genera being planted in a consecutive order over multiple growing seasons
example: Alfalfa (3-5 years)-Corn-Soybeans

Natural resources of the operation: The physical, hydrological, and biological features of a production operation, including soil, water, wetlands, woodlands, and wildlife.

Perennial Crop: Crop that is managed over two or more growing seasons and has harvestable production over multiple years.

Organic matter: The remains, residues, or waste products of any organism.

Single Crop Rotation: a crop rotation that includes planting of crops from the same genus (or family) consecutively, over multiple growing seasons
examples: Wheat/Fallow, Corn-Cover Crop-Corn, Corn-Popcorn

Repeatedly: grown in more than two consecutive crop years.

5. References

- Guide for Organic Crop Producers
- NOP §205.2 Terms defined
- NOP §205.205 Crop rotation practice standard