Title of the Practice Conservation Crop Rotation Natural Resources Conservation Service (NRCS) Conservation Practice 328

Definition: Growing crops in a planned sequence on the same field. For purposes of this practice, a rotation must include a two-year cropping period with a legume/grass “mixed hay” component.

Rotations provide many benefits; principal among them for organic farmers are improving soil quality and managing plant pests. The National Organic Program (NOP) Rule, Section 205.203, out­lines general goals for organic production. The “Organic System Plan” that is required for certification must address these “standards”:

* Manage crop nutrients and soil fertil­ity through rotations, cover crops, and the application of plant and animal materials.
* Manage plant and animal materials to maintain or improve soil organic matter content in a manner that does not con­tribute to contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances.

The practice standard goals include crop sequencing for the purpose of breaking specific pest lifecycles through appropriate “host-free” periods in the rotation. Thus, organic producer, NOP and EQIP goals are aligned.

Experienced organic vegetable growers commonly have rotations that may last as long as six to eight years. Row crop producer rotations are somewhat shorter than this, unless they include a sod-based component. However, with commodity prices as high as they presently are, particularly for certified organic commodities, most row crop producers have land in cash crops during every year of the rotation. Organic tobacco producers have three year rotations.

A conservation crop rotation will ideally result in a positive Soil Conditioning Index (SCI) as indicated in RUSLE2 or WEPS computations for the rotation. Inclusion of cover crops annually in rotations, a nutrient management strategy employed in most certified organic operations may in and of itself contribute to positive SCI on land suited to agronomic crops. Selected crops and sequencing are normally chosen to provide biologically fixed N as well as recycle nutrients in the soil profile after harvest.

Though uncommon in most conventional vegetable operations, there are many organic vegetable producers who do include two years of legume/grass sod in their rotations.

For more information about crop rotation on organic agronomic farms see the North Carolina State University Organic Field Crop Production and Marketing website at <http://www.organicgrains.ncsu.edu/cropproduction/croprotation.htm>.

Other management considerations relating to crop rotations on organic farms, regardless of farm classification include:

* Alternating shallow- and deep-rooted crops and heavy-and light-feeding crops improves nutrient and water use efficiency.
* Cropping diversity is desirable. Include warm and cool season grasses and broadleaves when appropriate.
* Where soil-born pests are a concern, include species in the rotation that suppress pest organisms (such as brassicas).
* To maintain stable pollinator and beneficial insect populations, it is desirable to maintain the same overall density of floral resources on and adjacent to cropland from year to year.
* To reduce weed pressure minimize the amount of weed seed produced and eliminate perennial weeds.
* Increase the amount of mineralizable nitrogen in the soil.
* Reduce the incidence of insect and disease pests by eliminating hosts and interrupting pest life cycles.