

Rotation Requirements

for Annual Field Crops Including Corn and Small Grains

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The National Organic Program Rule (NOP) Section 205.205 "Crop Rotation" applies to corn and other annual field crops, including all annual crops grown for livestock feeds. NOP 205.205 does not leave room for the choice not to rotate. It reads, "The producer must implement a crop rotation". The NOP Rule requires rotation in crops for pest management, soil organic matter maintenance, excess or deficient soil nutrient management and erosion control.

Why rotate? Where corn is the crop year after year, insect pests such as corn rootworm and European corn borer (ECB) may build up and become difficult to manage. Where field crops are fertilized with manure annually, there is a potential for a build up of phosphorus (P) in the soil. This is because manures are typically applied to meet nitrogen (N) requirements and N is typical used by crops or is lost from soil, to a greater extent than phosphorus. Phosphorus at levels greater than 40 lb/A exceeds crop needs and may pose a risk in erodible conditions. According to the Maine Nutrient Management Rules, if P levels exceed 200 lb/A, then the farm would be limited to applied manure equal to P crop removal (not N-based application rate). Erosion may be a problem in certain situations.

On highly erodible sites, the type of corn production is a major factor. All tillage crops result in a net loss of organic matter. Continuous corn can be potentially destructive to soil structure and organic matter content. To a great extent, this also depends on the type of corn. Corn silage harvest leaves nearly no residue and continuous production would be very destructive to the soil. High moisture ear corn, in contrast, leaves 3-5 tons residue per acre (dry matter basis). Weeds such as thistle and yellow rocket can become problematic in soy and small grains when crops are not rotated.

Although the producer must implement a crop rotation, there may be opportunity for a farmer to harvest a corn crop more than one year in a row and still implement practices that are consistent with the rotation requirement. Winter cover crops, or interplanting of cover crops, could be used. The Rule permits all suitable crop rotations including sod, cover crops, green manures and catch crops. Bear in mind that your selection of winter cover crop must be able to grow in order to have an impact. If you harvest your field crop late and are planning to plant that same field crop again early next year, most winter cover crops will not have a chance to grow in our climate. Therefore, we could not accept this planting plan as an adequate crop rotation.

What will MOFGA Certification Services do in cases where crop rotation is not occurring? Farmers that are growing crops such as corn in the same field for more than 2 years in a row will be asked to demonstrate their compliance with NOP 205.205. They will need to show that they are using either winter cover crops, interplanting, green manures or catch crops effectively. Farmers must be prepared to monitor phosphorus and organic matter with annual soil testing. The bottom line is that farmers not annually rotating field crops will need to demonstrate in writing and with supporting documentation (e.g., soil tests) that they are not putting their soil at risk. If documentation is not available, MCS will issue a Notice of Non-Compliance, which is copied to the USDA. If the farmer does not adequately resolve the crop rotation compliance issue within a reasonable amount of time, MCS will proceed with suspension of certification of the crop.

Looking for rotation ideas? We understand that developing a rotation that works for you takes time and is specific to each farm. If you're looking for suggestions we've included a few below. Keep in mind these are just possibilities to consider and are not required. The most important thing you can do if you're experimenting with different rotations is to assess how this will work in your whole farm system and what benefits you'll see



from the addition of cover crops.

Given Maine's climate, getting winter cover crops to establish after corn harvest can be tough. As noted above, it's important to have cover on the fields over the winter for a variety of reasons. Interseeding or overseeding cover crops into corn is an option that may be worth considering. Interseeding after your last cultivation prior to corn leaf-out is how this works best during the growing season. Some crops we've seen in use include:

Red Clover- Red clover will fix nitrogen, suppress weeds and contribute to overall soil health by adding organic matter. It can tolerate shade and may boost biomass growth after the corn is harvested.

Annual Rye- Annual rye is shade tolerant and its root structure allows for it to scavenge for nutrients in the soil profile. It is a heavy feeder and will continue to grow after corn harvest. It will be winter-killed and leave a mat covering the ground. This biomass will add organic matter when tilled in the following spring.

Forage Radish- Forage radish is great at scavenging nutrients and can work well at breaking up a compacted hard pan in the soil. It will winterkill and leave very little residue in the spring.

For additional cover crop characteristics, specifications and approximate planting dates, check out Eric Sideman's *Using Green Manures* fact sheet, which can be downloaded at <http://www.mofga.org/Portals/2/Fact%20Sheets/FS%2010%20Green%20Manures%20web.pdf> or sent directly to you by contacting the MOFGA office.

