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# Spring Seed Cover Crops to Help Recover Flooded Fields

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## **Abstract**

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### Spring Seed Cover Crops to Help Recover Flooded Fields

By Paul Jasa, University of Nebraska-Lincoln Extension engineer

There was considerable flooding along the Missouri River in the summer of 2011, leaving many fields scarred and bare, without a crop. Producers should make field repairs as needed and seed a cover crop to help protect the soil and start rebuilding soil life before the 2012 cropping season. Cover crops benefit flood-damage soils in several ways.

- The residue from the cover crop will protect the soil from raindrop impact, reducing soil erosion and crusting.
- The upright cover crop residue will keep the wind and sun off the soil surface, reducing wind erosion, sandblasting, and soil water evaporation.
- The growing roots of the cover crop will help feed the soil biological life, especially arbuscular mycorrhizae fungi.

#### Crop Selection and Seeding Rates

Cool season cereal grains are fast growing in the spring, provide standing residue fairly quickly, and are easy to kill before seeding the cash crop. Consider seeding oats, barley, triticale, cereal rye, or wheat (listed in order of preference, depending on seed availability) at a rate of one to two bushels per acre. Use the seeding date typical for seeding oats in your area, usually when the soil temperature is above 35°F and rising.

Cover crop cocktails, a mixture of several species and plant types, provide different rooting patterns and varying plant architecture to add diversity to the system. The diversity is valuable for restoring microbial and physical soil function. Mixtures also provide good soil cover across a variety of conditions since cover crop types respond differently to varying soil and weather conditions. Several cool season legumes, brassicas, or other broadleaves could be seeded with the cool season cereal to aid in soil life recovery. The seeding rate of the cereal grain should be reduced about 50% if another cover crop is seeded with it.

A legume like spring forage peas (30 lb/ac) or common vetch (10 lb/ac) could be seeded with the cereal grain to fix some nitrogen, improving the cover crop benefits. Producers should use twice the recommended amount of the proper inoculant for these legumes as the native rhizobia bacteria were probably reduced during flooding. Taller cool season brassicas and broadleaves like rapeseed (3 lb/ac), mustard (3 lb/ac), flax (5 lb/ac), or Ethiopian cabbage (2 lb/ac) also could be added to the cereal grain and legume seed mix to further improve the soil system. These cover crops stand nicely to help reduce wind erosion and have a vigorous tap root to help penetrate the soil. If you're adding several of these other cover crops to the mix, the seeding rates of each could be reduced some.

#### Seeding Methods

For most effective cover crop seeding, use a drill or air-seeder to place the

seeds directly into the soil, about 1½ to 2 inches deep. Both provide some soil smoothing and cut up some of the surface debris. If the drill or air-seeder is equipped to apply fertilizer, some starter fertilizer could be applied to help cover crop establishment. Another option would be to apply fertilizer for the following cash crop when seeding the cover crop. Compaction will be less than with tillage as most drills and air-seeders are pulled with smaller tractors than those needed for tillage equipment of the same width. In addition, the seed metering, seed distribution, seeding depth, and seed-to-soil contact will be more uniform than broadcast seeding, providing a better cover crop stand, especially at lower seeding rates.

Broadcast seeding followed by a light tillage operation may be an option for some producers, especially if some tillage is needed to deal with erosion, scouring, or sedimentation. Most producers have access to a dry fertilizer applicator which could be used to distribute the cover crop seed. Depending on fertility needs, the seed could be mixed with dry fertilizer to accomplish two things in one trip while improving seed distribution. The light tillage with a spike-tooth harrow, Aerway, coultter tillage tool, or similar fluffing harrow would incorporate the fertilizer and provide some seed-to-soil contact and some smoothing of the soil surface.

If the soil is dry enough, tillage with a disk or field cultivator could be performed to level the soil surface and better incorporate larger seeded cover crops, but compaction and soil smearing is a risk if the soil is wet. Depending on the soil moisture situation and the depth of tillage, the broadcast seeding rates should be increased by 50 percent compared to drilling.

#### **Terminating the Cover Crop**

While many cover crops are most effective if they have 45 to 60 days of growth before termination, producers should kill them at an appropriate time so as not to affect the next crop. If the spring looks like it will be a dry one, the cover crop should be killed several weeks before planting so as to conserve soil moisture. While it may seem like not a lot of biomass was produced, the roots of the cover crop still helped the soil biology, benefiting the soil system. If the spring will be wet or the soil needs dewatering, the cover crop could be allowed to grow longer for more biomass production and more benefits for the soil system.

Producers should check with their crop insurance provider and the local FSA office for guidelines and restrictions related to cover crops. For maximum soil benefit, the cover crop should not be grazed, hayed, or tilled and the next crop should be no-tilled into the cover crop residue.

*Clarke McGrath, ISU Extension, was an article reviewer.*

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