American Farmland Trust

CONSERVATION CROPPING SYSTEM FOR *CORN-BEAN LIVESTOCK*

What's Your Strategy?

A **Conservation Cropping System** is a suite of practices that work synergistically to replenish soil life, restore organic matter to your farm's soils, and in return reduce risks. Over time these improvements increase nutrient efficiency and farm profitability, reduces sediment and nutrient losses, and make farms more resilient to extreme weather conditions. The practices are tailored specifically to your farm, with considerations such as the equipment you own, the crops you raise, and your soils, slope and proximity to water.

What Is the Purpose of Conservation Cropping System?

The purpose of this Conservation Cropping System (CCS) recipe is to provide clear starting steps for a corn-soybean farmer who has livestock to begin a CCS is that is low in risk and will jump-start nearly all soils toward higher production capacity and function. If farmers implement these strategies on just a portion of their farms, they can learn by doing, and over time develop a CCS that works for their farm on all the acres.

Cover crops are not simply another growing-season choice, like which seed treatment to use, but instead cover crops are important tools for accomplishing long-term goals such as ensuring farm productivity and profitability for the next generation.

Best Type of Conservation Cropping System?

The best CCS is the suite of practices that work best with your farm to improve soil health while improving profitability. Every CCS includes practices to:

1) Reduce soil disturbance to the maximum extent possible
2) Keep a living root in the system for as long as possible
3) Diversify crop rotations
4) Keep the soil covered with living or dead (mulch) vegetation at all times

For every CCS, a good starting point is to have a fertilization plan that maximizes nutrient use efficiency through the 4Rs. The 4R concept incorporates the Right fertilizer source at the Right rate, at the Right time and in the Right place: http://www.nutrientstewardship.com/4rs/

Step-by-Step Process for CCS Corn-Bean Rotation with Livestock:

Step 1) Start in your corn year. Plant cereal rye at 80-100 lbs/acre before, at, or right after the corn harvest. Cereal rye can be flown-on or drilled as late as November, but late planting will not support a fall grazing season. For best forage quality in the fall, it should be planted as early as possible.

If one plants early season corn, or is located in southern Illinois, annual ryegrass could be drilled after corn. (NOTE: Annual ryegrass provides a lower quantity yield but a higher quality forage than cereal rye. Annual ryegrass is a challenge to terminate in cool weather but is much easier to terminate later in the spring with warmer temperatures.)

This picture demonstrates a simulated 1" rain event. The two silver pans hold the same soil type. The soil on the left is tilled annually, while the soil on the right has been managed with continuous no-till and cover crops for 7 years. The pans below the soil collects the water. More rainfall infiltrated through the cover-cropped soil, while more rainfall ran off the surface of the tilled soil.

Step 2) Graze cereal rye and corn stubble rotationally into the month of January. Put the cattle on when cereal rye has grown to 8-10 inches, and take cattle off when cereal rye is 4 inches. (CAUTION: Cover crops are nutritious and have a very high-water content. Consequently, grazers need to be cautious with livestock due to bloat and/or diarrhea that can occur. However, one can provide a supplemental low-quality forage to overcome this issue.)

Step 3) Let cereal rye grow in the spring and terminate when it is 14-24 inches tall. Cattle can be put on to the cover crops in the spring when the forage reaches 10 inches (NOTE: There is a very small window of optimal forage quality in the spring – only 2-3 weeks). Be careful with timing to ensure cattle are off the field prior to boot-stage.

Step 4) No-till drill a soybean crop into the cereal rye mulch – use wide row spacing and plant an early season soybean. Note that it is possible to let the cereal rye grow to 4 feet tall before terminating, or even to no-till drill soybeans directly into the living cereal rye and terminate the rye after planting. However, in your first year of managing cover crops it easiest to terminate the cereal rye early and enjoy greater peace of mind.

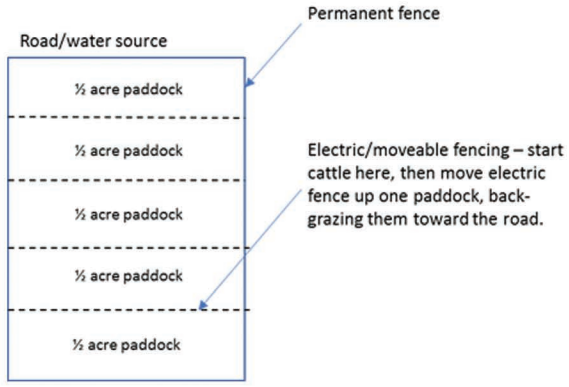
Step 5) If you have a long enough growing season, plant a fall cover crop of oats and radish or turnips at soybean harvest. This cover crop will winter kill, and you will be ready for corn planting in the spring as usual.

This cover crop can provide good forage for fall grazing; however consult with a grazing specialist in the area, as the herbicides used on the soybeans or the cover crop may not be approved for grazing (read herbicide labels).

Observations

Grain farmers with cattle are in an ideal situation to improve soil health and extend their grazing opportunity, but will need to watch and manage for herbicide issues. By simply adding cover crops and rotational grazing, the cost of the cover crops is less than the benefit derived from extra cattle feed. A diet of corn stalks and new cover crops is great cattle feed and the manure provides additional nutrients back to the soil. However, one will need a sacrifice area, and will likely still need a supplemental feed source.

A limitation on grazing covers is infrastructure—one will need perimeter fencing and electric fencing to move cattle around the interior, and access to water. Back-grazing to water (see grazing schematic below) is recommended.



Continual Learning:

Seek out "farmer mentors" – look for farmers in the area who are implementing soil health management practices.
Consult with Soil Health Specialists and find field days at the Illinois Sustainable Ag Partnership: www.ILsustainableAg.org
Stop in your local USDA Natural Resources Conservation Service and county Soil & Water Conservation District office for technical and financial assistance with the conservation practices discussed in this fact sheet: https://www.nrcs.usda.gov/wps/portal/nrcs/main/il/contact/local/
Sign up for updates with the Soil Health Partnership & find other farmers, field days, and professionals: www.soilhealthpartnership.org
Holistic Management International is dedicated to training farmers and ranchers in regenerative agriculture and has a focus on livestock management: https://holisticmanagement.org

Acknowledgements:

American Farmland Trust is grateful to the following Illinois farmers and agriculture professionals for their advice and review of this document: Dan Towery, Ag Conservation Solutions; Jim Isermann, Soil Health Partnership/LaSalle County farmer; Dean Oswald, Illinois Sustainable Ag Partnership/Henry County farmer.
Photo Credits: https://www.flickr.com/photos/87743206@N04/