

Improve Next Season's Outlook With Cover Crops

Cover crops provide the remedy for many drought-related problems

With the obvious short-term cost of drought—poor crop yield—front and center, it can be hard to buckle down and plan to address drought-related problems that might start showing up next season. One solution that can help you tackle many of these problems is the use of cover crops.

Less residue cover is a missed opportunity

One consequence of lower-than-normal yields is lower-than-normal residue cover after harvest. Especially in fields where the crop was harvested as forage or cut as silage, there can be extremely low residue—which means none of the benefits residue provides, such as protection against surface crusting, soil erosion, and moisture loss. Growing a cover crop on the field after the fall harvest or in early spring can help replenish that residue.

With uncertainties surrounding precipitation for the upcoming winter and spring, the moisture management provided by cover crops due to the residue they create is another great benefit. If the weather is too dry, cover crop residue helps trap surface water and adds organic matter to increase infiltration to the root zone. Grass-type cover crops such as rye, wheat, and sorghum-sudangrass hybrids are especially effective.

In excessively wet/saturated conditions, cover crops can be allowed to live longer to draw excess water from the soil.

If you'd like to try cover crops on your fields, check your local National Resources Conservation Service (NRCS) office to ask about a possible cost-sharing arrangement through the NRCS Wildlife Habitat Incentive Program.¹

Cover crops can also help relieve soil compaction. Crops like tillage radish, with deep, penetrating roots, can break up compacted soil. The taproot creates deep channels in the subsoil during the fall when the soil is wet and soft. During the following summer, those channels provide a route for the cash crop roots to follow down to the moisture and nutrients. Studies have shown that this leads to higher yields.²

Save extra nitrogen in field for next year

In fields with poor yields this year, there is likely to be extra, unused nitrogen (N) remaining in the soil. You'd love to be able to use this for next year's crops, but much of it will be

lost due to leaching during the fall, winter, and early spring—especially if there is normal precipitation from November through April. Nitrogen loss may even be higher due to the drought—studies have shown the highest N losses in drainage waters after dry years.³

The amount of N saved with the right cover crop could be as high as 50 to 100 lbs N/acre.

- Purdue University

Cover crops can save this N, so at least some of it will be available for next year's crops. The N will be taken up by the cover crop as it grows, storing it in the plant and protecting it from leaching. Then, after the cover crop dies and begins to decompose, some of the N will be available to be used by the cash crop, and some will be left to help build up soil organic matter. This is true for cover crops after both corn and soybeans. Good cover crops for conserving N are grasses such as oats, cereal rye, or annual ryegrass, perhaps mixed with oilseed radish.⁴

Before you plant next season, you'll want to check how much N has actually been saved in your soil. There are numerous ways to measure this—read last month's *Leading Edge* for more information.

Getting started

Choosing the correct cover crop, or mix of crops, can be difficult. The range of benefits can be leveraged by increasing the diversity of cover crops grown, the frequency of use between cash crops, and the length of time that cover crops are growing in the field. Try mixing two or more species, or try several options in small areas.

Cover crop selection is a complex process during which detailed resources should be consulted. Some options are:

- [Managing Cover Crops Profitably](#)⁵
- The [Cover Crop Decision Tool](#) from the Midwest Cover

Crops Council. The current version has been completed for Illinois, Indiana, Michigan, Minnesota, Ohio, Ontario, and Wisconsin.⁶



Many options are available for cover crops, including seed mixes or “cover crop cocktails.”

Timing is key when planting cover crops: most need at least 30 days of growth before becoming effective and many should have 60 days of growth or more to reap the full benefits.⁷ There are some crops, like oats, that can be planted immediately after harvest, continue growing after the first frost, and be killed by a hard frost later. Some crops, like cereal rye or winter wheat, can be planted even later—they’ll become established in the fall and continue growing in the spring, and would have to be killed before planting the cash crop next year.

If it is too late for you to try cover crops this fall, benefits can still be gained by planting in the spring. Try planting oats or forage peas to help build the soil and manage moisture before the spring rains really start. Some crops, such as brassicas, mustards, and cool-season broadleaves, can be planted in the spring, but won’t develop the large tap roots, which are so helpful for breaking up compaction, that they would have when planted in the fall.

Cover crop termination must be planned with equal care, because it can affect the soil temperature, soil moisture, nutrient cycling, and tillage and planting operations. Typically, cover crops should be terminated two to three weeks before planting the cash crop so that the plants can dry out and become brittle. Dry cover crop residue is easier for tillage and planting equipment to cut through.

Seeding methods

To reap the benefits, cover crops must be successfully established, and that relies on good seeding methods. There are several methods that can be employed.⁸

- **Drilling:** Drilling is a good option for almost any cover crop. It is the most reliable method because it achieves good seed-to-soil contact. Conservation tillage drills can handle residue and provide uniform seeding depth and adequate seed-to-soil contact, even with small seeded cover crops. The cost of maintaining and operating a drill, however, can be high for some farmers.

Also, seeding must occur after harvest, so timing could limit the choices for cover crops.

- **Broadcast seeding and incorporation:** A less reliable method is broadcasting the seed and then incorporating it. This requires an increase in the seeding rate compared to other methods. This method tends to work better with small-seeded species such as clovers. It must also take place after harvest, limiting the time window.
- **Surface broadcast:** This is a great option for farmers who would like to try cover crops during the growing season. A highboy seeder can accurately deliver seed between rows during the while the cash crop is in the field.
- **Aerial seeding:** On larger fields, consider aerial seeding by fixed-wing aircraft or helicopter. This outsourced job can also be a good option for farmers short on labor.
- **Air seeding:** An effective but expensive option, air seeding precisely places single or multiple cover crops and ensures good germination. This option must take place after harvest.

Cover crop challenges



Proper planter attachments, like Yetter SharkTooth® residue managers and spike closing wheels, are essential to proper planting into cover crops.

Before adding cover crops to their planting schedule, there are pitfalls that farmers should be wary of. If not managed properly, cover crops can actually lead to complications with the cash crop. To prevent

the possible negative effects, make sure to research cover crop types and methods carefully. In addition, follow these tips:

- Be sure that coulters are cutting through cover crop residue rather than pushing it into the soil along with the seed. Row cleaners like the patented Yetter 2967 SharkTooth® Wheel can help. Its backward-sloping teeth are designed to sweep residue away from the opening disks of the planter units, row cleaners reduce the chance of pushing residue into the seed furrow (hairpinning). All row cleaners can be adjusted to match specific field conditions.
- When planting your cash crop in cover crop residue, make sure good seed-to-soil contact and seed placement are being achieved. Pay special attention to seed-

ing depth. Closing wheels like the 6200 Cast Spike Closing Wheels or Paddle Wheels from Yetter Farm Equipment crumble the seed trench closed for adequate seed-to-soil contact, but leave the soil loose enough for plant emergence.

- Terminate the cover crop at least 2 to 3 weeks before planting the cash crop.
- To prevent pests, check the crop for early season insect problems such as cutworms.

Weigh the benefits

Though the drought has caused challenges, it has also created the perfect opportunity to take full advantage of the benefits of cover crops. Just like any other crop, you should weigh the costs and benefits of a cover crop carefully before proceeding. With the multitude of potential benefits, however, growers are increasingly finding that cover crops make sense.

Endnotes

- 1 Tom J. Bechman, "Use cover crops to set stage for next year," *Nebraska Farmer*, October 2012.
- 2 Tillage Radish, <<http://tillageradish.com/benefits/reduced-compaction.php>>, accessed on February 20, 2012.
- 3 Eileen Kladvko, "Cover Crops Following the 2012 Drought," Purdue University, <www.mccc.msu.edu/states/Indiana/2012CoverCropsFollowingDrought.pdf>, accessed on October 10, 2012.
- 4 Ibid.
- 5 Andy Clark, ed., *Managing Cover Crops Profitably*, Sustainable Agriculture Network, 2007, pg. 66, <<http://www.mccc.msu.edu/selectorINTRO.html>>, accessed on March 8, 2012.
- 6 Cover Crop Decision Tool, Midwest Cover Crops Council, <<http://www.mccc.msu.edu/selectorINTRO.html>>, accessed on October 10, 2012.
- 7 Paul Jasa, "Cover Crop Options After Corn or Soybean Harvest," *No-Till Farmer*, <<http://www.no-tillfarmer.com/pages/News---Cover-Crop-Options-after-Corn-or-Soybean-Harvest.php>>, accessed on October 10, 2012.
- 8 Martha Mintz, "Getting Cover Crops off the Starting Block," *No-Till Farmer*, February 2012, pg. 41.