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Mastering the Early Years: Lessons on the Cover Crop Learning Curve, Part 3

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Researchers concluded fifty years ago that "there are no instant experts" in the game of chess and it may take a decade or more of intense effort to reach the grandmaster level; basic mastery of the game likely requires between 10,000 and 50,000 hours of practice (Simon and Chase, 1973). More recently, this research was popularized as the ten-thousand-hour rule for success at complex tasks or undertakings (Gladwell, 2008; Gladwell, August 21, 2013). With cover cropping as with chess, instant expertise is not realistic, and success takes significant amounts of time, experience, and learning-by-doing. Farmers who cover crop and those who advise them on it tend to be unanimous on this point. At the same time, ten-thousand hours is an unrealistic timeline—the equivalent of 250 forty-hour workweeks, or five years of work. With that measure of the learning curve in mind, this article builds further on the series exploring lessons that can be learned from cover cropping experience (*farmdoc daily*, April 24, 2025; May 9, 2025).

Background

Maybe more than any other conservation practice, cover cropping represents a fundamental change in the annual crop production system of a farm. Cover crops are counter-cyclical to the conventional system: a cover crop is planted (or established) around the time a cash crop is harvested; a cover crop grows during what is usually the fallow period in a field, the months over winter when no crops are typically grown; and the cover crop must be terminated in the same spring window as field preparation and cash crop planting. Each year presents the chance to succeed or fail in the operation of the practice, with any failure presenting the potential for drastic consequences for the cash crop and the farmer. Overall, the initial years of cover cropping involve a steep learning curve for growers, one they must navigate within a market structure that offers almost no support. One farmer captured this experience, stating:

> "The first couple years are tricky because it's a whole different ball of wax. You're learning something brand new, and a lot of nerves get spent on when to terminate it, how big you let it get, then you worry about a big rain, and then you start to think about how to manage it with a sprayer properly, and how to reapply chemical differently. Even today, ten years later, it's still a learning game. We've learned a lot, but we're still learning more

about how to manage the *system* properly. At the same rate, it was pretty intense for a few years."

Given the significant challenges, this article adds to the series exploring the cover crop learning curve by providing some of the tips, pointers, advice, and other guidance gleaned from research discussions with cover cropping farmers (*farmdoc daily*, April 24, 2025; May 9, 2025).

Discussion

The discussion of lessons from cover cropping is divided into the two critical windows for managing the implementation of the practice. Following the season, the first set of lessons focus on the establishment of a cover crop. Second, the discussion reviews lessons for termination of the cover crop and planting of a cash crop. These lessons are offered not as specific recommendations to any farmer, but as general pointers learned by others. Each farmer's experience is likely to have unique elements and, more to reality, each year's experience is likely to be different in some ways.

(1) In the Fall: Cover Crop Establishment

One of the most common pieces of advice from both farmers and technical support advisors is to look for the path of least risk in the beginning and consider keeping much of the standard operations largely unchanged. One advisor aptly put it: "Crawl before you walk and walk before you run." Others tend to advise new cover croppers to dip their toe in rather than jump in head-first.

All the first-year advice served the goal of successful establishment and growth of cereal rye. The most common example of this is to plant cereal rye before soybeans at a rate of 20 to 40 pounds per acre. Additionally, all emphasize attempting to establish the cover crop as early as reasonably possible, or at least before colder temperatures set in around October.

A variety of seeding methods were suggested, including aerial seeding, broadcasting, and drilling. Some suggested combining cover crop seeding with other practices; an example involved broadcast seeding with dry fertilizer, namely potash, while others reported success using airflow machines. Many interviewees suggested custom services, such as those provided by some cooperatives, for drilling, particularly on highly erodible acres or field sections such as gullies, where maximizing seed-to-soil contact was a priority. An experienced cover cropper credited a fall drilling program offered by his local co-op.

> "In the fall after a corn crop, I am currently seeding all those acres to cereal rye. That is custom done through my local co-op. It's a flat fee that provides labor, the seed, I think 40 pounds per acre. The beauty of it is, a lot of times we will still be in the field just finishing up and they're pulling in and they're almost chasing us in the combine and without that, you know, the labor that it would take plus the timing, I couldn't justify doing this."

Programs like these offer farmers with a hands-off solution, alleviating labor demands and addressing tight time constraints during the fall harvesting season.

Another unanimous tip was to start cover cropping on owned land, ideally close to home. Doing so will facilitate careful monitoring of cereal rye in the spring. Additionally, several farmers advised beginning with smaller fields or seeding only portions of a field to keep initial efforts more manageable. Most participants suggested prioritizing fields that would benefit the most from cover crops, such as those with high erosion, significant weed pressure, or steep slopes, though they cautioned that these more challenging fields often come with an extended "pain period." Conversely, some farmers and advisors recommended that those concerned about the learning curve should consider starting on their best-performing fields, as these are generally more forgiving and provide and easier introduction to cover cropping.

No-till also appears to be an effective steppingstone for farmers transition to cover crops. It was frequently chosen as the preferred method of soil preparation. Most farmers reported no negative impacts on soybean yield outcomes when cereal rye was added into an existing no-till system. By implementing no-till practices first, farmers can develop strategies for managing additional soil residue while allowing their soils to adapt to these residue-intensive systems. For instance, one producer who had been

practicing no-tillage for approximately 20 years prior to adopting cover crops encountered fewer challenges during the transition. This was particularly evident when planting cash crops through heavy residue.

(2) In the Spring: Cover Crop Termination and Cash Crop Planting

Termination and cash crop planting were consistently identified as the most challenging management adjustments. Farmers stressed the importance of conducting upfront research and gaining in-field experience for numerous management decisions in this period: optimal termination timing, effective herbicides and their application strategies, selecting appropriate planter attachments to manage heavy residue, and assessing field conditions for planting.

Timing was universally regarded as a crucial piece to termination, and ultimately cash crop success. During the initial years of transitioning to cover crop systems, farmers consistently emphasized the narrow planting window as a key hurdle. For many, the first few years demanded patience, as planting and long-term crop success hinged on waiting for optimal conditions, sometimes necessitating delayed soybean planting.

Planting adjustments posed a significant learning curve for many growers due to the dramatic changes in soil conditions. One farmer described the challenge, noting: “There’s so much more knowledge that you need on how to set and just how a planter works rolling through the field because of the added residue and firmer ground, or what can be really variable field conditions.” One practical starting point was purchasing or modifying a no-till planter.

While using the co-op was encouraged for cover crop seeding, producer and advisor’s thoughts on termination were different. Most participants agreed that owning a sprayer greatly reduces the risk of disaster by enabling precise control over termination timing. Farmers warned of common mistakes they made in herbicide application. One issue involved combining residual herbicides with glyphosate in a single pass, which can lead to antagonistic reactions and reduce termination success. To avoid these pitfalls, farmers emphasized the importance of consulting with an agronomist, or other knowledgeable peers. Another grower advocated for separating termination burndown and residual herbicide application to improve weed suppression results, explaining:

> “We used to try to spray all in one pass – put our pre-herbicides down, terminate, everything. Last year, we had one of those spring where it started out warm and a little damp, then we got wet. We got nervous, so we terminated the rye with its own herbicide, Roundup, and came back later, after finishing all our planting, to apply our pre-emergence herbicide. We were very happy with that. I’ve talked to some other people in the industry too and they think that’s the best way to do it. If you do it all at once, you’re not getting the herbicides down into the soil where they need to be for lasting effects.”

Some strongly advised early termination in the first few years to minimize risk, such as terminating cereal rye at 6 to 8 inches tall (shin or boot high) using a full rate of glyphosate in early April. Glyphosate was unanimously regarded as the best choice for terminating a cover crop. From the learning curve are also cautionary lessons about early termination. For one, if planting is delayed by several weeks, the decomposing rye may hold moisture and form a heavy mat, complicating planting conditions. For another, cool temperatures in early spring, including those early or late in the day, can slow plant metabolism and reduce glyphosate uptake and translocation, leading to ineffective termination.

One method to address the complexities of termination and cash crop planting, more and more farmers and advisors have embraced planting green as a flexible strategy. Planting green involves planting the cash crop (e.g., soybeans) into a standing and growing cover crop, or planting before terminating the cover crop. This method can mitigate concerns about wet conditions, improve herbicide efficacy, and enable early soybean planting. One farmer offered a simple rule of thumb: “If the rye is shin high or shorter, spray it; otherwise, plant green.” However, even when planting green, herbicide application timing remains critical. As one advisor shared:

> “If you want to plant early, and you are planting on a good day – it’s sunny and hot – go ahead and spray when you plant or wait two to three weeks afterward and spray it down closer to when you’re done with the rest of your planting. This way, the temperatures

have warmed up, and the herbicide effectively kills the rye. Even though it's a little taller, those beans will come up nice and green in rows as the cover crop dies."

Concluding Thoughts

Stepping back from specific tactics or methods, the big picture serves up reminders about the complexities, risks, and challenges involved with implementing cover crops. Each bit of advice is also a reminder of the learning curve and the need to adapt to changing circumstances in the fields, some of which are the result of the cover crop. Flexibility is critical because no single piece of advice will be the right one for all of the scenarios Mother Nature can bring to a season. Adapting to the weather conditions of the growing season is key to a successful harvest in any agricultural system, and cover cropping systems are no different. In the next article, we will discuss how weather interacts with managing a cover crop system. As one farmer reminded, management decisions set a season up for success, but flexibility is key, because "Mother Nature bats last."

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