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Mother Nature Bats Last: Lessons on the Cover Crop Learning Curve, Part 4

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From the World Series to harvest and Halloween, October is arguably the centerpiece of autumn. In 1903, the Boston Americans defeated the Pittsburgh Pirates five games to three in the first World Series, helped by the pitching of Cy Young (Baseball Almanac.com). Halloween traces to the Celtic festival of Samhain which marked the end of the harvest season and summer, while the tradition of carving pumpkins traces to Ireland and the use of turnips to scare away evil spirits (Thomas, October 26, 2021). As is widely known from apples to pumpkins, corn and soybeans, the annual harvest depends most on the weather and nature. With October in mind, we return to the series reviewing lessons from the cover crop learning curve (*farmdoc daily*, April 24, 2025; May 9, 2025; June 5, 2025). Fittingly, the most prominent lesson for implementing cover crops is the most basic and fundamental of realities: much depends on nature and any farmer's best plans, as well as the most effective technical assistance, ultimately depend on the vagaries and unpredictability of the weather.

Background and Review

As review, the articles in this series have explored the learning curve for managing cover crops using a systems perspective—from early decisions to lessons learned and the keys to success. The learning curve lessons have been built from the direct experiences of cover cropping farmers in Illinois. We conducted interviews with experienced cover croppers and technical support advisors, asking them a series of questions concerning management decisions made when cover cropping, the evolution of these decisions with experience, the goals and motivations driving their decisions, the challenges and benefits they encountered, and factors promoting continued adoption. Interview participants included three technical support advisors, six farmers, and four individuals whose roles spanned both categories. Farmer participants operated farms ranging from 750 to 3,000 acres, with an average size of

approximately 1,600 acres. Their experience with cover crops varied between 5 to 12 years, offering insights from both relatively recent adopters and more seasoned practitioners. Their ages ranged from 29 to 76 years; a majority were between 35 and 60 years old, however, with an average age of approximately 50.

Discussion

One farmer interviewed in this project provided arguably the most succinct perspective on the learning curve: “Mother Nature bats last.” As with all things farming, matters of risk play the biggest and most important role in managing fields, farms, and production systems. There’s no way to eliminate risk from farming or any production system. Critically, however, cover crops add new risk dimensions to farming. This reality is why one advisor recommended that growers “Crawl before you walk and walk before you run.” Another advisor added more precise recommendation, consider where to begin with cover crops so that “if you do have a bad experience, it’s not on 500 acres” and maybe that experience was contained to “20 acres behind your house.”

(1) Cover Crops and Risk: The Spring Planting Window Is the Primary Challenge

Annual cash crop farming presents the farmer with two critical periods of operation: the spring planting window and the fall harvest time. For a farmer implementing cover crop practices, these two critical periods become more crowded and difficult to manage because each becomes a two-task period. During fall harvest, cover crop establishment is added to the to-do list and, most critically, in the challenging spring planting window the farmer must terminate the cover crop in addition planting the cash crop, as well as manage the biomass in that field. Adding unpredictable weather conditions can make a complex moment all the more challenging.

Of the two critical windows, the fall harvest is the least problematic for the cash crop but the most challenging for the cover crop. As to be expected, the harvest takes priority for field work and the farmer’s time. Additionally, the farmer has many options for establishing a cover crop, such as aerial seeding into the standing cash crop, or seeding after harvest. Likely the biggest challenge is the time available to seed a cover, with the risk that dry weather or a fall that turns cold too quickly; either weather scenario limits the ability of a cover crop to sprout and begin growing (see e.g., Duiker, 2014; Roesch-McNally et al., 2018). Thus, the risk is to cover crop, not the farm’s operation. It is not surprising, then, that most of the discussion with farmers about learning through cover crops focused on the spring planting window and cover crop termination.

The biggest struggle for growers is balancing termination timing with unpredictable weather conditions. Spring decisions often hinge on soil moisture, prompting farmers to adjust their strategies based on prevailing weather patterns. In dry springs, early termination may be crucial to preserve soil moisture, as prolonged growth of cereal rye can deplete the already limited water needed for cash crop germination. Alternatively, during wet years, allowing the cereal rye to grow longer can help remove excess moisture, facilitating field access and preparation sooner. For example, one farmer recounted an experience of delaying termination in a dry spring, only to deplete the soil profile of moisture. Reflecting on this, he suggested that he may start consulting long-range weather forecasts—despite their inherent uncertainty (a “WAG,” or wide area guess)—to better anticipate challenges in seasons with prolonged dry conditions.

Cover crops can also change how weather affects the cash crop. Because cover crops can help soils recover structure, many farmers experienced improved spring planting windows. This improvement was frequently preceded by an anxious waiting period during which farmers either awaited soil conditions to naturally reach optimal planting conditions or, for those prioritizing weed suppression, delayed until the cover crop had grown to a height sufficient to ensure weed suppression benefits and chemical savings. During this time, cover croppers often observed their neighbors entering fields early, tilling to expedite soil drying, and sometimes planting well ahead of them, which further contributed to their sense of unease. In those springs where the ideal planting conditions arrived earlier, however, these dual objectives of proper seedbed preparation and weed suppression benefits were often achieved more quickly, allowing for earlier field access without the associated waiting period.

In particularly wet springs, the roles were often reversed. Farmers who planted their cash crop into a standing cover crop (known as “planting green”) were often able to leverage their cover crop to accelerate soil drying and improve conditions in the field (see e.g., Reed et al, 2019). As a result, many found

themselves among the earliest in their region to begin planting, often gaining nearly a full day over others. One grower reflected on this advantage, recounting a specific instance during an exceptionally wet spring:

> "If you remember, last spring, it was very wet. And we were able to plant into our rye a good four or five days before anybody else was in the field. The conditions weren't perfect in the rye, but it's what I like to call 'rye mud.' It's not real mud, it's just like this soft pillow. You can walk out there, and you don't pick any on your shoe, you don't get anything on the truck tires. It holds the moisture, but also it stops squishing out."

This advantage extended to field conditions after rainfall, due to improved water infiltration associated with the soil health benefits of cover crops. As one farmer recounted:

> "We got a 2-inch rain a few years ago and we were back out really fast and people were stopping on the road and trying to wave us down, like you shouldn't be out there. It's way too wet. But it was beautiful out there because we got all the rain in the soil, where it's supposed to be. Nothing is ponded out there and we've got good tilth, so things still close. So that's what's been great is buying extra, call it an extra day or a little more, for every planting pass, every spray pass, all the way until harvest, we're just gaining days throughout the season now."

Overall, there was a consensus among experienced cover crop farmers and advisors that, despite the initial waiting period required to optimize soil conditions and cover crop growth, planting windows improved as soils recovered more rapidly under wet conditions. As one grower succinctly noted, "You go when it's fit, but it seems to me it stays fit for longer and gets fit a bit sooner." In high-biomass scenarios, particularly among farmers planting green, most aimed to terminate cereal rye within a week after planting to prevent water competition with soybean seed germination. This partially helps to explain the waiting period at the start of the season. Although planting green, growers often delayed planting to ensure that termination could be executed quickly after planting while achieving sufficient rye growth for weed suppression. Nonetheless, farmers acknowledged the cutoff point for termination is before cereal rye reached the heading stage to prevent rapid moisture uptake and seed re-establishment.

(2) Policy Challenges for Cover Crops: Risk Is Not Included

Experienced cover croppers themselves expressed frustration with existing policies which are largely limited to cash-transfer programs that fail to reflect real-world farming conditions. Agencies also tend to have limited staff or have too many who lack the expertise needed to support the farmer through the management transition that occurs when implementing cover crops. Farming presents unpredictable challenges, most notably the influence of "Mother Nature," and while consistency in funding is necessary, flexibility and contingency planning are equally critical for financial success. Adaptive management strategies often fall outside the guidelines of existing policy, however, and current policy structures leave farmers without support when these unexpected issues arise. In other words, limited and fixed financial assistance policies do not take into account the risk of the practice.

Nearly all interviewed growers shared stories of being denied funding by NRCS or other organizations because their cover cropping methods, though practical and effective on their farms, did not align with rigid program criteria. One farmer described this struggle:

> "I'm not trying to throw NRCS under the bridge, but they think we should all be no-till on everything. It's like, well, you don't understand, when we have a wet fall and you go out there and you make a mess of the fields, we don't have a way to fix our tracks other than tilling. If you're strip-till corn and you're no-till beans, you never get that leveling pass. While no-till sounds fantastic in a perfect world, we're not perfect."

A simple comparison of current policies highlights the concerns raised in interviews with farmers. A farmer purchasing crop insurance has myriad options—from coverage levels to types of policies—from which to choose, and the assistance is based on natural causes of loss. When weather—mother nature—causes a crop loss, the farmer is indemnified for that actual loss from the policy level purchased down to the entire insured value of the crop (e.g., 85% of insured revenue). Payment rates for the Agriculture Risk Coverage (ARC) program also vary by the risk factors farmers face, such as price declines or yield losses (at the county level), while the Price Loss Coverage (PLC) program triggers payments when market prices fall

below fixed thresholds and increase as prices fall further. Both programs provide assistance to farmers without limit on the funds available. Compare that to the design of conservation programs in which the program itself has a fixed budget authority (e.g., $2.655 billion for the Environmental Quality Incentives Program (EQIP) in FY2026). Those limited funds, moreover, are spread across hundreds of conservation practices limiting the amount available for cover crops. These limits, in turn, limit the flexibility of the program and of those administering it, while also creating significant backlogs and hurdles for farmers seeking the assistance. Nothing in the current operation of the programs incorporate farm risk, or the revised risk situation for farmers as they implement the practice and work their way up the learning curve.

Concluding Thoughts

If, as farmers know all-too-well, “Mother Nature bats last,” then federal conservation policy is barely in the game. It too-often operates with limits that drastically reduce or diminish the effectiveness of that limited funding. Conservation policy intended to help the farmer is often at bat with only one hand and with something resembling a table tennis paddle. The farmer’s learning curve, meanwhile, is full of risks and requires multiple seasons to work through. It is highlighted by the challenges in the all-critical spring planting window where cover crops add the most risk and could result in yield losses or even a failure to plant that could cause the farm to fail. The articles in this series have helped to highlight these challenges, providing real-world feedback from farmers and technical support providers in Illinois. Exploring the learning curve is helpful to farmers considering taking on the practice, but it could also be informative to policymakers seeking to improve policy design so that it better assists the farmer while helping to expand the practice to meet the needs. The learning curve is instructive for all.

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