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UNIVERSITY OF ARKANSAS

PRODUCERS ON THE RISE WEBINAR SERIES

Freedmen Heirs Foundation supports small and mid-sized producers by expanding their market access, providing technical assistance, and strengthening their financial resilience to enhance their operations. Through this series, our goal is to offer practical tools producers can apply immediately and share with their community.

The Dollars and the Data
Evaluating the Real Costs of Conservation Summary Guide

Overview

When considering winter cover crops, it's important to analyze their impact on cash flow beyond general environmental trends. Initial investments in seeds and management may take six to seven years to break even. Producers can protect margins by aligning practices with operational goals like weed suppression and cost reduction. This summary aids in understanding first-year returns, selecting suitable plant species, and managing planting and termination timelines.

The Big Takeaways

Don't look at cover crops as a quick way to boost short-term profits. Instead, they pay off when they solve a specific problem on your land, replace an expense you're already paying for, build long-term value, protect you through bad weather, or qualify for cost-share programs. **Figure out your exact reason for planting them first, then price out the cost.**

What Happens in Year One?

In 74 site-years of Wisconsin no-till corn and soybean comparisons, adding a cover crop changed first-year returns as follows (before any cost-share payments):

Change vs. no cover	Corn	Soybean
Following-crop yield	-2.3%	-1.3%
Net return	-$55.92/ac	-$43.47/ac

Your local results will depend on seed prices, fieldwork costs, how you manage termination, weather, and what expenses the cover crop actually replaces.

Five Ways to Think About A Cover Crop

A cover crop can fall into one of the following categories, addressing the related question.

1. **A tool for solving a specific problem:** Do you have resistant weeds, trying to transition into no-till, or looking into livestock grazing?
2. **A substitute for an input or task:** Do you need to save input costs on labor, fertilizer, or feed?
3. **An investment in the soil:** Will you or your family be around long enough to reap the soil benefits?
4. **Protection against a loss:** How will you keep moisture in the ground when a drought hits?
5. **A service others help pay for:** Do you want to prevent soil or chemical runoff to nearby areas?

1. Solving a Specific Problem: Tough Weeds

The following chart uses cereal rye for Palmer amaranth in Southern cotton compared to standard tillage without rye ($/acre):

	Arkansas, 2019–20	Georgia (Resistant Palmer), 2012–13
Weed control	Hand-weeding -$9.00	Herbicides -$6.97
Cover crop cost	+$35.06 (rye 75 lb/ac)	+$88.91 (rye 90 lb/ac, 40 lb N, rolling)
Lint yield impact	2019: +89 lb (poor stand) 2020: +196 lb	+2 lb (n.s.)
Net return	**2019: +$8.50 2020: +$113.31**	**-$80.51**

Rye paid off when it established a good stand (about 4,000 lb/ac planted mid-October), using a grain drill instead of broadcasting and cutting back on cover crop fertilizer.

Note: Weeds require ongoing management. Burial studies show 9–22% of Palmer amaranth seed was still viable after 36 months.

Grazing the Cover Crop

Turning cover crops into livestock feed can reduce hay costs. For instance, in a SARE budget example, grazed rye saved $43.72 in hay expenses while costing $37.00 for seed and planting, resulting in a net gain of about $6.72 per acre, assuming existing infrastructure is in place.

2. Replacing an Input

Legumes for Nitrogen

Hairy vetch costs about $80.27/acre to grow ($48 seed, $19.05 drilling, $8.50 termination spray, plus interest) and provides 80–100 lb of N. That puts your nitrogen cost at $0.80–$1.00 per lb, compared to commercial fertilizer at about $0.60 today (historical average around $0.40).

Commercial fertilizer prices would need to jump 34–67% before vetch becomes the cheaper source.

Tillage Passes (Doing It Yourself vs. Hiring Out)

Standard Arkansas budgets run 3–5 tillage trips, while planting cereal rye costs about $53.98/acre. The table below shows the change in return vs. tillage with no cover:

If you…	Each tillage trip dropped saves	Rye breaks even at
Own the tillage equipment	$2.97 (fuel, labor, repairs only)	Never within 5 trips
Hire or rent the tillage	About $19.92 (custom rate)	About 2.7 trips

If you own your equipment, dropping tillage passes saves very little cash. If you hire or rent the equipment, rye pays for itself once you cut out about three tillage passes, and sooner if a legume also decreases fertilizer needs.

3. Building Long-Term Soil Value

Soil carbon and organic matter build up slowly over time and stay with the land.

Ask yourself: Will I farm this ground long enough to collect the return, and what is that improvement actually worth?

For example:

- Maryland trials after 5–7 years showed net returns were still **$60–$90/acre lower** for corn and about $60 lower for soybeans.
- Budget models show a no-till cover crop (corn) system turning positive by year 3 and recovering early losses by year 6 (or year 7 with interest). Keep in mind this is a budget projection, not a guaranteed field result.

Choosing the Right Cover Crop for the Job

Cereals (Rye, wheat, oats)

Has most biomass and decomposes slowly, helping with weed control, erosion prevention, and enhancing soil carbon. While it offers no immediate benefits, it retains and temporarily binds residual nitrogen.

Legumes (Crimson clover, hairy vetch)

High nitrogen fixers produce less biomass, decompose quickly, and add about 60–75 lb (clover) or 80–100 lb (vetch) of nitrogen per acre.

Brassicas (Radish, turnip)

Rapid autumn growth features deep taproots that reduce soil compaction, leaving minimal residue by spring. Has no nitrogen impact.

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4. Weather Protection in Dry Years

The table below shows how corn performed during the 2012 drought per insured acre:

2012	Illinois insurance	Arkansas insurance	Cover crop (budget)
Coverage; liability	79%; $814	59%; $403	—
Farmer cost	$22.17 premium	$11.12 premium	$37 seeding
Benefit	$310.97 indemnity	$41.52 indemnity	$58.70 yield
Net	**+$288.80**	**+$30.40**	**+$27.34**

Cover crops help cushion losses during dry years, especially where crop insurance is expensive or unavailable for your specific crop.

5. Cost-Share Programs and Credits

Environmental Credit Payments

Bayer's Carbon Program (open in Arkansas) pays up to **$6/acre** for cover crops on a 5-year contract, requiring the practice every year and 10-year land retention. Their no-till payment applies with or without a cover crop.

EQIP Cost Share

Arkansas establishes the cover crop (practice 340) rate for each fiscal year. Please verify this with your local NRCS office.

The table below illustrates the payments required to break even when integrating no-till practices with the cover crop, along with carbon credits. The potential savings are maximized when equipment is rented.

Cereal rye	Before payment	EQIP Payment Needed	Stacked with $6 Credit
Own equipment, drop 3 trips	-$45.07	$45.07	$39.07
Hire tillage, drop 2 trips	-$14.14	$14.14	$8.14
Hire tillage, drop 3 trips	+$5.78	$0	$0

Stacking carbon payments with EQIP reduces the required EQIP subsidy by $6 per acre, but make sure to review both contract commitments.

Mixes

Each species performs its specific role. Legumes in a mix do not receive additional nitrogen.

Rule of Thumb

For weed suppression and erosion control, start with a high-biomass cereal grass. Add a legume if you want to cut back on nitrogen application.

Easing the Transition to No-Till

Stopping tillage removes the heavy lifting your tillage used to do. A good cover crop can step in and take over that workload:

- **Residue protects the soil surface:** Prevents crusting and sealing. Across studies, cover crops raised water infiltration by about 35%, whereas switching to no-till alone did not improve infiltration.
- **Roots loosen compacted layers:** Deep roots break up hard layers and open channels for the roots of your next cash crop to follow. Radishes do this even better than rye).
- **Heavy residue suppresses weeds:** Thick cover crop matting takes over the weed control job that mechanical tillage used to do.
- **Cushions early no-till yield dips:** Early no-till transition years can temporarily drag down yields. That yield gap is smallest where heavy residue stays intact on the soil surface.

Management Checklist to Avoid Losses

Planting Window
Get it in early. In Arkansas, aim for Sept 15–Oct 15; in the Georgia Coastal Plain, plant by Halloween. Late planting limits you mostly to cereals.

Crop Rotation
Pick a different plant family than your cash crop (e.g., use broadleaves or legumes before corn) to keep pests from carrying over.

Termination Timing
Terminate rye at least 10 days before planting corn to avoid seedling disease. Terminate earlier in a dry spring so the living rye doesn't rob your cash crop of soil moisture.

Irrigated vs. Rainfed
Soil water matters most on rainfed fields; on irrigated fields the goal is biomass and stand protection.

Should I No-Till?
Only do it if those tillage passes actually disappear from your books. Your cash savings are largest when the tillage operations are hired.

Seed Buying
Always price pure live seed. Remember that broadcasting requires heavier seeding rates than drilling

Do Cover Crops Make Sense on My Farm?

It can make sense when…	Think twice or keep trials small when…
A specific field problem is already costing you money	None of the five main payback pathways apply
The cover crop replaces a purchase, hired pass, or labor	The financial payback arrives after your lease or land tenure ends
You will hold or farm the land long enough to see the return	No program payment or grazing income bridges the early shortfall
Weather risks are a real threat to your yields	The total shortfall ($/acre × total acres) exceeds what you can comfortably carry
A cost-share program helps cover the cost	You won't be able to plant or terminate on schedule

A Manageable First Step

- **Start small** on a test strip right next to a standard no-cover check strip.
- **Know your costs** per acre before and after any financial assistance. Set an affordable loss limit, a set trial size, and a review date.
- **Track your yields**, input purchases, field passes, labor hours, and the specific problem you are tackling.
- **Review** your numbers every year and decide whether to continue, adjust, or stop.

Land stewardship is a valid goal on its own. Just make sure you know the cost upfront and can afford it.

Where to Get Help

Local NRCS Office: Technical assistance and EQIP/CSP payment rates.

County Extension Office: Local species recommendations, planting dates, and enterprise budgets.

Contact: Dr. Lawson Connor, lconnor@uark.edu, (479) 575-2072.

Sources: Stute (SARE LNC21-456); Farr et al. (2022); Shurley et al. (2014); Sosnoskie et al. (2013); NC State AG-869; Roberts (UA); Basche & DeLonge (2019); Chen & Weil (2010); Acharya et al. (2017); 2026 Arkansas crop budgets; 2026 Iowa custom rates; Zhang et al. (2024); Myers, Weber & Tellatin (2019), SARE; USDA RMA Summary of Business; Bayer Carbon Program (2026). Figures are per acre; your costs will differ. Full list in the presentation.