



Cash Flow Impacts of Cover Crops

Information for Agricultural Lenders

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Introduction

The steady expansion of cover crops across the U.S. has created questions about their financial impacts in both the short term and long term. There are over 40 species of cover crops being sold in the U.S. today, with some of the more common fall-planted cover crops being cereal rye, winter wheat, triticale, oats, radishes, turnips, canola, crimson clover, red clover, hairy vetch, and Austrian winter peas. There are also summer-planted cover crops such as cowpeas, sunn hemp, buckwheat, sunflowers, millets, sorghum sudan, and other annual plants suited to warm weather.

The benefits of cover crops have been widely documented and start with protecting and improving the soil. Of particular importance is improving the health of the soil which in turn provides for more resilient cropping systems. Specific benefits from cover crops can include better weed control, reduced soil erosion, better rainfall infiltration, improved soil moisture holding capacity, increased soil organic matter (over time), reduced soil compaction, more beneficial soil fungi, and improved crop health.

Impact of cover crops on economic returns

Cover crops do impact economic returns in cash crop systems, both by influencing yields of the cash crops and potentially contributing to reductions in selected input costs. In the first year of cover crop use, most farmers keep their other input levels the same, but after a few years of cover cropping, about half of the surveyed farmers are reducing fertilizer rates and can save on herbicide costs.

If a legume cover crop such as crimson clover or hairy vetch is used, the nitrogen fertilizer savings may be significant, provided the cover crop is allowed to grow long enough. If using a winter

cereal like cereal rye or wheat, the fertilizer savings may be small and primarily reflect improved soil organic matter over time. On the other hand, cereal rye is excellent at helping with weed control, especially troublesome herbicide-resistant weeds like marehail, Palmer amaranth, and waterhemp. Farmers using cereal rye may see significant savings on herbicide costs by using less expensive weed control products or potentially need one less herbicide application. Better weed control can also help yields.

Impact of cover crops on costs

There is a cost to using cover crops of course, primarily for purchasing the cover crop seed but also for planting the seed and sometimes for terminating the cover crop. Cover crop seed costs can vary from \$10 to \$40 an acre depending on the cover crop species being used, seeding rate, and seed source. Legumes tend to cost more than other types of cover crops but can provide soil fertility benefits and be helpful in grazing mixes. Many cover crop users find ways to economize on seed costs, but typical seed costs for commodity crop users are in the \$20 to \$25 per acre range.

The cost of planting the cover crop can also vary widely. Some farmers have their fertilizer dealer spread cover crop seed with a fall granular fertilizer, keeping application costs minimal. Likewise, spreading cover crop seed with a fall tillage pass such as a vertical till machine can be economical, though not compatible with a no-till system and not as high of success as using a grain drill. Using a grain drill, row crop planter, or airplane for cover crop seeding may have a cost of \$15 to \$20 per acre. Aerial application can allow earlier seeding and save the farmer on labor in the fall, while the use of a drill or planter can achieve a higher rate of establishment success at the expense of extra labor and fuel requirements.

Most of the corn and soybean farmers surveyed about spring cover crop termination indicate they normally do a spring herbicide “burn-down” operation even without cover crops, so spraying cover crops with glyphosate or other herbicides to terminate them is not necessarily an extra cost. Other farmers use cover crops that winter kill and don’t need any spring termination activity. Thus, for many farmers, there is no extra cost to terminate their cover crop.

Net profit in the short term and long term

A detailed analysis done for the [USDA-SARE Cover Crop Economics national report in 2019](#) showed the median cost of using cover crops was \$37 per acre. Numbers came from survey data through the SARE/CTIC National Cover Crop Survey. Based on the fact there are only minor yield gains for soybeans in the first year of cover crop use and little short term advantage to corn yields, the first two years of cover crop use occurred at a loss to net profit. However, by the third year of use, cover crops were breaking even, and in subsequent years provided a positive net return due to rising yields and gradually reducing input costs.

Cover crop situations with faster payoff

Climate-smart payments such as the [Farmers for Soil Health](#) program can help with the cost of cover crop transition. There are a variety of situations where cover crops pay off more quickly than three years. Enrolling a field in cover crop incentive programs, such as the NRCS Environmental Quality Incentives Program (EQIP), can provide a payment of up to \$55 per acre (sometimes more for special situations) in each year of a three-year contract. That easily covers the cost of cover crop seed and planting, making cover crops profitable right away.

Another approach with an early return to profitability is the use of cover crop grazing, which can provide a net economic benefit of \$50 per acre or more once fencing and water have been paid for.

Cover crops as a form of crop insurance

Cover crops are very helpful in average weather conditions but have been shown to really prove their economic worth in tougher weather conditions. In the major drought year of 2012, average corn yields after cover crops were 9.6% higher, and average soybean yields were 11.6% higher based on data from hundreds of farmers (2019 USDA-SARE Cover Crop Economics Report). This is because cover crops not only get more rain into the soil but do a better job of keeping the moisture in the rootzone where crops can access it. Likewise, in the very wet spring of 2019, when over 19 million acres of crops were not planted at all, a major study of thousands of fields led by the University of Illinois showed that cover crops combined with no-till reduced crop insurance claims and allowed for more timely planting.

Summary

While cover crops can reduce profits in the first year or two of use, the overwhelming experience of farmers has been that cover crops improve the resiliency of their cropping systems and within a few years contribute to long term profitability increases. Obtaining cover crop incentive payments or using selected strategies like cover crop grazing can make cover crops pay off right away. Thus, for many farmers, there are no significant economic barriers to making use of cover crops and plentiful benefits from adopting this helpful soil health practice.

Additional resources

1. [USDA-SARE Cover Crop Economics report](#)
2. [Soil Health Institute economic case studies](#)
3. [Farmers for Soil Health website](#)
4. [Myers, R.L. 2023. How conservation practices influence agricultural economic returns implications for the farm finance community. Meridian Institute](#)



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FarmersforSoilHealth.com

Farmers for Soil Health is a collaborative initiative led by the Soy Checkoff, Pork Checkoff, and National Corn Growers Association in partnership with state commodity groups and conservation organizations.

