

## Economic Figures from a 12+ Year No-till & Cover Crop User

(January 2025)

### Soybean Production Costs

TILLAGE SYSTEM		NO-TILL/COVER CROPS	
Operation	\$/Acre	Operation	\$/Acre
Land	\$260	Land	\$260
Fertilizer (Manure)	\$40	Fertilizer (Manure)	\$40
Tillage	\$22	Seed	\$60
Seed	\$60	Seed Treatment	\$23
Seed Treatment	\$23	Planting	\$27
Planting	\$27	Chemicals (Pre)	\$59
Chemicals (Pre)	\$59	Chemicals (Post)	\$66
Chemicals (Post)	\$66	Harvest	\$67
Harvest	\$67	Rye Seed	\$14
Soil Loss	\$36	Rye Planting	\$27
<b>TOTAL</b>	<b>\$660</b>	<b>TOTAL</b>	<b>\$643</b>

5% Avg. Yield Increase In Soybeans Resulted in Net Return of \$49.67/ac.

### Corn Production Costs

TILLAGE SYSTEM		NO-TILL/COVER CROPS	
Operation	\$/Acre	Operation	\$/Acre
Land	\$260	Land	\$260
Fertilizer (Manure)	\$60	Fertilizer (Manure)	\$60
Tillage	\$22	Seed	\$126
Seed	\$126	Planting	\$28
Planting	\$28	Fertilizer w/Planter	\$68.50
Fertilizer w/Planter	\$68.50	Chemicals (Pre)	\$59.40
Chemicals (Pre)	\$59.40	Chemicals (Post)	\$32.60
Chemicals (Post)	\$32.60	Harvest	\$72
Harvest	\$72	Rye Seed	\$14
Soil Loss	\$36	Rye Planting	\$27
<b>TOTAL</b>	<b>\$764.50</b>	<b>TOTAL</b>	<b>\$747.50</b>

No Avg. Yield Change In Corn Resulted in Net Return of \$17/ac.

## Water Quality Benefits from Soil Health Systems

- Decreases soil erosion by 90%.
- Reduces sediment loading by 75%.
- Reduces nutrient and pesticide runoff by 50% or more.
- Reduces pathogen loading in water sources by 60%.
- May decrease flooding potential by increasing water infiltration and water holding capacity.

Visit the Iowa NRCS Soil Health website at the address below, and check out the "Economics of Soil Health Systems on 100 Farms."

<https://www.nrcs.usda.gov/state-offices/iowa/iowa-soil-health>



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## Soil Health Economics

### Invest in Soil Health

Reduce Weed Pressure  
Reduce Compaction  
Improve Drainage  
Reduce Fertilizer Needs  
Prevent Soil Erosion  
Provide Livestock Feed



No fall cover crop on the left, with fall cover crop on the right. Annual weed emergence is controlled by cover crops, as shown on the right. (Photo courtesy of Jay Fuhrer)

## Reduce Weed Pressure

- Tillage can increase weed pressure by creating an ideal environment for germination.
- Some cover crops have an allelopathic effect which inhibits small seeded weed germination. The allelopathic effect does not hinder corn or soybeans.
- Cover crop biomass reduces weed growth.
- Long term no-tillers who use cover crops report cutting herbicide costs by 33%.

## Reduce Compaction

- Deep ripping can cost \$24+/ac., plus another \$18+/ac. for field cultivating in the spring, for a total of \$42+/ac.\*
- Tillage can create new compaction layers at the depth of tillage.
- Deep rooted and/or fibrous rooted cover crops can break up compaction, providing feed for microorganisms, and armoring the soil. All for less money.\*\*

\* Prices from 2024 ISU Custom Rate Survey

\*\* Based on 2024 ISU Custom Rate Survey drilling rate and winter wheat at NRCS recommended rates and \$11.25/ac. seed cost.

## Improve Drainage

- Installing field drainage tile can cost \$1,200+/ac. The interest alone can cost more than using cover crops.
- Cover crops build soil structure and pore space; additional pore space not only allows more water to infiltrate and for excess water to drain, but also stores plant available water in medium sized pores.
- Actively growing cover crops can help manage soil moisture during wet periods and provide surface residue that keeps soil temperatures cooler in the summer.

## Reduce Fertilizer Needs

- Nitrogen leaching can exceed 50 lbs./ac. even without fall application. Cover crops can take up that nitrogen and then release it to the cash crop as the cover crop decomposes.
- Soil health practices like no-till and cover crops increase soil microbial communities, which in turn increase nutrient cycling in the soil.
- Nitrogen use efficiency is only 30-50% in a tillage system. This can be increased to 80-90% with no-till and cover crops.
- Phosphorus use efficiency is only 50% in a tillage system. This can be increased to 80-90% with no-till and cover crops.
- When allowed to grow in the spring, legume cover crops can produce nitrogen which can be used by the following cash crop.

## Prevent Soil Erosion

- An Iowa study from 2010 found that soil erosion costs farmers an average of \$0.49/ton/ac. from loss of CSR2 value, decreased yields, and reduced rental rates over time.\*



During a wet year, an aerial view shows crops on the left growing green and healthy after no-till and cover crop management, compared to a tilled field on the right where crops suffer. (Photo courtesy of Jack Maloney)

- The study also found that farmers lose an average of \$5.57/ton/ac. of nutrients through soil erosion.\*
- If we reduce soil loss by 5 tons/ac./yr. by using no-till and cover crops, we can save over \$30/ac./yr. in savings!
- Reduced erosion from no-till and cover crops can reduce expenses of cleaning out terraces and repairing waterways.

\* Study by Iowa Learning Farms, Practical Farmers of Iowa, and Iowa State University Extension.

## Livestock Feed

- Grazing cover crops can help extend pastures later in the season.
- Grazing cover crops can reduce the amount of hay a producer needs to grow or purchase.
- Producers have reported \$100+/ac. savings from grazing cover compared to feeding hay.
- Producers experienced in grazing cover crops have reported being able to graze diverse mixes throughout the winter, eliminating the need to get equipment out during subzero temperatures to feed hay.
- Adding manure to fields or grazing cover crops can increase microbial activity.