



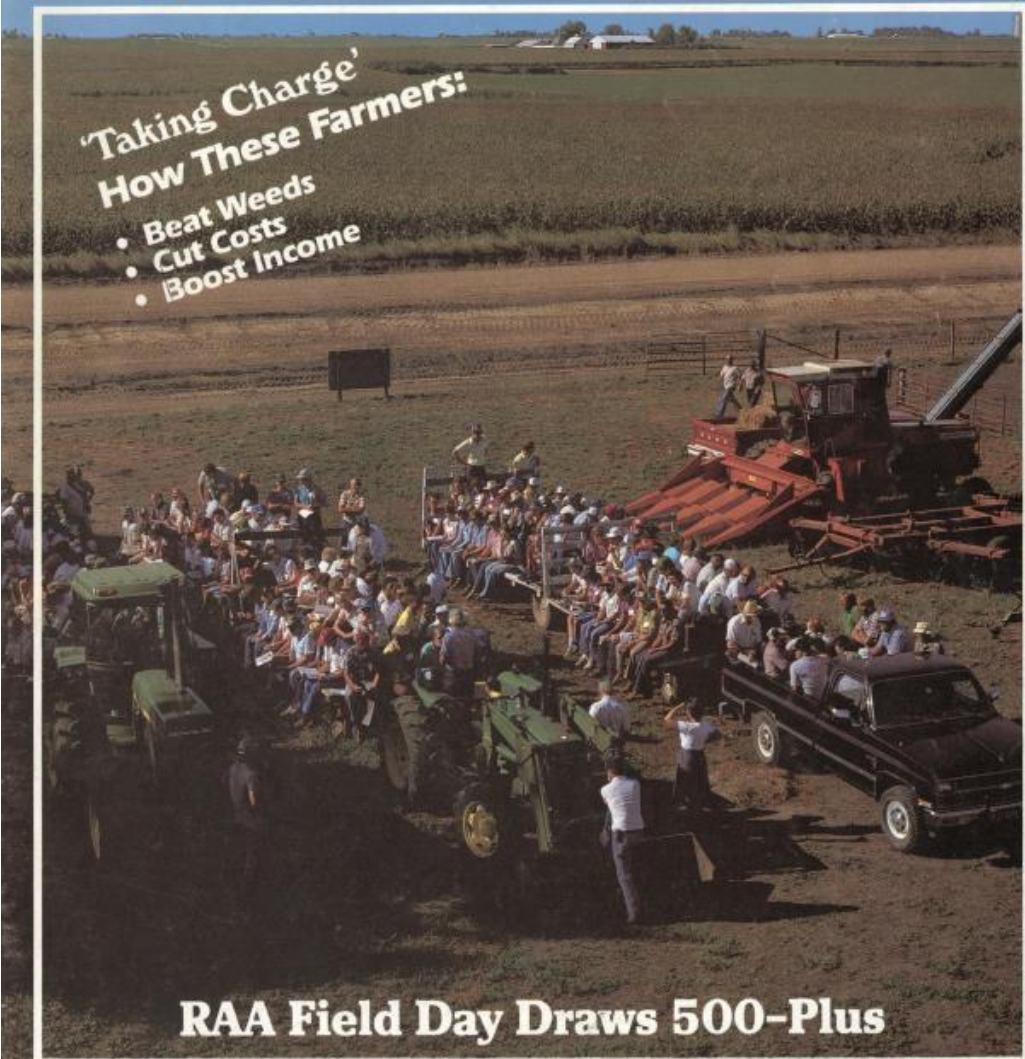
The New Farm

Nov./Dec. 1984 \$2.25

Magazine of REGENERATIVE AGRICULTURE

'Taking Charge'
How These Farmers:

- Beat Weeds
- Cut Costs
- Boost Income



RAA Field Day Draws 500-Plus

In addition to rotations, the Thomp-sons' non-chemical weed management arsenal includes a finely tuned program of ridge-tillage, rotary hoeing and cultivation. Still under study are soy-bean varieties that quickly produce thick canopies to shade out weeds, and cover crops and even weeds that make their own natural herbicides.

In all, they've managed to consistently produce respectable yields—120- to 145-bushel corn and 40- to 45-bushel beans—and cut production costs by about \$90 an acre. The farm now operates on a pay-as-you-go basis, with no borrowed capital.

Most of the questions fired at Dick and Sharon during the day concerned cutting costs, but there were almost as many dealing with the finer points of ridge-tillage, cultivation, and livestock breeding and feeding.

"People had questions everywhere we stopped. They were really looking for answers," Dick says. "That puts quite a responsibility on you because you don't want to lead anybody astray. This is not fun and games and show biz. This is the real world."

Of course, not everyone found answers to all of their questions. But most farmers left with the comment that Dick and Sharon and other farm-

are Mamie Eisenhower's birthplace and rides across the longest and highest double-track railroad bridge in the world aboard old No. 1385, a former Chicago and Northwestern steam locomotive.

For a free map and detailed directions to the Thompson farm, write: Thompson Field Day, *The New Farm*, 222 Main St., Emmaus, Pa. 18049.

Rental costs \$55, which is deduct-ible from the sale price if you decide to buy the slide show. Sale price is \$150. Send check or money order pay-able to the Regenerative Agriculture Association to: *Nature's Ag School, Regenerative Agriculture Association, 222 Main St., Emmaus, Pa. 18049.*

"Can we go home now, Dad?"

New Farm Photos by George DeVault




PRACTICAL FARMERS
of Iowa

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NOVEMBER/DECEMBER 1984


PRACTICAL FARMERS
of Iowa

Optimizing your cover crop ROI

Nebraska Cover Crop & Soil Health Conference, 11 February 2021

Rebecca Clay

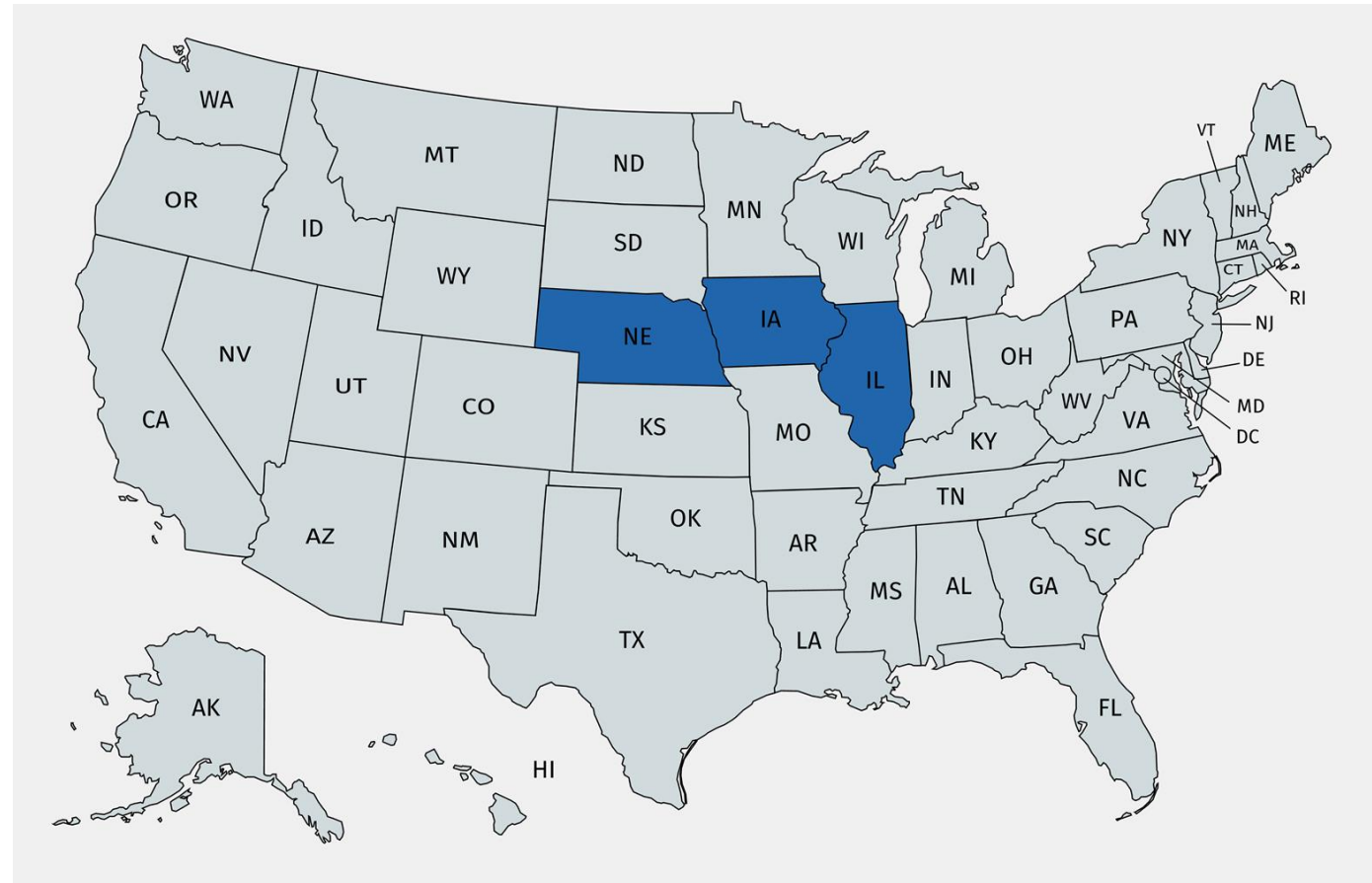
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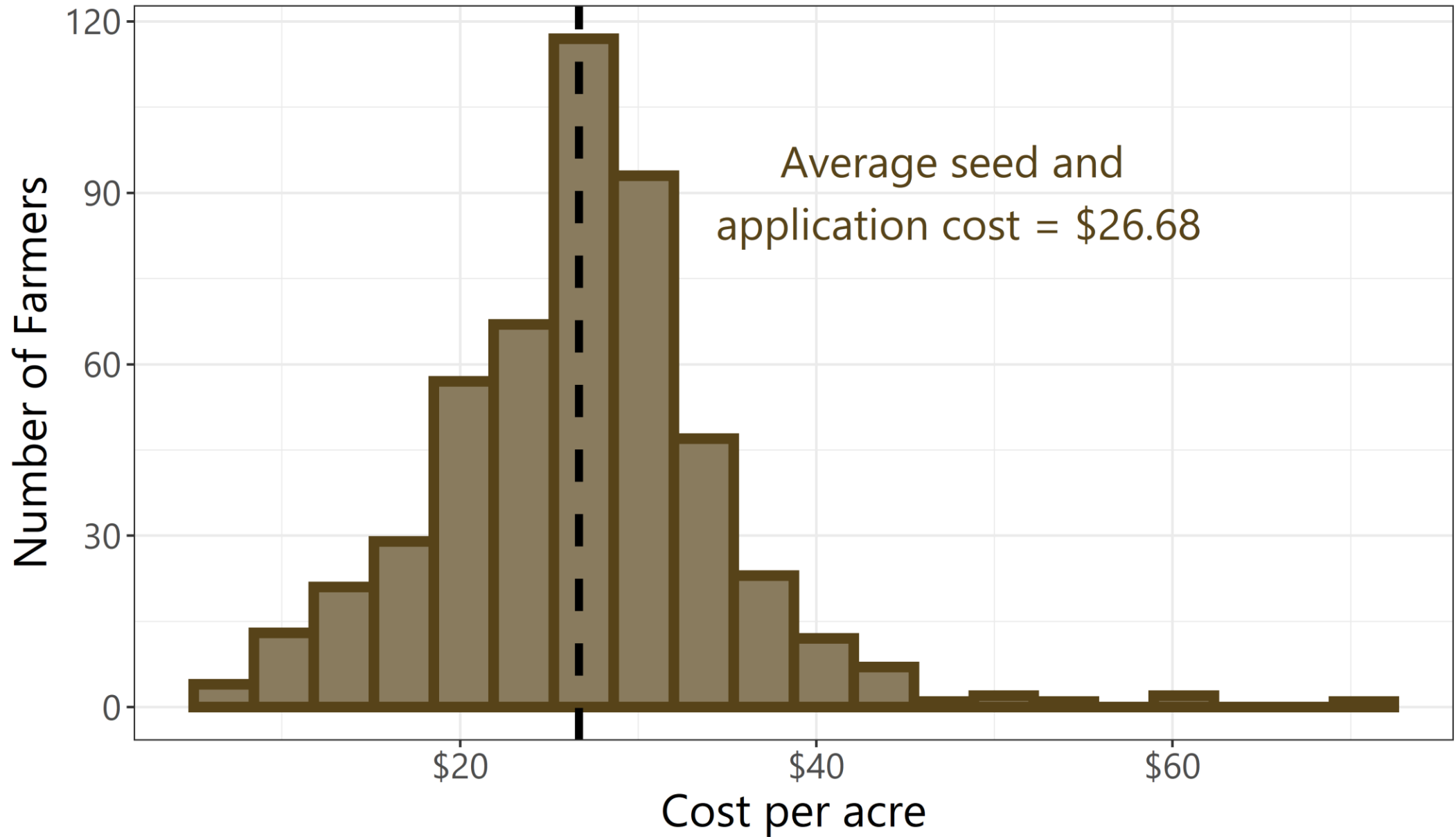


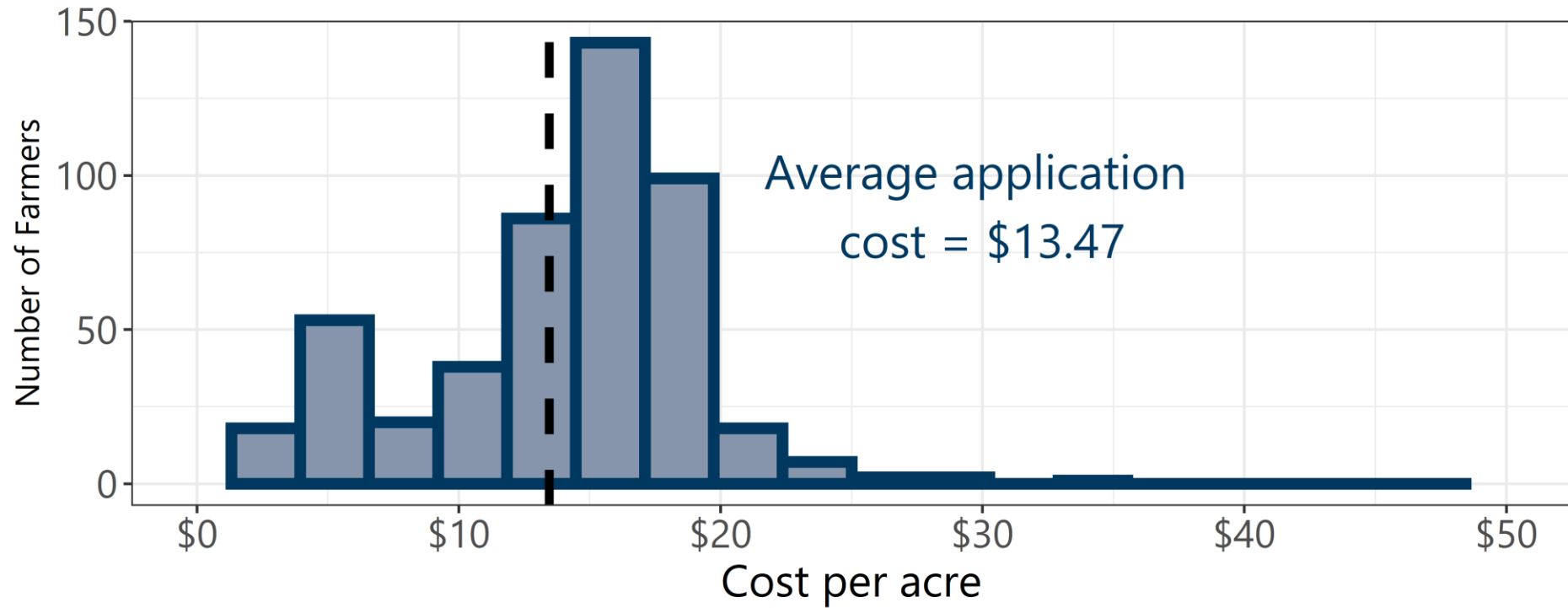
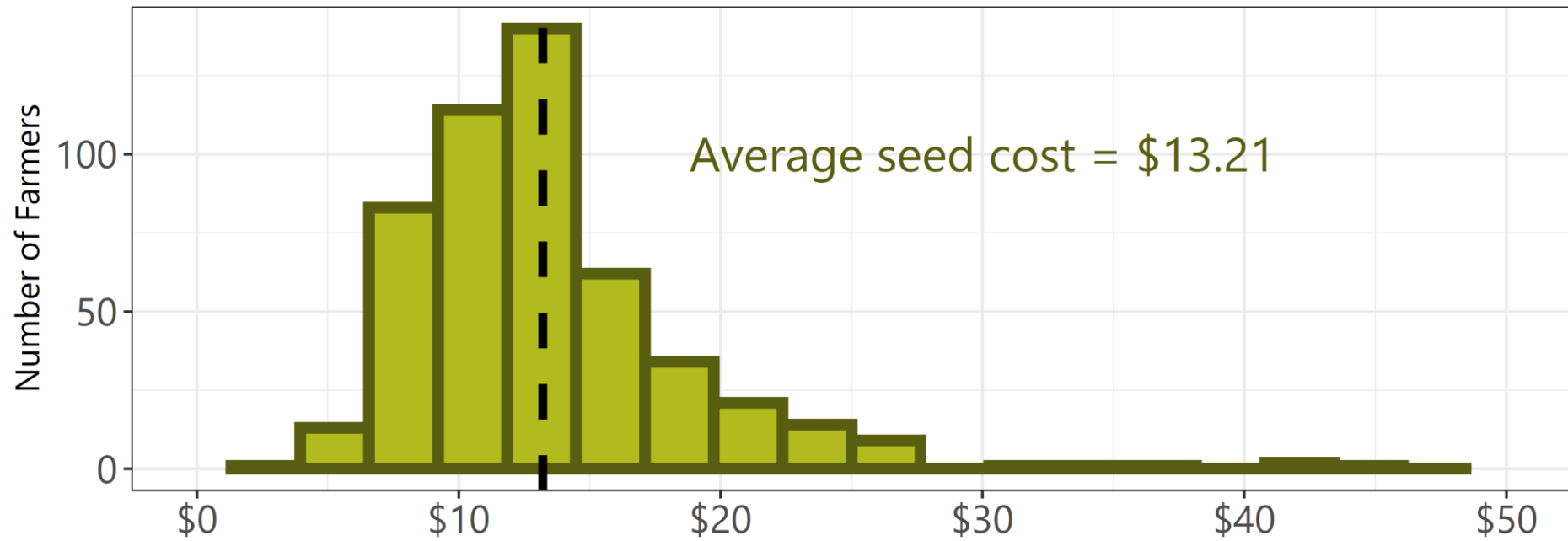
Methods

- Survey with receipt submission
- Verify seed and application costs with receipts
- Clarify abnormal reported changes to herbicide costs



2020 Cover Crop Seed and Application Costs per Acre (n = 497)

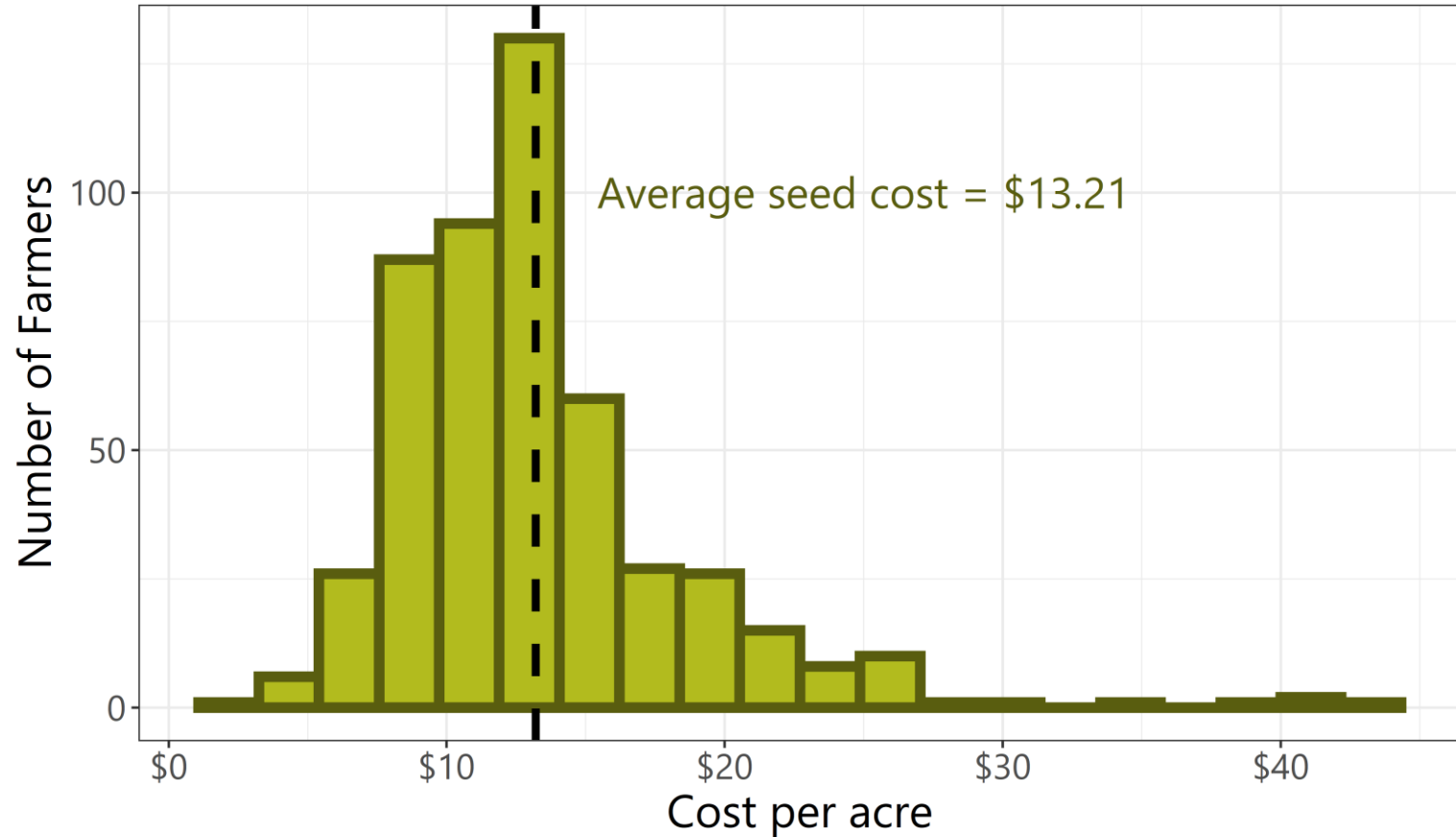




Cover Crop Seed: Controlling Costs

- Stick to the basics (cereal rye, oats, winter wheat)
- Skip “cocktail” mixes
- Opt for smaller-seeded species
- Grow your own seed
- Purchase seed early

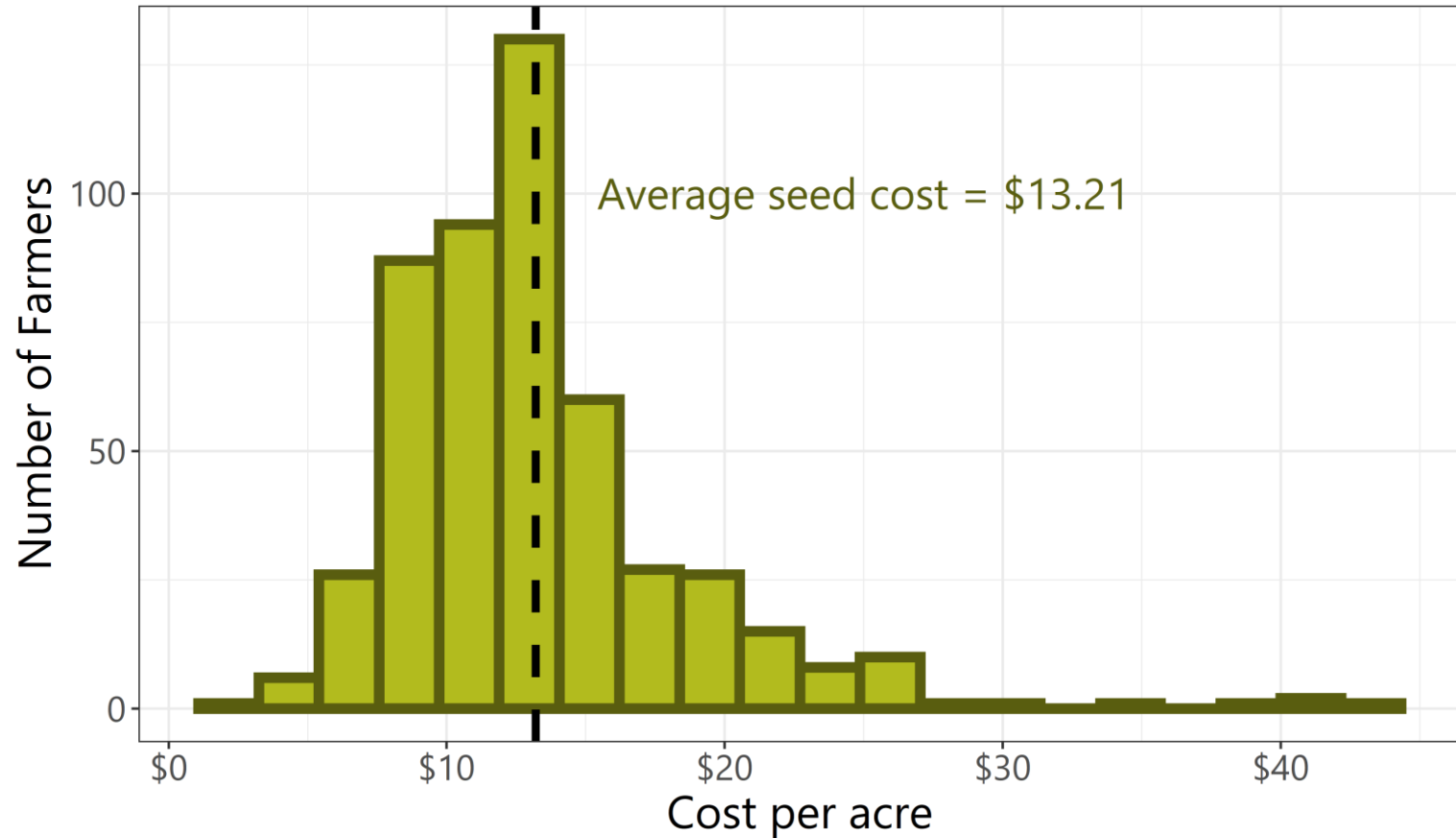
2020 Cover Crop Seed Costs per Acre (N = 497)



Cover Crop Seed: Optimizing Expenditures

- Seed a heavy rate for weed suppression, livestock feed
- Multi-species mix for grazing
- Consider feed value (triticale vs rye)
- Seed legumes early
- Avoid importing noxious weed seeds

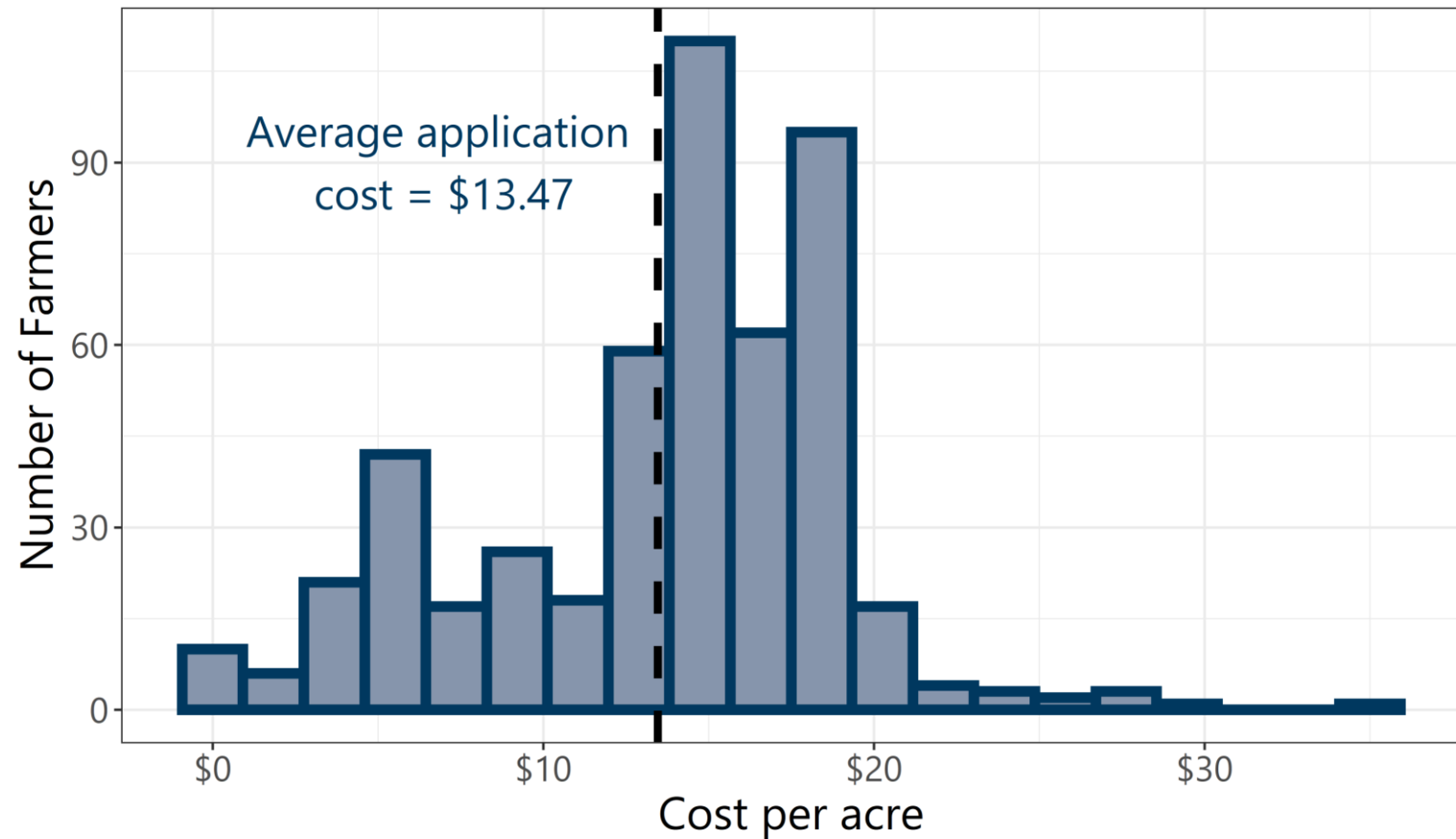
2020 Cover Crop Seed Costs per Acre (N = 497)



Cover Crop Seed Application: Controlling Costs

- Couple application with other passes
 - Mix seed with fall fertilizer/lime
 - Air seeder coupled with VT
 - Drill combine
- Use old fertilizer buggy

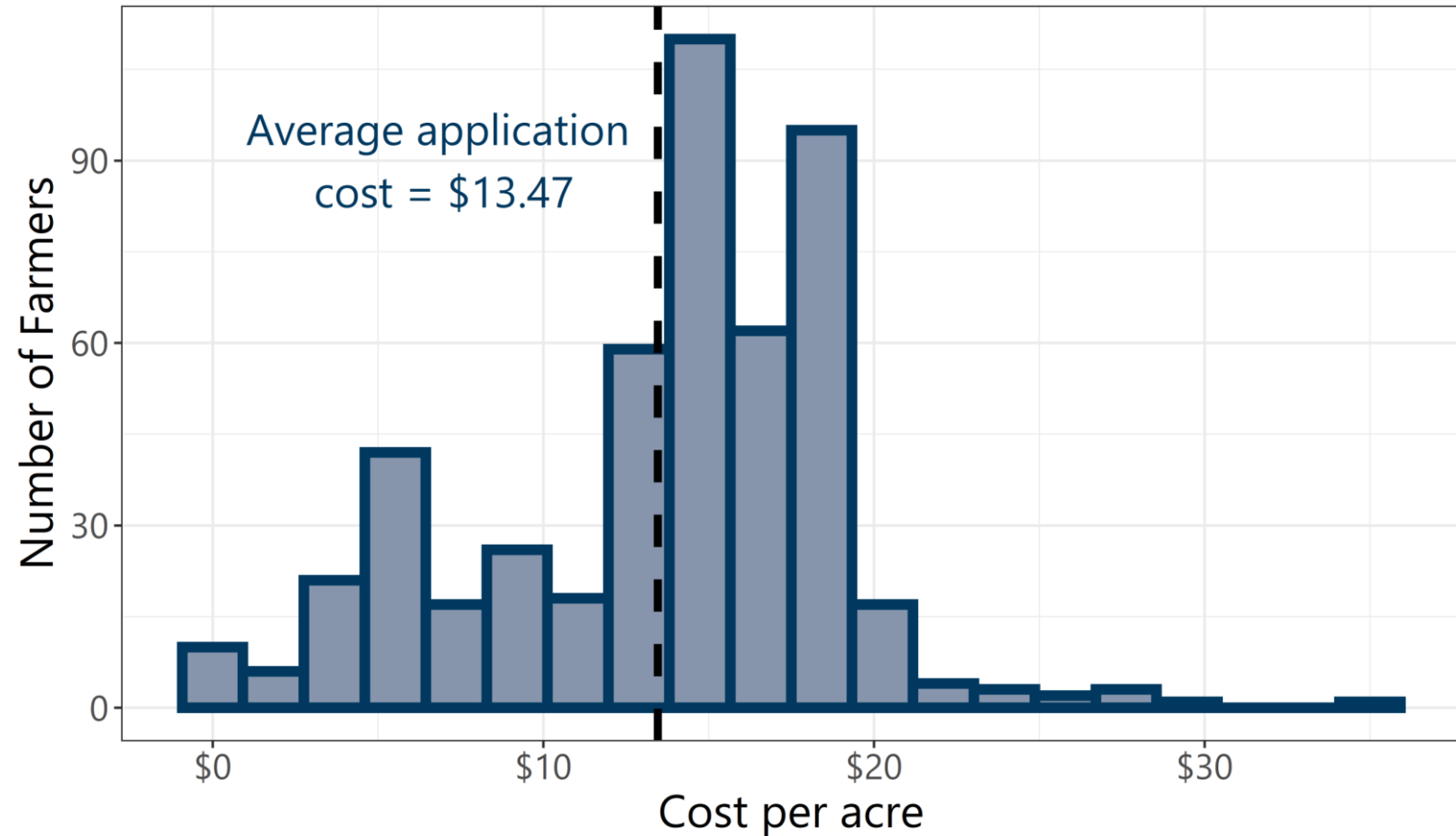
2020 Cover Crop Application Costs per Acre (N = 497)



Cover Crop Seed Application: Optimizing Expenditures

- Hire for convenience
- Ground overseeding for precision, early growth
- For aerial application, look for rain
- Drill for uniform stand

2020 Cover Crop Application Costs per Acre (N = 497)



Keep your goals in mind

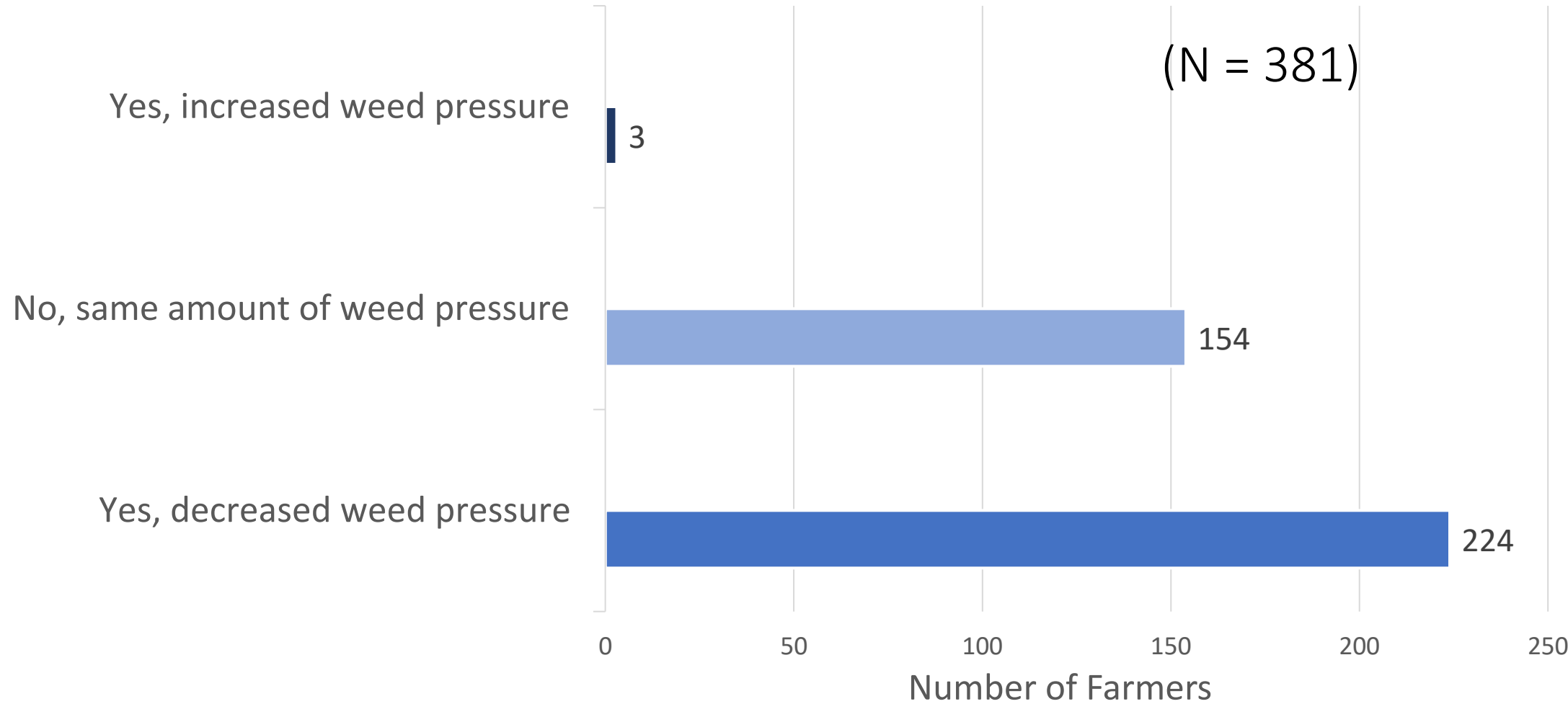
- Soil conservation, soil health, water quality
 - Single species, most application types
- For weed suppression
 - Cereal rye, uniform stand, 1.5 bu/acre+, later termination
- Grazing
 - Species with quick fall growth (brassicas, oats), early seeding, overwintering species for spring grazing
- Adhere to cost share payment requirements (NRCS, state programs)



What about weed
suppression?



We asked, “Have you observed changes to weed pressure since you began using cover crops?”

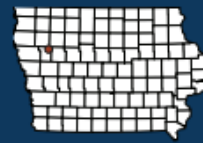


Cover crops to reduce herbicide expenses



PRACTICAL FARMERS OF IOWA
COOPERATORS' PROGRAM Farmer-Led Research

EXPERIMENT



2019

Staff Contact
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Cereal Rye Cover Crop for Reducing Herbicides in Soybeans

In a Nutshell:

- Based on previous on-farm research he has conducted,^[1] Sam Bennett has seen evidence that a cereal rye cover crop can suppress weeds and reduce herbicide inputs in soybeans. As such, he grew soybeans following a cereal rye cover crop and compared three herbicide packages that varied in residual activity and cost.
- Bennett hypothesized that weed control and soybean yield would not be sacrificed by reducing herbicides, provided adequate cover crop growth in the spring before seeding the soybeans. "I hope that we can reduce our herbicide use and cost by enough to cover the costs of establishing the cover crop. We're always trying to answer the question of how to make covers pay for themselves," Bennett said.

Key Findings:

- Bennett recorded similar soybean yields between the low-cost and full (most expensive) herbicide packages he compared.
- The low-cost herbicide package improved returns on investment by \$16.08/ac compared to the full package owing to reduced costs associated with the low-cost package.

METHODS

Design

Bennett seeded a cereal rye cover crop on Sept. 12, 2018 at a rate of 45 lb/ac to standing corn using a high-clearance seeder. On May 11, 2019, Bennett planted soybeans to the entire field at a population of 140,000 seeds/ac in 15-in. row-widths. Six days later, on May 17, he terminated the cover crop.

To test whether he could reduce herbicide use, Bennett compared three packages that ranged in residual activity and cost (**Table 1**).

Measurements

On May 11, Bennett clipped samples of aboveground cereal rye cover crop growth (stems and leaves) from each of the 12 strips. We determined the amount of cover crop biomass by weighing the samples after air-drying for four weeks.

Bennett assessed weed pressure in each strip on Sept. 24 by selecting seven random points along a 100-pace transect and counting the number of weeds in a 6-ft diameter (28 ft² area).

Data analysis

To rank the effects of the herbicide packages Bennett compared, we calculated Tukey's least significant difference (LSD) for each measurement: weed count and soybean yield. For each measurement, we assigned different rankings to the packages if the difference resulting from any two packages was *greater than or equal to* the LSD – we also refer to this as a statistically significant effect. On the other hand, if the difference resulting from any two packages was *less than* the LSD, we consider the packages to be statistically

Cooperators

Sam Bennett – Galva

Funding

Walton Family Foundation



Sam Bennett: "The more I learn that I can rely on the cereal rye cover crop for weed suppression, the more I can work to reduce my herbicide plans."

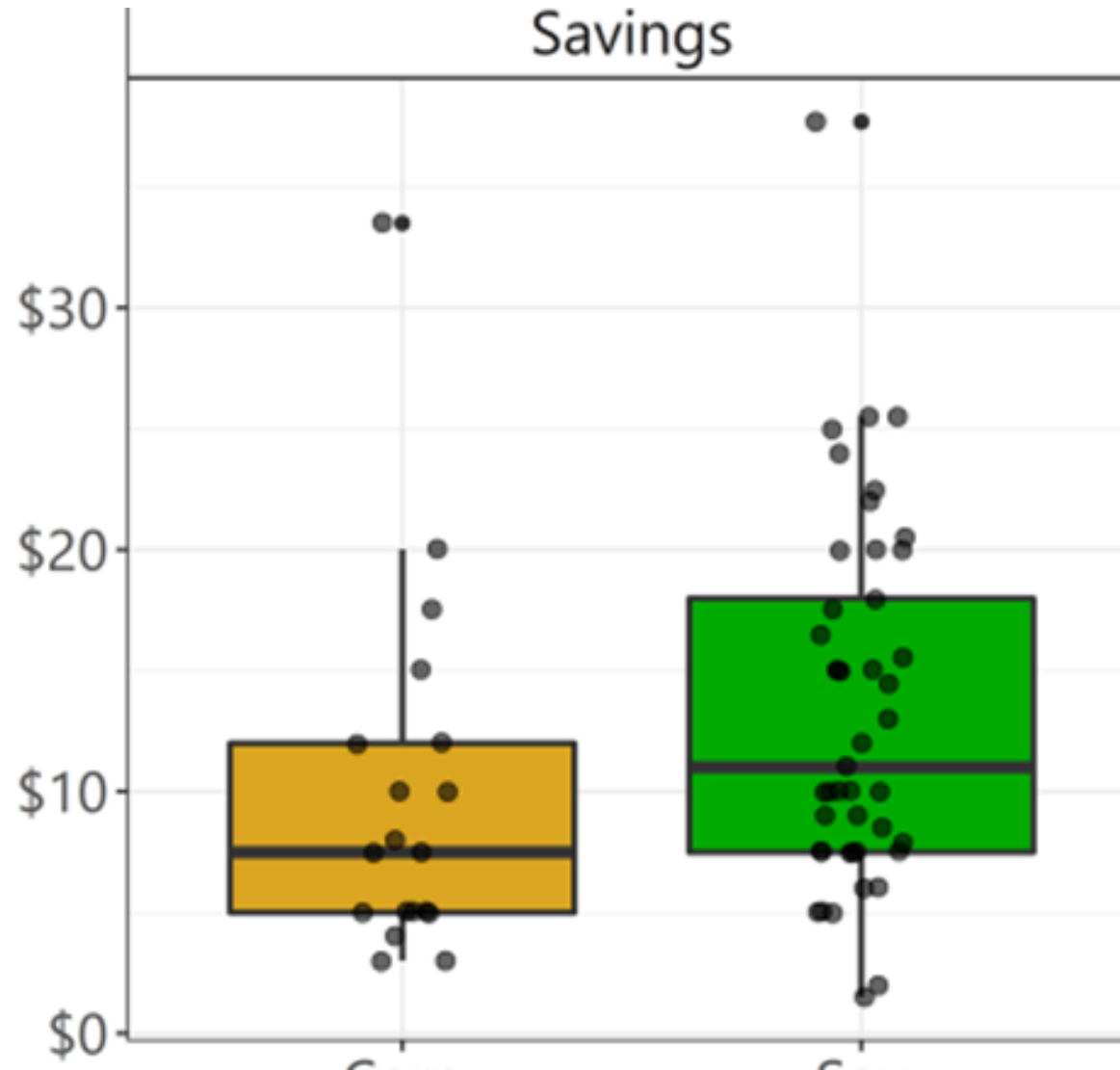
Sam Bennett: Using a cereal rye cover crop enabled a \$16/ac herbicide product reduction without an impact to soybean yield

PRACTICAL FARMERS
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Reduced herbicide expenses with cover crop compared to no cover crop (includes herbicide product and passes)

Average reduction of herbicide expenses on cover cropped corn = **\$10.53/acre**

N = 20



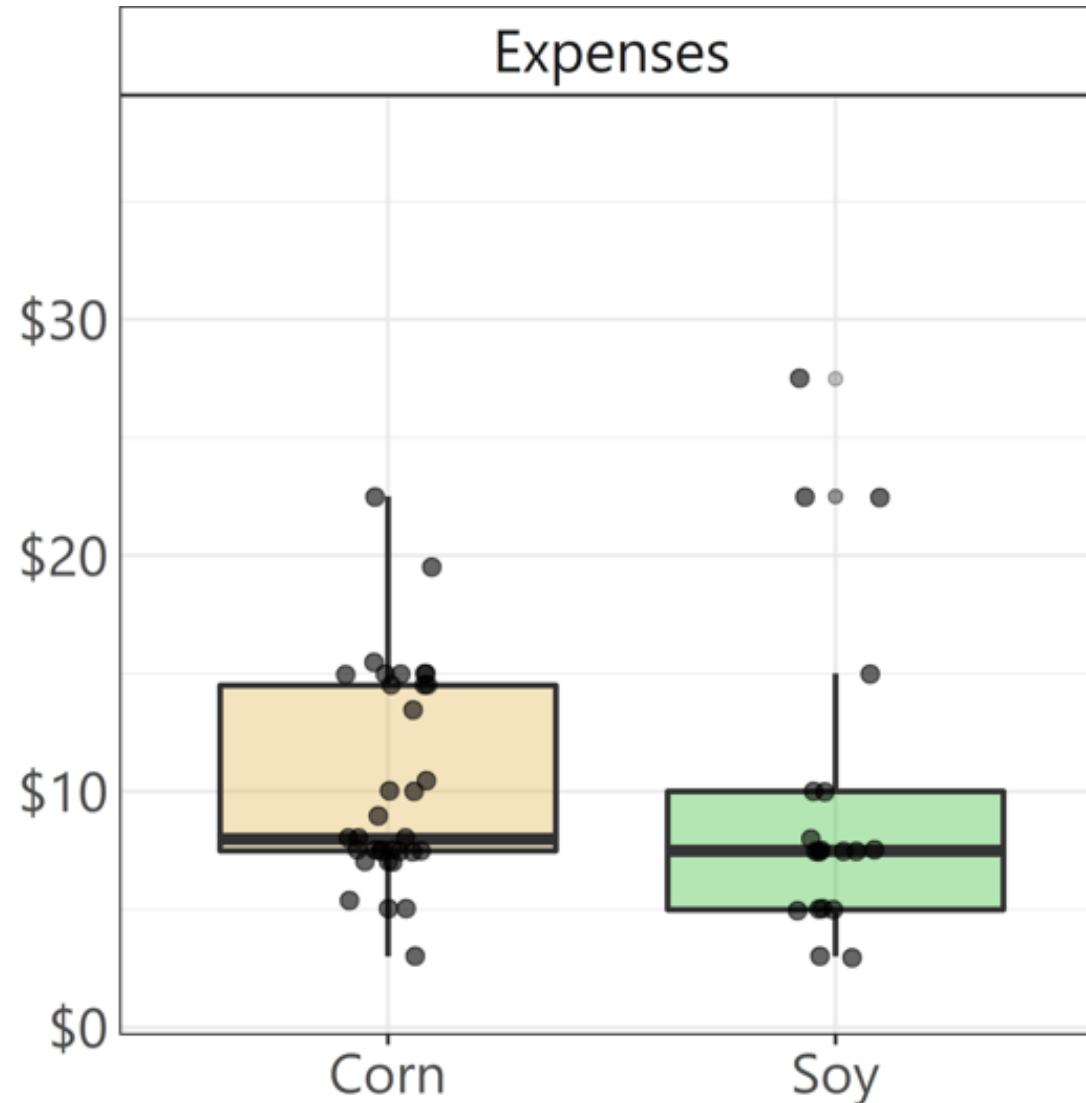
Average reduction of herbicide expenses on cover cropped soy = **\$13.57/acre**

N = 47

Additional herbicide expenses with cover crop compared to no cover crop (includes herbicide product and passes)

Average additional herbicide expenses on cover cropped corn = **\$10.28/acre**

N = 34



Average additional herbicide expenses on cover cropped soy = **\$9.82/acre**

N = 19

Avoiding additional herbicide expenses with cover crops

- Combine cover crop burndown pass with already planned pass
- Terminate cover crop with 32 oz Glyphosate on warm, sunny day
- Don't need extra product

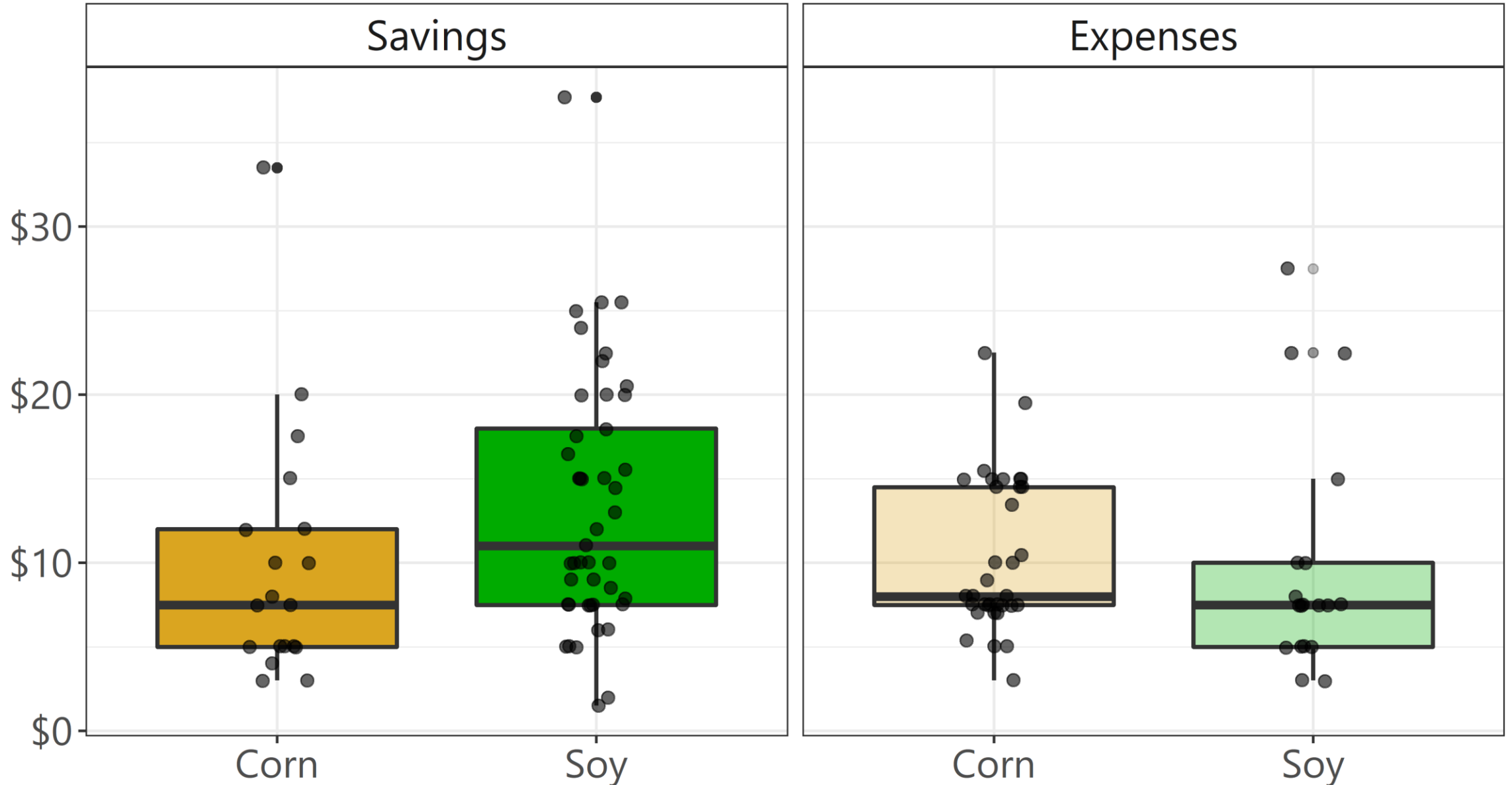


Best practices for reducing herbicide expenses with cover crops

- Start with cereal rye ahead of soybeans
- Seed a uniform stand (avoid aerial application, coupling with dry fertilizer)
- More biomass helps (higher seeding rate, earlier seeding date, later termination)
- Be willing to spot-spray



Per Acre Savings or Expenses to Corn/Soybean Herbicide Programs Due to Cover Crops (n = 117)



(Savings and expenses take into account both herbicide product and passes)

Take home messages

1. Establish clear cover crop goals
2. Consider how you can optimize seed and application expenses
3. Think through reducing other production costs such as herbicide, tillage, or forage

Thank you to contributors

- Lydia English
- Sarah Carlson
- Chris Wilbeck
- Amy Roberts

Comments, questions, feedback?

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