

# New Trends and Ideas for Cover Crops



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# Sunlight being harvested



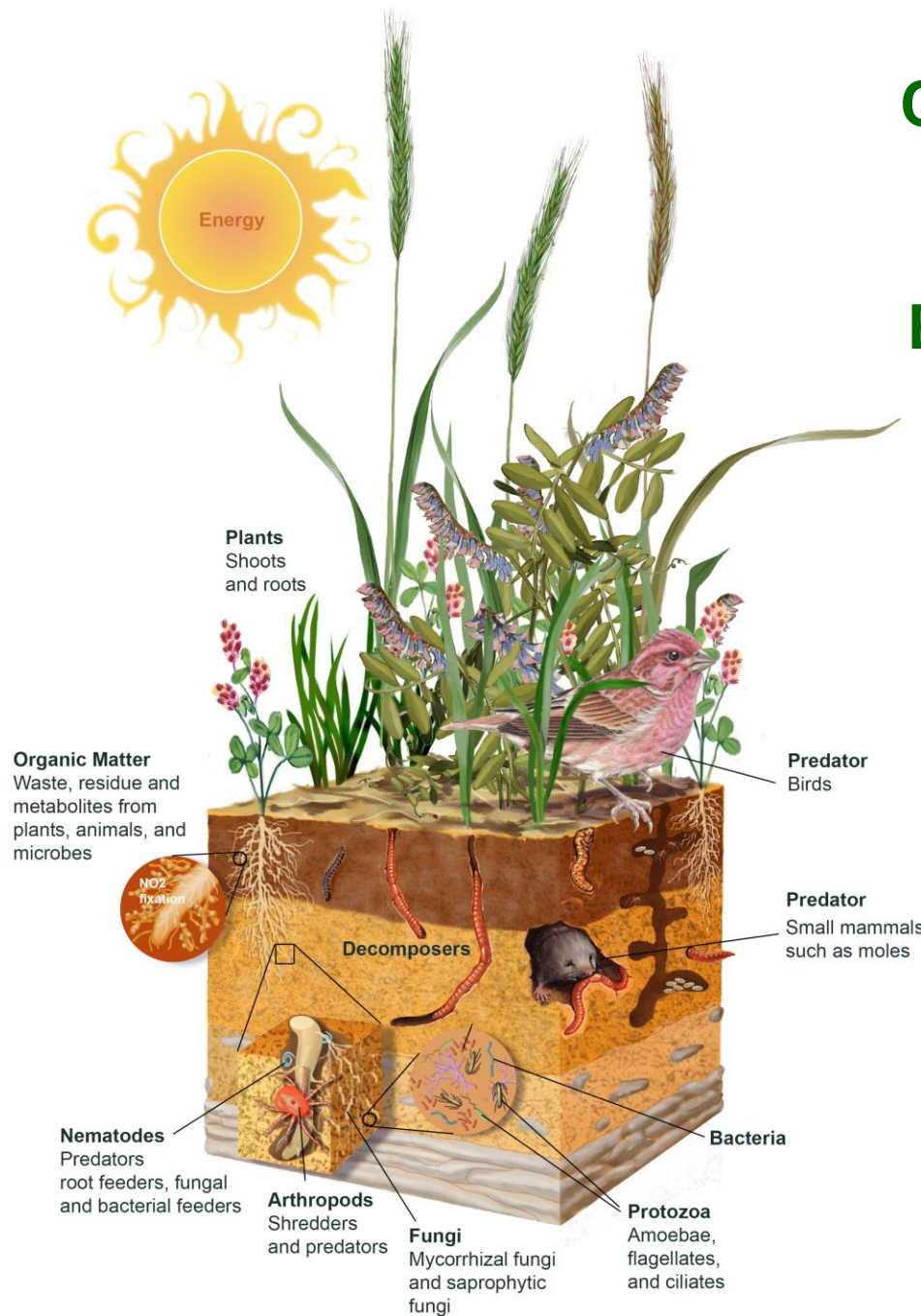
*October 30, 2013, Steve Groff farm, southeastern PA*

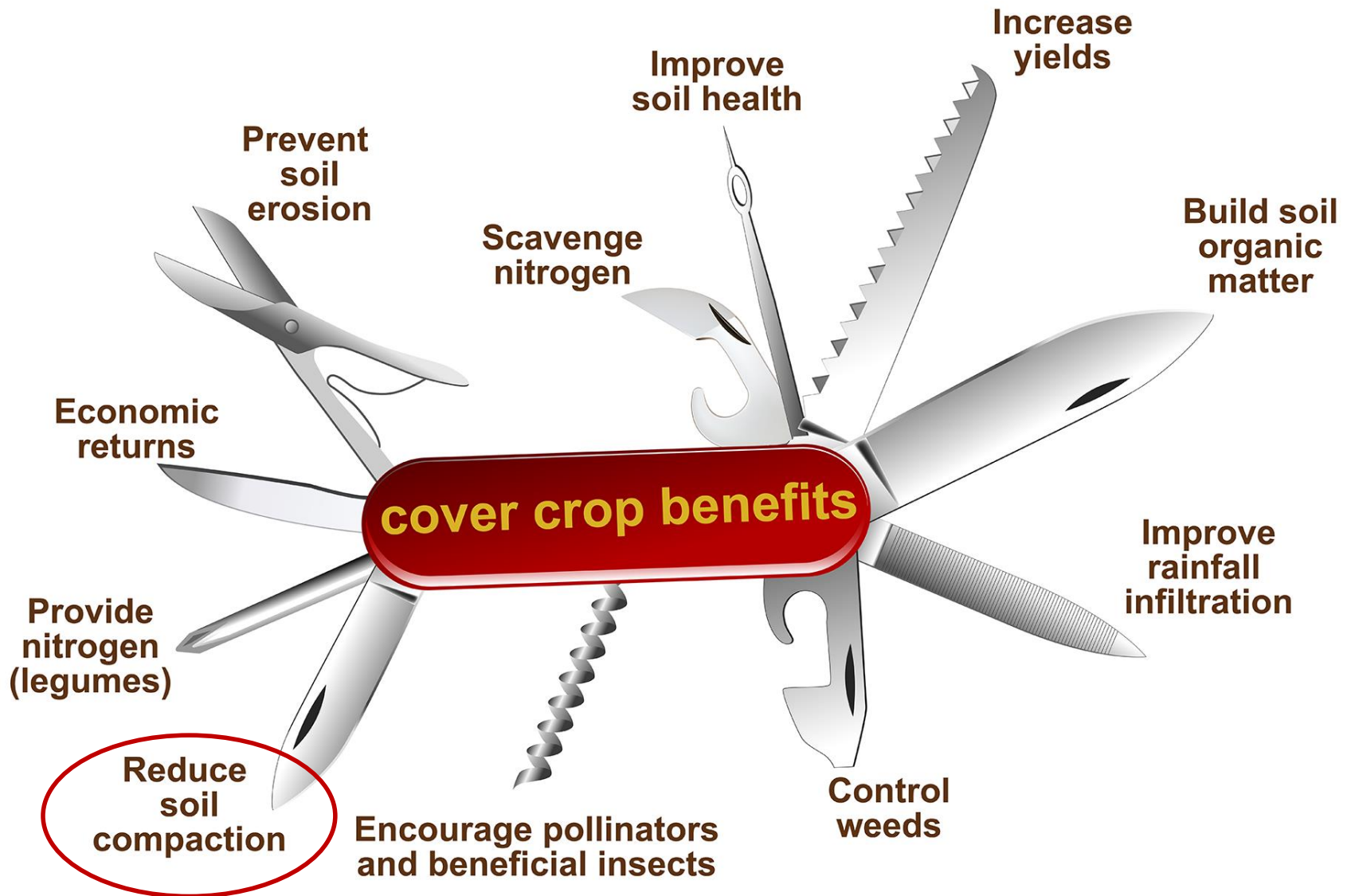
# When there is no cover



*November 22, 2012, Decatur, IL*

# Considering Soil Health And Biodiversity





cover



# Why landscapers are planting crops on the Arch grounds

By David Hunn St. Louis Post-Dispatch 50 min ago (5)



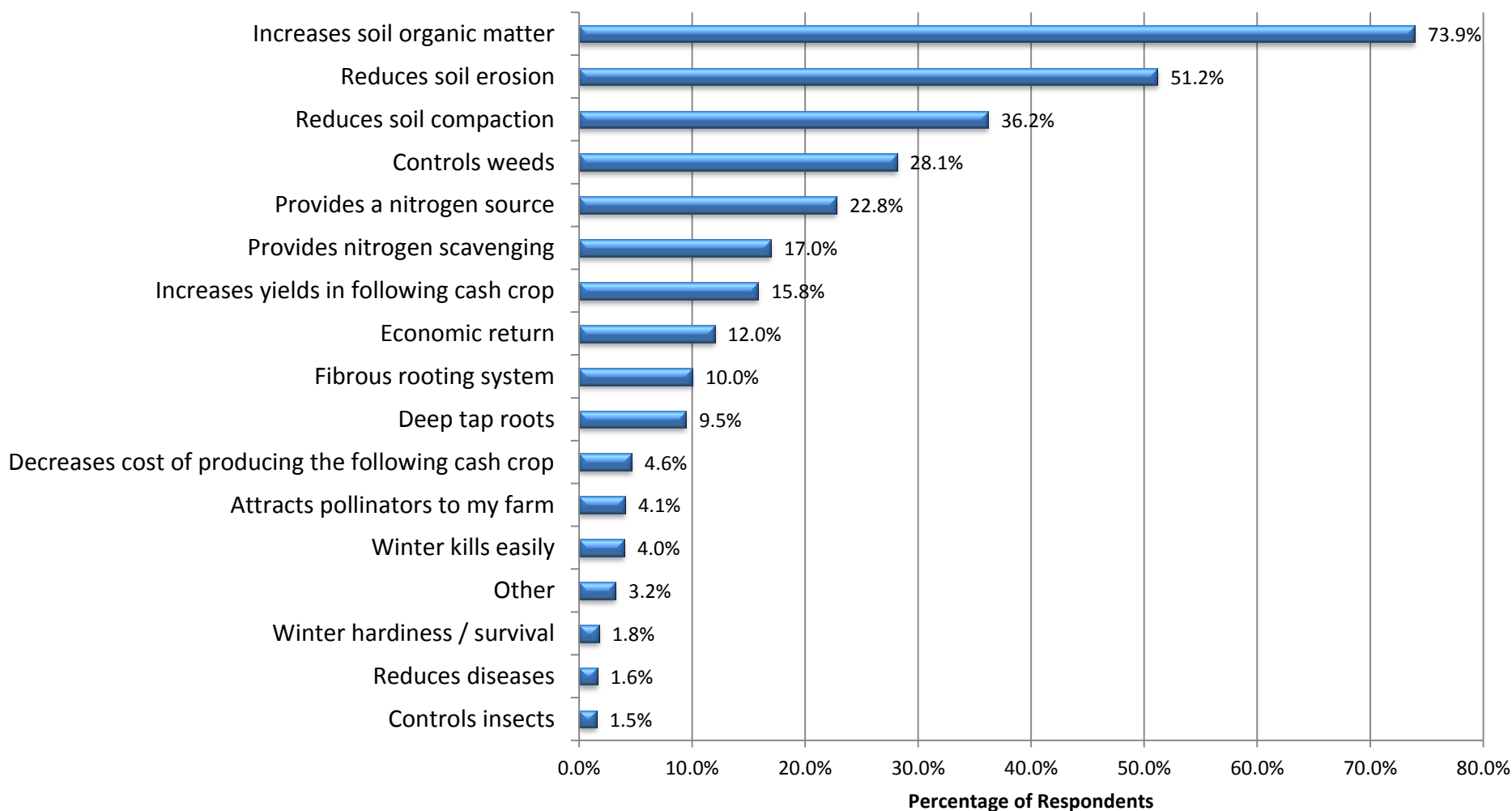
# SARE/CTIC Cover Crop Survey

- For the 2012-13 survey, 759 producers who use cover crops completed the survey, and those farmers surveyed planted over 218,000 acres of cover crops in 2012
- For the 2013-14 survey, 1924 farmers completed the survey, split between 75% who had used cover crops and 25% who had not
- The 2014-15 survey had about 1500 respondents to most questions, with greater depth on cover crop species used and more horticulture growers.
- The 2015-16 survey is going out later this week and taking a deeper look at cereal rye before soybeans as well as other aspects of yield and profit.



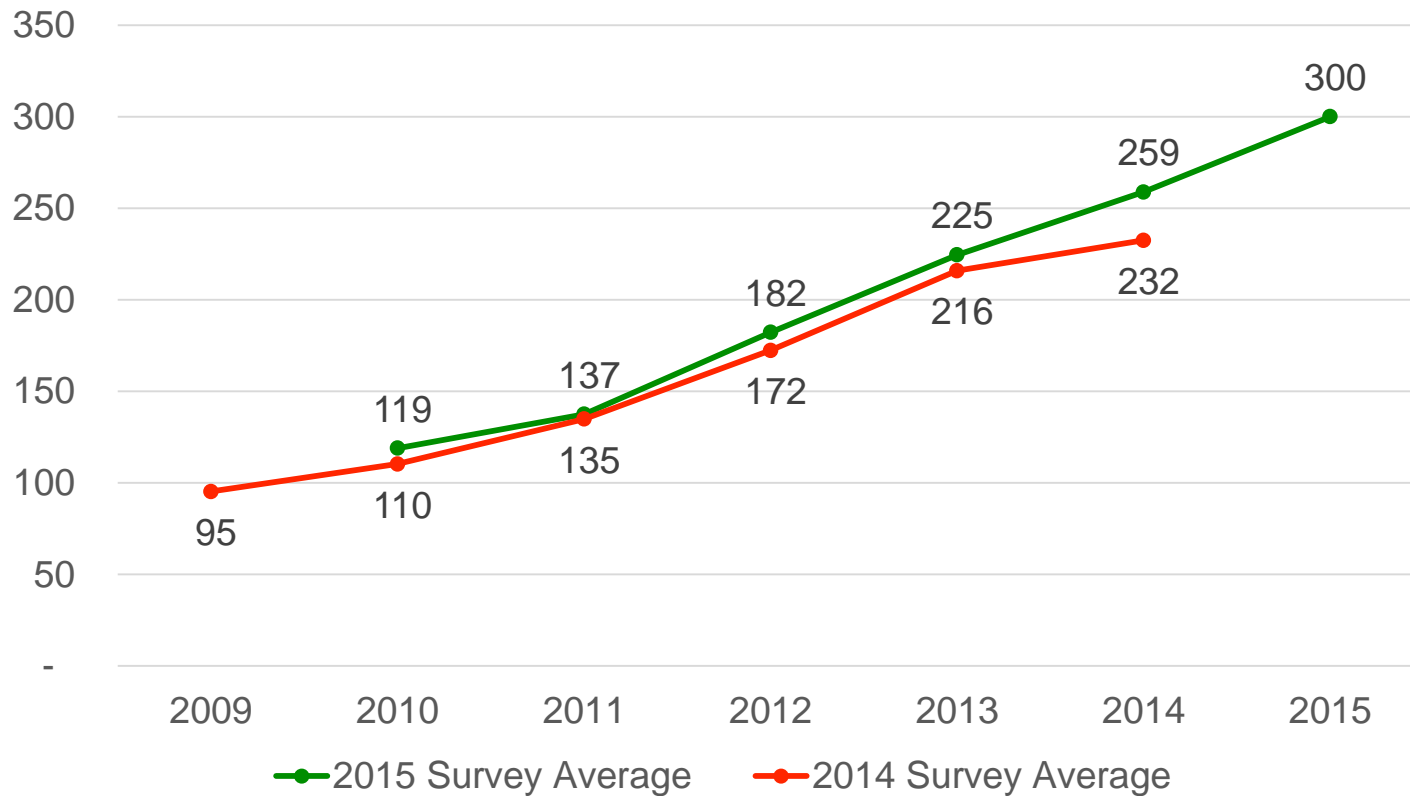
# Why are farmers planting cover crops?

## Desired Cover Crop Benefits



2013-14 SARE/CTIC cover crop survey

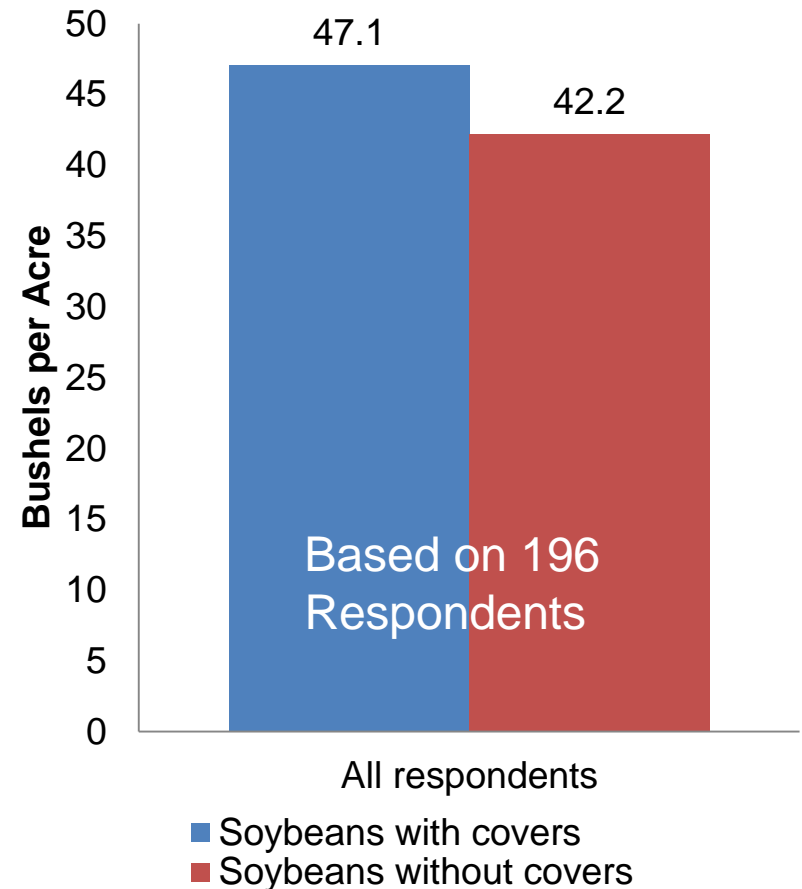
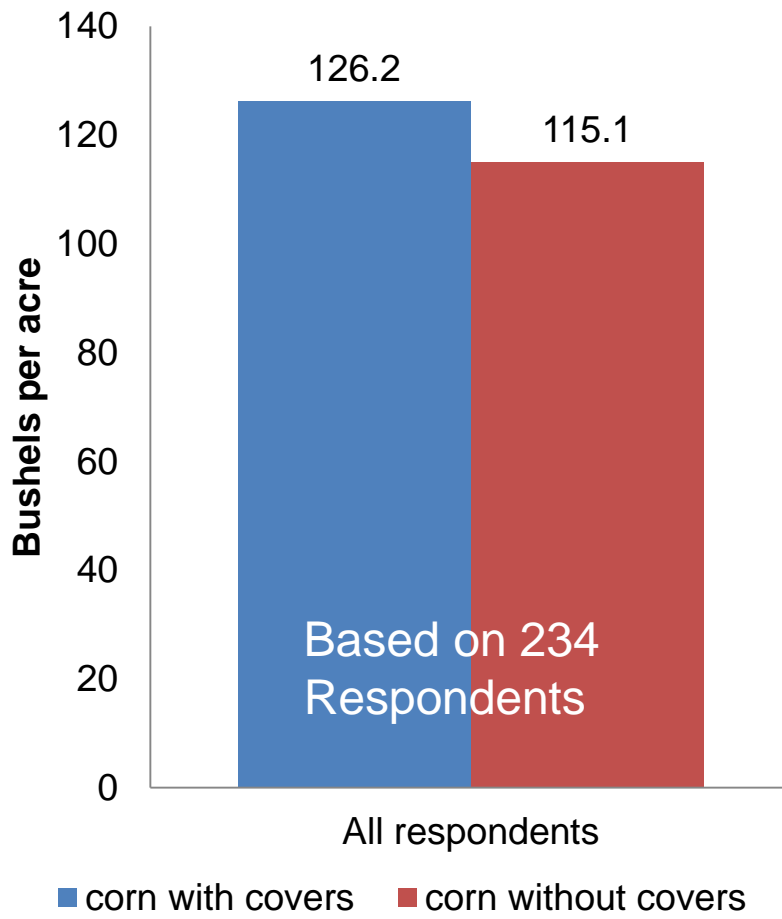
# Average Cover Crop Acres per Respondent in 2014 and 2015



# COVER CROP IMPACT ON CORN AND SOYBEAN YIELDS IN THE DROUGHT YEAR OF 2012

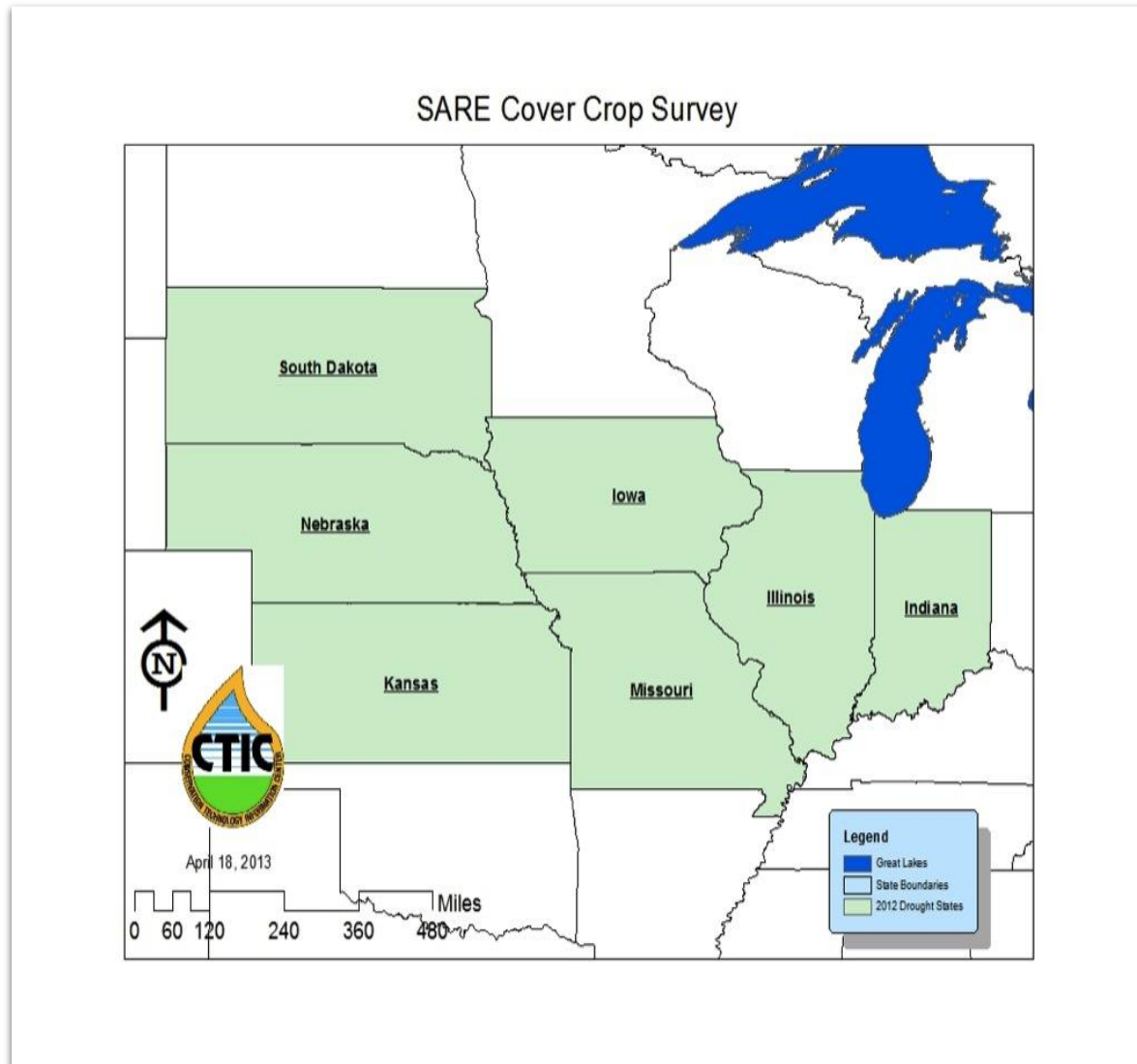


# Impact of Cover Crops on Corn and Soybean 2012 Yields\*



*\*Yields are for 2012 on farms where farmers had side by side fields with similar management and varieties, other than using cover crops or not*

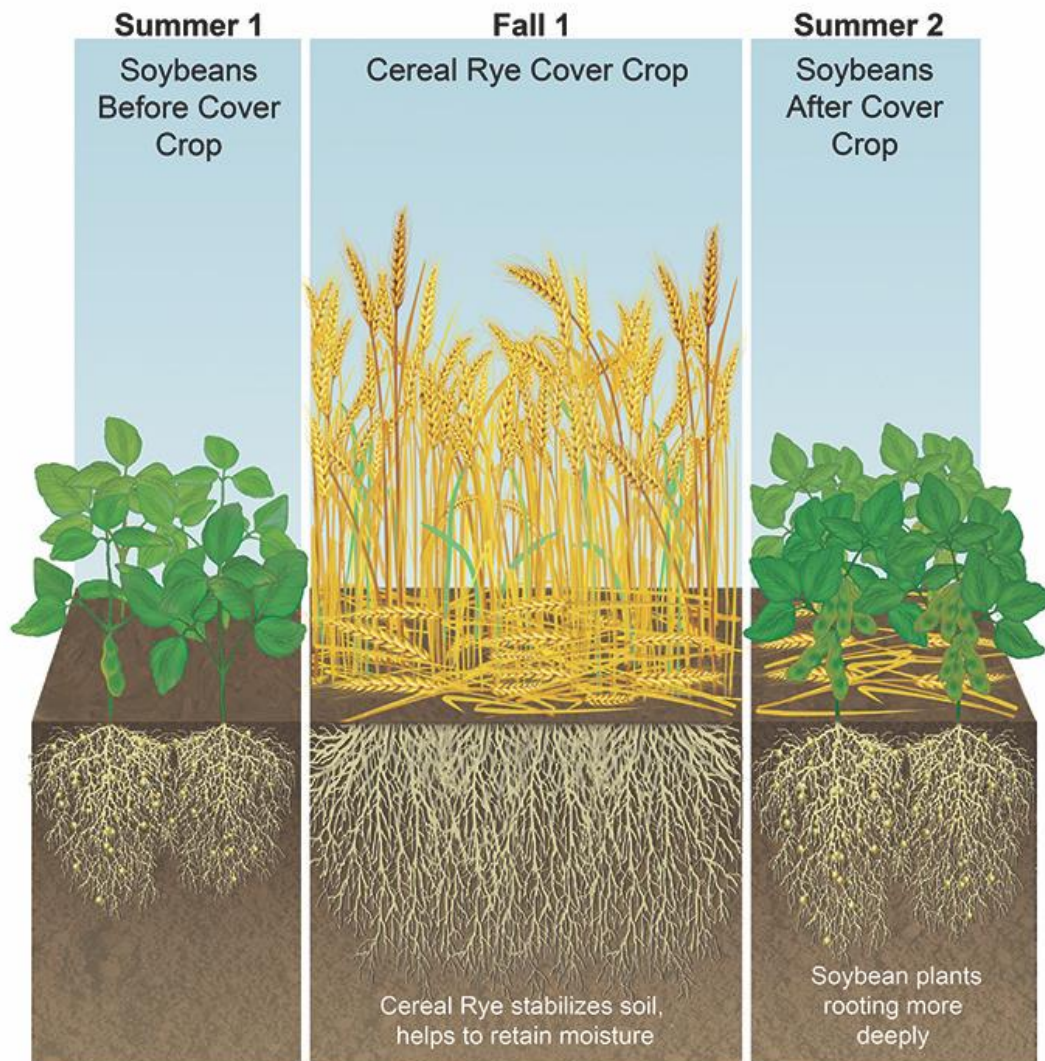
# States affected by the 2012 drought



# Drought States Commodity Crop Yields as Impacted by Cover Crops in 2012

- Broke the data down to look at yield impact in seven of the states hit hardest by drought  
(specifically NE, KS, SD, MO, IA, IL, and IN)

Group of respondents	Corn	Soybeans
All respondents with side-by-side field comparisons	9.6% Yield Increase	11.6% Yield Increase
Drought states (7 states)	11.0% Yield Increase	14.3% Yield Increase



## Extension of Corn Root Surface Area through Mycorrhizal Fungi



# How can cover crops help in a drought?

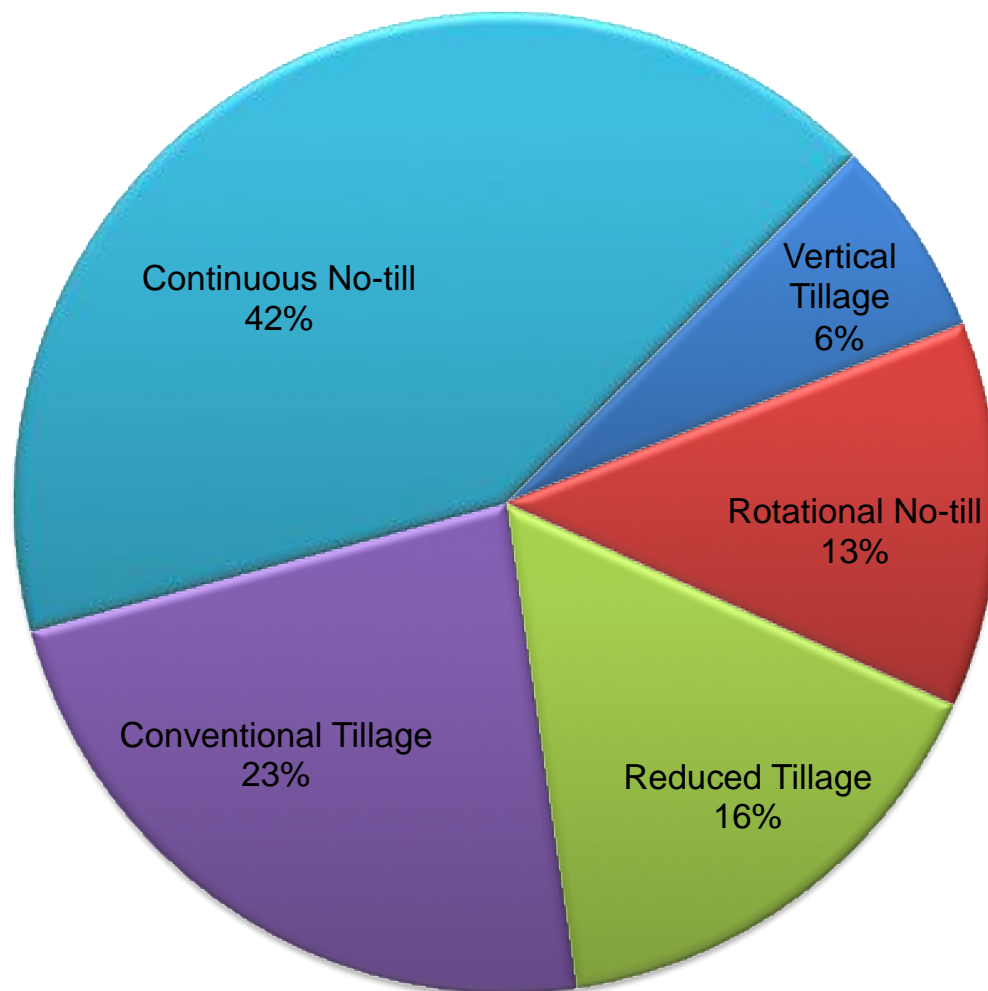
- Benefits that may occur from cover crop in first year
  - Deep rooting cover crops lead to deeper rooting cash crops
  - Residue blanket reduces evaporation
  - Possible changes in mycorrhizae and overall soil biology
- Long term benefits
  - Increased organic matter
    - Better rainfall infiltration
    - Better retention of moisture in the soil profile
  - Better soil health
  - Less restrictions to root growth
  - Use of cover crops is often accompanied by other changes, like the move to no-till (each tillage pass causes the loss of soil moisture)

# Yield increase following cover crops

Crop Year	Corn	Soybeans
2012	9.6%	11.6%
2013	3.1%	4.3%
2014	2.1%	4.2%

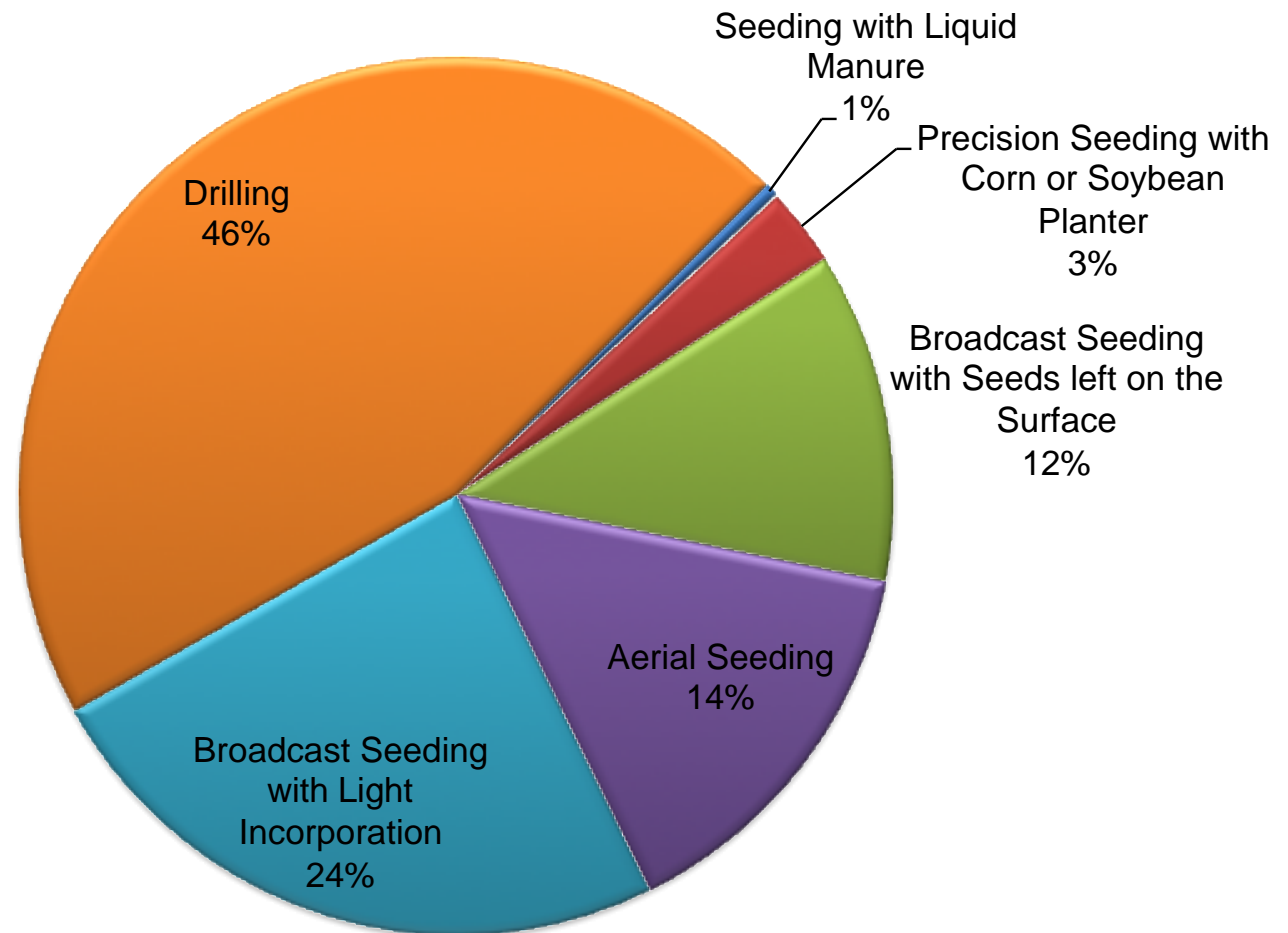
*Data provided from farmers in the SARE/CTIC national cover crop survey. Differences are statistically significant based on analysis by Purdue University.*

## Predominant Tillage System Used With Cover Crops in 2013



2013-14 SARE/CTIC cover crop survey

## Primary Method of Seeding Cover Crops in 2013

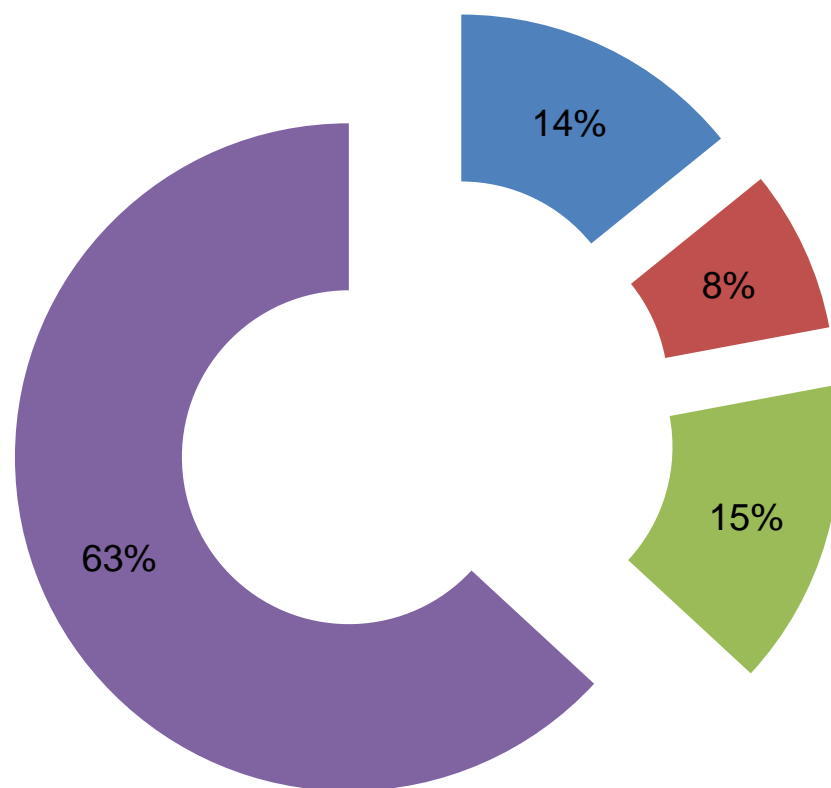


*Data from 2013-14 SARE/CTIC cover crop survey*

# Cover crop cost share

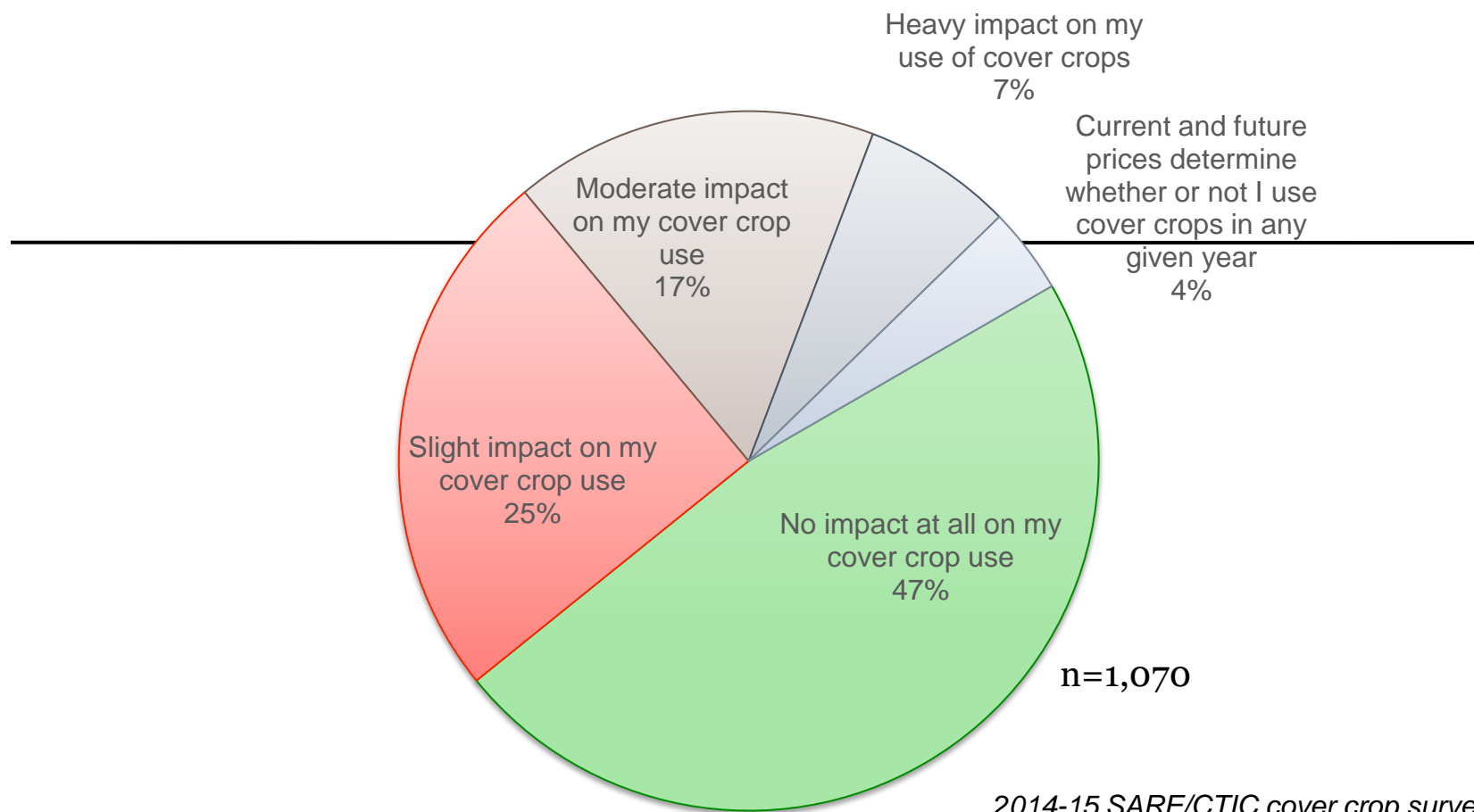
## How Financial Assistance is Used

- Yes - I initially received cost-share but now I largely self-fund
- Yes, I have only planted cover crops using financial assistance
- Yes, I have periodically received and used financial assistance
- No - I have not received financial assistance to plant cover crops



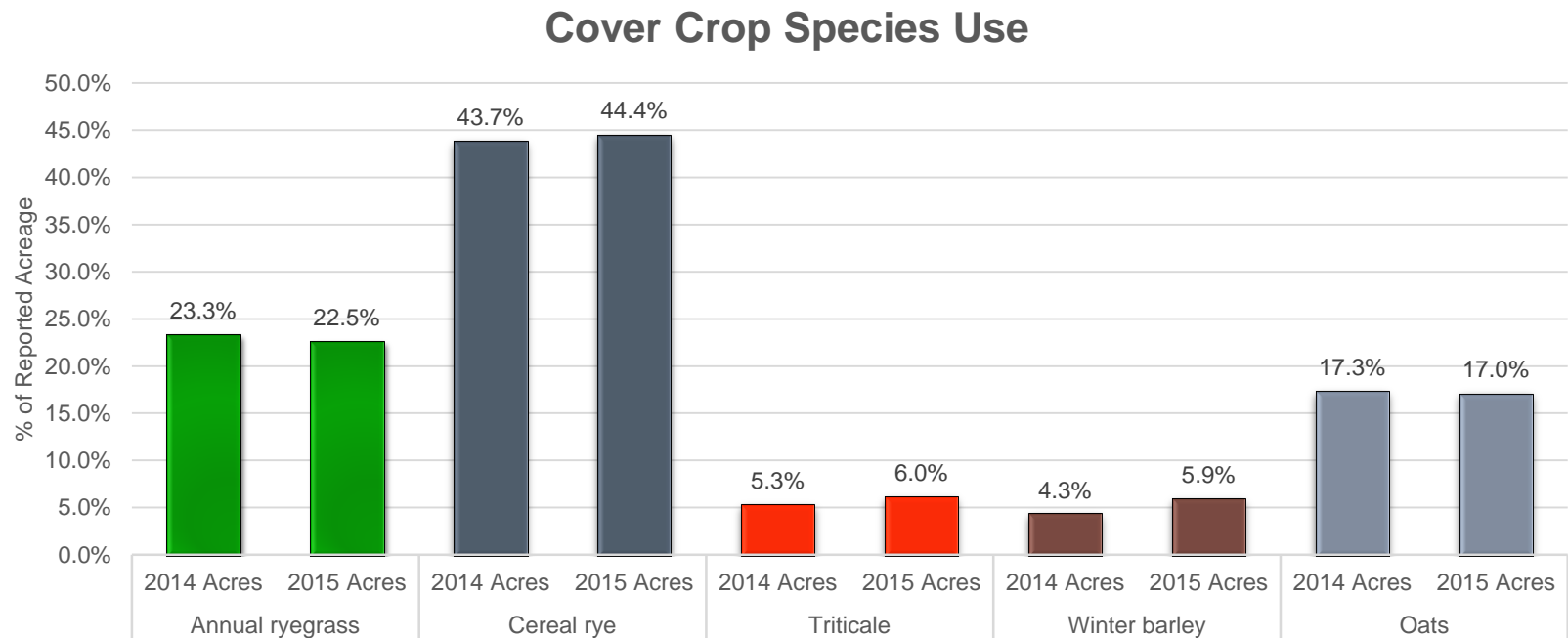
*Data from 2013-14 SARE/CTIC cover crop survey*

# WHAT IMPACT DOES THE MARKET OUTLOOK FOR FUTURE CASH CROP PRICES HAVE ON YOUR USE OF COVER CROPS?



2014-15 SARE/CTIC cover crop survey

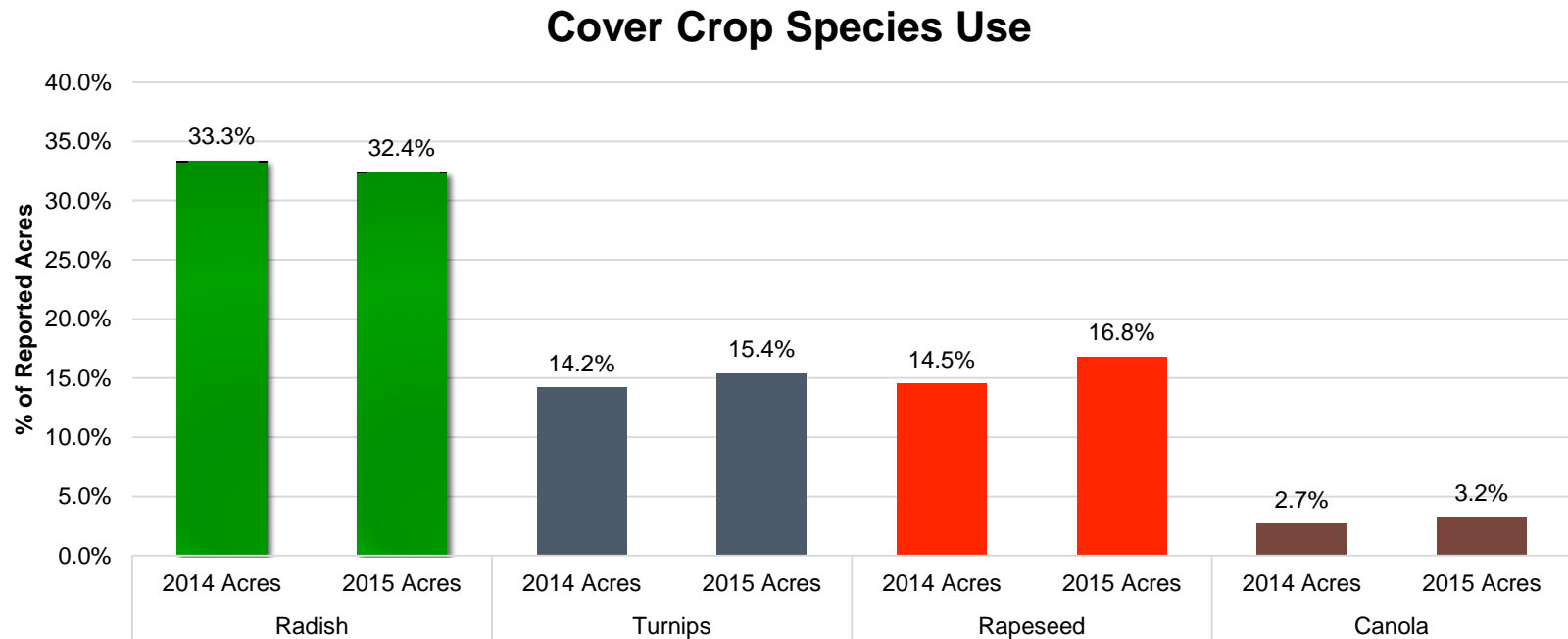
# Annual Grasses and Cereal Grains used as cover crops (% of reported acreage)



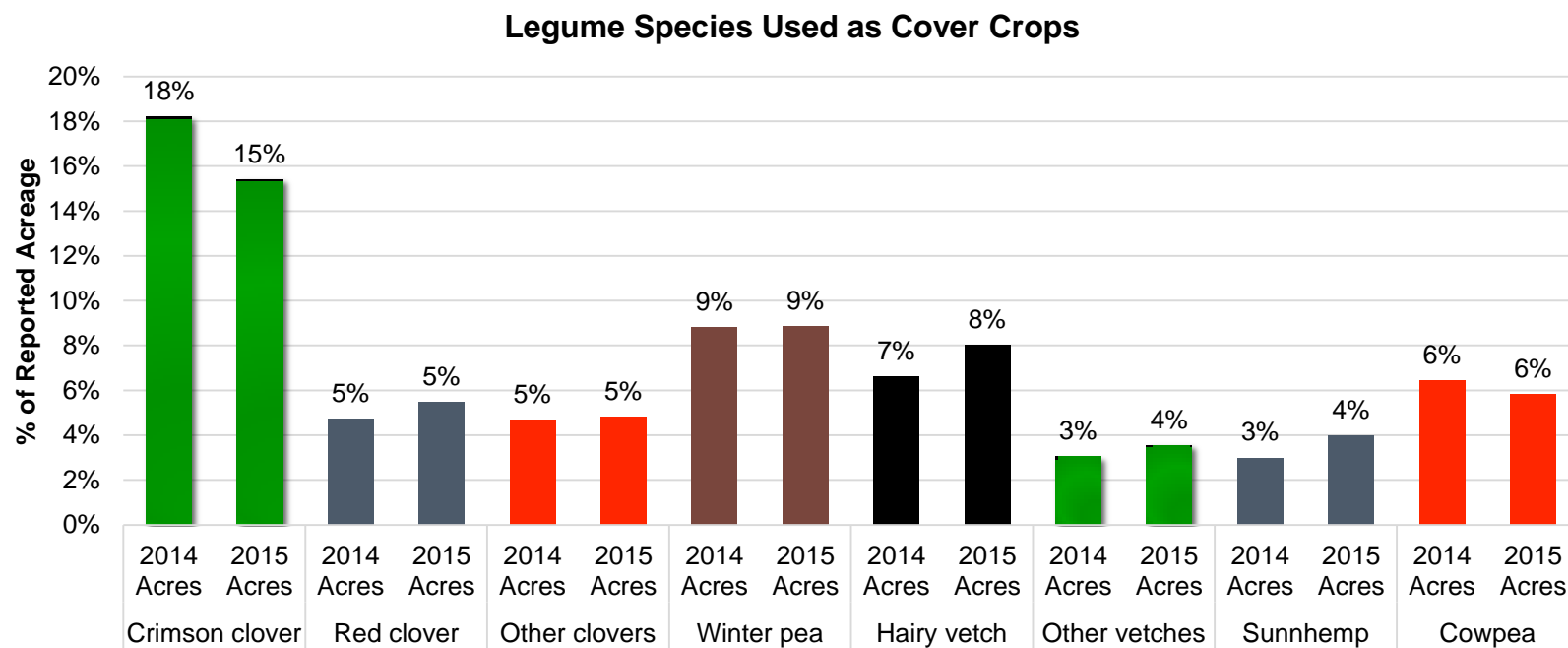
# New species and new varieties?



# Percentage of reported acreage where brassicas were planted as cover crops (% of Reported Acres)



# Percentage of reported acres where legumes were used as cover crops (% of reported acres)



Lots of different cover crop species and varieties out there



## What's up with cover crop seeding method?



# High clearance cover crop broadcast seeder



# High clearance cover crop broadcast seeder













Photo credit Joel Gruver, Western Illinois University



Photo credit Joel Gruver, Western Illinois University

# Establishment challenges



*Two plantings of oilseed radish a few days apart in August, 2013. Photo taken 9/27/13 near Ames, IA.*

# G Penn State Interseeder







**Tillage RootMax™  
Deep Root  
Annual Ryegrass**

# “Planting green” - soybeans into standing rye



*Photo credit – Dave Robinson*

# Soybeans emerging in killed cereal rye



*Photo credit – Dave Robinson*

60 foot wide roller crimper for terminating cover crops (this is hairy vetch in Illinois)





# Cover Crop Grazing



*Credit: Rob Kallenbach, U. of Missouri*

**SOIL IS MEANT  
TO BE COVERED®**



# What cover crop farmers would tell their neighbor

- It is a systems approach based on a return to the way nature is intended to work and therefore can be extremely successful.
- If you expect to be able to farm your land in 50 years, or have your child or grandchild farm it, then you need to use cover crops.
- There is a wide array of cover crops that can improve every rotation and soil with a little bit of planning.
- Keeping the soil covered year-round provides food for the life in the soil, which in turn provides nutrients for your crops.
- We must take better care of the soil we depend on.

Thanks! Visit [www.sare.org/covercrops](http://www.sare.org/covercrops)

