

2014 Wisconsin Crop Management Conference

ON-FARM COVER CROP TRIALS: CLOVER, RYE, AND RADISH

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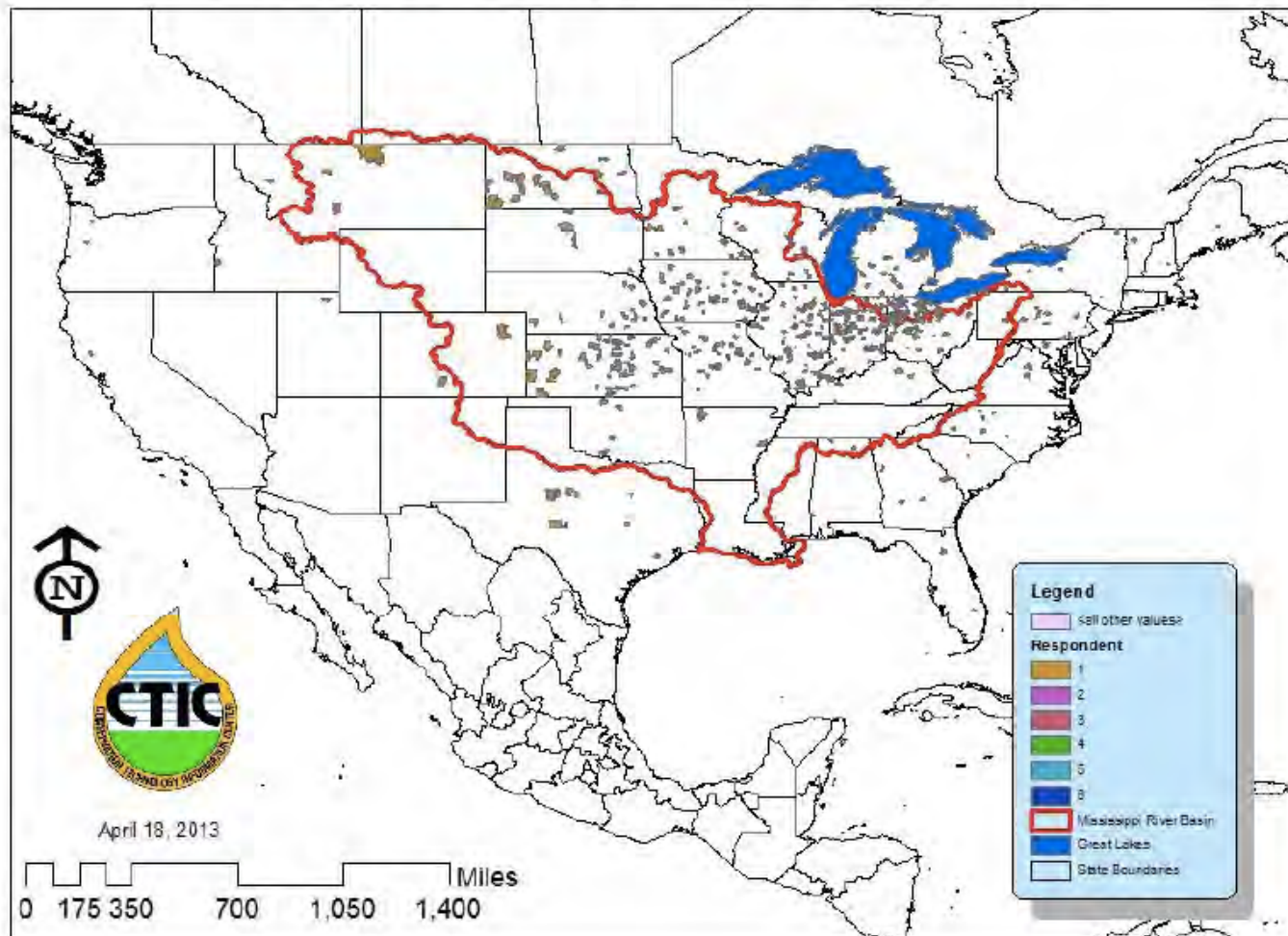


OUTLINE

- **Opinions and use of cover crops**
- **Trials with legumes**
- **Trials with radish**
- **Trials with grasses**

FARMER OPINION AND USE OF COVER CROPS

2012-2013 Cover Crop User Survey Respondents



Cover Crops Used (% of Respondents)

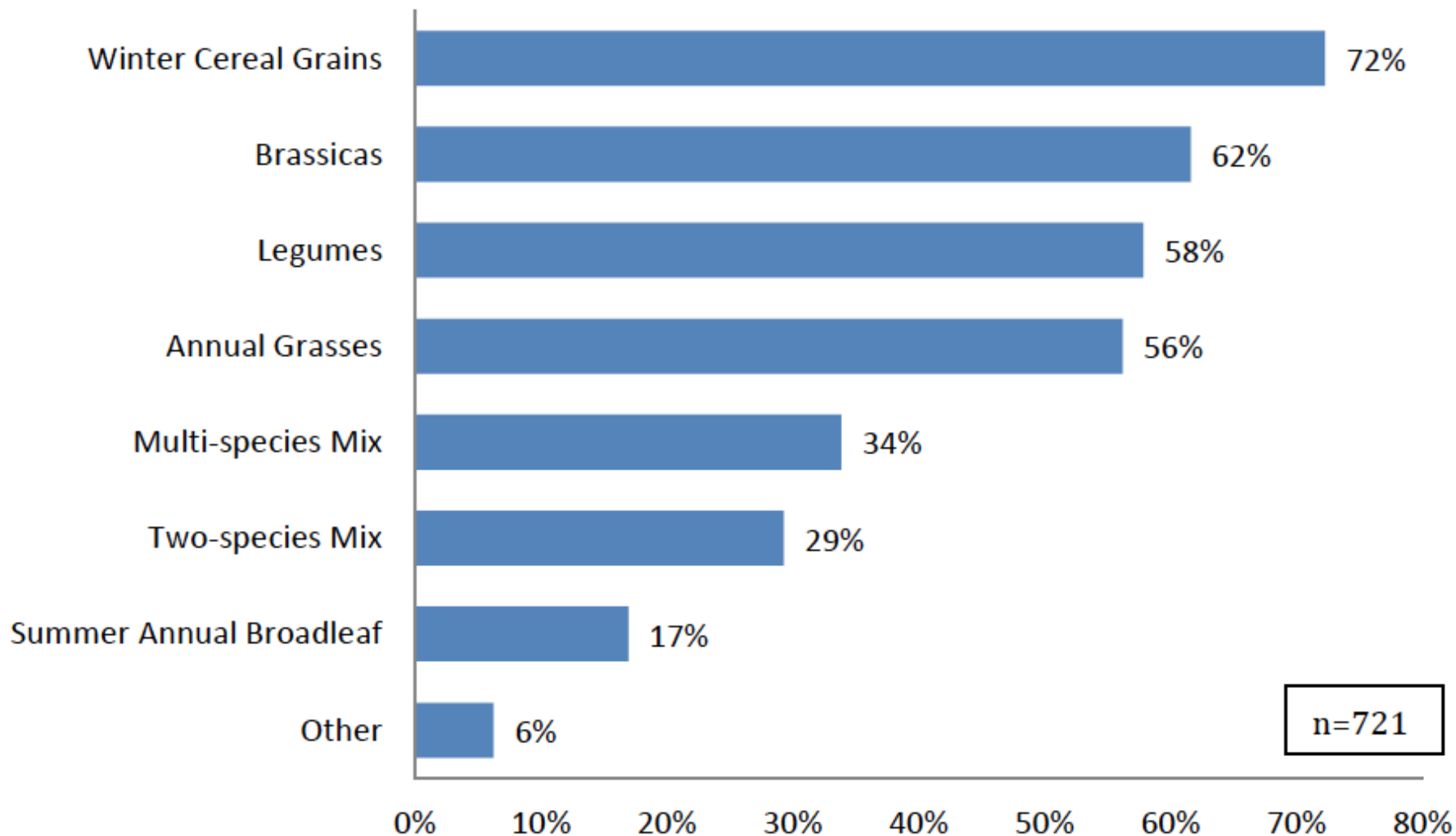


Figure 8. Cover crop species used by survey - percentage of respondents

WHAT DO WE WANT COVER CROPS TO DO?

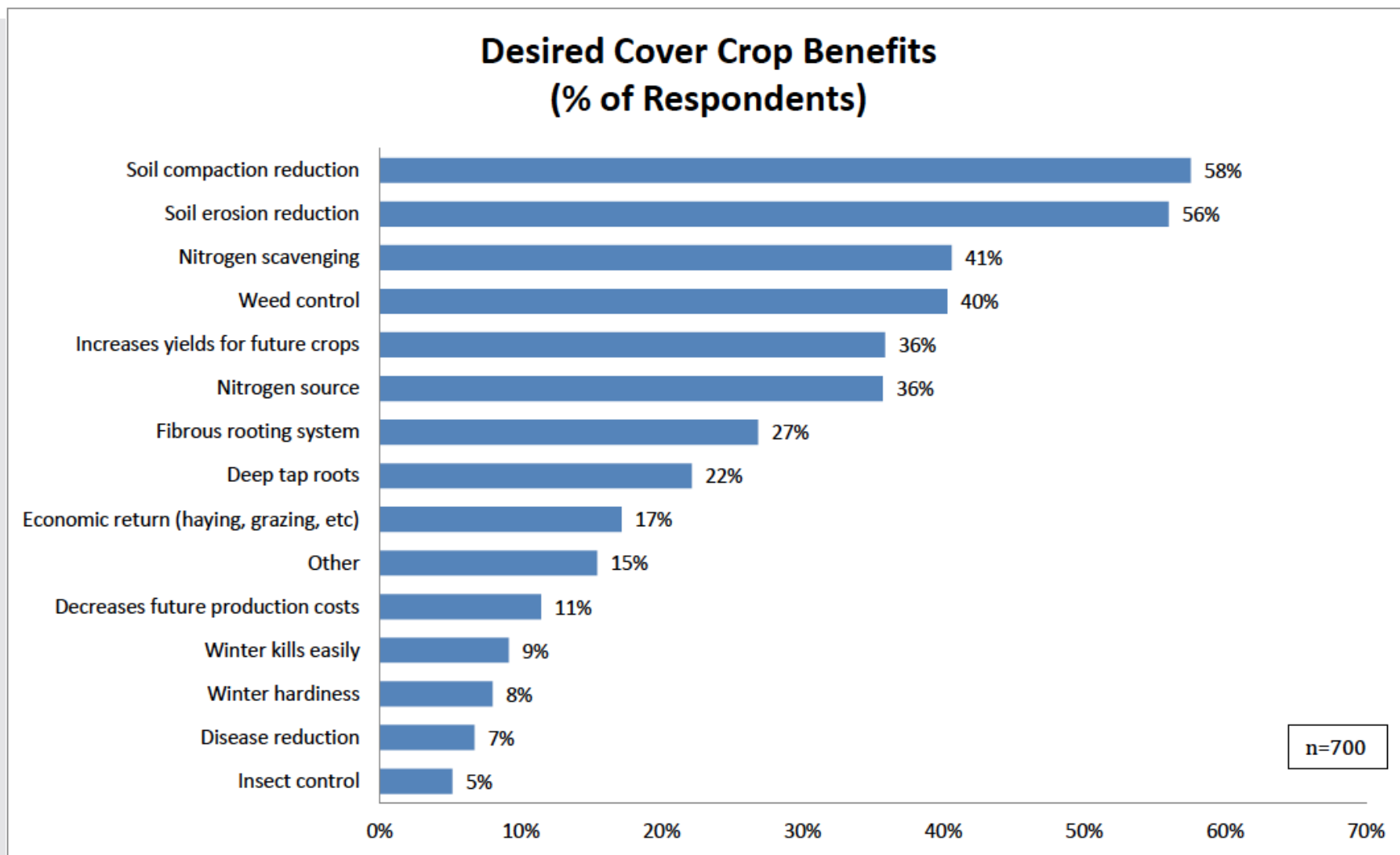


Figure 18. Cover crop benefits desired by cover crop survey respondents (percentage of respondents).

WHAT DO WE WANT COVER CROPS TO DO?

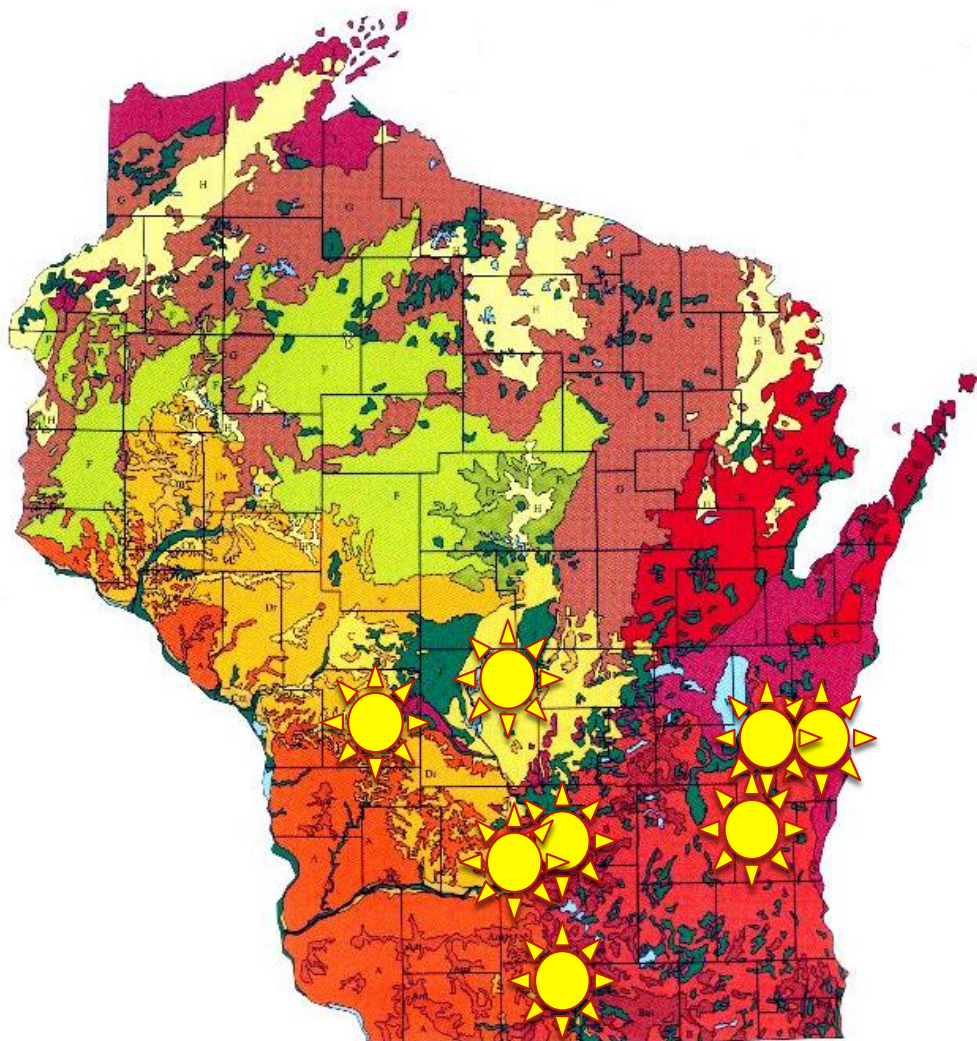
Table 4. Reasons farmers began using cover crops.

Reasons for growing cover crops	Ranking of importance					Total farms
	1	2	3	4	5	
	number of farms					
Soil conservation	33	16	3	2	1	55
Nitrogen holding and catch crop for manure N	2	18	7	5	0	32
Certified organic	2	1	1	0	0	4
Meeting leaching index requirement	1	1	3	3	1	9
Fulfill cost-share requirement	6	7	2	0	0	15
Improve trafficability	0	1	3	3	1	8
Improve organic matter	11	9	9	5	4	38
Weed control	4	3	5	3	4	19
Allows for manure spreading year round	1	3	7	5	5	21
Other	8	2	4	2	3	19

Long et al., 2013. Survey of cover crop use on New York Dairy Farms. Crop Management

COLLABORATIONS / ON-FARM TRIAL NETWORK

- NPM: Kevin Shelley, Richard Proost
- County Extension: Jim Stute, Heidi Johnson, Bill Halfman, Ken Schroeder, Mike Stanek
- State NRCS



THREE MAIN OPPORTUNITIES

- Mid-to-late summer following winter wheat or vegetable harvest
- Late summer to early fall following corn silage harvest
- In-season seeding into corn or soybean

CLOVER (AND OTHER LEGUMES)

RESEARCH

■ Frost-seeding red clover into winter wheat

Frost Seeding Red Clover in Winter Wheat

Jim Stute, University of Wisconsin (UW) Extension, Rock County
Kevin Shelley, UW Nutrient and Pest Management Program



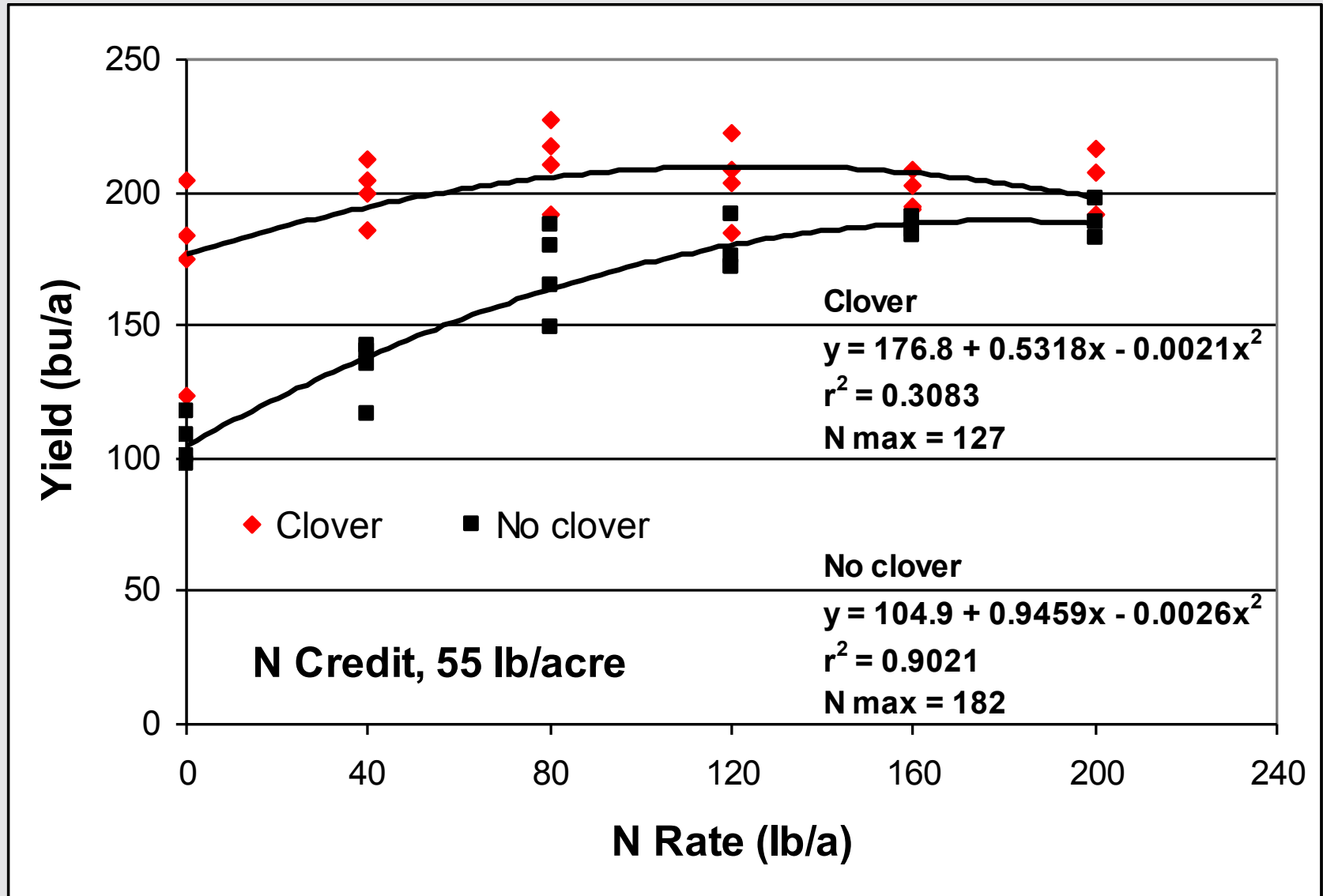
- Will not winter kill; will need to chemically kill
- Crimson or berseem clover after winter wheat harvest
 - Will winter kill
- Hairy vetch is a great N fixer, but can be difficult to kill







Corn response to nitrogen, Janesville 2010



Stute and Shelley, unpublished

Pictures taken October 1, 2013



October 1, 2013



October 29, 2013









RADISH

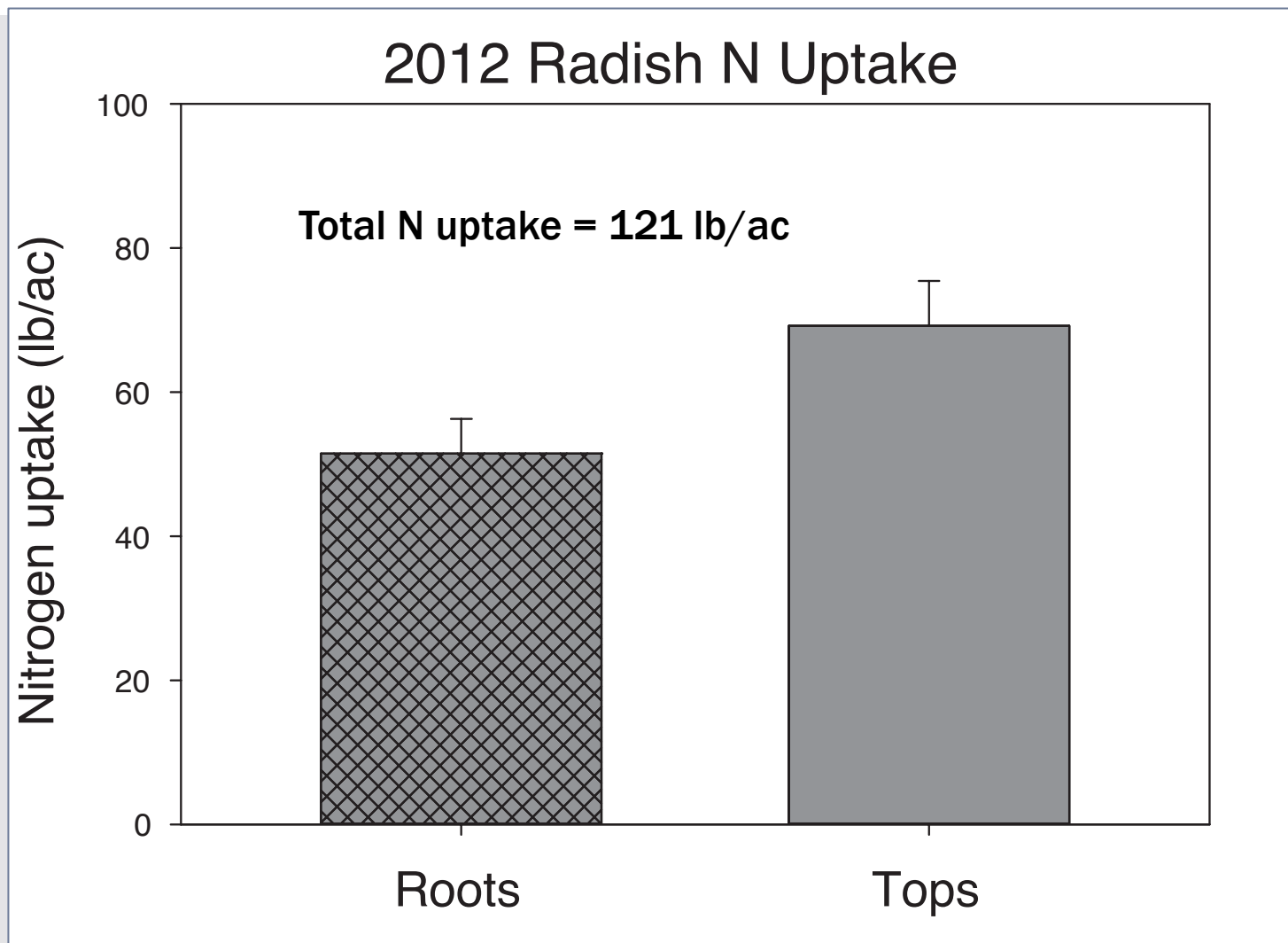
RADISH TRIALS

- **Rock County**
- **Washington County**
- **Sheboygan County**
- **Main objective is to determine if there is a nitrogen credit from radish**
- **Funded by the Wisconsin Fertilizer Research Council**

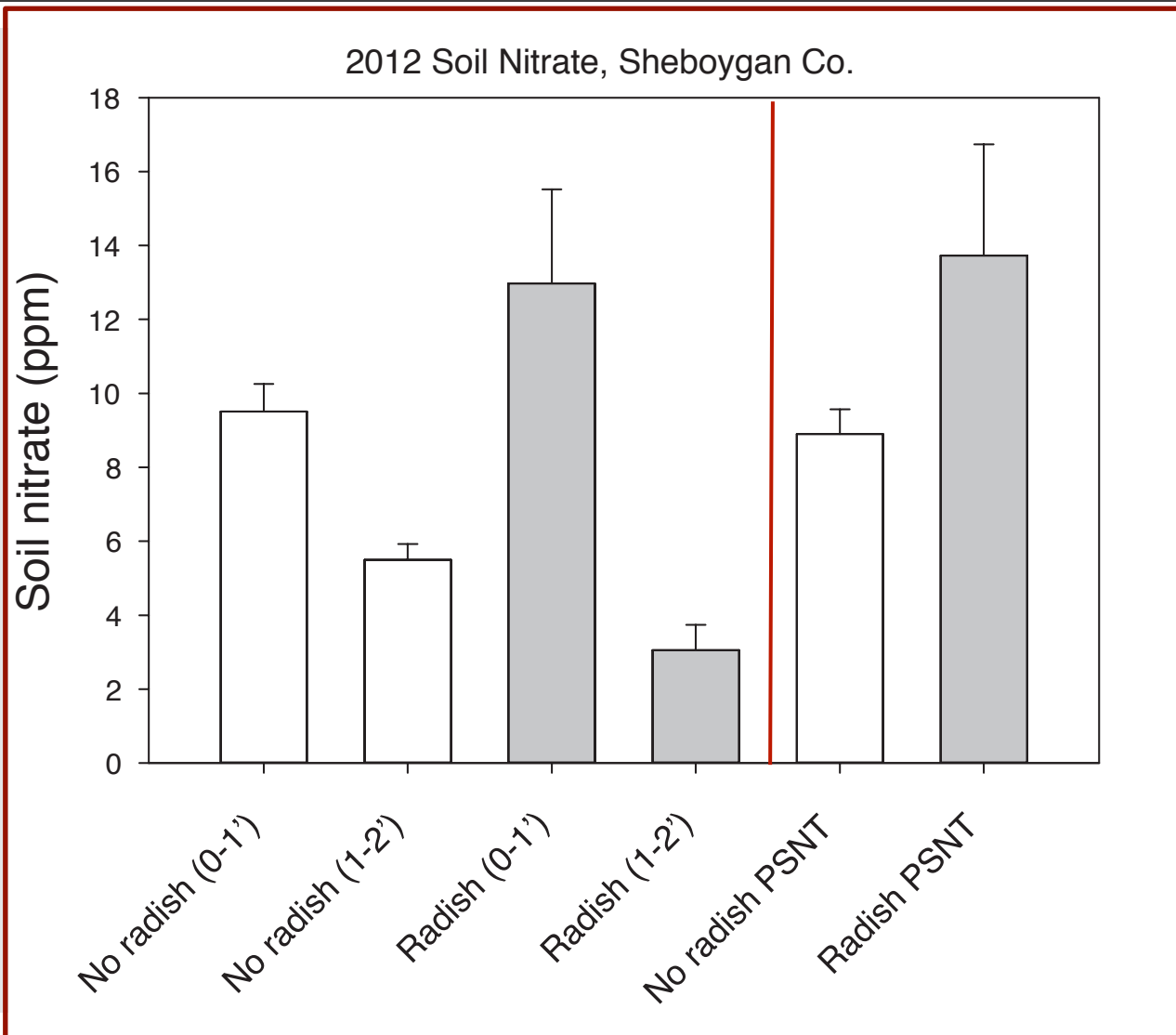
2013 RADISH - SHEBOYGAN



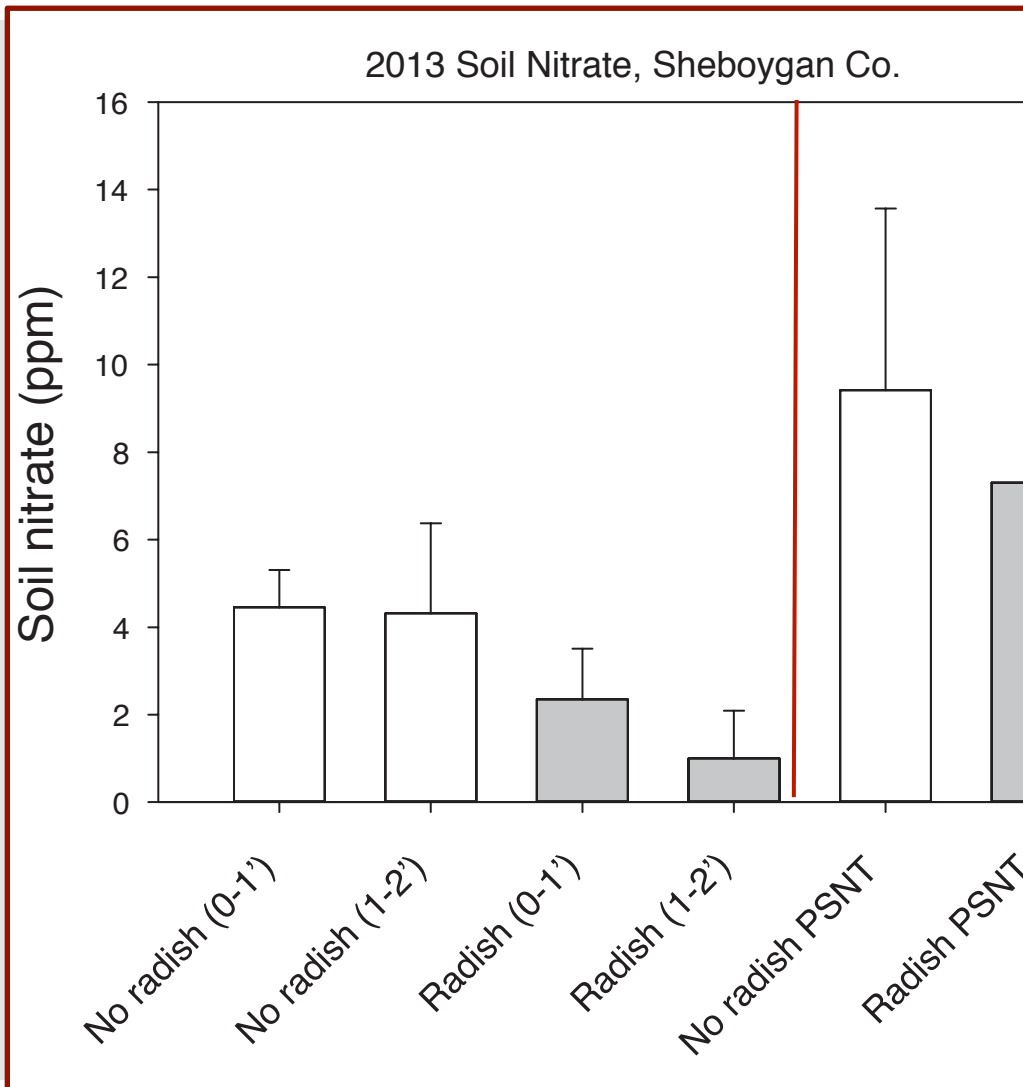
RADISH N UPTAKE – SHEBOYGAN CO.



2012 SOIL NITRATE (PPNT & PSNT)



2013 SOIL NITRATE (PPNT & PSNT)



2013 RADISH - SHEBOYGAN





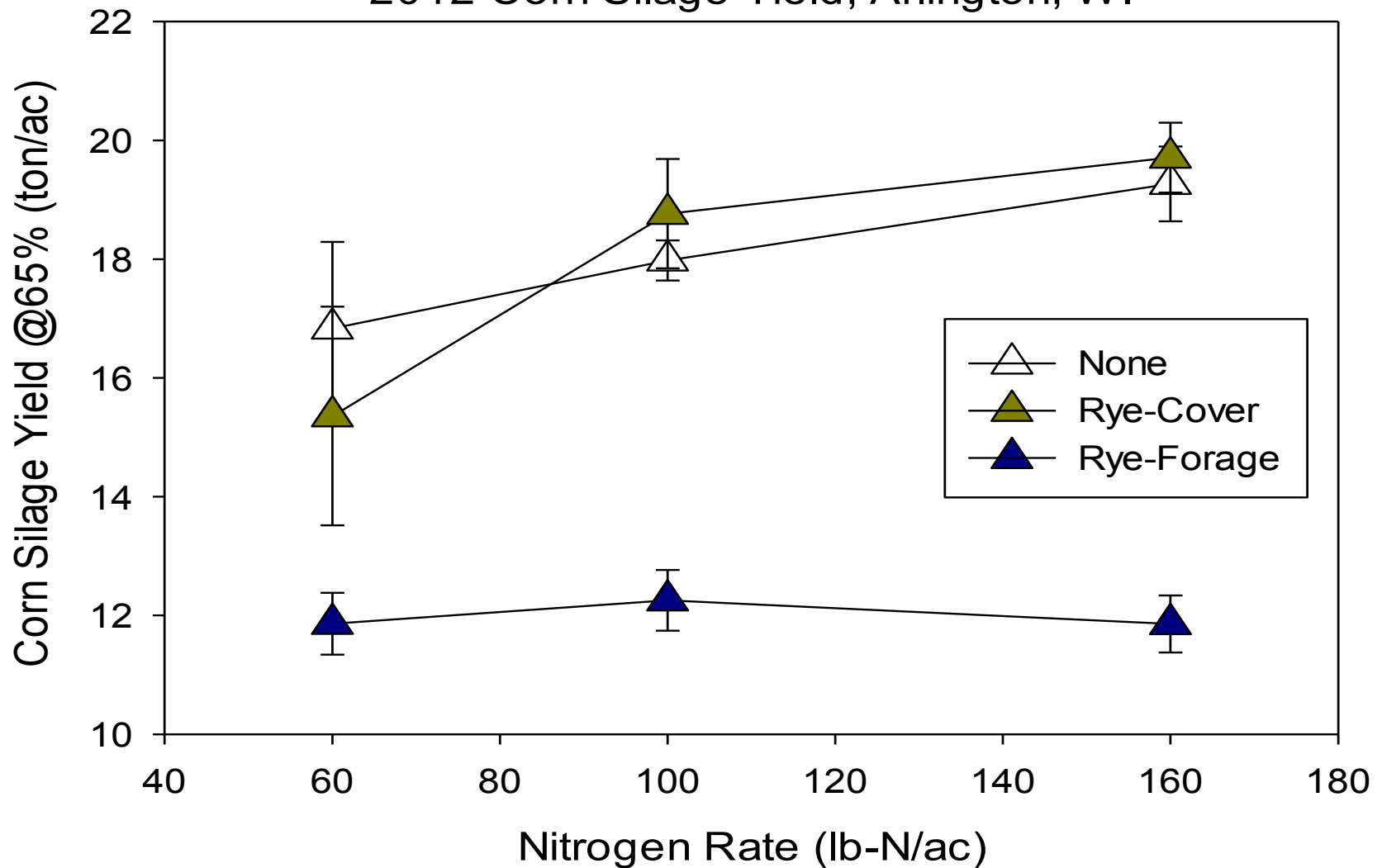


Figure 3. Soil loosened by oilseed radish washed out in former radish rows

RYE (AND OTHER GRASSES)

RYE AND CORN SILAGE

2012 Corn Silage Yield, Arlington, WI



COVER CROP TO FORAGE CROP

- If rye becomes a forage crop (and thus, no longer a cover crop), make sure you have followed all of the herbicide rules.

Planting Winter Rye after Corn Silage: Managing for Forage

Jim Stute, University of Wisconsin (UW) Extension, Rock County
Kevin Shelley, UW Nutrient and Pest Management Program
Dwight Mueller, UW Arlington Agricultural Research Station
Tim Wood, UW Lancaster Agricultural Research Station

Why Plant Rye?

Winter rye (*Secale cereale*) can be used as a cover crop after corn silage to protect against soil erosion, and in parts of Wisconsin is recommended by conservation planners. Properly managed, it has multiple uses and benefits beyond conservation, including forage production, nutrient management and weed suppression. It can also provide a



Rye field cut and windrowed on a Rock county farm.

HOW TO GET AT MORE ACRES?

- How can we get cover crops in our corn and soybean acres?
- Aerial (or any over-the-top) seeding into the standing crop.

TECHNICAL

U.S. Department of Agriculture
Natural Resources Conservation Service

NOTES

Iowa State Office
Des Moines, Iowa

Agronomy # 36

Aerial Seeding of Cover Crops

COVER CROP FIELD TOUR
OCTOBER 29, 2013

**DAMON REABE – AERIAL
APPLICATOR**

TERRY KELLEY - NRCS

BRIAN BRISKI - NRCS

SPRING BARLEY-TURNIP MIX INTO SOYBEAN









Annual ryegrass seeded into soybean









Spring barley into corn grain







Barley-radish mix into corn silage (planted prior to harvest)



SUMMARY

- Red clover frost-seeded into winter wheat provides the most reliable N credit
 - Berseem and crimson clover trials are underway
- Not enough data to confirm an N credit for radish
 - On-farm research continues
- Rye after corn silage works great – but must kill early to avoid yield reductions
 - Can it make fall manure less environmentally risky?
- Aerially applying cover crops
 - Works well in soybean, but do not expect uniform field establishment
 - If planting into corn, would suggest rye to get additional biomass

THANK YOU

**THOUGHTS?
QUESTIONS?
CONCERNS?**

COVER CROP CHALLENGES

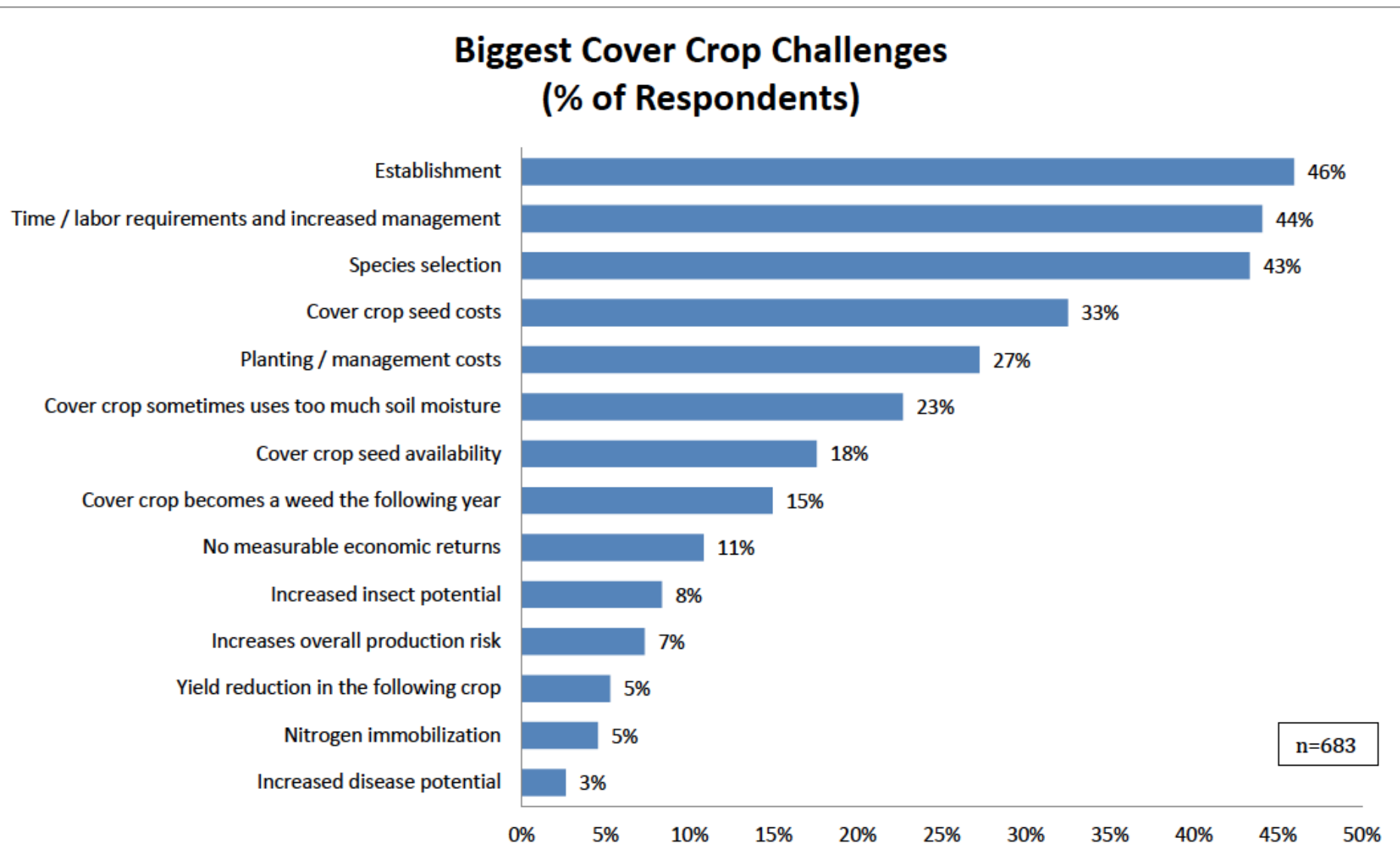


Figure 15. Challenges faced using cover crops by survey respondents (percentage of respondents).

THE FUTURE

- What grows, which species should I use?
- How to fit it conveniently in rotation
- Minimize cost
- Yahara Pride