

Background

There is growing interest in the use of cover crops in Montana and surrounding states, yet little is known about why producers grow, or don't grow, cover crops. In addition, there is scant information from the region on where growers obtain cover crop recommendations, what specific cover crop management practices they use, or what research ideas they have.

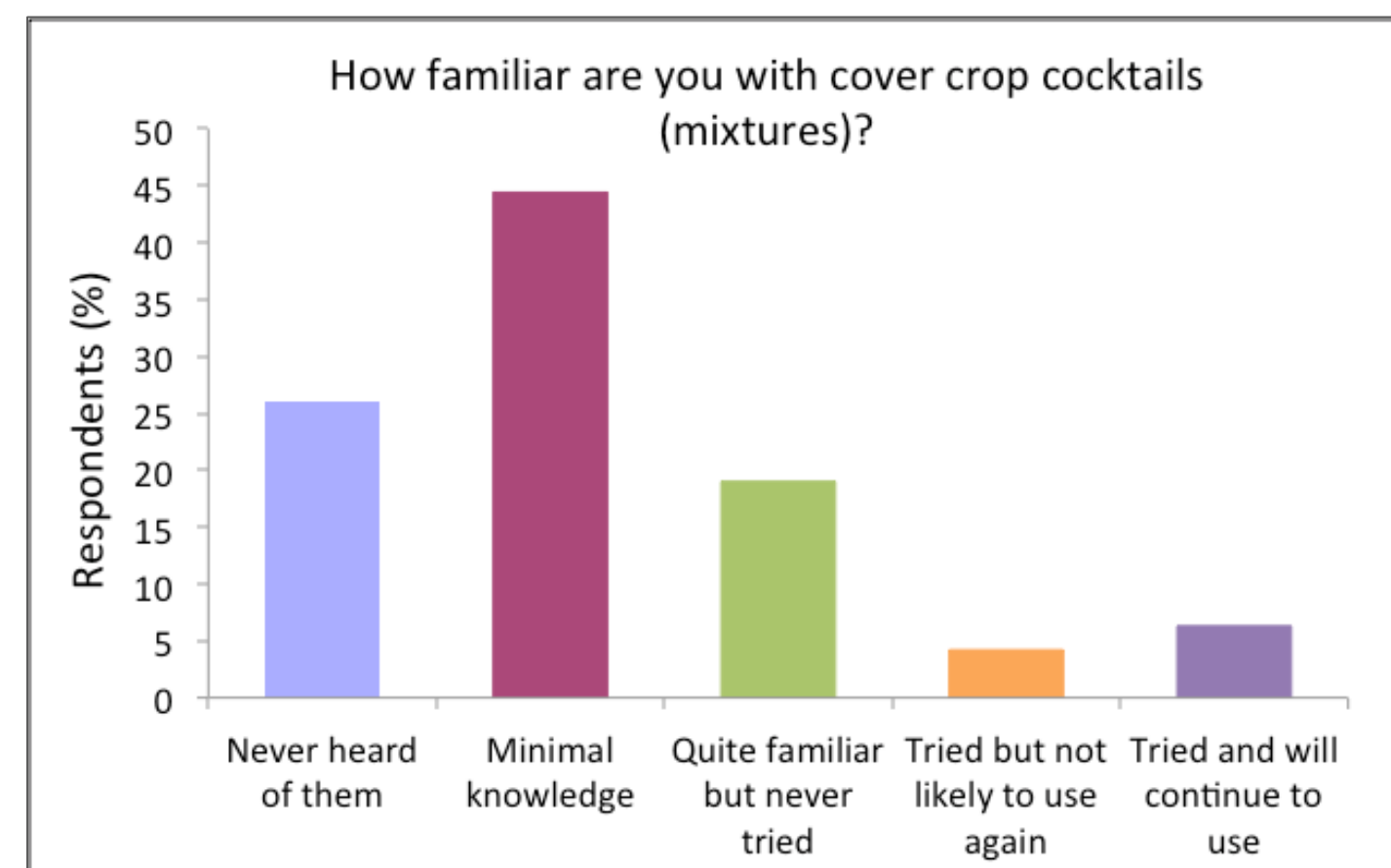
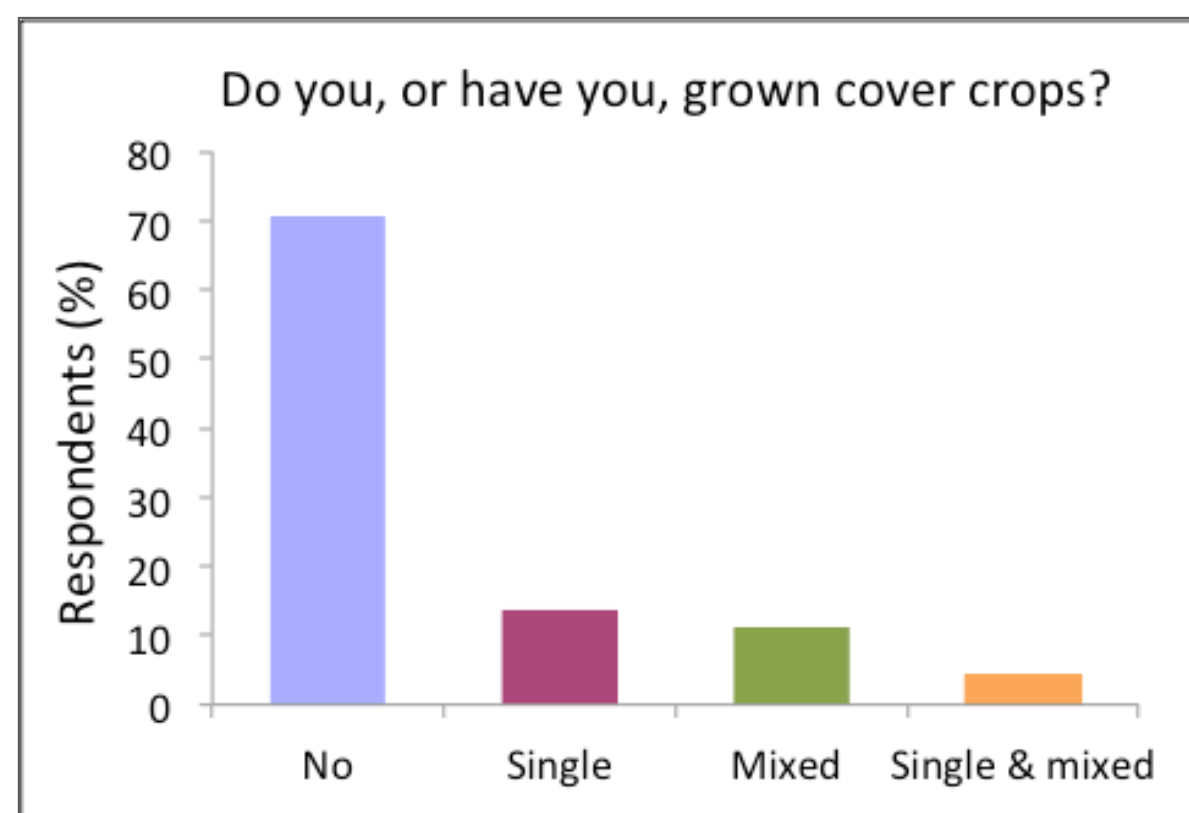
As part of a larger USDA-WSARE grant on soil quality and agronomic responses to cover crop mixtures ("cocktails"), Montana State University researchers developed a survey for Montana producers. The full survey and report of the survey results is at: <http://landresources.montana.edu/soilfertility/covercrops.html>.

Methods

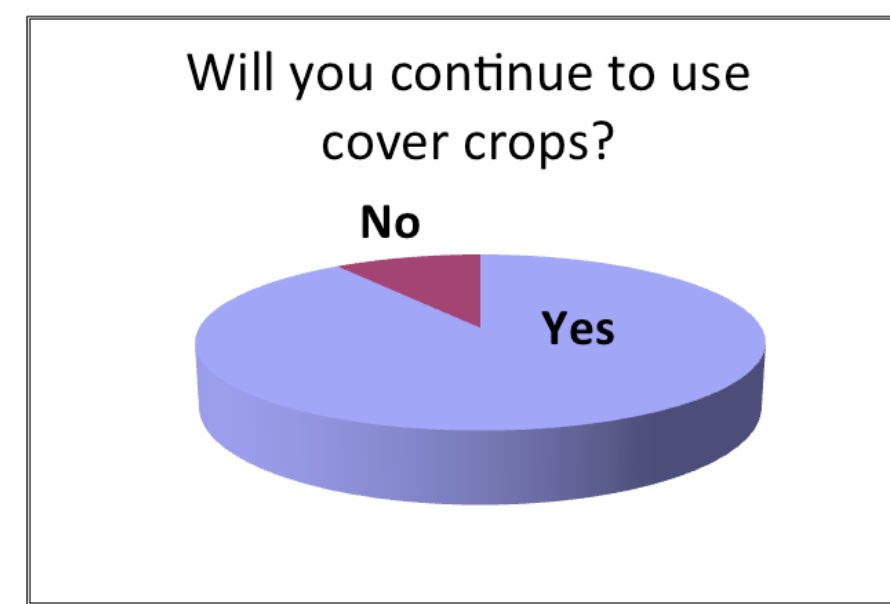
- Producer names and addresses were obtained from the Farm Service Agency, through a Freedom of Information Act request.
 - 501 of 25,000 names and addresses (2%) were randomly selected to receive the survey, of which 72 were either returned due to an incorrect address or because the producer no longer farms.
 - Of the remaining surveys, 168 were filled out and returned, for a response rate of approximately 40%.
 - Multiple choice and short answer questions were asked regarding producers knowledge of cover crops, management strategies, economics, and incentives and barriers for growing cover crops.
- Based on the number of responses and the population size, the actual population response would be within $\pm 7.5\%$ of the response we report.

Results and Discussion

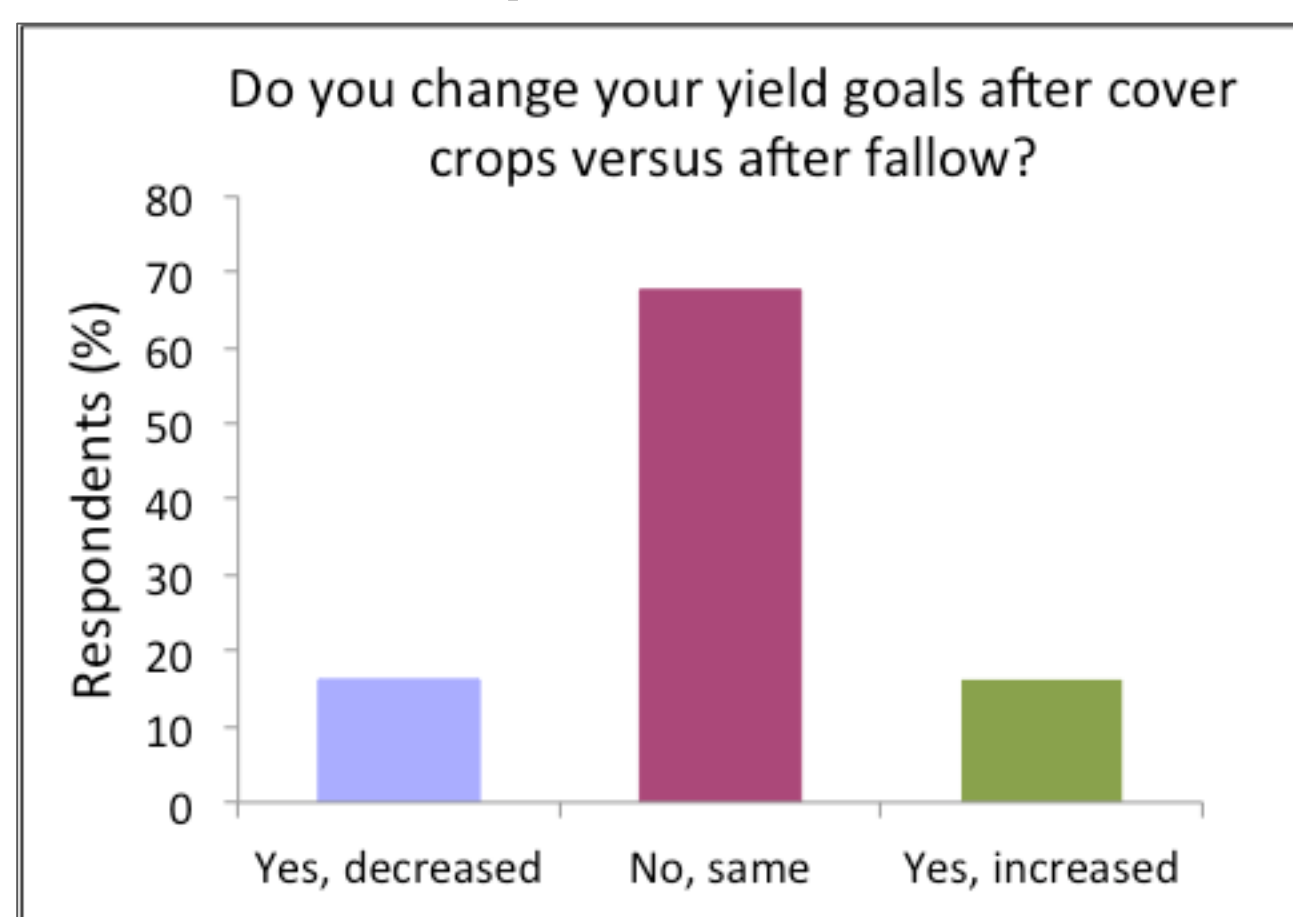
Familiarity with Cover Crops



- Most respondents had not grown cover crops (Fig. 1).
- Minimal or no knowledge of cover crop cocktails (Fig. 2).
- Most cover crop growers would continue using cover crops (Fig. 3).



Cover Crop Effects on Cash Crop



- Most made no change in yield goals after cover crops compared to after fallow (Fig. 4).
- 70% did not alter nitrogen fertilizer rate to account for N release from cover crop residue (data not shown).

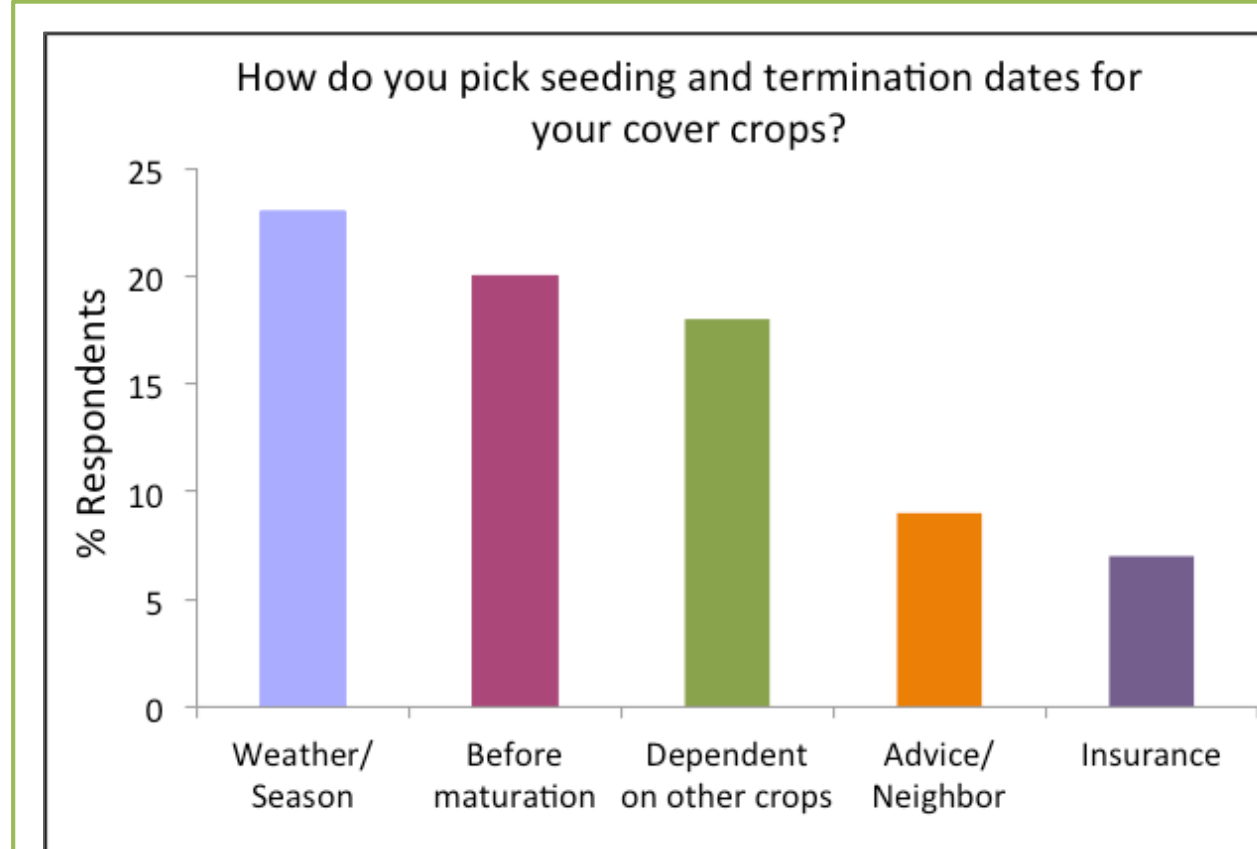


Figure 5. N=44

- Majority of respondents use 3 or fewer species in a cover crop (data not shown).
- Cover crops generally terminated 2-3 months after seeding (data not shown).

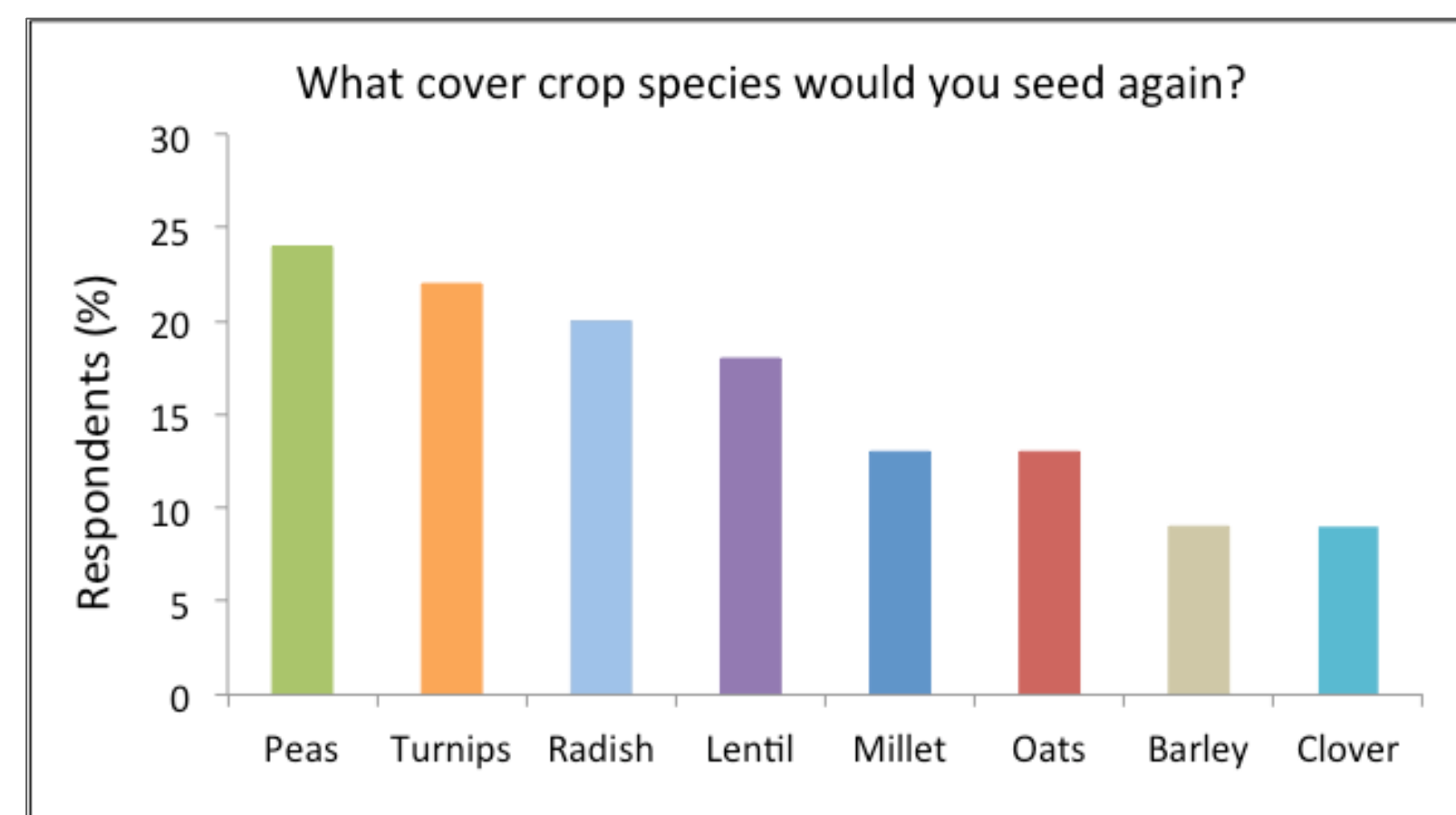


Figure 6. N=45

Economics

- Majority of cover crop growers are willing to wait up to 3 years before seeing any economic return (Fig. 7).
- 42% of respondents were aware that NRCS provided financial incentives for cover crops but most (72%) have not received NRCS incentive payments for cover crops (data not shown).

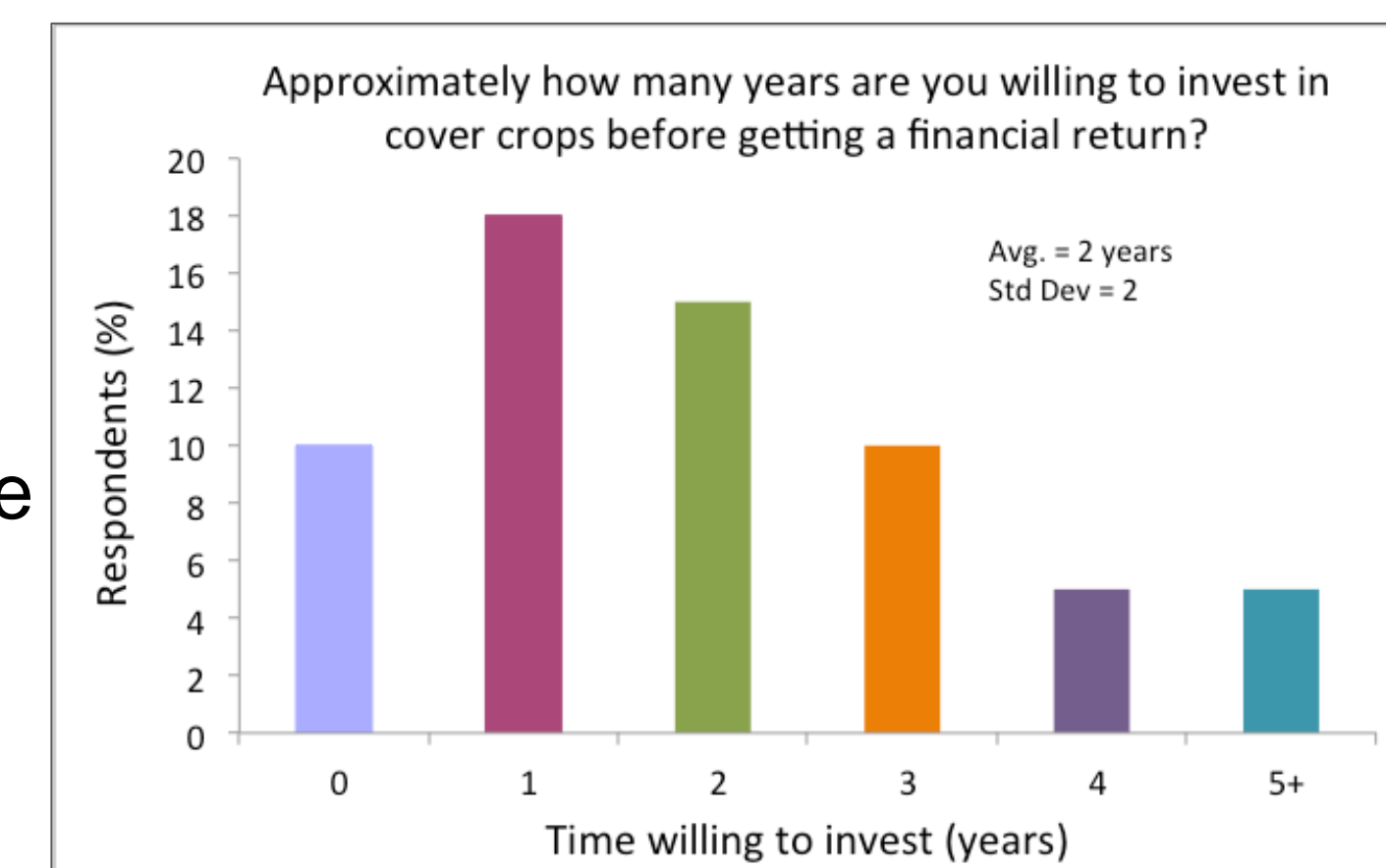


Figure 7. N=34

Cover Crop Management

- Cover crop management dependent on producer needs and environmental variables on a site-by-site basis (Fig. 5).
- Pea, turnip, radish, and lentil listed most often as crops that farmers would grow again (Fig. 6).

Adoption Incentives and Barriers

- Range of acceptable cost may reflect that some were receiving NRCS EQIP payments for growing mixed cover crops and others were not (Fig. 8).

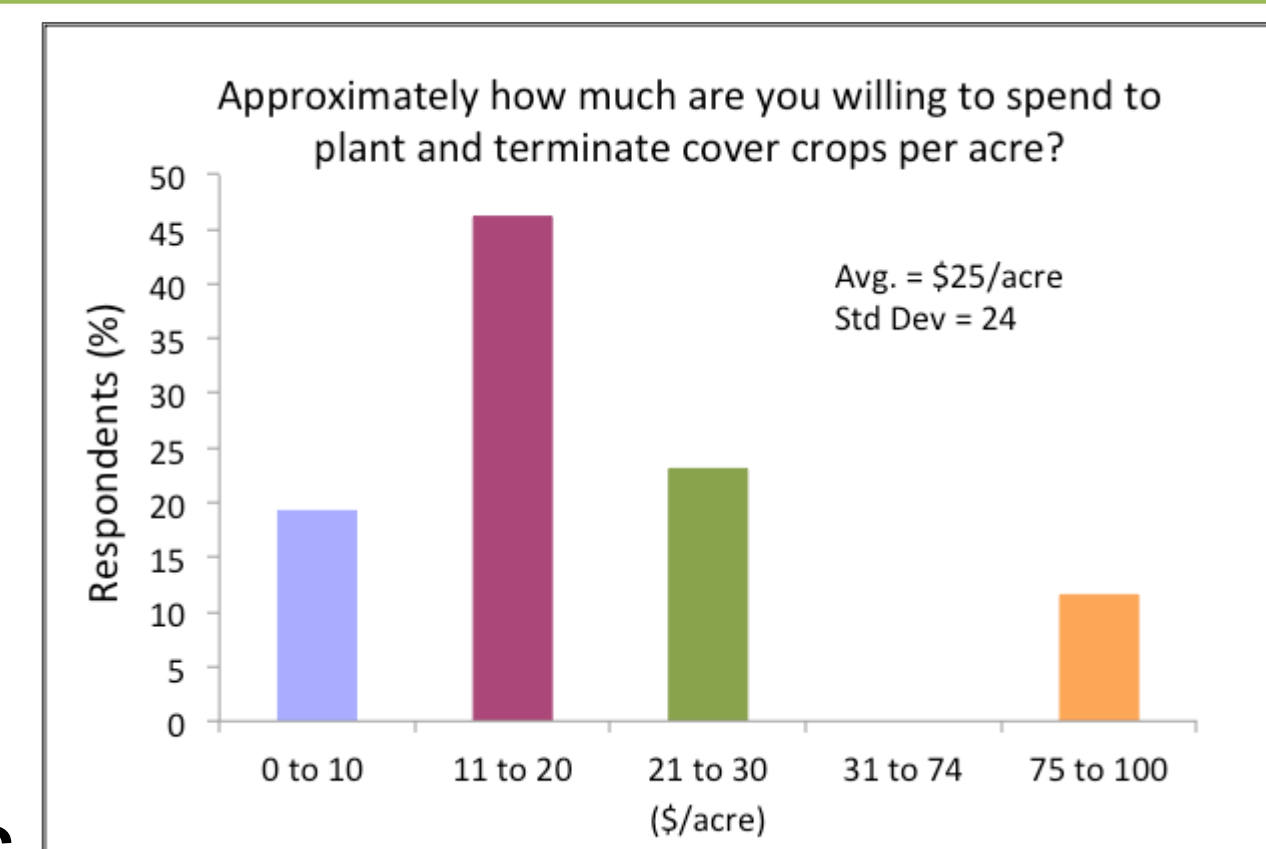


Figure 8. N=34

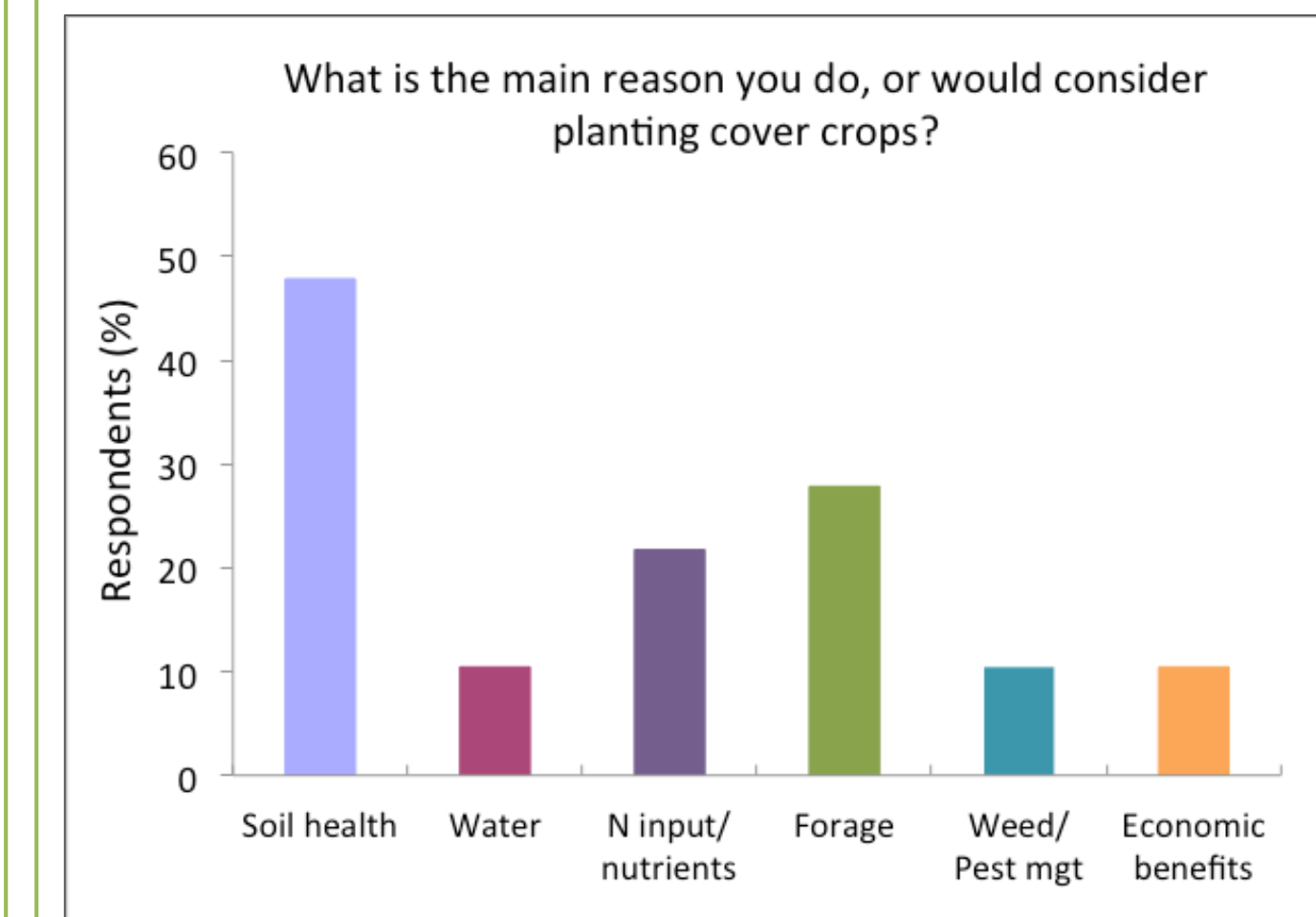


Figure 9. N=130

- Soil health listed as top reason for planting cover crops. Reasons listed by 7% or fewer of the respondents include crop rotation, program incentives, reduce fallow, none, don't know, and sustainability (Fig. 9).

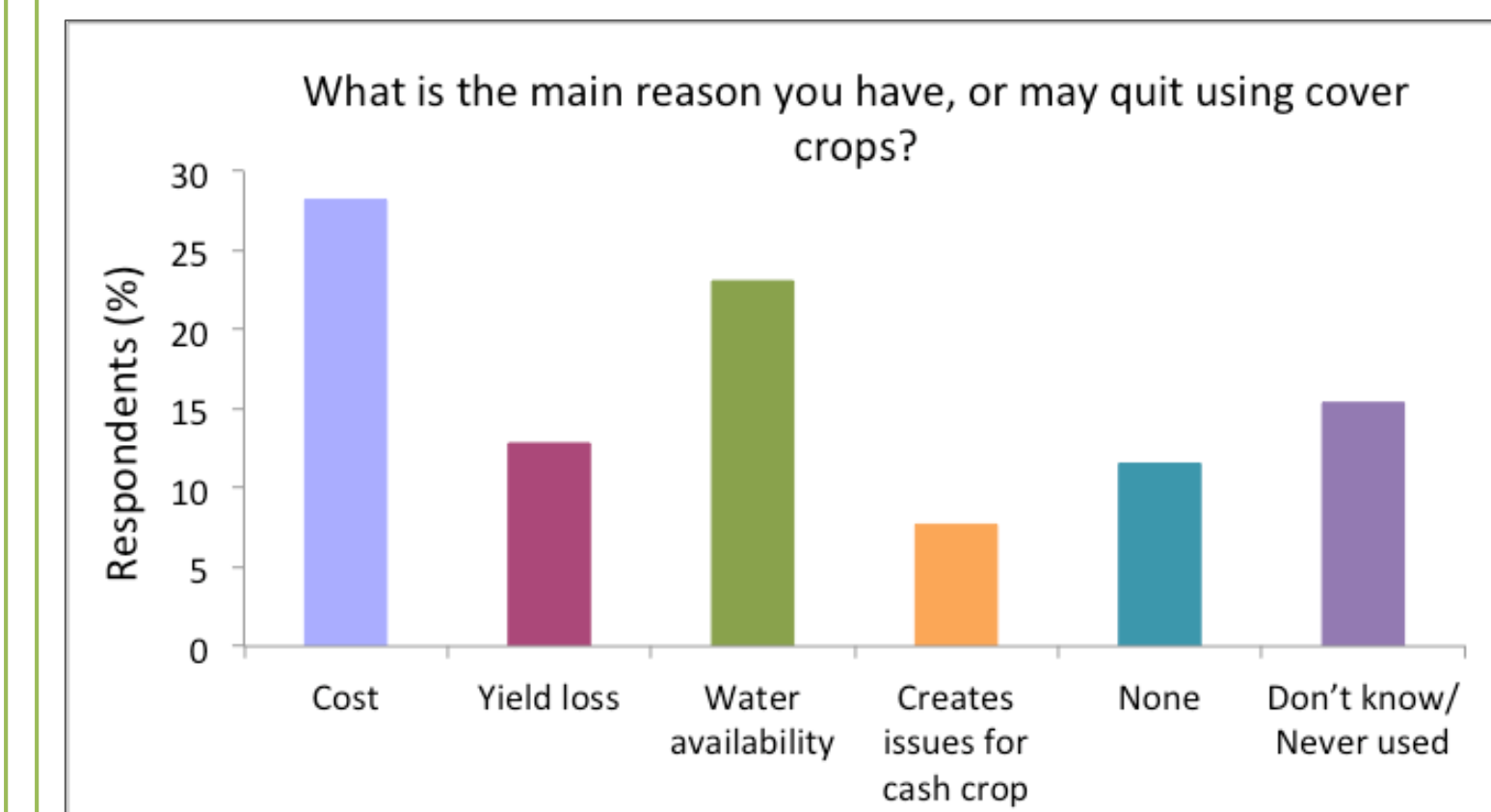


Figure 10. N=98

- Water and cost listed as top reasons for quitting cover crops. Reasons listed by 5% or fewer of the respondents include lack of knowledge, equipment, time, difficulty with cover crop, crop insurance, soil disturbance (Fig. 10).

Future Direction and Questions

The top five topics for future questions vary (Fig. 11). Question topics listed by 5% or less of the respondents include program incentives, infrastructure, pest management, and basic knowledge. Some example questions include:

- What is the best crop to plant after cover crop?
- Are some cover crops counterproductive to certain crops?
- Can there be an expected increase in organic matter and at what rate?
- Can cover crops replace chem-fallow in a 12" annual rainfall area?
- What are the highest yielding, late season options- i.e., to follow an annual crop as a double crop?
- Is there any special machinery required?
- Is there cover crop insurance?

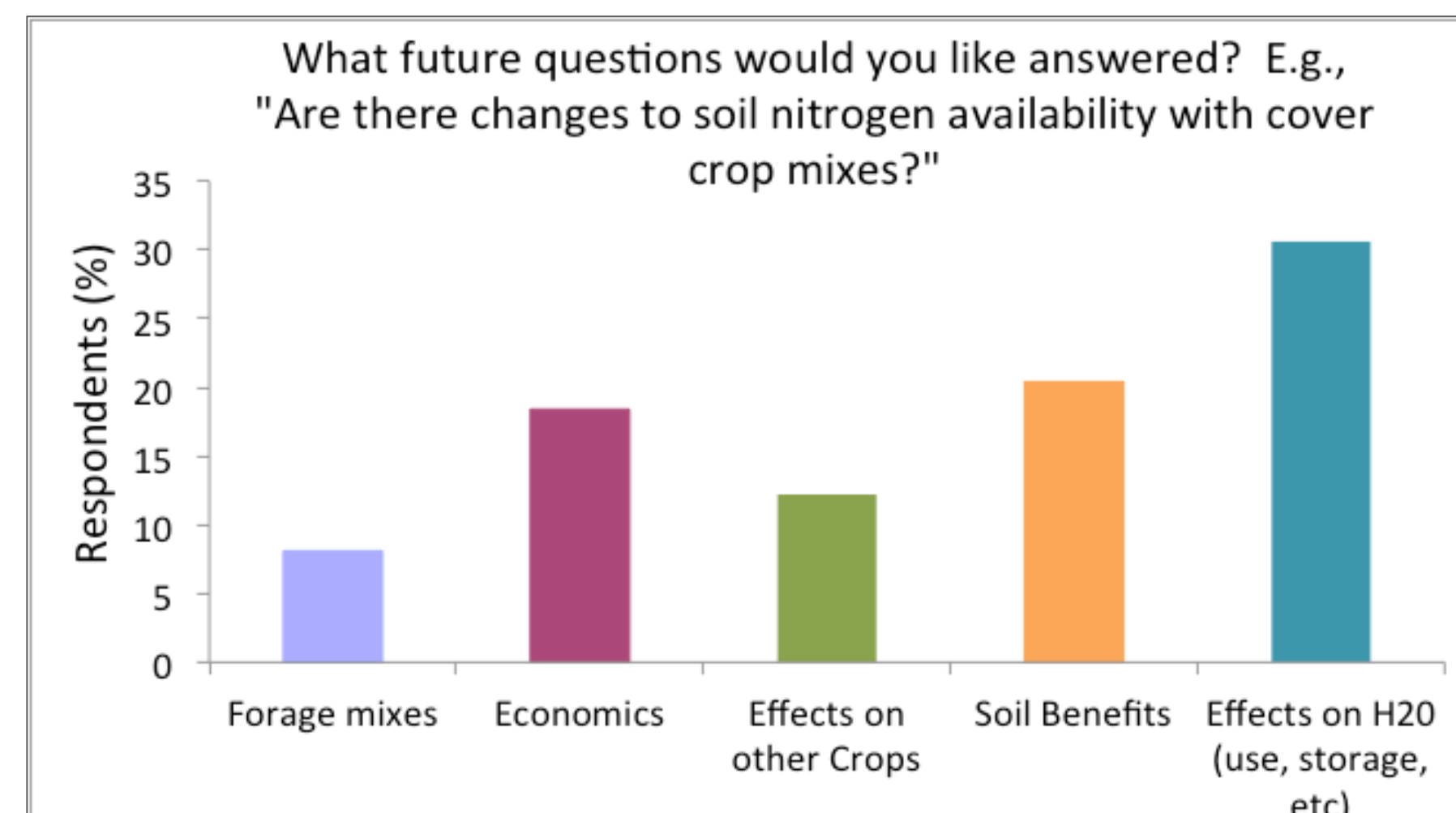


Figure 11. N=49

Summary

The survey found that Montana cover crop growers are doing so despite little economic return and seem to be optimistic about the value of cover crops. Soil health was listed as the biggest reason to adopt cover crops, whereas water use, effect on next crop, and economics, were listed as the biggest reasons to not grow cover crops. The majority of Montana cover crop growers were relatively unfamiliar with cover crop cocktails. There is a demonstrated desire for more information. Hopefully these survey results, combined with research and policy, can help all involved parties make more informed decisions leading to greater access to information, enhanced outreach, and increased cover crop success.

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