

The Third Annual Palouse Alternative Cropping Symposium Report

February 27, 2019

Promoting healthy soils and profitable farming

Learning from Palouse Farmers about cover cropping, intercropping and
integrating livestock

Presented by:



TABLE OF CONTENTS

1.0 INTRODUCTION	2
2.0 DATA AND ANALYSIS FOR THIS REPORT:	3
3.0 SUMMARY OF KEY FINDINGS:.....	3
4.0 RESULTS: REGISTRATION SURVEY	4
4.1 SYMPOSIUM ATTENDEES	4
4.2 PRODUCER COVER CROP USE	4
4.3 CROP ROTATION ZONE	5
4.4. SOURCES OF INFORMATION.....	5
4.4.1 <i>Sources of information by respondent category</i>	6
4.4.2 <i>Sources of Information use by producers</i>	6
5. CHALLENGES ASSOCIATED WITH COVER CROP ADOPTION	7
5.1 <i>Agency (Local/Federal) perceived challenges</i>	8
5.2 <i>Academic and Researcher perceived Challenges</i>	8
5.3 <i>Producer and Industry Perspectives</i>	9
6.0 RESULTS: FOCUS GROUP DISCUSSIONS.....	10
6.1 STAKEHOLDER GENERATED PATHWAYS FOR COVER CROP ADOPTION	10
6.1.1 <i>Collective understanding of the practice and benefits of cover crops</i>	11
6.1.2 <i>Pathways to cover crop integration</i>	12
7. RECOMMENDATIONS	13
ACKNOWLEDGEMENTS.....	13
APPENDIX A: COMPLETE RESPONSE LIST	14
APPENDIX B: ADDITIONAL DATA:	16

1.0 INTRODUCTION

On February 27, 2019 the Palouse Conservation District and the Washington State Soil Health Committee hosted their third annual Palouse Alternative Cropping Symposium. This symposium was part of a series of farmer-to-farmer presentations and focus groups with a strong focus on networking. Producers from throughout the Palouse region shared practical experiences with other producers based on experience from on-farm trials.

The program featured:

- Short presentations from area growers
- Q&A with the speakers
- Focus groups evaluated the potential pathways for cover crop adoption
- Extended networking breaks for informal dialogue and catching up with your community
- Resource tabling event staffed by knowledgeable professionals with tools to aid in making decisions

Presentations focused primarily on the following issues:

- Cover crops for weed control
- Cover crops and economics
- Soil testing to monitor improvements
- Monitoring soil water relationships under cover crops
- Cover crops as a livestock forage base
- Adding livestock grazing: investing in infrastructure for livestock

Presenters included :

- Frank Wolf: Cover Cropping with No-till
- Drew Lyons: Alternative and Cover Crops for Weed Management, herbicide resistance in the Pacific Northwest
- Chloe Wardropper and Avery Lavoie: Focus groups on the adoption of cover crops
- Eric Odberg: Growing millet and its profitability
- Jeremy Branch and Issac: Annual Ryegrass control with oats and other rotations

2.0 DATA AND ANALYSIS FOR THIS REPORT:

In this report, we include information gathered from two venues: a registration survey and focus groups. Results in sections 1-X are from the registration survey; Results in sections X-X are from the focus groups.

The registration survey included the following questions:

1. Which category best describes you?
2. Which rotation best describes your rotation?
3. Where do you get most of you information?
4. Are you currently using cover crops?
5. What do you foresee being the biggest challenges?

The focus groups asked the following questions:

1. What comes to mind when you hear the term “alternative crop” versus “cover crop”?
2. What do you consider a primary reason for using cover crops?
3. If you were to consider using (or promoting, for non-producers) a cover crop, what would it take to integrate them into current management practices?

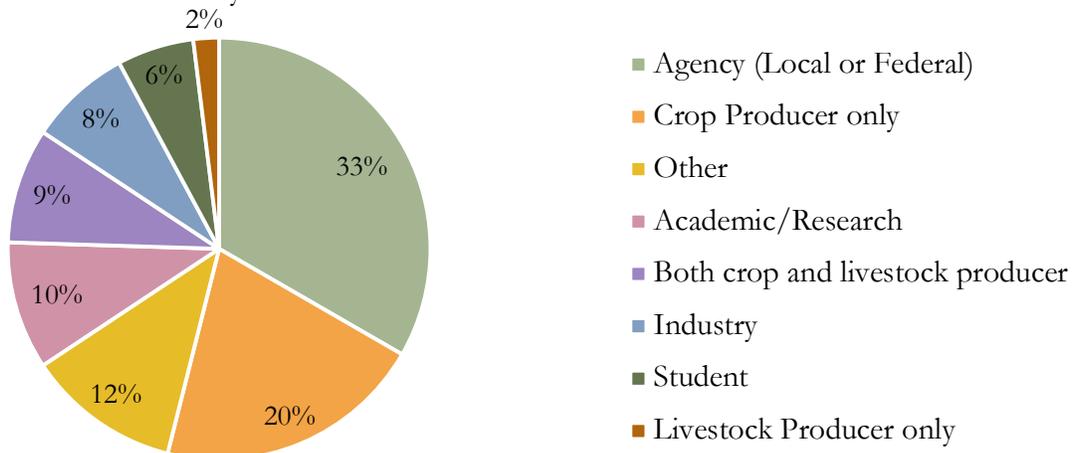
3.0 SUMMARY OF KEY FINDINGS:

- Attendees consisted mainly of agency staff and crop producers.
- 60% of crop and livestock producers in attendance are currently using cover crops and 47% of producers farm in the annual-crop zone.
- Non-producers rely most heavily on conservation districts as their primary sources of information, whereas the majority of producers rely on other producers as their primary source of information.
- Challenges to cover crop adoption included a range of social, economic and agronomic factors. Perspectives for agency and researchers, academics and producers varied across the three categories.
- Stakeholders generated potential pathways to improve the adoptability of cover crops:
 - Increase long-term, region-specific information and research on the agronomic and economic factors affecting feasibility of cover crop integration
 - Increase collaboration and information exchange between researchers, producers, agronomists and agricultural landowners
 - Explore options for livestock integration.

4.0 RESULTS: REGISTRATION SURVEY

4.1 SYMPOSIUM ATTENDEES

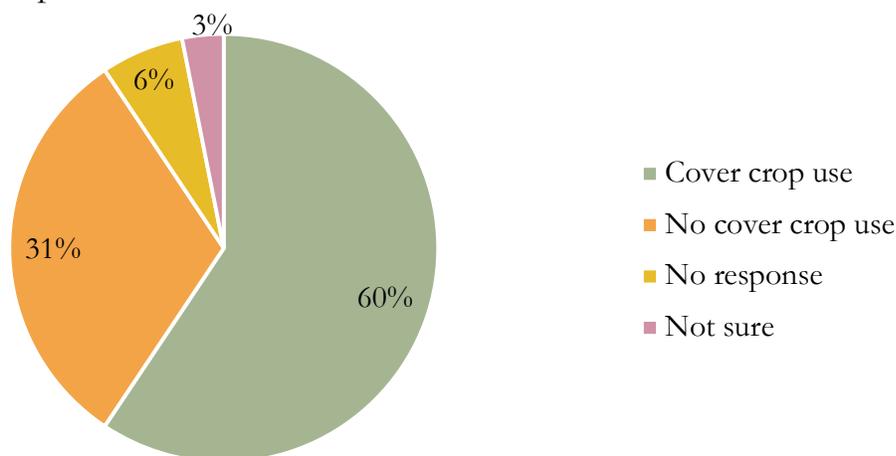
Symposium Attendee Breakdown by Profession



The Alternative Cropping Symposium hosted stakeholders from diverse backgrounds (n=105). 33% consisted of agency staff at the local or federal level. 20% of respondents were crop producers solely, 12% may have included private landowners or non-governmental organizations. This question should be clarified for future symposium registrations.

4.2 PRODUCER COVER CROP USE

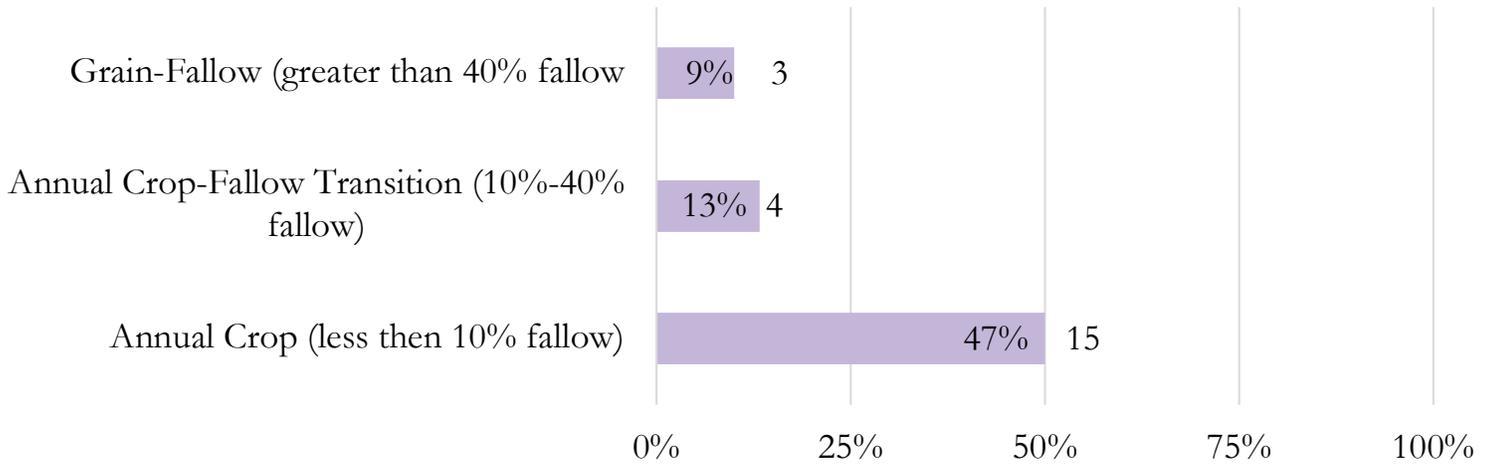
Producer Cover Crop Use



Producers were asked if they are currently using cover crops in their current rotation. 60% of producers (n=32) in attendance indicated that they are currently using cover crops. The two livestock producers present indicated that they were not currently using cover crops within their grazing system. Given the low sample size and a lack of specificity in the question, these results may not exactly represent current cover crop use by respondents.

4.3 CROP ROTATION ZONE

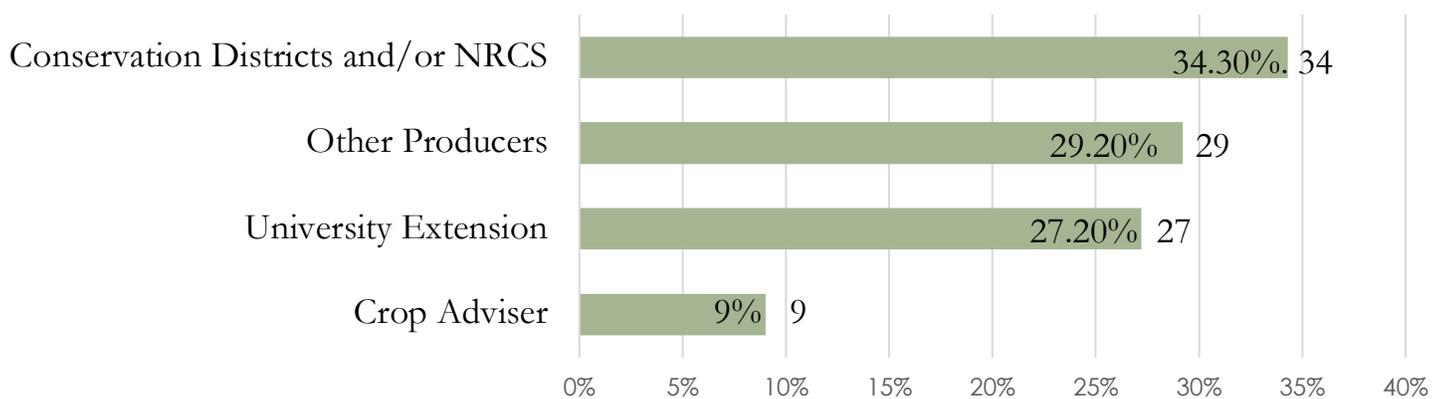
Producer Agroecological Zones



Symposium producers (n=32) were asked “for the crop and livestock producers in the room, which cropping pattern best describes your operation?”. 47% indicated that they follow an annual cropping pattern. This may be due to the location of the symposium and regional climate regimes. 25% (n=8) of respondents indicated that this question was not applicable to them. 6.25% (n=2) did not respond.

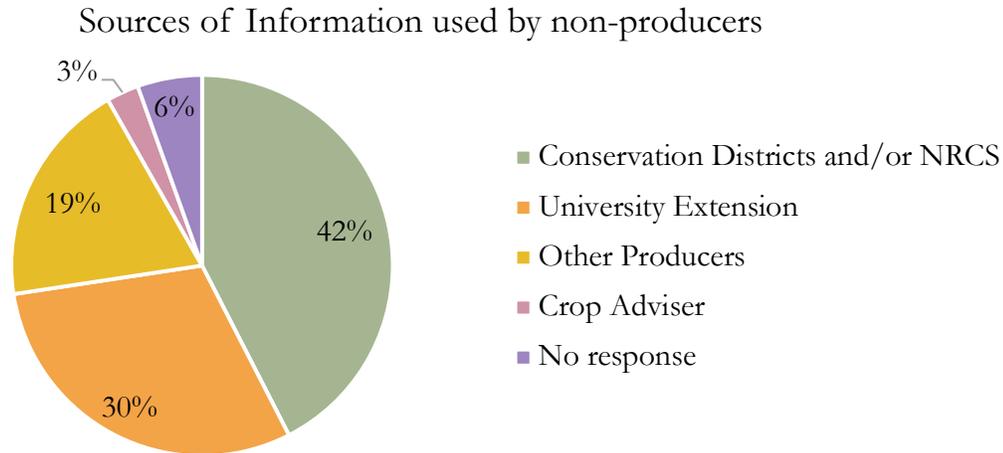
4.4. SOURCES OF INFORMATION

Sources of Information



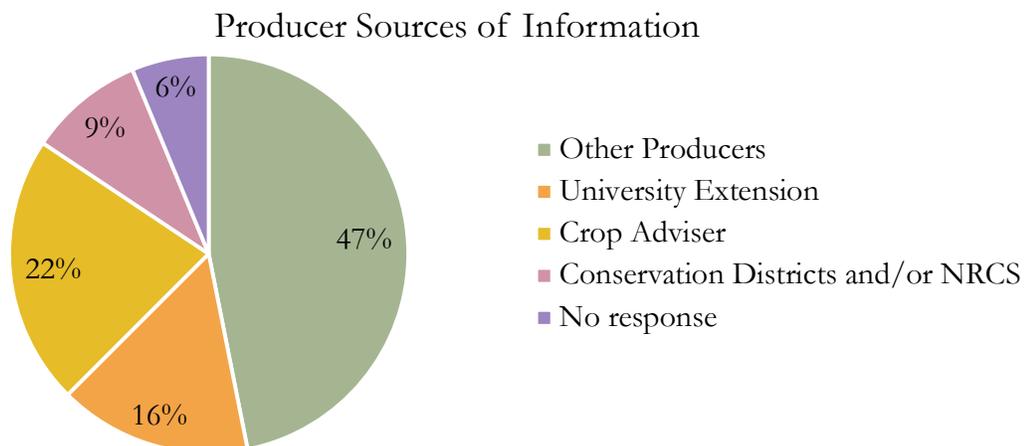
All attendees were asked “where do you get most of your information on crop management strategies?” (n=109), 10 chose not to respond. Conservation districts and NRCS were most utilized as sources of information, followed by other producers and University extension. Crop advisers were less utilized as sources of information.

4.4.1 SOURCES OF INFORMATION BY RESPONDENT CATEGORY



Agency staff, industry, academic, student and University extension staff (n=69) were asked where they get most of their information. 42% (n=31) rely on conservation districts or the NRCS for information. 30% (n=22) rely on University extension for information and 19% (n=14) rely on other producers as sources of information. Just 3% (n=2) of non-producers rely on crop advisers for information on crop management strategies. 6% (n=4) did not respond to this question. It is unclear if respondents rely on multiple sources of information. The question did not specify the primary purpose, or the types of information being utilized.

4.4.2 SOURCES OF INFORMATION USE BY PRODUCERS



Crop and livestock producers (n=32) rely most heavily on other producers as a source of information. 47% (n=15) of respondents rely on other producers for information on crop management strategies. 16% (n=5) rely on University extension for sources of information. and 22% (n=7) rely on crop advisers. 9% (n=3) rely on conservation districts. There were two respondents who chose not to provide this information.

5. CHALLENGES ASSOCIATED WITH COVER CROP ADOPTION

The U.S. Department of Agriculture (USDA), has promoted increased crop diversity, most significantly by promoting the adoption of cover crops, yet the adoption of cover crops is not widespread in the inland Pacific Northwest (iPNW), specifically the Palouse region. We facilitated eight focus groups with 61 agricultural stakeholders (crop and livestock producers, University researchers, private industry employees and conservation staff) in order to a) reach a collective understanding of the practice and benefits of cover crops in the region, and b) envision potential pathways to cover crop integration.

The registration survey asked attendees what they foresaw as the biggest challenge to adopting cover crops or alternative cropping rotations. We summarize the primary concerns here, and then list top examples for each type of attendee in the following sub-sections.

- Participants frequently cited economic, agronomic and social factors as challenges to adoption.
- Respondents across all categories mentioned some type of economic factor like profitability or access to markets as one of the major challenges to implementing cover crops or alternative crop rotations.
- Academic researchers and producers were more specific about agronomic factors like weed and pest suppression, moisture availability and correct variety for a given climate.
- More producers than any other category mentioned social factors like a lack of knowledge, resources and fear of change as challenges.

Responses have been abbreviated for the purpose of this report and may be vague given the lack of specificity of the question at the time of registration. For the complete list of responses, see Appendix A.



Photo 2: Cover crop and cattle, Avery Lavoie 2018

5.1 AGENCY (LOCAL/FEDERAL) PERCEIVED CHALLENGES

Agency perspectives (n=24) ranged across social, economic and agronomic factors that may challenge producers.

Social	Economic	Agronomic
<ul style="list-style-type: none">• Lack of research in region• Lack of viable data for insurance requirements• Resources• Land ownership	<ul style="list-style-type: none">• Profitability• Funding	<ul style="list-style-type: none">• Rotation: which crops to use for best results and that are best suited for iPNW climate• Moisture availability• Planting and terminating time• Weed management

5.2 ACADEMIC AND RESEARCHER PERCEIVED CHALLENGES

Respondents (n=8) in this category primarily focused on agronomic challenges to cover crop adoption. These responses are not representative of all participants.

Social	Economic	Agronomic
-no response	<ul style="list-style-type: none">• Finding markets for alternative crops	<ul style="list-style-type: none">• Rotational compatibility• Herbicide compatibility• Residue management• Impact on low rainfall systems• Weed and pest management• Getting cover crops established• Incorporating livestock

5.3 PRODUCER AND INDUSTRY PERSPECTIVES

Producer and industry perspectives (n=37) highlight a broad range of challenges. Agronomic challenges were more specific to field level challenges. Social challenges, as addressed below were more apparent in this category. These responses do not consider whether farmers have already tried cover crops or alternative crop rotations and are not generalizable to all participants.

Social	Economic	Agronomic
<ul style="list-style-type: none">• Working with my dad/profitability• Fear of change• Insurance• Lack of Resources• Lack of knowledge	<ul style="list-style-type: none">• Price and revenue• Seed Cost• Cost of failure during trials• Market access• Maintaining revenue while improving soil health• Economic feasibility	<ul style="list-style-type: none">• Correct blends and cover crop varieties• Incorporating cover crops with current equipment• Replacing fallow• Limited moisture availability• Properly timed and managed grazing• Access to seeds and equipment• Post-harvest infrastructure• No-till termination• Getting enough growth between annual crops• Weed and pest suppression

6.0 RESULTS: FOCUS GROUP DISCUSSIONS

6.1 STAKEHOLDER GENERATED PATHWAYS FOR COVER CROP ADOPTION

To better understand the potential pathways to improve the adoptability of cover crops, University of Idaho researchers, in partnership with the Palouse Conservation District, conducted eight focus groups. The eight focus groups (n=61) consisted of a diverse set of stakeholders including local and federal conservation staff, University researchers, industry agronomists, crop advisors and crop and livestock producers. Each focus group lasted approximately 1 hour. There were four groups that consisted mostly of crop and livestock producers and industry professionals. The four other groups consisted mainly of academic researchers and agency staff. We attempted to homogenize focus groups according to participant profession but this was not consistent across groups. During focus group we asked the following questions:

- (1) What comes to mind when you hear the term “alternative crop” versus “cover crop”?
- (2) What do you consider a primary reason for using cover crops?
- (3) If you were to consider using (or promoting, for non-producers) a cover crop, what would it take to integrate them into current management practices?

6.1.1 COLLECTIVE UNDERSTANDING OF THE PRACTICE AND BENEFITS OF COVER CROPS

Participants described their views of the differences between “alternative crop” versus “cover crop”, two terms which are often used interchangeably. Creating a shared understanding during focus groups allowed researchers to better understand how the differences between terms might cause confusion for policy makers. Clarifying terms and reducing confusion may help to improve adoptability of cover crops.

	Alternative Crop:	Cover Crop:
Definition	<ul style="list-style-type: none"> • Non-traditional crop • Grown for niche or alternative markets 	<ul style="list-style-type: none"> • Crop grown primarily for non-market benefits • Planted between cash crop rotations
Benefits	<ul style="list-style-type: none"> • Secondary agronomic benefits • Increases biodiversity • Reduces weed and pest pressure 	<ul style="list-style-type: none"> • Improves soil health • Increases biomass • Nutrient cycling • Break up compaction • Reduce erosion • Forage for livestock

6.1.2 PATHWAYS TO COVER CROP INTEGRATION

Stakeholders across all groups identified the need to (1) increase long-term, region-specific information and research on the agronomic and economic factors affecting feasibility of cover crop integration, and (2) increase collaboration and information exchange between researchers, producers, agronomists and agricultural landowners, and (3) explore options for livestock integration.

(1) Long-term, region specific information and research needs

Agronomic	Economic
<ul style="list-style-type: none"> Planting and termination timing within rotation system Locally adapted seed sources Impacts on: pH, microbial activity and yield 	<ul style="list-style-type: none"> Tradeoffs between short- and long-term profitability Cost of seed Impact on cash crop

(2) Increase collaboration and information exchange: Information creation and exchange is needed. Stakeholder group roles were discussed, as follows:

Researchers	Producers	Crop Advisers	Landlords
<ul style="list-style-type: none"> Produce site specific and producer informed research Improve communication with producers 	<ul style="list-style-type: none"> Develop peer-peer networks Collect local innovator knowledge 	<ul style="list-style-type: none"> Increased interaction with producers 	<ul style="list-style-type: none"> Promote education and information sharing

(3) Livestock integration: Increased research, information and collaboration is needed to address the following:

Agronomic	Economic	Social
<ul style="list-style-type: none"> Infrastructure: <ul style="list-style-type: none"> Fencing Water availability Species type and grazing times Fit within current crop rotation 	<ul style="list-style-type: none"> Analyze profitability in annual cropping system Impact on cash crop and yield Cost of infrastructure 	<ul style="list-style-type: none"> Facilitate connection with crop and livestock producers

7. RECOMMENDATIONS

Stakeholders identified possibilities for future research and potential pathways for cover crop integration. We recommend:

- Clarifying differences in terminology (e.g. alternative vs. cover crop) to better provide actionable recommendations for producers and policy makers, especially in regard to regional crop insurance policies.
- Increasing site-specific research on the agronomic function and economic feasibility of cover crops, especially regarding livestock integration.
- Increasing interaction and information exchange between crop advisors, researchers, and producers.
- Increasing information exchange and education with landowners about cover crops, soil health concepts and the potential for livestock integration.
- Consider options for innovating how information on cover crops in the region is communicated to growers, land owners, and other stakeholders – all of whom have different goals and backgrounds.

ACKNOWLEDGEMENTS

We sincerely thank the Palouse Conservation District and the Washington State Soil Health Committee for organizing this symposium. Gratitude for the staff members who assisted with focus group facilitation, notetaking and recording. We also thank the University of Idaho graduate students and staff who facilitated discussions. A special thanks to the crop and livestock producers, University researchers, private industry employees and conservation staff who agreed to participate in focus group discussions.

For more information contact:

Avery Lavoie (alavoie@uidaho.edu)

Dr. Chloe Wardropper (cwardropper@uidaho.edu).

APPENDIX A: COMPLETE RESPONSE LIST

Academic/Research	<ul style="list-style-type: none"> - Rotational compatibility: If using long season or late planted crops, the establishment window can be razor thin and preclude field work/seeding prior to winter. Can relay cropping overcome this, without yield penalties due to competition? - Herbicide compatibility: Would weed management programs have to be altered to prevent cover crop or alternative crop injury due to residual activity? - Residue management: Would biomass production be too much, impacting field operations (poor residue incorporation, too much residue, poor seed to soil contact, too wet in spring, “green bridge” for diseases, etc.)
	Finding market for alternative crops.
	As an Extension Agent, I am concerned about the impact on the low rainfall cropping systems. We currently do a high percentage of alternative rotational crops in the Columbia County area.
	Weeds without Chem fallow
	Pest management
	Getting them established (but I'm not a producer...)
	Have to incorporate livestock into farming system if using cover crops
Agency (Local or Federal)	economics
	Which crops to uses and what techniques for rotation and fallow to give the best results
	Moisture
	Lack of research in the region.
	Learning what plant species will do well on my farm and produce the benefits that I am looking for.
	I'm attending with the WA State Dept. of Agriculture
	enough time to grow a cover before termination. Don't want to lose a crop in the rotation to a cover crop
	profitability
	Rotation and Resources
	Finding appropriate varieties of cover crop species that are adapted to the inland PNW climate.
	I'm not a producer, but I have heard its challenging in dryland farming to add cover crops due to water availability
	Funding
	Making it economically viable
	weed management
	In wetter Palouse, finding how to fit in rotation, and still being profitable.
	As an agency person, trying to find a way to keep soil health/cover crops profitable and good advisement.
	Economics
	Money

	Trial incentive programs.
	what species are good for this region?
	Lack of viable data and insurance requirements
	Land ownership.
Both Crop and Livestock Producer	finding the correct amount and blends of cover crop varieties
	Price and cutting into revenue
	Incorporating the cover crop into the soil. Fully incorporating the cover crop into the soil with the equipment that I have.
	Cover crop seed cost
	Our biggest challenge is to replace the fallow portion of our rotation with out loosing all of the risk management that fallow provides in our 11-12" precipitation, deep soil environment.
	time of year rainfalls in our area; plus the amount of rainfall we average. also,the cost of a potential failure outweighs the cost of trying it out to see how/if it works in our area.
	Properly timed and managed grazing
	Transition time to get the soil biology to the level it will provide the necessary plant nutrition for plant growth.
	Access to the seeds and tools necessary to implement best cropping strategies.
Crop Producer	growing them where most all our moisture comes during the winter months.
	Market access
	seed zone moisture
	Maintaining revenue while improving soil health.
	Post harvest Infrastructure
	maintaining income on those Acres!
	Moisture and profitability
	Cover strategies for my climate and conditions
	Work farm: The scale of acreage requiring cover crops during germination of main crops
	Personal garden: Determining appropriate species in the crop rotation
	No-till termination
	Getting enough growth, benefit from in between annual crop cover crops. Finding a sustained alternative crop market.
	Limited moisture
	Quantifying the data to see the improvement.
	Lack of proper seeding equipment
	Weed suppression, finding markets for alternative crops
	moisture in seed zone at seeding time
	seed zone moisture at seeding time
	Looking for options for cover crops in our vineyards to help control weeds, but we also don't want to spread disease or pests.
	On the flower farm: weed management / appropriate species selection for various applications
	On the field crop farm: working with my dad / profitability
	toxic weed control
Industry	Residual moisture levels for following cash crop
	Water requirements?

	The fear of change.
	Residuals
	Insurance
	resources, fencing, enough cattle, and time to move livestock during a busy time.
Other	Cover crop: Quail eating the seed.
	Lack of equipment and knowledge... I would like to try cover cropping for weed control. We have 5 acres of previously intensively farmed wheat field and are losing the battle to thistles and other prickly invasive plants. Would like to be a better steward of this space; cover cropping and livestock rotation? Or prairie planting? Starting at square one! Rototilling under the cover crop well enough to plant again.
	weeds, missed revenue opportunity
	equipment, resources, finances
	Hi Avery.
	Financial
	Getting started
	timing and necessary nutrients
	Economics & Feasibility

**APPENDIX B:
ADDITIONAL DATA:**

