

Developing the Western Cover Crops Council – State Enhancement Grant –

Cover Crop Barriers, Research Ideas, and Outreach Needs Based on Outreach
Events Conducted in 2020-2022



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Information from breakout sessions (PNW and Intermountain Webinar Series)

Goal: The suggested priority areas for each sub-region will guide agricultural professionals in building effective outreach and research programming to increase cover crop adoption.

1. Integrating cover crops with livestock (Joel Packman PNW group)

Barriers of cover crop use in livestock systems

- Small-scale operations: small no-till drills, seeds in small quantity and organic, access to animal processing facilities
- Large-scale: cost of equipment, fencing and water needs for animals

Ideas and research worth pursuing

- Effects of animal termination vs mechanical termination of a cover crop
 - o Which cover crops are best suited for which methods?
 - o Do animals improve soil health? does trampling degrade?
 - o Soil compaction and livestock, how do cover crops fit in?
 - o Different methods animals terminate (Nibbling vs rooting), and what are the effects?
- Retrofitting existing equipment to be used for smaller producers
- Logistics of livestock grazing cover crops
 - o Which cover crop species are best suited to which animal species?
 - o Palatability/toxicity of different cover crops
 - o How to graze cover crop mixtures
 - o Appropriate stocking rates for grazing cover crops
 - o Grazing mature cover crop plantings?
- Best strategies for bringing cattle in from rangeland to graze cover crops

Outreach

- Educational materials in writing, as meetings are time consuming
- Could start with straightforward info on suitability of different cover crops for livestock
- Resources about equipment: photos, videos, websites, etc

2. Cover crops for forage and grazing systems (Intermountain)

Ideas and research worth pursuing

- Species-specific information
 - o How to graze species in a mix
 - o Information on limits of species (eg sudangrass, brassicas)
- Growing and degree days required to establish cover crop before introducing livestock
- When to no-till cover crops into pasture (so can graze when pasture hits summer slump)
- Economics of grazing cover crops

3. Cover crop adoption in vegetables and other annual crops (Nick Andrews PNW group)

Barriers of cover crop use in vegetables

- Getting cover crops established after harvest
 - o Especially after late-harvested crops (Oct-Nov)
 - o As spring rains get later, summer veg pushed later
- Cover crop termination in spring if soil too wet
- How to manage weeds in cover crops without herbicides, especially if no-till

Ideas and research worth pursuing

- Inter-seeding cover crops
 - o At last cultivation of summer veg crops, spring termination
 - o Into annual grain crops
- Winter-kill cover crops
- All pest dynamics in cover crops (weeds, insects, disease)
- Cover crop species/mixes and N dynamics (both immobilizing and providing)
- Variety trials

Outreach

- NRCS/EQIP program explained, especially applicability to small-scale

4. General cover crop adoption in rotational cropping systems (Intermountain)

Outreach

- Cover crop species selection!!
 - o Selection tool that allows you to zone in on your climate, coordinates your goals with species selection
 - o Really understanding how to use the tools
- Beginners guide to cover crops with a Western focus
 - o Concise and condensed (pamphlets? Podcasts? YouTube videos?)
 - o Growing biology of different species
 - o Understanding C:N ratios
- NRCS/EQIP program explained, especially applicability to small-scale

5. Cover crops in perennial crops: orchards, berries, grapes, Christmas trees, nurseries (Chris Benedict and Nik Wiman PNW group)

Barriers of cover crop use in perennial systems

- Cover crops as hosts for Voles (voles voles voles!!!) and disease
- Cultural barriers (we have always done it this way, especially vineyards)
- Expense of cover crops, lack of access to NRCS programs, need to maintain competitive pricing

Ideas and research worth pursuing

- Cover crops species that are appropriate for orchards
 - o Can handle machinery traffic
 - o Provide surface for nut harvest
 - o Low-growing, persistent, don't require replanting or much care
 - o Mixes that can keep flowering all season under orchard canopy?
 - o Species that DO NOT host voles or disease
- Cover crops for nurseries that help with drainage, erosion, getting into wet fields
- Economic studies comparing cover crops to tilled systems

Outreach

- Work on non-organic sustainable designation
- If already info on appropriate cover crop species for orchard floor, make that info available

6. Soil health aspects of using cover crops (Doug Collins PNW group)

Barriers of cover crop related to soil health

- Who to talk to about soil health effects?
- Low rainfall areas and soil moisture use by cover crops
 - o Takes more time to see benefits of cover crops in drier areas
- Getting seed and getting the right varieties
- Uncertainty around soil health measurements, time and money required to test
- Low pH that inhibits cover crop growth

Ideas and research worth pursuing

- Cover crops species and soil moisture dynamics
- Pest interactions on the following crop
- Using cover crops to address specific soil health issues
 - o Compaction
 - o Nitrogen
 - o Disease suppression
 - o Water holding capacity
 - o Soil organic matter – above or below-ground biomass more important?
 - o Ideal mixes for different goals
 - o Cover crops vs compost?
- Cost/benefit analysis of using cover crops to improve soil health

Outreach (these ideas came from Intermountain meeting)

- Growers need guidance on soil health measurements, WCCC could help ensure most current information is reaching stakeholders in user-friendly format
 - o What is the goal of measuring soil health?
 - o Which are easiest to use, lowest costs, rapid results

- What is most useful metric? (Is there one?? Can at least says pros & cons)
- What testing is available (can we say what is recommended?)
- Cover crop calculator being more specific to locality
- Fertility credit info in user-friendly format

7. Challenges in the arid West (Intermountain)

Barriers to cover crop use

- Irrigation availability
 - Dryland systems
 - Planting after irrigation water is shut off, or lack of irrigation water
- Planting cover crops after harvesting root crops
- Uncertainty about species selection

Ideas and research worth pursuing

- What species work well for dryland systems (drought tolerant, won't reduce cash crop yields)
- Cover cropping in low rainfall areas and the return on investment (cash flow and soil health)
- Summer dryland cover crop species (besides Sudangrass and buckwheat)

Information from WCCC Field Days

Main takeaways from NWREC Field Day (Aug 2022)

- People really like in-person presentations and demonstrations (100% found them very or extremely useful)
- People like hearing from other farmers (80% found farmer panel extremely useful)
- Likely to use information from event to use new CC establishment techniques and equipment, increase use of CC, and improve seeder or fertilizer calibration
- Learned many practical tips on calibration, seeding rates/mixes/timing, inoculation
- A lot of interest in seeding equipment (especially no-till and different seeder types)
- Want to learn more about CC termination and incorporation

Main takeaways from California tour (March 2022)

- On average, attendees gained information to make cover crop management decisions, learned about equipment used for cover crop management, increased their understanding of the possible challenges of cover crops, gained awareness of cover crop incentives, and increased their consideration of using cover crops on their farm
- Producers were moderately to very likely to increase their cover crop acreage and increase networking with other producers who cover crop
- Ag professionals were extremely likely to improve the advice they give to producers about cover crops

SW WCCC Next Steps (based on feedback)

- Create a one-stop shop for all cover crop knowledge and expertise (WCCC website?)
- Provide information on economic and water benefits of cover cropping
- Provide equipment training and facilitate increased equipment availability
- Seeding and termination timing/options, plus equipment demonstrations
- Continue to establish CC network in region

Common Themes Throughout all Evaluations

- Importance of producer experience/perspective/knowledge sharing
- Cost/benefit analyses of cover cropping in various Ag systems
- Need help with cover crop species selection that is very specific to situation
- Logistics of cover cropping: access to seed, seeding, equipment, termination, timing, etc.
- Better explanation of how to access incentives, who qualifies/who does not
- How to measure cover crop management effects on soil health

Possible WCCC Action Items Based on Evaluations

- Can WCCC provide/house brief “bios” on different cover crops? Similar to [SAREP Cover Crops Database](#)
- Creation of a “cover crop decision tree” (or something to work towards), that includes intended use, growing location, summer vs winter, etc
- Provide guidance on soil health measurements
- Provide guidance on cover crop use in orchards
- Provide concise information on NRCS/EQIP program, with clarity about who qualifies or does not (scale, income, advanced planning, species, etc)
- Cost and benefit analysis of cover cropping (maybe provide links to studies?)
- Can resources on website be arranged a little more by subregion or climate?
- Provide videos/photos/resources on seeding & termination practices and equipment