

Berries, Orchards, Perennial horticulture crops session

General Discussion/Research ideas

Much discussion around ground covers as a harvest surface for hazelnuts:

- Bulbous bluegrass
- Annual bluegrass
- Perennial fine fescues
- Clovers
- Vetch
- Lacey phacelia

Cover crops that grow low, will persist, can take machinery traffic, don't require replanting or lots of upkeep

Cover crops as undercovers for cane berries- what can work? Not host disease or voles

Cover crops that can handle orchard or vineyard equipment traffic

How to get the vineyard owners to adopt cover crop practices (overcoming cultural norms)

Cover crops mixes that can keep a flower under an orchard all season long.

How can you overcome puncturevine organically?

Research on:

- Arugala
- California poppy
- Chamomile
- Mint
- Arnica
- Little burnet
- Plugging strawberries (hort varieties) under perennial systems

Not a lot of great information for nursery growers:

- Cover crops that help them get into the fields in the winter
- For better drainage
- Soil erosion

Economic studies comparing cover crops to tilled practices (in orchards, nurseries, vineyards)

Targeting social media to discuss imported crops and use that to change consumer perceptions (discussed under the COOL thoughts below)

Work on Non-Organic Sustainable Ag designation

Barriers

Access to NRCS funds if farm income is too high

Growers aren't interested due to long standing protocols (we have always done it this way, worried about what the neighbors think)

Cover crops are expensive

Voies, voles, voles, and more voles. Are their covers that can actually deter voles?

Overcoming cultural barriers

Competing with imported fruits and berries. Establishing a Country of Origin Label (COOL).

Animal Integration System Session

What barriers and opportunities exist for more cover crop use in livestock systems?

- Barriers
 - Lack of equipment for small farmers, cost of equipment (no-till drill)
 - No small size no-till drills for small tractors
 - Getting seeds for small scale operations, organic sources are limited
 - Nobody to help people new to use cover crops
 - Lack of fencing and water for livestock-large scale, dry areas
 - Lack of seed mixes in the few lb quantities
 - Regulations for food safety in vegetable/orchard/livestock systems – time between livestock rotation and harvest a challenge
 - Adaptation of buying seed from out of area
 - Access to animal processing facilities
- Opportunities
 - Dryland cover crops to drill into stubble fields in July to forage in fall and hinder Russian thistle and cheat grass.
 - Using new species/variety may fill a niche/provide some unexpected benefits

What new ideas are worth pursuing (emerging themes) related to cover crops in livestock production?

- Animal termination vs mechanical termination when moving into cash crop
 - Do animals improve soil health?
 - What does trampling do for soil organic matter?
 - Timing of leaving animals in cover crops.
- Which cover crops are best suited to animal termination vs which cover crops are best suited to mechanical termination/incorporation?
- Bringing cattle in from rangeland early to graze on cover crops which have been seeded into a dormant field condition.
- Retrofitting corn/bean planters into no-till drill (most in the mid-west, though). Other options for retrofitting planters/grain drills (10-15 ft) into no-till drills that can be pulled by smaller tractors.
- Cooperatively sharing equipment.

What sort of research and education would be helpful?

- Would there be a benefit of inoculating all seed with mycorrhiza?
- Which cover crops species are best suited to which animal species?
- What are the best stocking rates/density in terms of cover crops?
- What benefits do livestock provide to soil health?
- Is Sunn Hemp palatable for livestock?
- Grazing livestock on more mature cover crop plantings?
- Looking at soil compaction depending on stocking rates vs utilizing cover crops such as turnips that “till up” the soil.
- How large of a problem is soil compaction with livestock?

- Does the root mass of cover crops balance out compaction from grazing livestock?
- What are the different methods (rip vs nibble vs root) by which animals terminate the crop and what are the implications of that?
- Which cover crop species are dangerous/toxicity for livestock?
- What equipment can we easily adapt for use by smaller producers for smaller plots?
- Drought tolerant cover crops for summer drought conditions.
- Suitability of teff in the inland PNW.

Further education

- Forums, zoom meetings
- Monthly meetings
- More educational materials in writing. Attending meetings, webinars can be too time consuming.

Policy

- Policy needed to allow for smaller packing facilities to butcher for direct consumer sales for smaller producers. Increase availability of animal processing facilities

Additional notes from a participant

Here are a few other seed distributors and an idea to consider.

- Albert Lea Seed – MN (I think)
- Great Basin Seed – UT
- Landmark Seed – Spokane, WA
- Rainier Seed – Davenport, WA
- Ioka Seed – OR
- DLF Pickseed – OR
- Smith Seed Co. – OR
- Barenburg – OR
- Mountain View Seed – OR
- Allied Seed – OR

Mentioning again

- Welter Seed (they have discount shipping available)
- Green Cover Seed – they have a new resource book out that they will send for free. Also, they are looking at expanding their reach and this is a farm in Southern Idaho (no name to be released yet) that they are planning to work with to be a distributor
 - Smart mix calculator for cover crop mixes (<https://smartmix.greencoverseed.com/>)

Suggest maybe asking the Oregon Seed Growers Association (<https://oregonseed.org/>) if they have members (some of them are listed above) interested in being a part of the research with cover crops or if they have done research with cover crops.

Specific thoughts from participant:

- Thinking some barrier, the webinar had people from diverse locations in the Northwest. It's good for us to discuss things as a group, but really geographic location should be a strong factor as to who collaborates with who. As an example, myself and Steve Pearson of Kettle Haven Ranch being in NE WA face challenges that will be much different than from those on the west side of Washington state. However, some challenges will be shared by all. I do think the barrier of meat processing is a definite issue, and hope that WA passes SB 5045. I think this is a step forward in the right direction for meat processing and I believe there is even a part in there that would allow for reciprocity between other states that adopted similar legislation.
- Last thing I wanted to mention is that I think it would be extremely helpful to have a quick reference chart for cover crops. Similar to this <https://sarep.ucdavis.edu/covercrop>. Expanding on something like this that explains what benefits can be provided by certain plants, cautions, dangers, termination techniques etc would be extremely valuable. For instance, buckwheat was brought up today. Yes it is a great plant that provides weed suppression, is a food source for beneficial insects, and can make P available to other plants, but it also makes a bad forage, can easily reseed, and can cause photosensitivity livestock. If this information is readily available, people can make better decision on selecting plants for their own context.

Cover Crops & Soil Health Session

Objectives:

- Identify priority topics for future projects (research, education, policy, etc.)
- Identify people interested in collaborating on future projects "hot shot teams"
- What barriers and opportunities exist for cover crops in relation to soil health?
- What new ideas are worth pursuing (emerging themes) related to cover crops and soil health?
- What sort of research and education would be helpful?

What barriers and opportunities exist for cover crops in relation to soil health?

- Resources: Who to talk to? Good source for seed?
- Finding cover crops that are suitable for low rainfall areas. The rainfall is so low. When you use a cover crop you lose moisture. Need a cover crop that is aggressive but doesn't use a lot of water. Vetches were deer resistant. Was putting it in the fall. In the spring it would take off. Cost of seed. In really dry years, struggle with moisture competition.... get crops that will take that moisture out of the top couple of inches. Safflower, sunflower, fava beans....The deeper rooted crops are worse as far as taking up moisture

- It takes a couple of years to see the benefits of cover crops, especially in dryer areas.
- Wheat and peas (a special variety of pea worked well, but is no longer available (Brian Tuck comment))
- Finding Seed, finding the right varieties. Opportunities—Increase soil organic matter. (e.g. piper sudangrass). Didn't mow it, let it winter kill.
 - Biomass
 - Pollinators
- Farmer experimentation...planting Sudan and Common Vetch at the same time. Planted end of July or beginning of August
- Peas fix nitrogen. (Peola) deep taproot of the canola. Isaac Madsen at WSU has had great success with it

What new ideas are worth pursuing (emerging themes) related to cover crops and soil health?

- Disease and pest interactions on the following cover crop. Nematodes.
- Tillage radish. Safflower is also very good at breaking up soil and will dry out soil very quickly. Soybeans?
 - Mustards as biofumigation, especially before fruit trees
- Putting a dollar value on cover crops...
- Cover crop vs compost? If your soil is extremely poor it is difficult to get anything to grow.
- In the Eastside Oregon, CRP has led to 1-2% increase in OM
- pH is getting so low that can't grow cover crops (especially Palouse). Too much ammonia N is driving pH down.
- Sowing spring, summer, and winter cover crop simultaneously. They germinate in succession. Turnips growing now and clover. Clover as a cover b/w rows of wheat and rye.
- Species mixes?
- Nitrogen values under different soil conditions. What might you expect?
- Vetch can become a problem weed in lentils.
- Soil management to grow a cover crop...Is the cover crop growing optimally?
- Soil compaction issues: using cover crops to address specific soil health issues.

What sort of research and education would be helpful?

- Making connection b/w cover crops and soil health
- Labor, input, what are you gaining...nutrients competition. What is the economic impact? You can spend so much time: what is the cost/benefit tradeoff.
- Triticale and vetch: How much vetch do you need to avoid immobilization
- Interseeding -
- What biomass is more beneficial to add organic matter? Above ground or the amount of root?

- Liming in the Palouse. Equip program for lime. Everything we do today is around the pH and soil health. pH began in the high 5s and low 6s. Breeding pH tolerant crops is putting a band aid where we need a tourniquette.