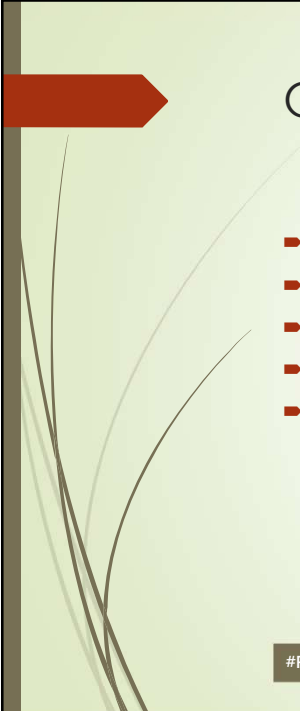


The Case for Cover Crops in Potato Production

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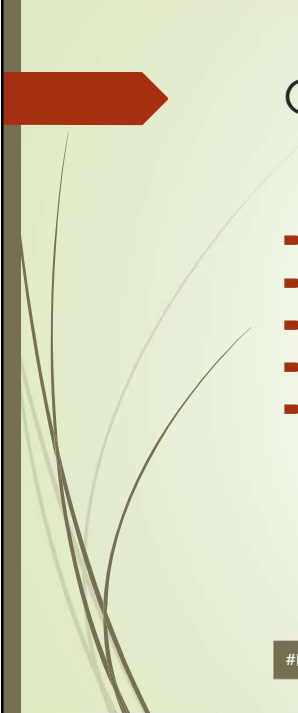
Outline of the Talk

- Good reasons to grow a cover crop
- Better reasons to grow a cover crop
- ROI (Return on Investment) thinking
- Example of integrating cover crops
- Further learning

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Good Reasons to Grow a Cover Crop

- ▶ The public is demanding regenerative agriculture practices
- ▶ There are many people doing it with great results
- ▶ Gain some points on the latest survey
- ▶ Get more contract in the future
- ▶ Sell the carbon credits

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Better Reasons to Grow a Cover Crop

- ▶ Hold the soil in place
- ▶ Hold onto nutrients
- ▶ Increase water infiltration
- ▶ Increase the nutrients (ex. nitrogen) or unlock tied up (ex. phosphorus)
- ▶ Lower pest pressures (weeds, insects, disease)
- ▶ Increase the organic matter of the soil
- ▶ Increase water holding capacity

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Return on Investment (ROI)

Fungicide

- First application
 - Greatest return
- Second, third, etc.
 - Scouting, spore traps, weather, irrigation, etc.
- Final application
 - When is cost > return?

Cover Crop

- Solves an immediate problem
 - Hold soil and/or nutrients in place
- Solves a short term problem
 - Water infiltration, pest suppression, and increasing nutrient efficiency
- Solves a long term problem
 - Increase organic matter and water holding capacity

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Erosion Control & Nutrient Scavenging

Good solution

- Spread the cheapest cereal you can get after potato harvest
- Lightly incorporate and irrigate or let the rain germinate
- Alternative is to spread before digging and let the harvesting process plant it

Better solution

- Use the best species for the job
- Fall rye (cereal rye) can't be beat
 - Germinates in cold weather
 - Overwinters in most areas
 - Grows early in spring
- Biggest disadvantage:
It can be *too good at it's job*
(you need a plan to control it for seeding in the following year)

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Erosion Control & Nutrient Scavenging


Advanced solution (in addition to the Good or Better)

- Supercharge the system the year before potatoes
 - Grow a green manure crop
 - Incorporate into the soil and mark the rows


Decaying plant material holds the soil better in the short term than nothing

- Plant something again on top of the hills
 - In spring will need it winterkilled, chemically killed, or incorporated to plant
 - As the potatoes emerge and root they hold the soil

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Erosion Control & Nutrient Scavenging


Advanced solution – increasing the ROI

- May be tough to justify an entire year out of production
 - While holding soil in place pays, this alone may not be enough
- Adding in another benefit may push it over
 - Green manure of a mustard crop for disease control
 - Well used and well studied in the Pacific Northwest of the United States

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Erosion Control & Nutrient Scavenging


Super advanced solution

- Integrating cover crops for disease control, weed suppression, water infiltration into the years in between potatoes should lead to increased organic matter and water holding capacity of the soil
- Problems:
 - How do you justify this on rented land?
 - Why put the effort into something only the next generation will benefit from?

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Summary

- Good reasons to grow cover crops are based on external incentives
- Better reasons to grow cover crops benefit you directly
- Advanced and super advanced benefit the generations to come
- Look for a ROI in the short term to help pay for the long term
 - Unlike inputs such as fungicides the residual benefits can accrue over time

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Further Learning

- ▶ Field Work podcast
 - ▶ <https://www.fieldworktalk.org/episode/2021/05/12/can-cotton-drive-american-ag-sustainability>
 - ▶ <https://www.fieldworktalk.org/episode/2021/05/19/how-conservation-saved-a-cotton-farmer>
- ▶ Dr. Andrew McGuire
 - ▶ https://csanr.wsu.edu/blog/?taxonomies%5Bcategory%5D=&pf_author=19
- ▶ Plants Dig Soil podcast
 - ▶ <http://www.plantsdigsoil.com/podcast>

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