



Field Tour: Corn, Cover Crops and Soil Health

Fossen Ranch & Haynes' Ranch, Rock Creek, October 10, 2019

Summary

Approximately 24 producers gathered for a field day in Rock Creek to learn about silage corn at the Fossen Ranch, and to view the cover crops and results of a soil health study at the Haynes' Ranch.

Fossen Ranch: Doug Fossen harvests half of his corn to make silage and grazes the other half in the winter. This season he experimented by broadcast seeding clover between his corn rows with the intent to fall graze the clover, protect the soil and fix nitrogen. Photos below.



Field day participants listen to Doug Fossen explain the pros and cons of growing silage corn (corn crop behind participants on the right).



Jamie Haynes' peels back the husk to show a healthy cob for winter grazing.



Experiment with clover cover crops between corn rows. Corn has been harvested and some clover remains for fall grazing and soil protection.



The equipment for harvesting silage corn can be expensive. Strong robust machinery is required for chopping, harvesting and hauling the heavy biomass.



Doug shows the chopped silage that is fermenting under silage tarps in an oxygen free environment.



This photo is from June 28, 2019. Radish roots break up soil compaction and increase water infiltration rates. Roots are 'kinked' where they hit a rock or a layer of soil compaction.



Dr. Catherine Tarasoff explains to field day participants how measurements were made for soil compaction and water infiltration. In this photo she holds a soil penetrometer.



Jamie and John planted a fall cover crop of fall tricale and peas after the in August. The cover crop established well with the good precipitation in September.

Haynes' Ranch: Jamie Haynes has been dryland farming in Rock Creek for decades as second generation farmer. He plants a range of dryland crops including grain, hay and forage for silage. Dryland farming is increasingly challenging with variable weather and drought. Jamie and his farm partner John Lindquist have transitioned to no-till farming to increase organic matter, protect soil from compaction and improve soil function. A project to enhance soil health through water infiltration began in the spring, 2019. A 60-acre field was planted with a forage mix of rye, oats, peas. Tillage radish was incorporated into half of the field (30 acres) at 7 lb/acre. Measurements were taken in July to measure biomass and weed abundance across the 60-acre field. October 9th water infiltration and soil compaction measurements were made.

Project Findings

In the 30 acres that were planted with rye, oats, peas and radish, the radish significantly decreased weed abundance compared to the 30 acres that did not include tillage radish (see graph one on page three). With a large taproot and broad leafy stature, radishes provide a new form of weed competition not found in grasses and peas. The section of field planted with radishes did result in faster water infiltration rates; however these results were variable resulting in some sites that had rapid water infiltration and other sites that were slow (see graph two on page three).

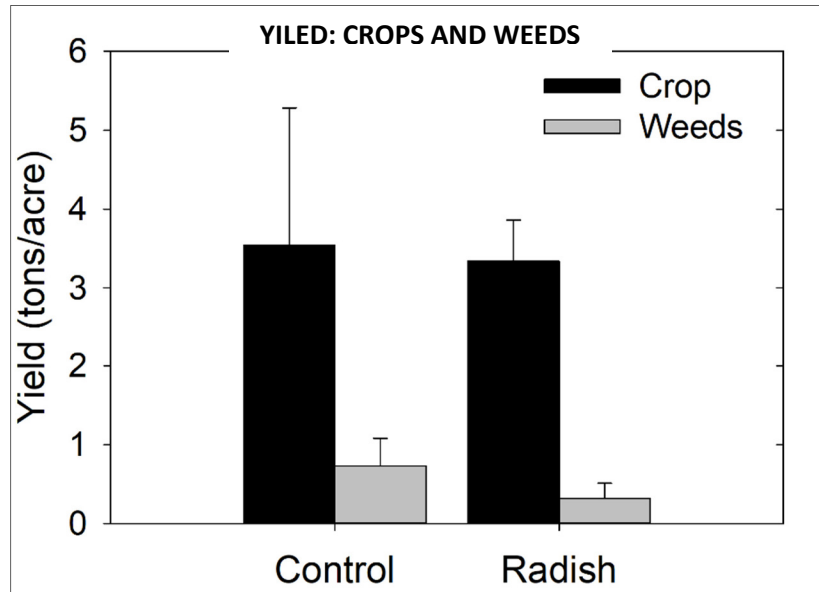
Field discussions focused on how the soils have been farmed for over 100 years and thus breaking up the compacted layers in the soil will be an incremental process. Interestingly, water infiltration in the portion of the field that did not receive tillage radish was uniformly slow (see graphs on page three).

Next Steps

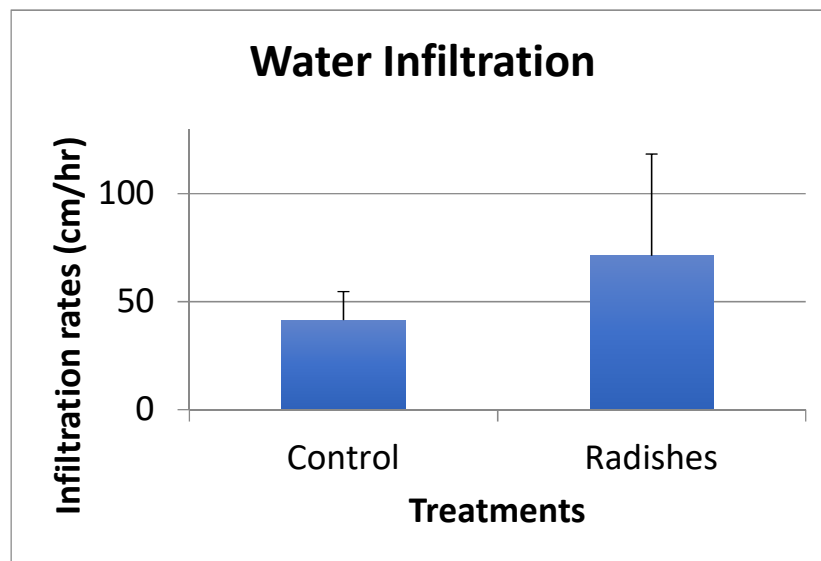
It would be very beneficial to repeat this trial again next season to see if we can draw more firm results from the soil water infiltration measurements (May 2020). A forage analysis will also be beneficial to see if there is any added advantage to tillage radish beyond the soil health measurements (November 2019).



Jamie Haynes - Farm Adaptation Innovator Program
Soil Health Improvement Project – Results



1: Yield measurements for crops and weeds. There was less weed abundance where radishes were planted.



2: Water infiltration rates. Rates were higher where radish was planted. However, there was great variability.

Research Project Background

This trial is a project of the Climate Action Initiative's Farm Adaptation Innovator Program where the Haynes' Ranch receives support for research design, methodology, field measurements and data analysis from Dr. Catherine Tarasoff of Thompson Rivers' University and AgroWest Consulting. This trial will be standardized into a template that can be replicated so that other producers can conduct their own on-farm research trials. The Kootenay & Boundary Farm Advisor support with knowledge transfer, extension and project coordination.