



Progress Report of Activities 2015

USDA-NRCS Washington Plant Materials Center, Pullman, Washington



Planting cover crops for the last year of the National Soil Health Study at the Pullman PMC, October 1, 2014.

National Soil Health Study

2015 was our third and final year of evaluating cover crops and their effects on soil health for the National Soil Health Study. This study involved planting three cover crop mixes at three seeding rates every year for three years and collecting cover crop and soil data. We assessed cover crop biomass and percent cover, and soil bulk density, biological activity, temperature, moisture, pH, nutrients, and other soil indicators.

For the 2014-2015 crop year, we planted cover crops on October 1, 2014 and terminated them with a glyphosate application on May 8, 2015. We planted the commodity crop, barley, on May 12, however it did not emerge well due to hard soil, and we did not have a barley harvest. We are currently analyzing the last year of data and will write a Final Study Report this spring. Progress Reports from the first and second years of the study can be accessed on the NRCS Plant Materials Program Cover Crops and Soil Health webpage.

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National Cover Crop Adaptation Trial



In 2015, the WAPMC started the National Cover Crop Adaptation Trial. This trial is in cooperation with the Agriculture Research Service and other PMCs. The trial is designed to determine the adaptability of certain varieties/cultivars/Trade Names of common cover crop species to different geographical regions of the United States. Measurements including germination, spring green-up dates, bloom and flowering period, plant height, and winter hardiness will be taken. The species and varieties/cultivars/Trade Names being evaluated are presented in Table 1.

Planting the National Cover Crop Variety Adaptation Trial at the Pullman PMC, September 16, 2015.

Table 1. Species and Varieties/Cultivars/Trade Name evaluated in the National Cover Crop Adaptation Trial at WAPMC 2015-2016.	
Species	Variety/Cultivar/Trade Name
Austrian Winter Pea	Dundale; Frost Master; Maxum; Whistler; Windham; Survivor 15; Arvika (4010); Lynx; Secada
Daikon Radish	Defender; Driller; Eco-till; Groundhog; Lunch; Nitro; Tillage; Sodbuster Blend
Crimson Clover	AU Robin; AU Sunrise; AU Sunup; Cantea; Dixie; Kentucky Pride (2016)
Balansa Clover	Fixation; Frontier
Hairy Vetch	Lana; Purple Bounty; Purple Prosperity; TNT; CCS-Groff; Vilana

Okanogan Cover Crop Biomass Study

The WAPMC is working with the Okanogan Conservation District and local landowners in north-central Washington on a project evaluating multi-species cover crop mixes and the relation to moisture infiltration and crop use. The study area receives 10 – 12” precipitation annually and is in the wheat-fallow agronomic zone. The WAPMC is collecting above ground biomass data for the cover crop mixes, which are being planted in the fall, spring, and summer as a replacement for fallow. Each field has a soil moisture probe and rain gauge to measure the moisture infiltration and subsequent moisture use. This project is expected to continue until 2017.

Legume Conservation Cover in Orchards Study



Harvesting legume biomass in an apple orchard near Prosser, WA, September 15, 2015

In 2015, we collected the third and final year of data for our study to evaluate legume drive-row cover in orchards. Legumes may be able to supply an on-farm source of nitrogen to orchard trees, which could off-set fertilization costs and help mitigate the soil-acidifying effects of organic fertilizer. Legumes in our study supplied approximately 30 to 60 pounds of nitrogen per acre per year to the orchard, depending on legume species and variety. Orchardists can potentially manage the nitrogen amount and timing with mowing techniques. We will summarize the three years of our evaluations in a Final Study Report and Technical Note in 2016.

Other Studies at the PMC

- No-Till Forb Establishment - Latah County, ID
- Forb Establishment Techniques - Douglas County, WA
- Assessment of Aboveground Biomass Production of Fall-Planted Cover Crops – PMC
- Evaluation of the Effects of Intercropping in Spring Wheat – PMC
- Evaluation of the Effects of Warm Season Cover Crops on Soil Moisture and Winter Wheat Yield – PMC

Conservation Field Trials

- Revegetation Techniques Following Ventenata Management – Asotin County, WA
- Assessing the Effect of Cover Crop Termination Date on Commodity Crop Yield – Whitman County, WA

2014 Technical Transfer

Publications

Pavek, P. and D. Spellman. WAPMC National Soil Health Study Year 2 Progress Report

Presentations

Pavek, P. Ventenata Studies at the Pullman PMC, Inland Northwest Ventenata Research Network Meeting. LaGrande, OR

Pavek, P. Attracting Native Pollinators with Palouse Prairie Plants. Palouse Prairie Foundation, Pullman, WA

Pavek, P. Creating Beneficial Insect Habitat. Latah County Extension Beneficial Insect Workshop, Moscow, ID

- Pavek, P. Evaluating Beneficial Insect Habitat Using the Xerces Assessment Form. Latah County Extension Beneficial Insect Workshop, Moscow, ID
- Pavek, P. Habitat for Bees and Butterflies. Nez Perce Tribe Earth Day Celebration. Lapwai, ID
- Casey, A., P. Pavek, and D. Spellman. History of the Pullman PMC, 2014-2015 Activities and PMC Tour. NRCS State Quality Leadership Team Meeting. Pullman, WA
- Casey, A., P. Pavek and D. Spellman. Pullman PMC Tour for Plant Materials Program Retirees. Pullman, WA
- Casey, A., P. Pavek and D. Spellman. Pullman PMC Tour for Nuffield International Ag Scholars. Pullman, WA
- Fleenor, R. Threatened and Endangered Plant Species in the Planning Process – Webinar.
- Pavek, P. Careers with the NRCS. Regional Approaches to Climate Change (REACCH) Summer Science Teacher Workshop. Pullman, WA
- Pavek, P. Pullman PMC History and Activities. National Association of Plant Breeders Annual Conference. Pullman, WA
- Pavek, P. Selecting Plants for Pollinator Habitat in Urban Landscaping. Invited lecture for HORT330 WSU. Pullman, WA

Poster Presentations

- Olson, B., P. Pavek, and J. Johnson-Maynard. 2014. Optimizing the Use of Cover Crops in the Palouse Region. Poster presentation at the American Society of Agronomy/Crop Science Society of America/Soil Science Society of America Annual Meeting, Long Beach, CA
- Jensen, W., J. Jensen and P. Pavek. 2015. Establishing Native Forbs in Existing CRP Using No-Till Techniques in Northern Idaho: Comparison of Drills and Seedbed Preparations. Poster presentation at the National Native Seed Conference, Sante Fe, NM
- Casey, A. and P. Pavek. WAPMC Activities. Poster presentation at the National Plant Materials Workshop, Fort Worth, TX

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