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**WASHINGTON OILSEEDS COMMISSION
PROGRESS REPORT FORMAT FOR 2021 PROJECTS**

Project No.: Sponsor Award Ref. #: M813 14106700/Proposal ID #: 141067

Title: Do Winter Wheat Cultivars Impact Spring Canola Stand Establishment Differently?

Personnel: Dr. Clark Neely and Dr. Isaac Madsen

Reporting Period: June 2021 through November 2021

Accomplishments: The 2021 harvest season was the driest season for the region since the 1970's. Dayton was one of our planned locations for this study, however, due to drought conditions, some varieties performed erratically across the trial producing variable grain and biomass yield. For this reason, we did not feel it would provide a good baseline to conduct the study. Therefore, we moved this site to our Pullman winter wheat variety trial site which included the same entries as Dayton. Reardan was used as our second site as planned, but does contain a slightly different set of wheat varieties as it is located in a lower rainfall zone. Cooperators at both Pullman and Reardan may not plant canola in the surrounding fields. We will plan to plant a 20' border around our plots of spring canola to hopefully avoid any drift issues once canola has emerged in the spring.

Prior to combine harvest, four linear row meters of wheat biomass was hand cut at approximately a 2" height from each plot and placed in paper bags for weighing and threshing to estimate straw production of each variety. Straw was only collected from released varieties and select experimental lines that were likely to be released in the near future. Following wheat harvest (Pullman: July 27, 2021; Reardan: August 6, 2021), residue from each plot was spread evenly across its respective plot area on the same day (Figure 1). Bird netting was then placed over the entire winter wheat variety trial to ensure residue stayed in place throughout the winter months. To capture inherent variability in cutting height by the combine across the field, stubble height was measured for each plot to use in statistical analysis in case it explained some of the variability captured in canola emergence and growth in the spring.

To complement the original project objectives, the team has collected chaff from the winter wheat variety trial at Dayton and placed 20 grams of residue from each variety into nylon mesh bags and replicated three times at both Pullman and Reardan. These bags were placed on the soil and staked down adjacent to the plots at the Pullman and Reardan sites on October 4 and October 8, respectively (Figures 3 and 4). They will be left out to weather over the winter months. At spring planting, these bags will be removed and weighed to

estimate differences in residue decomposition among wheat varieties. This residue will then be soaked in water and used to generate extract solutions to test if chemical compounds in the straw negatively impact canola germination and early seedling growth in the lab.



Figure 1. Spreading wheat residue across respective plots at Pullman site.



Figure 2. Bird netting covering winter wheat residue to keep in place during the winter at Pullman.



Figure 3. Wheat residue bags placed on soil surface to weather and decompose over winter months.



Figure 4. Wheat residue from bags to be used to generate extract solutions for testing possible allelopathic properties on canola germination and seedlings.

Results: Hand collected wheat biomass samples have not yet been weighed or threshed. This will be done over the winter months. Data on spring canola emergence and growth will be conducted in the spring.

Publications: None to date.