

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

Project No.:

Title: Grazing, Mowing, and Growth Regulators as Methods for Improving Winter Canola

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Reporting Period: October 2020 - October 2021

Accomplishments:

During the second year of trials, we completed harvest and data collection on a plant growth regulator (PGR) and companion cropping trials as well as beginning observations on canola grazing trials. The PGR trials established in 2020 near Davenport, LaCrosse and Ritzville were harvested during the summer of 2021. New PGR trials were established and plant dimension measurements were collected in grower cooperator fields near LaCrosse and Valleyforge. Grazing trials were established and plant dimension measurements were collected near Dusty and Edwald. The plant dimensions collected at all locations were crown height, crown width, leaf count, and canopy width. The plant dimensions, winter survival, and yield data have been analyzed and initial results indicated that PGRs can be used to increase both winter survival and yield. Additionally, initial models have been developed for better understanding the relationship between plant dimensions and yield. These efforts will be continued into 2022 to continue assessing the effects of PGRs, grazing, and companion planting on yield.

Results:

1. **Plant Dimension Results:** The plant dimensions of crown height, crown width, leaf count, and canopy width were analyzed across all locations for their ability to predict winter survival. The analysis to date indicates that both crown height and leaf count may be important factors in predicting winter survival. Plant dimensions taken in the fall of 2021 will be used to improve the winter survival model in the coming year.
2. **2020-2021 PGR Studies:** Plant stand, leaf area index, and plant Dimension measurements, and yield were collected at Davenport, Ritzville, and LaCrosse on early seeded canola treated with PGR and compared to the control of no PGR on early seeded canola. PGR application was shown to significantly increase canola seed yield at both one of two sites at LaCrosse and Ritzville, and the results trended toward higher yields with PGRs at the Davenport location. At the LaCrosse site PGR and check plots were established at two land scape positions one on the hilltop and one on the bottom ground. At the hilltop location plots with a full rate of PGR had an average yield of 2,620 lbs/A while the control plots had a yield of 2,261 lbs/A. At the Ritzville, large-scale strip trials showed a significant increase from 1,293 lbs/A yield in the control to 1,387 lbs/A yield where the PGRs were applied. While not statistically significant, yields at the bottom ground LaCrosse and Davenport locations showed a trend towards higher yield when the PGR was applied. In conclusion, the harvest data collected in 2021 indicate that fall applied PGRs may increase yield in winter canola.
3. **2020-2021 Oat Companion Crop Studies:** Initial observations from the oat companion cropping studies indicate that the presence of oats may result in increased crown height. Winter survival and yield data indicate that companion planting oats with canola may decrease winter survival and reduce yield.

Publications:

Ford, J., **Madsen, I. J.**, (2021) Foliar Applied Plant Growth Regulators as a Method for Improving Winter Canola Winter Survival. 2021 Field Day Abstracts: Highlights of Research Progress (pp. 60).

Ford, J., **Madsen, I. J.**, (2021) Companion Crops as a Method for Improving Winter Canola Stand Establishment and Winter Survival. 2021 Field Day Abstracts: Highlights of Research Progress (pp. 61-62).