



## Mixed Canolage – Companion Cropping of Dual-Purpose Winter Canola

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Dual purpose canola is the practice of seeding winter canola during the summer and harvesting the biomass as a forage in the season prior to seed harvest. The harvest may occur either by swathing or cattle grazing. Dual purpose canola has sometimes been referred to as canolage. As canolage is a more concise term we will use it here. In some cases, canolage may be mixed with other plant species in order to control plant maturity and add biodiversity to the system. During the summer of 2019 two mixed canolage studies were established. The companion crop used in both cases was spring forage oats (Fig. 1). The two locations were Dusty, WA



Figure 1. Mixed canolage (oat-canola intercrop grown for forage and canola seed) prior to grazing.

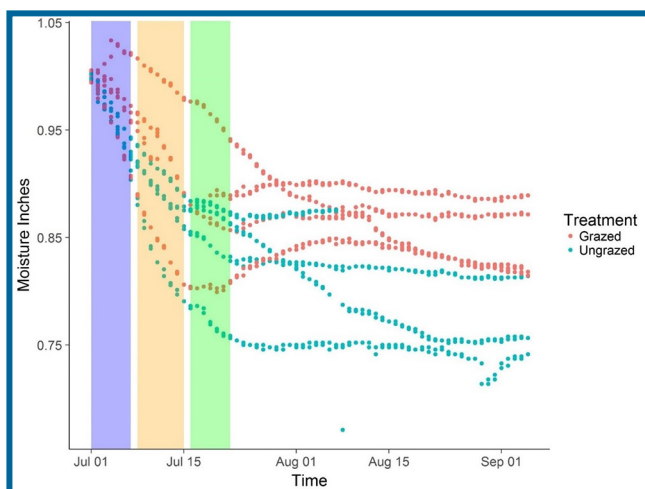


Figure 2. The change in relative moisture following the initiation of grazing in the first week of July. In most cases, the un-grazed plots used more than the grazed plots over the recorded time frame.

and Creston, WA. The Dusty location was established the last week in May and the Creston location was established the first week in July. During the summer and fall of 2019 a variety of data were collected at the Dusty location. The data collected was forage tests, plant counts, and soil moisture. The forage tests were used to compare the monoculture canolage with the mixed canolage (Table 1). The mixed canolage had a higher dry matter, acid detergent fiber, and neutral detergent fiber value. The monoculture canolage had higher crude protein and relative feed values. The higher dry matter, ADF, and NDF of the mixed canolage is preferred to the monoculture canolage as the fiber is necessary for ruminant digestion to function well. In addition to the forage test moisture monitoring stations were established at four grazed and four un-grazed locations. At each location, a sensor was installed at 1, 2, 3, and 4-foot depths. The different depths were added to calculate the total moisture in the profile. In order to assess the impact of grazing on the moisture in the profile the relative moisture was calculated based on the moisture at the start of grazing and the changes in the moisture over the period of grazing were logged (Fig. 2). Figure 2 shows that the grazed plots (pink) used less relative moisture than the un-grazed (blue) plots. This indicates that grazing mixed canolage may reduce the overall water usage of the system when compared with the un-grazed system. Late in the fall most of the Dusty plots had droughted out, and only a subset of the field will be taken to harvest. In the spring of 2020, all but a small section of the canola was terminated. The drought out at the Dusty location is likely due to the early planting date. The Creston location had good winter survival and the full area will be harvested in the July of 2020.

Table 1. Forage values for monoculture canola compared to oat-canola mix.

|                                 | Canola | Oat & Canola |
|---------------------------------|--------|--------------|
| Dry Matter                      | 11.6   | 19           |
| Crude Protein                   | 21.3   | 14.2         |
| Acid Detergent Fiber (ADF)      | 16.9   | 20.2         |
| Neutral Detergent Fiber (NDF)   | 17.3   | 29.5         |
| Relative Feed Value (Estimated) | 407    | 231          |