Intercropping canola and triticale to increase forage yields.

Chelsea Walsh, Clark Neely and Jack Brown
Division of Plant, Soil and Entomology Science, University of Idaho, Moscow, ID, 83844-2339

After first harvest

Abstract

Build up of weeds , pests and diseases are a common result of insufficiently diverse cropping rotations. In the Pacific Northwest (PNW) canola is a promising rotation oilseed crop. However, profitability limits acreage. In the dryland regions of the PNW winter canola can be planted in the spring as a dual purpose forage/oilseed crop. Improving profitability and providing a high quality, high protein feedstock. Intercropping of triticale at low seeding rates has the potential of increasing yields, increasing fiber content and allowing the feed to be baled for long distance transportation to dairies in southern Idaho.

Sheep eating canola silage

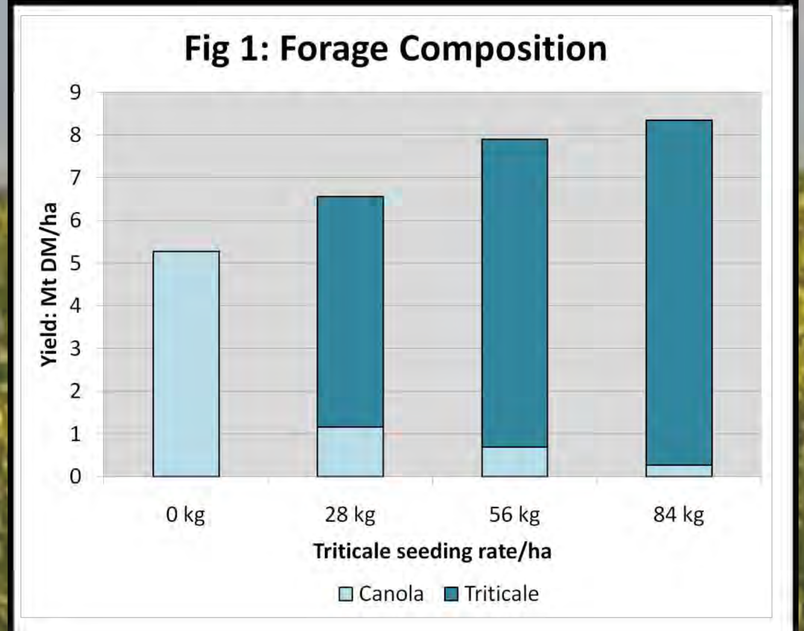
Introduction

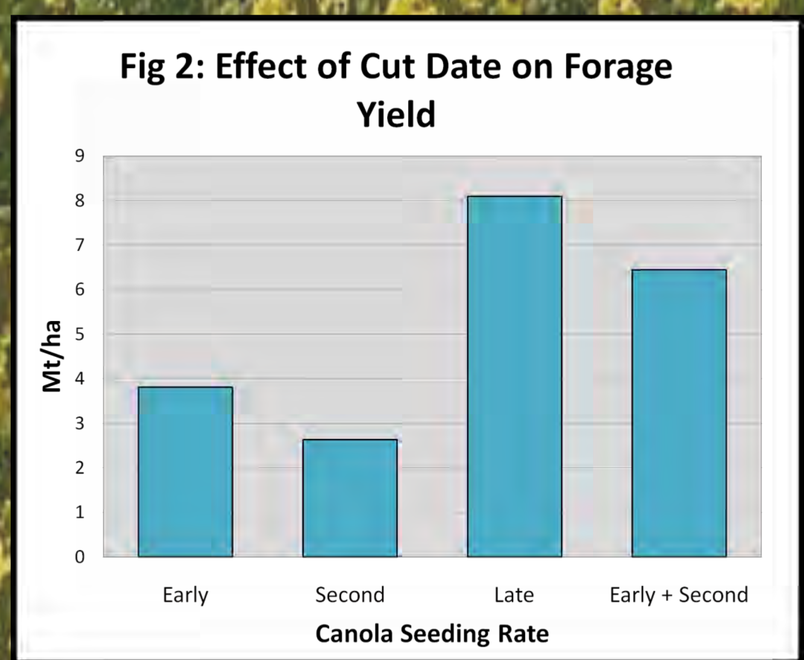
Canola is a promising rotation crop for wheat dominated regions of the Pacific Northwest. In addition to breaking weed and disease cycles canola is capable of producing large yields of high quality oil, suitable for both biodiesel and cooking, and the meal byproduct of oil production provides a high protein feedstock. Canola's deep taproots also break the plow pan and mine nutrients that are otherwise unavailable. Development of dual purpose winter canola could help widen the profit margin by producing a high protein, high energy forage crop in the first year and an oilseed crop in the second. Intercropping canola with high fiber crops like triticale has the potential to boost forage yields and produce a well balanced feedstock, compensating for canola's low fiber content. Intercropping could also allow canola forage to be baled and transported long distances.

Materials and Methods

Location: Moscow, ID & Genesee , ID

Strip-Split Plot Design: Triticale was planted first at a depth of 2.5 cm in 4.9 m wide strips at 0, 28, 56, and 84 kg/ha. Canola was planted second at a depth of 1.3 cm and at right angles to triticale at 0, 5, 9, and 14 kg/ha.





Harvest:

Two forage harvest treatments were used: late and early harvest. Regrowth of the early cut plots allowed for a second harvest.

Forage was evaluated on dry matter yield for each seeding rate combination. NDF, ADF and CP were evaluated for each site and cut time.

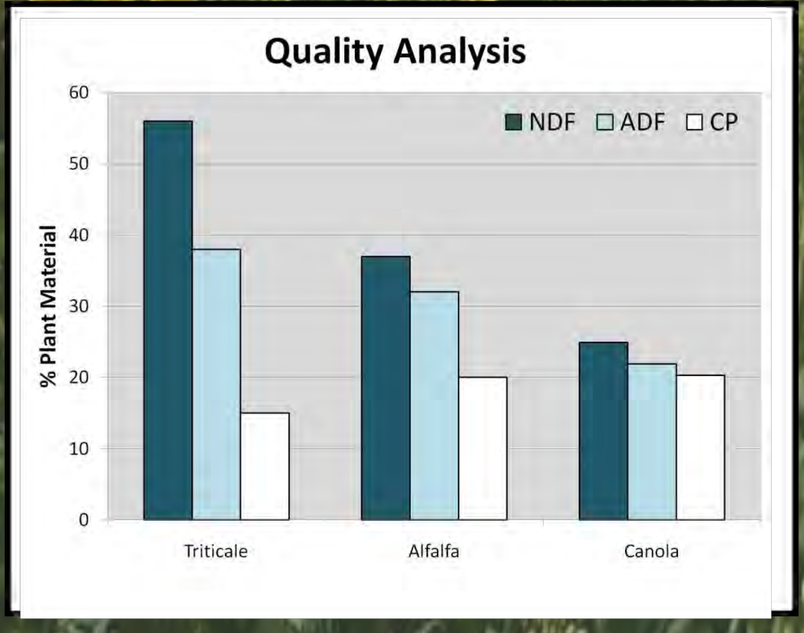
Result and Discussion

Forage yield increased with higher triticale seeding rates while the presence of winter canola did not significantly influence total forage yields (Fig 1). Canola did not compete well with triticale and canola forage yield decreased significantly at higher triticale seeding rates (Fig 1). Yields were maximized for all treatments for the single later harvest (Fig 2).

Unfortunately abnormal weather conditions lead to winter kill of all canola so it could not be determined whether seeding rates influenced survivability or seed yield. However, prior to winter, canola intercropped with the lowest triticale seeding rate had relatively high survivorship rates.

Canola had little effect on overall forage quality because of its limited contribution to total yield (Fig 1). Triticale seeding rates would need to be lowered to adjust for its greater competitiveness and allow canola to have a greater effect, increasing overall forage protein and quality.

Canola and triticale



Forage harvester