

faces increases given the same application rate in terms of lbs/A. The LD 50 for different row spacing can be seen in Table 1. It is also important to note that field conditions such as the moisture of the field can impact the movement of free ammonia through the soil and that drier soils will be more vulnerable to toxicity.

Take away points: All rates of urea do some damage to canola seedling roots. However, at rates lower canola roots may survive with some damage. The LD50 changes depending on the row spacing.

WSU Oilseed Extension and Outreach: Full Speed Ahead!



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It's hard to believe the WSU-based Washington Oilseed Cropping Systems (WOCS) project is reaching the 10-year milestone this summer, and there's no sign of slowing down from the dedicated team of research and Extension faculty, graduate students, and technicians. This will be a year of transition as Bill Pan, who has led the WOCS project since it began in 2007, hands over the WOCS reins to Scot Hulbert, with Karen Sowers co-coordinating the Extension side. Many thanks to Bill for his tireless, patient, and knowledgeable leadership! We are also grateful for the extensive amount of research and outreach Frank Young achieved before his retirement in December 2016, particularly in Douglas and Garfield counties.

The WOCS Oilseed Series of fact sheets continues to expand with four added during the past year, three currently in the editing process, and several others in preparation. Other outreach includes:

- the WOCS website (www.css.wsu.edu/oilseeds) and new Facebook page
- email updates and notifications
- on-farm canola variety trials (see abstract on page 49)
- presentations at university and industry events
- winter breakfast meetings in Colfax
- radio and newspaper interviews
- participation on the WSU Extension Dryland Cropping Systems team
- representation at WA Oilseed Commission and U.S. Canola Association meetings
- field tours from spring through fall that featured infrared drone technology, blackleg management, oilseed and cover crops, updates from the Plant Pest Diagnostic Clinic, and marketing updates.

Following the success of returning to smaller, local oilseed workshops last year, we chose three new locations for 2017 – Hartline, Ritzville and Clarkston. Our goals were to 1) have producers comprise 50% of attendees, 2) reach out to and connect new and experienced oilseed producers, and 3) engage in a more interactive format. Planning committees were comprised of producers, industry, and PNW university faculty. New to the workshops were 1) hands-on sessions featuring live canola and camelina plants exhibiting nutrient deficiencies and herbicide injury, and 2) attendees rotating through all of the breakout sessions. Attendance was at an all-time high (275), including a record 180 first-time attendees. More than half of attendees were producers. Surveys from the workshops indicated positive feedback to the locations, format, and hands-on sessions.

Finally, two major goals new for 2017-18 are the formation of a PNW Canola Grower Association, and completion of a PNW Canola Production Handbook, both of which are timely given the most recent Prospective Plantings report

(USDA-NASS, Mar. 31, 2017). The report shows increased canola acreage in all PNW states with Washington at 50,000 acres (up 152%), OR at 10,000 acres (up 250%), ID at 34,000 acres (up 162%), and MT at 110,000 acres (up 177%). With a significant number of first-time canola producers, continued education and outreach with relevant information is critical. The success of both goals will require widespread collaboration between the WOCS team, producers, industry, agency, and university personnel in all four states. Since collaboration has been a foundation of the WOCS project since 2007, we are confident that by this time next year not only will those goals be achieved, but that canola and other oilseed acreage will again experience record gains in Washington and the PNW.



Fall Grazing on Winter Canola

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Dual-purpose canola can be a viable strategy for an integrated crop-livestock farming system. Fall grazing on winter canola can provide additional income to farmers. Studies in Australia have shown that grazing winter canola can be feasible in areas with greater than 18 inches of rainfall. And, if grazing is managed appropriately, yield penalties associated with grazing can be minimized or avoided. Appropriate grazing management includes practices such as an earlier planting date, strict grazing start and termination times, and proper grazing density. Our preliminary data on fall grazing of early-planted (June 28, 2016) winter canola near Ritzville, WA, indicated that livestock grazed approximately 1 ton dry matter/acre. Furthermore, we found that the canola had high moisture content (Fig. 1) and high nutritional value (Table 1). Compared with corn silage, canola has higher protein, lower neutral digestible fiber (NDF), and lower acid digestible fiber (ADF). When grazing canola, managing nitrogen (N) and sulfur (S) fertilization is important so that nitrate (NO_3^-) and S concentrations in the canola remain at safe levels for feed. Research has shown that safe concentration levels for NO_3^- and S are 1,012 ppm and 0.4%, respectively. Providing other feed sources to livestock when grazing canola, such as wheat straw, can reduce the risk of NO_3^- toxicity while supplying high-energy feed to enhance weight gain.

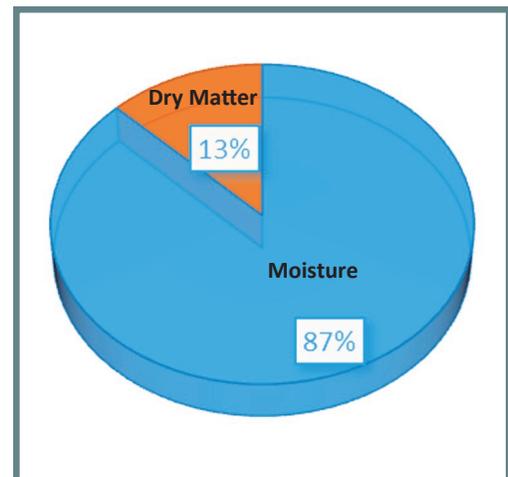


Figure 1. Moisture and above-ground, dry matter biomass in winter canola, sampled on the grazing start date.

Table 1. Comparison of nutrient content between winter canola grown near Ritzville, WA, and corn silage grown near Wapato, WA, in Fall 2016.

	Crude protein	NDF	ADF	Crude Fat	Ash	RFV	NO_3^- -N	S
	----- % -----						- ppm -	- % -
Corn silage 1 Sampled in 09/2016	6.3	50.3	33.5	2.3	6.6	116	<70	0.07
Corn silage 2 Sampled in 09/2016	4.9	68.8	45.2	1.3	9.88	73	<70	0.07
Canola 1 sampled on 09/14/2016	31.9	22.9	15.4	3.6	20.3	313	9856	0.88
Canola 2 sampled on 09/20/2016	27.5	23.8	18.6	3.0	21.5	291	3779	0.96

Note: NDF: neutral detergent fiber; ADF: acid detergent fiber; RFV: relative feed value; NO_3^- -N-nitrate-nitrogen; S-sulfur.