Figure 1. Adult Cabbage Seedpod Weevil.

Brassicaceae or mustard family, including cultivated crops such as canola and brown mustard. When left unmanaged, the CSPW can cause significant damage to ripening canola seeds and impact overall yields by as much as 50% (Fig. 2). Unfortunately, we lack the fundamental knowledge on which insecticide provides the greatest control in our region in order to make sound management recommendations. The goal of this trial is to compare several known insecticides to determine which one will work the best at managing this pest for growers.

The study design consist of randomized complete block with 5 replicates. Five insecticides: Bifenthrin (Tailgunner), Chlorantraniliprole (Altriset, Besiege, Voliam Express), Imidacloprid (Gaucho 600), Lambda-Cyhalothrin (Warrior II) and Zeta-cypermethrin (Mustang Max) were selected for this study. The seed treatment (Imidacloprid (Gaucho 600)) was applied in Fall 2016. The remaining 4 treatments will be applied the summer of 2017.

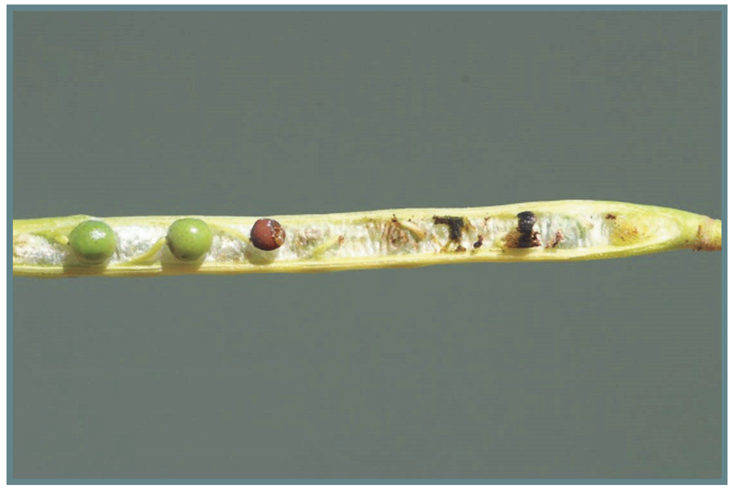

Figure 2. Cabbage Seedpod Weevil larval feeding damage. Photo by Green Thumb Photography.

We will correlate CSPW densities in canola fields with yield losses and cost of insecticide treatment and communicate the results to farmers via our http://css.wsu.edu/oilseeds website, email listservs, online publications, and at workshops and field tours.

Soil Water Dynamics in the Long-Term Camelina Cropping Systems Experiment at Lind

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We are currently in the ninth year of a long-term cropping systems experiment to evaluate camelina (C) produced in a 3-year winter wheat(WW)-C-summer fallow (SF) rotation compared to the 2-year WW-SF rotation. Camelina is direct drilled into standing WW stubble in late February or early March. Winter wheat is planted into undercut-tillage SF in late August or early September. Soil water content to a depth of six feet is measured in all 20 plots after C and WW harvest in July and again in March, and from the eight SF plots in late August just before planting WW.

The only tillage in the experiment is during fallow and consists of one pass with an undercutter sweep + fertilizer injection in late April–early May and one rodweeding in July. These operations always take place at the same depth and same time. Every year, significantly more soil water evaporates during the summer months from SF after camelina than from SF after winter wheat. An average of 1.08 inch and 0.53 inch of soil water is lost between March and August in SF after camelina and winter wheat, respectively (Table 1). What are the reasons for this loss of an additional 0.55 inch of soil water in SF after camelina?

Since 2015, we have conducted field and laboratory tests and measurements of surface soil mulch conditions in this experiment to determine why these differences in soil water evaporative loss consistently occur. We expect the main reason may be due to surface residue cover, but it also could also be due to soil clod size distribution within the soil mulch or other factors. We plan to report the full findings in the near future.

Table 1. Soil water content at the beginning (after harvest), early spring, and the end of fallow (just before planting of winter wheat) and associated gain or loss of water and precipitation storage efficiency (PSE) in the 6-foot soil profile in summer fallow in a 2-year winter wheat-fallow rotation versus a 3-year winter wheat-camelina-fallow rotation.

	Timing in fallow period					
Fallow treatment	Beginning (late Aug.)	Spring (mid Mar.)	Over-winter gain	End (late Aug.)	Mar. to Aug. water loss	PSE[†] (%)[††]
	Soil water (inches)					
After winter wheat	6.28	9.79	3.51	9.27	0.53	29
After camelina	5.76	9.63	3.87	8.55	1.08	27
p-value	0.003	ns	ns	< 0.001	0.01	ns

[†] Average fallow-year precip. for six fallow years (2009-2013, 2015) = 10.22".
[††] PSE (Precipitation Storage Efficiency) is % of precipitation stored in stored during fallow period.
[†††] 2013-14 and 2015-2016 fallow year not included due to a failed camelina crop in 2013 and 2015, respectively.

Improving Nitrogen Use Efficiency for Winter Canola Using 4R Stewardship

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Winter canola has potential as an alternative cash crop to wheat when market prices for wheat are low. Canola also has tremendous rotational benefits for soil health, weed and disease control, and the subsequent wheat crop. Careful fertility management is important to ensure maximum yield and quality; however, fertility management research specifically for winter canola production is limited. In fall 2016, we began three nitrogen (N) fertility trials to investigate the optimum rate and timing of N-fertilizer application for winter canola. Trials are established in three areas that represent different yield potentials, soil types, crop rotations, and climatic conditions. Two dryland trials are located near the towns of St. John and Hartline in Washington (WA) State and one irrigated trial is located near Odessa, WA. The primary objectives are to 1) quantify N uptake during the growing season; 2) estimate the optimum rate and timing for N fertilizer for canola grown in different environment with