Title: Canola and Mustard Production and Outreach

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Objectives: The objective of this project is to assist producers successfully incorporate oilseed crops into rotation with cereal grain production. This is accomplished with large on-farm trials and developing relevant outreach materials, and utilizing the WSU Wilke Farm Field day to further inform producers about oilseed production.

Methods: An on-farm trial was established at Ron Hennings’ farm east of Ritzville examining winter canola feasibility in comparison to winter wheat in the fall of 2006. The trial is a RCBD with 4 replications. Winter wheat and canola were harvested in the summer of 2007, the field was summer fallowed and winter wheat was seeded over the trial location in 2008 and will be harvested in 2009. At this time data will be summarized and a price matrix will be developed examining what type of canola price will growers have to have to profitably raise canola with a given winter wheat price.

A second on-farm trial was established at Rob Dewald’s farm north of Davenport examining oriental mustard’s ability to reduce wireworm populations in the soil in the spring of 2008. The trial is a RCBD with 4 replications. It compares oriental mustard and spring wheat with and without wireworm seed treatment. Wireworm traps will be used in the spring of 2009 to document shifts in wireworm populations.

The WSU Wilke Research and Extension Farm hosted a field day in June 2008 that focused on oilseed crop production. Presentations and projects on the farm focused on oilseed production include; mustard plant back restrictions with Beyond herbicide applications, winter canola fertility requirements, weed control in canola, crop rotations with oilseeds included, and variety selection.

Results: At Hennings’ very good weed control of both grassy and broadleaf species in winter canola was realized with a single 24 oz/ac Roundup application in April. As anticipated, winter wheat produced greater yield than winter canola at 2,802 lb/ac compared to only 1,724 lb/ac (Table 1). Gross economic return was calculated using Ritzville F.O.B. prices on September 15, 2007 and specified canola contract prices (personal communication). Similar to yield, gross economic return was also greater following wheat at $355/ac compared to canola at only $293/ac, but this difference much to do with market price instead of production. For example if 2008 market prices were used instead of 2007, canola would return $431/ac compared to wheat at only $283/ac. Winter wheat will be harvested in 2009 and final results will be compiled.

Table 1. Yield and gross economic return of winter wheat and canola at Hennings’ farm in 2006-07.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Yield (lb/ac)</th>
<th>Gross Economic Return† ($/ac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter Wheat</td>
<td>2,802 (43 bu)</td>
<td>355</td>
</tr>
<tr>
<td>Winter Canola</td>
<td>1,724</td>
<td>293</td>
</tr>
<tr>
<td>Level of Sign.</td>
<td>0.01</td>
<td>0.05</td>
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† Wheat $8.18/bu, Canola $0.17/lb. Production costs are nearly equal and this does not include value of subsequent crop yet.
At Dewald’s, the location had documented wireworm pressure. Overall the yield was not significant among treatments with an average yield of 917 lb/ac (Figure 1). A severe frost on July 11 limited spring wheat production and did little to impact the oriental mustard. Economic return over costs was significant with oriental mustard returning $349 and $334/ac without and with 10.0 oz/cwt Cruiser compared to spring wheat which returned only $125 and $141/ac without and with 2.0 oz/cwt of Gaucho (Figure 2).

![Figure 1](image1.png)

Figure 1. Yield of spring wheat and oriental mustard with and without wireworm control at Rob Dewald’s farm north of Davenport in 2008. Level of significance = n.s.

![Figure 2](image2.png)

Figure 2. Economic return over variable costs of spring wheat and oriental mustard with and without wireworm control at Rob Dewald’s farm north of Davenport in 2008. Level of significance = 0.001. Means with different letters are significant.
**Conclusions:** It appears winter canola’s fit into rotation in the dryland fallow region of eastern Washington will ultimately be determined by market price in relationship to winter wheat and available soil moisture for adequate stand establishment. Weed control, herbicide resistant weed management, disease, and fertility requirements will all be factors to consider, but to a lesser extent.

Oriental mustard may have the potential to reduce wireworm populations in the soil and produced greater economic returns over costs than spring wheat which had reduced yield because of severe frost.

**Future Plans:** The trial at Hennings will be finalized this summer after winter wheat harvest and outreach materials will be developed. This will include a market price matrix that will help producers decide what type of canola contract they will have to have to be economically competitive with winter wheat in the dryland fallow region of eastern Washington. This matrix will be helpful for growers to manage the risk associated with winter canola. The study at Dewald’s examining oriental mustard as a potential oilseed crop to reduce wireworm populations will continue with extensive trapping in the spring of 2009 to document population shifts and a second location may be established this spring but is pending herbicide carryover testing.

Outreach on the WSU Wilke Research and Extension Farm was expanded this fall to include extensive winter canola variety testing as well as weed control and fertilizer studies. In the future variety testing may include camelina, spring canola, and mustard cultivars, and the rotation study utilizing oilseeds in rotation is being continued.
On-farm trial at Rob Dewald’s farm (Davenport, WA) examining the potential for oriental mustard to reduce wireworm populations in the soil.