Crop Opportunity and Scott Research Update

WARC Research Update
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WARC Research Assistant
Canola Projects

- Podsealant study: 2009-2010
- Estimating variety shatter: 2011-2012
- Low canola seeding rates: 2010-2012
- Canola type for reseeding: 2010-2012
- Effect of the Ultra roller to “normal” seed roller in seeders on canola emergence and yield: 2012-2013
WHAT ARE GROWERS DOING?

• 2009 CCC Agronomy Survey says…
  – 14.6% straight-combine
  – 13.8% want to increase straight-combined acres

• Early research from CCC Canola Production Centers reported straight-combined yields ranging from 50% to > 100% of swathed yields

Slide Credit: Chris Holzapfel, IHARF
STRAIGHT-COMBINED VERSUS SWATHED (SMALL PLOT TRIALS 2009-2010)

<table>
<thead>
<tr>
<th>Site-Year</th>
<th>Grain Yield (kg/ha)</th>
<th>SWATHED</th>
<th>STRAIGHT-CUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>IH-09</td>
<td>96%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IH-10</td>
<td>82%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC-09</td>
<td>112%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC-10</td>
<td>110%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME-09</td>
<td>78%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME-10</td>
<td>92%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW-09</td>
<td>119%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW-10</td>
<td>101%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALL</td>
<td>98%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Slide Credit: Chris Holzapfel, IHARF
Current Research

- Trials initiated in 2011 at Indian Head, Scott & Swift Current to further investigate importance of cultivar selection for straight combining
- Evaluating potential yield loss and measuring pod drop/shatter in 12 modern cultivars from various breeding programs / herbicide

<table>
<thead>
<tr>
<th>InVigor 5440</th>
<th>Pionner HiBred 45H29</th>
<th>Dekalb 73-45</th>
<th>Pioneer HiBred 46H75</th>
</tr>
</thead>
<tbody>
<tr>
<td>InVigor L130</td>
<td>Pionner HiBred 45H31</td>
<td>Brett Young 6060</td>
<td>Nexera 2012 CL</td>
</tr>
<tr>
<td>InVigor L150</td>
<td>Dekalb 73-75</td>
<td>Proven 9553</td>
<td>Brett Young 5525</td>
</tr>
</tbody>
</table>

Slide Credit: Chris Holzapfel, IHARF
INDIAN HEAD 2009

Slide Credit: Chris Holzapfel, IHARF
Observed Seed Loss in Percent (early-optimal timing)

All Locations (2011)

Cultivar

Yield Loss (%)

T1 - Shattered (LL)
T1 - Shattered (RR)
T1 - Shattered (CL)
T1 - Dropped (LL)
T1 - Dropped (RR)
T1 - Dropped (CL)

Cultivar

5440 LL  L130 LL  L150 LL  45H29 RR  45H31 RR  T3-75 RR  T3-45 RR  6060 RR  9553 RR  46H75 CL  2012 CL  5525 CL

Slide Credit: Chris Holzapfel, IHARF
Observed Seed Loss in Percent
(2-4 weeks past optimal timing)

All Locations (2011)

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Yield Loss (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5440 LL</td>
<td>0</td>
</tr>
<tr>
<td>L130 LL</td>
<td>2</td>
</tr>
<tr>
<td>L150 LL</td>
<td>4</td>
</tr>
<tr>
<td>45H29 RR</td>
<td>6</td>
</tr>
<tr>
<td>45H31 RR</td>
<td>8</td>
</tr>
<tr>
<td>73-75 RR</td>
<td>10</td>
</tr>
<tr>
<td>73-45 RR</td>
<td>10</td>
</tr>
<tr>
<td>6060 RR</td>
<td>10</td>
</tr>
<tr>
<td>9553 RR</td>
<td>10</td>
</tr>
<tr>
<td>46H75 CL</td>
<td>10</td>
</tr>
<tr>
<td>2012 CL</td>
<td>10</td>
</tr>
<tr>
<td>5525 CL</td>
<td>10</td>
</tr>
</tbody>
</table>

Slide Credit: Chris Holzapfel, IHARF
Take-Home Messages

- Growers should not be afraid to try straight-combining canola but must understand the risks
  - Harvesting at optimal stage critical relative to swathed canola
  - Limit straight-cut acres to what is manageable & swath the rest
  - Header extensions may be worthwhile investment for growers who are serious about straight-combining canola

- **Variety matters!**
  - Significant differences in shatter-resistance demonstrated amongst *napus* varieties
  - More information on relative shattering resistance of varieties would be useful to growers planning to straight-combine
Take-Home Messages

• **Pod sealants and/or dessicants**
  – Pod sealants unlikely to be cost effective over time but a yield benefit was observed 13% of the time *(leave a check-strip!!)*
  – Pre-harvest glyphosate is not a necessity but can accelerate harvest and provide weed control benefits into the next season

Slide Credit: Chris Holzapfel, IHARF
Canola Yield Response to Low Plant Populations

- 2010-2012
- Sites are Scott, Swift Current, Saskatoon, Melfort, and Indian Head
- Seeded plots at 5, 10, 20, 40, 80, 150, 300 seeds m\(^{-2}\)
- Variety is 5440LL
## Canola Emergence

<table>
<thead>
<tr>
<th>Seeding Rate (seeds m(^{-2}))</th>
<th>2010 Emergence (%)</th>
<th>2011 Emergence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>145</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>111</td>
<td>68</td>
</tr>
<tr>
<td>20</td>
<td>83</td>
<td>45</td>
</tr>
<tr>
<td>40</td>
<td>98</td>
<td>38</td>
</tr>
<tr>
<td>80</td>
<td>94</td>
<td>36</td>
</tr>
<tr>
<td>150</td>
<td>88</td>
<td>34</td>
</tr>
<tr>
<td>300</td>
<td>70</td>
<td>34</td>
</tr>
</tbody>
</table>
2 plants m\(^{-2}\)  
3 plants m\(^{-2}\)

July 15, 2011
6 plants m\(^{-2}\)

17 plants m\(^{-2}\)

July 15, 2011
34 plants m$^{-2}$

61 plants m$^{-2}$

July 15, 2011

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1 plant m$^{-2}$

3 plants m$^{-2}$

Aug 19, 2011

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7 plants m$^{-2}$

21 plants m$^{-2}$

Aug 19, 2011
30 plants m$^{-2}$

70 plants m$^{-2}$

Aug 19, 2011
1 plants m$^{-2}$

52 plants m$^{-2}$

Aug 23, 2011

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2010 All Sites

Yield (kg m\(^{-2}\)) vs. Canola plant density (plants m\(^{-2}\))

R\(^2\) = 0.97
2011 All Sites

Canola plant density (plants m$^{-2}$)

Yield (kg m$^{-2}$)

$R^2=0.97$
2011 Sites

Scott 2011

Swift Current 2011

Melfort 2011

Saskatoon 2011

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## Scott 2011

<table>
<thead>
<tr>
<th>Seeding Rate (seeds m(^{-2}))</th>
<th>Days to end of Flower</th>
<th>Seeds/pod (#)</th>
<th>Pods/plant (#)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>90</td>
<td>29</td>
<td>1547</td>
</tr>
<tr>
<td>10</td>
<td>88</td>
<td>29</td>
<td>897</td>
</tr>
<tr>
<td>20</td>
<td>86</td>
<td>29</td>
<td>637</td>
</tr>
<tr>
<td>40</td>
<td>82</td>
<td>29</td>
<td>438</td>
</tr>
<tr>
<td>80</td>
<td>79</td>
<td>28</td>
<td>325</td>
</tr>
<tr>
<td>150</td>
<td>76</td>
<td>29</td>
<td>147</td>
</tr>
<tr>
<td>300</td>
<td>73</td>
<td>28</td>
<td>105</td>
</tr>
</tbody>
</table>
Summary

• Low plant population study will continue in 2012

• Each site had different plant populations that produced max yield
  – Range from 7-47 plants m\(^{-2}\) to maximize yield

• In general very low plant densities had longer days to maturity and more branches and pods/plant

• Environmental stress may increase the number of plants required to reach max yield
Acknowledgements

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IHARF
Wheatland Conservation Area Inc.

Northeast Agriculture Research Foundation

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Questions??

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