TOPICS TO COVER

• Acres
• Agronomy
• 2015 Experience
• Economics

Source: S. Phelps, SPG 2015
## INTEREST IN FABA BEANS

Acreage in Western Canada – Crop Insurance Acreage

<table>
<thead>
<tr>
<th>Year</th>
<th>AB</th>
<th>SK</th>
<th>MB</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>80,000</td>
<td>20,000</td>
<td></td>
<td>100,000</td>
</tr>
<tr>
<td>2015</td>
<td>110,000</td>
<td>61,792</td>
<td>9,040</td>
<td>&gt;180,000</td>
</tr>
<tr>
<td>2016</td>
<td>???</td>
<td>???</td>
<td>???</td>
<td>???</td>
</tr>
</tbody>
</table>

Crop Insurance – only 70-85% of acres grown
2015 Fababean Acres by Crop District
Fababean Acres = 66,085

Legend
- Crop District
- RM
- 2016 Fababean Acres
  - 438 - 1,000
  - 1,001 - 2,000
  - 2,001 - 5,000
  - 5,001 - 12,000
  - 12,001 - 15,537

Likes moisture & Tolerates wet feet = wetter regions

* Saskatoon
* Prince Albert
* North Battleford
* Swift Current
* Regina
* Watrous
* Kindersley
AGRONOMY OF FABA BEAN

Source: S. Phelps, SPG 2015
# CROP MATURITY

<table>
<thead>
<tr>
<th>Crop</th>
<th>Maturity (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canola</td>
<td>88-100</td>
</tr>
<tr>
<td>SWS wheat</td>
<td>105</td>
</tr>
<tr>
<td>CPS wheat</td>
<td>101-103</td>
</tr>
<tr>
<td>HRS wheat</td>
<td>98-103</td>
</tr>
<tr>
<td>Barley</td>
<td>91</td>
</tr>
<tr>
<td>Oat</td>
<td>96</td>
</tr>
<tr>
<td>Peas</td>
<td>86-94</td>
</tr>
<tr>
<td>Flax</td>
<td>101</td>
</tr>
<tr>
<td>Canary Seed</td>
<td>104 – 106</td>
</tr>
<tr>
<td>Mustard</td>
<td>92-98</td>
</tr>
<tr>
<td>Fababean</td>
<td>105-109</td>
</tr>
<tr>
<td>Hemp</td>
<td>80-120</td>
</tr>
<tr>
<td>Corn</td>
<td>120</td>
</tr>
<tr>
<td>Soybean</td>
<td>119-124</td>
</tr>
<tr>
<td>Sunflower</td>
<td>108-119</td>
</tr>
<tr>
<td>Quinoa</td>
<td>90?-125</td>
</tr>
<tr>
<td>Camelina</td>
<td>90</td>
</tr>
</tbody>
</table>
**TYPES**

Tannin (4 to 9%)  
(brown seed coat & black dot)

Low Tannin (Zero) (<1%)  
(white flower & cream seed coat)
<table>
<thead>
<tr>
<th>Variety</th>
<th>Type*</th>
<th>Breeding Program/Distributors</th>
<th>Seed size</th>
<th>DTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snowdrop</td>
<td>Low Tannin</td>
<td>University of Saskatchewan / SPG</td>
<td>335</td>
<td>104</td>
</tr>
<tr>
<td>Snowbird</td>
<td>Low Tannin</td>
<td>Limagrain Nederland Bob Park – Lacombe, AB</td>
<td>495</td>
<td>104</td>
</tr>
<tr>
<td>Imposa</td>
<td>Low Tannin</td>
<td>Limagrain Nederland Cyre Seed Farms</td>
<td>695</td>
<td>107</td>
</tr>
<tr>
<td>Tabasco</td>
<td>Low Tannin</td>
<td>NPZ Lemke / DL seeds</td>
<td>530</td>
<td>106</td>
</tr>
<tr>
<td>Taboar</td>
<td>Tannin</td>
<td>Globe Seeds - Netherland Terrramax</td>
<td>480</td>
<td>107</td>
</tr>
<tr>
<td>CDC Fatima</td>
<td>Tannin</td>
<td>University of Saskatchewan Legumex Walker</td>
<td>520</td>
<td>105</td>
</tr>
<tr>
<td>Malik (FB 9-4)</td>
<td>Tannin</td>
<td>University of Saskatchewan Saskcan Pulse Trading/AGT</td>
<td>680</td>
<td>104</td>
</tr>
<tr>
<td>CDC SSNS-1</td>
<td>Tannin</td>
<td>University of Saskatchewan Meier Brothers</td>
<td>335-350</td>
<td>105</td>
</tr>
<tr>
<td>Florent</td>
<td>Tannin</td>
<td>NPZ Lemke / DL Seeds</td>
<td>660</td>
<td>107</td>
</tr>
<tr>
<td>Fabelle</td>
<td>Tannin</td>
<td>NPZ Lemke / DL Seeds</td>
<td>533</td>
<td>105</td>
</tr>
<tr>
<td>Vertigo</td>
<td>Tannin</td>
<td>NPZ Lemke / DL Seeds</td>
<td>571</td>
<td>106</td>
</tr>
</tbody>
</table>

Varieties of Grain Crops: Saskatchewan
SEEDING RATES

- Target 45 plants/m$^2$ (4-5/ft$^2$)
- 60 lbs/bushel
- Know your seed size!

<table>
<thead>
<tr>
<th>Seed Name</th>
<th>TKW (g)</th>
<th>kg/ha</th>
<th>bu/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malik (FB9-4)</td>
<td>680</td>
<td>(805)</td>
<td>360</td>
</tr>
<tr>
<td>Snowbird</td>
<td>495</td>
<td>262</td>
<td>3.9</td>
</tr>
<tr>
<td>Snowdrop</td>
<td>335</td>
<td>177</td>
<td>2.6</td>
</tr>
</tbody>
</table>
SEEDING

- 2-3 inches deep
- Cross pollinate - Keep types/varieties separate by at least 100m (Dr. Vandenberg suggests 500m) or will have a lot of outcrossing
- Seed treatments – low tannin varieties higher risk (Apron products/Stress Shield)
Distributor heads
Seeds can be damaged as they hit the distributor head.
Blockages occur at outlet holes.

Seed box
Check for bridging, especially following transport.

Seedling boot
Blockages occur, especially if boot narrows or changes in shape from circular to oblong.

Metering device
Check roller type for seed clearance and possible seed damage.
Check device can meter correct seeding rate.
Go slow!!! Check often!!!

Source: S. Phelps, SPG
POTENTIAL FOR HUGE BIOMASS

Source: Olson, M.A. 2014
July 5, 2013

July 20, 2013
FERTILITY

<table>
<thead>
<tr>
<th>Oilseeds</th>
<th>Pulse Crops*</th>
<th>N</th>
<th>P₂O₅</th>
<th>K₂O</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peas</td>
<td></td>
<td>uptake</td>
<td>138 - 168</td>
<td>38 - 46</td>
<td>123 - 150</td>
</tr>
<tr>
<td>50 bu/A (3360 kg/ha)</td>
<td>removal</td>
<td>105 - 129</td>
<td>31 - 38</td>
<td>32 - 39</td>
<td>6 - 7</td>
</tr>
<tr>
<td>Lentils</td>
<td></td>
<td>uptake</td>
<td>82 - 101</td>
<td>22 - 27</td>
<td>69 - 84</td>
</tr>
<tr>
<td>30 bu/A (2016 kg/ha)</td>
<td>removal</td>
<td>55 - 67</td>
<td>17 - 20</td>
<td>29 - 36</td>
<td>4 - 5</td>
</tr>
<tr>
<td>Fababeanes</td>
<td></td>
<td>uptake</td>
<td>257 - 314</td>
<td>89 - 108</td>
<td>229 - 280</td>
</tr>
<tr>
<td>50 bu/A (3808 kg/ha)</td>
<td>removal</td>
<td>154 - 188</td>
<td>55 - 67</td>
<td>47 - 57</td>
<td>6 - 8</td>
</tr>
</tbody>
</table>

- Faba much higher uptake of P than peas
  (1.1 to 1.3 lbs P per bushel; peas at 0.7)
- Safe rate seed placed P is 40 lb/acre actual (P+K)
NITROGEN FIXATION
(Dr. Fran Walley, U of S)

Faba - highest N-fixing legume grain crop
### N fixed in Western Canada (dryland)

<table>
<thead>
<tr>
<th>Crop</th>
<th>lbs N / acre (average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfalfa</td>
<td>100 – 250 (175)</td>
</tr>
<tr>
<td>Pea</td>
<td>50 – 150 (100)</td>
</tr>
<tr>
<td>Lentil</td>
<td>30 – 120 (75)</td>
</tr>
<tr>
<td>Faba Bean</td>
<td>80 – 160 (120)</td>
</tr>
</tbody>
</table>

*Source: Dr. J. Schoenau, U of Saskatchewan*
INOCULANT PRODUCTS

**Rhizobium leguminosarum:**
pea, lentil, faba, chickling vetch

**Faba bean specific products:**
BASF (formerly BeckerUnderwood) - Nodulator® peat
Monsanto Bio-AG (formerly Novozymes) - Tag Team granular
Faba bean inoculant trial – G. Hnatowich, ICDC
Indian Head site July 21 2015
RESIDUAL HERBICIDES

2nd season after application of the following (ie. 22 months recropping)

Muster (Toss-N-Go / Gold II), Assert, Everest, Triton C
Clopyralid (<123 gai/ac)
   (Lontrel, Curtail M, Prestige XC, Eclipse III, Flaxmax, Spectrum*)
Banvel II/Oracle (high rates >0.5L/ac)

Fall Applied (ie. 18 months recropping)
PrePass (fall application)
2,4-D (high rates applied in fall)

Best Guess as little work on recropping to faba beans!!
WEED CONTROL (REGISTERED PRODUCTS)

Pre-emergence products:
- Glyphosate
- Glyphosate + Express (Tribenuron)
- Edge
- Trifluralin / Trifluralin + Sencor (metribuzin)

In crop:
- Basagran & Basagran Forte
- Odyssey
- Poast Ultra (grassy weed control)
- Assure II (quizalofop) (grassy weed control)
PEST MANAGEMENT

Grow it…they will come……

Source: Olson, M.A. 2014
LYGUS

- Higher risk areas in SK are where high canola or alfalfa acres (NE and Meadow Lake)
- Max 1% damage for No. 1 grade
- Hard to control as insect moves back in after insecticide application

Source: S. Phelps, SPG 2014
OTHER INSECTS

Blister Beetles
Pea Leaf Weevil
Grasshoppers
Leafhoppers (AY)
Aphids

Source Sask. Agric.
DISEASE

Chocolate Spot – botrytis
Ascochyta
Alternaria
Sclerotinia

Source: S. Phelps, SPG 2015
DISEASE

Photos: K. Stonehouse, SMA (North of Tisdale)
LEAF BURNING = NOT CHOC SPOT

Source: S. Phelps, SPG 2015
Faba beans varieties have more tolerance than pea / lentil but similar to chickpea.
FLOWERING

Start flowering 8-10 node stage = 12” high
Flowers located approx. 8”

**BBCH Staging guide suggests:**

Start of flowering – 1 flower open on 1 raceme per plant
Full flower - flowers open at 5 racemes/plant
End of flower - first pods visible
ONLY ABOUT ¼ OF FLOWERS PRODUCE PODS!

Flowers/pods abort:
- >27 degrees C
- Hot & dry during podding
- Lack of pollinators (bees)
- Presence of disease

Source: S. Phelps, SPG 2015
3-4 SEEDS PER POD AVERAGE

Source: S. Phelps, SPG 2015
HARVEST MANAGEMENT

• physiologically mature when 90% of plants have color change

Pre-harvest weed control: glyphosate

Dessicant: Reglone/diquat products
STANDABILITY IS GOOD

Faba beans

Peas

Photo: S. Phelps, SPG from Medstead, September 2015
COMBINING

• straight cut approximately 6-8” off the ground
  • shorter stubble allow easier seeding (no plugging between shanks) the next spring.
• 16% moisture is dry
• combine at 18-20% and aerate
• Don’t use lifters (pop pods)
HARVEST YIELDS

• Target yield in AB is 50 - 60 bu/acre
• AB 10 year average is 39 bu/acre
• SK 10 year average is 35, 2014 averaged 38 bu/acre (source SCIC), 2015 still waiting…. 
• outyields peas under good moisture, less than peas under drier conditions
2015 EXPERIENCE – DRY SPRING

Hill tops

Low area

Source: S. Phelps, SPG 2015
FROST & CUTWORMS
- REGROWTH FROM SEED

Source: S. Phelps, SPG 2015
END OF JULY

Saskatoon (U of S)

Source: S. Phelps, SPG 2015
OUTLOOK JULY 30
(ICDC VARIETY TRIALS)

Gary Hnatowich

Source: S. Phelps, SPG 2015
Medstead (Terrel Hill)

35 to 65 bu/acre (58 pea)

Source: S. Phelps, SPG 2015
20 bu/acre

Source: S. Phelps, SPG 2015
<table>
<thead>
<tr>
<th>Location</th>
<th>Faba Bean</th>
<th>Pea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meadow Lake</td>
<td>45</td>
<td>50 (+5)</td>
</tr>
<tr>
<td>Goodsoil</td>
<td>30</td>
<td>40 (+10)</td>
</tr>
<tr>
<td>Wilkie</td>
<td>29</td>
<td>25 (-4)</td>
</tr>
<tr>
<td>Nakomis/Simpson</td>
<td>30</td>
<td>(+7-8)</td>
</tr>
<tr>
<td>Welwyn</td>
<td>54</td>
<td>50 (+4)</td>
</tr>
<tr>
<td>North Battleford</td>
<td>20</td>
<td>25 (+5)</td>
</tr>
<tr>
<td>Medstead</td>
<td>35 to 65</td>
<td>58</td>
</tr>
</tbody>
</table>

In dry years expect peas to outyield faba bean, in wet years faba beans should outyield peas!
POD ISSUES

Source: S. Phelps, SPG 2015
ECONOMICS

- Using Crop Planning Guide 2015 for Black Soil Zone
- Faba bean expenses – similar to pea (seed cost and P fertilizer up, no rolling, less fungicides, easier harvest)
- Pea yields – 39.2, Faba bean – 40 bu/acre
- Faba bean prices - $6 to $14 (used $7 for CPG, $8 for new crop)
<table>
<thead>
<tr>
<th>Crop Type</th>
<th>Return (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Wheat</td>
<td>6.57</td>
</tr>
<tr>
<td>CPS wheat</td>
<td>5.62</td>
</tr>
<tr>
<td>Malt barley</td>
<td>5.5</td>
</tr>
<tr>
<td>Feed barley</td>
<td>3.7</td>
</tr>
<tr>
<td>Oats</td>
<td>2.65</td>
</tr>
<tr>
<td>Canola</td>
<td>10.11</td>
</tr>
<tr>
<td>Flax</td>
<td>10.59</td>
</tr>
<tr>
<td>Yellow pea</td>
<td>8.74</td>
</tr>
<tr>
<td>Green peas</td>
<td>7.01</td>
</tr>
<tr>
<td>Faba bean</td>
<td>7.0</td>
</tr>
<tr>
<td>LG lentil</td>
<td>0.31</td>
</tr>
<tr>
<td>Red lentil</td>
<td>0.33</td>
</tr>
</tbody>
</table>

Graph showing return over variable expenses based on CPG 2016, with a $125 other expenses line.
return over variable expenses based on Mar 8 prices and new crop prices (pulses)
return over variable expenses based on Mar 8 prices and new crop prices (pulses) + rotational benefits for pulses

Rotational benefit - $20 to $50/acre for peas
Need to get to 50 bu/acre faba beans @ $8/bushel = PEAS
THANK YOU!!!

Source: S. Phelps, SPG 2015

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