Snap Peas

Edible podded peas

<table>
<thead>
<tr>
<th>Trait</th>
<th>Dry</th>
<th>Garden</th>
<th>Snow</th>
<th>Snap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed</td>
<td>Round</td>
<td>Wrinkled (less round)</td>
<td>Round</td>
<td>Wrinkled</td>
</tr>
<tr>
<td>Pod fiber</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Wall thickness</td>
<td>Thin</td>
<td>Thin</td>
<td>Thin</td>
<td>Thick</td>
</tr>
<tr>
<td>Mature orange</td>
<td>+</td>
<td>+</td>
<td>+/–</td>
<td>–</td>
</tr>
</tbody>
</table>

Pea seed shape in relation to type
**Snap Peas**

**Breeding Objective**
Vigorous edible-pod type that produce in warmer summer months

**Key Traits for Variety Selection**
- Days to germination and flowering
- Yield
- Aphid damage
- Continued pod setting as the summer turns warmer
- Disease ratings (PEMV, powdery mildew, fusarium wilt)
- Flavor, overall quality

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**Disease of Importance**

- **Powdery Mildew**
- **Fusarium wilt**
**Pea enation mosaic virus**

**Methods: Snap Peas**

- Pedigree selection: Manoa C x OSP II or S706
- Selection in conventional systems
  - Heat tolerance
  - Powdery mildew
  - Virus resistance
- 2009 – trialed advanced pea lines in organic production
  - S1423, S1430 & S1431 seemed well adapted
- 2010-2011 – Mother daughter trials w/ 6 commercial varieties

**Mother Farm (LBF 2010)**

<table>
<thead>
<tr>
<th>Variety</th>
<th>% Germination</th>
<th>Days to Harvest</th>
<th>Pod Length (inches)</th>
<th>String Length (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cascadia</td>
<td>12.2</td>
<td>63.0</td>
<td>2.8</td>
<td>2.7</td>
</tr>
<tr>
<td>OSPII</td>
<td>67.2</td>
<td>54.0</td>
<td>3.3</td>
<td>3.3</td>
</tr>
<tr>
<td>S1423</td>
<td>42.2</td>
<td>56.3</td>
<td>3.1</td>
<td>2.7</td>
</tr>
<tr>
<td>S1430</td>
<td>30.6</td>
<td>63.3</td>
<td>3.1</td>
<td>2.6</td>
</tr>
<tr>
<td>S1431</td>
<td>70.0</td>
<td>56.3</td>
<td>3.9</td>
<td>3.1</td>
</tr>
<tr>
<td>Sugar Ann</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sugar Daddy</td>
<td>6.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sugar Spring</td>
<td>6.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Super Sugar</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Snap</td>
<td>33.9</td>
<td>60.7</td>
<td>3.2</td>
<td>2.9</td>
</tr>
</tbody>
</table>
Harvest Quality
(Mother 2010)
Cornell Program

• Backcross-inbred program to widen the genetic base of the edible podded peas
• Identify germplasm w/ abiotic and biotic stress tolerance & adapted to NE
• July planting: high temperatures, powdery mildew, fusarium root rot, ascochyta blight
• Three breeding populations in snap & snow backgrounds created w/ input from market growers and chefs

Cornell Breeding materials

• Stringless selections to be derived from 900 backcross F₁ plants in 2012
• A second set of populations being created incorporating top performing peas from 2011 stress tolerance screen

Cascadia x S1208
SS
F₁ x S1208
Ss
BC₁F₁
1 Ss (1 ss)
~300 single plants