COMPARING YIELD OF BABY-LEAF LETTUCE WITH SALANOVA™ ‘BABY-LEAF’ HEAD LETTUCE PRODUCTION IN NORTHWEST WASHINGTON

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Lettuce Market

U.S. Production

• Baby leaf production $2.7 billion
• 96% of salad mix in U.S. grown in California and Arizona
  – 70% from Monterrey County, CA
  – Average production cost $0.89 /lb

Northwestern Washington Production

• NW WA and Monterrey County similar climates
• Majority of NW WA lettuce direct-marketed

Sources: Monterey County Ag Commission, 2012; USDA 2014
Image source: Ramsay Harvesting, Inc.; USDA ERS 2012
Approach

Research Studies

• Variety trial for traditional baby-leaf salad mix – Fall and Spring, 2 years
• WSU Mount Vernon NWREC and on-farm
• Companion study – traditional baby-leaf vs Salanova™ varieties

Funding

• Tom Thornton and Northwest Agriculture Business Center (NABC) - WSDA Specialty Crop Block Grant and Whatcom Community Grant
• Chris Benedict and Carol Miles - WSU Extension Emerging Research Issues
Baby-leaf Head Lettuce

Several trade names for head lettuce designed for salad mix production

- 200 leaves per head, average leaf length 4-6 in.
- Grown to maturity and cored into salad mix
- $0.07 per Salanova™ seed, ~$0.0006 per non-patented lettuce seed
- Seed companies claim higher yield/shelf-life, do not take into account recutting of baby-leaf lettuce
Materials and Methods

Objectives:

• Compare yield of direct-seeded baby-leaf lettuce with Salanova™ salad mix head lettuce.

• Compare seed cost of traditional baby-leaf lettuce to that of Salanova™ salad mix head lettuce.
# Materials and Methods

<table>
<thead>
<tr>
<th>Salanova™</th>
<th>Traditional baby-leaf</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 8 cultivars seeded in greenhouse</td>
<td>• Lettuce Cv. Flashy Trout’s Back</td>
</tr>
<tr>
<td>• Transplanted to black plastic mulch on 2.6 ft wide bed</td>
<td>• Hand seeded on 2.6 ft wide bed</td>
</tr>
<tr>
<td>• 3 rows, 8 in. center-to-center</td>
<td>• 6 rows, spaced 4 in. center-to-center</td>
</tr>
<tr>
<td>• Wilgro Proganic 8-2-4 at 100 lb N/A</td>
<td>• Wilgro Proganic 8-2-4 at 50 lb N/A</td>
</tr>
<tr>
<td>• Harvested at 8 in. diameter</td>
<td>• Harvested at 4 in. height</td>
</tr>
</tbody>
</table>

- **Spring Planting**
- **Transplant and direct seed same day**
Data Collection and Calculations

• Harvest center 1m in each plot: compare yield, DTH, crop value, and seed cost
  o Salanova™ cored into salad mix
  o Baby-leaf plots harvested once, reharvest yield extrapolated assuming same yield as first harvest with 10 day interval between harvests (per grower experience)
# Results

## Yield Comparison

<table>
<thead>
<tr>
<th></th>
<th>Salanova™ cored (lb)</th>
<th>Baby-leaf (lb) cumulative with harvest</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Yield per 1 ft bed</td>
<td>1.6 a</td>
<td>0.33 b</td>
<td>0.66 b</td>
</tr>
<tr>
<td>DTH from seeding</td>
<td>75 x</td>
<td>36 y</td>
<td>46 y</td>
</tr>
<tr>
<td>DTH from field planting</td>
<td>52 A</td>
<td>36 B</td>
<td>46 B</td>
</tr>
<tr>
<td>Wholesale crop value(^x) per 100 ft bed</td>
<td>$317</td>
<td>$67</td>
<td>$135</td>
</tr>
<tr>
<td>Seed cost(^y) per 100 ft bed</td>
<td>$19.20</td>
<td>$ 8.64</td>
<td></td>
</tr>
</tbody>
</table>

\(^x\) USDA ERS, 2014

\(^y\) Johnny’s Selected Seed, 2015
Conclusions

• **Salanova™ had 63% higher yield than traditional baby-leaf lettuce accounting for re-harvest** ($P = 0.004$)

• Additional seed cost ($10.56) minimal relative to economic gain resulting from yield

• Lots more questions to answer!
Sutton Seeder
Sutton Harvester