

# Winter Grain Pea Variety Trials

## Project Goals:

- Assess feasibility and profitability of winter pulse production in NY State
- Identify adapted varieties and best agronomic practices

|                       | Research Station                                     | On-Farm                         |
|-----------------------|--|---------------------------------|
| <b>Site</b>           | Freeville, NY  | Penn Yan, NY                    |
| <b>Plot Size</b>      | 4.5' x 15'   | 30' x 300' (~0.20 ac)           |
| <b>Entries</b>        | 9 (Year1), 10 (Year 2)                               | 7 (Year 1), 8 (Year 2)          |
| <b>Replicates</b>     | 4  | 1                               |
| <b>Biculture Crop</b> | Triticale  | Triticale (Y1), Winter Oat (Y2) |
| <b>Seeding Rates</b>  | 175,000 PLS*/ ac (Pea) + 480,000 PLS*/ac (Triticale) |                                 |

## Key Results:

- **In Year 1 – a normal-to dry year** – shorter varieties with more stems – like Blaze, Vail, and Goldenwood – ranked higher for grain yield in both replicated and on-farm trials.
- **In the Year 2 replicated trial – in a wet, disease-prone field** – top yielding entries were Icicle and KeystoneIcicle, two vining, indeterminate cultivars that had mid-range to low yields in Year 1.
- **Two-year analysis identified two varieties – Kurtwood and Goldenwood – that provided above-average yield** in two very different growing seasons at both research and on-farm plots. Blaze and Vail performed well in drier conditions, while KeystoneIcicle excelled in a wet field with high disease pressure.
- **While vining, indeterminate pea cultivars performed well in higher-moisture conditions**, harvest was only feasible with equipment capable of picking up large, lodged plants.



**NE SARE Partnership Grant:** *Exploring winter lentil and winter pea production in the Northeastern United States*  
**Cornell University:** Kristen Loria ([kal52@cornell.edu](mailto:kal52@cornell.edu)), Solveig Hanson ([sh2458@cornell.edu](mailto:sh2458@cornell.edu)), Virginia Moore ([vm377@cornell.edu](mailto:vm377@cornell.edu))  
**Farmer collaborator:** Peter Martens · **Pea and triticale varieties:** ProGene



# Winter Grain Pea Variety Trait Means

## Replicated Trial: Year 1

|                | Leaf Type † | Fall Vigor<br>1 = low<br>9 = high<br>*** | Spring Vigor<br>1 = low<br>9 = high<br>*** | Mean Plant Height<br>(cm)<br>*** | Stem Count<br>** | Pea Grain Yield<br>(lb/ac)<br>*** | Percent Crude Protein<br>(%)<br>** |
|----------------|-------------|--|--|----------------------------------|------------------|-----------------------------------|------------------------------------|
| Blaze          | S           | 5.5                                      | 6.5  | 75.8                             | 20.8             | 2199                              | 26.1                               |
| Vail           | S           | 7.5                                      | 5  | 77.7                             | 16               | 1774                              | 26.4                               |
| Goldenwood     | S           | 7.25                                     | 7  | 68.2                             | 18.8             | 1770                              | 26.2                               |
| Kurtwood       | S           | 7.25                                     | 7  | 92.6                             | 12.2             | 1698                              | 23.2                               |
| Keystonelcicle | N/S         | 7.25                                     | 9  | 108.1                            | 13.2             | 1479                              | 24.7                               |
| Keystone       | S           | 3.75                                     | 6  | 99.9                             | 11               | 1267                              | 25.4                               |
| Icicle         | N           | 4  | 5.5  | 108.9                            | 11.5             | 1058                              | 23.9                               |
| Windham        | S           | 3.5                                      | 1.5  | 59.1                             | 15               | 743                               | 25.8                               |
| FP6101         | N           | 6  | 5.5  | 97.2                             | 5                | 444                               | 22.4                               |

## On-Farm Trial: Year 1

|            | Plant Height<br>(cm) | Field-dry Biomass<br>(lb/ac) | Cleaned Pea Yield<br>(lb / ac) |
|------------|----------------------|------------------------------|--------------------------------|
| Blaze      | 63                   | 1886                         | 91                             |
| Goldenwood | 63.5                 | 1686                         | 73                             |
| Vail       | 70.25                | 2095                         | 68                             |
| Kurtwood   | 66.5                 | 1773                         | 59                             |
| Keystone   | 71                   | 1914                         | 59                             |
| Icicle     | 83                   | 1459                         | 27                             |
| FP6101     | 91.25                | 1759                         | 18                             |

## Replicated Trial: Year 2

|                | Leaf Type † | Fall Vigor<br>1 = low<br>9 = high<br>*** | Spring Vigor<br>1 = low<br>9 = high<br>*** | Mean Plant Height<br>(cm)<br>*** | Disease Severity<br>1 = low<br>9 = high<br>** | Percent Standing<br>100 = no lodging<br>0 = all lodged<br>*** | Pea Grain Yield<br>(lbs/ac)<br>** | Percent Crude Protein<br>(%)<br>*** |
|----------------|-------------|--|--|----------------------------------|---|---|-----------------------------------|-------------------------------------|
| Keystonelcicle | N/S         | 5.5                                      | 7.5  | 152.9                            | 4.75  | 25  | 2197                              | 26.5                                |
| Icicle         | N           | 1.5                                      | 6.75                                       | 165.3                            | 3.25  | 25  | 1449                              | 26.7                                |
| Windham        | S           | 4.5                                      | 3.75                                       | 96.2                             | 5.25  | 100   | 1257                              | 27.9                                |
| Kurtwood       | S           | 6.5                                      | 6  | 120.6                            | 4.75  | 95  | 1254                              | 24.9                                |
| Goldenwood     | S           | 2  | 3.75                                       | 105.4                            | 3.75  | 97.5  | 1184                              | 26.4                                |
| FP6101         | N           | 3  | 7.75                                       | 166.1                            | 3   | 35  | 1141                              | 28.4                                |
| Vail           | S           | 5  | 6  | 102.6                            | 6.75  | 95  | 920                               | 28.4                                |
| Keystone       | S           | 7.5                                      | 5  | 120.6                            | 6.75  | 90  | 871                               | 26.4                                |
| Payback        | S           | 3.5                                      | 5.25                                       | 105.7                            | 6   | 100   | 841                               | 24.9                                |
| Blaze          | S           | 2  | 3.5  | 102.1                            | 5.75  | 100   | 615                               | 26                                  |

## On-Farm Trial: Year 2

|            | Plant Height<br>(cm) | Percent Standing | Cleaned Pea Yield<br>(lb / ac) |
|------------|----------------------|------------------|--------------------------------|
| Blaze      | 80.8                 | 63.3             | 2027                           |
| Vail       | 82                   | 73.3             | 1993                           |
| Keystone   | 96                   | 30               | 1814                           |
| Kurtwood   | 88                   | 86.7             | 1732                           |
| Goldenwood | 78.3                 | 76.7             | 1713                           |
| Payback    | 57.5                 | 90               | 1626                           |
| Windham    | 78.2                 | 56.7             | 1616                           |
| Icicle     | 95.3                 | 40               | 1093                           |

On-farm plant height and percent standing calculated as the mean of three subsamples per plot.

\*\*\*, \*\*, and \* indicate mixed model ANOVA tests significant at  $p < 0.001$ ,  $p < 0.01$ , and  $p < 0.05$ , respectively.

† Leaf types: N = Normal leaf; S = Semileafless

Y1 and Y2 pea grain yield represent hand harvest of quadrat samples and whole-plot mechanical harvest, respectively.

Tables sorted by total pea grain yield. Grain yields presented at 14% moisture.