

Table 2 depicts the grouped means for all large seeded breeding lines across the 2017, 2018, and 2019 seasons. Overall, the lines seem to perform similarly across all years as they did in 2019. Line #31 stands out with second highest yield across three years. The addition of oil content and fatty acid composition data for 2017 and 2018 will help us identify the best large seed line(s) for release, hopefully in fall 2020.

*Note: The WSU Camelina Breeding Program released WA-HT1, a group II soil herbicide resistant variety, in 2018. All of these large seeded lines have that herbicide tolerant trait and exhibit resistance to soil residual levels of group II herbicides.

Table 2. Grouped means for all Large Seed Breeding Lines across 2017, 2018, and 2019 seasons. There were no significant differences (Tukey HSD) between any means; “r” is the number of replicates per genotype.

| r | Genotype | Yield (lbs/acre) | 1SM (mg) |
|----|--------------|------------------|----------|
| 13 | LargeSeed.24 | 933.6 | 1.67 |
| 14 | LargeSeed.23 | 895.1 | 1.67 |
| 14 | LargeSeed.30 | 915.4 | 1.66 |
| 14 | LargeSeed.28 | 863.5 | 1.65 |
| 14 | LargeSeed.26 | 975.1 | 1.65 |
| 14 | LargeSeed.25 | 1028.9 | 1.64 |
| 14 | LargeSeed.21 | 803.7 | 1.63 |
| 13 | LargeSeed.22 | 959.6 | 1.61 |
| 14 | LargeSeed.31 | 1015.4 | 1.60 |
| 14 | LargeSeed.29 | 968.4 | 1.59 |
| 14 | LargeSeed.27 | 927.8 | 1.57 |
| 14 | LargeSeed.20 | 804.4 | 1.57 |



Spring Canola Large-Scale Variety Trials

ISAAC J. MADSEN
DEPT. OF CROP AND SOIL SCIENCES, WSU

Small plot variety trials serve to assess the relative yields and traits of varieties. However, small plots do not capture the effect of landscape on different varieties. In order to assess the effect of landscape on yield and other important agronomic variables it is important to test varieties on a larger scale (Fig. 1). The large-scale variety trials are planted with a production scale drill and range from 400-600 ft in length. Each variety was replicated four times to allow for statistical comparisons of yield, nutrient concentration, and stand counts. During the 2019 growing season, large-scale variety trials were conducted at three locations. The varieties at each location varied based on what is commonly grown in each region. The variety trial locations were at Almira, WA, Davenport, WA, and Pullman, WA. At the Almira location, all the varieties except InVigor L233P were non-GMO. At the Davenport location a mix of non-GMO and GMO varieties were planted. At the Pullman location only RoundUp Ready varieties were planted. At both Almira and Davenport there were significant differences based on variety (Table 1). However, at Pullman, there was no significant differences based on yield. At the Davenport location NCC101S had the



Figure 1. Strip trials near Pullman, WA demonstrate the landscape variability which can be captured with large scale trials.

highest yield, while at Almira InVigor L233P had the highest yield. In addition to yield plant count, pod count, and nutrient concentration data were collected. Each of these data was spatially referenced in order to assess the variability across the field.

Table 1

| | Almira | Davenport | | Pullman |
|-----------------------|--------|-----------|---------|---------|
| BY5545 CL | 854 b | 1117 d | - | - |
| DynaGrow DG200CL | 854 b | 1259 bcd | - | - |
| InVigor L233P | 947 a | 1217 cd | - | - |
| NCC101S | 819 b | 1678 a | - | - |
| Xceed DG X122 CL | 781 b | - | - | - |
| BrettYoung 6080 RR | - | - | 1120 d | 1741 a |
| DynaGrow DG540 RR | - | - | 1200 cd | 1697 a |
| HyClass 930 RR | - | - | 1445 b | 1680 a |
| Star 402 RR | - | - | 1369 bc | 1730 a |
| Mean | 851 | 1301 | | 1712 |
| CV (%) | 7.0 | 11.9 | | 26.2 |
| LSD | 90 | 227 | | 692 |



Plant Density Variation Within Large Scale Variety Trials

ISAAC J. MADSEN
DEPT. OF CROP AND SOIL SCIENCES, WSU

In addition to collecting yield data, large-scale variety trials can be utilized to collect a variety of other data including plant density. During the summer of 2019 plant counts were collected at all three of the large-scale variety trial locations. Because the plot length and width varied at each location depending on the drill being used, and the size and shape of the field which the trials were

established in, each location had a slightly different sampling scheme. In Almira (plot size 40' x 600') four plant counts were taken for times at 120' beginning 60' into the plot. Similarly, in Pullman (plot size 30' x 500') four plant counts were taken four times at 100' intervals resulting 16 counts per plot beginning 50' into the plot. However, at Davenport (plot size 15' x 400') four plant counts were only taken three times at 100' intervals resulting in 12 counts per plot. In total, 320, 256, and 384 plant counts were

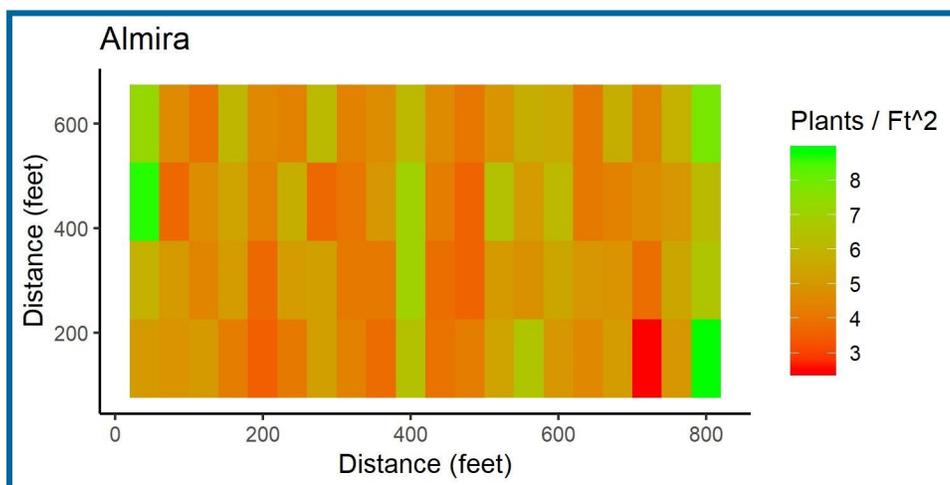


Figure 1. Aggregated plant counts varied from 2.5-8.8 plants per square foot at Davenport, WA.

collected at Almira, Pullman, and Davenport respectively. The number of plants ft-2 varied greatly between location. The highest and the lowest plant counts were found at Davenport ranging from 0.0-15.6 plants ft-2. Pullman plant counts varied to a lesser degree from 1.1-9.3 plants ft-2. At Almira the plant counts ranged from 1.9-13.4 plants ft-2. The plant counts were aggregated to