

Project Title: Statewide Pea Variety Trial - 2017

Objective: To evaluate pea cultivars for yield and agronomic performance in Northwestern Montana.

Results:

A significant difference was observed for yellow pea yield. Mean yield was 96.7 bu/A, and ranged from 81.3 bu/A for PSO877MT632 to 107.7 bu/A for Nette 2010 (Table 2). Statistical difference was observed for flowering dates, with an average occurrence at 184 Julian days (July 3). Height averaged 32.8 inches at 50% flowering and 38.9 inches at physiological maturity. Statistical differences were observed for test weights with an average of 63.4 lb/bu. Protein averaged 22.4 percent with PSO877MT632 being highest at 23.6 percent. Plant density, height at pod fill, and thousand kernel weights were insignificant.

A significant difference was observed for green pea yield. Mean yield was 85.8 bu/A, and ranged from 98.9 bu/A for Arcadia to 63.0 bu/A for PSO877MT076 (Table 3). Days to flowering was significant with an average of 185 Julian days (July 4). Average heights were 32.7 inches at flowering, and 37.7 inches at pod fill. No significant differences were observed in height at physiological maturity. Test weights averaged 63.1 lb/bu, and plant density averaged 9.7 plants per square foot but with no significant difference observed amongst cultivars for these response variables. Thousand kernel weights averaged 200.0 grams and ranged from 180.0 grams for PSO826MT190 to 222.0 grams for PS0877NT457. Protein averaged 22.7 percent with Hampton being the highest at 24.1 percent.

Summary:

Despite the hot and dry summer, the pea trial yielded slightly higher than in 2016. In 2017, the nursery was planted on soil with subsurface water recharge. The mean yield for both market class was 7 bu/A greater in 2017 than 2016.

Table 1. Materials and Methods.

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|                |                   |               |                                    |
|----------------|-------------------|---------------|------------------------------------|
| Seeding Date:  | 5/11/2017         | Harvest Date: | 8/19/2017                          |
| Julian Date:   | 131               | Julian Date:  | 231                                |
| Seeding rate:  | 8 plants/sqft     | Soil Test:    | 120-13-160                         |
| Previous Crop: | Winter wheat      | Fertilizer:   | 6-30-30                            |
| Tillage:       | Conventional      | Herbicide:    | Triflurex (pre-plant incorporated) |
| Irrigation:    | None              | Insecticide:  | Warrior II (June 6)                |
| Soil Type:     | Creston silt loam |               |                                    |

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Table 2. Yellow pea agronomic data.

| Cultivar         | PLNT<br>sqft | FLWR<br>Julian | HT FLWR<br>in | HT PF<br>in | HT PM<br>in | YLD<br>lb/A | YLD<br>bu/A | TWT<br>lb/bu | TKW<br>g | PRO<br>% |
|------------------|--------------|----------------|---------------|-------------|-------------|-------------|-------------|--------------|----------|----------|
| Nette 2010       | 9.7          | 184            | 34.0          | 39.2        | 43.2        | 6464.4      | 107.7       | 65.0         | 208.4    | 21.15    |
| Jetset           | 10.3         | 185            | 37.8          | 38.3        | 41.2        | 6265.6      | 104.4       | 63.0         | 212.2    | 21.63    |
| Navarro          | 9.8          | na             | 25.0          | 38.1        | 37.9        | 6024.2      | 100.4       | 63.3         | 233.3    | 22.63    |
| PSO826MT492      | 10.1         | 182            | 32.0          | 39.4        | 45.0        | 5999.4      | 100.0       | 63.6         | 217.5    | 22.53    |
| Delta            | 13.8         | 185            | 33.8          | 32.4        | 39.4        | 5865.0      | 97.8        | 63.7         | 219.8    | 22.73    |
| Universal Yellow | 10.1         | 182            | 31.5          | 37.3        | 40.1        | 5828.3      | 97.1        | 63.6         | 209.5    | 22.80    |
| DS Admiral       | 12.2         | 184            | 36.1          | 39.0        | 44.3        | 5793.3      | 96.6        | 62.6         | 212.3    | 21.63    |
| PSO826MT460      | 8.3          | 182            | 30.5          | 30.0        | 17.1        | 5123.7      | 85.4        | 62.4         | 287.1    | 23.03    |
| PSO877MT632      | 8.8          | 185            | 34.4          | 36.8        | 41.8        | 4875.3      | 81.3        | 63.8         | 210.7    | 23.60    |
| Mean             | 10.3         | 184            | 32.8          | 36.7        | 38.9        | 5804.4      | 96.7        | 63.4         | 223.4    | 22.41    |
| CV               | 22.08        | 0.45           | 5.1           | 13.3        | 14.3        | 5.6         | 5.6         | 1.0          | 16.5     | 2.16     |
| LSD              | ns           | 1.2            | 2.4           | ns          | 8.2         | 470.5       | 7.8         | 1.0          | ns       | 0.71     |
| Pr>F             | 0.0640       | 0.0001         | 0.0001        | 0.1245      | 0.0001      | 0.0001      | 0.0001      | 0.0006       | 0.1175   | 0.0001   |

Table 3. Green pea agronomic data.

| Cultivar    | PLNT<br>sqft | FLWR<br>Julian | HT FLWR<br>in | HT PF<br>in | HT PM<br>in | YLD<br>lb/A | YLD<br>bu/A | TWT<br>lb/bu | TKW<br>g | PRO<br>% |
|-------------|--------------|----------------|---------------|-------------|-------------|-------------|-------------|--------------|----------|----------|
| Arcadia     | 12.3         | 185            | 30.6          | 34.2        | 36.4        | 5934.6      | 98.9        | 62.7         | 182.1    | 21.08    |
| PSO877MT499 | 10.5         | 185            | 34.4          | 40.5        | 40.6        | 5493.4      | 91.6        | 63.8         | 210.9    | 21.38    |
| Hampton     | 7.8          | 186            | 31.9          | 34.6        | 34.6        | 5364.9      | 89.4        | 63.1         | 208.4    | 24.05    |
| Aragorn     | 8.9          | 184            | 31.8          | 37.5        | 39.1        | 5249.0      | 87.5        | 62.4         | 191.7    | 21.90    |
| Majoret     | 11.7         | 186            | 35.5          | 36.3        | 38.2        | 5184.7      | 86.4        | 63.3         | 216.7    | 22.50    |
| PSO826MT190 | 9.8          | 185            | 36.4          | 37.8        | na          | 5105.8      | 85.1        | 63.3         | 180.1    | 22.60    |
| PSO877MT457 | 9.0          | 183            | 32.3          | 43.6        | 35.8        | 5055.7      | 84.3        | 63.6         | 222.0    | 23.93    |
| PSO877MT076 | 7.7          | 185            | 28.9          | 36.8        | 37.7        | 3781.6      | 63.0        | 62.8         | 188.6    | 23.88    |
| Mean        | 9.7          | 185            | 32.7          | 37.7        | 37.5        | 5146.2      | 85.8        | 63.1         | 200.1    | 22.66    |
| CV          | 27.5         | 0.5            | 6.1           | 9.5         | 7.4         | 6.1         | 6.1         | 1.1          | 3.5      | 2.22     |
| LSD         | ns           | 1.3            | 2.9           | 5.3         | ns          | 460.4       | 7.7         | ns           | 10.2     | 0.74     |
| Pr>F        | 0.1926       | 0.0032         | 0.0004        | 0.0246      | 0.1392      | 0.0001      | 0.0001      | 0.1222       | 0.0001   | 0.0001   |

FLWR: 50% flower, HT FLWR: height at flowering, HT PF: height at pod fill, HT PM: height at physiological maturity, YLD: yield, TWT: test weight, TKW: thousand kernel weight, PRO: protein, ns: nonsignificant.