



**Bean Improvement Cooperative** - A voluntary and informal organization to effect the exchange of information and materials

Dr. James D. Kelly, BIC President,  
Crop and Soil Sciences, Michigan State University, East Lansing MI 48824, USA  
Tel. 517-355-0205 Email [kellyj@msu.edu](mailto:kellyj@msu.edu) <http://www.css.msu.edu/bic>

---

**BIC Annual Report 2002**

**Volume 45:224-225**

### **Niche Market Dry Bean Variety Trial**

Carol A. Miles, Washington State University, Vancouver Research & Extension  
Unit, 1919 NE 78<sup>th</sup> Street, Vancouver, WA 98665  
Phone: 360-576-6030 Fax: 360-576-6032 Email: [milesc@wsu.edu](mailto:milesc@wsu.edu)

Dry beans are generally considered a large-scale bulk commodity crop yet they are also well suited to small-scale production for niche markets. Dry beans are harvested in the fall, are easily stored over the winter, and can be a good addition for direct market farmers at the beginning and end of the growing season. A primary criterion for variety suitability in the maritime Pacific Northwest is early maturity. Cool summer temperatures in the region result in a low number of growing degree days (1900 GDD in Vancouver) and most varieties are harvested 15 or more days later than in the mid-west. This report presents some of our preliminary findings, and a full copy of our report can be viewed at <http://SustainableSeedSystems.wsu.edu>

### **Materials and Methods**

Thirty-three dry bean varieties were planted at WSU Vancouver REU on June 6 in a randomized complete block design with four replications. Plots were 2 rows wide and 10 feet long, spacing between rows was 2 feet, and spacing in the row was 2 inches. Three runner varieties were included, however they were not staked or trellised. The field was certified organic and was maintained accordingly. Plants were harvested from the center 5 feet of both rows for a total harvest area of 10 feet per plot. Whole plants were placed in burlap bags, and dried in field ovens for 16 hours at 68° C, until seed moisture was approximately 12%. Beans were threshed and cleaned by hand and total marketable bean weight (g) was measured. 100 beans were randomly selected and weighed from each plot, and length and width (cm) of 25 beans were measured.

### **Results and Discussion**

Beans emerged June 17-21, 11-15 days after planting (DAP) (Table 1). Flowering began on July 15 (39 DAP), and all varieties had reached the 50% flowering stage by August 9 (64 DAP). Harvest was from September 24 to October 11 (110-127 DAP), and rain prevented further harvesting. Mean yield for 10 feet of row was 446 g, and yield differed significantly among varieties. In this trial, *pinks* (588 g) and *cranberry* (490 g) were the highest yielding types of beans. Varieties that yielded greater than 600 g per 10 feet of row were G18689 (681g), NW-63 (655 g, 1.4 g), and Etna (640 g). The three climbing-types of beans, Scarlet Emperor (156 g), Painted Lady (167 g), and Kentucky Wonder (197 g) were very low yielding as can be expected as they were not trellised.

Mean weight of 100 beans was 47 g and differed significantly among varieties. Painted Lady (105 g) and Scarlet Emperor (89 g) were twice as large as most other varieties. Varieties with 100-bean weight greater than 60 g were Etna (69.7 g), Trout/Jacob's Cattle (66.5 g), Old Fashioned Soldier (66.2 g), Cardinal (63.8 g), and CELRK (63.0 g). Length and width of 25 beans and the length of 10 pods were measured in order to further characterize bean size. We have developed a web page, <http://SustainableSeedSystems.wsu.edu>, that includes this information for niche market bean varieties to facilitate variety selection by farmers. The page includes a brief description of each variety based on our data and a color photograph as the color and pattern of the beans play a large role in variety selection for niche markets.

**Table 1.** Days after planting (DAP) to emergence, flowering, and harvest; bean yield (g) for 10-feet of row; length and width (cm) of 25 beans; and pod length (cm) of 33 varieties at WSU Vancouver REU in 2001.

| <i>Type</i>                          | <b>1st Flw</b> | <b>50% Flw</b> | <b>Harv</b>   | <b>T Bean</b> | <b>Wt 100</b> | <b>Lth 25</b> | <b>Wth 25</b> | <b>Pod</b> |
|--------------------------------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|------------|
| <b>Variety</b>                       | <b>DAP</b>     | <b>DAP</b>     | <b>DAP</b>    | <b>Wt</b>     | <b>Beans</b>  | <b>Beans</b>  | <b>Beans</b>  | <b>Lth</b> |
| <i>Dark Red Kidney</i>               |                |                |               |               |               |               |               |            |
| Montcalm                             | 43.7           | 46.5           | 112.2         | 431.2         | 51.89         | 39.3          | 19.2          | 11.65      |
| <i>Light Red Kidney</i>              |                |                |               |               |               |               |               |            |
| CELRK                                | 40.7           | 42.5           | 110           | 437.9         | 63.03         | 42.3          | 20.8          | 12.8       |
| Kardinal                             | 45.7           | 47             | 116.5         | 479.9         | 57            | 42.2          | 21.8          | 13.15      |
| <i>White Kidney</i>                  |                |                |               |               |               |               |               |            |
| Cannellini                           | 40.3           | 42.5           | 115           | 320.4         | 59.26         | 38.5          | 20.1          | 13.45      |
| <i>Small White/Navy</i>              |                |                |               |               |               |               |               |            |
| Norstar                              | 49.3           | 52.7           | 111.7         | 465.6         | 17.79         | 21.1          | 14.4          | 8.45       |
| Arthur                               | 46.3           | 50.7           | 112.2         | 481.5         | 14.71         | 20.9          | 14            | 9.25       |
| <i>Small Red/ Red Mexican</i>        |                |                |               |               |               |               |               |            |
| LeBaron                              | 42.7           | 48.5           | 110           | 344.4         | 34.68         | 28.2          | 18.7          | 9.5        |
| Montezuma Red                        | 45             | 47             | 111           | 401           | 36.28         | 26.5          | 16.7          | 9.5        |
| NW-63                                | 40.7           | 45             | 116.2         | 655           | 34.64         | 28.4          | 19.2          | 9.9        |
| <i>Pink</i>                          |                |                |               |               |               |               |               |            |
| UI-537                               | 47.7           | 49.7           | 115.2         | 592.9         | 36.42         | 28.1          | 18.3          | 9.35       |
| PR95-055-2-1-16                      | 49.3           | 52.5           | 112           | 581.9         | 36.83         | 31.3          | 19.2          | 9.95       |
| <i>Black</i>                         |                |                |               |               |               |               |               |            |
| UI-911                               | 43.7           | 45.5           | 118           | 487.1         | 20.1          | 22            | 14.9          | 9.9        |
| Midnight Black Turtle                | 54             | 56.7           | 118.2         | 517.4         | 17.91         | 22.3          | 14.7          | 10.13      |
| Black Coco (Johnny's)                | 42             | 43             | 118           | 317.1         | 53.58         | 30.3          | 21.7          | 11.6       |
| Black Coco (Territorial)             | 43             | 45.2           | 115.5         | 516.4         | 55.15         | 30.9          | 21.9          | 10.8       |
| ICB-10-5-14                          | 52             | 55             | 118           | 406.7         | 21.47         | 23.7          | 16.1          | 8.9        |
| <i>Cranberry</i>                     |                |                |               |               |               |               |               |            |
| Vermont Cranberry                    | 42.3           | 48             | 111.7         | 457.1         | 48.82         | 30.6          | 19            | 13.35      |
| Etna                                 | 42             | 44.7           | 113.5         | 639.5         | 69.67         | 35            | 22.3          | 14.1       |
| Thort                                | 43.3           | 46.7           | 114           | 452.2         | 55.33         | 33            | 22.6          | 13.4       |
| Speckled Bays                        | 45             | 46.7           | 116.2         | 357.1         | 49.48         | 28.3          | 20.1          | 10.4       |
| Andrew Kent                          | 43             | 45.5           | 119.7         | 572.6         | 58.26         | 31.3          | 27.4          | 13         |
| Tongue of Fire                       | 42.3           | 43.5           | 116.3         | 502.9         | 58.83         | 32.6          | 22.9          | 11.08      |
| Cardinal                             | 43             | 45.5           | 118.7         | 452.8         | 63.76         | 34            | 22.7          | 12.9       |
| <i>Yellow Eye/ Partially Colored</i> |                |                |               |               |               |               |               |            |
| Maine Yellow Eye                     | 42.3           | 44             | 113.5         | 285.5         | 43.49         | 28            | 19.6          | 10.2       |
| Old Fashioned Soldier                | 42.7           | 46             | 113.5         | 575.9         | 66.16         | 40.2          | 20            | 13.95      |
| Trout/Jacobs Cattle                  | 40.7           | 43.2           | 113.7         | 394.3         | 66.54         | 40.1          | 19.9          | 15.45      |
| USWA-27                              | 51             | 56.7           | 117           | 435.2         | 32.46         | 28.2          | 18.1          | 9.45       |
| <i>Other</i>                         |                |                |               |               |               |               |               |            |
| G18689                               | 55             | 58             | 115.2         | 681.3         | 23.58         | 24.6          | 15.8          | 10.5       |
| Scarlet Emperor                      | 40             | 44.5           | 127           | 155.9         | 88.49         | 47.4          | 26.4          | 16.45      |
| Painted Lady                         | 39             | 42.7           | 127           | 167.4         | 104.48        | 49.5          | 29.3          | 15.3       |
| French Flageolet                     | 50.5           | 54             | 114.5         | 518.1         | 25.39         | 31            | 15            | 12.7       |
| California Blackeye 46               | 67             | -              | -             | -             | -             | -             | -             | 14.75      |
| <i>Pole</i>                          |                |                |               |               |               |               |               |            |
| Kentucky Wonder                      | 61             | 64             | 127           | 197           | 38.85         | 34.9          | 18            | 15         |
| <b>Mean</b>                          | <b>46</b>      | <b>48</b>      | <b>116</b>    | <b>446</b>    | <b>47</b>     | <b>32</b>     | <b>20</b>     | <b>12</b>  |
| <b>P Value</b>                       | <b>0.0001</b>  | <b>0.0001</b>  | <b>0.0001</b> | <b>0.0001</b> | <b>0.0001</b> | <b>0.0001</b> | <b>0.0091</b> | <b>-</b>   |