exposures and soils but will grow best in full sun and a heavy loam to clay texture soil, with a pH of 5.0-6.5.

Outstanding Characteristics and Use

The landscape attributes of 'Tuskegee' extend throughout the year with lush, heavy-textured foliage in spring; flamboyant floral display in summer; orange-red shades in autumn; and most markedly in winter but displayed in summer; orange-red shades in autumn; and most markedly in winter but ensuring an attractive plant that thrives in a continental climate. They reach the mature-green stage at about 1000 heat units (10°C base, air temperature) under commercial N regime on an irrigated sandy loam, Becker, Minn., 1983. However, the latter 2

Table 1. Days to harvest, seed type, seed yield, and canopy size of MN 13, MN 150, and 6 standard cowpea cultivars on irrigated sandy loam, Becker, Minn., 1983.

<table>
<thead>
<tr>
<th>Entry</th>
<th>Days to harvest</th>
<th>Seed type</th>
<th>Seed yield$^a$ (kg ha$^{-1}$)</th>
<th>Weight of 100 seed (g)</th>
<th>Canopy ht (cm)</th>
<th>Canopy width (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MN 13</td>
<td>96</td>
<td>Holstein</td>
<td>2241 ab</td>
<td>15.7</td>
<td>56</td>
<td>46</td>
</tr>
<tr>
<td>MN 150</td>
<td>96</td>
<td>Calico</td>
<td>2185 ab</td>
<td>15.0</td>
<td>64</td>
<td>53</td>
</tr>
<tr>
<td>Calhoun P. Hull</td>
<td>116</td>
<td>Calico</td>
<td>1997 ab</td>
<td>17.0</td>
<td>53</td>
<td>115+</td>
</tr>
<tr>
<td>Colossus</td>
<td>116</td>
<td>Brown</td>
<td>1836 bc</td>
<td>28.4</td>
<td>48</td>
<td>84</td>
</tr>
<tr>
<td>Pinkeye P. Hull</td>
<td>116</td>
<td>Blackeye</td>
<td>1290 c</td>
<td>16.9</td>
<td>38</td>
<td>115+</td>
</tr>
<tr>
<td>Mississippi Silver</td>
<td>---</td>
<td>Brown</td>
<td>...</td>
<td>...</td>
<td>56</td>
<td>115+</td>
</tr>
<tr>
<td>Texas Cream $^b$</td>
<td>...</td>
<td>Cream</td>
<td>...</td>
<td>...</td>
<td>43</td>
<td>115+</td>
</tr>
<tr>
<td>Calif. Blackeye $^b$</td>
<td>---</td>
<td>Blackeye</td>
<td>...</td>
<td>...</td>
<td>56</td>
<td>150+</td>
</tr>
</tbody>
</table>

$^a$Yield is dry seed average weights of 3 single-row, 6.1 m plots for each entry. Rows were spaced 76 cm apart. Pods were air-dried for 2 months before threshing and weighing.

$^b$These cultivars did not reach pod and seed maturity before frost.

literature cited


MN 13 and MN 150 Cowpea Breeding Lines

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Additional index words. Vigna unguiculata, southernpea, vegetable breeding

MN 13 and MN 150 are extra-early maturing cowpeas [Vigna unguiculata (L.) Walp.] adapted to northern regions possessing a continental climate. They reach the mature-green harvest stage at about 1000 heat units (10°C base, air temperature) under Minnesota conditions, and can be harvested in early August from a late-May sowing. Both lines appear to be tolerant to bacterial blight (Xanthomonas vignicola) based on field observation.

Origin
MN 13 and MN 150 are $F_{11}$ selections from the line cross Virginia #59-41 × New Hampshire #2 Cream that was obtained as an $F_2$ family in 1966 from Elwyn Meader, Professor Emeritus, Univ. of New Hampshire. Single plant selections were made in the $F_2$ through $F_5$. Thereafter, superior plants within lines were bulked each year.

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Availability
Small samples of seed will be available to interested experiment station and seed company researchers on request.

Literature Cited

‘Grazia’ and ‘Patrizia’ Bush Bean

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Additional index words. Phaseolus vulgaris, vegetable breeding, BCMV resistance

‘Grazia’ (MV44) and ‘Patrizia’ (MV60) are yellow-podded bush beans (Phaseolus vulgaris L.) developed by the Experimental Institute for Vegetable Crops, Montanaso, Italy. These new bean cultivars were the result of a breeding effort started in 1971, using ‘Meraviglia di Venezia’ to develop bush, yellow-podded cultivars resistant to bean common mosaic virus (BCMV) suitable for mechanical harvesting. ‘Meraviglia di Venezia’ traditionally grown in Italy for the fresh market, is a wax pole bean cultivar with yellow, flat, fleshy pods. It can be referred to as ‘Burpee Golden Pole’, selected by the Burpee Company from an unknown European cultivar.

Origin
‘Grazia’ and ‘Patrizia’ were derived by pedigree selection from the crosses F1[F2 (‘Meraviglia di Venezia’ x ‘Royal Red Kidney’) x ‘Kinghorn Wax’]. ‘Royal Red Kidney’ was the source of BCMV resistance. ‘Kinghorn Wax’ was chosen as a parent because of its desired plant habit and pod productivity.

Description
‘Grazia’ has a narrow, upright (40-45 cm in height), determinate plant type with a mean of 7 to 8 pods per plant (Fig. 1); the pods are wider (1.8-2.1 cm) and more fleshy than those of ‘Grazia’, with about 4 to 5 seeds. ‘Patrizia’ is as early as ‘Grazia’.

‘Patrizia’ was the superior cultivar in pod yield and quality under irrigated conditions. Both cultivars are suitable for once-over mechanical harvesting. The fresh pods can be used for direct consumption, for canning as a chopped product, or for quick-freezing.

Seed development is slow in these fleshy pod types. Special care must be taken in large-scale seed production of these cultivars to ensure seed of high germination. Seed of these cultivars should be planted in light, well-drained soil when the temperature is higher than 15°C.

Fig. 1. Plant and pods of ‘Grazia’.

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