REGISTRATION OF GERM PLASM
REGISTRATION OF 90-2079, 90-2131, AND 90-2322 PEA GERMPLASMS

Three F1 breeding lines of pea (Pisum sativum L.) were released by the USDA-ARS and the Washington State University Experiment Station in October 1990: line 90-2079 (Reg. no. GP-83, PI 557500), line 90-2131 (Reg. no. GP-84, PI 557501), and line 90-2322 (Reg. no. GP-85, PI 557502). These breeding lines combine genes for resistance to aphanomyces root rot caused by Aphanomyces euteiches Drechs., fusarium root rot caused by Fusarium solani (Mart.) Sacc. f. sp. pisi (F.R. Jones) W.C. Snyder & H.N. Hans., and to Races 1, 2, 5, and/or 6 of fusarium wilt caused by Fusarium oxysporum Schlectend.:Fr. f. sp. pisi (F.R. Jones) W.C. Snyd. & H.N. Hans. One line (90-2322) is also resistant to powdery mildew caused by Erysiphe polygoni DC. Lines 90-2079, 90-2131, and 90-2322 outyielded susceptible commercial cultivars, including ‘Dark Skin Perfection,’ in field plots severely infested with A. euteiches in Minnesota, Wisconsin, and New Zealand. Using a disease rating scale of 0 to 5, where 0 = a healthy plant and 5 = a severely infected plant, Dark Skin Perfection consistently exhibited a disease severity rating of 4 to 5 at all test sites, compared with 2, 2, and 1.5 for 90-2079, 90-2131, and 90-2322, respectively. When grown in a disease-free site, these lines outyielded ‘Dark Skin Perfection’ by at least 30%.

The parentage of 90-2079 is [(69-1004 × ‘Recette’) × 792022]. Line 69-1004 was selected from PI 203066 by W.A. Haglund; it is resistant to fusarium wilt (Races 2 and 5). Recette is a cultivar developed by Sluis and Groot Co. in the Netherlands. Line 792022 (Reg. no. GP-21) released by the USDA-ARS in 1979 (4), is semileafless (af/af), tolerant to aphanomyces and fusarium root rot, and resistant to fusarium wilt (Races 1 and 2). Line 90-2079 averages 0.6 m in height, is semileafless, blooms in the 16th node, and produces two pointed pods per node. Dimpled seed with a hyaline testa and green cotyledons are characteristic of 90-2322.

The expected uses of 90-2079, 90-2131, and 90-2322 are as parental lines to develop cultivars with multiple disease resistances, with special emphasis on wilt and root rot. Small amounts of seed (50-100 seed) of these lines are available from Dr. John M. Kraft, Vegetable Crop Production Research Unit, USDA-ARS, REC, Route 2, Box 2953A, Prosser, WA 99350-9687. When seed of these lines is supplied, it is asked that the germplasm source be acknowledged if these lines undergo further selection, or are used in crosses for improved cultivars.

Table 1. Overall mean sorghum grain yield comparisons of the tissue-culture regenerants and checks during 1990 and 1991.

<table>
<thead>
<tr>
<th>Regenerant</th>
<th>Seed yield (kg/ha)</th>
<th>Tolerance rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>GC103 (Reg. no. GP-359, PI 559482)</td>
<td>5.0</td>
<td>13.5a§</td>
</tr>
<tr>
<td>GC104 (Reg. no. GP-17)</td>
<td>2.0b</td>
<td>1.5b</td>
</tr>
<tr>
<td>SC283 (T)</td>
<td>2.0b</td>
<td>1.5b</td>
</tr>
</tbody>
</table>

§ Significance at the 0.05 level of probability, according to Waller-Duncan t-ratio test (data were transformed by log of data + 1, due to the large number of zeroes within the yield data of the sensitive check).

References and Notes
6. USDA-ARS, WSU-IAREC, Prosser, WA 99350.
7. USDA-ARS, WSU-IAREC, Prosser, WA 99350.
8. USDA-ARS, WSU-IAREC, Prosser, WA 99350.
9. USDA-ARS, WSU-IAREC, Prosser, WA 99350.
10. USDA-ARS, WSU-IAREC, Prosser, WA 99350.