REGISTRATION OF CROP GERMPLASMS


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REGISTRATION OF SIX PEANUT GERMPLASM LINES WITH MULTIPLE RESISTANCE

Six peanut (Arachis hypogaea L.) germplasm lines (Reg. no. GP-42 to GP-47) were released in 1986 by USDA-ARS in cooperation with the Virginia Agricultural Experiment Station. VGP 2 (PI 509536), VGP 3 (PI 509537), VGP 4 (PI 509538), VGP 5 (PI 509539), and VGP 6 (PI 509540) (Reg. no. GP-42 to GP-46, respectively) have moderate levels of resistance to Sclerotinia minor Jagger, the causal organism of Sclerotinia blight (5), and to Cercospora arachidicola Jagger, the causal organism of early and late leafspot, respectively (6). VGP 7 (PI 509540) (Reg. no. GP-47) has moderate levels of resistance to S. minor (5) and southern corn rootworm (Diabrotica undecimpunctata howardi Barber) (4). Sclerotinia blight is currently one of the most damaging peanut diseases in the states of Virginia, North Carolina, Texas, and Oklahoma. Chemical control of leafspot currently increases production costs about 10% in the USA. Southern corn rootworm is one of the major soil insect pests of peanut in the Virginia-Carolina production area. The release of these germplasm lines should enhance the development of cultivars with multiple resistance and high yields.

VGP 2, VGP 3, VGP 4, VGP 5, and VGP 6 (experimental no. VA 732813, VA 732815, VA 732816, VA 732817, and VA 732818, respectively) are pure line selections made in the F3 generation of a cross between Chico (1) and 'Florigiant' (3). VGP 7 (experimental no. VA 751014) is a pure line selection in the F3 generation of a cross between GP-NC343 (2) and a selection from PI 319178. These germplasm lines are all large-seeded Virginia-type peanuts and have a spreading bunch growth habit, except VGP 7, which is spreading. VGP 7 has a tan seed testa, while the other germplasm lines have a pink testa. Grade characteristics, seed size, and yield are similar to Florigiant, except for the percentage of extra large kernels (undamaged seed that ride the top of the grading table) and blanchability. These germplasm lines are unacceptable commercially due to their late maturity and poor blanchability.

Grain shape was less-rounded than that of its parent, making the grain somewhat intermediate between typical short and medium grain types. Except for earlier maturity and slightly different grain shape, PI 506219 is otherwise similar to its medium grain types. PI 506219 (Reg. no. GP-54) is an induced mutant for early maturity (experimental designation Early S-201) and its parent, S-201. The parent cultivar has been described (1). Following overwinter generation advance, PI 506219 was found to head 6 days earlier than its parent in a small plot replicated yield test in 1984. PI 506219, earlier, yielded 25% more (probably due to less low temperature induced sterility than for the later heading parent), and had 3% smaller kernel weight than its parent (Table 1). In a previous yield test, PI 506221 (Reg. no. GP-55) is an induced mutant for light green panicle and leaf color (experimental designation light green panicle M-101). When crossed to a normal panicle color line, the F1 generation of PI 506221 is particularly noticeable for a yellowish green halo beginning at heading. Mature panicle and hull color are indistinguishable from the M-101 parent. When crossed to a normal panicle color line, the F1 generation of PI 506221 is also conspicuous for a light green halo beginning at heading. Mature panicle and hull color are indistinguishable from the M-101 parent.

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Table 1. Days to heading, yield, and 100-kernel weight of PI 506219

<table>
<thead>
<tr>
<th>Genotype</th>
<th>Days to Heading</th>
<th>Grain Yield</th>
<th>100-kernel Weight</th>
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<tbody>
<tr>
<td>PI 506219 (Reg. no. GP-54)</td>
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<td>869</td>
<td>2.42</td>
</tr>
<tr>
<td>PI 506219 (Reg. no. GP-54)</td>
<td>93</td>
<td>1083</td>
<td>2.34</td>
</tr>
<tr>
<td>LSD.</td>
<td>0.04</td>
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REGISTRATION OF EARLY MATURING, MARKER GENE, AND STEM ROT RESISTANT GERMPLASM LINES OF RICE

One early maturing and four marker gene lines of rice (Oryza sativa L.) (Reg. no. GP-54 to GP-58) were developed from induced mutations. One selection (Reg. no. GP-54) has resistance to the fungal disease stem rot (caused by Sclerotium oryzae Catt.) was developed by hybridization breeding.

PI 506219 (Reg. no. GP-54) is an induced mutant for early maturity (experimental designation Early S-201). The parent cultivar has been described (1). Following overwinter generation advance, PI 506219 was found to head 6 days earlier than its parent in a small plot replicated yield test in 1984. PI 506219, earlier, yielded 25% more (probably due to less low temperature induced sterility than for the later heading parent), and had 3% smaller kernel weight than its parent (Table 1). In a previous yield test, PI 506221 (Reg. no. GP-55) is an induced mutant for light green panicle and leaf color (experimental designation light green panicle M-101). When crossed to a normal panicle color line, the F1 generation of PI 506221 is particularly noticeable for a yellowish green halo beginning at heading. Mature panicle and hull color are indistinguishable from the M-101 parent. When crossed to a normal panicle color line, the F1 generation of PI 506221 is also conspicuous for a light green halo beginning at heading. Mature panicle and hull color are indistinguishable from the M-101 parent.

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References and Notes


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