REGISTRATION OF PEARL MILLET INBREDS
(Reg. No. GP 1 to GP 8)

R. L. Bernard

The following lines of pearl millet (Pennisetum typhoides (Burm.) Stapf and C. E. Hubb.), (Table 1) were developed and released cooperatively by the Crops Research Division, U. S. Department of Agriculture, and the Georgia Coastal Plain Experiment Station.

Tift 23B, (Reg. No. PL 1), among the best of many pearl millet inbred lines developed at Tifton, Georgia, since 1937, produces uniform, many-culmed, medium to fine-stemmed plants that reach a height of 1.5 to 2.4 m when mature. Its leaves and sheaths are pubescent and its stems, nodes and sheaths develop a dominant purple plant color when exposed to the sun. The lodge-resistant stems of Tift 23B are filled with moderately sweet, juicy pith and its leaves remain green longer after seeds mature than most other millets. Its gray seeds are borne in heads that range from 10 to 20 cm in length. Head exsertion as their tall sister inbreds.

Since Tift 23B is near-isogenic with Tift 23Aa, it should greatly facilitate maintaining pure stocks of them. Chance outcrosses to tall millets will be tall and can be easily rogued from seed fields before flowering begins.

Since Tift 23Da, interplanted with tall male pollinators, should receive better pollination and produce more hybrid seed than its tall counterpart. Mated with selected males dwarfed by the Da gene, Tift 23Da, will give dwarf F1 hybrids that may be superior to tall hybrids for maximum grain yields. Dwarf hybrids will also be leafier and should make better-quality forage than their tall sister hybrids.

Table 1. Characteristics of registered parental lines of pearl millet.

<table>
<thead>
<tr>
<th>Reg no.</th>
<th>Exp. design</th>
<th>Characteristic</th>
<th>Released</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL 1</td>
<td>Tift 23B</td>
<td>Maintainer of PL 2</td>
<td>July 1, 1963</td>
</tr>
<tr>
<td>PL 2</td>
<td>Tift 23Aa</td>
<td>CMS of PL 2</td>
<td>July 1, 1963</td>
</tr>
<tr>
<td>PL 3</td>
<td>Tift 23B</td>
<td>Inbred dwarf of PL 1</td>
<td>March 1, 1967</td>
</tr>
<tr>
<td>PL 4</td>
<td>Tift 23DAa</td>
<td>Inbred dwarf of PL 2</td>
<td>March 1, 1967</td>
</tr>
</tbody>
</table>

* Breeder seed of these lines will be maintained and distributed by the Georgia Coastal Plain Experiment Station.

Tift 23Aa, interplanted with tall male pollinators, should receive better pollination and produce more hybrid seed than its tall counterpart. Mated with selected males dwarfed by the Da gene, Tift 23Da, will give dwarf F1 hybrids that may be superior to tall hybrids for maximum grain yields. Dwarf hybrids will also be leafier and should make better-quality forage than their tall sister hybrids.

These lines were developed at the U. S. Regional Soybean Laboratory in cooperation with the Illinois Agricultural Experiment Station (as indicated by the 'L' suffix in the above designations) by backcrossing to the indicated commercial variety to transfer the following genes:

Rps: resistance to phytophthora root rot, caused by Phytophthora megasperma Drechs. var. sojae A. A. Hildebr., from the resistant variety 'Blackhawk.'

rxy: resistance to bacterial pustule leaf spot, caused by Xanthomonas phaseoli (E.F. Sm.) Dows, var. sojae (Hedges) Stainton Burkh., from the resistant variety 'Gahi-l.'

r: yellow hilum, a combination of r light hylum from 'Richland' and r brown hylum from T145 (a brown-seeded, glabrous line of unknown derivation).

Bacterial pustule is a very commonly occurring leaf spot disease throughout the southern half of the north central states. The varieties 'Clark 63' and 'Wayne' also carry the CNS type of pustule resistance. Phytophthora rot occurs frequently in the eastern half of the north central states and is often very damaging to the best open-pollinated varieties throughout the 61,000,000 ha. pearl millet belt. A number of singlecrosses between Tift 23Aa and selected male lines have yielded as much, or more, forage than Gahi-l pearl millet.

Tift 23B, except for its shriveled, sterile anthers and should be essentially the same except for its sterile Aa cytoplasm. Tift 23Aa, is being used in India to produce the first hybrid pearl millet, HB-1, that has yielded about twice as much grain as the best open-pollinated varieties throughout the 11,000,000 ha. pearl millet belt. A number of singlecrosses between Tift 23Aa and selected male lines have yielded as much, or more, forage than Gahi-l pearl millet.

Table 1. Characteristics of registered parental lines of pearl millet.