the glandless cultivar 'Paymaster 464', a cotton adapted for production in Texas and Oklahoma. lint percentage and fiber properties of the germplasm lines and Paymaster 464, estimated from field-grown material, were comparable. Seed stocks of NC-D, Compatible 1 and NC-D, Incompatible 1 are maintained by the North Carolina Agricultural Research Service, and small lots can be obtained from the Department of Crop Science, North Carolina State University, Raleigh, NC 27695-7620.

J. A. Lee (3)

References and Notes


REGISTRATION OF CAL-6 AND CAL-7 GUAYULE GERMPLASM

CAL-6 and Cal-7 (Reg. no. GP-6 and GP-7) germplasm are two high-yielding guayule (Parthenium argentatum A. Gray) selections that were developed and released by the University of California, Davis, in 1985 (1).

The program to develop high rubber-yielding lines began in 1981 when more than 800 vigorous polyploid guayule plants from thousands of plants growing in 11 demonstration plots across California were analyzed for their rubber content. Among the plants sampled in a 4-ha field located 30 km east of Bakersfield, CA, two appeared promising with respect to both biomass and rubber content. Open-pollinated seed was collected from these plants, designated C250 and C254, and used to develop Cal-6 and Cal-7 germplasm.

Seed from C250 and C254 were planted in a greenhouse in January 1982 following the procedure described previously (2). The seedlings marked as C250-1 and C254-1 were transplanted in a field at Shafter, CA, in May 1982. In a preliminary rubber-yield comparison conducted on 36-week-old plants in February 1983, C250-1 and C254-1 yielded significantly more rubber than cultivar N565 by 36 and 62%, respectively (3). Off-type plants of C250-1 and C254-1 were removed and the mature heads from the remaining plants were discarded. The new crop of seeds was collected by hand and planted in a greenhouse. The seedlings, marked as C252-2 and C254-2, were transplanted in a field at Shafter, CA, in May 1983, along with check cultivars and progenies of 24 other selections in a completely randomized design with three replications. Each plot consisted of four 11-m rows. The rows were 1-m apart and the plant spacing within the row was 0.45 m. In February 1985, when the plants were approximately 84 weeks old, six plants were harvested at ground level from an area of 2.7 m² in the two middle rows of each plot. Leaves and peduncles were removed by hand and plants were weighed, ground, and sampled for dry weight, and rubber and resin contents determination. The rubber and resin contents were obtained by the near-infrared reflectance spectroscopy (NIR) method (4).

Table 1 compares C250-2 and C254-2 with two check cultivars for height, spread, percent rubber content, percent resin content, dry matter per year, resin yield per year, rubber yield per year, and combined yield of rubber and resin per year. C250-2 and C254-2 were not significantly different from cultivar N565 with respect to resin and rubber contents. However, because of their increased dry matter production, they yielded significantly more than cultivar N565.

C250-2 produced 2.3 times more resin and 2.3 times more rubber than cultivar N565. This selection is tetraploid with 2n = 72 chromosomes. It reproduces by facultative apomixis. On the average, 12.5% of the C250-2 plants are off-types, most of which are the product of sexual outcrossing.

After the conclusion of the yield test, the off-types of C250-2 were removed and the mature heads were discarded. From June through October 1985, open-pollinated heads from the C250-2 plants were collected by hand, threshed, and the clean seed was bulked as Cal-6 (250-3), which represents the third generation progeny of the original C250 individual selection. Seeds of cultivar N565 are light brown in color and average 376 mg/1000 seed. Seeds of Cal-6 are darker and larger than N565 seeds, and average 530 mg/1000 seed. Like other guayule cultivars, Cal-6 has white flowers.

C254-2 was less productive than C250-2. However, it was superior to cultivar N565. C254-2 produced 1.8 times more resin and 1.7 times more rubber than cultivar N565. C254-2 is triploid with 2n = 54 chromosomes. It also reproduces by facultative apomixis. With an average of 18.5% off-types, C254-2 is less uniform than C250-2. Open-pollinated seeds from C254-2 plants were bulked as Cal-7 (254-3), which represents the third generation progeny of the original C254 individual selection. Like Cal-6, Cal-7 has brown seed and white flowers. However, seeds of Cal-7 are smaller than Cal-6 seeds and larger than N565 seeds. They average 490 mg/1000 seed.

Limited quantities of seed are available for distribution. Written requests should be addressed to Dr. A. Estilai, Department of Botany and Plant Sciences, University of California, Riverside, CA 92521.

Ali Estilai (5)

References and Notes

1. Since 1981, this study has been supported in part by a grant from the California Dep. of Food and Agriculture (P. Knowles and A. Estilai, co-investigators), USDA Native Latex Res. grant no. 70-59-206-1-2-146-1 (H.M. Tysdal, I.A. Siddiqui, and A. Estilai, co-investigator), 83-CRSR-2-2316 (A. Estilai, principal investigator); and 84-CRSR-2-2268 (J.G. Waines, principal investigator, H.H. Naqui and A. Estilai, co-investigators). Research was conducted at the USDA Cotton Res. Stn. Shafter, CA.

Table 1. Comparison of selections C250-2 and C254-2 with cultivars N565 and 593 for rubber yield, resin yield, and other characteristics.

<table>
<thead>
<tr>
<th>Guayule entries</th>
<th>Height</th>
<th>Spread</th>
<th>Resin</th>
<th>Rubber</th>
<th>Dry matter</th>
<th>Resin yield</th>
<th>Rubber yield</th>
<th>Resin and rubber combined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>cm</td>
<td>%</td>
<td>kg/yr</td>
<td>kg/yr</td>
<td>kg/yr</td>
<td>kg/yr</td>
<td>kg/yr</td>
<td>kg/yr</td>
</tr>
<tr>
<td>C250-2</td>
<td>88.5a</td>
<td>86.6a</td>
<td>7.47a</td>
<td>7.74a</td>
<td>11.816a</td>
<td>877a</td>
<td>910a</td>
<td>1.787a</td>
</tr>
<tr>
<td>C254-2</td>
<td>85.9a</td>
<td>83.0a</td>
<td>7.22a</td>
<td>7.21a</td>
<td>9.496b</td>
<td>687b</td>
<td>684b</td>
<td>1.371b</td>
</tr>
<tr>
<td>N565</td>
<td>61.7b</td>
<td>73.4b</td>
<td>6.70a</td>
<td>7.07a</td>
<td>5.743c</td>
<td>376c</td>
<td>397c</td>
<td>775c</td>
</tr>
<tr>
<td>593</td>
<td>59.9b</td>
<td>70.2b</td>
<td>5.04b</td>
<td>5.04b</td>
<td>5.65c</td>
<td>290c</td>
<td>322c</td>
<td>612c</td>
</tr>
</tbody>
</table>

† In each column, means followed by the same letter are not significantly different at the 0.05 level as determined by Duncan's new multiple range test. The last four columns present the yields on an annual basis. These values are derived by multiplying the yields from 84-week-old plants of the February 1985 harvest by a conversion factor of 0.571 (12/21).