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nomus grandis grandis Boheman); bollworm (*Heliothis zea* Boddie); or tobacco budworm (*H. virescens* Fab.). Its superior performance may be due to rapid fruiting and a shorter exposure of tender fruiting parts to insect attacks. The prolific nature of Pee Dee 6520 may partially compensate for insect injury to fruiting parts, because they are replaced more rapidly in this line than in other cultivars. Seed (25 g) of this breeding stock may be obtained from AR, SEA, USDA, Pee Dee Experiment Station, Florence, SC 29503.

REGISTRATION OF PEE DEE 8619 GERMPLASM LINE OF COTTON[1]

(Reg. No. GP51)

T. W. Culp and D. C. Harrell[2]

PEE DEE 8619 (GP 51), a breeding line of cotton (*Gossypium hirsutum* L.), was released by AR, SEA, USDA and the South Carolina Agricultural Experiment Station in 1978. This breeding line represents a major improvement in lint yield and fiber quality.

Pee Dee 8619 was developed by pedigree selection from the cross of Pee Dee 4461 × 'MO-DEL'. Pee Dee 4461 (Q_3) was developed from a series of complex backcrosses and composite crosses of a *G. barbadense* L. strain with high lint percentage, 'Earlistaple', 'Coker 100 Wilt', and 'Auburn 56'. MO-DEL was also derived from a series of complex crosses involving 'Pandora', 'Early Fluff', Cook-Empire-Tanguis, TH 108, Auburn 56, and Auburn 56-5174 at the Missouri Agricultural Experiment Station. Pee Dee 8619 is from the increase of seed from a single F_3 plant selection.

Pee Dee 8619 produced erratic yields at some locations during early testing in Georgia and South Carolina, but these yields generally equaled those of 'Coker 201'. Yields were intermediate in the 1971 Regional High Quality Cotton Variety Test, but they were equivalent to yields from commercial checks tested in the southeastern region.

Pee Dee 8619 possesses excellent fiber quality in the medium fiber length range, with a significant increase in fiber and yarn strength over the check cultivars. It has produced some unusual combinations of lint yield, fiber strength, and fiber elongation in crosses with other Pee Dee lines and southeastern cultivars (1).

Pee Dee 8619 also possesses an unidentified source of resistance to *Heliothis* spp. (2, 3). Injury to squares and the number of live worms per 100 squares is generally half that on the commercial check cultivars; but, yields generally have been significantly reduced by the extremely heavy insect infestations that develop in host-plant resistance studies. In 1977, Pee Dee 8619 produced 1,727 kg/ha of seed cotton compared with 550 and 809 kg/ha for 'Stoneville 213' and 'Deltapine 16', respectively, when tested under a low rate (0.056 kg AI/ha) of synthetic pyrethroid insecticide applied at 5- to 7-day intervals from 12 July to 13 September. Because yields produced with a high rate (0.168 kg AI/ha) of synthetic pyrethroid have been similar, a savings of $74.00/ha is possible with this resistant line. Seed (25 g) of this breeding line may be obtained from AR, SEA, USDA, Pee Dee Experiment Station, Florence, SC 29503.

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REGISTRATION OF EIGHT TRIPLOID HOP POLLINATORS[1]

(Reg. No. GP 6 to GP 13)

Alfred Haunold, C. E. Horner, and Gail B. Nickerson[2]

POLLEN production and synchronization of flowering dates of male and female hop plants (*Humulus lupulus* L.) are important considerations for achieving sufficient yield stimulation in seeded hop yards. Unfortunately, these factors are frequently overlooked by hop growers who plant male hops in their fields to boost yields.

The feasibility of using triploid pollinators for yield stimulation of female hop cultivars was demonstrated previously (2, 4). Under commercial conditions in Oregon, a yield increase of 30% over the unseeded control was achieved with only a moderate increase in production of undesirable seeds. The higher yield was due to increased cone weight and size, particularly of the bract-, bracteole-, and rachis-(strig) components of the cones (4).

Eight triploid (3x = 30) male hop genotypes from two genetic backgrounds (Table 1) were developed cooperatively by AR-SEA-USDA and the Oregon Agricultural Experiment Station. They are suitable for cone yield stimulation and reduced seed set of medium to late flowering hop cultivars under Oregon conditions. The eight genotypes are vigorous, monoecious but predominantly male genotypes. Their flowering branches (side arms) are normally 30 to 120 cm in length and they produce large numbers of male flowers. Occasionally at the end of a side arm or secondary lateral, a female flower develops into a cone. Cone production, however, is negligible; less than 30 cones per plant are typically produced.

All eight genotypes are good pollen producers and are resistant to downy mildew crown infection caused by *Pseudoperonospora humuli* (Miy. et Tak.) G. W. Wils. (Table 1). Genotype 21104M was rated as moderately resistant to downy mildew infection in a replicated greenhouse test, but has been free of downy mildew crown infection in field plots near Corvallis for the past 6 years.

The eight pollinators have two different genetic backgrounds (Table 1). Genotypes 21102M, 21104M, 21105M, and 21106M originated from crosses made in 1967 on a colchicine induced tetraploid 'Fuggle' (3). The other four genotypes originated from open-pollinated seed collected on two tetraploid sister selections obtained from open-pollinated seed collected on the triploid cultivar USDA 56008 in 1967.

The eight genotypes differ in time of pollen shedding as indicated in Table 1. Genotypes 21104M and 21105M flower late, with peak pollen shedding between 18 and 30 July near Corvallis, Ore. They would, therefore, be suitable to pollinate the last phase of late-flowering female cultivars such as 'Brewer's Gold'. Genotypes 21106M, 21176M, and 21177M near Corvallis shed their pollen about 12 to 18 July and they are suitable pollinators for medium-late flowering cultivars such as 'Bullion' and 'Cascade' and early flowering Brewer's Gold plants. Genotypes 21102M, 21175M, and 21178M flower about 5 to 7 days earlier than the previous group and are suitable to cover the initial flowering phase of medium-late cultivars and also the last portion of early flowering cultivars such as Fuggle (5 to 15 July).

To achieve good pollen supply in commercial hop yards during the 2 to 3-week flowering range of most female cultivars in Oregon, growers should plant males whose flowering coincides with the maximum receptiveness of the target cultivar. They should also plant some pollinators to cover early- or late-blooming plants in the field. For medium to late maturing hop cultivars in Oregon, this choice is available from pollinators listed in Table 1.

Mature leaves of genotypes 21102M, 21104M, 21105M, and

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