caryopses; awned, awnleted and hooded lemmas; white and blue aleurone; rough and smooth awns; black and white lemmas and paleas; winter, facultative and spring growth habit; and a wide range of maturity dates and agronomic characteristics. Seed is available in 1 to 2 kg lots from any of the authors. Composite Cross XXXIV seed may be planted in the fall or the spring, depending on local conditions. Possible uses of composite crosses have been reviewed (6, 9), and a suggested list of methods for using this cross will be sent to each person requesting seed.

As new sources of Al/sodic soil tolerance become available, they will be crossed onto male sterile segregates from three of the six tolerant stocks for future seed increases and considered a part of CC XXXIV. Seed of the composite will be maintained jointly by the Arizona Agric. Exp. Stn. and the USDA.

REFERENCES


REGISTRATION OF C-20 ZIGZAG CLOVER GERMPLASM

Noel Faust and Heinz Gasser

(Reg No. GP 28)

C-20 zigzag clover (Trifolium medium L.) germplasm pool was developed by six cycles of recurrent selection on material originating from Canada, Yugoslavia, and the USSR. Fertility, as measured by the percentage of florets setting seed, was increased from 7 to 15%. C-20 is winterhardy and intermediate in maturity. By the 2nd year of growth average spread and height of spaced plants was 0.69 m2 and 24 cm, respectively. Over 94% of the plants were semi-erect for growth habit. Average forage yield over 11 station-years was 4,781 kg/ha of dry matter. Protein and total digestible nutrients averaged 15 and 65%, respectively. C-20 flowers profusely and flower color ranges from pale to dark red. Cuttings from the 50 best ecotypes were used to establish a seed nursery of 400 plants. The bumble bee (Bombus spp.) was the principal pollinator. Plants with a seed yield of 9 g or greater were composited to form the pool. Seed is available in 20-g lots from the Station de Recherche Agricole, 3300, rue Sicotte, C.P. 480St-Hyacinthe, Quebec J2S 7B8, Canada.


REGISTRATION OF DES-146-C COTTON GERMPLASM

Vesta G. Meyer

(Reg No. GP 155)

DES-146-C is a cotton (G. hirsutum L.) germplasm line developed at the Delta Branch of the Mississippi Agric. and Forestry Exp. Stn. DES-146-C possesses a strong fertility-restorer gene that may be useful for producing hybrid cotton based on the G. harknessii cytoplasmic male sterility. DES-146-C is derived from a cross in which the male parent was an F, hybrid between G. hirsutum ‘MS’ and G. aridum (Rose and Standley) Skovsted, and the female parent had G. harknessii cytoplasm and a complex pedigree that includes backcrosses to Upland cotton (G. hirsutum), interspersed with selfs and with test-crosses to male-sterile lines with G. harknessii cytoplasm. It was selected on the basis of its test-cross performance in restoring fertility with several male-sterile lines. In addition to the previously identified fertility-restorer factor from G. harknessii, DES-146-C possesses a second strong fertility-restorer gene which appears to be stable under environmental stress. Seed for the present release is from F2 (1979) progeny rows from individual plants in 1978, row 146. In test-crosses grown in 1978, it produced ratios of 3 fertile: 1 male-sterile. The rows are segregating also for nectarless, glandless, occasional male-sterile plants, yellow petal from G. harknessii, and degrees of plant hairiness. Due to the present interest in producing hybrid cotton, this stock is being released with considerable genetic variability. Other plant and fiber characteristics of row 146 did not differ strikingly from those of Upland cultivars grown in the Mississippi Delta. For male-fertile plants, seed index ranged from 11.3 to 14.5 g, lint index from 4.8 to 5.8 g/lint % from 31.9 to 41.2; 2.5% span fiber length from 28.9 to 29.7 mm; 50% span fiber length from 27.6 to 28.7 mm; T1 fiber strength from 180 to 210 m N/tex; E1 elongation from 5.0 to 6.5 units.

Probably the simplest means for maintaining high levels of fertility restoration during further transfer of the new restorer to Upland cotton cultivars would be to use test crosses of the most fertile plants in each generation to cytoplasmic male sterile lines from that cultivar. This would minimize the chance of separating the two genes for fertility during the breeding process. Limited quantities of seed will be available upon written request for breeding or other research purposes after December 1979 from Robert R. Bridge, Delta Branch Exp. Stn., Stoneville, MS 38776.

R. R. Bridge

Three breeding lines of cotton (Gossypium hirsutum L.), DES 04-6 (GP 156), DES 04-11 (GP 157) and DES 04-906 (GP 158) with glyphosate tolerance were developed at the Delta Branch, Mississippi Agric. and Forestry Exp. Stn. In 1975 a noncommercial stock designated as DES 21326-04 was released because of its potential value in cotton breeding programs emphasizing earliness. DES 21326-04 originated from a 1965 cross, PDE216-164 × ‘Stonewille 213’, which was the same cross that produced DES 56 cotton (Reg. No. 70). The P2 population of this cross was intercrossed at random in 1966 and DES 21326-04 was from a single plant selection from the P2 generation of the intercross population and subsequent reselection in the F1 generation. DES 21326-04 pro-