REGISTRATION OF ARS-2678 KURA CLOVER GERMPLASM

ARS-2678 (Reg. no. GP-91, PI 542965) Kura clover (Trifolium ambiguum Bieb.) germplasm was developed by the USDA-ARS, USDA-SCS, and the Utah Agricultural Experiment Station. This germplasm was released in March 1988. The 81 parent clones of ARS-2678 were selected because they were winterhardy in the Intermountain Region of the USA, were relatively tolerant of drought and high temperatures, spread extensively by means of rhizomes, and exhibited superior forage and seed yields in nonirrigated environments. They also were selected for increased nodulation and N₂ fixation activity when inoculated with Rhizobium leguminosarum biovar trifolii.

The original spaced-plant source nursery established in 1978 consisted of 255 plants of Kura clover representing 5 plants of each of 51 seed accessions collected by D.R. Dewey and A.P. Plummer in the USSR. Most of the accessions were obtained from the Stavropol Botanical Garden and originated in the Caucasian Mountain area. On the basis of aboveground biomass, lateral rhizome extension, and seed yield measured in 1980 and 1981, 27 individual plants from 22 accessions were selected and moved to an isolated seed increase block. Five to 35 open-pollination progeny plants of each of 23 of these selected maternal plants were started in a greenhouse from seed harvested in the original source nursery. These were established by transplanting in a spaced-plant nursery in Cache Valley, Utah, during 30 April through 4 May 1982. Plants of a previous Kura clover germplasm release, C-2 (1), were used as checks.

Forage and seed yields were measured on each plant in June 1982. A part of the siblings in each progeny were destructively sampled in August 1982 to measure shoot and root weights and to determine acetylene reduction activities. On 9–10 June 1983, all remaining progeny plants were evaluated for aboveground biomass and lateral rhizome extension and density. One hundred sixty-seven visually superior plants then were excavated and nodule weight data obtained. Plants chosen on the basis of superior shoot and root weights were transplanted to the parental isolated seed increase block. Following measurement of nitrogen fixation activity (µmol acetylene reduced/hr⁻¹ plant⁻¹), previously selected plants determined to be inferior were removed from the seed increase block; 81 (27 parents and 54 progeny) were retained. Selected plants were significantly (P < 0.01) superior to those not selected in N₂ fixation attributes. Successive elimination coupled with combined within- and among-family selection were used to maintain a broad germplasm base in the synthetic while enhancing agronomic attributes. No selection pressure has so far been applied, in order to maintain total genetic potential. Variability also includes an array of other characteristics such as growth habit, maturity, pod shape, seed size, testa color, etc.

Sixteen diverse parental peanut lines were originally chosen. The initial single crosses were PI 373794F (13); has resistance to seed colonization by Aspergillus flavus Link; F1 × PI 109839 (8); has resistance to early leaf spot Ceratocystis fimbriata Link; F1 × PI 360859 (12); has rosette virus resistance.

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CROP REGISTRATIONS 497

REGISTRATION OF CPES PEANUT GERMPLASM POPULATION

CPES PEANUT (Arachis hypogaea L.) early-regenerating population (Reg. no. GP-55, PI 542961) was cooperatively released by the Georgia Agricultural Experiment Stations and the USDA-ARS in 1990. This unselected broad-base germplasm population was developed by compositing F₂-generation progenies that were systematically bulked for the purpose of subsequent disease and insect screening; thus, no selection pressure has so far been applied, in order to maintain total genetic potential. Variability also includes an array of other characteristics such as growth habit, maturity, pod shape, seed size, testa color, etc.

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