Registration of Germplasm

REGISTRATION OF AUBURN BR1 AND BR2 COTTON GERMPLASM1
(Reg. Nos. GP 1 and GP 2)
A. J. Kappelman, Jr.2

'AUBURN BR1' (GP 1) and 'AUBURN BR2' (GP 2) (Gossypium hirsutum L.) are elite breeding lines of cotton released to plant breeders in February 1971 by the Auburn University Agricultural Experiment Station, Auburn, Alabama, and the Plant Science Research Division, Agricultural Research Service, U.S. Department of Agriculture. Both lines contain resistance to bacterial blight, Xanthomonas malacarum (E. F. Sm) Dows, not exhibited by 'Auburn 56,' a Fusarium wilt resistant cultivar. These lines are superior to Auburn 56 both in yield and fiber characteristics. Auburn BR2 is superior, and Auburn BR1 at least equal to Auburn 56 for resistance to Fusarium wilt, Fusarium oxysporum Schlecht. f. vasinfectum (Atk.) Sn. & Hans. and G. hirsutum Schlecht. f. verticillioides (Atk.) Dows.

Auburn BR1 and BR2 were developed as single plant selections from within a progeny row of (K3 × Auburn 56) BC, F1 in 1965. Self-pollinated seeds were obtained from plant-to-row increases in 1967 and bulked self-pollinated seeds obtained from 1968-1970. K3 was selected from a crossing made at the Texas Agricultural Experiment Station between 'Knight's BAR 416' × 'Empire' followed by three backcrosses to Empire. Both lines were developed with Fusarium wilt and root knot nematodes (Meloidogyne spp.). Plants highly susceptible to the Fusarium wilt root-knot nematode complex thus were eliminated by natural selection. Throughout the developmental period of these lines, selections were tested yearly for resistance to bacterial blight, X. malacarum, following artificial inoculation with a combination of races 1, 2, 7, 12, 13, and 14 of the bacterium. Susceptible plants were discarded and self-pollinated seeds bulked from resistant plants. This procedure would lead to a highly resistant population but not necessarily homozygosity for resistance in each individual plant.

Data from five replicated agronomic performance trials indicate that in comparison to Auburn 56 both lines are higher yielding, by about 150 to 180 kg lint/ha, (134 to 160 lb lint/A), than other commercial varieties. PH-14-119 is single podded and PH-14-119 is white flowering and double podded and flowers in the 12th or 13th node. Fifty seeds of the line are available for breeding and other research uses upon request to Department of Crop Science, North Carolina State University, Raleigh, North Carolina, 27607.

Two sources of genepool (Pisum sativum L.) germplasm, PH-14-119 and PH-91-3, were developed by Plant Science Research Division, Agricultural Research Service, U.S. Department of Agriculture and Washington State University and released in 1971. Both lines are F1 selections having resistance to the pea root rot complex caused by Fusarium solani (Mart.) Appel. & Wr. f. sp. pisi (F. R. Jones) Snyd. & Hans. and Pythium spp. prevalent in Eastern Washington.

The parentage of PH-14-119 (Reg. No. GP 10) is C-165 × PI 140295 (a selection by W. T. Schroeder, Cornell Univ. Expt. Sta., Geneva, N. Y.) which has resistance to common pea mosaic, enation virus, and is tolerant to the Fusarium and Pythium root rot complex. PH-14-119 consistently sets pods under conditions of root rot infestation that kills standard commercial varieties. PH-14-119 is single and double podded (4 to 7 pods/plant), white flowered, and flowers in the 12th-13th node. The parentage of PH-91-3 (Reg. No. GP 11) is ('Perfected Freezer 60' × G. hirsutum)(Early Perfection 3040 × C-165). Plant Introduction No. 160159 and Early Perfection 3040 (Canners Seed Corporation) are both sources of resistance or tolerance to the Fusarium and Pythium root rot complex. PH-91-3 remains vigorous and yields well in soil where root rot susceptible peas are destroyed. It varies between 60-100% resistance to near wilt. PH-91-3 is white flowering and double podded and flowers in the 12th or 13th node.

Small amounts of seed of these germplasms are available through the U.S.D.A. Bean and Pea Investigations, Irrigated Agriculture Research and Extension Center, Prosser, Washington 99350.

REGISTRATION OF MALE-STERILE MAINTAINER LINE (N69-2774) OF SOYBEANS3
(Reg. No. GP 12)
C. A. Brim and M. F. Young4

N69-2774, a male-sterile maintainer line of soybeans (Glycine max (L.) Merr.), has white flowers, grey pubescence, and segregates for fertility in a ratio of 3 fertile:1 male-sterile. Male-sterility is mediated by a single recessive gene pair (msms) and is a result of a nonfunctional pollen. Except for differences in pollen morphology and viability, male-sterile plants are indistinguishable from fertile siblings until pod set or maturity. The male-sterile plants are very distinct at the onset of maturity, because their leaves and stems remain green until frost. Pod set is generally reduced on male-sterile plants, but over 99% of the seed obtained are the result of natural crossing. The varietal origin of the mutant is unknown; however, fertile plants in the line have been classified as Group VII maturity. The line was developed through cooperative investigations by the Plant Science Research Division, Agricultural Research Service, U.S. Department of Agriculture, and the North Carolina Agricultural Experiment Station.

Other information relevant to N69-2774 has been published in Crop Science 11 (1971): 564-566.

Fifty seeds of the line are available for breeding and other research purposes upon request to Department of Crop Science, North Carolina State University, Raleigh, North Carolina, 27607.


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