

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 malvacearum* (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.) Snyder & Hans.

Auburn BR1 and BR2 were developed as single plant selections from within a progeny row of ($K_4E \times$ Auburn 56) BC₄ F₈ in 1966. Self-pollinated seeds were obtained from plant-to-row increases in 1967 and bulked self-pollinated seeds obtained from 1968-1970. K₄E was a selection from a cross made at the Texas Agricultural Experiment Station between 'Knight's BAR 4/16' \times 'Empire' followed by three backcrosses to Empire. Both lines were developed on soils heavily infested 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. malvacearum*, 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), have longer fiber, by about .25 cm (.10 inch), are stronger, by about 2 gf/tex, and finer by about .3 Micronaire units.

Limited quantities of Auburn BR1 and Auburn BR2 seed are available for breeding purposes. Request for seed should be made to the Department of Agronomy and Soils, Auburn University, Auburn, Alabama 36830.

¹Registered by Crop Science Society of America. Cooperative investigations of the Plant Science Research Division, Agricultural Research Service, U.S. Department of Agriculture and Department of Agronomy and Soils, Auburn University Agricultural Experiment Station, Auburn, Alabama 36830. Received March 4, 1972.

²Research Plant Pathologist, U.S. Department of Agriculture, Agricultural Research Service, Plant Science Research Division, Auburn University Agricultural Experiment Station, Auburn, Alabama 36830.

REGISTRATION OF PH-14-119 AND PH-91-3 PEA GERmplasm¹

(Reg. Nos. GP 10 and GP 11)

J. M. Kraft, M. J. Silbernagel, and F. J. Muehlbauer²

Two sources of canning pea (*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 F₇ selections having resistance to the pea root rot complex caused by *Fusarium solani* (Mart.) Appel. & W. f. sp. *pisi* (F. R. Jones) Snyder & Hans. and *Pythium* spp. prevalent in Eastern Washington³.

The parentage of PH-14-119 (Reg. No. GP 10) is C-165 (a Wisconsin selection resistant to common and near

wilt, *F. oxysporum* Schlecht, emend. Snyder & Hans. f. *pisi* (Lindf.)) \times P.I. 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 8 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,' a N. Y. State Release \times P.I. 166159) \times ('Early Perfection 3040' \times C-165). Plant Introduction No. 166159 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 flowered 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.

¹Registered by the Crop Science Society of America. Cooperative investigations of the Plant Science Research Division, Agricultural Research Service, U.S. Department of Agriculture and the Washington State University, Pullman, Washington as Scientific Paper No. 3766. Received Dec. 9, 1971.

²Plant Pathologists and Geneticist, respectively, Plant Science Research Division, Agricultural Research Service, U.S. Dept. of Agriculture, Prosser and Pullman, Washington.

³Kraft, J. M., W. A. Haglund, and T. P. Reiling. 1969. Effect of soil fumigation on control of pea root pathogens. Plant Dis. Repr. 53:776-780.

REGISTRATION OF A MALE-STERILE MAINTAINER LINE (N69-2774) OF SOYBEANS¹

(Reg. No. GP 12)

C. A. Brim and M. F. Young²

N69-2774, a male-sterile maintainer line of soybeans (*Glycine max* (L.) Merr.), has white flowers, gray pubescence, and segregates for fertility in a ratio of 3 fertiles:1 male-sterile. Male-sterility is mediated by a single recessive gene pair (*ms₁ms₁*) and is a result of 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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²Research Agronomist, Plant Science Research Division, Agricultural Research Service, U. S. Department of Agriculture, and Professor of Crop Science, North Carolina State University; and Agricultural Research Technician, Plant Science Research Division, Agricultural Research Service, U. S. Department of Agriculture, P. O. Box 5155, Raleigh, N.C., 27607.