Published March, 1976

a weak, rather long basal rachis internode which results in considerable head snapping after maturity.

The ability to yield well in diverse environments and the dominant nature of the desirable spike characters should make Arimont a valuable parent in breeding both hybrid and conventional cultivars.

Seed will be maintained jointly by the Arizona Agric. Exp. Stn. and the USDA, and can be obtained from the authors.

REGISTRATION OF BARLEY COMPOSITE CROSSES XXX-A TO G[1]

(Reg. Nos. GP 20 to GP 26)

R. T. Ramage, R. K. Thompson, R. F. Eslick, D. M. Wesenberg, G. A. Wiebe, and J. C. Craddock[2]

SEVEN barley (*Hordeum vulgare* L.) populations, designated Composite Cross XXX-A to XXX-G, have been released by ARS-USDA, and the Arizona, Idaho, and Montana Agric. Exp. Stns[3].

Composite Cross XXX originated from natural crosses between the USDA World Collection of barley and male sterile diploid plants from the balanced tertiary trisomic 27d msg2. The World Collection was increased in 1966 and 1967. The spring barleys were grown at Aberdeen, Idaho, about one-half in the summer of 1966 and the remainder in the summer of 1967. All of the winter barleys were grown at Mesa, Ariz. in the winter of 1966-67. Seed that would produce male sterile plants were planted across the ends of the increase rows and outcrossed seed set on the plants were harvested. The three F_1 populations were grown in separate plots. Various populations were established from this material.

Populations of Composite Cross XXX were established to facilitate selection of genes governing a high incidence of natural cross pollination. All of the lines in the World Collection with the ability to effect cross pollination were given the opportunity to furnish pollen to produce the original populations. Subsequent populations have been produced by harvesting outcrossed seed set on male sterile plants. This has resulted in selection of both male and female flowers with increased ability to cross pollinate.

The released populations of Composite Cross XXX are:

CC XXX-A F_2 seed (GP 20). Mixture of the F_2 seed of the three original populations.

CC XXX-B F_3 seed (GP 21). The next generation from CC XXX-A.

CC XXX-C $F_1Sib_{10}F_2$ seed (GP 22). From first one-half of spring barleys grown alternately at Mesa and Aberdeen in the same year.

CC XXX-D F_1Sib_3 seed (GP 23). From mixture of Sib_2F_2 seed of the three populations grown at Mesa.

CC XXX-E F_1Sib_3 seed (GP 24). From two-rowed plants selected from the three populations.

CC XXX-F $F_1sib_5F_2$ and $F_1Sib_4F_2$ seed (GP 25). From mixture of Sib_5F_2 seed of the first one-half of the spring barleys and Sib_4F_2 of the second one-half of the spring barleys grown at Bozeman.

CC XXX-G $F_1Sib_4F_2$ seed (GP 26). From mixture of Sib_2F_2 of the three populations grown at Aberdeen.

These Composite Cross populations will segregate for a wide range of characters and for ability to cross pollinate. They should be useful to breeders for cross pollination under many environmental conditions.

Seed will be maintained jointly by the Arizona Agric. Exp. Stn. and USDA, and can be obtained in 1 or 2 kg lots from the last-named author.

[1] Registered by the Crop Science Society of America. Joint contribution: ARS-USDA, and the Arizona, Idaho, and Montana Agric. Exp. Stns. Contribution No. 2452, Arizona Agric. Exp. Stn.; No. 7573, Idaho Agric. Exp. Stn.; and No. 584, Montana Agric. Exp. Stn. Accepted 25 Nov. 1975.

[2] Research geneticist, ARS-USDA, and professor of agronomy and plant genetics, Univ. of Arizona, Tucson, AZ 85721; research associate, Ariz. Agric. Exp. Stn., Mesa, AZ 85201; professor of plant and soil science, Montana State Univ., Bozeman, MT 59715; research agronomist, ARS-USDA, P.O. Box AA, Aberdeen, ID 83210; collaborator, ARS-USDA, Beltsville, MD 20705; and research agronomist, ARS-USDA, Beltsville, MD 20705.

[3] Ramage, R. T., R. K. Thompson, R. F. Eslick, D. M. Wesenberg, G. A. Wiebe, and J. C. Craddock. 1974. Release of composite cross XXX. Barley Newsletter 17:4-6.

REGISTRATION OF COTTON GERMPLASM LINES BR 69-120, BR 70-111 AND BR 70-118[1]

(Reg. Nos. GP 24 through GP 26)

P. H. van Schaik, C. M. Brown, and John H. Turner, Jr.[2]

Three breeding lines of cotton (*Gossypium hirsutum* L.), BR 69-120 (GP No. 24), BR 70-111 (GP No. 25), and BR 70-118 (GP No. 26), were released to plant breeders in June 1975 by ARS-USDA. These lines combine high lint yield with an unusual combination of fiber properties. They also exhibit excellent stalk stiffness and early maturity, features that are needed for efficient machine harvest. These lines were developed at the Imperial Valley Conservation Research Center, Brawley, Calif.

The lines were developed from a cross of ATE 509N × Cal 7-5. ATE 509N (Acala 51 × Triple Hybrid-Early Fluff) was a productive, early maturing, erect plant type with high salt tolerance, but the fiber was considered too short (only 2.5 cm). Cal 7-5 (Hopi Acala 46 × HA9-1) was too indeterminate in plant type for good agronomic performance, but it had exceptionally strong fiber and desirable boll and seed traits. BR 69-120 was an outstanding F_6 progeny row in the 1969 nursery at Brawley. BR 70-111 and BR 70-118 were derived from two plant selections in that progeny. Yield and quality data, comparing these breeding lines with the commercially grown cultivar (Deltapine 16), are presented in Table 1.

Table 1. Average lint yield, fiber and spinning properties for three breeding stocks compared with commercial check; grown in four tests (1971-1974).*

Entry	GP No.	Lint	Lint	Boll wt.	Span length 2.5%	U.I.	Mic.	Yarn strength
		kg/ha	%	g	in.			27 tex.
BR 69-120	24	1723	38.2	5.14	1.09	47	4.90	131
BR 70-111	25	1828	38.4	5.04	1.13	48	4.58	139
BR 70-118	26	1949	39.1	5.09	1.10	46	4.75	130
Deltapine 16 (ck)		1547	37.3	5.42	1.14	47	4.78	119

* Fiber data from 3 tests only

The main defects of these stocks are verticillium wilt susceptibility and more pubescent main stems and petioles than most upland cottons. Fiber length and yarn strength were increased and Micronaire decreased for the BR 70-111 over its parent, BR 69-120.

The fiber of these stocks is shorter and has a lower elongation (E_1) than commercial varieties grown in the West. The yield, stalk stiffness and early maturity of these stocks together with high yarn strength make them potentially useful to breeders.

A limited quantity of breeder seed of these three stocks is available for pro-rata distribution to bona fide cotton breeders upon written request to Cliff Brown, Imperial Valley Conservation Research Center, Brawley, CA 92227.

[1] Registered by the Crop Science Society of America. Accepted 20 Nov. 1975.

[2] Assistant research area director, ARS-USDA, Fresno. Calif.; Agricultural research technician, ARS-USDA, Brawley, Calif.; and agronomist, ARS-USDA, Knoxville, Tenn., respectively.