

REGISTRATION OF GERMPLASMS

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Table 1. Eleven *Fusarium* wilt resistant cotton germplasms.

Registration no.	Line†
GP 53	JPM-781-66-3
GP 54	JPM-781-69-3
GP 55	JPM-781-75-3
GP 56	JPM-781-84-3
GP 57	JPM-781-87-1
GP 58	JPM-781-88-3
GP 59	JPM-781-100-1
GP 60	JPM-781-496-3
GP 61	JPM-781-113-3
GP 62	JPM-781-158-1
GP 63	JPM-781-195-1

† Explanation of code: Example—JPM-781-66-3, JPM = originators; 78 = year of germplasm release; 1 through 8 = race designation (1 = latifolium, 2 = punctatum, 3 = marie-galante, 4 = palmeri, 5 = richmondii, 6 = morrilli, 7 = yucatanense, and 8 = unclassified); 66 = accession number in ARS catalogues ARS-H-2, October 1974, the Regional Collection of *Gossypium* germplasm; 3 = the serial release number from crosses involving this particular accession.

State. The flowering plants were selected in this BC₂F₂ and bulked for testing.

The F₂ and/or BC₂F₃ generations of the lines were tested for resistance to *Fusarium* wilt in three greenhouse tests and nine selections were grown in a field test at Tallassee, Ala., in an area which contained a heavy infestation of *Fusarium* wilt and root knot nematodes.

The BC₂F₄ generation was grown in a yield test at Mississippi State in 1976. Each of the lines compared very favorably with the commercial check, Deltapine 16, in yield and in all fiber properties. Some lines were considerably earlier than Deltapine 16. A comparison of the *Fusarium* wilt score of each of these lines with the resistant check showed resistance ranging from equal to the resistant check to 53% greater than the resistant check. Seed of the released lines are from the BC₂F₅ generation (Table 1).

Small amounts (200) of seed of these stocks are available for distribution to cotton breeders and other research workers upon written request. Requests for seed should be made to Dr. Johnie N. Jenkins, AR, SEA, USDA, Department of Agronomy, Crop Science and Engineering Research Laboratory, P.O. Box 5367, Mississippi State, MS 39762.

Tabular data on yield and wilt readings are available in Research Report Vol. 4 No. 20 from the Mississippi Agricultural and Forestry Experiment Station, Mississippi State, MS 39762.

¹ Registered by the Crop Sci. Soc. Am. Cooperative investigations of AR, SEA, USDA; Mississippi Agric. and For. Exp. Stn., Mississippi State, MS 39762; and Alabama Agric. Exp. Stn., Auburn, L 36830. Accepted 7 Sept. 1979.

² Research geneticist, research agronomist, research entomologist, AR, SEA, USDA, Crop Sci. and Eng. Res. Lab., Miss. State Univ., Mississippi State, MS 39762; research plant pathologist, AR, SEA, USDA, Auburn Univ., Auburn, AL 36830, respectively.

REGISTRATION OF 77 COTTON GERMPLASM¹

(Reg. No. GP 64 to GP 140)

Johnie N. Jenkins, J. C. McCarty, R. G. Creech,
and W. L. Parrott²

WE have released 77 flowering germplasm lines involving 53 accessions from the *Gossypium hirsutum* L. race collection. These lines represent a diverse pool of germplasm. Each line also contains genetic diversity due to the breeding procedure employed. The 53 accessions were crossed as males with either 'Deltapine 16' or Lubbock Dwarf. Lubbock Dwarf is a noncommercial breeding line with reduced plant height, earliness of crop maturity, short, fine, weak fibers, and a low yield of lint per plant^a. We used it as a parent because of its earliness and reduced plant height. Twenty-four accessions were crossed

Table 1. Seventy-seven F₂ non-commercial flowering lines of cotton germplasm involving *Gossypium hirsutum* L. race accessions.

Registration no.	Line†	Registration no.	Line†
GP 64	JPM-781-185-1	GP 85	JPM-788-459-2
GP 65	JPM-781-185-2	GP 86	JPM-788-679-1
GP 66	JPM-782-26-1	GP 87	JPM-788-679-2
GP 67	JPM-782-26-2	GP 88	JPM-788-730-1
GP 68	JPM-782-94-1	GP 89	JPM-788-730-2
GP 69	JPM-782-94-2	GP 90	JPM-788-732-1
GP 70	JPM-786-11-1	GP 91	JPM-788-759-1
GP 71	JPM-786-11-2	GP 92	JPM-788-759-2
GP 72	JPM-786-194-1	GP 93	JPM-788-763-1
GP 73	JPM-786-292-1	GP 94	JPM-788-763-2
GP 74	JPM-786-292-2	GP 95	JPM-788-766-1
GP 75	JPM-786-295-1	GP 96	JPM-788-766-2
GP 76	JPM-786-295-2	GP 97	JPM-788-786-1
GP 77	JPM-786-297-2	GP 98	JPM-788-786-2
GP 78	JPM-784-336-1	GP 99	JPM-788-790-1
GP 79	JPM-784-336-2	GP 100	JPM-788-790-2
GP 80	JPM-788-339-1	GP 101	JPM-788-805-1
GP 81	JPM-788-339-2	GP 102	JPM-788-805-2
GP 82	JPM-788-404-1	GP 103	JPM-788-1134-1
GP 83	JPM-788-404-2	GP 104	JPM-788-1134-2
GP 84	JPM-788-459-1		
GP 105	JPM-788-1149-1	GP 123	JPM-781-69-1
GP 106	JPM-788-1149-2	GP 124	JPM-781-75-1
GP 107	JPM-788-1159-1	GP 125	JPM-781-78-1
GP 108	JPM-788-1159-2	GP 126	JPM-781-84-1
GP 109	JPM-788-1167-1	GP 127	JPM-781-88-1
GP 110	JPM-788-1167-2	GP 128	JPM-781-103-1
GP 111	JPM-788-1177-1	GP 129	JPM-781-106-1
GP 112	JPM-788-1177-2	GP 130	JPM-781-109-1
GP 113	JPM-788-1180-1	GP 131	JPM-781-113-1
GP 114	JPM-788-1180-2	GP 132	JPM-781-118-1
GP 115	JPM-784-347-2	GP 133	JPM-781-159-1
GP 116	JPM-782-1045-2	GP 134	JPM-781-201-1
GP 117	JPM-788-267-1	GP 135	JPM-781-209-1
GP 118	JPM-788-725-1	GP 136	JPM-781-223-1
GP 119	JPM-788-764-1	GP 137	JPM-782-25-1
GP 120	JPM-781-3-1	GP 138	JPM-782-488-1
GP 121	JPM-781-59-1	GP 139	JPM-782-495-1
GP 122	JPM-781-66-1	GP 140	JPM-785-461-1

† Explanation of code: Example—JPM-781-185-1, JPM = originators; 78 = year of germplasm release; 1 through 8 = race designation (1 = latifolium, 2 = punctatum, 3 = marie-galante, 4 = palmeri, 5 = richmondii, 6 = morrilli, 7 = yucatanense, and 8 = unclassified); 185 = accession number in ARS catalogues ARS-H-2, October 1974, the Regional Collection of *Gossypium* germplasm; 1 = the serial release number from crosses involving this particular accession.

with both Lubbock Dwarf and Deltapine 16. Three accessions were crossed only with Lubbock Dwarf; 26 accessions were crossed only with Deltapine 16.

Based on no choice oviposition tests in the F₄ generation, crosses involving 18 of the 53 race accessions had significantly lower boll weevil oviposition than the 'Stoneville 213' check. One of the 18 accessions was crossed with both Lubbock Dwarf and Deltapine 16; 10 were crossed with Lubbock Dwarf only and six were crossed with Deltapine 16 only. As measured by growth rate of bollworm larvae from emergence to 5 days on abscised terminal leaves from F₄ lines, none of the 77 strains are resistant to bollworm. The original race stocks themselves, not the flowering segregates, were evaluated in the field for resistance to natural infestations of *Cercospora gossypina* Cooke and *Verticillium albo-atrum* Reinke and Berth. Reaction to *Cercospora* was rated on a scale of 1 (most resistant) to 5 (most susceptible). *Verticillium* wilt reaction was rated from visual observations of leaf symptoms. Lines were rated as R (no leaf symptoms), S (moderate symptoms), and VS (severe symptoms). We are releasing F₂ flowering segregates from 20 lines which rated 3 or less for *Cercospora* and 20 lines scored as R for *Verticillium*. Nine of these lines are common to both groups.

The procedure for developing the flowering lines was to cross each of the race accessions as males to the upland parent at the winter nursery at Iguala, Mexico. The F₄ generation was also self-pollinated at the winter nursery in Iguala. The

F₂ generation was grown in the field at Mississippi State, Miss. In the cross involving Lubbock Dwarf as the female, only those plants with the node of first fruiting branch at 10 or below were kept. In the cross with Deltapine 16 as the female, only those plants which had the first fruiting branch at node 13 or below were kept. Open-pollinated seed of each of the selected F₂ plants were planted in an F₃ row the following year. Open-pollinated seed were harvested from each F₃ row that produced bolls. The majority of these rows produced a significant amount of mature seed. An equal number of seed from each F₃ row were pooled and planted for the F₄ generation. Open-pollinated seed from the F₄ plant generation were harvested and these F₄ seed are available for release. We have purposely maintained genetic diversity in each of these lines by selecting only for node of first fruiting branch. Data relative to boll size, lint percent, and fiber properties were collected in 1977 from bulk F₄ rows.

Lines being released are shown in Table 1. Small amounts (200) of seed of these lines are available for distribution to cotton breeders and other research workers as long as present seed is available. All requests should be addressed to Johnnie N. Jenkins, AR, SEA, USDA, Department of Agronomy, Crop Science and Engineering Research Laboratory, P. O. Box 5367, Mississippi State, MS 39762.

Tabular data on yield and insect resistance are available in Bulletin 881 from the Mississippi Agricultural and Forestry Experiment Station, Mississippi State, MS 39762.

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²Research geneticist, research agronomist, AR, SEA, USDA, Crop Sci. and Eng. Res. Lab.; professor and Head of Agronomy Dep.; research entomologist, AR, SEA, USDA, Crop Sci. and Eng. Res. Lab., Mississippi State Univ., Mississippi State, MS 39762, respectively.

³Quisenberry, J. E. 1975. Inheritance of plant height in cotton. I. A cross between Lubbock Dwarf and Texas Marker — 1. Crop Sci. 15:197-199.

REGISTRATION OF C-7 AND C-8 CICER MILKVETCH GERMPLASM¹

(Reg. No. GP 25 and GP 26)

C. E. Townsend and G. O. Hinze²

THE C-7 and C-8 cicer milkvetch (*Astragalus cicer* L.) germplasm pools were released by AR, SEA, USDA, and the Colorado State University Experiment Station in April 1979.

C-7 (GP-25) was selected for persistence at the Central Plains Experimental Range, Nunn, Colo. The environmental conditions are submarginal for the growth of forage legumes at this site and the average annual precipitation is about 30 cm. Over 80 polycross progenies, representing all accessions available at that time, were established in 1972³. Persistence was satisfactory through 1975, but by late summer 1976 persistence was poor. At that time we dug all surviving plants except those at the edge of plots or areas where lack of competition for moisture was suspected. We saved 86 plants with healthy, well-developed root systems and placed them in a crossing block at Fort Collins. Considerable variability existed among these plants for initiation of spring growth and recovery after harvest. Polycross progenies from these selections were evaluated

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²Research geneticist, AR, SEA, USDA, Crops Res. Lab., Colorado State Univ., Fort Collins, CO 80523 and associate professor of agronomy, U. S. Central Great Plains Res. Stn., Akron, CO 80720.

³Townsend, C. E. 1974. Selection for seedling vigor in *Astragalus cicer* L. Agron. J. 66:241-245.

for seedling emergence at the Central Plains Experimental Range in 1978. Their mean seedling emergence was 164% of that of the cultivar 'Lutana'. When compared to a large-seeded lot, which usually serves as the reference progeny in our seedling emergence studies, their mean seedling emergence was 114%.

C-8 (GP 26) was selected for persistence at the U. S. Central Great Plains Research Station, Akron. The environmental conditions are marginal for the growth of forage legumes at this site and the average annual precipitation is about 40 cm. The same 80-plus progenies that were evaluated at the Nunn site were also established at the Akron location in 1972. Persistence was substantially better at the Akron location than at Nunn. Ninety of the most vigorous plants were selected in 1977 and placed in a crossing block at Fort Collins. Considerable variability also existed among these plants for initiation of spring growth and recovery after harvest.

An equal amount of polycross seed (by weight) from each parental plant for each pool was composited to form C-7 and C-8. Small quantities of seed (up to 50 g) of each pool may be requested from the Crops Research Laboratory-USDA, Colorado State University, Fort Collins, CO 80523.

REGISTRATION OF C-9 CICER MILKVETCH GERMPLASM¹

(Reg. No. GP 27)

C. E. Townsend²

THE C-9 cicer milkvetch (*Astragalus cicer* L.) germplasm pool was released by AR, SEA, USDA and the Colorado State University Experiment Station in April 1979. C-9 was selected for early initiation of spring growth and recovery after harvest. The source material originated from a 5,000-spaced plant nursery. This nursery was composed primarily of polycross progenies of plants selected for high seed weight and excellent mature plant vigor. Polycross progenies of the 60 plants selected for early initiation of spring growth and recovery after harvest were evaluated under irrigation in a spaced nursery (0.6 × 1.2 m spacing). In 1977, the year of establishment, the mean forage yield (green weight) of these progenies was 129% of that of the cultivar 'Lutana' and ranged from 110 to 161%. In the year following establishment, the mean forage yield for three harvests was again 129% of that of Lutana and ranged from 111 to 154%.

An equal amount of polycross seed (by weight) from each parental plant was composited to form C-9. Small quantities of seed (up to 50 g) may be requested from the Crops Research Laboratory-USDA, Colorado State University, Fort Collins, CO 80523.

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²Research geneticist, AR, SEA, USDA, Crops Res. Lab., Colorado State Univ., Fort Collins, CO 80523.

REGISTRATION OF FC 704 SUGARBEET GERMPLASM¹

(Reg. No. GP 54)

R. J. Hecker and G. A. Smith²

THIS sugarbeet (*Beta vulgaris* L.) line was developed and released by AR, SEA, USDA, in cooperation with the Beet Sugar Development Foundation and the Colorado State University Experiment Station.

FC 704 is a diploid (2×=18), multigerm, red-fleshed sugarbeet with resistance to rhizoctonia root rot (caused by *Rhizoctonia solani* Kühn). It is a product of three cycles of mass selection in both vegetative and flowering stages for intensification of red color in roots and tops followed by two cycles of mass selection for resistance to root rot. The roots, petioles, and leaves are deep red. The source of this line was a heterogeneous