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Registration of Crop Varieties

REGISTRATION OF PENNQUAD BUCKWHEAT[1]

(Reg. No. 1)

H. G. Marshall[2]

'PENNQUAD' buckwheat (*Fagopyrum sagittatum* Gilib.), C.I. 16, Pa. 84, is an autotetraploid (2n = 32) variety which originated from a few seeds obtained during 1959 from McGill University, Montreal, Canada; and these were part of an original introduction from USSR. The initial average maturity was late, and selection pressure against this characteristic was applied through early harvest of small isolated observation and seed increase plots from 1960 through 1962.

Pennquad is a naturally cross-pollinated variety. Distinguishing morphological characteristics are as follows: Plants are tall but similar in height to that of available diploid buckwheats; thick, dark green leaves compared to available diploids; stems are thick and red in color, but characteristically turn dark brown with ripening; flowers are large, white and dimorphic; seeds are uniformly large and angular and approach the Japanese type in these characteristics; predominant seed color is gray with black mottling but occasional seeds are almost completely black.

Pennquad is the first tetraploid variety released for production in the United States, and is adapted to Pennsylvania and areas with similar climatic conditions. In Pennsylvania tests conducted during 1963 through 1966, it was superior to the check variety 'Tokyo' for yield and lodging resistance. Since Tokyo (a diploid) is the only other buckwheat variety of which foundation seed is maintained, Pennquad provides the producer with a choice of varieties for his conditions.

Pennquad was released in 1966 under cooperative agreement by the Pennsylvania Agricultural Experiment Station and the Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture. The Pennsylvania Agricultural Experiment Station will maintain breeder seed.

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REGISTRATION OF AUBURN M COTTON[1]

(Reg. No. 52)

W. P. Sappenfield[2]

'AUBURN M' (*Gossypium hirsutum* L.) (1) is an extra-early variety, resistant to the fusarium wilt-root knot nematode disease complex, caused by *Fusarium oxysporium* f. *vasinfectum* (Atk.) Synder and Hansen, and *Meloidogyne incognita* var. *acrita* Chitwood, 1949.

Early-maturing plants, selected from the 'Auburn 56' variety (2) were obtained in 1957 from the U. S. Department of Agriculture and the Agricultural Experiment Station, Auburn University. Subsequent selections made at the Missouri Agricultural Experiment Station, Delta Center, from the progeny of a single plant, designated 'Auburn 56-888,' later gave rise to the Missouri sister strains, Mo. 58-432 and Mo. 58-449. Breeder seed of each was produced in 1960. Their similar and supplementary traits permitted blending the seed of each equally for use in production of foundation seed of Mo. 58-3249 in 1961. Mo. 58-3249 was named Auburn M at the Fifth Annual Crops Conference, Department of Field Crops, University of Missouri, December 1-2, 1961. Foundation seed was released to Missouri registered growers for planting in 1962. Breeder seed will be maintained by the Missouri Agricultural Experiment Station.

Auburn M is an early-maturing, short-growing, determinate, quick-fruiting variety having short internodes and nearly semi-smooth leaves. It is very resistant to the fusarium wilt-root knot nematode disease complex. It is only mildly tolerant to *Verticillium albo-atrum* Reinke and Berth and is susceptible to bacterial blight caused by *Xanthomonas malvacearum* (E. F. Smi.) Dows.

Comparative yields, boll, seed, and fiber properties for Auburn M and other commercial varieties grown in Southeast Missouri trials are given in Table 1.

In Southeast Missouri Auburn M has produced good yields on sand, sandy loam, loam, and clay soils. On heavy clay soils its growth often has been extremely determinate and fiber quality inconsistent, except in plantings made after May 15. Since the variety is extra-early it has performed especially well on all soil types in later-than-normal plantings or when replantings were necessary. When planted after May 10 in southeast Missouri its growth habit usually has been more indeterminate. When the variety was planted too early and when subsequent fruiting was too rapid plants often became over-fruited and showed weak-stalked tendencies and premature cut-out, espe-

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Table 1. Lint cotton yields and boll, seed, and fiber properties for cotton varieties grown in southeast Missouri, 1963-65.

Variety	Lint yield, lb/A*	Boll wt, g/boll	Seed index, g/100	Lint, %	Fiber length† inches 50 SL	Fiber length† inches 2.5 SL	Uniformity Index	Fiber fineness, Micronaire‡	Yarn strength lb§
Auburn M	863	6.5	13.7	36.4	.54	1.13	47	4.6	114
Auburn 56	827	6.4	12.8	35.7	.54	1.13	47	4.7	116
Deltapine 45	785	5.9	12.0	37.9	.54	1.14	47	4.9	119
Stoneville 213	768	5.9	11.6	37.8	.54	1.13	47	5.0	115
Rex SL	755	6.7	13.7	35.5	.53	1.13	46	4.4	115
Stoneville 7A	673	5.8	11.5	37.9	.54	1.15	46	5.0	117
Deltapine SL	671	5.5	10.5	38.4	.54	1.14	47	4.8	120
LSD, .05	39	.3	.2	.4	.01	.01	1	.1	2

* Mean of 12 trials (four locations 1963, 1964 and 1965). † Digital fibrograph.
‡ 3.5-4.8 = Premium range. Below 3.5 = Fine and immature. Above 4.8 = Coarse.
§ 22'(27 tex)

cially during dry seasons. Use of supplemental irrigation often permitted maximum expression of the prolific fruiting potentials of the variety and high yields were obtained. When the variety was grown in the more southern areas of the Mississippi Delta without irrigation it appeared too determinate and early to produce yields comparable to other Delta varieties planted at normal dates-of-planting (3). However, it produced comparatively well in the southeastern region of the Cotton Belt (4). Auburn M appears best adapted to the lighter soils in the more northern areas of the rain-grown portion of the cotton belt or where climatic and soil conditions are similar to those of southeast Missouri.

Literature Cited

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3. Cotton and Cordage Fibers Research Branch, CRD, ARS, USDA. 1964. Results of the 1963 Regional Cotton Variety Tests. ARS 34-68. p. 18-20.
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REGISTRATION OF DILLMAN AND MAC FLAX[1]

(Reg. No. 26 and 27)

I. M. Atkins, O. G. Merkle, and Lucas Reyes[2]

'DILLMAN', C.I. 1909, and 'MAC', C.I. 1910, (*Linum usitatissimum* L.) were developed as plant selections from a cross between Turkey flax C.I. 862 introduced from Turkey by the U. S. Department of Agriculture in 1928 and 'Roman Winter,' C.I. 470, a variety introduced from Holland in 1937. These varieties were used extensively in the early improvement work of fall seeded flax in Texas. Dillman and Mac varieties are named in honor of two scientists, A. C. Dillman, formerly in charge of flax research, U. S. Department of Agriculture, and E. S. McFadden, in charge of the Texas work from 1937-55 (now deceased).

Bulk hybrids of this and other crosses were grown at several Texas stations from 1946-50, and numerous lines were tested in yield trials from 1951-56. During a severe curly-top epidemic in 1957, the strains, now named Dillman and Mac, were outstanding in tolerance to curly top. These were purified in plant rows and increased for possible distribution. In January of 1962, when more than 90% of the 175,000 acres of flax seeded in Texas was killed by low temperatures, these strains were among the few which survived. Strain C.I. 1909 was increased rapidly by winter and summer cropping and released to growers in 1964 as Dillman flax (TAES Release Leaflet L-646). During 1964, flax rust was found in Texas for the first time since 1941. Both C.I. 1909 and 1910 proved resistant to prevalent races but C.I. 1910 was mixed in reaction having some susceptible plants. Purification for rust reaction delayed release of this strain until 1966. The original cross was made by E. S. McFadden, the selections for curly-top reaction by I. M. Atkins and the final selection by O. G. Merkle.

Plants of Dillman and Mac are typical winter-type varieties. During the winter season, plants grow slowly and branch profusely and the branches lie prostrate along the ground. These varieties have the ability to adjust to stand variations owing to the branching habit. Usually varieties of this type will survive temperatures as low as −9 to −8° C, but in 1962, 1963, and 1966 they survived temperatures down to −11° C without snow cover and to −13° C with snow cover.

Desirable characteristics of these new varieties, in addition to cold tolerance, are rust resistance, curly-top tolerance, good yielding potential, under a wide range of conditions, and early maturity. Flowers of the plants are blue. The brown, medium small seeds have an oil content equal to that of other commercial varieties grown in Texas. The new varieties are recommended for fall seeding in Texas where cold tolerance is of major importance.

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REGISTRATION OF YADKIN KOREAN LESPEDEZA[1]

(Reg. No. 5)

Will A. Cope[2]

'YADKIN' Korean lespedeza (*Lespedeza stipulacea* Maxim.) was developed by the North Carolina Agricultural Experiment Station in cooperation with the Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture. It was tested as experimental line N.C. 24 in other Korean lespedeza producing states of the southeast U.S.A. for regional adaptation. Yadkin represents selections from an F_2 bulk line from the cross of a late-maturing tar spot-resistant line from Auburn University Agricultural Experiment Station and the experimental line N.C. 128. N.C. 128 was an advanced generation selection from the cross 'Rowan' × F.C. 31,850 and carried the Rowan resistance to the root-knot nematode, *Meloidogyne incognita* (Kofoid & White, 1919) Chitwood, 1949. Twelve nematode-resistant plants were selected in the F_6 generation of the F_2 bulk population. Progenies of the 12 plants are maintained separately. Breeder seed of Yadkin is composed of equal parts of seed from each of the 12 lines.

Yadkin has a semi-erect growth habit similar to that of 'Climax.' Maturity for both flower initiation and seed harvest is about 10 days to two weeks later than ordinary 'Korean' and Rowan. The light pink flower color of Yadkin contrasts with the dark reddish purple of other varieties, allowing varietal identification.

The most important feature of Yadkin is its high seed yield resulting from resistance to the leaf disease, tar spot, caused by the fungus *Phyllachora lespedezae* (Schu.) Sau. Tar spot is almost universally present in Korean fields in North Carolina and causes moderate to severe defoliation in late summer with drastically reduced seed yield. Yadkin produces over 50% more seed than varieties in current use. The tar spot defoliation appears to reduce hay quality more than hay yield. Hay yield of Yadkin averages 20% more than common varieties, and the hay has a greater proportion of leaves to stems.

Yadkin was released by the North Carolina Agricultural Experiment Station in 1966. Breeder seed will be maintained by North Carolina State University.

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