REGISTRATION OF CULTIVARS

Registration of ‘Joe Burton’ Berseem Clover

‘Joe Burton’ berseem clover (Trifolium alexandrinum L.) (Reg. no. CV-131, PI 590944) was released in 1995 by the University of California Agricultural Experiment Station and Cooperative Extension Service. It is a vigorous winter cultivar developed from germplasm selected from ‘Multicut’ (1) for tolerance to several viruses. Joe Burton is suitable for use as a fall-sown green chop, silage, pasture, hay crop, cover crop, or green manure in the irrigated Central Valley and desert valleys of California, or as a spring-sown annual forage or cover crop in temperate zones. Its name was chosen to honor Dr. Joseph C. Burton (deceased), who, as vice president for research and development at the Nitragin Co. in Milwaukee, WI, was vitally instrumental in rhizobium development, essential for the success of berseem clover and other legumes for California.

Joe Burton is an annual, 40 to 55 cm tall at forage harvest time, with slightly hairy leaves that lack a watermark. Yellowish-white flowers form an elliptical dense head that averages 2.5 cm in length with each floret producing one seed. Seed weight is about 440 000 seeds kg⁻¹. In all these traits, it is similar to Multicut.

In May 1991, a virulent virus infection appeared in berseem clover seed fields in the Sacramento Valley and in test plots on the University of California Agriculture Farm at Davis. The symptoms were reddening and purpling of the foliage and stunted growth. Seed yields in commercial fields were decreased as much as 90%. In 1992, infection was not significant, but in both 1993 and 1994 infection was again widespread. In 1993, the dominant virus was identified as clover yellow vein potyvirus (CYVV). In 1994, four viruses were identified in single or mixed infections: CYVV, alfalfa mosaic virus, bean yellow mosaic virus, and cucumber mosaic virus.

In fall 1991, 80 plants were established in the field from seed of the bulk virus-tolerant Multicut survivors. In an adjacent plot, another 80 plants were established from seed of four of the most virus-tolerant and vigorous individuals (20 plants each) representing the approximately 20% tolerant population of the same Multicut crop. At maturity, after open pollination with adequate isolation, seed was harvested and equal amounts combined from these two sets of plants. Our objective was to retain the base of genetic variability in the original Multicut from which Joe Burton was derived. The resulting seed (4 kg) was planted in November 1992 on the Agriculture Farm, University of California, Davis. The seed harvested from that planting was designated breeder seed.

Evaluation of the percentage of canopy having virus symptoms was conducted in field trials at Davis in 1993 and 1994. The 2-yr mean canopy infection rate was 10%, while the ‘Bigbee’ (2) infection rate was 84%, and Multicut was intermediate at 38%. The virus infection in Joe Burton was significantly lower (P < 0.05) than Bigbee and Multicut in both years. Two-year mean forage yields at the full bloom harvest were highest in Joe Burton (4.9 Mg ha⁻¹), lowest in Bigbee (2.9 Mg ha⁻¹), and intermediate in Multicut (4.1 Mg ha⁻¹) (P < 0.01).

During the 1993–1994 winter, we grew progeny of CYVV-infected field plants of Joe Burton in the greenhouse and observed no symptoms of virus infection, nor were we able to detect any virus in immunoassays (unpublished data). We concluded that the CYVV was not seed transmitted. This confirmed the results of a similar test that we did in 1992 without immunoassays.

Joe Burton will be produced as a three-generation cultivar with breeder, foundation, and certified seed classes. Breeder seed will be maintained by the Department of Agronomy and Range Science, University of California, Davis. Foundation seed will be available for fall planting in 1995 from Foundation Seed, Parsons Seed Certification Center, University of California, Davis, CA 95616. Kilogram amounts of seed are available for trial upon request.

Registration of ‘Yorktown III’ Perennial Ryegrass

‘Yorktown III’ perennial ryegrass (Lolium perenne L.) (Reg. no. CV-179, PI 561710) was developed by Lofts Seed, Somerset, NJ, and released in August 1991. Germplasm obtained from the New Jersey Agricultural Experiment Station was used in the development of this cultivar. The experimental designation was LDRF.

Yorktown III was selected from the maternal progenies of 13 clones. The parental germplasm of Yorktown III originated from a breeding program to improve perennial ryegrass for turf use initiated by the New Jersey Agricultural Experiment Station in 1962. An extensive search was made to locate perennial ryegrass plants that had persisted and thrived in old lawn-type turfs under the environmental stresses, diseases, and insect pests common to the mid-Atlantic region of the USA. Elite plants were collected near the sheep meadow in Central Park in New York, NY; Riverside and Patterson Parks in Baltimore, MD; the campus lawn of the University of Maryland, College Park, MD; and old lawns, parks, and sports fields located in New Jersey and southeastern Pennsylvania. Clonal evaluation and progeny tests conducted under turf management led to the development of improved turf-type cultivars and the initiation of population improvement programs.

Following varying cycles of phenotypic and genotypic recurrent selection, 13 clones containing the endophytic fungus Acremonium lolii Latch, Christensen & Samuels were selected from five separate breeding composites. Selection was based on attractive appearance, fine leaf texture, dark-green color, medium-low growth profile, high seed yield potential, and relative freedom from disease. The maternal progenies of each clone were subsequently seeded in a closely mowed turf trial at North Brunswick, NJ. A total of 1872 plants selected from the best performing progeny plots were established in an isolated spaced-plant nursery at Adelphia, NJ, in September 1988. Selection, prior to anthesis, was directed toward increased disease resistance and uniformity and reduced purple pigmentation. Breeder seed was harvested from the remaining 329 plants, which continued to show high levels of disease resistance and high floret fertility. This seed was used to

References and Notes
3. W.A. Williams, I.W. Buddenhagen, D.H. Putnam, and L.R. Teuber. Dep. of Agronomy and Range Science, Univ. of California, Davis, CA 95616; W.L. Graves, 7605 Vokey Dr., San Diego, CA 92119; R.L. Gilbertson, Dep. of Plant Pathology, Univ. of California, Davis, CA 95616. Registration by CSSA. Accepted 30 Sept. 1995. *Corresponding author (Email: wwilliams@ucdavis.edu).

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