REGISTRATION OF KENSTAR RED CLOVER1
(Reg. No. 17)

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1Kenstar' red clover (Trifolium pratense L.) was developed by the Kentucky Agricultural Experiment Station in cooperation with the Agricultural Research Service, USDA. The experimental designation during the testing period was Ky Syn A-3. This new cultivar was released on September 1, 1973.

Kenstar is a 10-clone synthetic cultivar of medium red clover selected for greater persistence under Kentucky conditions than is available in 'Kenland' and other cultivars. Stands of Kenstar under optimum conditions, have lived for 3 to 4 years, with the year of seeding as the first year.

Breeding of Kenstar was begun in 1955 when approximately 1,500 third-year plants of Kenland were selected from fields throughout Kentucky. These and other plants from breeding nurseries were tested for agronomic qualities. The most productive clones were vegetatively increased and allowed to intercross producing polycross seed. After polycross progeny testing, the 10 clones which had the most persistent (long-lived) progenies were selected as the genetic source of the synthetic, Kenstar. The 10 clones are maintained vegetatively to reconstitute the cultivar as seed is needed.

Kenstar is more uniform in flowering than Kenland and flowers less profusely, indicating greater dormancy in the late fall. Because 1 of the 10 clones is not leafmarked, Kenstar possesses somewhat more nonleafmarked plants than Kenland. It is very similar to Kenland in possessing resistance to southern anthracnose, moderate susceptibility to powdery mildew, and in general morphological appearance at most stages of growth. Based on test results, Kenstar is adapted to the same general areas as Kenland, the south central clover belt consisting of Kentucky, Tennessee, Virginia, North Carolina, West Virginia, Missouri, and the southern parts of Ohio, Indiana, and Illinois.

Only two classes of seed of Kenstar are recognized beyond breeder seed: one generation of each of foundation and certified. Breeder seed will be maintained by the Kentucky Agricultural Experiment Station from progeny of seed produced on the 10 years of the breeding program. Breeder seed will be used for foundation seed production and foundation seed for the production of certified seed. Seedling year harvests are not eligible as foundation or certified seed. Seed weight of the cultivar as seed is needed.

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(Subscribe's note: The following five registration articles have been published together because the tables and references are common to the articles.)

REGISTRATION OF BONNET 73 RICE1
(Reg. No. 30)

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1Bonnet 73 rice (Oryza sativa L.), C.I. 9564, was developed jointly by the Agricultural Research Service, USDA, and the Arkansas Agricultural Experiment Station. It was officially released December 15, 1972. It was selected from the F5 generation of the cross C.I. 9453 × 'Bluebonnet 50' × C.I. 9187, made at Stuttgart in 1959. One parent of Bonnet 73 was the little known F4 line from a 1957 Stuttgart cross between C.I. 953 and Bluebonnet 50. C.I. 9453 is an unnamed, experimental, medium-grain strain, selected from the cross 'Lacrosse' × 'Zenith' × 'Nira', made at Stuttgart in 1949. It carries a high degree of resistance to several diseases and is a sister selection of 'Nova' (Johnston, Templeton, and Atkins, 1965). Bluebonnet 50 was the leading long-grain cultivar in the United States for many years (Johnston, 1958). The C.I. 9187 parent is a high-yielding, experimental, long-grain strain developed in the cooperative breeding program at Stuttgart from the cross 'Rexoro' × 'C.I. 7689' ('Texas Patna' × 'Rexoro' × 'C.I. 7689'). It was released at Beaumont, Texas in 1945. It has narrow, erect, dark-green leaves. It has been widely used as a parent in the cooperative rice improvement program (Johnston et al. 1972). Bonnet 73 shows some common parentage with 'Nira', but has increased genetic diversity in the rice crop by introducing additional germplasm not found in the widely grown Starbonnet, the variety with which it will compete (Johnston, Templeton, and Henry, 1973).

Bonnet 73 is characteristically an awnless variety, but short tip-awns may develop under conditions highly favorable for vegetative growth. The leaves of Bonnet 73 are more slender and darker green than those of Starbonnet, and they tend to remain erect until time of heading, when the flag leaf usually droops. Compared with Starbonnet, Bonnet 73 produces noticeably longer and less erect panicles; plants average 3 cm taller and have moderately stronger panicles, but they tend to lodge more, especially under high rates of nitrogen fertilization and seeding. On the average, Bonnet 73 headed 2 days earlier than Starbonnet, but it usually required a few more days from heading to maturity.

Grain and kernel size and shape are very similar for Bonnet 73 and Starbonnet. Kernel weights for the two cultivars varied according to growing conditions, but averaged the same in a large number of Arkansas tests. Bonnet 73, tested as C.I. 9564 in the Regional Uniform Rice Performance Nursery in Arkansas, Louisiana, Mississippi, and Texas during the past 6 years, performed well in nearly all 15 tests and showed a wider range of adaptation than Starbonnet, currently the leading cultivar in the United States.

Bonnet 73 averaged 10% higher rough rice yields than Starbonnet and outyielded Starbonnet in 38 of 43 replicated trials in Arkansas in the past 6 years. Although percent milling yields averaged less than those of Starbonnet, the per acre value of milled rice of Bonnet 73 exceeded that of Starbonnet by about 8%. Cooking and processing characteristics of Bonnet 73, as measured by specific physicochemical tests at the cooperative Regional Rice Quality Laboratory at Beaumont, Texas, are very similar to those of Starbonnet and other major U.S. long-grain cultivars (Webb et al. 1972).

In numerous cooperative disease reaction tests in Arkansas, Bonnet 73 has shown more resistance than Starbonnet to blast, brown spot, and leaf smut, and slightly more tolerance to straight-leaf and high pH soils (Templeton, Johnston, and Henry, 1975). Bonnet 73 appears to be somewhat more susceptible than Starbonnet to certain diseases, but additional information on comparable disease reactions are given in Tables 1 and 2.

Data from cultural experiments in Arkansas indicate that Bonnet 73 requires less nitrogen than does Starbonnet to produce maximum grain yields (Wells et al. 1973). On old rice soils, high rates of nitrogen (especially above 135 kg/ha of N) applied to Bonnet 73 may lead to excessive vegetative growth and increased lodging and damage from diseases. High seeding rates (above 135 kg/ha) also may favor disease development and lodging.

The original release of Bonnet 73 contained a scattering of taller, golden-hulled, and other offtypes. Breeder seed panicle rows and family-row blocks, handpicking of seed, and severe roguing of seed increase fields are being used to purify the variety further.

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