

### Registration of 'Cybonnet' Rice

'Cybonnet' rice (*Oryza sativa* L.) (Reg. No. CV-122, PI 636726) is a high-yielding, short-season, long-grain cultivar developed by the Arkansas Agricultural Experiment Station in cooperation with the USDA-ARS, the Louisiana State University Agricultural Center, the Mississippi Agricultural and Forestry Experiment Station, and the Texas Agricultural Experiment Station. It was released in February 2004 because of its high milling yield and blast [*Pyricularia grisea* (Cooke) Sacc.] disease resistance. Cybonnet originated from the cross 'Cypress'/'Newbonnet'/'Katy' (cross no. 930288), made at the University of Arkansas Rice Research and Extension Center, Stuttgart, AR, in 1993. Cypress, released from Louisiana (Linscombe et al., 1993), is a semidwarf, long-grain rice cultivar with excellent grain quality. Newbonnet is a high yielding, blast susceptible, long-grain cultivar released from Arkansas (Johnston et al., 1984). Katy is a blast resistant, long-grain cultivar released from Arkansas (Moldenhauer et al., 1990). The experimental designation for early evaluation of Cybonnet was STG96F5-28-069, starting with a bulk of F<sub>6</sub> seed from the 1996 panicle row F5-28-069. Cybonnet was tested in the Arkansas Rice Performance Trials (ARPT) and the Cooperative Uniform Regional Rice Nursery (URRN) during 2000 through 2003 as RU0001124 (RU number indicates Cooperative Uniform Regional Rice Nursery; 00 indicates year entered; 01 indicates Stuttgart, AR; and 124 its initial entry number).

Cybonnet is similar in maturity to 'Kaybonnet' and 'Wells'. It is a semidwarf cultivar like 'Lemont', Cypress, and 'Cocodrie' and has good lodging resistance and nitrogen fertilizer response. Cybonnet averages 96 cm in plant height compared with 102 cm and 96 cm for Cocodrie and Cypress, respectively.

Averaged over 20 Arkansas Rice Performance Trials (ARPT), rough rice grain yields of Cybonnet, 'Ahrent', Wells, 'Francis', 'Kaybonnet', 'Drew', Cocodrie, and Cypress were 8542, 8542, 9654, 9856, 8289, 8592, 8794, and 8137, kg ha<sup>-1</sup> at 120 g kg<sup>-1</sup> moisture, respectively. Data from the URRN conducted in Arkansas, Louisiana, Mississippi, and Texas during 2000 through 2002 showed Cybonnet had an average grain yield of 9553 kg ha<sup>-1</sup> compared with those of Ahrent, Wells, Francis, 'Saber', Drew, Cocodrie, and Cypress at 8390, 10260, 10715, 8643, 8997, 9603, and 8491 kg ha<sup>-1</sup>, respectively. Milling yields (mg g<sup>-1</sup> whole kernel: mg g<sup>-1</sup> total milled rice) at 120 mg g<sup>-1</sup> moisture from the ARPT, 2000 through 2003, averaged 680:720, 640:700, 640:730, 650:720, 660:720, 660:720, 670:720, and 680:720 for Cybonnet, Ahrent, Wells, Francis, Kaybonnet, Drew, Cocodrie, and Cypress, respectively. Milling yields for the URRN during 2000-2002, averaged 610:700, 580:690, 570:670, 560:700, 610:680, 600:690, 600:690, and 620:690 for Cybonnet, Francis, Ahrent, Wells, Saber, Drew, Cocodrie, and Cypress, respectively.

Cybonnet varies in greenhouse reaction to common rice blast races IB-1, IB-33, IB-49, IB-54, IC-17, IE-1K, IG-1, and IH-1 with summary ratings of 2.3, 6.5, 5.3, 0.0, 4.3, 8.0, 1.0, and 0.0, respectively, using the standard disease scale of 0.0 = immune, 9.0 = maximum disease susceptibility. Respective ratings for the cultivar Drew are the following: 2.0, 7.3, 3.3, 0.0, 4.8, 8.0, 0.3, and 0.5. Cybonnet is rated resistant to blast in field tests conducted throughout Arkansas with scores of 1.0 and 2.0 for leaf and neck blast, respectively, compared with Cocodrie with scores of 1.1 and 5.9, respectively. Like Katy and Drew, Cybonnet contains the *Pi-ta* resistance gene. Like Cypress, Cybonnet is rated highly susceptible to sheath blight (*Rhizoctonia solani* Kühn) compared with susceptible for Cocodrie and moderately susceptible for Wells and Drew. Cybonnet is rated susceptible for kernel smut [*Tilletia barclayana* (Bref.) Sacc. & Syd. in Sacc.] in comparison to

Cocodrie which rated highly susceptible and Wells and Drew which were moderately susceptible. Cybonnet is rated susceptible to stem rot (*Sclerotium oryzae* Cattaneo), resistant to brown spot [*Cochliobolus miyabeanus* (Ito & Kuribayashi in Ito) Drechs. ex Dastur], and susceptible to false smut [*Ustilagoidea vires* (Cooke) Takah]. Cybonnet is rated 5.0 to straighthead disorder compared with 8.5 for Cocodrie on a scale of 0.0 = immune to 9.0 = highly susceptible. Cybonnet like Francis is susceptible to the rice stink bug [*Oebalus pugnax* (Fabricius)], which causes kernel discoloration.

Plants of Cybonnet have erect culms, green erect leaves, and glabrous lemma, palea, and leaf blades. The lemma and palea are straw colored with brown colored apiculi, awns are absent. Kernels are similar in size to those of Wells. Individual milled kernel weights of Cybonnet, Francis, Ahrent, Wells, Saber, Drew, Cypress, and Cocodrie, averaged 19.1, 17.4, 17.5, 20.1, 15.6, 16.9, 18.6, and 19.2, respectively, in the ARPT, 2003.

The endosperm of Cybonnet is nonglutinous, nonaromatic, and covered by a light brown pericarp. Rice quality parameters indicate that Cybonnet has typical southern U.S. long-grain rice cooking quality characteristics. Tested over 2 yr in the URRN at Stuttgart, Cybonnet has an average apparent starch amylose content of 217 g kg<sup>-1</sup> and an intermediate gelatinization temperature (70-75°C), as indicated by an average alkali (17 g kg<sup>-1</sup> KOH) spreading reaction of 3 to 5, while Cocodrie has an average apparent amylose of 264 g kg<sup>-1</sup> and intermediate gelatinization temperature.

The foundation seed field of Cybonnet was rogued several times throughout the season. The variants that may be found in the release include any combination of the following: taller, earlier, later, glabrous or pubescent plants with open panicles, intermediate or long grains, and grains with long awns. Other atypical plants may still be encountered in the cultivar. The total variants and/or off-types numbered less than 1 per 5000 plants.

Breeder and Foundation seed of Cybonnet will be maintained by the University of Arkansas, Rice Research and Extension Center, 2900 Hwy 130E, Stuttgart, AR 72160. U.S. plant variety protection under the Plant Variety Act, Public Law 91-577 was awarded for Cybonnet in 2005 (PVP no. 200500056). Requests for seed must be made to the corresponding author until 20 yr from the date of release by the University of Arkansas (2004), at which time seed will also be available from the NPGS.

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### References

- Johnston, T.H., K.A. Kuenzel, F.N. Lee, B.R. Wells, S.E. Henry, and R.H. Dilday. 1984. Registration of 'Newbonnet' rice. *Crop Sci.* 24: 209-210.
- Linscombe, S.D., F. Jodari, K.S. McKenzie, P.K. Bollich, L.M. White, D.E. Groth, and R.T. Dunand. 1993. Registration of 'Cypress' rice. *Crop Sci.* 33:355.
- Moldenhauer, K.A.K., F.N. Lee, R.J. Norman, R.S. Helms, R.H. Dilday, P.C. Rohman, and M.A. Marchetti. 1990. Registration of 'Katy' rice. *Crop Sci.* 30:747-748.

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