REGISTRATION OF 'M-302' RICE
(Reg. No. 58)

C. W. Johnson, H. L. Carnahan, S. T. Tseng, and J. E. Hill

'M-302' (Oryza sativa L.), CI 9976, (experimental designation 78-Y-78, 79-Y-66 and 80-Y-67) originated as a F2 line from the cross, R2733, made at the California Co-operative Rice Res. Foundation’s Rice Experiment Station in the winter of 1974–75. This cross was ‘Calrose 76’/‘CM-M3’/‘M5’; the same cross from which ‘M-301’ originated.

M-302 was compared with intermediate- and late-maturing cultivars and experimental varieties from California in replicated tests conducted cooperatively with the California Agric. Exp. Stn. and the California Coop. Ext. Service. M-302 has medium-grain shape, is of intermediate maturity (about 2 days later than M-301) and has glabrous lemma, palea and leaf blades except that some hairs are found on the lemma keel and on leaf blade margins. M-302 is sparsely awned. No plant parts of M-302 show anthocyanin pigmentation.

M-302 has short stature, averaging 96 cm tall and 3 cm shorter than M-301. Panicles of M-302 normally are exserted completely from leaf sheaths. The new cultivar has good seedling vigor. It is not photoperiod sensitive. M-302 has stronger straw than M-301, averaging 13% lodging vs 51% for M-301.

Brown rice kernels of M-302 average 22.9 mg per kernel and are 6.0 mm long and 2.7 mm wide. Milled kernels of M-302 are more translucent than those of M-301, being more like those of M7. Grains of M-302 have light brown bran (pericarp) and white non-glutinous and non-aromatic endosperm. Results from the Cooperative Regional Rice Quality Laboratory at Beaumont, TX, showed that the amylose makes up 18 to 19% of the starch and the starch has a gelatinization temperature as judged by an alkali spreading score of 6.9 to 7.0 in 1.7% KOH. These values are typical for U.S. medium grain cultivars. Taste panelists rated M-302 as satisfactory.

Whole kernel (head) and total milling yields of M-302 are satisfactory and comparable to those of M-301.

M-302 has performed well in 11 replicated tests conducted in 1978, 1979 and 1980 at sites representative of the California rice growing areas. M-302 averaged 8,860 kg/ha of paddy (rough rice) per acre at 12% moisture compared to 8,560 and 7,570 for M-301 and M5, respectively.

M-302 is comparable to M-301 and M7 in percentages of sterility caused by low temperatures 10 to 14 days before heading. Reaction of M-302 to diseases prevalent in humid areas is unknown. M-302 is moderately tolerant to stem rot incited by Sclerotium oryzae Catt., being similar in reaction to other California cultivars.

M-302 is adapted to the major rice growing areas of California and will replace M-301 as an intermediate maturity cultivar.

M-302 was released jointly by the California Crop Improvement Association, Inc., the California Agric. Exp. Stn. and AR-SEA-USDA. It was approved for certification by the California Crop Improvement Association in 1981. Application is not being made for plant variety protection of M-302. Classes of seed will be breeder, foundation, registered and certified. Foundation seed was allocated to growers in 1981. This seed contained about six seeds per lb (0.03%) of non-waxy, short- and medium-grain off-type seeds of unknown origin. Attempts will be made to identify their origin and to eliminate or minimize these in future foundation seed.

Breeder and foundation seed of Calmochi-202 will be maintained by the California Co-operative Rice Research Foundation, Inc., P.O. Box 306, Biggs, CA 95917.

REGISTRATION OF 'M-401' RICE
(Reg. No. 57)

H. L. Carnahan, C. W. Johnson, S. T. Tseng, and D. M. Brandon

'M-401' (Oryza sativa L.), CI 9975, (experimental designations S6189-55, T-55 and 78-Y-64) was derived from the intermediate, short-stature mutant from the tall cultivar Terso, carrying the plant variety protection number 7400006. Seeds of Terso were irradiated with M-401 was selected from the X1 generation in 1979. Progeny tests demonstrated that it bred true for short stature. Otherwise it is similar to the Terso having increased grain yield, reduced lodging and seed size. Terso has been grown on a limited area as a premium quality, medium-grain market rice cultivar. M-401 had larger more translucent seed than the medium-grain market rice cultivars then commonly grown in California and is more suited for the premium quality medium-grain market.

The designation, M-401, indicates that the new cultivar has medium-grain shape (M), is of late maturity (40), is the first cultivar in this series (01) to be released since the adoption of this nomenclature system in California in 1979. M-401 is characterized by a glabrous lemma, palea and leaf blades except that some hairs are found on the lemma keel and on leaf blade margins. No plant parts of M-401 show anthocyanin pigmentation.

M-401 was compared with intermediate and late-maturing cultivars and experimental varieties from California in 11 replicated tests conducted in cooperation with the California Agric. Exp. Stn. and the California Coop. Ext. Service in 1978, 1979 and 1980 at sites representative of the major rice growing areas of California. Paddy (rough rice) yields of M-401 averaged 7,570 kg/ha at 12% moisture for the tall cultivar 'M7.'

M-401 has short stature, averaging 98 cm tall and 126 cm for the tall cultivar M5 and 94 cm for M7. Normally are exserted completely from the leaf sheaths. The new cultivar has good seedling vigor comparable to the M-401 period sensitive. M-401 is much more resistant to lodging than cultivars and averaged 47 vs 89% lodging for M-401 with lodging more than M7 which averaged 10% in M5. M-401 is headed 3 days earlier than the late maturing cultivar 'M7.'

Brown rice kernels of M-401 are slightly smaller than those of M-301, being less than 2.7 mm in length. Milled kernels of M-401 are white, non-glutinous and non-aromatic endosperm. Results from the Cooperative Regional Rice Quality Laboratory at Beaumont, TX, showed that the amylose makes up 17.1% of the starch and the starch has a gelatinization temperature as judged by an alkali spreading score of 6.9 to 7.0 in 1.7% KOH. These values are typical for U.S. medium grain cultivars.

Taste panelists rated M-401 as satisfactory.

Whole kernel (head) and total milling yields of M-401 are satisfactory and comparable to those of M-301.

M-401 has performed well in 11 replicated tests conducted in 1978, 1979 and 1980 at sites representative of the California rice growing areas. M-401 averaged 8,860 kg/ha of paddy (rough rice) per acre at 12% moisture compared to 8,560 and 7,570 for M-301 and M5, respectively.

M-401 is comparable to M-301 and M7 in percentages of sterility caused by low temperatures 10 to 14 days before heading. Reaction of M-401 to diseases prevalent in humid areas is unknown. M-401 is moderately tolerant to stem rot incited by Sclerotium oryzae Catt., being similar in reaction to other California cultivars.

M-401 is adapted to the major rice growing areas of California and will replace M-301 as an intermediate maturity cultivar.

M-401 was released jointly by the California Crop Improvement Association, Inc., the California Agric. Exp. Stn. and AR-SEA-USDA. It was approved for certification by the California Crop Improvement Association in 1981. Application is not being made for plant variety protection of M-401. Classes of seed will be breeder, foundation, registered and certified. Foundation seed was allocated to growers in 1981. This seed contained five tall medium-grain off-types per acre. Breeder and foundation seed of M-401 will be maintained by the California Co-operative Rice Research Foundation, Inc., P.O. Box 306, Biggs, CA 95917.