

Management Guidelines Cont.

planting early in warmer production areas can limit yields and head rice potential. M-104 should be seeded at the rate of 130 to 150 lbs/acre or similar to the rate utilized for M-204 in your area. Excessive seeding rates reduce yield potential and increase susceptibility to disease.

- Water depth should be increased to about 8 inches before panicle initiation (55 to 60 days after planting) to heading to protect panicles from low temperature exposure during occasional cool nights.

Authors

F. Jodari and, C.W. Johnson, Plant Breeders and J.J. Oster, Plant Pathologist, K.S. McKenzie, Plant Breeder and Director, Rice Experiment Station, California Cooperative Rice Research Foundation, Inc., Biggs, CA.

R.G. Mutters Interim, Extension Agronomist, Department of Agronomy and Range Science, UC Davis.

W.M. Canevari, M.W. Hair, R.G. Mutters and J.F. Williams are Farm Advisors, UC Cooperative Extension, San Joaquin, Colusa/Yolo, Butte/Glenn and Sacramento/Sutter/Yuba Counties, respectively.

R.L. Wennig, Staff Research Associate, Department of Agronomy and Range Science, UC Davis.

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M-104 RICE: DESCRIPTION AND MANAGEMENT GUIDELINES



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**Department of Agronomy and
Range Science
University of California, Davis**

M-104

Introduction. M-104 is a very early, semidwarf, glabrous, Calrose quality medium grain. It was developed by CCRRF at the Rice Experiment Station (RES) and released to growers in March 2000. Its pedigree consists of all Calrose medium-grain varieties developed at RES.

Description. M-104 is compared to very early maturing M-103 and early maturing M-202. Compared to M-103 in statewide tests, it heads at the same time, has improved lodging resistance, yields 8% higher, and has similar whole grain and total milled rice yields. Compared to M-202, M104 heads 8 days earlier, has similar resistance to blanking caused by cool temperatures 10 to 14 days before heading during microsporogenesis, and has similar yield, seed size and kernel weight. M-104 is susceptible to blast race IG-1 found in California.

Performance. M-104 compared to M-103 at the coldest San Joaquin location has consistently exhibited improved seedling vigor, improved lodging resistance and has averaged 3.5% higher yield than M-103. It headed 2 days later than M-103 and 9 days earlier, M-202. Milling sample means taken at 5 different harvest dates from a strip trial of M-104 and M-103 in 1999 at San Joaquin indicate that whole grain and total milled rice yields are similar. Laboratory analysis for physiochemical characteristics (apparent amylose content, protein and gelatinization temperature) by the USDA Rice Quality Laboratory indicate that it fits medium-grain standards. Milled rice samples of M-104, M-103 and M-202 were distributed to various

rice marketing organizations and individual rice quality evaluators in 1997 to 1999. Responses from evaluations indicate M-104 is similar to M-202 and M-103 for various cooking and taste characters. M-104 can be commingled with other Calrose medium grains.

SUMMARY OF AGRONOMIC CHARACTERISTICS: M-103, M-104, AND M-202, 1995 TO 1999.

Character	M-103	M-104	M-202
Seedling vigor (score)	4.3	4.4	4.5
Days to 50% heading	80	80	88
Plant height (cm)	92	91	98
Lodging (%)	49	37	43
Blanking - Greenhouse	22	21	24
Blanking - Davis	7	16	12
Blanking - San Joaquin	8	13	18
Overall blanking mean	12	17	18
Stem rot (score)	5.4	5.4	5.2
Harvest moisture (%)	18.8	18.2	21.4
Yield (lb/acre @ 14%)	8087	*8801	8790
Milling (%) total	68.1	67.8	67.2
Milling (%) whole grain	63.4	63.1	61.0
Brown rice 1000 grain wt (gms)	22.1	24.4	24.0
Brown rice length (cm)	5.8	6.4	6.2
Brown rice width (cm)	2.7	2.9	3.0
Ratio (L/W)	2.15	2.21	2.06

*M-104 yielded significantly higher than other entries (LSD 0.05)

SUMMARY OF AGRONOMIC CHARACTERISTICS: M-103, M-104, AND M-202, AT SAN JOAQUIN 1996 TO 1999

Character	M-103	M-104	M-202
Seedling vigor (score)	4.0	4.5	4.1
Days to 50% heading	90	92	101
Plant height (cm)	82	84	86
Lodging (%)	21	9	12
Harvest moisture (%)	20.5	21.6	23.9
Yield (lb/acre @ 14%)	8800	9107	8550
Milling (%) total	73.2	73.1	--
Milling (%) whole grain	66.1	67.9	--

Area of Adaptation. M-104 is being released as a Calrose medium grain. It is a viable very early medium-grain replacement for M-103 in the coldest rice production areas (San Joaquin) with improved seedling vigor, lodging resistance and kernel size. It also has a small yield improvement over M-103 with similar milling yield potential. M-104 also has potential as an alternative to and/or may be used in conjunction with M-202 in the cooler rice production areas because of its yield potential and milling qualities. Geographic lines for production may be areas east of Highway 70 and south of Highway 20. It could also be used for late plantings or for early plantings for duck clubs in the warmer production areas. M-104 can be best described as a very early maturing Calrose medium grain with M-202 kernel size that has better seedling vigor, lodging resistance and higher yield potential than M-103.

Management Guidelines. The following guidelines are based on research, observation and experience gained in developing M-104. These suggested cultural practices are intended to assist in the production of optimum yields and quality of M-104.

- Uniform water depth, fertility, seed distribution and weed control are important because they affect heading, harvest moisture and in turn head rice milling yield.
- Fertilizer rates and management should be similar to those for M-103 and M-202 in your production area.
- Preferred seeding dates are the same as for M-103 and M-202. Be aware that