

Calaroma-201 RICE: DESCRIPTION AND MANAGEMENT GUIDELINES



2019

Calaroma-201

Introduction:

Calaroma-201 is a Jasmine-type long grain and is the first of this quality type to be developed and released for California rice production. Calaroma-201 is an early-maturing, semidwarf, rough-hulled (lightly pubescent), aromatic jasmine-type long grain rice cultivar. It was developed by the California Cooperative Rice Research Foundation, Inc. (CCRRF) at the Rice Experiment Station (RES), Biggs, CA and released to seed growers in April 2018. Calaroma-201 is protected under the US Plant Protection Act, Title 5 (to only be sold as a class of certified seed) as well as a US Plant Utility Patent. Calaroma-201 is available exclusively to California rice growers, export of seed is prohibited, and use in genetic or breeding research requires a Material Transfer Agreement. As an aromatic rice, it has a Rice Certification Committee commercial impact Tier I classification for handling seed.

Pedigree and Breeding:

Its pedigree is 00KDMX3-3/4/90Y563/3/L-202/Quizhaw/L-202/5/JES. L-202 is an early maturing California long grain variety released by RES in 1984 and is no longer in commercial production. 90Y563 is an advanced line from the Long Grains Project at RES. Quizhaw is a high yielding rice introduction from China. 00KDMX3-3 is a photoperiod-insensitive mutant line derived from a Thai Jasmine variety Khao Dawk Mali (KDM). JES is a mutant of KDM released by the USDA-ARS and University of Arkansas. Calaroma-201 was tested in 2015-17 University of California Cooperative Extension (UCCE) statewide tests under the experimental designation 15Y84.

Agronomic Characteristics:

Performance compared to other long grain varieties is presented in Table 1. Calaroma-201 is comparable to L-206 and A-202 in terms of overall seedling vigor score and lodging scores. It reaches 50% heading about 5 days later than L-206 and one day later than A-202, and is slightly taller than L-206 but shorter than A-202. It has a high yield potential and was the 2nd highest yielding variety behind L-207 in 2018 yield tests. Limited commercial seed production field yields in Butte and Sutter Counties were above 90 cwt/acre in 2018.

Table 1. Agronomic performance in UCCE Statewide Yield Tests 2015-2017.

Entry	Grain Yield [†]	Seedling Vigor ^{††}	Days to Heading	Lodging (%)	Plant Height (in.)
L-206	9310	4.8	81	28	35
A-202	8890	4.9	85	27	39
CJ201	9450	4.9	86	26	36

[†] lbs./acre at 14% moisture

^{††}Seedling = seedling vigor score, where 1=poor and 5=excellent.

Growers are recommended to bleach treat seed for Bakanae. Calaroma-201 stem rot disease scores are in between L-206 and A-202's reaction, L-206 being more susceptible. It is, however, more susceptible to aggregate sheath spot. Calaroma-201 is susceptible to the races of blast disease found in California in RES greenhouse tests; however the field resistance to blast is not known. Long grains are very susceptible to kernel smut. No marked difference in sensitivity to standard rice herbicides has been observed, however testing and commercial experience is lacking.

Milling and Quality:

The milled rice kernels of Calaroma-201 has a 1000-kernel weight of 19.72 grams compared to 19.94 and 22.27 grams for L-206 and A-202, respectively. Though its grains are lighter, Calaroma-201 has longer and narrower grains compared to L-206 or A-202, putting the length to width ratio of milled rice at 3.58. Three-year data showed that the head rice yield of Calroma-201 when harvested at 19-21% moisture is 60/67 (head/total), compared to 61/70 and 61/68 for L-206 and A-202, respectively. The percentage of total rice appeared to be lower compared to the checks. Timely harvest and proper handling is recommended to preserve milling as well as cooking qualities of this variety.

The mean apparent amylose content of Calaroma-201 is 15.76% compared to 22.41% and 22.38% for L-206 and A-202, respectively. Having a low amylose content and low gel type, it cooks softer and stickier compared to other conventional long grain types like L-206 or A-202.

Based on the results of the RVA evaluation, Calaroma-201 has higher peak viscosity and breakdown values, lower final viscosity value, and a negative setback, indicative of softer and stickier cooking characteristics different from that of L-206 and A-202. Internal and external cooking and tasting evaluation confirms the differences in cooking quality of Calaroma-201 from the regular or aromatic long grains. Feedback on eating quality by Asian consumers of imported Jasmine rice is also favorable, indicating that it is acceptable to the market and can be an excellent alternative to imported Thai Jasmine. As a specialty variety, growers should contract for its production and storage before considering growing this variety.

Area of Adaptation:

The performance data collected at the RES and by UCCE indicates Calaroma-201 is adapted to warmer areas of the California rice growing region. Greenhouse tests indicate that this line, like other long grains, is susceptible to cold induced blanking and therefore not adapted to cold locations.

Management Guidelines:

The following guidelines are based on research, observation and experience gained in varietal development and testing. These suggested cultural practices are intended to assist in the production of optimum yields and quality.

- Uniform water depth, adequate fertility, uniform seed distribution and good weed control practices are important because they maintain uniform heading and harvest moisture which in turn increase head rice milling yield.
- Fertilizer rates and other management practices should be similar to those for other conventional varieties in your production area. Excessive N will increase lodging, blanking, and disease.
- Preferred seeding dates are the same as for other California varieties and Calaroma-201 is not recommended for late plantings because of the risk of cool temperature induced sterility (blanking). Standard seeding rates of 130 to 150 lb/acre are recommended. Excessive seeding rates reduce yield potential and increase susceptibility to disease.

- Water depth should be increased to about 8 inches after panicle initiation (50 to 55 days after planting) to protect developing panicles from low temperature exposure during occasional cool nights.

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