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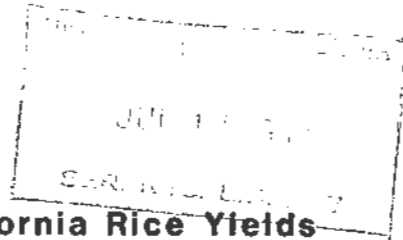
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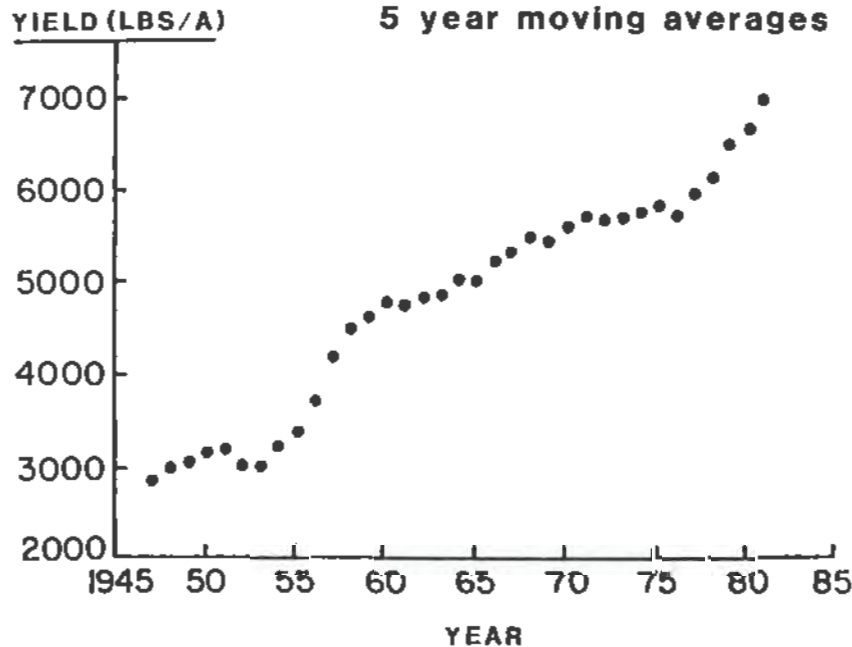
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## CALIFORNIA RICE VARIETIES: Description and Performance Summary of the 1982 and Multi-Year Statewide Rice Variety Tests in California

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**California Rice Yields  
5 year moving averages**



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## Cover

California rice yields have increased over the years as shown by the five year moving average for statewide yields. The introduction of short-statured varieties to paddy rice growers in 1979 and their nearly complete adoption by 1981 has led to a recent sharp increase in yield.

## Acknowledgment:

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## Introduction

The California rice variety improvement program is a cooperative arrangement of the California Cooperative Rice Research Foundation, Inc., (CCRRFI) the United States Department of Agriculture, the University of California, and the rice industry. CCRRFI rice breeders develop rice varieties. The USDA rice geneticist stationed at U.C. Davis investigates breeding methods and develops germplasm. The University of California Cooperative Extension, consisting of an Extension Agronomist and Staff Research Associate at U.C. Davis and local county farm advisors, conducts on-farm field tests of new cultivars to determine their adaptation to the primary areas of rice production in California. The program is financially supported, in part, by the Rice Research Board. Rice growers provide land and production inputs required for the tests.

This report describes the results of the 1982 regional rice variety testing program. Information on varietal performance is used by the CCRRFI and USDA rice breeders to: 1) determine the suitability for varietal release and 2) to make decisions on further development of experimental lines. The information also provides factual data from which rice growers can determine the most suitable varieties for their specific areas of the state. The names and a brief description of the current publicly developed varieties are listed in Table 1.

## Experimental Procedure for the 1982 Regional Rice Variety Tests

A total of 11 uniform rice variety tests were conducted in eight locations from Butte to Merced County. Twenty-five to 28 entries including currently grown "standards" and experimental lines were planted in each of three maturity classes for a total of 81 entries. Three tests, one of each maturity group, were conducted at the Rice Experiment Station at Biggs by the CCRRFI plant breeders H. L. Carnahan, C. W. Johnson and S. T. Tseng. The remaining tests were carried out under a diversity of conditions using the typical cultural practices for the grower and location in order to test agronomic performance under a wide range of production practices and locations. The tests were divided into maturity groups as follows:

### Statewide Uniform Rice Variety Tests

Very Early Maturity Group - Three tests were conducted; at the Rice Experiment Station (Butte County), the Demeter Corporation (Sacramento County) and the Frobose Ranch (Stanislaus County; subsequently overseeded with S-201 and lost). Twenty-four lines were included in each test. Commercially available public and proprietary varieties were added to the Sacramento and Stanislaus County locations.

Early Maturity Group - Four tests were conducted; at the Rice Experiment Station (Butte County), Mohammed Ranch (Yuba County), Geer Ranch (Yolo County) and Wylie Ranch (Glenn County). Twenty-four lines were included in each test. Commercially available public and proprietary varieties were added to the Yuba, Yolo and Glenn County locations.

Late Maturity Group - Four tests were conducted; at the Rice Experiment Station (Butte County), Dennis Ranch (Colusa County), Guisti Ranch (Sutter

County) and Nordman Ranch (Merced County). Twenty-four lines were included in each test.

Performance characteristics measured for each varietal entry were seedling vigor, days to 50% heading, plant height, lodging, grain moisture at harvest and grain yield at 14% moisture. Seedling vigor was subjectively rated by visual observation on a scale of 1 (poor) to 5 (excellent), 23 to 28 days after planting. Seedling vigor as determined in these tests is a measure of the ability of an adequate number of seedlings to emerge through water in a given period of time. Days to 50% heading was determined by visual observation. Plant height was determined at harvest by measuring from the soil surface to the tip of the panicle. Plant lodging was rated visually at harvest on a scale of 1 (no lodging) to 99 (all plants lodged) and is reported as such. This method does not characterize time of lodging which is more highly correlated with grain yield. Lodging after field drainage does not reduce rice grain yield as significantly as lodging into the water before substantial seed development.

Mature grain was harvested with a Massey-Ferguson 39 combine for yield determination. A 7 X 20 foot swath (0.0032 acre) was harvested for the yield sample in off-station tests and a 10 X 15 foot swath (0.0034 acre) was harvested with an Allis-Chalmers combine at Biggs. Grain was subsampled for moisture determination at harvest and grain yield adjusted to 14% moisture.

#### Agronomic Performance Summary of 1982 and Multi-Year Varietal Entries by Maturity Group

Varietal performance summaries are presented by maturity group. Results of 1982 tests are presented by location for each maturity group followed by an over-location summary and a multi-year and multi-location grain yield summary. The multi-year and multi-location grain yield summaries contain only commercial or potentially commercial varieties. Selection of entries for the multi-year and multi-location grain yield summaries was based upon availability of data and superior yield performance. Grain yields of promising varieties and experimental lines are also reported as a percentage of check varieties in each maturity group for comparative purposes. **These percentage yield comparisons are based on equivalent location and year means and may not reflect the mean yield of a particular variety over all locations and years.**

#### Summary of the Very Early Rice Variety Tests (<90 days to 50% heading at Biggs)

The 1982 very early maturity rice variety tests were conducted at two cool locations, Natomas district, Sacramento County, and near Oakdale, Stanislaus County. One additional test was conducted in the warm Biggs area on the Rice Experiment Station, Butte County. The Stanislaus County location was inadvertently overseeded with the field variety, S-201, and thus lost for data collection. Twenty-four experimental lines were tested at the Rice Experiment Station whereas four additional public and proprietary varieties were added to off-station tests. Agronomic performance of the 24 entries at the Rice Experiment Station and 28 entries at the Sacramento County location are given in Tables 2 and 3, respectively.

Table 4 shows the average yield (corrected to 14% moisture), grain moisture at harvest, days to 50% heading, seedling vigor, plant height and lodging

TABLE 1.

## CHARACTERISTICS OF PUBLICLY DEVELOPED RICE VARIETIES - 1982

GRAIN TYPE	HEIGHT*	MATURITY	SEED WIDELY AVAILABLE	COMMENTS
<b>SHORT GRAIN</b>				
S6	Tall	Early	1977	Replaced Calusa, wide adaptation but only moderate resistance to blanking. Has irregular maturity. Replaced by S-201. Foundation seed no longer available.
S-201	Short	Early	1981	Very high yield potential, replaced S6; more resistance to blanking than S6; maturity like S6.
<b>MEDIUM GRAIN</b>				
M-101	Short	Very Early	1981	Earliest variety; excellent seedling vigor; good resistance to blanking; best suited for special conditions such as cold areas and/or late planting dates; head rice can be low, so harvest as near to 25% moisture as possible to enhance head yield. May not yield as well as other varieties at normal planting dates.
M9	Short	Early	1979	Very high yield potential in warmer areas; not adapted to colder areas or to very early seeding because of poor seedling vigor; mixed maturity of seeds on panicles. Somewhat difficult to thresh cleanly --special harvest adjustment may be necessary. May be more susceptible to sheath blight.
M-201	Short	Early	1984	Same maturity but with improved yield potential compared to M9; 2-3 inches shorter than M9 with greater resistance to lodging. Intended as a replacement for M9 in all but the coolest rice growing areas.
M-301	Short	Intermediate	1981	High yield potential, was replacement for M5; good seedling vigor and resistance to blanking, can be seeded 10 days later than optimum date for late varieties, or earlier to spread harvest season; straw strength not as good as M7. Foundation seed no longer available.
M-302	Short	Intermediate	1983	Replacement for M-301; has better straw strength; more translucent grains; is about 2 days later; has good seedling vigor and resistance to blanking. Can be seeded 7 or 8 days later than late varieties to spread harvest season.
M7	Short	Late	1979	High yield potential; good seedling vigor and resistance to blanking; very good straw strength.
Calrose 76	Short	Late	1979	High yield potential; good seedling vigor and resistance to blanking; rough hulls and leaves; long awns in warmer areas.
M-401	Short	Late	1983	Intended as a premium quality rice and <u>not as a replacement for M7</u> . Has high yield potential; 3 days earlier than M7 but lodges more and is more sensitive to blanking.
<b>LONG GRAIN</b>				
L-201**	Intermediate	Early	1981	Very high yield potential in warmer areas; not adapted to colder areas; injury to Ordram <sup>®</sup> has been observed at rates greater than 3 a.i. lbs/acre; threshes readily at low cylinder speeds. Harvest at moisture content as near to 25% as possible to enhance head yield; matures in 7 to 10 fewer days after heading than do short- or medium-grain varieties.
<b>SWEET</b>				
Calmochi-202**	Short	Early	1983	A sweet rice replacing Calmochi-201. Similar to S-201 in growth characteristics but 2 days later. Has smaller seeds. Yields much greater and lodges less than Calmochi-201, but yields not as high as S-201.

\*The varieties with short height are rapidly replacing the tall varieties. Proper management of the short-stature varieties to obtain high yield include: (1) managing water depth and other factors to obtain a dense stand; (2) good weed control; (3) nitrogen fertilization of 20 to 40 units higher than has been used for tall varieties; and (4) drain as late as possible before harvest.

\*\*L-201 and Calmochi varieties should not be grown unless arrangements have first been made with marketing agency.

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over all locations of the 24 lines tested including the check varieties M-9 and M-101. Several experimental short grain types yielded near the top of this test. 80-y-24-B (entry number 4) (1st at Biggs and 4th at Sacramento) also produced well in 1980 and 1981. The remaining short grain types amongst the top ten yielding lines were tested in off-station trials for the first time in 1982.

Table 3 shows the performance of these 24 entries in addition to the four commercially available varieties M-201, S-201, Calpearl and California Belle grown only at the Sacramento County location. Calpearl, a proprietary variety, produced significantly higher yields than all other entries in the test at this location. In this cool location, Calpearl was six days later than M-101, however, in the early maturity tests conducted in warmer locations Calpearl was an average of two days later than M-101 (Table 11).

The medium grain 81-y-124 (entry number 10) tested in the off-station trials for the first time in 1982, was the leading cultivar of this grain type and ranked second in the very early tests. 79-y-117 (entry number 6) (5th), also a medium grain, has proven to be a good yielding line in three previous years with a performance record superior to M-9 and M-101. This medium grain is six to seven days later to 50% heading than M-101. It should be noted that M-201 in the cool Natomas District, Sacramento County (Table 3), was significantly lower in yield and later in heading than M-9. In the early maturing tests in warmer locations M-201 has consistently out-performed M-9 and headed about two days later than M-9.

Generally, long grain types are cold sensitive and should be planted in warmer areas. The long grain types as a whole produced higher yields relative to the short and medium grain types at the Rice Experiment Station, Butte County (Table 2), than in the Natomas District, Sacramento County (Table 3). 80-y-23 (entry number 23) was the highest yielding long grain in this maturity group although still below the highest yielding short and medium grain types. All other long grain entries, including the proprietary variety California Belle (Table 3), were lower in yield. 81-y-295 (entry number 21) is a possible candidate for release as a public long grain variety.

Table 5 gives the multi-year and multi-location summary for the very early varieties and selected lines. All entries were not tested at each location in every year. Although the location averages are important indicators of varietal performance in a given environment, some caution must be taken in comparing averages between varieties. The over-location percent yield of M-101 compares only equivalent-year means. The San Joaquin-Stanislaus (Valley Home area) experiment was lost in 1982, however, 1978 through 1981 data are included for this location.

The new very early short-statured varieties have clearly given superior performance in the tests at the warmest location on the Rice Experiment Station, Butte County. However, tests in Sacramento, San Joaquin and Stanislaus counties have shown that the advantage of these varieties over the tall Earlirose diminishes under the cooler environments. For example, only S-201 has out-yielded Earlirose on a comparative-year basis in Natomas and no short statured variety has proven superior to Earlirose in the San Joaquin-Stanislaus (Valley Home) area.

### Summary of the Early Rice Variety Tests (90-97 days to 50% heading at Biggs)

The 1982 early maturity rice variety tests were conducted at four locations: the Rice Experiment Station near Biggs, Butte County; near Norman, Glenn County; in District 10, Yuba County; and in District 108, Yolo County. Twenty-four experimental lines were tested on the Rice Experiment Station whereas four additional commercially available public and proprietary varieties were added to the off-station tests. Agronomic performance of the 24 entries at the Rice Experiment Station and 28 cultivars in the off-station tests are given in Tables 6 through 9.

Table 10 gives the four-location averages for yield at 14% moisture, grain moisture at harvest, seedling vigor, days to 50% heading, height and lodging for the 24 entries tested at all locations, including the check varieties M-101, S-201, L-201, M-9 and Calmochi-202. Table 11 compares the four additional commercial varieties for the three off-station tests. M-201, the most recently released public variety, was the leading producer as an average of all four tests (Table 10). In the three tests where Calpearl, a proprietary variety, was compared it was the leading producer. L-201 and S-201 were also in the top one-half of the four location averages. Three experimental lines with at least two year's history of regional testing were also in the upper one-half (80-y-36, 79-y-117, 80-y-237) whereas the remaining six lines in the top one-half were relatively new to regional yield testing. M-9 ranked 15th overall and Calmochi-202, a public sweet rice, ranked 20th. 82-y-33 (entry number 33) a sweet rice experimental line tested as a possible replacement for Calmochi-202, ranked 21st.

Long grain varieties produced generally lower yields than the short and medium grain types. Notable exceptions were 81-y-339 (entry number 52) (4th, Table 10) and L-201 (7th, Table 10). 81-y-339 is a candidate for release. California Belle (Table 11), a proprietary long grain variety, ranked 27th of 28 entries over three locations and exhibited the most variability in heading of all long grains tested. Long grain varieties will not be well adapted to cool areas until further breeding efforts incorporate more cold tolerance.

Table 12 gives the multi-year and multi-location summary for the early varieties and selected lines. All varieties are compared to M-9 on an overall equivalent location-year means basis. The varieties L-201, S-201, M-201, and the experimental line 80-y-36 have all been superior in yield to M-9. M-201 has yielded 12% more than M-9 on the average over all years and locations and its improved lodging resistance is an important contributor to this increase in yield. Specific location yield advantages of M-201 over M-9 have been 23% in Butte County (Rice Experiment Station), 7% in Yuba County (District 10), 9% in Yolo County (District 108), and 12% in Colusa-Glenn Counties (Maxwell). M-201 has the greatest advantage over M-9 in the warmer areas. In a very early test in 1982 in the cool Sacramento County region (Natomas District) M-9 was superior in yield to M-201 (Table 3).

### Summary of the Intermediate (98-105 days to 50% heading at Biggs) and Late Rice Variety Tests (>106 days to heading at Biggs)

The 1982 late maturity variety tests were conducted at four locations: the Rice Experiment Station near Biggs, Butte County; near Maxwell, Colusa County; near Robbins, Sutter County; and near Merced, Merced County. Twenty-four experimental lines were tested at the Biggs location whereas one addi-

tional variety, Calrose 76, was added to the three remaining off-station tests. Agronomic performance of the late maturing entries at each location are given in Tables 13 through 16.

Table 17 shows the four-location average for yield at 14% moisture, grain moisture at harvest, seedling vigor, days to 50% heading, height and lodging from the late variety test, including the intermediate maturity check variety M-302 and the late maturity check varieties M-7 and M-401. Both M-302 and M-7 were among the top 10 entries in the test, whereas M-401 ranked 20th. M-401 suffered severe lodging in all but the Sutter Basin trial in 1982 accounting for its poor performance. In previous years M-401 has performed relatively better than M-7 or M-302. M-401, however, is susceptible to lodging and more sensitive to high nitrogen levels than either M-302 or M-7. 1982 was relatively cool and combined with generally high fertility levels this variety performed poorly. 79-y-438 (entry number 65) a candidate for release as a late short grain, ranked 13th on the average for these four tests.

Table 18 gives the multi-year and multi-location summary for the intermediate and late varieties and selected lines. All varieties are compared to M-7 on an overall equivalent location-year means basis. All of the standard varieties are within 4% of each other in yield over 18 or 19 location-years (Calrose 76 was not tested on the Rice Experiment Station in 1982 and can only be compared in 18 trials). M-401 yields are 1% better than M-7, however, they are 4.5% better if 1982 data are excluded, demonstrating the impact of excessive lodging on this variety. 79-y-438, a late short grain has performed equal to M-7 in three location-years of testing and is a candidate to become S-401. It is slightly shorter than M-7, earlier to 50% heading, and has about the same lodging resistance.

#### Summary of the Long Grain Test

Long grain variety tests were conducted at two locations in 1982; the Rice Experiment Station near Biggs, Butte County, and District 108, Yolo County. Twenty-four experimental lines and varieties were tested including the medium grain check varieties M-201 and M-302 and the long grain variety, L-201. Agronomic performance of the 24 entries at each location are given in Tables 19 and 20.

Table 21 gives the two-location average for yield at 14% moisture, moisture at harvest, seedling vigor, days to 50% heading, height and lodging for these tests. M-201 was the leading variety on the average of the two tests, however, four long grain experimental lines yielded equally as well and a total of ten long grains and L-201 yielded over 9000 pounds per acre. All of these high yielding long grain experimentals ranged from 5 to 24 cm (2 to 9 inches) shorter than L-201 and all but two of the ten showed greatly improved lodging resistance. The highest yielding long grains generally had very good seedling vigor (Table 21).

These tests clearly demonstrate the yielding capability of advanced long grain experimentals in California, however, good cooking quality will be of paramount importance in determining the suitability of one or more of these experimental lines for release as a variety.



Table 2. Performance summary of very early rice experimental lines and varieties, Butte County, 1982.

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Grain moisture at harvest (%)	Seedling vigor 1-5 <sup>2</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>3</sup>
4	80-y-24-B	S	10770	16.6	4.9	81	83	3
23	82-y-23	L	10560	15.6	4.7	87	83	5
17	82-y-17	S	10350	19.3	5.0	90	89	43
15	82-y-15	S	10240	18.7	5.0	90	91	2
6	79-y-117	M	10230	20.0	4.8	88	85	25
14	82-y-14	S	10210	19.3	4.9	88	86	16
20	81-y-294	L	10150	17.7	4.5	87	76	1
21	81-y-295	L	10090	18.1	4.1	91	80	1
13	81-y-166	S	10050	18.8	4.9	91	85	8
9	81-y-120	M	10040	17.7	5.0	88	91	1
18	82-y-18	M	10000	20.2	4.9	88	91	30
10	81-y-124	M	9930	19.2	5.0	88	89	59
16	82-y-16	S	9920	19.3	4.9	91	87	14
1	M-101	M	9840	15.7	5.0	80	88	19
11	81-y-154	S	9800	17.9	4.8	87	85	2
8	81-y-116	M	9800	17.0	5.0	85	86	10
5	80-y-138-A	S	9530	16.7	4.9	85	84	39
2	M-9	M	9500	19.8	5.0	89	92	70
24	82-y-24	L	9480	14.3	4.4	84	78	2
19	82-y-19	M	9450	17.7	5.0	84	92	50
12	80-y-23-C	S	9360	15.4	5.0	80	80	27
3	82-y-3	M	9260	14.6	5.0	86	90	9
22	81-y-342	L	8960	15.9	4.9	89	80	7
7	82-y-7	M	8640	19.0	5.0	87	95	48
GRAND MEAN			9840	17.7	4.8	87	86	20
CV			6.2	5.4	3.7	2.0	3.9	114.3
LSD (.05)			860	1.3	0.3	2	5	33

Conducted by the Rice Experiment Station, Butte County near Biggs.

Planting date: 2 reps planted May 13, 2 reps planted May 27, data an average of all replications.

<sup>1</sup>S = short, M = medium, L = long.

<sup>2</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent emergence at approximately 28 days after planting.

<sup>3</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 3. Performance summary of the very early rice experimental lines and varieties, Sacramento County, 1982.

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Grain moisture at harvest (%)	Seedling vigor 1-5 <sup>2</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>3</sup>
25	Calpearl	S	9210	16.9	4.8	105	83	1
10	81-y-124	M	9200	21.0	4.0	107	83	1
2	M-9	M	8990	23.2	4.0	107	84	2
4	80-y-24-B	S	8940	19.9	4.0	105	81	1
5	80-y-138-A	S	8910	19.5	4.5	109	83	1
11	81-y-154	S	8810	22.7	3.0	108	80	1
15	82-y-15	S	8750	22.3	4.5	109	88	1
18	82-y-18	M	8750	22.7	3.8	106	87	2
17	82-y-17	S	8730	23.1	4.5	110	83	1
19	82-Y-19	M	8700	21.0	4.5	100	89	2
6	79-y-117	M	8690	23.7	3.8	105	83	1
8	81-y-116	M	8640	19.7	4.8	104	81	1
14	82-y-14	S	8590	22.9	5.0	111	88	1
1	M-101	M	8420	19.3	4.5	99	83	1
7	82-y-7	M	8420	22.3	5.0	103	89	2
28	S-201	S	8390	25.1	4.0	115	79	1
13	81-y-166	S	8280	23.5	4.0	112	82	1
16	82-y-16	S	8180	24.0	3.8	112	80	1
9	81-y-120	M	8020	22.3	5.0	109	88	1
12	80-y-23-C	S	7880	19.0	3.8	105	78	1
23	82-y-23	L	7870	20.7	3.8	113	77	1
27	M-201	M	7820	24.5	3.5	114	77	1
20	81-y-294	L	7790	20.7	3.5	106	71	1
21	81-y-295	L	7550	22.4	3.3	109	73	1
3	82-y-3	M	7440	18.7	5.0	105	87	1
22	81-y-342	L	6540	20.8	4.8	108	70	1
26	California Belle	L	6400	20.1	3.5	95	93	1
24	82-y-24	L	6260	15.3	4.0	93	72	1
GRAND MEAN			8220	21.3	4.2	106	82	1
CV			6.3	4.1	9.4	2.7	3.3	35.0
LSD (.05)			730	1.2	0.6	4	4	1

Cooperator and location: Lauppe and Son, Natomas.  
Planting date: May 18, 1982.

<sup>1</sup>S = short, M = medium, L = long.

<sup>2</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent emergence at approximately 28 days after planting.

<sup>3</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 4. Performance summary of very early rice experimental lines and varieties, means of two locations (Butte and Sacramento County).

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Ouncan's test <sup>2</sup>	Grain moisture @ harvest (%)	Seedling vigor 1-5 <sup>3</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>4</sup>
4	80-y-24-B	S	9860	A	18.2	4.5	93	82	2
10	81-y-124	M	9560	AB	20.1	4.5	97	86	30
17	82-y-17	S	9540	AB	21.2	4.8	100	86	22
15	82-y-15	S	9490	ABC	20.5	4.7	100	89	2
6	79-y-117	M	9460	ABC	21.8	4.3	97	84	13
14	82-y-14	S	9400	ABC	21.1	5.0	100	87	9
18	82-y-18	M	9370	ABC	21.5	4.3	97	89	16
11	81-y-154	S	9310	ABCD	20.3	3.9	97	82	2
2	M-9	M	9250	ABCD	21.5	4.5	98	88	36
8	81-y-116	M	9220	ABCD	18.3	4.9	94	84	5
5	80-y-138-A	S	9220	ABCD	18.1	4.7	97	83	20
23	82-y-23	L	9210	ABCD	18.2	4.2	100	80	3
13	81-y-166	S	9170	ABCDE	21.1	4.5	101	83	5
1	M-101	M	9130	BCOE	17.5	4.8	90	85	10
19	82-y-19	M	9080	BCDE	19.3	4.8	92	91	26
16	82-y-16	S	9050	BCDE	21.7	4.3	101	84	7
9	81-y-120	M	9030	BCDE	20.0	5.0	98	90	1
20	81-y-294	L	8970	BCDEF	19.2	4.0	96	74	1
21	81-y-295	L	8820	CDEF	20.3	3.7	100	76	1
12	80-y-23-C	S	8620	DEF	17.2	4.4	92	79	14
7	82-y-7	M	8530	EF	20.7	5.0	95	92	25
3	82-y-3	M	8350	FG	16.7	5.0	96	88	5
24	82-y-24	L	7870	G	14.8	4.2	88	75	1
22	81-y-342	L	7750	G	18.3	4.8	98	75	4
GRAND MEAN			9050		19.5	4.5	97	84	11
CV			6.4		4.8	6.7	2.6	3.6	153.0
LSD (.05)			573		0.9	0.30	2.5	3.0	16.2

<sup>1</sup>S = short; M = medium; L = long.

<sup>2</sup>Yield weights followed by the same letter do not differ at the 5% level of significance.

<sup>3</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence approximately 28 days after planting.

<sup>4</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 5. Grain yield summary of very early maturing rice varieties and experimental lines by location and years.

County location	Year	Varieties and Experimental Lines				
		Earlirose	M-9	M-101	S-201	79-y-117
Butte	1978	5320	7250	7400	--	--
	1979	7320	7470	8040	9050	--
	1980	6460	8870	8620	10010	9400
	1981	6330	6710	7930	10060	9140
	1982	--	9500	9840	--	10230
Location Mean		6360	7960	8370	9710	9590
Sacramento	1978	6850	7480	7500	--	--
	1979	8730	8070	7620	8800	--
	1980	8470	7980	-- <sup>2</sup>	8680	8100
	1981	7880	7700	5330	8020	7430
	1982	--	8990	8420	8390	8690
Location Mean		7980	8040	7220	8470	8070
San Joaquin-Stanislaus	1978	7320	7150	6530	--	--
	1979	7830	7020	6630	6280	--
	1980	7000	5220	4770	5070	5325
	1981	9290	9270	8690	9780	9170
	1982 <sup>3</sup>	--	--	--	--	--
Location Mean		7860	7170	6660	7040	7250
Over location-years mean		7400	7760	7490	8410	8440
Yield as % of M-101 <sup>1</sup>		102	103	100	114	110
Number of tests		11	13	--	9	7

<sup>1</sup>Based on equivalent location-year means and may not reflect mean of all locations and years for M-101.

<sup>2</sup>M-101 destroyed by rats at this location and year.

<sup>3</sup>Test overseeded with field variety S-201 so no data available.

Table 6. Performance summary of early rice experimental lines and varieties, Butte County, 1982.

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Grain moisture at harvest (%)	Seedling vigor 1-5 <sup>2</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>3</sup>
42	81-y-215	M	10330	18.8	4.9	93	90	28
47	82-y-47	S	10060	20.2	5.0	95	82	1
40	81-y-196	M	10040	19.4	5.0	95	91	2
35	80-y-36	S	9980	17.9	5.0	91	92	31
46	82-y-46	S	9920	18.9	5.0	94	88	6
31	S-201	S	9900	18.1	5.0	94	89	14
38	81-y-110	S	9840	18.0	5.0	90	88	11
44	82-y-44	M	9780	19.3	5.0	94	93	32
45	82-y-45	M	9750	19.2	5.0	95	96	11
32	Calmochi-202	WXY	9720	20.1	5.0	95	94	13
34	79-y-117	M	9710	18.7	4.8	88	90	40
52	81-y-339	L	9690	18.7	4.4	93	82	1
39	81-y-170	S	9680	18.2	5.0	94	87	23
41	81-y-213	M	9650	19.1	5.0	93	90	27
30	M-201	M	9640	19.6	4.7	91	82	2
36	80-y-237	S	9390	16.8	5.0	92	87	37
43	82-y-43	M	9280	18.9	5.0	94	95	19
51	81-y-299	L	9250	19.0	4.4	92	86	1
37	81-y-108	S	9170	16.4	5.0	92	87	28
50	81-y-297	L	9120	17.0	4.8	92	85	17
33	82-y-33	WXY	9050	20.6	4.8	96	94	1
48	L-201	L	9030	15.8	4.5	90	102	46
29	M-9	M	8560	18.5	5.0	89	91	55
49	81-y-288	L	8450	16.0	4.9	92	86	41
GRAND MEAN			9540	18.4	4.9	93	89	20
CV			6.9	4.9	2.4	2.2	3.9	106.5
LSD (.05)			930	1.3	0.2	3	5	30

Conducted by the Rice Experiment Station, Butte County, near Biggs.

Planting date: 2 reps planted May 13, 2 reps planted May 25, data an average of all replications.

<sup>1</sup>S = short, M = medium, L = long, WXY = waxy.

<sup>2</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent emergence at approximately 28 days after planting.

<sup>3</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 7. Performance summary of early rice experimental lines and varieties, Glenn County, 1982.

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Grain moisture at harvest (%)	Seedling vigor 1-5 <sup>2</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>3</sup>
53	Calpearl	S	9690	13.9	4.0	91	81	22
48	L-201	L	9180	13.3	4.0	95	92	61
52	81-y-339	L	9110	17.5	3.5	98	81	3
30	M-201	M	9100	17.8	4.1	97	92	23
31	S-201	S	8990	14.6	4.3	97	85	60
46	82-y-46	S	8670	14.8	4.1	98	85	65
42	81-y-215	M	8590	15.8	4.3	97	86	60
55	M-101	M	8450	13.3	4.0	86	85	61
39	81-y-170	S	8390	15.1	4.4	97	85	65
38	81-y-110	S	8310	13.9	4.1	94	82	91
41	81-y-213	M	8300	17.3	4.4	97	87	37
33	82-y-33	WXY	8280	16.4	4.3	98	90	72
29	M-9	M	8240	14.8	4.3	94	93	94
47	82-y-47	S	8200	14.3	4.1	97	77	73
37	81-y-108	S	8130	12.5	4.1	95	84	77
35	80-y-36	S	8100	13.9	4.4	97	84	92
43	82-y-43	M	8060	16.3	4.3	97	90	52
49	81-y-288	L	8060	13.2	3.5	98	85	63
40	81-y-196	M	8010	15.6	4.0	97	82	67
44	82-y-44	M	7990	13.7	4.3	96	89	91
36	80-y-237	S	7910	13.7	4.3	96	88	92
45	82-y-45	M	7770	13.4	4.1	100	94	79
32	Calmochi-202	WXY	7750	16.9	3.6	99	88	57
34	79-y-117	M	7570	12.4	4.3	97	86	92
56	M-302	M	7540	15.2	3.9	103	83	68
51	81-y-299	L	7530	15.9	3.9	96	85	54
54	California Belle	L	7450	13.9	3.3	92	97	50
50	81-y-297	L	7210	11.8	4.0	97	84	77
GRAND MEAN			8240	14.7	4.1	96	86	64
CV			6.5	13.2	7.2	1.4	4.8	38.1
LSD (.05)			754	2.7	0.41	1.9	5.9	34.4

Cooperator and location: Wylie Farming, Norman.  
Planting date: May 7, 1982.

<sup>1</sup>S = short, M = medium, L = long.

<sup>2</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent emergence at approximately 28 days after planting.

<sup>3</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 8. Performance summary of early rice experimental lines and varieties, Yolo County, 1982.

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Grain moisture at harvest (%)	Seedling vigor 1-5 <sup>2</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>3</sup>
30	M-201	M	10360	25.6	4.0	99	93	2
38	81-y-110	S	10200	25.1	4.0	95	96	70
53	Calpearl	S	10110	19.9	4.0	90	91	56
42	81-y-215	M	9850	25.4	4.0	99	92	85
52	81-y-339	L	9730	25.8	3.9	104	83	1
34	79-y-117	M	9610	25.4	4.0	97	94	84
50	81-y-297	L	9530	24.7	4.0	101	90	1
41	81-y-213	M	9520	25.3	4.0	100	90	63
40	81-y-196	M	9350	25.3	4.0	99	93	66
37	81-y-108	S	9240	22.1	4.0	98	94	69
48	L-201	L	9230	24.2	3.3	100	107	39
29	M-9	M	9210	25.1	3.9	97	96	98
32	Calmochi-202	WXY	9170	28.2	4.0	100	93	45
33	82-y-33	WXY	9170	28.3	3.9	102	97	46
54	California Belle	L	9110	21.2	3.6	93	109	8
31	S-201	S	9100	26.3	3.9	100	89	84
46	82-y-46	S	9070	26.4	4.0	101	90	75
36	80-y-237	S	9000	20.4	4.0	97	94	98
35	80-y-36	S	8970	26.5	4.0	97	91	98
49	81-y-288	L	8950	22.1	4.0	101	91	50
39	81-y-170	S	8860	26.1	4.0	99	90	89
56	M-302	M	8790	25.9	4.0	102	97	55
45	82-y-45	M	8630	25.7	4.0	100	98	68
47	82-y-47	S	8570	27.4	4.0	101	89	69
55	M-101	M	8550	23.1	4.0	89	95	85
43	82-y-43	M	8440	25.7	4.0	101	97	85
44	82-y-44	M	8140	25.7	4.0	99	99	98
51	81-y-299	L	7750	24.8	3.9	103	85	1
GRAND MEAN			9150	24.9	3.9	99	94	60
CV			5.6	3.4	3.9	1.0	4.3	28.5
LSD (.05)			720	1.2	0.2	1	6	24

Cooperator and location: Bill and Don Geer, District 108.  
Planting date: May 17, 1982.

<sup>1</sup>S = short, M = medium, L = long, WXY = waxy.

<sup>2</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent emergence at approximately 28 days after planting.

<sup>3</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 9. Performance summary of early rice experimental lines and varieties, Yuba County, 1982.

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Grain moisture at harvest (%)	Seedling vigor 1-5 <sup>2</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>3</sup>
53	Calpearl	S	10550	18.8	4.8	96	86	1
36	80-y-238	S	9770	22.7	4.0	101	85	8
35	80-y-36	S	9600	26.2	4.3	101	90	1
29	M-9	M	9480	24.9	4.0	98	88	1
42	81-y-215	M	9410	24.7	4.3	101	87	1
34	79-y-117	M	9390	24.8	4.3	98	84	1
30	M-201	M	9310	25.2	3.8	102	87	1
38	81-y-110	S	9220	25.7	4.0	100	88	1
37	81-y-108	S	9220	22.3	4.0	99	87	1
48	L-201	L	9160	22.6	4.0	99	112	1
43	82-y-43	M	9150	24.8	4.8	101	93	1
40	81-y-196	M	9060	24.9	4.3	102	85	1
39	81-y-170	S	9020	25.7	4.3	102	86	1
44	82-y-44	M	9020	25.4	4.3	102	89	16
31	S-201	S	8940	26.2	4.3	103	83	1
41	81-y-213	M	8900	24.7	4.0	103	86	1
45	82-y-45	M	8880	25.1	4.3	103	91	1
55	M-101	M	8770	23.1	4.8	96	86	18
46	82-y-46	S	8770	26.3	4.8	103	86	1
52	81-y-339	L	8690	23.8	4.3	100	82	1
49	81-y-288	L	8510	22.5	4.0	103	85	1
56	M-302	M	8380	25.6	4.3	105	89	1
33	82-y-33	WXY	8090	26.9	3.8	103	94	1
32	Calmochi-202	WXY	8080	27.1	4.3	104	91	1
50	81-y-297	L	8080	22.4	4.0	100	78	1
47	82-y-47	S	7950	26.6	3.8	104	82	1
51	81-y-299	L	7760	24.1	3.5	103	79	1
54	California Belle	L	7400	21.2	4.0	94	101	1
GRAND MEAN			8880	24.4	4.2	101	88	2
CV			5.0	2.6	11.3	1.0	3.6	279.9
LSD (.05)			630	0.9	0.7	1	4	9

Cooperator and location: Bob Mohammed, District 10.  
Planting date: May 10, 1982.

<sup>1</sup>S = short, M = medium, L = long, WXY = waxy.

<sup>2</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent emergence at approximately 28 days after planting.

<sup>3</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.



Table 10. Performance summary of early rice experimental lines and varieties, means of four locations (Butte, Glenn, Yolo and Yuba counties).

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Duncan's test <sup>2</sup>	Grain moisture @ harvest (%)	Seedling vigor 1-5 <sup>3</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>4</sup>
30	M-201	M	9600	A	22.0	4.2	97	88	7
42	81-y-215	M	9550	AB	21.2	4.4	97	89	43
38	81-y-110	S	9390	ABC	20.7	4.3	95	89	43
52	81-y-339	L	9310	ABCD	21.5	4.0	99	82	2
31	S-201	S	9230	ABCD	21.3	4.3	98	87	40
35	80-y-36	S	9160	BCDE	21.1	4.4	96	89	55
48	L-201	L	9150	BCDE	19.0	3.9	96	103	37
40	81-y-196	M	9120	CDEF	21.3	4.3	98	88	34
46	82-y-46	S	9110	CDEF	21.6	4.5	99	87	37
41	81-y-213	M	9090	CDEF	21.6	4.3	98	88	32
34	79-y-117	M	9070	CDEFG	20.3	4.3	95	89	54
36	80-y-237	S	9020	CDEFG	18.4	4.3	96	88	59
39	81-y-170	S	8990	CDEFG	21.3	4.4	98	87	44
37	81-y-108	S	8940	OEEG	18.3	4.3	96	88	44
29	M-9	M	8870	DEFGH	20.8	4.3	95	92	62
45	82-y-45	M	8760	EFGH	20.8	4.3	99	95	40
43	82-y-43	M	8730	EFGH	21.4	4.5	98	94	39
44	82-y-44	M	8730	EFGH	21.0	4.4	98	92	59
47	82-y-47	S	8690	FGH	22.1	4.2	99	82	36
32	Calmochi 202	WXY	8680	FGH	23.1	4.2	99	91	29
33	82-y-33	WXY	8650	GH	23.0	4.2	100	93	30
49	81-y-288	L	8490	H	18.4	4.1	98	87	39
50	81-y-297	L	8490	H	19.0	4.2	97	84	24
51	81-y-299	L	8070	I	20.9	3.9	98	84	14
GRAND MEAN			8950		20.8	4.3	97	89	38
CV			5.9		5.5	6.6	1.4	4.0	49.6
LSD (.05)			370		0.8	0.2	1	2	13

<sup>1</sup>S = short; M = medium; L = long; WXY = waxy.

<sup>2</sup>Yield weights followed by the same letter do not differ at the 5% level of significance.

<sup>3</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence approximately 28 days after planting.

<sup>4</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 11. Performance summary of early rice varieties, means of three locations (Glenn, Yolo and Yuba counties).

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Duncan's test <sup>2</sup>	Grain moisture @ harvest (%)	Seedling vigor 1-5 <sup>3</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>4</sup>
53	Calpearl	S	10120	A	17.5	4.3	92	86	26
30	M-201	M	9590	B	22.9	4.0	99	90	9
48	L-201	L	9190	BC	20.0	3.8	98	104	34
31	S-201	S	9010	CDE	22.4	4.1	100	86	48
29	M-9	M	8980	COEF	21.6	4.0	97	92	64
55	M-101	M	8590	EFGHIJ	19.8	4.3	90	89	55
32	Calmochi-202	WXY	8330	IJK	24.1	4.0	101	91	34
56	M-302	M	8230	JK	22.2	4.0	103	89	41
54	Calif. Belle	L	7990	KL	18.7	3.6	93	102	20
GRAND MEAN			8750		21.3	4.1	98	89	42
CV			5.7		6.0	8.2	1.1	4.2	41.8
LSD (.05)			400		1.0	0.3	1	3	14

<sup>1</sup>S = short; M = medium; L = long; WXY = waxy.

<sup>2</sup>Yield weights followed by the same letter do not differ at the 5% level of significance.

<sup>3</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence approximately 28 days after planting.

<sup>4</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 12. Grain yield summary of early maturing rice varieties and experimental lines by location and year.

County location	Year	Varieties and Experimental Lines						
		S-6	M-9	L-201	S-201	Calmochi 202	M-201	80-y-36
Butte	1978	6030	7790	7990	7970	--	--	--
	1979	7200	8370	9400	8430	9020	9740	--
	1980	6880	8380	10080	9730	9280	10080	--
	1981	6630	7510	8000	9410	8490	10540	9350
	1982	--	8560	9030	9900	9720	9640	9980
Location Mean		6690	8120	8900	9090	9130	10000	9670
Yuba	1978	5980	6630	6000	6290	--	--	--
	1979	7450	8640	6250	8720	7600	8050	--
	1980	5330	5070	7130	5370	4950	5850	--
	1981	8490	8960	9750	9740	9140	10050	9960
	1982	--	9480	9160	8940	8080	9310	9600
Location Mean		6810	7760	7670	7810	7440	8315	9780
Yolo	1978	7810	8150	8120	8350	--	--	--
	1979	8700	9990	9760	10560	10070	10550	--
	1980	7360	8750	8970	9360	7710	8440	--
	1981	8870	8670	9680	9470	7720	9570	9490
	1982	--	9210	9230	9100	9170	10360	8970
Location Mean		8190	8950	9150	9370	8670	9730	9230
Colusa-Glenn	1981	7530	8510	8840	9710	8020	9090	8610
	1982	--	8240	9180	8990	7750	9100	8100
Location Mean		7530	8380	9010	8850	7890	9095	8360
Over location-years mean		7250	8290	8620	8770	8340 <sup>2</sup>	9310	9260
Yield as % M-9 <sup>1</sup>		89	100	104	106	99	112	107
Number of tests		13	--	17	17	14	14	8

<sup>1</sup>Based on equivalent location-year means and may not reflect mean of all locations and years for M-9.

<sup>2</sup>On an equivalent location-year means basis, Calmochi-202 (waxy) yielded an average of 8340 lbs/A as compared to 9030 lbs/A for the closely related S-201 (translucent) for a difference of about 8%.

Table 13. Performance summary of late rice experimental lines and varieties, Butte County, 1982.

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Grain moisture at harvest (%)	Seedling vigor 1-5 <sup>2</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>3</sup>
75	81-y-411	M	11300	19.3	5.0	103	100	34
70	81-y-222	S	11210	18.4	5.0	100	89	3
64	79-y-402	M	10960	20.6	5.0	105	99	38
65	79-y-438	S	10910	23.6	5.0	109	94	7
66	80-y-393	M	10830	20.3	5.0	102	98	18
71	81-y-391	M	10770	23.0	4.9	107	96	1
77	82-y-77	M	10750	20.5	5.0	103	99	2
73	81-y-400	M	10710	22.2	5.0	104	97	18
78	82-y-78	M	10640	21.3	5.0	105	98	1
79	82-y-79	M	10640	21.1	5.0	105	99	1
63	M-7	M	10630	22.4	5.0	108	99	1
72	81-y-398	M	10610	18.1	5.0	101	95	8
76	82-y-76	S	10560	19.2	5.0	102	96	4
62	M-302	M	10550	19.8	5.0	101	98	7
68	80-y-448	M	10430	20.2	5.0	105	94	27
69	80-y-455	M	10270	19.7	5.0	102	103	70
74	80-y-407	M	10220	21.6	5.0	104	100	14
84	81-y-445	L	9780	20.5	4.4	108	96	1
80	81-y-341	L	9640	14.7	4.8	95	75	1
81	81-y-417	L	9500	14.9	5.0	98	90	1
67	80-y-426	M	9430	19.4	5.0	103	99	53
83	81-y-429	L	9290	16.9	5.0	101	86	1
82	81-y-422	L	9180	16.7	5.0	101	85	1
61	M-401	M	9170	20.0	5.0	104	99	87
GRAND MEAN			10330	19.8	4.9	103	95	17
CV			4.2	3.4	1.4	1.0	3.8	92.0
LSD (.05)			610	0.9	0.1	1	5	21

Conducted by the Rice Experiment Station, Butte County, near Biggs.  
Planting date: May 11, 1982.

<sup>1</sup>S = short, M = medium, L = long.

<sup>2</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent emergence at approximately 28 days after planting.

<sup>3</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 14. Performance summary of late rice experimental lines and varieties, Colusa County, 1982.

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Grain moisture at harvest (%)	Seedling vigor 1-5 <sup>2</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>3</sup>
79	82-y-79	M	9760	20.4	4.0	110	101	35
71	81-y-391	M	9370	21.6	4.0	112	93	40
63	M-7	M	8950	21.9	4.0	113	92	25
84	81-y-445	L	8900	19.6	3.6	114	100	37
78	82-y-78	M	8890	21.7	4.0	110	96	56
65	79-y-438	S	8860	20.5	4.0	114	91	50
76	82-y-76	S	8770	21.6	3.9	105	91	64
83	81-y-429	L	8750	19.6	4.0	107	89	2
80	81-y-341	L	8690	19.5	3.9	103	82	9
75	81-y-411	M	8550	21.7	4.0	110	96	75
86	Calrose 76	M	8520	18.7	4.0	114	99	58
73	81-y-398	M	8430	21.6	4.0	111	96	57
82	81-y-422	L	8250	18.9	4.0	109	96	11
66	80-y-393	M	8180	21.3	4.0	109	95	87
62	M-302	M	8160	20.8	3.9	106	95	53
72	81-y-398	M	8160	21.5	4.0	108	96	75
77	82-y-77	M	8070	20.9	4.0	105	104	45
81	81-y-417	L	7930	18.3	3.6	106	98	37
74	81-y-407	M	7640	21.6	4.0	111	101	72
64	79-y-402	M	7480	20.9	4.0	111	96	79
67	80-y-426	M	7440	20.2	3.9	108	103	99
69	80-y-455	M	7110	21.6	4.0	111	108	99
61	M-401	M	6740	21.1	4.0	110	103	96
68	80-y-448	M	6190	21.1	3.9	111	97	97
70	81-y-222	S	5260	19.3	4.0	104	93	21
GRAND MEAN			8160	20.6	3.9	109	96	54
CV			12.7	4.7	3.3	0.9	5.0	53.9
LSD (.05)			1460	1.4	0.2	1	7	41

Cooperator and location: Dennis Ranch, Maxwell.  
Planting date: May 5, 1982.

<sup>1</sup>S = short, M = medium, L = long.

<sup>2</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent emergence at approximately 28 days after planting.

<sup>3</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 15. Performance summary of late rice experimental lines and varieties, Merced County, 1982.

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Grain moisture at harvest (%)	Seedling vigor 1-5 <sup>2</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>3</sup>
80	81-y-341	L	9640	24.9	2.8	97	81	1
62	M-302	M	8390	25.9	2.5	99	93	98
62	80-y-426	M	8380	26.1	2.0	99	100	98
64	79-y-402	M	8310	26.4	1.0	99	93	88
77	82-y-77	M	8240	25.6	2.3	97	97	90
79	82-y-79	M	8240	26.6	1.5	100	100	44
75	81-y-411	M	8070	27.1	2.0	101	97	99
66	80-y-393	M	7880	26.2	1.5	96	97	74
81	81-y-417	L	7730	25.0	3.3	100	90	26
63	M-7	M	7660	26.4	4.0	100	94	70
72	81-y-398	M	7620	26.2	2.3	99	91	89
70	81-y-222	S	7610	29.0	2.0	101	89	66
65	79-y-438	S	7550	28.1	2.0	103	89	24
78	82-y-78	M	7550	26.9	2.5	100	96	71
82	81-y-422	L	7540	25.5	2.5	102	94	26
76	82-y-76	S	7280	27.0	2.3	98	93	99
61	M-401	M	7170	26.4	2.3	100	97	99
71	81-y-391	M	7130	26.2	3.3	101	93	15
86	Calrose 76	M	7110	25.4	3.0	101	95	98
68	80-y-448	M	6970	26.6	2.3	98	96	99
69	80-y-455	M	6840	26.6	2.0	98	101	75
83	81-y-429	L	6490	25.1	3.5	102	92	26
74	81-y-407	M	6300	26.4	2.8	100	97	92
73	81-y-400	M	5840	26.7	2.8	102	97	51
84	81-y-445	L	5590	26.6	2.5	104	90	1
GRAND MEAN			7530	26.3	2.4	99	94	65
CV			12.9	3.6	47.6	2.2	6.2	45.4
LSD (.05)			1370	1.3	NS	3	8	42

Cooperator and location: Nordman Farms, Merced.  
Planting date: May 24, 1982.

<sup>1</sup>S = short, M = medium, L = long.

<sup>2</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent emergence at approximately 28 days after planting.

<sup>3</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 16. Performance summary of late rice experimental lines and varieties, Sutter County, 1982.

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Grain moisture at harvest (%)	Seedling vigor 1-5 <sup>2</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>3</sup>
74	81-y-407	M	9790	24.2	4.8	118	92	26
62	M-302	M	9720	24.0	4.5	120	93	16
66	80-y-393	M	9600	24.1	4.8	117	93	48
67	80-y-426	M	9580	24.1	4.5	119	93	30
64	79-y-402	M	9530	24.3	5.0	119	91	6
61	M-401	M	9500	23.7	4.8	117	91	50
77	82-y-77	M	9430	24.3	4.8	118	95	16
76	82-y-76	S	9420	24.9	4.8	118	90	35
86	Calrose 76	M	9390	24.7	4.8	120	91	1
72	81-y-398	M	9370	23.2	4.8	118	88	6
70	81-y-222	S	9320	25.5	4.8	121	84	1
78	82-y-78	M	9320	24.7	4.8	119	89	21
73	81-y-400	M	9190	24.4	5.0	121	90	1
79	82-y-79	M	9180	23.9	4.5	121	87	6
81	81-y-417	L	9070	21.9	3.8	119	86	1
75	81-y-411	M	9000	24.5	4.3	121	93	6
71	81-y-391	M	8940	24.4	4.5	122	88	1
83	81-y-429	L	8930	22.0	4.0	118	85	1
63	M-7	M	8820	24.6	4.5	122	89	1
68	80-y-448	M	8610	24.7	4.3	119	93	38
80	81-y-341	L	8460	20.9	4.8	114	77	1
69	80-y-455	M	8220	25.5	5.0	119	96	70
82	81-y-422	L	8150	22.3	3.8	121	89	1
65	79-y-438	S	7960	26.6	4.3	123	85	1
84	81-y-445	L	6560	23.6	4.0	127	88	1
GRAND MEAN			9000	24.0	4.5	119	89	15
CV			10.1	2.9	10.8	1.5	3.6	136.4
LSO (.05)			1280	1.0	0.7	3	5	29

Cooperator and location: Justi Ranch, Sutter Basin.  
Planting date: May 11, 1982.

<sup>1</sup>S = short, M = medium, L = long.

<sup>2</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent emergence at approximately 28 days after planting.

<sup>3</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 17. Performance summary of late experimental lines and varieties, means of four locations (Butte, Colusa, Merced and Sutter counties).

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Ouncan's test <sup>2</sup>	Grain moisture @ harvest (%)	Seedling vigor 1-5 <sup>3</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>4</sup>
79	82-y-79	M	9450	A	23.0	3.8	105	96	21
75	81-y-411	M	9230	AB	23.1	3.8	105	96	53
62	M-302	M	9210	AB	22.6	4.0	102	95	43
66	80-y-393	M	9120	AB	23.0	3.8	102	96	57
77	82-y-77	M	9120	AB	22.8	4.0	102	99	38
80	81-y-341	L	9110	ABC	20.0	4.0	98	79	3
78	82-y-78	M	9100	ABC	23.6	4.1	105	94	37
64	79-y-402	M	9070	ABCD	23.1	3.8	105	95	53
71	81-y-391	M	9050	ABCD	23.8	4.2	107	92	14
63	M-7	M	9020	ABCD	23.8	4.4	107	93	24
76	82-y-76	S	9010	ABCDE	23.1	4.0	102	92	51
72	81-y-398	M	8940	ABCDE	22.2	4.0	103	93	44
65	79-y-438	S	8820	ABCOEF	24.7	3.8	108	90	20
67	80-y-426	M	8710	ABCOEFG	22.4	3.8	103	99	70
81	81-y-417	L	8560	8COEFG	20.0	3.9	101	91	16
73	81-y-400	M	8540	BCOEF	23.7	4.2	106	95	32
74	81-y-407	M	8490	BCDEFG	23.5	4.1	105	97	51
83	81-y-429	L	8370	CDEFGH	20.9	4.1	103	88	7
70	81-y-222	S	8350	DEFGH	23.1	3.9	101	89	23
82	81-y-422	L	8280	EFGH	20.8	3.8	104	91	10
61	M-401	M	8140	FGH	22.8	4.0	105	97	83
69	80-y-455	M	8110	FGH	23.4	4.0	104	102	78
68	80-y-448	M	8050	GH	23.1	3.8	105	95	65
84	81-y-445	L	7710	H	22.6	3.6	109	93	10
GRAND MEAN			8730		22.7	4.0	104	94	38
CV			10.1		3.2	15.9	1.4	4.9	65.0
LSD (.05)			616		0.5	NS	1.2	3.2	17.0

<sup>1</sup>S = short; M = medium; L = long.

<sup>2</sup>Yield weights followed by the same letter do not differ at the 5% level of significance.

<sup>3</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence approximately 28 days after planting.

<sup>4</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.



Table 18. Grain yield summary of late maturing rice varieties and experimental lines by location and year.

County location	Year	Varieties and Experimental Lines				
		M-7	Calrose 76	M-302	M-401	79-y-438
Butte	1978	5340	5790	7160	5970	--
	1979	8040	7820	7650	7310	--
	1980	9690	9320	9170	10570	10160
	1981	10130	9740	9680	10030	9880
	1982	10630	--	10550	9170	10910
Location Mean		8770	8170	8840	8610	10320
Glenn-Colusa	1978	7540	6440	6920	8070	--
	1979	9380	9120	9540	11240	--
	1980	9260	8540	9390	10110	8980
	1981	9530	9390	8920	9910	9450
	1982	8950	8520	8160	6740	8860
Location Mean		8930	8400	8590	9210	9100
Sutter	1978	8460	8210	8340	7700	--
	1979	8130	7610	7630	8000	--
	1980	9560	8990	9370	9430	9840
	1981	10030	10360	10550	11620	10920
	1982	8820	9390	9720	9500	7960
Location Mean		9000	8910	9120	9250	9570
Merced-Fresno	1978	7130	6890	7480	7440	--
	1979	7220	6780	6250	7180	--
	1980 <sup>2</sup>	--	--	--	--	--
	1981	6920	7700	7180	7560	7940
	1982	7660	7110	8390	7170	7550
Location Mean		7230	7120	7330	7340	7750
Over location-years mean		8550	8210	8530	8670	9310
Yield as % M-7 <sup>1</sup>		100	97	100	101	101
Number of tests		--	18	19	19	11

<sup>1</sup>Based on equivalent location-year means and may not reflect mean of all locations and years for M-7.

<sup>2</sup>Test contaminated with field variety so no data available.

Table 19. Performance summary of the long grain test, Butte County, 1982.

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Grain moisture at harvest (%)	Seedling vigor 1-5 <sup>2</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>3</sup>
455	82-1-55	L	10420	19.8	4.9	94	92	1
434	M-201	M	10190	19.0	4.6	90	82	1
448	82-1-48	L	10030	17.4	4.9	92	80	3
447	82-1-47	L	9890	16.6	4.9	91	85	3
456	82-1-56	L	9820	16.2	4.6	89	84	8
450	82-1-50	L	9670	14.5	4.6	84	81	3
443	82-1-53	L	9600	19.4	4.7	93	83	1
435	L-201	L	9630	16.4	4.7	90	97	19
449	82-1-49	L	9630	16.3	4.8	89	76	2
457	82-1-57	L	9610	15.7	4.5	87	83	6
453	82-1-53	L	9310	18.5	4.5	94	79	1
438	82-1-38	L	9250	15.4	4.9	89	95	32
436	M-302	M	9170	20.2	4.8	98	93	1
444	82-1-44	L	9110	15.3	4.6	91	82	1
445	82-1-45	L	9110	18.2	4.5	95	97	1
446	82-1-46	L	9090	18.6	4.7	98	99	1
452	82-1-52	L	9020	14.6	4.8	87	91	21
454	82-1-54	L	8930	15.2	5.0	87	102	55
441	82-1-41	L	8860	14.9	4.6	92	87	1
439	82-1-39	L	8770	16.2	4.9	92	93	1
442	82-1-42	L	8530	15.4	4.6	92	83	8
440	82-1-40	L	8490	14.2	4.7	92	94	8
437	82-1-37	L	8330	13.7	3.5	86	80	1
451	82-1-51	L	8070	13.4	4.6	85	98	10
GRAND MEAN			9270	16.5	4.6	90	88	8
CV			5.3	6.6	6.0	1.8	3.9	187.1
LSD (.05)			700	1.5	0.4	2	5	21

Conducted by the Rice Experiment Station, Butte County, near Biggs.

Planting date: 2 reps planted May 15, 2 reps planted May 26, data an average of all replications.

<sup>1</sup>M = medium, L = long.

<sup>2</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent emergence at approximately 28 days after planting.

<sup>3</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 20. Performance summary of the long grain test, Yolo County, 1982.

Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Grain moisture at harvest (%)	Seedling vigor 1-5 <sup>2</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>3</sup>
82-1-48	L	10300	24.2	4.0	100	85	1
M-201	M	10240	23.3	4.1	99	95	2
82-1-47	L	10120	24.0	4.0	100	83	2
82-1-49	L	9820	24.4	3.8	102	80	3
82-1-55	L	9710	25.1	4.0	101	95	10
82-1-56	L	9480	23.2	3.9	100	90	31
82-1-57	L	9340	23.5	3.8	100	87	4
82-1-52	L	9320	21.2	4.3	95	102	46
82-1-44	L	9290	22.7	3.9	99	88	1
82-1-42	L	9240	23.9	3.9	101	85	6
L-201	L	9210	23.8	3.6	100	106	49
82-1-50	L	9180	21.5	3.5	95	82	1
82-1-54	L	9030	21.5	4.0	92	104	35
82-1-53	L	9010	24.1	3.8	100	87	1
M-302	M	8880	23.9	3.9	101	97	68
82-1-45	L	8820	21.5	4.0	99	102	1
82-1-41	L	8470	22.8	3.9	100	94	4
82-1-37	L	8410	22.7	3.1	99	88	1
82-1-40	L	8290	20.3	3.6	99	99	3
82-1-51	L	8160	21.4	4.0	96	109	25
82-1-39	L	8000	23.0	4.0	98	102	5
82-1-46	L	7700	24.1	3.9	102	103	1
82-1-43	L	7510	24.8	3.9	101	84	1
82-1-38	L	7240	21.1	4.0	97	91	34
GRAND MEAN		8950	23.0	3.9	99	93	14
CV		4.4	3.8	5.0	1.2	4.5	84.4
LSD (.05)		560	1.2	0.3	2	6	17

Cooperator and location: Bill and Don Geer, District 108.  
 Planting date: May 17, 1982

<sup>1</sup>M = medium, L = long.

<sup>2</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent emergence at approximately 28 days after planting.

<sup>3</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.

Table 21. Performance summary of the long grain test, means of two locations (Butte and Yolo counties).

1982 entry no.	Cultivar description	Grain type <sup>1</sup>	Grain yield @ 14% H <sub>2</sub> O (lbs/acre)	Duncan's test <sup>2</sup>	Grain moisture @ harvest (%)	Seedling vigor 1-5 <sup>3</sup>	Days to 50% heading	Plant height (cm)	Lodging 1-99 <sup>4</sup>
434	M-201	M	10220	A	21.1	4.4	94	88	2
448	82-1-48	L	10170	A	20.8	4.5	96	83	2
455	82-1-55	L	10060	AB	22.4	4.5	98	93	6
447	82-1-47	L	10010	AB	20.3	4.4	95	84	3
449	82-1-49	L	9720	ABC	20.3	4.3	95	78	2
456	82-1-56	L	9650	BCD	19.7	4.2	95	87	20
457	82-1-57	L	9470	CDE	19.6	4.1	93	85	5
450	82-1-50	L	9430	CDE	18.0	4.1	89	82	2
435	L-201	L	9420	CDE	20.1	4.1	95	102	34
444	82-1-44	L	9200	DEF	19.0	4.2	95	85	1
452	82-1-52	L	9170	DEFG	17.9	4.5	91	97	33
453	82-1-53	L	9160	DEFG	21.3	4.1	97	83	1
436	M-302	M	9030	EFGH	22.1	4.3	99	95	34
454	82-1-54	L	8980	EFGH	18.4	4.5	89	103	45
445	82-1-45	L	8960	EFGH	19.9	4.3	97	99	1
442	82-1-42	L	8880	Fghi	19.7	4.2	96	84	7
441	82-1-41	L	8670	GHIJ	18.9	4.3	96	91	3
443	82-1-43	L	8590	HIJK	22.1	4.3	97	84	1
446	82-1-46	L	8390	IJK	21.3	4.3	100	101	1
440	82-1-40	L	8390	IJK	17.3	4.1	95	96	6
439	82-1-39	L	8390	IJK	19.6	4.5	95	97	3
437	82-1-37	L	8370	JK	18.2	3.3	92	84	1
438	82-1-38	L	8250	JK	18.2	4.4	93	93	33
451	82-1-51	L	8120	K	17.4	4.3	91	103	17
GRAND MEAN			9110		19.7	4.3	95	91	11
CV			4.9		5.0	5.6	1.5	4.2	122.1
LS0 (.05)			440		1.0	0.2	1	4	13

<sup>1</sup>M = medium; L = long.  
<sup>2</sup>Yield weights followed by the same letter do not differ at the 5% level of significance.  
<sup>3</sup>Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence approximately 28 days after planting.  
<sup>4</sup>Subjective rating of 1-99 where 1 = none and 99 = 100% lodged.