COMPREHENSIVE RESEARCH ON RICE
ANNUAL REPORT

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PROJECT TITLE: Cooperative Extension Rice Variety Adaptation and Cultural Practice Research

PROJECT LEADER AND PRINCIPAL UC INVESTIGATORS:

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LEVEL OF 1982 FUNDING: $45,324.00

OBJECTIVES AND EXPERIMENTS CONDUCTED BY LOCATION TO ACCOMPLISH OBJECTIVES:

Objective I

Determine the adaptation of improved experimental rice lines to rice production areas of California to maximize yield and quality.

Statewide Uniform Rice Variety Tests

Very Early Maturity Group - Three uniform tests were conducted; at the Rice Experiment Station (Butte), the Demeter Corporation (Sacramento) and the Frobose Ranch (Stanislaus; 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 locations.

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

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

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

Objective II

Provide assistance to expedite field research projects of UC rice research project leaders. Maintain a UCD Agronomy Extension-based rice project machinery pool for planting and harvesting field experiments.

Thirty-eight rice field experiments were planted or harvested with the rice equipment. Twenty-three of these were directly related to this project (RM-2) of which 12 were variety tests conducted in eleven different counties. Others included rice quality, growth regulator and fertilizer tests in cooperation with Dr. Duane Mikkelsen (RB-1), C. M. Wick, S. C. Scardaci and J. F. Williams; Eleven weed control trials in cooperation with Dr. Dave Bayer (RP-1), Jack Williams and Steve Scardaci. In addition, several tests were harvested on the Rice Research Facility in cooperation with R. K. Webster, J. N. Rutger, D. E. Bayer and D. S. Mikklesen. Harvest assistance was given by Ernie Roncoroni, Associate to Dr. Dave Bayer and by Bill Brandon, Associate to Dr. Don Seaman. Experiments ranged geographically from Durham (Butte County) to Corcoran (Tulare County).

SUMMARY OF 1982 RESEARCH BY OBJECTIVE:

Objective I

Statewide Uniform Rice Variety Tests

A total of 11 uniform rice variety tests were established in eight locations ranging from Butte to Merced County. Twenty-four cultivars including currently grown "standards" and experimental lines were planted in each of three maturity classes. Additional public and proprietary varieties were included in the tests of the very early and early off-station sites. Three tests, one of each maturity group, were conducted at the Rice Experiment Station in Biggs by the plant breeders H. Carnahan, C. 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 in a wide range of production areas. Varietal entries tested were prepared by the CCRRFI-USDA-UC rice genetics and breeding program as a cooperative effort.

Statewide average performance is reported here for each maturity group. The individual location averages will be reported in an agronomy progress report at a later date.

Summary of the Very Early Rice Vareity Tests (<90 days to 50% Heading at Biggs

Two of the uniform tests were located in cool areas (Natomas, Sacramento County; near Oakdale, Stanislaus County) and one in a warm area (Biggs, Butte County). The Stanislaus County location was inadvertantly overseeded with the field variety, S-201, and abandoned. Agronomic performance of the 24 cultivars are shown in Table 1a.

Table 1a shows the average yield (corrected to 14% moisture), grain moisture at harvest, days to 50% heading, height and lodging over all locations of the 24 lines tested including the check varieties M-9, and M-101. As in the previous two years several experimental short-grain types yielded near the top of this test. Entry No. 4 (first at Biggs and fourth at Sutter) also produced well in 1980 and 1981. The remaining pearls in the top ten yielding cultivars were tested in off-station trials for the first time in 1982. Table 1b shows similar data comparing only the commerically available varieties at the Sutter location. Calpearl, a proprietary variety, produced significantly higher yields than all other entries in the test at the Sacramento location, the only very early site where this cultivar was tested. NOTE: *This cultivar may be reclassified to a medium grain.* At Sacramento Calpearl was six days later than M-101, however, in warmer locations (see Table 2b) it was 2 days later.

The medium grain Entry No. 10 tested in the off-station trials for the first time in 1982, was the leading cultivar of this grain type. Entry No. 6 (5th), however, has proven to be a good yielding cultivar in three previous years. This medium grain is 6-7 days later to 50% heading than is M-101.

The cool 1982 season was a critical test for the *indica* or long grain types with respect to blanking. Entry No. 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 cultivars, including the proprietary variety California Belle (Table 1b), were lower in yield. Entry No. 21 is a possible candidate for release as a public long grain variety.

Summary of the Early Rice Variety Tests (90-99 Days to 50% Heading at Biggs

Table 2a gives the four location yield averages (14% moisture), grain moisture at harvest, seedling vigor, days to 50% heading, height and lodging for the 24 entries in the early maturity group including the check varieties M-101, S-201, L-201, M-9 and Calmochi 202. Table 2b shows the three location average for the public and proprietary varieties in the off-station tests. Calpearl, a proprietary variety, was the highest yielding entry, followed by M-201. NOTE: *Calpearl may be reclassified to a medium grain.* With the exception of the short grain entry, No. 35, the experimental cultivars producing the highest

yields were in the off-station tests for the first time. M-201, S-201 and L-201 were all in the top ten producers.

Long grain varieties produced generally lower yields than the short and medium grain types. Notable exceptions were entry No. 52 (fourth, Table 3) and L-201. Entry No. 52 may represent a possibility for varietal release in two to three years. California Belle (Table 2b), a proprietary long grain variety, ranked 27th of 28 cultivars and exhibited the most variability in heading of all long grains tested. Long grain cultivars will probably not be well adapted to cool areas. Flavor and cooking quality of the long grain types are being conducted by the Rice Experiment Station and will be of critical importance in determining public varietial releases of this grain type.

Summary of the Late Rice Variety Tests (>105 Days to 50% Heading at Biggs

Agronomic performance of the 24 late season rice cultivars is shown in Table 3, including yield (14% moisture), grain moisture at harvest, seedling vigor, plant height, lodging and days to 50% heading. M-302 ranked third and M-7 tenth in yield whereas M-401 was lower, undoubtedly as result of lodging. M-401 was nearly 100% lodged in all tests excepting in the Sutter Basin (Juisti) where it was lodged 50% and ranked 6th. One long grain cultivar, entry No. 80, tested off-station for the first time, was in the top ten. The medium grain entries Nos. 66 and 64 were both in the top ten and have outyielded M-7 in the previous two years.

Special Long Grain Variety Test

Long grain rice production would significantly increase the diversity of the California producer. The Rice Experiment Station is working extensively on this possibility. Therefore a special long grain yield evaluation test was conducted off-station in Yolo County identical to a test on the Rice Experiment Station. The results of this test indicated that several experimental long grains yielded at or near the 10,000 lbs/A level of the test standard, M-201. Long grain cultivars will be tested further in yield trials as well as for cooking characteristics and other quality factors.

Commerical Variety Tests

Three tests of public and proprietary varieties were conducted in Fresno, San Joaquin and Tulare Counties. The San Joaquin test was not harvested at the time of this writing, however, the results of the Fresno and Tulare County tests are shown in Tables 4 and 5, respectively. In both tests, Calpearl was the leading variety followed by M-201, the latter showing the greatest resistance to lodging of all varieties.

Cold Water Tolerance of Experimental Varieties

A test was conducted in the intake check of the Rice Research Facility to determine the relative tolerance to water temperature of the experimental lines tested in the regional trials. This test was in cooperation with Dr. N. Rutger, USDA - Davis and H. L. Carnahan, Rice Experiment Station, Biggs. All lines were planted in single 350 ft rows from the intake to the outlet of the cold water check. Rice yields were taken at 300 ft, 220 ft and 140 ft from the intake and are shown in grams/10ft2 in Table 6 for the warmest location (300 ft from the intake) and as a percent of the warmest location at the 220 ft and coldest 140 ft locations.

Objectives II and III

Assistance was provided to other projects and the results are given elsewhere in this annual report under projects RP-1, RP-2, RB-3 and RB-4. Several studies on the improvement of cultural practices were conducted by farm advisors under the umbrella of this project. These included, in addition to the Fresno, Tulare and San Joaquin Commercial Variety Tests; 1) a comparison of short and tall rice vareities with respect to N fertilization and grain-straw rates; 2) Zinc fertilization via seed coating; 3) Soil reclamation for rice; 4) disease and potassium interactions; 5) SRS seed soaking and 6) nitrogen-variety interactions.

Effect of Nitrogen Rate on Grain and Straw Production for S-6 and S-201 - Colusa and Glenn Counties

Studies were conducted to determine the relationship between grain and straw production at different nitrogen rates for tall (S-6) and short (S-201) stature rice varieties.

Results were similar to those reported in 1981. Grain yield for both S-201 and S-6 increased with increasing nitrogen, up to 150 lbs/acre, while nitrogen over this level decreased yield. Straw yield was also increased with increasing nitrogen. Other agronomic characteristics such as plant height, lodging, days to 50% heading, were also higher at higher nitrogen rates. The harvest index (proportion of upper plant that is grain) for each variety decreased with increasing nitrogen rates.

The short statured variety, S-201, had a higher harvest index than the tall S-6. In one trial, S-201 produced significantly less straw then S-6, while in another the difference was not significant.

Zinc Application Trial - Colusa County

Methods of zinc application (seed coating, seed treatment, zinc sulfate applied to the soil prior to flooding) were compared in a zinc deficient situation (1981) and a zinc sufficient situation (1982).

In the 1981 trial, zinc responses (growth and yield) in some plots were observed even though there were no significant differences overall. The 1981 trial also showed that soil applications of Zn (as $ZnSO_4$) at rates of 4 to 16 lbs. Zn/acre and zinc coated seed (2.8 lbs Zn/acre provided sufficient amounts of zinc, whereas, zinc treated seed (.10 lbs Zn/acre) did not provide enough of this nutrient.

The 1982 trial, established on a zinc sufficient site (Zn = 3.3 ppm) showed no yield or growth response to added zinc with any method of application. This demonstrates that zinc fertilizer does not provide any benefit when the nutrient is already in adequate supply.

Zinc coated seed resulted in delayed seedling growth becasue it was not soaked prior to seeding. This could be a problem for fields with slick seedbeds, windy conditions, tadpole shrimp or rice-seed midges.

Rice Soil Reclamation Trial - Colusa County

The effects of soil amendments (i.e. gypsum and ferric sulfate) on rice growth, yield and soil characteristics were studied in 1981 and 1982. Gypsum and ferric sulfate were applied to the soil at 3 equivalent rates and incorporated in the spring of 1981. A preplant soil analysis showed that the soil in question was alkaline (pH = 8.3), contained excess sodium (alkali, ESP - 24%) and calcium carbonate. The analysis also showed that 6 tons of gypsum/acre would be required to displace sodium in the upper 6 inches of soil and 12 tons/acre in the upper 12 inches. Since ferric sulfate and sulfuric acid react similarly, and since sulfuric acid is difficult to handle, ferric sulfate was used instead of sulfuric acid. The high cost of ferric sulfate makes it uneconomical to use at the rates needed.

Results from 1981 showed that rice yield was significantly increased by the addition of gypsum (all rates combined vs untreated). Yield was 13.4% higher in the 12 tons/ acre gypsum treatment than the untreated. Yield from the low and intermediate rate treatments of ferric sulfate were also higher than the untreated but were not significant. In 1982 (the second season after the amendments were applied), all treatments of gypsum and ferric sulfate yielded more than the untreated; these differences were not significant. Few changes in rice growth due to the amendments have been observed. Changes, if any, in soil characteristics are being analyzed now.

PUBLICATIONS OR REPORTS:

The following publications resulted from this project. Information from this project has been used in popular articles in magazines and newspapers and for radio reports, and was presented to rice growers at winter meetings and field days. Information from this project was also presented at the Rice Technical Working Group.

1. Hill, J. E., L. A. Post, M. L. Campbell, M. Canavari, S. C. Scardaci, B. L. Weir, C. M. Wick, J. F. Williams, S. D. Wright, D. Munier, S. W. Kite and Janning Kastler. Comprehensive Rice Research; Annual Report 1981, 50-62.

2. Williams, J. F., Producing Late Planted Rice in California, Proceedings, Nineteenth Rice Technical Working Group, 1982, 88-89.

CONCISE GENERAL SUMMARY OF CURRENT YEAR'S RESULTS:

In the regional rice variety testing program eleven variety trials were established in cooperation with CCRRFI, USDA and UC. Three maturity groups consisting of very early, early and late cultivars were tested in nine counties. One test was lost due to over-seeding in the very early maturity group. Proprietary varieties were included in the off-station tests.

Calpearl was the leading entry in the very early and early tests. M-201 was the second best performer in the early test. Several experimental cultivars show a yield potential to be competitive with or better than existing commerical varieties. Long grains were emphasized and strictly from yield, some experimental lines appear to be competitive with existing public varieties. California Belle, a proprietary long grain type, did not perform well in most trials.

Tests were conducted on several aspects of cultural management and the results are detailed in this report.

Table 1a. 1982 Very Early Rice Variety Trial - Two Location Summary

1982 entry no.	Cultivar description	Grain type[1]	Grain yield @ 14% H_2O (lbs/acre)	Grain moisture @ harvest (%)	Duncan's test[2]	Seedling vigor 1-3[3]	Days to 50% heading	Plant height (cm)	Lodging 1-99[4]
4	81-y-11A	S	9860	18.2	A	4.5	93	82	2
10	81-y-124	M	9560	20.1	AB	4.5	97	86	30
17	--	S	9540	21.2	AB	4.8	100	86	22
15	--	S	9490	20.5	ABC	4.7	100	89	2
6	81-y-9	M	9460	21.8	ABC	4.3	97	84	13
14	--	S	9400	21.1	ABC	5.0	100	87	9
18	--	M	9370	21.5	ABC	4.3	97	89	16
11	81-y-154	S	9310	20.3	ABCD	3.9	97	82	2
2	M-9	M	9250	21.5	ABCD	4.5	98	88	36
8	81-y-116	M	9220	18.3	ABCD	4.9	94	84	5
5	81-y-17	S	9220	18.1	ABCD	4.7	97	83	20
23	--	L	9210	18.2	ABCD	4.2	100	80	3
13	81-y-166	S	9170	21.1	ABCDE	4.5	101	83	5
1	M-101	M	9130	17.5	BCDE	4.8	90	85	10
19	--	M	9080	19.3	BCDE	4.8	92	91	26
16	--	S	9050	21.7	BCDE	4.3	101	84	7
9	81-y-120	M	9030	20.0	BCDE	5.0	98	90	1
20	81-y-294	L	8970	19.2	BCDEF	4.0	96	74	1
21	81-y-295	L	8820	20.3	CDEF	3.7	100	76	1
12	81-y-157	S	8620	17.2	DEF	4.4	92	79	14
7	--	M	8530	20.7	EF	5.0	95	92	25
3	--	M	8350	16.7	FG	5.0	96	88	5
24	--	L	7870	14.8	G	4.2	88	75	1
22	81-y-342	L	7750	18.3	G	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

[1]S = short; M = medium; L = long; WXY = waxy.
[2]Yield weights followed by the same letter do not differ at the 5% level of significance.
[3]Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence at 28 days after planting.
[4]Subjective rating of 1-99 where 1 = 1% lodging and 99 = 99% lodging.

Table 2a. 1982 Early Rice Variety Trial

1982 entry no.	Cultivar description	Grain type[1]	Grain yield @ 14% H_2O (lbs/acre)	Grain moisture @ harvest (%)	Duncan's test[2]	Seedling vigor 1-5[3]	Days to 50% heading	Plant height (cm)	Lodging 1-99[4]
30	M-201	M	9600	22.0	A	4.2	97	88	7
42	81-7-215	M	9550	21.2	AB	4.4	97	89	43
38	81-y-110	S	9390	20.7	ABC	4.3	95	89	43
52	81-y-339	L	9310	21.5	ABCD	4.0	99	82	2
31	S-201	S	9230	21.3	ABCD	4.3	98	87	40
35	81-y-41	S	9160	21.1	BCDE	4.4	96	89	55
48	L-201	L	9150	19.0	BCDE	3.9	96	103	37
40	81-y-196	M	9120	21.3	CDEF	4.3	98	88	34
46	--	S	9110	21.6	CDEF	4.5	99	87	37
41	81-y-213	M	9090	21.6	CDEF	4.3	98	88	32
34	81-y-935	M	9070	20.3	CDEFG	4.3	95	89	54
36	81-y-47	S	9020	18.4	CDEFG	4.3	96	88	59
39	81-y-170	S	8990	21.3	CDEFG	4.4	98	87	44
37	81-y-108	S	8940	18.3	DEFG	4.3	96	88	44
29	M-9	M	8870	20.8	DEFGH	4.3	95	92	62
45	--	M	8760	20.8	EFGH	4.3	99	95	40
43	--	M	8730	21.4	EFGH	4.5	98	94	39
44	--	M	8730	21.0	EFGH	4.4	98	92	59
47	--	S	8690	22.1	FGH	4.2	99	82	36
32	Calmochi 202	S	8680	23.1	FGH	4.2	99	91	29
33	--	S	8650	23.0	GH	4.2	100	93	30
49	81-y-288	L	8490	18.4	H	4.1	98	87	39
50	81-y-297	L	8490	19.0	H	4.2	97	84	24
51	81-y-299	L	8070	20.9	I	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

[1]S = short; M = medium; L = long; WXY = waxy.
[2]Yield weights followed by the same letter do not differ at the 5% level of significance.
[3]Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence at 28 days after planting.
[4]Subjective rating of 1-99 where 1 = 1% lodging and 99 = 99% lodging.

Table 2b. 1982 Three Location Summary of Public and Proprietary Varieties in the Early Test

1982 entry no.	Cultivar description	Grain type[1]	Grain yield @ 14% H_2O (lbs/acre)	Grain moisture @ harvest (%)	Seedling vigor 1-5[2]	Days to 50% heading	Plant height (cm)	Lodging 1-99[3]
53	Cal Pearl	S	10120	17.5	4.3	92	86	26
30	M-201	M	9590	22.9	4.0	99	90	9
48	L-201	L	9190	20.0	3.8	98	104	34
31	S-201	S	9010	22.4	4.1	100	86	48
29	M-9	M	8980	21.6	4.0	97	92	64
55	M-101	M	8590	19.8	4.3	90	89	55
32	Calmochi 202	S	8330	24.1	4.0	101	91	34
56	M-302	M	8230	22.2	4.0	103	89	41
54	Calif. Bell	L	7990	18.7	3.6	93	102	20
CV			5.7	6.0	8.2	1.1	4.2	41.8
LSD (.05)			400	1.0	0.3	1	3	14

[1]S = short; M = medium; L = long; WXY = waxy.
[2]Yield weights followed by the same letter do not differ at the 5% level of significance.
[3]Subjective rating of 1-99 where 1 = 1% lodging and 99 = 99% lodging.

Table 3. 1982 Late Rice Variety Trial

1982 entry no.	Cultivar description	Grain type[1]	Grain yield @ 14% H_2O (lbs/acre)	Grain moisture @ harvest (%)	Duncan's test[2]	Seedling vigor 1-5[3]	Days to 50% heading	Plant height (cm)	Lodging 1-99[4]
79	--	M	9450	23.0	A	3.8	105	96	21
75	81-y-411	M	9230	23.1	AB	3.8	105	96	53
62	M-302	M	9210	22.6	AB	4.0	102	95	43
-66	81-y-73	M	9120	23.0	AB	3.8	102	96	57
77	--	M	9120	22.8	AB	4.0	102	99	38
-80	81-y-341	L	9110	20.0	ABC	4.0	98	79	3
78	--	M	9100	23.6	ABC	4.1	105	94	37
-64	81-y-67	M	9070	23.1	ABCD	3.8	105	95	53
71	81-y-391	M	9050	23.8	ABCD	4.2	107	92	14
63	M-7	M	9020	23.8	ABCD	4.4	107	93	24
76	--	S	9010	23.1	ABCDE	4.0	102	92	51
72	81-y-398	M	8940	22.2	ABCDE	4.0	103	93	44
65	81-y-69	S	8820	24.7	ABCDEF	3.8	108	90	20
67	81-y-75	M	8710	22.4	ABCDEFG	3.8	103	99	70
81	81-y-417	L	8560	20.0	BCDEFG	3.9	101	91	16
73	81-y-400	M	8540	23.7	BCDEFG	4.2	106	95	32
74	81-y-407	M	8490	23.5	BCDEFG	4.1	105	97	51
83	81-y-429	L	8370	20.9	CDEFGH	4.1	103	88	7
70	81-y-222	S	8350	23.1	DEFGH	3.9	101	89	23
82	81-y-422	L	8280	20.8	EFGH	3.8	104	91	10
61	M-401	M	8140	22.8	FGH	4.0	105	97	83
69	81-y-79	M	8110	23.4	FGH	4.0	104	102	78
68	81-y-78	M	8050	23.1	GH	3.8	105	95	65
84	81-y-445	L	7710	22.6	H	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

[1]S = short; M = medium; L = long; WXY = waxy.
[2]Yield weights followed by the same letter do not differ at the 5% level of significance.
[3]Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence at 28 days after planting.
[4]Subjective rating of 1-99 where 1 = 1% lodging and 99 = 99% lodging.

Table 4. 1982 Commercial Rice Variety Test - Fresno County

Variety	Grain type[1]	Grain yield @ 14% H_2O (lbs/acre)	Grain moisture @ harvest (%)	Seedling vigor 1-5[2]	Days to 50% heading	Plant height (cm)	Lodging 1-99[3]
Cal Pearl	S	9290	15.7	1.5	90	83	94
M-201	M	8370	24.9	3.3	98	80	3
M-9 150 lb/A	M	8250	25.1	2.0	100	90	33
Cal Belle	L	8230	21.5	2.0	94	94	11
L-201	L	8220	21.0	1.3	101	93	28
M-9 100 lb/A	M	7990	25.2	2.9	99	89	20
Calmochi 202	Wxy	7830	25.8	3.1	99	84	15
M-101	M	7690	17.3	1.1	90	85	98
M-9 200 lb/A	M	7680	24.6	2.4	99	88	54
M-202	M	7610	19.5	1.9	100	83	85
S-201	S	7480	22.9	2.4	99	81	69
S-6	S	6240	24.8	1.8	97	107	97
GRAND MEAN		7910	22.3	2.1	97	88	50
CV		8.0	4.7	21.8	0.7	2.4	34.9
LSD (.05)		910	1.5	0.7	1	3	25

[1]S = short; M = medium; L = long; WXY = waxy.
[2]Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence at 28 days after planting.
[3]Subjective rating of 1-99 where 1 = 1% lodging and 99 = 99% lodging.

Table 5. 1982 Commercial Rice Variety Test - Tulare County

Variety	Grain type	Yield @ 14% H_2O (lbs/acre)	Grain moisture (%)	Days to 50% heading	Plant height inches	Lodging (%)
Cal Pearl	Short	7527	22.5	81	35.3	90
M-201	Medium	6870	32.8	86	36.5	13
M-7	Medium	6778	29.9	92	39.3	99
S-201	Short	6539	26.2	84	35.8	100
Cal Rose 76	Medium	6437	28.5	91	37.5	100
M-9	Medium	6044	26.3	86	40.3	99
M-302	Medium	6030	27.1	87	38.6	98
M-101	Medium	5815	29.8	81	35.3	76
L-201	Long	5644	24.7	90	43.5	99
Cal Belle	Long	4089	24.3	87	41.5	71
Grand Mean		6177	27.2	86	38.3	84.4
CV %		8.2	6.9	2.0	7.8	21.6
LSD (.05)		733	2.7	2.8	4.3	26.5
(.01)		990	3.7	3.8	5.9	35.8

Table 6. Effect of cold (58-62°F) irrigation water source on grain yield of the entries in the county yield trials grown at Davis in 1982.

Genotype	Yield			Days from planting to heading at Position A
	Position A[1]	Position B[2]	Position C[3]	
1	683	85	46	106
2	625	74	21	113
3	420	118	24	111
4	400	120	39	107
5	675	98	34	106
6	570	104	28	111
7	705	92	31	104
8	673	104	42	105
9	460	96	26	107
10	685	87	30	112
11	630	79	10	116
12	515	129	74	104
13	683	93	13	112
14	730	91	29	107
15	435	125	11	107
16	507	90	30	112
17	705	112	46	107
18	445	98	46	107
19	835	102	34	104
20	405	112	15	113
21	340	112	6	117
22	335	115	7	117
23	350	99	2	117
24	325	71	1	106
Cal Pearl 25	740	100	17	102
Cal Belle 26	245	104	2	104
29	445	94	6	112
30	440	94	2	113
31	460	96	2	113
32	425	64	1	115
33	305	57	1	116
34	534	75	4	107
35	673	64	1	115
36	478	73	2	113
37	693	69	6	110
38	282	82	1	114
39	633	37	1	115
40	396	46	.3	114
41	533	35	.4	119
42	--	71 grams	2.5 grams	117
43	490	24	.2	118
44	370	27	.2	118

Table 6. Effect of cold (58-62°F) irrigation water source on grain yield of the entries in the county yield trials grown at Davis in 1982. (Continued)

Genotype	Yield			Days from planting to heading at Position A
	Position A[1]	Position B[2]	Position C[3]	
45	454	23	.2	115
46	211	12	.5	113
47	277	10	.1	119
48	6.1	33	3	>120
49	350	23	.1	119
50	200	18	trace	119
51	215	5	trace	>120
52	24.4	13	0	>120
61	157	39	.9	118
62	214	27	3	119
63	174	20	.2	119
64	203	25	trace	118
65	73.2	54	trace	119
66	387	16	.4	115
67	132	37	trace	>120
68	190	31	.2	120
69	88.9	61	trace	119
70	5.2	154	trace	>120
71	23.2	44	trace	>120
72	41.2	10	.2	119
73	72.7	32	trace	>120
74	99.4	11	trace	119
75	11.6	6	trace	>120
76	17.9	28	trace	>120
77	78.9	14	trace	119
78	64.8	13	trace	119
79	20.4	13	trace	120
80	0.5	40	0	>120
81	0.6	21	0	>120
82	0.4	0	0	>120
83	1.6	25	0	>120
84	.8	0	0	>120

[1]g/10 feet[2], at 300 feet from cold water source.

[2]As percent of A, at 220 feet from cold water source.

[3]As percent of A, at 140 feet from cold water source.

Table 7. Soil Analysis for the Disease-Potassium Trials

Location	Soil Analysis pH	H_2SO_4-K	AmAc-K	P	Zn
Platter	4.6	145	80	16.1	1.4
Inderbitzen	5.0	130	60	13.6	4.3

Table 8. Rate and Timing of Potassium

	Platter (135 lbs N/A)	Inderbitzen (177 lbs N/A)
Main Plots		
Grower's N	6584	7903
Grower's N + 40	6917	7608
LSD (.05)	ns	ns
CV %	7.5	12
Subplots		
0 kcl	6101	7343
100 kcl pre	6610	7614
200 kcl pre	7113	8084
300 kcl pre	7168	7769
100 pre + 100 mt	6768	7898
200 kcl mt	6741	7825
LSD (.05)	285	ns
CV %	4.1	7.7

Table 9. The effect of SRS on rice yield.

	Mohammed	Giusti
SRS soak	8231	8950
Water soak	8220	9216
LSD (.05)	ns	ns
CV %	7.9	7.9

Table 10. The effect of SRS on rice stand.

	Plants surviving out of 200
Water soak	99
SRS soak	86
LSD (.05)	11.2
CV %	10.3