ANNUAL REPORT
COMPREHENSIVE RESEARCH ON RICE
January 1, 2023 – December 31, 2023

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

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LEVEL OF 2023 FUNDING: $174,797

OBJECTIVES AND EXPERIMENTS CONDUCTED BY LOCATION TO ACCOMPLISH OBJECTIVES:

Objective I

To evaluate newly developed cultivars and existing varieties in on-farm trials under grower conditions in cooperation with the Rice Experiment Station for the purpose of new variety development and release. Cultivar trials were conducted by zones at different locations in the Sacramento Valley. Several experimental cultivars were evaluated at each location within these groups to compare their performance in different environments of the rice-growing region.

Zone 1: Two uniform on-farm tests were conducted at the following locations; Wiley Ranch (Glenn County) and Dennis Ranch (Colusa County). The three-replication advanced tests at the different sites included 28 entries (sixteen commercial varieties and 12 advanced breeding lines). The two-replication advance tests included 14 entries (two commercial varieties and 12 breeding lines). The preliminary tests included 14 entries (3 commercial varieties and eleven preliminary breeding lines) in two replications.

Zone 2: Uniform tests were conducted at each of the following on-farm sites; Larrabee Ranch (Glenn/Butte County) and Schohr Ranch (South Butte County). One additional test consisting of a three-replication advanced, two-replication advanced, and two-replication preliminary, was conducted at the Rice Experiment Station (Butte County). The Three-replication advanced tests at each site included 28 entries (sixteen commercial varieties and twelve advanced breeding lines). The two-replication advance tests included fourteen entries (two commercial varieties and 12 breeding lines). The preliminary tests included 14 entries (three commercial varieties and 11 preliminary breeding lines) in two replications.

Zone 3: Uniform tests for each advanced and experimental lines were conducted at the following on-farm sites; Lauppe Ranch (south Sutter County), Del Rio Ranch (San Joaquin County), Gallagher Ranch (North Yolo County), and Rue Ranch (District 10, Yuba County). The test located at Rehman Ranch (South Yolo County) was lost because of a seeding overflight. The Del Rio Ranch is the only drill seeded test in the Statewide Variety Trials. The three-replication advanced tests at each site included 28 entries (16 commercial varieties and twelve advanced breeding lines). The two-replication advanced tests included fourteen entries (2 commercial varieties and 12 breeding lines). The two-replication preliminary tests included 14 entries (three commercial varieties as checks and 11 preliminary breeding lines).

Objective II

Extension-Based Equipment and Service: A centrally based equipment pool is maintained by Project RM-2 to provide services for planting, fertilizing, treatment applications, and harvesting of rice. The RM-2 project provides professional and technical assistance to UC researchers engaged in rice.

To provide professional and technical assistance to other UC research project leaders, we assisted in approximately 15 trials including the 9 variety tests. Equipment from the UCCE-based pool was used for planting and harvesting field experiments at different times during the season. The most heavily used piece of equipment was the ALMACO combine. Both rice combines were maintained according to the established maintenance schedules.

Objective III

Extension Education: We disseminated research-based information to California rice producers, dryer operators, millers, and the public through several winter grower meetings, field demonstrations, personal communication, and other printed material. We hosted the annual Rice Breeder's Field Tour where the RES breeders evaluate each test. The UCCE rice website is online and new materials are being added as they become available.

SUMMARY OF 2023 RESEARCH BY OBJECTIVE

Objective I - Rice Variety Evaluation

The uniform breeding line tests consisting of three-replication advance, two-replication advance, and two-replication preliminary were conducted throughout the major rice producing areas of California. The rice breeders at the RES conducted one additional test. Many of the experimental lines have been tested and screened in previous years with many lines were in advanced stages (2 or more years) of testing. The RES provided the seed for public varieties and experimental cultivars. No proprietary lines were tested.

The following analyses provides single-location yield summaries for the advanced and preliminary line tests, and one over-location agronomic performance summary for all locations. For quick reference, grain yields of selected commercially available varieties tested in all zone tests and across years and locations are summarized in Table 11. An Agronomy Progress Report, to be published early next year, will provide agronomic performance results for all entries in each experiment.

Zone 1 Tests: Sixteen commercial varieties and twelve advanced breeding lines were evaluated at two locations in three-replication advanced tests. Two commercial varieties and 12 breeding lines were evaluated in two two-replication advance tests. The two-replication preliminary tests evaluated three commercial varieties and 11 preliminary lines at both locations. Commercial varieties at each location included S102, S202, CA201, CH203, CM101, CM203, M105, M206, M209, M210, M211, M521, A202, CJ201, CT202, L207, and L208.

Yields in the three-replication advanced line tests averaged 8,310 lbs./ac across both locations with Colusa averaging 8,470 lbs./ac and Glenn averaging 8,140 lbs./ac (Table 2-3). In the three-replication advanced test, S202 was the highest yielding commercial variety at both Colusa and Glenn ranking 2nd and 1st overall. L207 and CJ201 were the next highest yielding commercial varieties at the Colusa location, and L208 and M211 were the next highest yielding commercial varieties at the Glenn location ranking third and eighth respectively (Table 3). The long grain entry 20Y1008 was the highest yielding advanced entry at the Colusa location with 9,520 lbs./ac, and the highest yielding advance line at the Glenn location was long grain

20Y2001. Average days to 50% heading was 80 days. Medium grain M211 was the latest variety at 84 days to reach 50% heading.

Zone 2 Tests: Sixteen commercial varieties and twelve advanced breeding lines were evaluated in three three-replication advanced tests, and two commercial and 12 breeding lines were evaluated in three two-replication advance tests. The two-replication preliminary tests evaluated three commercial varieties and 11 preliminary lines at each location. Commercial varieties at each location included S102, S202, CA201, CH203, CM101, CM203, M105, M206, M209, M210, M211, M521, A202, CJ201, CT202, L207, and L208.

Yields in the three-replication advanced line tests averaged 8,520 lbs./ac overall, 8,000 lbs./ac at the RES/Biggs, 8,590 lbs./ac at North Butte, and 8,970 lbs./ac at South Butte (Tables 4-6). Medium grain M11 was the highest yielding commercial entry at the RES with 9,030 lbs./ac. The short grain variety S202 was the highest yielding commercial variety at both North and South Butte location with 10,130 lbs./ac and 10,720 lbs./ac. Average days to 50% heading was 82 days. The commercial standard M206 averaged 81 days over the three locations.

Zone 3 Tests: Sixteen commercial varieties and twelve advanced breeding lines were compared in four three-replication advanced tests. Two commercial and 12 breeding lines were compared in four two-replication advance tests. The two-replication preliminary tests compared three commercial varieties and 11 preliminary lines at each location. Commercial varieties at each location included S102, S202, CA201, CH203, CM101, CM203, M105, M206, M209, M210, M211, M521, A202, CJ201, CT202, L207, and L208.

Grain yields in the three-replication advanced tests averaged 8,910 lbs./ac overall, 9,460 lbs./ac at North Yolo, 8,7400 lbs./ac at Sutter, 9,520 lbs./ac at San Joaquin, and 7,930 lbs./ac at Yuba (Tables 7-10). The South Yolo test was lost because of grower's seed contaminating the plots. The three highest yielding entries at each location: advance breeding line 19Y1018 (10,990 lbs./ac), commercial variety L208 (10,830 lbs./ac), and advance breeding line 20Y2001 (10,590 lbs./ac) at North Yolo; L208 (10,460 lbs./ac), 19Y1018 (10,270 lbs./ac), and 20Y2001 (10,020 lbs.ac) at Sutter; L208 (11,570 lbs./ac), A202 (10,750 lbs./ac), and 89Y235 (10,740 lbs.ac) at San Joaquin; and 20Y2001 (9,560 lbs./ac), S202 (9,110 lbs.ac), and 20Y1029 (8,700 lbs./ac) at Yuba. The average grain moisture at harvest was 15.3%, average lodging 61%, average days to 50% heading 92 days, average seedling vigor 4.8, and average plant height 105 cm.

Field preparation and planting was completed in late May with the Colusa test being planted May 26, 2023. The total rice acres increased this year because heavy rain fall for 2022-23 water year. Rice harvest was completed in late October with the Yuba test being harvested October 30, 2023.

Comparing the commercial standard medium grain entries over a 5-year period and across locations M211, M105, and M210 were the three highest yielding varieties (Table 11).

Objective II - Assistance to Other Projects

Both the UC SWECO and ALMACO plot combines were serviced and maintained during the harvest season. The rice equipment pool including a SWECO 324 plot combine, ALMACO SP40 plot combine, moisture meters, remote temperature stations, and other equipment were available for use along with personnel to provided technical assistance for numerous field experiments in 2023. Equipment from the UCCE-based pool was used at 15 sites at different times during the season. The ALMACO combine was used to harvest 8 variety tests, various trials around the rice growing region, and at the RES. The SWECO was used to harvest 700 plots at the Rice Experiment Station. Over 3,000 experimental plots were harvested in 2023. In addition to equipment assistance to other projects, labor from this project was used to plant, collect samples, and monitor growth in several field experiments. Assistance was also provided

to winter rice growers meetings, the Rice Field Day, the annual Rice Breeder's field tour, and to the several UC held Rice Research Board meetings.

The following extension education materials were designed, formatted, and printed with support from this project:

1. The Annual Agronomy Progress Report No. 336 "California Rice Varieties: Description and Performance Summary of the 2022 Multiyear Statewide Rice Variety Tests in California".
2. The UCCE website is online and is continually being updated.

Recent relevant Publications and Reports:

1. Espe, M. H. Yang, K.G. Cassman, N. Guilpart, H. Sharifi, and B.A. Linquist (2016) Estimating yield potential in temperate high-yielding, direct-seeded rice US rice production systems. Field Crops Research 193:123-132.
2. Espe, M, K.G. Cassman, H.Yang, N. Guilpart, P. Grassini, J. Van Wart, M.Anders, D. Beighley, D. Harrell; S. Linscombe, K. McKenzie, R. Mutters, L.T. Wilson, B.A. Linquist. (2016) Yield gap analysis of US rice production systems shows opportunities for improvement. Field Crops Research 196:276-283.
3. Sharifi, H., R.J. Hijmans, J.E. Hill, B. Linquist. (2017) Using stage-dependent temperature parameters to improve phenological model prediction accuracy in rice (Oryza sativa) models. Crop Science 57:444-453.
4. Espe, M.B., J.E. Hill, K. McKenzie, R.J. Hijmans, L.A. Espino, R. Mutters, M. Lienfelder-Miles; C. van Kessel, B.A. Linquist. (2017) Point stresses during reproductive stage rather than warming seasonal temperature determines yield in temperate rice. Global Change Biology 23:4386-4395 DOI: 10.1111/gcb.13719.

CONCISE GENERAL SUMMARY OF CURRENT YEAR'S RESULTS:

Eight on-farm rice variety evaluation tests were conducted throughout the rice growing region of California, with standard varieties being compared to preliminary and advanced lines across a range of environments, cultural practices, and disease levels. One similar test was conducted at the Rice Experiment Station in Biggs, CA. Average yield across varieties and locations in the three-replication advanced line tests was 8,370 lbs./acre. Heavy rain falls and above average water year in 2022-23 caused planting to be delayed however, planting was still completed in late May. All statewide tests were planted by May 26th. Several advanced lines in 2023 produced high yields as well as demonstrating important breeding goals aside from yield (disease resistance, grain quality, specialty types, etc.). Testing advanced and preliminary lines under a variety of conditions remains a critical aspect of releasing varieties adapted to changing cultural practices, markets, and pests.

Project RM-2 was involved in the planting, sampling, and harvesting of 15 trial sites throughout the rice growing area. This project was also involved in several educational activities including the winter rice grower meetings, the RES rice field day, promoting work through fact sheets and publications, and updating of the UCCE rice website.

Table 1. 2023 Nine Location Variety Trials

3 Rep Advanced Lines and Varieties

				Single Location Yields																	
		Over All Ave Grain Yield at 14% Moisture		Colusa		Glenn		Biggs/RES		North Butte		South Butte		North Yolo		Sutter		San Joaquin		Yuba	
Variety	Grain Type	**Yield**	**Rank**	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank
L-208	L	**9780**	**1**	9040	8	9680	3	8950	3	10000	3	10640	2	10830	2	10460	1	11570	1	8500	6
S-202	S	**9690**	**2**	9520	2	10570	1	8670	10	10130	1	10720	1	10400	5	9890	4	10280	7	9110	2
20Y2001	S	**9660**	**3**	9270	3	10070	2	8730	9	10080	2	10410	4	10590	3	10020	3	10000	12	9560	1
19Y1018	L	**9510**	**4**	8750	12	8940	5	8940	6	9760	4	10460	3	10990	1	10270	2	10180	9	8420	7
20Y1029	L	**9450**	**5**	8930	9	8760	12	9410	1	9560	5	9940	7	10190	8	9840	5	9820	13	8700	3
L-207	L	**9330**	**6**	9250	4	8400	14	8890	7	9380	8	10220	5	10250	7	9170	10	10710	4	8600	4
20Y1008	L	**9060**	**7**	9520	1	8850	7	8410	14	9470	6	10130	6	9820	12	8680	18	10210	8	7760	20
CM-203	S	**8950**	**8**	8610	14	8840	10	8200	16	9450	7	9730	8	10190	9	9340	8	9710	14	7970	17
M-211	M	**8920**	**9**	8470	16	8850	8	9030	2	8500	17	9100	13	9880	11	9110	12	9500	16	7580	21
M-209	M	**8830**	**10**	8760	11	8820	11	8940	5	8360	20	8960	15	9670	16	8870	14	8900	22	7980	16
18Y3018	M	**8770**	**11**	9100	7	8060	16	8730	8	8750	13	9300	10	9130	20	8470	21	9330	19	8130	14
19Y3035	M	**8700**	**12**	8780	10	8840	9	8490	13	8810	12	8410	21	9800	13	8830	15	8510	23	8210	13
20Y2124	S	**8700**	**13**	8320	20	7360	23	8950	4	7820	23	9570	9	8920	21	8790	16	10170	10	7850	19
16Y2028	S	**8630**	**14**	9170	5	7520	21	7760	20	8300	21	8860	17	10490	4	9740	6	10480	5	7080	24
18Y3102	M	**8630**	**15**	8320	19	8850	6	8090	18	8430	19	9280	11	9480	18	9020	13	9140	20	8120	15
M-206	M	**8600**	**16**	7920	23	7950	17	8150	17	9080	10	8890	16	10010	10	8450	22	9490	17	8320	9
CJ-201	L	**8590**	**17**	9150	6	7560	20	8620	11	8610	15	8560	19	9700	14	8690	17	8050	25	8270	11
M-521	M	**8530**	**18**	8470	17	7730	19	8520	12	9000	11	8410	22	9500	17	9140	11	7670	26	8410	8
M-105	M	**8530**	**19**	8390	18	8210	15	7910	19	8530	16	9000	14	9690	15	9400	7	8360	24	8520	5
M-210	M	**8510**	**20**	8220	21	7890	18	8320	15	8480	18	8340	23	9430	19	8670	19	9370	18	8300	10
20Y4033	M	**8500**	**21**	8640	13	8990	4	7280	23	9080	9	9220	12	8770	22	8580	20	10170	11	8220	12
A-202	L	**8330**	**22**	8510	15	8510	13	6400	25	8750	14	8420	20	10310	6	9250	9	10750	2	7900	18
S-102	S	**7900**	**23**	7930	22	6730	25	7620	21	7940	22	8780	18	8390	24	7400	24	9550	15	7300	23
18Y2070	M	**7790**	**24**	7770	24	7400	22	7420	22	7290	25	7880	24	8390	23	7260	26	10420	6	6990	25
CM-101	S	**7360**	**25**	7770	25	6760	24	6460	24	7540	24	7370	26	8000	25	7600	23	8940	21	7550	22
89Y235	M	**7160**	**26**	7420	26	6650	26	6030	26	6870	27	7680	25	7700	27	6990	27	10740	3	6600	26
CA-201	S	**6600**	**27**	7120	27	6360	27	5370	28	6990	26	6950	27	7880	26	7290	25	7480	27	6440	27
CT-202	L	**5820**	**28**	6100	28	4880	28	5640	27	5650	28	5860	28	6570	28	5360	28	7160	28	5540	28
MEAN		**8530**		8470		8140		8000		8590		8970		9460		8740		9520		7930	
5%LSD		**493**		738		1103		973		860		901		774		577		1295		719	
CV		**12**		5		8		13		6		6		5		4		8		6	

2 Rep Advanced Lines and Varieties

20Y2008	S	**9728**	**1**	9310	1	10320	1	8960	1	9590	2	10480	1	10230	2	9720	2	11520	1	8970	1
21Y2031	M	**9639**	**2**	8720	6	9970	2	_	13	10120	1	9480	4	11580	1	9620	3	10790	3	6820	12
22Y1071	L	**8977**	**3**	8340	10	7550	10	8780	3	8630	7	9640	2	9940	4	10530	1	9350	7	8420	3
22Y1057	M	**8750**	**4**	8500	7	8520	6	8700	4	8080	11	9070	5	9520	6	7580	11	10860	2	7910	7
19Y3128	M	**8715**	**5**	8820	5	7610	9	8850	2	8590	8	9500	3	8750	11	9310	6	8970	10	7750	9
22Y2119	L	**8653**	**6**	8930	3	8620	5	7450	11	9320	4	8290	11	9450	7	9370	4	10320	4	8520	2
19Y3105	M	**8618**	**7**	8970	2	7980	7	8400	6	8470	9	8850	8	9680	5	8340	9	9410	6	7910	6
CH-203	S	**8528**	**8**	8490	8	8810	3	7520	10	9310	5	8900	7	9190	8	9320	5	9270	8	7990	4
M-521	M	**8431**	**9**	8900	4	8790	4	8110	7	6820	14	8340	10	10100	3	7040	12	7970	12	7980	5
19Y4048	S	**8243**	**10**	8050	12	7770	8	8590	5	8270	10	8250	12	9030	10	8700	7	7680	13	7140	11
22Y3087	S	**8191**	**11**	8350	9	6280	13	7620	8	7770	12	8950	6	9050	9	8440	8	9660	5	7170	10
22Y4182	M	**7861**	**12**	8140	11	6990	12	7610	9	9280	6	8430	9	8660	12	8140	10	7560	14	7790	8
22Y1109	L	**7112**	**13**	7580	13	5620	14	_	14	9330	3	7690	14	7920	14	6380	14	8080	11	6790	13
22Y1107	L	**6776**	**14**	7040	14	7180	11	5480	12	7570	13	7960	13	8100	13	6410	13	9030	9	4810	14
MEAN		**8370**		8440		8000		7790		8650		8840		9370		8490		9320		7530	
5%LSD		**685**		801		1813		1198		1405		1046		1266		1787		1724		1767	
CV		**13**		4		11		13		8		6		6		10		9		11	

2 Rep Preliminary Lines and Varieties

20Y1010	L	**10020**	**1**	10300	1	9220	6	9370	5	10010	3	10820	1	11530	3	10290	1	10120	4	8990	3
S-202	S	**9890**	**2**	9590	3	10480	1	9120	7	11500	1	10820	2	10780	4	10220	2	10070	6	9130	2
22Y1018	L	**9800**	**3**	10020	2	9410	4	9390	4	9890	5	10490	5	12000	1	10010	3	10470	2	8530	6
20Y1009	L	**9620**	**4**	9060	5	9350	5	10970	1	9660	6	10760	3	10640	5	9410	6	10180	3	8660	4
20Y2072	S	**9620**	**5**	8870	7	9490	2	9020	8	9990	4	10380	6	10370	7	9450	5	11560	1	8350	7
22Y1028	L	**9560**	**6**	9320	4	8950	8	8040	18	10020	2	10750	4	11580	2	9560	4	9000	10	9820	1
22Y3178	M	**9210**	**7**	_	_	_	_	8250	15	8990	10	9530	8	_	_	_	_	_	_	_	_
22Y3173	M	**9170**	**8**	_	_	_	_	9530	3	9500	7	9330	10	_	_	_	_	_	_	_	_
CM-203	S	**9060**	**9**	8850	8	8650	10	7890	21	9410	8	9960	7	10480	6	9130	7	10080	5	8620	5
22Y3017	M	**8960**	**10**	_	_	_	_	8500	11	_	_	_	_	10330	8	9110	8	9360	9	8040	10
22Y3124	M	**8950**	**11**	9050	6	9190	7	8750	10	_	_	_	_	_	_	_	_	_	_	_	_
22Y3195	M	**8930**	**12**	8100	13	8110	11	9660	2	_	_	_	_	_	_	_	_	_	_	_	_
22Y3136	M	**8810**	**13**	8480	11	9490	3	8470	12	_	_	_	_	_	_	_	_	_	_	_	_
22Y3073	M	**8790**	**14**	_	_	_	_	9220	6	8980	11	8950	12	_	_	_	_	_	_	_	_
M-211	M	**8690**	**15**	_	_	_	_	7880	22	8610	13	9410	9	_	_	_	_	_	_	_	_
22Y3111	M	**8680**	**16**	_	_	_	_	8260	14	_	_	_	_	8940	12	8930	10	10020	7	7960	11
M-210	M	**8670**	**17**	7860	14	8840	9	8920	9	_	_	_	_	9510	11	8940	9	9490	8	8350	8
22Y3043	M	**8470**	**18**	8650	9	7410	14	8080	17	_	_	_	_	_	_	_	_	_	_	_	_
22Y3192	M	**8410**	**19**	_	_	_	_	8030	19	9010	9	8850	13	_	_	_	_	_	_	_	_
22Y2159	S	**8400**	**20**	8480	10	7590	13	8330	13	8000	14	9310	11	8240	14	7980	13	8580	12	8230	9
22Y3130	M	**8360**	**21**	_	_	_	_	8030	20	_	_	_	_	10320	9	8010	12	7940	13	7550	12
22Y3144	M	**8090**	**22**	_	_	_	_	7570	23	_	_	_	_	9560	10	8070	11	8810	11	7380	13
22P4074	M	**7950**	**23**	8190	12	8020	12	7350	25	_	_	_	_	_	_	_	_	_	_	_	_
22Y3162	M	**7870**	**24**	_	_	_	_	8250	16	8890	12	8710	14	_	_	_	_	_	_	_	_
22Y3198	M	**7810**	**25**	_	_	_	_	7440	24	_	_	_	_	8850	13	6920	14	7630	14	5530	14
		0																			
MEAN		**9000**		8920		8870		8590		9460		9860		10220		9000		9520		8360	
5%LSD		**746**		644		1408		1630		867		1122		1242		1149		1479		1290	
CV		**12**		3		7		9		4		5		6		6		7		7	

S = short; M = medium; L = long.

Table 2. 2023 Colusa Zone 1 Variety Trials

3 Rep Advanced Lines and Varieties

Variety	Grain Type	Grain Yield at 14% Moisture lbs/ac Yield	Rank	Grain Moisture at Harvest (%)	Seedling Vigor (1-5)	Days to 50% Heading	Lodging (0-100)	Plant Height (cm)
20Y1008	L	9520	1	16.3	4.8	78	12	109
S-202	S	9520	2	16.5	4.8	76	33	96
20Y2001	S	9270	3	16.1	4.8	75	2	94
L-207	L	9250	4	14.6	4.8	77	0	110
16Y2028	S	9170	5	16.5	4.7	78	77	108
CJ-201	L	9150	6	15.6	4.8	79	0	99
18Y3018	M	9100	7	17.1	4.8	78	7	106
L-208	L	9040	8	15.2	4.9	74	0	91
20Y1029	L	8930	9	16.2	4.8	77	35	107
19Y3035	M	8780	10	16.7	4.8	73	0	101
M-209	M	8760	11	17.1	4.8	78	0	99
19Y1018	L	8750	12	16.0	4.8	74	2	95
20Y4033	M	8640	13	17.3	4.7	74	63	98
CM-203	S	8610	14	18.2	4.7	77	37	104
A-202	L	8510	15	16.4	4.8	78	2	102
M-211	M	8470	16	16.6	4.8	79	2	109
M-521	M	8470	17	16.4	4.8	74	13	103
M-105	M	8390	18	16.7	4.8	73	0	98
18Y3102	M	8320	19	17.2	4.7	74	2	98
20Y2124	S	8320	20	17.0	4.7	78	10	108
M-210	M	8220	21	16.7	4.8	73	0	99
S-102	S	7930	22	16.1	4.7	73	7	103
M-206	M	7920	23	16.9	4.8	74	3	100
18Y2070	M	7770	24	17.4	4.9	77	20	114
CM-101	S	7770	25	16.5	4.5	77	2	104
89Y235	M	7420	26	16.8	4.7	77	77	104
CA-201	S	7120	27	14.6	4.7	76	27	95
CT-202	L	6100	28	15.0	4.8	79	8	102
MEAN		8470		16.4	4.8	76	16	102
5%LSD		738		0.8	0.1	3	30	6
CV		5		3.0	1.2	2	117	4

2 Rep Advanced Lines and Varieties

20Y2008	S	9310	1	16.3	4.9	73	0	106
19Y3105	M	8970	2	17.2	4.7	80	50	114
22Y2119	L	8930	3	16.1	4.8	75	0	97
M-521	M	8900	4	16.5	4.8	73	0	103
19Y3128	M	8820	5	16.7	4.7	79	30	99
21Y2031	M	8720	6	15.9	4.8	74	0	96
22Y1057	M	8500	7	15.3	4.8	80	30	119
CH-203	S	8490	8	16.7	4.9	76	3	95
22Y3087	S	8350	9	16.7	4.8	74	50	113
22Y1071	L	8340	10	16.5	4.8	77	65	115
22Y4182	M	8140	11	16.5	4.8	74	0	101
19Y4048	S	8050	12	16.6	4.8	77	20	104
22Y1109	L	7580	13	13.3	4.8	79	8	111
22Y1107	L	7040	14	16.6	4.9	77	98	107
MEAN		8440		16.2	4.8	76	25	105
5%LSD		801		1.1	0.1	3	53	9
CV		4		3.2	0.9	2	98	4

2 Rep Preliminary Lines and Varieties

20Y1010	L	10300	1	15.9	4.8	74	0	99
22Y1018	L	10020	2	17.1	4.8	75	8	107
S-202	S	9590	3	16.0	4.8	75	0	98
22Y1028	L	9320	4	15.6	4.8	76	0	103
20Y1009	L	9060	5	14.1	4.8	74	0	103
22Y3124	M	9050	6	17.4	4.8	76	0	105
20Y2072	S	8870	7	16.8	4.8	78	25	109
CM-203	S	8850	8	17.6	4.7	76	0	111
22Y3043	M	8650	9	16.5	4.8	78	0	109
22Y2159	S	8480	10	16.8	4.8	76	3	98
22Y3136	M	8480	11	17.1	4.7	79	35	109
22P4074	M	8190	12	16.3	4.8	73	0	100
22Y3195	M	8100	13	17.3	4.7	78	20	110
M-210	M	7860	14	16.8	4.9	73	0	101
MEAN		8920		16.5	4.8	75	6	104
5%LSD		644		1.0	0.1	3	36	7
CV		3		2.7	1.2	2	257	3

S = short; M = medium; L = long.
Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence.
Subjective rating of 0-100 where 0 = none and 100 = completely lodged.

Table 3. 2023 Glenn Zone 1 Variety Trials

Variety	Grain Type	Grain Yield at 14% Moisture lbs/ac Yield	Rank	Grain Moisture at Harvest (%)	Seedling Vigor (1-5)	Days to 50% Heading	Lodging (0-100)	Plant Height (cm)
3 Rep Advanced Lines and Varieties								
S-202	S	10570	1	15.3	4.7	81	87	95
20Y2001	S	10070	2	16.0	4.8	80	98	98
L-208	L	9680	3	12.4	4.8	80	2	91
20Y4033	M	8990	4	16.6	4.8	82	98	105
19Y1018	L	8940	5	12.9	4.8	80	0	93
18Y3102	M	8850	6	15.0	4.8	83	3	103
20Y1008	L	8850	7	13.1	4.8	82	25	103
M-211	M	8850	8	13.8	4.8	88	18	105
19Y3035	M	8840	9	16.0	4.8	82	67	104
CM-203	S	8840	10	15.3	4.8	81	85	104
M-209	M	8820	11	14.4	4.8	88	3	101
20Y1029	L	8760	12	13.2	4.8	80	0	100
A-202	L	8510	13	15.0	4.8	83	10	99
L-207	L	8400	14	12.6	4.9	82	10	101
M-105	M	8210	15	13.1	4.8	80	23	102
18Y3018	M	8060	16	17.0	4.8	88	65	108
M-206	M	7950	17	14.4	4.8	83	57	105
M-210	M	7890	18	14.5	4.9	82	70	99
M-521	M	7730	19	15.6	4.9	82	85	99
CJ-201	L	7560	20	13.2	4.8	88	5	92
16Y2028	S	7520	21	13.4	4.8	81	77	108
18Y2070	M	7400	22	16.4	4.8	86	93	113
20Y2124	S	7360	23	16.5	4.8	83	98	106
CM-101	S	6760	24	14.4	4.8	80	95	95
S-102	S	6730	25	14.4	4.8	82	67	104
89Y235	M	6650	26	12.9	4.7	80	95	103
CA-201	S	6360	27	12.6	4.8	81	85	93
CT-202	L	4880	28	13.4	4.8	88	0	90
MEAN		8140		14.4	4.8	83	51	101
5%LSD		1103		2.2	0.1	2	30	6
CV		8		9.5	0.9	2	37	4
2 Rep Advanced Lines and Varieties								
20Y2008	S	10320	1	16.6	4.9	81	100	101
21Y2031	M	9970	2	15.7	4.9	81	100	105
CH-203	S	8810	3	16.6	4.8	84	98	91
M-521	M	8790	4	14.4	4.8	82	50	101
22Y2119	L	8620	5	15.4	4.8	83	90	92
22Y1057	M	8520	6	11.0	4.8	83	0	110
19Y3105	M	7980	7	15.0	4.8	89	25	120
19Y4048	S	7770	8	11.6	4.8	84	5	100
19Y3128	M	7610	9	15.7	4.8	87	10	108
22Y1071	L	7550	10	12.0	4.8	82	3	107
22Y1107	L	7180	11	17.3	5.0	85	98	107
22Y4182	M	6990	12	14.4	4.8	82	35	103
22Y3087	S	6280	13	11.2	4.8	83	5	115
22Y1109	L	5620	14	7.1	4.9	83	0	105
MEAN		8000		13.9	4.8	83	44	104
5%LSD		1813		3.2	0.1	1	39	7
CV		11		10.8	0.5	1	41	3
2 Rep Preliminary Lines and Varieties								
S-202	S	10480	1	15.5	4.7	81	93	97
20Y2072	S	9490	2	16.5	4.9	85	95	110
22Y3136	M	9490	3	17.1	4.8	90	93	113
22Y1018	L	9410	4	12.9	4.8	82	5	108
20Y1009	L	9350	5	13.1	4.9	80	0	98
20Y1010	L	9220	6	13.2	4.8	80	0	96
22Y3124	M	9190	7	17.4	4.8	86	80	107
22Y1028	L	8950	8	14.0	4.7	80	0	99
M-210	M	8840	9	15.0	4.8	82	45	99
CM-203	S	8650	10	15.5	4.8	82	78	107
22Y3195	M	8110	11	16.8	4.8	87	3	113
22P4074	M	8020	12	12.0	4.8	80	50	100
22Y2159	S	7590	13	13.9	4.9	84	70	110
22Y3043	M	7410	14	12.7	4.8	85	20	114
MEAN		8870		14.7	4.8	83	45	105
5%LSD		1408		2.8	0.1	1	42	7
CV		7		8.9	0.9	1	43	3

S = short; M = medium; L = long.
Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence.
Subjective rating of 0-100 where 0 = none and 100 = completely lodged.

Table 4. 2023 RES Zone 2 Rice Variety Trials

Variety	Grain Type	Grain Yield at 14% Moisture lbs/ac Yield	Rank	Grain Moisture at Harvest (%)	Seedling Vigor (1-5)	Days to 50% Heading	Lodging (0-100)	Plant Height (cm)
3 Rep Advanced Lines and Varieties								
20Y1029	L	9410	1	18.0	4.9	80	26	114
M-211	M	9030	2	22.5	4.9	84	7	112
20Y2124	S	8950	4	20.4	4.9	80	52	110
L-208	L	8950	3	19.4	4.8	78	3	106
19Y1018	L	8940	6	18.7	5.0	77	12	108
M-209	M	8940	5	22.0	4.8	84	0	107
L-207	L	8890	7	18.1	4.9	81	14	119
18Y3018	M	8730	8	22.7	4.8	82	7	106
20Y2001	S	8730	9	20.1	5.0	77	29	103
S-202	S	8670	10	19.6	4.9	76	16	99
CJ-201	L	8620	11	16.9	5.0	82	2	107
M-521	M	8520	12	20.8	4.9	77	17	108
19Y3035	M	8490	13	20.2	4.9	76	28	106
20Y1008	L	8410	14	18.4	4.8	80	39	117
M-210	M	8320	15	20.8	4.9	77	33	106
CM-203	S	8200	16	20.1	4.9	77	28	111
M-206	M	8150	17	21.0	4.9	77	38	107
18Y3102	M	8090	18	19.7	4.9	79	20	107
M-105	M	7910	19	20.5	4.8	75	31	109
16Y2028	S	7760	20	18.8	5.0	78	81	114
S-102	S	7620	21	14.4	4.9	73	41	105
18Y2070	M	7420	22	21.8	5.0	83	27	119
20Y4033	M	7280	23	23.6	4.9	77	71	109
CM-101	S	6460	24	16.8	4.9	75	43	98
A-202	L	6400	25	20.7	4.9	81	83	118
89Y235	M	6030	26	19.3	4.9	78	97	110
CT-202	L	5640	27	16.2	5.0	80	10	102
CA-201	S	5370	28	16.1	4.9	78	27	99
MEAN		8000		19.5	4.9	79	31	108
5%LSD		973		1.7	0.1	1	25	4
CV		13		9.1	1.2	2	85	4
2 Rep Advanced Lines and Varieties								
20Y2008	S	8960	1	19.7	5.0	75	48	103
19Y3128	M	8850	2	21.5	4.9	84	8	113
22Y1071	L	8780	3	20.6	5.0	82	51	121
22Y1057	L	8700	4	18.0	5.0	82	1	121
19Y4048	M	8590	5	22.0	4.9	80	14	104
19Y3105	M	8400	6	21.9	4.9	83	15	120
M-521	M	8110	7	22.1	4.9	77	40	108
22Y3087	M	7620	8	19.7	4.9	78	26	114
22Y4182	M	7610	9	20.6	4.8	77	33	106
S-102	S	7580	10	15.7	5.0	73	42	103
CH-203	S	7520	11	19.7	5.0	81	8	103
22Y2119	S	7450	12	18.5	5.0	81	27	94
22Y1107	L	5480	13	21.5	5.0	82	75	109
CT-202	L	5330	14	16.5	5.0	81	12	109
MEAN		7790		19.9	4.9	80	29	109
5%LSD		1198		2.1	0.1	2	34	6
CV		13		9.4	1.2	2	105	5
2 Rep Preliminary Lines and Varieties								
20Y1009	L	10970	1	17.0	4.8	77	35	112
22Y3195	M	9660	2	22.0	4.8	83	0	114
22Y3173	M	9530	3	20.7	4.8	85	0	113
22Y1018	L	9390	4	17.8	4.9	80	20	119
20Y1010	L	9370	5	18.6	4.9	77	30	114
22Y3073	M	9220	6	24.0	4.8	83	0	116
S-202	S	9120	7	20.7	4.9	79	0	96
20Y2072	S	9020	8	20.4	5.0	84	0	103
M-210	M	8920	9	20.1	4.8	77	15	108
22Y3124	M	8750	10	22.1	4.8	80	0	114
22Y3017	M	8500	11	20.1	4.8	79	30	111
22Y3136	M	8470	12	22.7	4.8	85	0	110
22Y2159	S	8330	13	20.2	4.8	79	20	113
22Y3111	M	8260	14	20.9	4.8	77	15	109
22Y3178	M	8250	15	24.1	4.8	82	0	111
22Y3162	M	8250	16	21.1	4.8	75	35	109
22Y3043	M	8080	17	18.8	4.8	81	0	108
22Y1028	L	8040	18	17.5	4.9	79	20	107
22Y3192	M	8030	19	18.0	4.8	77	65	109
22Y3130	M	8030	20	18.7	4.9	77	0	112
CM-203	S	7890	21	19.4	4.9	77	0	110
M-211	M	7880	22	22.7	4.9	84	0	115
22Y3144	M	7570	23	20.4	4.9	78	75	114
22Y3198	M	7440	24	21.5	4.9	81	20	115
22P4074	M	7350	25	18.9	4.8	77	50	109
MEAN		8590		20.3	4.8	79	17	110
5%LSD		1630		2.5	0.1	2	56	5
CV		9		6.1	0.9	1	160	2

S = short; M = medium; L = long.
Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence.
Subjective rating of 0-100 where 0 = none and 100 = completely lodged.

Table 5. 2023 N. Butte Zone 2 Rice Variety Trials

3 Rep Advanced Lines and Varieties

Variety	Grain Type	Grain Yield at 14% Moisture lbs/ac Yield	Rank	Grain Moisture at Harvest (%)	Seedling Vigor (1-5)	Days to 50% Heading	Lodging (0-100)	Plant Height (cm)
S-202	S	10130	1	17.3	4.8	80	100	95
20Y2001	S	10080	2	17.5	4.8	80	93	93
L-208	L	10000	3	16.3	4.8	80	2	99
19Y1018	L	9760	4	15.8	4.8	79	0	96
20Y1029	L	9560	5	15.4	4.8	80	2	107
20Y1008	L	9470	6	16.7	4.7	83	93	104
CM-203	S	9450	7	17.4	4.8	80	100	104
L-207	L	9380	8	16.3	4.9	82	5	111
20Y4033	M	9080	9	17.7	4.8	82	100	99
M-206	M	9080	10	17.3	4.7	82	38	98
M-521	M	9000	11	17.0	4.8	82	43	100
19Y3035	M	8810	12	17.2	4.8	82	13	100
18Y3018	M	8750	13	18.6	4.8	88	5	105
A-202	L	8750	14	16.9	4.8	86	13	104
CJ-201	L	8610	15	15.0	4.8	86	37	95
M-105	M	8530	16	16.9	4.8	80	80	100
M-211	M	8500	17	17.9	4.8	88	23	104
M-210	M	8480	18	17.2	4.8	83	78	98
18Y3102	M	8430	19	17.4	4.8	83	5	102
M-209	M	8360	20	17.9	4.8	88	23	106
16Y2028	S	8300	21	16.8	4.8	83	70	107
S-102	S	7940	22	14.6	4.8	78	95	96
20Y2124	S	7820	23	17.1	4.9	82	100	102
CM-101	S	7540	24	15.3	4.8	79	98	97
18Y2070	M	7290	25	18.1	4.8	86	78	112
CA-201	S	6990	26	14.4	4.8	82	100	94
89Y235	M	6870	27	16.9	4.7	81	100	98
CT-202	L	5650	28	15.5	4.9	86	8	94
MEAN		8590		16.7	4.8	83	54	101
5%LSD		860		0.9	0.1	1	34	5
CV		6		3.3	1.3	1	39	3
2 Rep Advanced Lines and Varieties								
21Y2031	M	10120	1	17.1	4.9	80	88	94
20Y2008	S	9590	2	17.2	4.8	81	75	99
22Y2119	L	9330	3	16.6	4.8	83	50	88
22Y3087	S	9320	4	16.7	4.8	83	35	110
M-521	M	9310	5	16.9	4.8	82	25	96
CH-203	S	9280	6	17.4	4.9	85	35	93
22Y1071	L	8630	7	15.7	4.9	83	3	109
19Y3128	M	8590	8	17.7	4.8	88	50	108
19Y3105	M	8470	9	17.5	4.8	87	20	108
19Y4048	S	8270	10	17.1	4.8	86	0	95
22Y1057	M	8080	11	15.9	4.8	82	0	105
22Y4182	M	7770	12	17.2	4.7	82	45	99
22Y1107	L	7570	13	16.9	5.0	85	100	104
22Y1109	L	6820	14	11.9	4.8	80	0	103
MEAN		8650		16.6	4.8	83	38	101
5%LSD		1405		0.6	0.1	2	43	6
CV		8		1.8	1.0	1	54	3
2 Rep Preliminary Lines and Varieties								
S-202	S	11500	1	17.0	4.8	80	75	96
22Y1028	L	10020	2	16.4	4.8	78	0	96
20Y1010	L	10010	3	15.6	4.8	79	10	96
20Y2072	S	9990	4	17.4	4.8	84	70	101
22Y1018	L	9890	5	15.8	4.8	82	28	109
20Y1009	L	9660	6	15.2	4.8	79	5	95
22Y3173	M	9500	7	18.2	4.8	88	0	103
CM-203	S	9410	8	16.6	4.8	80	98	100
22Y3192	M	9010	9	16.9	4.8	84	95	100
22Y3178	M	8990	10	18.7	4.8	83	15	103
22Y3073	M	8980	11	18.0	4.8	88	0	104
22Y3162	M	8890	12	17.5	4.8	81	100	97
M-211	M	8610	13	17.5	4.9	86	0	101
22Y2159	S	8000	14	17.1	4.7	83	50	100
MEAN		9460		17.0	4.8	82	39	100
5%LSD		867		1.1	0.1	3	35	8
CV		4		3.0	1.0	2	42	4

S = short; M = medium; L = long.
Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence.
Subjective rating of 0-100 where 0 = none and 100 = completely lodged.

Table 6. 2023 S. Butte Zone 2 Variety Trials

3 Rep Advanced Lines and Varieties

Variety	Grain Type	Grain Yield at 14% Moisture lbs/ac Yield	Rank	Grain Moisture at Harvest (%)	Seedling Vigor (1-5)	Days to 50% Heading	Lodging (0-100)	Plant Height (cm)
S-202	S	10720	1	16.7	4.6	83	8	105
L-208	L	10640	2	17.1	4.8	83	0	92
19Y1018	L	10460	3	16.8	4.8	82	0	98
20Y2001	S	10410	4	17.8	4.8	83	28	94
L-207	L	10220	5	17.0	4.9	87	13	106
20Y1008	L	10130	6	17.8	4.7	85	20	107
20Y1029	L	9940	7	16.8	4.8	83	0	103
CM-203	S	9730	8	18.4	4.8	85	13	104
20Y2124	S	9570	9	18.8	4.7	85	78	108
18Y3018	M	9300	10	19.6	4.7	90	2	97
18Y3102	M	9280	11	19.4	4.7	86	0	105
20Y4033	M	9220	12	19.1	4.8	86	7	102
M-211	M	9100	13	18.5	4.8	91	0	101
M-105	M	9000	14	18.5	4.8	83	0	100
M-209	M	8960	15	19.2	4.7	91	0	96
M-206	M	8890	16	18.8	4.8	84	0	103
16Y2028	S	8860	17	18.5	4.8	85	53	102
S-102	S	8780	18	14.8	4.8	80	20	96
CJ-201	L	8560	19	16.7	4.8	91	0	90
A-202	L	8420	20	17.0	4.8	84	0	101
19Y3035	M	8410	21	19.4	4.7	85	20	102
M-521	M	8410	22	19.1	4.8	84	0	99
M-210	M	8340	23	19.0	4.9	85	0	96
18Y2070	M	7880	24	19.1	4.7	89	0	115
89Y235	M	7680	25	17.3	4.7	86	77	107
CM-101	S	7370	26	16.3	4.8	82	67	97
CA-201	S	6950	27	17.0	4.8	88	63	95
CT-202	L	5860	28	15.9	5.0	88	0	92
MEAN		8970		17.9	4.8	85	17	100
5%LSD		901		1.1	0.1	2	29	5
CV		6		3.8	1.0	1	104	3

2 Rep Advanced Lines and Varieties

20Y2008	S	10480	1	16.5	4.8	83	10	106
22Y1071	L	9640	2	16.7	4.9	85	0	112
19Y3128	M	9500	3	19.2	4.8	91	5	103
21Y2031	M	9480	4	17.4	4.9	83	25	100
22Y1057	M	9070	5	16.6	4.9	84	0	105
22Y3087	S	8950	6	17.8	4.8	86	0	110
CH-203	S	8900	7	18.0	4.8	87	13	94
19Y3105	M	8850	8	18.5	4.8	92	0	106
22Y4182	M	8430	9	18.7	4.8	86	0	102
M-521	M	8340	10	18.1	4.8	84	0	92
22Y2119	L	8290	11	17.4	4.8	88	0	97
19Y4048	S	8250	12	18.6	4.8	88	0	98
22Y1107	L	7960	13	17.2	4.8	86	48	95
22Y1109	L	7690	14	11.7	5.0	82	0	98
MEAV		8840		17.3	4.8	86	7	101
5%LSD		1046		1.3	0.1	2	29	8
CV		6		3.5	0.9	1	191	4

2 Rep Preliminary Lines and Varieties

20Y1010	L	10820	1	16.9	4.8	80	0	94
S-202	S	10820	2	18.2	4.8	81	3	107
20Y1009	L	10760	3	16.9	4.9	79	0	97
22Y1028	L	10750	4	17.0	4.8	83	0	102
22Y1018	L	10490	5	16.7	4.9	84	0	110
20Y2072	S	10380	6	17.6	4.8	89	40	101
CM-203	S	9960	7	18.8	4.8	83	0	108
22Y3178	M	9530	8	19.4	4.8	92	10	104
M-211	M	9410	9	19.0	4.9	90	0	102
22Y3173	M	9330	10	19.5	4.8	92	0	101
22Y2159	S	9310	11	16.8	4.7	87	95	106
22Y3073	M	8950	12	19.2	4.8	92	0	108
22Y3192	M	8850	13	17.4	4.9	85	0	100
22Y3162	M	8710	14	18.6	4.8	80	0	100
MEAN		9860		18.0	4.8	85	11	103
5%LSD		1122		1.0	0.1	2	33	8
CV		5		2.6	1.3	1	145	4

S = short; M = medium; L = long.
Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence.
Subjective rating of 0-100 where 0 = none and 100 = completely lodged.

Table 7. 2023 N. Yolo Zone 3 Rice Variety Trials

3 Rep Advanced Lines and Varieties

Variety	Grain Type	Grain Yield at 14% Moisture lbs/ac Yield	Rank	Grain Moisture at Harvest (%)	Seedling Vigor (1-5)	Days to 50% Heading	Lodging (0-100)	Plant Height (cm)
19Y1018	L	10990	1	16.3	4.8	87	37	108
L-208	L	10830	2	16.6	4.8	86	3	106
20Y2001	S	10590	3	15.9	4.8	83	100	107
16Y2028	S	10490	4	16.6	4.8	87	100	120
S-202	S	10400	5	12.8	4.7	83	100	109
A-202	L	10310	6	16.9	4.7	87	3	117
L-207	L	10250	7	16.5	4.8	88	30	121
20Y1029	L	10190	8	16.3	4.7	86	7	117
CM-203	S	10190	9	17.3	4.8	87	97	116
M-206	M	10010	10	16.4	4.7	87	100	113
M-211	M	9880	11	14.7	4.8	91	100	118
20Y1008	L	9820	12	16.9	4.7	88	90	486
19Y3035	M	9800	13	15.8	4.7	89	98	114
CJ-201	L	9700	14	14.8	4.8	91	5	103
M-105	M	9690	15	14.4	4.8	86	100	111
M-209	M	9670	16	13.9	4.7	92	97	111
M-521	M	9500	17	16.6	4.8	87	100	115
18Y3102	M	9480	18	17.0	4.7	86	17	111
M-210	M	9430	19	16.8	4.8	87	98	115
18Y3018	M	9130	20	16.6	4.8	92	98	112
20Y2124	S	8920	21	12.4	4.8	89	98	116
20Y4033	M	8770	22	15.1	4.8	88	100	117
18Y2070	M	8390	23	16.7	4.8	87	97	125
S-102	S	8390	24	14.3	4.8	82	28	106
CM-101	S	8000	25	16.0	4.8	82	97	107
CA-201	S	7880	26	15.1	4.8	85	68	108
89Y235	M	7700	27	15.8	4.8	84	100	115
CT-202	L	6570	28	13.7	4.8	88	13	112
MEAN		9460		15.6	4.8	87	71	126
5%LSD		774		1.5	0.1	1	27	197
CV		5		5.9	1.2	1	24	95

2 Rep Advanced Lines and Varieties

21Y2031	M	11580	1	16.2	4.9	83	100	113
20Y2008	S	10230	2	14.2	4.8	85	100	109
M-521	M	10100	3	15.9	4.8	87	100	116
22Y1071	L	9940	4	16.9	4.7	89	95	76
19Y3105	M	9680	5	14.1	4.8	93	98	121
22Y1057	M	9520	6	15.2	4.8	87	0	122
22Y2119	L	9450	7	16.0	4.9	85	100	104
CH-203	S	9190	8	17.1	4.8	86	98	103
22Y3087	S	9050	9	17.4	4.8	88	65	127
19Y4048	S	9030	10	15.7	4.8	92	100	109
19Y3128	M	8750	11	16.2	4.8	92	100	113
22Y4182	M	8660	12	16.3	4.8	88	100	114
22Y1107	L	8100	13	16.3	4.8	89	100	124
22Y1109	L	7920	14	12.3	4.8	86	25	116
MEAN		9370		15.7	4.8	88	84	112
5%LSD		1266		2.1	0.1	2	7	42
CV		6		6.3	0.9	1	4	17

2 Rep Preliminary Lines and Varieties

22Y1018	L	12000	1	17.4	4.8	88	40	128
22Y1028	L	11580	2	14.0	4.8	86	5	108
20Y1010	L	11530	3	16.3	4.8	85	8	109
S-202	S	10780	4	13.3	4.8	83	100	105
20Y1009	L	10640	5	15.2	4.8	84	35	112
CM-203	S	10480	6	17.5	4.8	85	75	119
20Y2072	S	10370	7	14.9	4.8	91	100	116
22Y3017	M	10330	8	16.6	4.8	90	83	115
22Y3130	M	10320	9	17.9	4.8	88	50	123
22Y3144	M	9560	10	14.0	4.8	88	100	122
M-210	M	9510	11	16.9	4.8	87	100	116
22Y3111	M	8940	12	17.4	4.8	89	100	119
22Y3198	M	8850	13	15.8	4.8	93	90	122
22Y2159	S	8240	14	11.3	4.7	89	100	114
MEAN		10220		15.6	4.8	88	70	116
5%LSD		1242		2.3	0.1	1	34	6
CV		6		6.8	0.6	0	23	2

S = short; M = medium; L = long.
Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence.
Subjective rating of 0-100 where 0 = none and 100 = completely lodged.
Subjective rating of 0-100 where 0 = none and 100 = completely lodged.

Table 8. 2023 Sutter Zone 3 Rice Variety Trials

3 Rep Advanced Lines and Varieties

Variety	Grain Type	Grain Yield at 14% Moisture lbs/ac Yield	Rank	Grain Moisture at Harvest (%)	Seedling Vigor (1-5)	Days to 50% Heading	Lodging (0-100)	Plant Height (cm)
L-208	L	10460	1	14.2	4.7	83	95	95
19Y1018	L	10270	2	14.3	4.8	85	95	96
20Y2001	S	10020	3	14.0	4.8	86	100	97
S-202	S	9890	4	13.5	4.8	85	98	102
20Y1029	L	9840	5	15.0	4.8	85	97	103
16Y2028	S	9740	6	14.9	4.8	86	100	106
M-105	M	9400	7	14.7	4.7	84	100	101
CM-203	S	9340	8	13.8	4.8	86	100	108
A-202	L	9250	9	15.6	4.8	87	95	105
L-207	L	9170	10	15.1	4.8	90	95	106
M-521	M	9140	11	13.7	4.8	87	95	98
M-211	M	9110	12	14.5	4.8	91	100	99
18Y3102	M	9020	13	15.9	4.8	86	47	96
M-209	M	8870	14	15.7	4.8	91	100	97
19Y3035	M	8830	15	14.1	4.8	86	100	100
20Y2124	S	8790	16	14.4	4.8	88	100	107
CJ-201	L	8690	17	12.5	4.8	94	63	86
20Y1008	L	8680	18	14.4	4.7	88	98	107
M-210	M	8670	19	14.9	4.9	87	98	101
20Y4033	M	8580	20	13.4	4.8	88	100	105
18Y3018	M	8470	21	15.1	4.8	92	98	101
M-206	M	8450	22	15.7	4.8	87	98	104
CM-101	S	7600	23	12.7	4.8	83	100	96
S-102	S	7400	24	13.0	4.8	82	100	103
CA-201	S	7290	25	14.5	4.8	85	97	97
18Y2070	M	7260	26	14.2	4.8	91	100	110
89Y235	M	6990	27	13.4	4.7	87	100	103
CT-202	L	5360	28	13.3	4.9	93	3	91
MEAN		8740		14.3	4.8	87	92	101
5%LSD		577		1.9	0.1	2	12	5
CV		4		8.1	0.9	1	8	3
2 Rep Advanced Lines and Varieties								
22Y1071	L	10530	1	15.6	4.8	87	93	112
20Y2008	S	9720	2	14.0	4.9	87	100	99
21Y2031	M	9620	3	14.3	4.8	84	100	96
22Y2119	L	9370	4	13.8	4.9	87	95	93
CH-203	S	9320	5	15.9	4.9	91	98	96
19Y3128	M	9310	6	14.1	4.8	93	100	104
19Y4048	S	8700	7	15.0	4.7	91	98	94
22Y3087	S	8440	8	16.3	4.8	87	95	116
19Y3105	M	8340	9	13.4	4.8	92	95	105
22Y4182	M	8140	10	14.2	4.8	87	98	97
22Y1057	M	7580	11	14.2	4.8	89	25	106
M-521	M	7040	12	15.6	4.8	87	95	98
22Y1107	L	6410	13	16.9	4.9	90	98	112
22Y1109	L	6380	14	12.5	4.8	91	93	109
MEAV		8490		14.7	4.8	88	91	102
5%LSD		1787		1.5	0.1	3	21	7
CV		10		4.6	1.1	2	11	3
2 Rep Preliminary Lines and Varieties								
20Y1010	L	10290	1	13.3	4.8	85	98	98
S-202	S	10220	2	14.3	4.8	85	98	97
22Y1018	L	10010	3	14.1	4.8	89	98	112
22Y1028	L	9560	4	14.1	4.8	87	100	98
20Y2072	S	9450	5	15.4	4.9	93	100	106
20Y1009	L	9410	6	16.0	4.8	84	100	95
CM-203	S	9130	7	15.0	4.8	87	100	109
22Y3017	M	9110	8	16.3	4.8	89	100	106
M-210	M	8940	9	13.6	4.8	88	100	99
22Y3111	M	8930	10	14.8	4.8	88	100	105
22Y3144	M	8070	11	16.4	4.9	89	100	108
22Y3130	M	8010	12	16.4	4.8	86	98	106
22Y2159	S	7980	13	13.7	4.8	89	100	105
22Y3198	M	6920	14	16.6	4.9	92	98	110
MEAN		9000		15.0	4.8	88	99	104
5%LSD		1149		2.0	0.1	3	4	4
CV		6		6.2	1.1	2	2	2

S = short; M = medium; L = long.
Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence.
Subjective rating of 0-100 where 0 = none and 100 = completely lodged.

Table 9. 2023 San Joaquin Zone 3 Rice Variety Trials

Variety	Grain Type	Grain Yield at 14% Moisture lbs/ac Yield	Rank	Grain Moisture at Harvest (%)	Seedling Vigor (1-5)	Days to 50% Heading	Lodging (0-100)	Plant Height (cm)
3 Rep Advanced Lines and Varieties								
L-208	L	11570	1	17.7	4.9	108	0	90
A-202	L	10750	2	15.9	5.0	114	0	103
89Y235	M	10740	3	18.1	5.0	109	0	97
L-207	L	10710	4	15.9	5.0	114	0	99
16Y2028	S	10480	5	18.1	5.0	113	0	97
18Y2070	M	10420	6	20.4	5.0	111	0	106
S-202	S	10280	7	19.9	4.9	112	0	98
20Y1008	L	10210	8	16.8	4.9	111	0	98
19Y1018	L	10180	9	17.6	5.0	112	0	97
20Y2124	S	10170	10	23.4	5.0	111	0	101
20Y4033	M	10170	11	19.9	5.0	110	0	98
20Y2001	S	10000	12	18.8	4.9	111	0	94
20Y1029	L	9820	13	16.4	4.9	111	0	94
CM-203	S	9710	14	20.1	4.9	111	0	97
S-102	S	9550	15	16.3	4.9	107	0	91
M-211	M	9500	16	18.9	5.0	113	0	96
M-206	M	9490	17	18.0	4.9	109	0	95
M-210	M	9370	18	19.3	5.0	109	0	92
18Y3018	M	9330	19	19.6	4.9	113	0	107
18Y3102	M	9140	20	22.1	4.9	109	0	100
CM-101	S	8940	21	16.4	4.9	109	0	97
M-209	M	8900	22	19.2	5.0	114	0	97
19Y3035	M	8510	23	18.7	4.9	110	0	98
M-105	M	8360	24	18.0	5.0	108	0	95
CJ-201	L	8050	25	19.2	5.0	117	0	94
M-521	M	7670	26	17.3	5.0	110	0	88
CA-201	S	7480	27	17.1	4.9	110	0	101
CT-202	L	7160	28	15.9	4.9	112	0	96
MEAN		9520		18.4	4.9	111	0	97
5%LSD		1295		1.3	0.1	2	0	9
CV		8		4.2	1.1	1	0	6
2 Rep Advanced Lines and Varieties								
20Y2008	S	11520	1	17.8	5.0	109	0	99
22Y1057	M	10860	2	16.5	5.0	114	0	100
21Y2031	M	10790	3	16.0	5.0	108	0	93
22Y2119	L	10320	4	17.0	5.0	111	0	95
22Y3087	S	9660	5	18.3	5.0	110	0	104
19Y3105	M	9410	6	18.8	4.9	113	0	100
22Y1071	L	9350	7	17.1	5.0	114	0	98
CH-203	S	9270	8	17.6	4.9	114	0	95
22Y1107	L	9030	9	19.5	5.0	115	0	99
19Y3128	M	8970	10	17.8	5.0	113	0	98
22Y1109	L	8080	11	17.2	5.0	115	0	105
M-521	M	7970	12	17.7	5.0	109	0	94
19Y4048	S	7680	13	18.2	5.0	113	0	91
22Y4182	M	7560	14	18.9	4.9	111	0	96
MEAN		9320		17.7	5.0	112	0	97
5%LSD		1724		2.0	0.1	2	0	11
CV		9		5.4	1.1	1	0	5
2 Rep Preliminary Lines and Varieties								
20Y2072	S	11560	1	22.9	5.0	116	0	97
22Y1018	L	10470	2	16.9	5.0	109	0	95
20Y1009	L	10180	3	16.5	5.0	111	0	93
20Y1010	L	10120	4	16.8	5.0	111	0	89
CM-203	S	10080	5	18.9	5.0	110	0	100
S-202	S	10070	6	18.1	4.9	109	0	90
22Y3111	M	10020	7	19.2	5.0	110	0	103
M-210	M	9490	8	18.8	5.0	112	0	97
22Y3017	M	9360	9	17.8	5.0	111	0	95
22Y1028	L	9000	10	16.7	5.0	113	0	88
22Y3144	M	8810	11	18.7	5.0	112	0	98
22Y2159	S	8580	12	21.4	5.0	113	0	106
22Y3130	M	7940	13	18.9	5.0	109	0	99
22Y3198	M	7630	14	21.9	5.0	115	0	100
MEAN		9520		18.8	5.0	111	0	96
5%LSD		1479		1.8	0.1	4	0	11
CV		7		4.5	0.9	2	0	5

S = short; M = medium; L = long.
Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence.
Subjective rating of 0-100 where 0 = none and 100 = completely lodged.

Table 10. 2023 Yuba Zone 3 Rice Variety Trials

3 Rep Advanced Lines and Varieties

Variety	Grain Type	Grain Yield at 14% Moisture lbs/ac Yield	Rank	Grain Moisture at Harvest (%)	Seedling Vigor (1-5)	Days to 50% Heading	Lodging (0-100)	Plant Height (cm)
20Y2001	S	9560	1	13.3	4.8	84	100	92
S-202	S	9110	2	11.5	4.8	84	100	88
20Y1029	L	8700	3	12.2	4.8	83	38	101
L-207	L	8600	4	13.1	4.8	84	50	103
M-105	M	8520	5	13.4	4.8	79	98	89
L-208	L	8500	6	13.2	4.8	84	20	88
19Y1018	L	8420	7	12.4	4.8	85	30	86
M-521	M	8410	8	12.2	4.8	80	100	92
M-206	M	8320	9	14.6	4.8	80	93	96
M-210	M	8300	10	13.7	4.8	81	93	91
CJ-201	L	8270	11	11.2	4.8	88	20	92
20Y4033	M	8220	12	13.8	4.8	79	100	99
19Y3035	M	8210	13	13.8	4.8	81	87	93
18Y3018	M	8130	14	14.3	4.8	84	92	99
18Y3102	M	8120	15	14.3	4.8	83	83	94
M-209	M	7980	16	14.0	4.8	85	78	95
CM-203	S	7970	17	14.5	4.8	86	90	102
A-202	L	7900	18	14.2	4.8	84	70	92
20Y2124	S	7850	19	12.6	4.8	85	100	91
20Y1008	L	7760	20	13.8	4.7	84	98	105
M-211	M	7580	21	13.4	4.9	85	85	96
CM-101	S	7550	22	10.0	4.8	83	100	85
S-102	S	7300	23	10.6	4.8	80	98	94
16Y2028	S	7080	24	12.7	4.9	84	100	97
18Y2070	M	6990	25	13.7	4.8	85	100	108
89Y235	M	6600	26	11.9	4.8	83	98	101
CA-201	S	6440	27	10.3	4.7	85	100	88
CT-202	L	5540	28	11.6	4.9	86	35	93
MEAN		7930		12.9	4.8	83	81	95
5%LSD		719		2.1	0.1	1	32	7
CV		6		9.7	1.0	1	24	5

2 Rep Advanced Lines and Varieties

20Y2008	S	8970	1	14.2	4.8	86	85	87
22Y2119	L	8520	2	12.6	4.8	84	60	92
22Y1071	L	8420	3	13.3	4.8	86	60	112
CH-203	S	7990	4	15.2	4.8	84	35	92
M-521	M	7980	5	14.0	4.8	81	39	94
19Y3105	M	7910	6	13.9	4.8	85	95	103
22Y1057	M	7910	7	13.1	4.8	86	0	109
22Y4182	M	7790	8	14.8	4.8	84	75	95
19Y3128	M	7750	9	15.3	4.8	85	93	101
22Y3087	S	7170	10	13.8	4.8	84	50	107
19Y4048	S	7140	11	14.6	4.8	84	30	95
21Y2031	M	6820	12	11.6	5.0	84	95	97
22Y1109	L	6790	13	9.1	4.9	83	55	105
22Y1107	L	4810	14	13.6	4.9	83	93	95
MEAV		7530		13.5	4.8	84	62	99
5%LSD		1767		3.5	0.1	1	61	11
CV		11		11.9	0.8	1	46	5

2 Rep Preliminary Lines and Varieties

22Y1028	L	9820	1	12.0	4.8	83	15	97
S-202	S	9130	2	12.8	4.8	84	100	93
20Y1010	L	8990	3	12.3	4.9	84	75	95
20Y1009	L	8660	4	12.4	4.8	84	20	89
CM-203	S	8620	5	16.5	4.8	86	60	103
22Y1018	L	8530	6	16.0	4.8	83	75	108
20Y2072	S	8350	7	15.2	4.9	86	100	99
M-210	M	8350	8	12.9	4.9	81	35	95
22Y2159	S	8230	9	14.1	4.8	84	100	103
22Y3017	M	8040	10	14.8	4.8	84	55	100
22Y3111	M	7960	11	15.8	4.8	84	75	107
22Y3130	M	7550	12	15.2	4.8	83	35	103
22Y3144	M	7380	13	14.2	4.8	83	65	96
22Y3198	M	5530	14	16.3	4.8	85	95	101
MEAN		8360		14.0	4.8	84	65	99
5%LSD		1290		2.0	0.1	2	62	13
CV		7		5.9	0.7	1	44	6

S = short; M = medium; L = long.
Subjective rating of 1-5 where 1 = poor and 5 = excellent seedling emergence.
Subjective rating of 0-100 where 0 = none and 100 = completely lodged.

Table 11. Grain Yield (lb./acre @14% moisture) Summary Rice Varieties by Location and Year (2019-2023)

Location	Year	M105	M206	M209	M210	M211	M521
N. Butte	2019	9820	9520	9260	10020	10060	9390
	2020	10300	9570	10390	8840	10570	9670
	2021	7620	7420	8460	8870	9200	8340
	2022	8940	7840	8960	8200	9260	8130
	2023	8530	9080	8360	8480	8500	9000
Location Mean		9042	8686	9086	8882	9518	8906
S. Butte	2019	9220	9120	8740	9820	8930	9200
	2020	9640	9490	9630	9660	9910	9350
	2021	9460	9260	9050	9510	8420	9010
	2022	9090	9460	9180	9330	9050	8970
	2023	9010	8890	8960	8340	9100	8410
Location Mean		9284	9244	9112	9332	9082	8988
Colusa	2019	9430	9320	8960	9100	9830	9070
	2020	8850	8820	9040	8950	8760	8490
	2021	10470	9690	10180	9480	9400	9440
	2023	8390	7920	8760	8220	8470	8470
Location Mean		9285	8938	9235	8938	9115	8868
Glenn	2019	9940	9310	10080	9490	9460	9680
	2020	9170	9500	9550	10240	8660	8840
	2021	9670	9570	8340	9780	9630	9260
	2022	7170	8600	9530	8440	8740	7770
	2023	8210	7950	8820	7890	8850	7730
Location Mean		8832	8986	9264	9168	9068	8656
Sutter	2019	9770	9370	9300	9300	10160	9460
	2020	9330	9380	8950	9450	9440	8600
	2021	8750	9610	8400	9450	9160	8320
	2022	8640	8660	8220	8780	8970	8610
	2023	9400	8450	8870	8670	9110	9140
Location Mean		9178	9094	8748	9130	9368	8826
North Yolo	2019	9720	9120	9290	9050	10100	8440
	2020	10990	9550	10010	9150	10110	9280
	2021	9350	9520	9620	9330	9930	9090
	2023	9690	10010	9670	9430	9880	9500
Location Mean		9938	9550	9648	9240	10005	9078
South Yolo	2019	8590	7780	7730	8740	8220	8760
	2023	8110	8010	8020	7660	8380	7400
Location Mean		8350	7895	7875	8200	8300	8080
Yuba	2019	7170	6990	6650	7450	7070	7370
	2020	7820	7920	7630	7800	8580	7990
	2021	6500	7050	7640	6550	6560	5720
	2022	8530	8710	8390	8350	8250	8260
	2023	8520	8320	7980	8300	7580	8410
Location Mean		7708	7798	7658	7690	7608	7550
San Joaquin	2021	10700	10090	8590	9950	9940	10710
	2022	9070	9150	7200	9060	7810	8990
	2023	8360	9490	8900	9370	9500	7670
Location Mean		9377	9577	8230	9460	9083	9123
Loc/Years Mean		8999	8863	8762	8893	9016	8675