

**University of California**

Agriculture and Natural Resources | Cooperative Extension Colusa County

## Summary of 2014 University of California Rice Variety Trials

*Luis Espino, UCCE*

Every year, the University of California Cooperative Extension, in cooperation with the Rice Experiment Station (RES), conducts rice variety trials in several locations of the Sacramento and San Joaquin Valleys. Three broad variety categories are included in the trials:

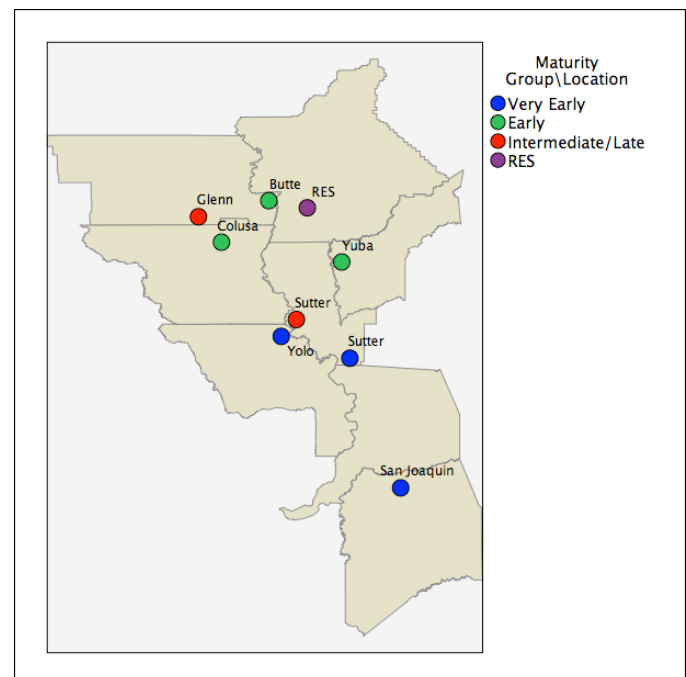
- Preliminary breeding lines: those that have been selected by RES breeders to be evaluated on a statewide basis because of promising characteristics observed at the RES. They are tested in two-replication trials.
- Advanced breeding lines: these lines are more promising; typically they have been tested first as preliminary. They are tested in four-replication trials. The best of the best may undergo seed increase and be considered for release as new rice varieties after several years of testing.
- Commercial varieties: varieties released by the RES and planted in commercial fields.

The entries and varieties included in the trials can be grouped in three maturity groups:

1. Very early maturity group (<90 days to 50% heading)
2. Early maturity group (90-97 days to 50% heading)
3. Intermediate/late maturity group (>97 days to 50% heading)

The trials are conducted at the RES and in grower fields. On-farm trials are planted in the most appropriate location for the maturity group of the entries, taking into consideration weather but also the field variety of the location to avoid early or late harvesting. More than one maturity group is included in the trials so as to compare the performance of preliminary and advanced lines to “standards” such as M-202 or M-206.

Each entry is grown in 200 ft<sup>2</sup> plots. Cooperating growers manage the trials as part of the field. Plots are harvested using a research plot combine, and yields are converted to lbs/acre at 14% moisture. The complete report will be published on the UC Rice Project website under Research – Agronomy Progress Reports.



Maturity groups and location of statewide rice variety trials. At the RES, the three maturity group trials are included.

**Very early maturity group**

Biggs (RES). Planting date: 5/12, harvest date: 9/28

<b>Year</b>	<b>S-102</b>	<b>M-104</b>	<b>M-105</b>	<b>M-202*</b>	<b>M-206</b>	<b>L-206</b>	<b>Calmochi 101</b>
2010	9380	-	-	10470	11290	10200	9470
2011	8780	8570	9020	6300	8660	8290	7990
2012	9370	10260	9950	10050	10420	10020	8500
2013	9120	9710	9150	8380	8610	9970	8580
<b>2014</b>	<b>7640</b>	<b>8150</b>	<b>7680</b>	<b>7330</b>	<b>9200</b>	<b>8580</b>	<b>6540</b>
<i>Average</i>	<i>8858</i>	<i>9173</i>	<i>8950</i>	<i>8506</i>	<i>9636</i>	<i>9412</i>	<i>8216</i>

Sutter County. Planting date: 5/22, harvest date: 10/13

<b>Year</b>	<b>S-102</b>	<b>M-104</b>	<b>M-105</b>	<b>M-202*</b>	<b>M-206</b>	<b>L-206</b>	<b>Calmochi 101</b>
2010	9360	8270	-	6520	7890	8050	9500
2011	8440	10300	8030	10330	9350	9520	7410
2012	8470	8990	9590	8810	9320	9570	7500
2013	9300	9510	9940	9990	9710	9700	8340
<b>2014</b>	<b>8770</b>	<b>9510</b>	<b>10380</b>	<b>9060</b>	<b>9710</b>	<b>9440</b>	<b>7780</b>
<i>Average</i>	<i>8868</i>	<i>9316</i>	<i>9485</i>	<i>8942</i>	<i>9196</i>	<i>9256</i>	<i>8106</i>

Yolo County. Planting date: 5/13, harvest date: 10/03

<b>Year</b>	<b>S-102</b>	<b>M-104</b>	<b>M-105</b>	<b>M-202*</b>	<b>M-206</b>	<b>L-206</b>	<b>Calmochi 101</b>
2010	7520	8050	-	7890	8210	8230	7190
2011	9050	10020	10290	9590	10230	9490	9320
2012	8400	9610	9560	8930	9900	9060	7450
2013	8380	9420	9670	9260	9790	9000	7830
<b>2014</b>	<b>8980</b>	<b>9610</b>	<b>10150</b>	<b>9450</b>	<b>9770</b>	<b>8760</b>	<b>7580</b>
<i>Average</i>	<i>8466</i>	<i>9342</i>	<i>9918</i>	<i>9024</i>	<i>9580</i>	<i>8908</i>	<i>7874</i>

San Joaquin County (drill seeded trial). Planting date: 5/08, harvest date: 10/14

<b>Year</b>	<b>S-102</b>	<b>M-104</b>	<b>M-105</b>	<b>M-202*</b>	<b>M-206</b>	<b>L-206</b>	<b>Calmochi 101</b>
2010	7950	8360	-	7760	7560	8170	8070
2011	7760	8800	8720	9090	9330	8340	7850
2012	8180	8460	8340	7490	8990	7570	7880
2013	7960	8140	8220	8140	8410	8180	7680
<b>2014</b>	<b>8480</b>	<b>9680</b>	<b>9660</b>	<b>8650</b>	<b>9390</b>	<b>8660</b>	<b>8440</b>
<i>Average</i>	<i>8066</i>	<i>8688</i>	<i>8735</i>	<i>8226</i>	<i>8736</i>	<i>8184</i>	<i>7984</i>

**Early maturity group**

Biggs (RES). Planting date: 5/13, harvest date: 9/30

Year	M-105*	M-202	M-205	M-206	M-208	L-206	Calhikar 201	Calhikar 202	Calmati 202
2010	11530	10210	10790	10990	11370	11090	9390	-	8730
2011	9490	9660	10610	10050	10240	10020	9210	-	5410
2012	10250	9770	10530	9980	9560	10510	8680	9000	7990
2013	7820	7640	9230	8160	8270	8420	8490	8480	5700
<b>2014</b>	<b>8570</b>	<b>7010</b>	<b>9140</b>	<b>9240</b>	<b>9070</b>	<b>8640</b>	<b>6220</b>	<b>7580</b>	<b>6310</b>
<i>Average</i>	<i>9532</i>	<i>8858</i>	<i>10060</i>	<i>9684</i>	<i>9702</i>	<i>9736</i>	<i>8398</i>	<i>8353</i>	<i>6828</i>

Butte County. Planting date: 5/14, harvest date: 10/10

Year	M-105*	M-202	M-205	M-206	M-208	L-206	Calhikar 201	Calhikar 202	Calmati 202
2010	8530	8190	7950	8440	8210	8400	7900	-	6770
2011	9270	8180	8860	8520	9350	9330	8060	-	8020
2012	9490	8650	9600	9240	8760	9380	8080	8630	7910
2013	9640	7870	8960	9020	9300	9390	7840	8870	6450
<b>2014</b>	<b>9070</b>	<b>8360</b>	<b>9140</b>	<b>9610</b>	<b>9120</b>	<b>9730</b>	<b>8310</b>	<b>9120</b>	<b>7210</b>
<i>Average</i>	<i>9200</i>	<i>8250</i>	<i>8902</i>	<i>8966</i>	<i>8948</i>	<i>9246</i>	<i>8038</i>	<i>8873</i>	<i>7272</i>

Colusa County. Planting date: 5/18, harvest date: 10/12

Year	M-105*	M-202	M-205	M-206	M-208	L-206	Calhikar 201	Calhikar 202	Calmati 202
2010	10930	10910	11190	10560	10390	10440	9510	-	4690
2011	7580	9350	9760	9960	10240	9660	6040		5210
2012	8620	8630	9130	9680	9350	9400	7430	7370	5340
2013	9750	9140	8930	9660	9290	10250	7840	7060	5970
<b>2014</b>	<b>9100</b>	<b>8720</b>	<b>9370</b>	<b>9280</b>	<b>8640</b>	<b>9380</b>	<b>7740</b>	<b>7590</b>	<b>6150</b>
<i>Average</i>	<i>9196</i>	<i>9350</i>	<i>9676</i>	<i>9828</i>	<i>9582</i>	<i>9826</i>	<i>7712</i>	<i>7340</i>	<i>5472</i>

Yuba County. Planting date: 5/16, harvest date: 10/11

Year	M-105*	M-202	M-205	M-206	M-208	L-206	Calhikar 201	Calhikar 202	Calmati 202
2010	10040	10220	9370	10330	8840	9070	8350	-	5470
2011	9800	9300	10000	10190	9450	10160	7800	-	6030
2012	8510	9220	8840	9240	7810	9100	6080	8540	5570
2013	9330	8950	9650	9750	8650	9590	8040	8920	5750
<b>2014</b>	<b>8590</b>	<b>8010</b>	<b>9120</b>	<b>8950</b>	<b>9780</b>	<b>9260</b>	<b>7290</b>	<b>7370</b>	<b>5460</b>
<i>Average</i>	<i>9254</i>	<i>9140</i>	<i>9396</i>	<i>9692</i>	<i>8906</i>	<i>9436</i>	<i>7512</i>	<i>8277</i>	<i>5656</i>

**Intermediate/late maturity group**

Biggs (RES). Planting date: 5/14, harvest date: 10/06

Year	M-202*	M-205*	M-206*	M-401	M-402	L-206*
2010	10430	11030	-	-	8240	11610
2011	9160	10270	-	8910	9200	9990
2012	11090	11210	-	8630	10260	11180
2013	8700	9730	9570	9780	9830	9460
<b>2014</b>	<b>8870</b>	<b>10550</b>	<b>10570</b>	<b>9550</b>	<b>10040</b>	<b>10340</b>
<i>Average</i>	<i>9650</i>	<i>10558</i>	<i>10070</i>	<i>9218</i>	<i>9514</i>	<i>10516</i>

Glenn County. Planting date: 5/05 , harvest date: 10/21

Year	M-202*	M-205*	M-206*	M-401	M-402	L-206*
2010	7970	9210	-	-	9360	8340
2011	9030	9550	-	9930	9820	8900
2012	7660	8220	-	10030	8260	7680
2013	8270	8400	9390	9280	8970	8870
<b>2014</b>	<b>8510</b>	<b>8910</b>	<b>8270</b>	<b>9900</b>	<b>8910</b>	<b>8870</b>
<i>Average</i>	<i>8288</i>	<i>8858</i>	<i>8830</i>	<i>9785</i>	<i>9064</i>	<i>8532</i>

Sutter County. Planting date: 5/12, harvest date: 10/02

Year	M-202*	M-205*	M-206*	M-401	M-402	L-206*
2010	10500	9190	-	-	9300	9390
2011	9010	9310	-	7780	8000	9780
2012	9690	9630	-	7200	9040	9890
2013	7890	8540	8820	6950	6900	8720
<b>2014</b>	<b>9030</b>	<b>8680</b>	<b>9270</b>	<b>5530</b>	<b>7020</b>	<b>9660</b>
<i>Average</i>	<i>9224</i>	<i>9070</i>	<i>9045</i>	<i>6865</i>	<i>8052</i>	<i>9488</i>

\*Standard varieties included for comparison

## Managing rice with limited water

*Bruce Linqvist, Luis Espino, Cass Mutters, Chris Greer, UCCE*

Looks like the water situation this year will be a repeat of last year. Here is an article published last year regarding water use in rice and ways to improve water management.

The amount of water delivered to a rice field ranges from 4 to 7.7 acre feet (AF). Of this, evapotranspiration (ET, the amount of water that evaporates and transpires through the plant) is roughly 3 AF; percolation is less than 0.3 AF (due to heavy clay soils & impermeable hard pan); seepage ranges from 0 to 1 AF; and tail water drainage ranges from 1 to 4 AF. If

there was no tail-water drainage, then rice could be grown using 4.3 AF of water. Growing rice with less water than that will depend on the percolation and seepage characteristics of the field, variety, time of planting, and end of season drain management. Below are a few strategies to reduce the impact of the drought and lessen water use in rice fields.

- If forced to fallow fields due to limited water availability, fallow fields with high percolation/seepage potential or high salinity (no-spill water management exacerbates salinity issues).
- Choose shorter duration varieties so that the time period the field has to be irrigated is shortened. Rice typically needs to be flooded from planting to reproductive stage 7 (R7, when one kernel on the main panicle is yellow; about 3 weeks after heading). On average CM-101, M-104 and S-102 require 100 days to reach R7; M-206 requires 104 days; M-202 and M-205 require 108-112 days; and M-401 requires 128 days. Shortening the period of irrigation can reduce ET by a couple of inches as well as reduce percolation and seepage losses. A couple of inches water saved per field when aggregated over the irrigation district is a substantial amount of water.
- Avoid early planting dates. Planting early increases water use as it increases the time to canopy closure and the period the crop needs to be irrigated until R7, thereby increasing the seasonal ET and percolation/seepage losses.
- Avoid draining after seeding (Leather's method). If stand establishment is an issue, seeding into very shallow water may improve establishment. Increase the field's water depth as seedlings establish and grow.
- When rice plants and weeds reach the appropriate stage for foliar herbicide applications (e.g. propanil), instead of lowering the water level by draining the field, plan ahead and let the water subside so that weed coverage is appropriate.
- At panicle initiation, adjust your water depth to a maximum of 6 inches. This depth is enough to protect the developing panicles from cold temperature blanking.
- Before harvest, turn off the irrigation and allow the water to naturally subside rather than drain the field. Determining when the irrigation water can be turned off depends on how much water is in the field, climate, and soil properties (percolation and seepage). In fields with heavy clay soils, it is safe to not have standing water (soil still saturated) 24 days after 50% heading (when one-half of the panicles in a field have emerged) without risking yield loss and grain quality.
- UC research found no difference in water use between dry and wet seeded rice fields.

For more detail information on how to manage water this year, a video presentation by UC Cooperative Extension Rice Specialist Bruce Linqvist is available on the UC Rice Blog (<http://ucanr.edu/blogs/riceblog/index.cfm>).