HEALTHY FOOD SYSTEMS | HEALTHY ENVIRONMENTS | HEALTHY COMMUNITIES | HEALTHY CALIFORNIANS

Rice Leaf

January 2021

University of California
Agriculture and Natural Resources | Cooperative Extension Butte County

Contents January 2021

Summary of 2020 University of California rice variety trials

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 Valley. 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. The best of the best may undergo seed increase and be considered for release as new rice varieties after several years of testing. Current **commercial varieties** are compared with these lines.

The trials were conducted at the RES and seven farm locations across the Sacramento Valley, representing the main production areas of the Valley (the South Yolo location was not established in 2020). Plots 200 ft^2 were hand seeded at a rate of 150 lbs/a, and grower cooperators treated the trial in the same manner as the rest of the field. Parameters evaluated in the trials included seedling vigor, days to 50% heading, plant height, lodging at harvest, grain moisture at harvest, and grain yield at 14% moisture. Varieties are replicated four times. In this summary, only yields are presented. All other parameters are included in the complete report, which will be available on our website at the end of February (UC Rice On-line at http://rice.ucanr.edu).

Article by Luis Espino, UCCE Butte and Glenn Counties.

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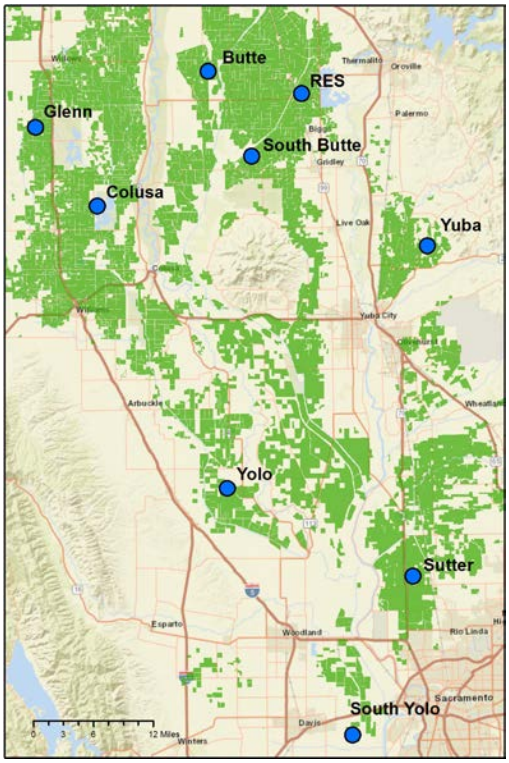
Table 1. Yield (lbs/a) from variety trials conducted at seven locations across the Sacramento Valley and at the Rice Experiment Station (RES) in 2020.

Varieties	Sutter	Yolo	Yuba	Butte	South Butte	Colusa	Glenn	RES**
M-105	9,130	10,190	7,820	10,300	9,640	8,850	9,170	8,880
M-206	9,380	9,550	7,920	9,570	9,490	8,820	9,500	8,750
M-210*	9,450	9,150	7,800	8,830	9,660	8,950	10,240	8,920
M-209	8,950	10,010	7,630	10,390	9,630	9,040	9,550	9,523
M-211	9,430	10,110	8,580	10,570	9,910	8,760	8,660	9,980
S-102*	8,050	9,640	7,680	9,210	8,780	7,780	7,990	8,063
S-202	10,380	10,890	8,220	10,990	10,700	8,960	8,640	10,147
CJ-201*	10,020	9,780	8,770	10,820	9,850	8,450	9,520	9,943
L-207	10,850	11,080	9,470	10,560	10,130	10,170	9,170	10,300
L-208	10,340	11,310	9,010	10,610	11,470	10,660	9,710	10,733

* Only two replications per location
** Average of three trials



Location of the UCCE and RES variety trials (RES=Rice Experiment Station)

2020 Seed Update – Red Rice Focus

2020 was a record high year for total rice acres in the Seed Certification and Quality Assurance (QA) programs. A total of 30,655 acres were inspected (including 913 acres in the the QA program). Of this, 26,690 acres were passed for seed, and 3,965 acres were either not utilized to produce seed (i.e. field transitioning to new variety) or were rejected due to a contamination.

The seed standards in California have zero tolerance for colored bran rice in non-colored bran rice varieties. Based on collective experience, when one or a few red rice plants are observed, there is a possibility of additional plants that may not be easily visible. Therefore, the CCIA takes a very cautious approach when any red rice plants are found, even if all observed plants are removed.

Each August, at the beginning of inspection season, CCIA inspectors visit commercial fields with known contaminations to calibrate their eyes for detection of red rice. Each inspector is equipped with a KOH test kit to test any suspicious off-type plants in seed fields. In 2020, CCIA inspectors saw a concerning number of fields containing red rice. In all but one field, the number of plants was low, between 1-6 plants. ~1023 acres (9 fields) did not pass for seed production in 2020 due to the observation of ~25 red rice plants. Additionally, there was one field with dozens of plants.

What is going on here? Each situation was unique. In the case of two specialty rice varieties of very limited production, the source of red rice was from the seed. In the remaining fields, the contaminations were not consistent with a contaminated seed source. Volunteers from the soil seem to be the source in 2-3 fields. Contaminated equipment was suspected to be the source in a few fields. We observed the following Types: 1 (straw hull), 2 (bronze hull) & 5 (pubescent straw hull and purple stem node) weedy rice. One field, newly entered into the seed program, contained a couple unique red rice plants (not one of the six published weedy types) with a straw hull color and long, dark awns. One field contained a couple plants that appeared to be most similar to one of the red bran cultivars.

In light of these observations, and from what we already know, the rice seed and commercial growers must remain vigilant in using Certified seed (or QA seed, when applicable), scouting your fields, and being judicious with the equipment entering your fields.

Article by Timothy Blank, CA Crop Improvement Association

When exposed to KOH, immature colored bran rice seeds will stain red. This method is used to identify weedy rice and off-types in non-colored bran varieties fields.

What's New for Thiobencarb

There are some new facets to thiobencarb use you should be aware of. First, the mandatory preseason stewardship training will be an online course this year. The recorded versions of the presentations are obsolete, and the county agricultural commissioners have been advised to not use materials from previous years. Please remember a person needs to attend the stewardship training and receive a certificate from the California Rice Commission (CRC) before thiobencarb can be added to the restricted materials permit at the county agricultural commissioner's office.

No date has yet been set for the online course, with several details in progress before finalizing the format. In previous years, the stewardship meeting was held in February and as late as the first week of March. Notifications will be sent out through the CRC when the course is available online.

Also new for 2021, another company has registered a generic thiobencarb granular formulation. Generic Crop Science LLC has registered Willowood Thio UltraMax as a generic to the Valent product, Bolero UltraMax. The Willowood Thio UltraMax will be marketed in super sacks for the 2021 season. The Willowood Thio UltraMax will share the same permit conditions and water holding requirements as the Valent Bolero UltraMax.

Article by Roberta Firoved, California Rice Commission Industry Affairs Manager, rfiroved@calrice.org or (916) 206-5039

2021 Virtual Rice Growers Meeting

Click here to register

Feb 11, 9 am-12 pm

DPR CE: 1.25 hours Other, 0.5 Laws and Regulations

CCA CE: 1.5 hours IPM, 1 hour CM

9:00-9:10	Introduction
9:10-9:20	Rice Research Board Nominations, Dana Dicky, Rice Research Board
9:20-9:40	Ag Commissioner Update – Scott Bowden, Deputy Agricultural Commissioner, Sutter County
9:40-9:55	Weed Management Update, Kassim Al-Khatib, UC Davis
9:55-10:05	Break
10:05-10:20	Disease Management Update, Luis Espino, UCCE
10:20-10:35	Arthropod Management Update, Ian Grettenberger, UC Davis
10:35-10:50	Ricelands Salmon Project and Bird Programs Update, Paul Buttner, California Rice Commission
10:50-11:00	Break
11:00-11:15	Emerging Weed Issues, Whitney Brim-Deforest and Michelle Leinfelder-Miles, UCCE
11:15-11:30	Fertility Update, Bruce Linquist, UC Davis
11:30-11:45	Roxy Rice, Kent McKenzie, Roxy Rice Production System Consultant
11:45-12:00	2020 Summary and Variety Update, Bruce Linquist, UC Davis

Table A

Rice Pesticides Water Management Requirements Summary

Note: Amended –added Willowood Thio Ultramax.

Water must be held for the indicated number of 24-hour periods on the treated field, or within the containment area specified below before release into State waters.		Thiobencarb			Thiobencarb Plus Imazosulfuron	
		Bolero® UltraMax	Abolish® 8 EC	Willowood Thio Ultramax	League® MVP	Malathion
		Hold	Hold	Hold	Hold	Hold
NORTH SAC VALLEY	Single treated fields.	30	19	30	30	4 (b)
	Release into tailwater recovery system or ponded onto fallow land or contained in other systems appropriate for preventing discharge.	19	19	19	19	
	System controlled by one permittee, then water may be discharged into the system in manner consistent with product labeling.	14	14	14	14	
	System includes drainage from more than one permittee, then water must be retained on site.	6	6	6	6	
	Water on fields within bounds of areas that discharge negligible amounts of drainage onto perennial streams. Commissioner must evaluate such sites and verify the hydrologic isolation of the fields.	6	6	6	6	
	CAC may authorize emergency release of tailwater.	19	19	19	19	
SOUTH SAC & SJ VALLEY (a)	All water on treated fields must be retained on the treated fields.	19	19	19	19	4 (b)
	Release into tailwater recovery system or ponded onto fallow land or contained in other systems appropriate for preventing discharge.	19	19	19	19	
	System controlled by one permittee, then water may be discharged in manner consistent with product labeling.	14	14	14	14	
	System includes drainage from more than one permittee, then water must be retained on site.	6	6	6	6	
	Water on fields within bounds of areas that discharge negligible amounts of drainage onto perennial streams. Commissioner must evaluate such sites and verify the hydrologic isolation of the fields.	6	6	6	6	
	CAC may authorize emergency release of tailwater.	19	19	19	19	

(a) – South Sacramento & San Joaquin Valley defined as: South of the line defined by Roads E10 and 116 in Yolo County and the American River in Sacramento County.

(b) – Voluntary hold.

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Preliminary Herbicide Screening in Rice on Watergrass Species

In 2017, I started getting reports of a watergrass biotype/species (*Echinochloa* spp.) that was difficult to control using our suite of herbicides registered in rice. At the time, I knew we had multiple herbicide-resistance in late watergrass (*Echinochloa phyllopogon*), so I initially just thought the resistant biotype was spreading, and had maybe gained resistance to additional herbicide modes of action. However, once I started visiting fields, it quickly became apparent that this was not late watergrass (phenotypically-speaking). It also did not appear to be barnyardgrass (*Echinochloa crus-galli*), although the *Echinochloa* species are notoriously difficult to identify, and phenotypically quite variable in nature.

We came up with a preliminary set of characteristics to distinguish this unknown biotype or species (we are unsure if it is a distinct species) from the typical barnyardgrass and late watergrass found in California rice fields. All were characterized by their seed size and awns (Table 2).

In 2018, we collected 8 samples from the field, and used two late watergrass samples from known susceptible populations to use as controls. We conducted a screening in the greenhouse, to see if we could replicate what we were seeing in the field. Field rates of Cerano® (clomazone), Butte® (benzobicyclon+halosulfuron), Granite GR® (penoxsulam), and Bolero® (thiobencarb) were used as the early-season granular applications. Typical field rates of SuperWham® (propanil), Regiment® (bispyribac-sodium) and Clincher® (cyhalofop) were used to test for the late-season cleanup applications. In the greenhouse, all applications were made at the 1.5 leaf stage of the grass.

Results indicate that 8 of the 8 samples were not controlled (less than 50% by biomass, in comparison to the untreated controls) by Granite GR® or Butte®. 7 of the 8 samples were not controlled by Bolero®, and 6 of the 8 were not controlled by Cerano®. This closely follows what growers were stating had occurred in the field: the watergrass was escaping early-season control, and was then difficult or impossible to control with later-season herbicide applications. SuperWham®, Regiment®, and Clincher® controlled 8 of 8 samples (at least 60% control). However, since the greenhouse application was conducted at an early timing (1.5 leaf stage), it is possible that later applications in the field may be less effective.

For growers, the implications of this preliminary screening are that control of this new biotype/species will need to be prioritized early in the season. Possible treatments (keep in mind that these have not been field-tested and could cause phytotoxicity) could be: a stale seedbed using a non-selective herbicide; pre-plant Abolish® (thiobencarb) followed by Cerano® or Butte® or Granite GR®; Cerano® followed by Butte® or Bolero® or Granite GR®; or Butte® followed by Granite GR® or Bolero®. There is still a strong likelihood that a follow-up application may still be required later in the season, even with these early-season applications.

In 2020, more than 60 watergrass samples were collected from all over the rice-growing region. We will continue working on identification and conduct further herbicide screening this year.

Article by Whitney Brim-DeForest, UCCE Sutter, Yuba, Placer, Sacramento.

Table 2. Preliminary distinguishing characteristics of watergrass species in California rice fields, based on seed characteristics.

Preliminary Identification	Seed Description
Late watergrass	Large size, no awns
Early watergrass	Large size, awned (all seeds)
Barnyardgrass	Small size, variably awned (some seeds have awns, some do not)
New biotype/species (unknown)	Small size, awned (all seeds)

Late watergrass, barnyardgrass and early watergrass.

New watergrass biotype