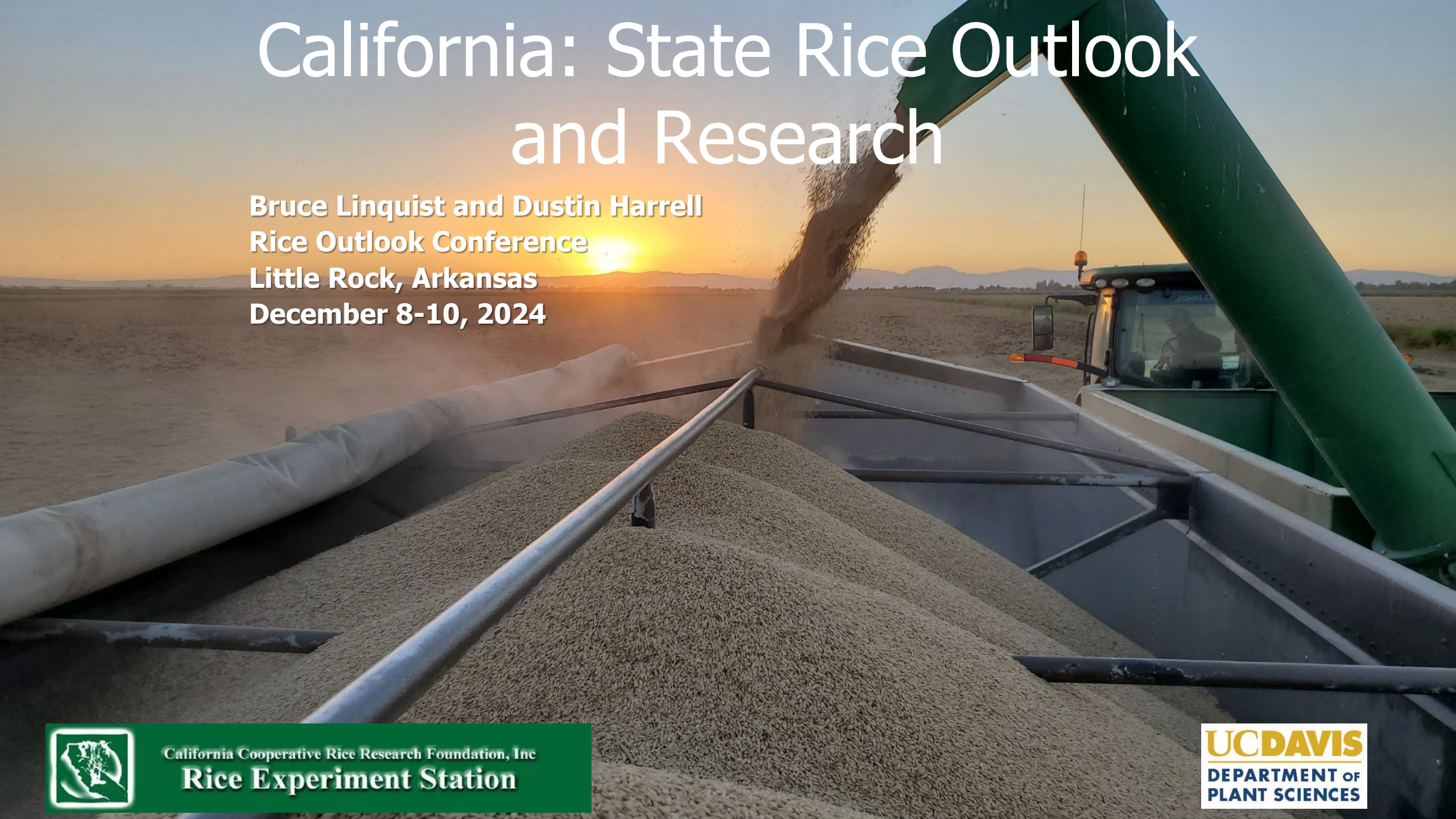
# California: State Rice Outlook and Research

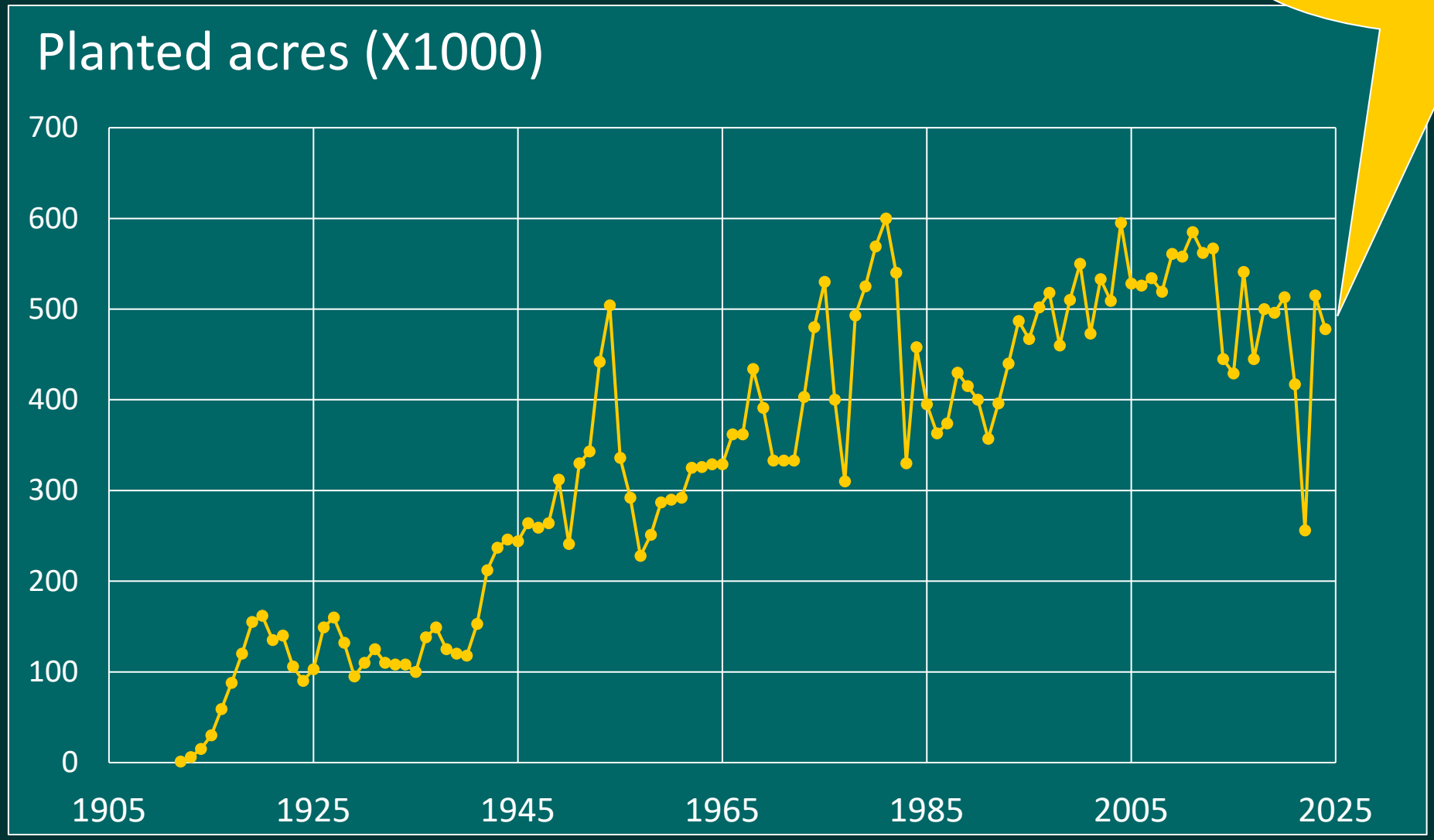
**Bruce Linquist and Dustin Harrell**
**Rice Outlook Conference**
**Little Rock, Arkansas**
**December 8-10, 2024**



California Cooperative Rice Research Foundation, Inc
Rice Experiment Station

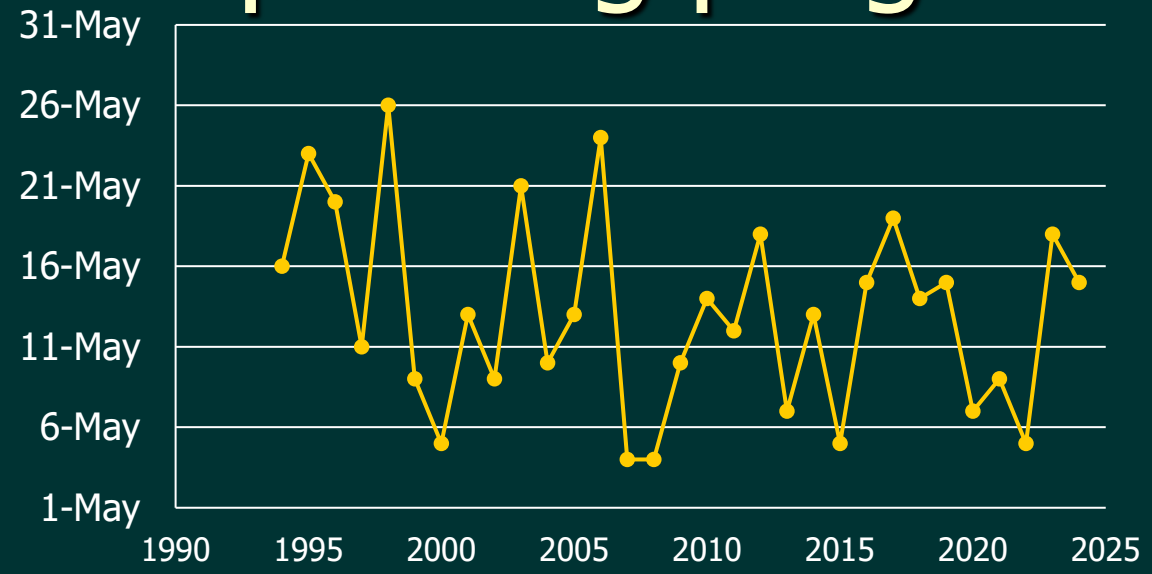
UCDAVIS
DEPARTMENT OF PLANT SCIENCES

# Planted acres

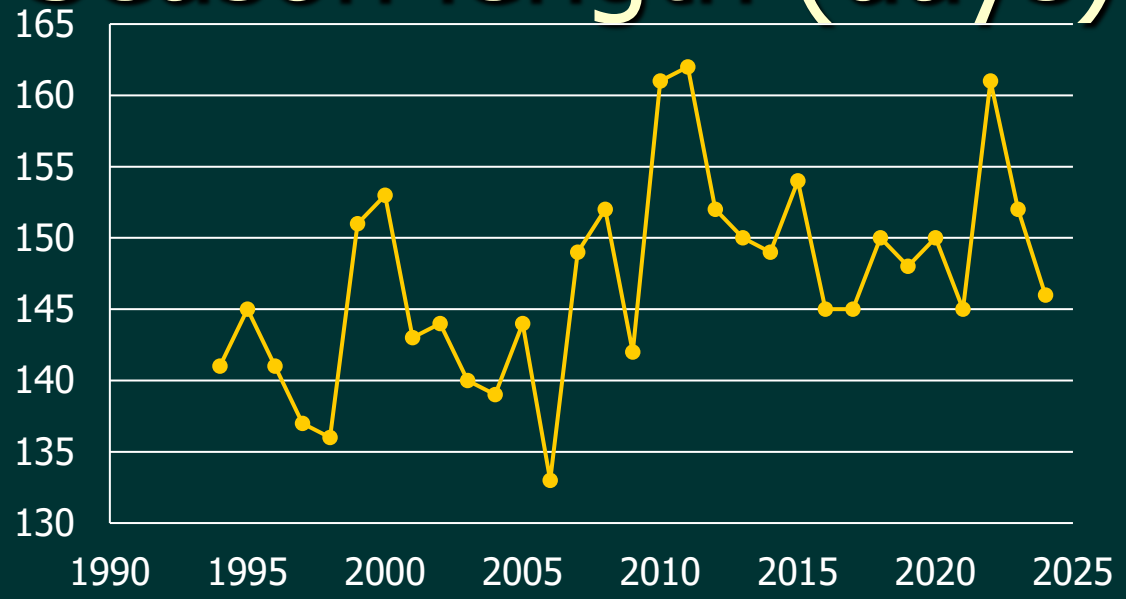



478,000
acres in 2024

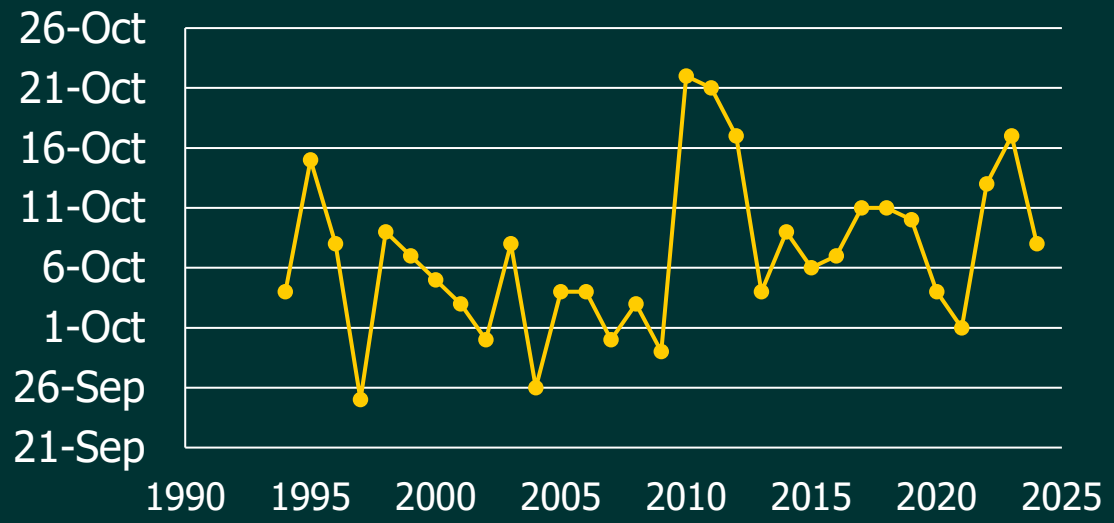
# 50% planting progress




# Season length (days)




# 50% harvest

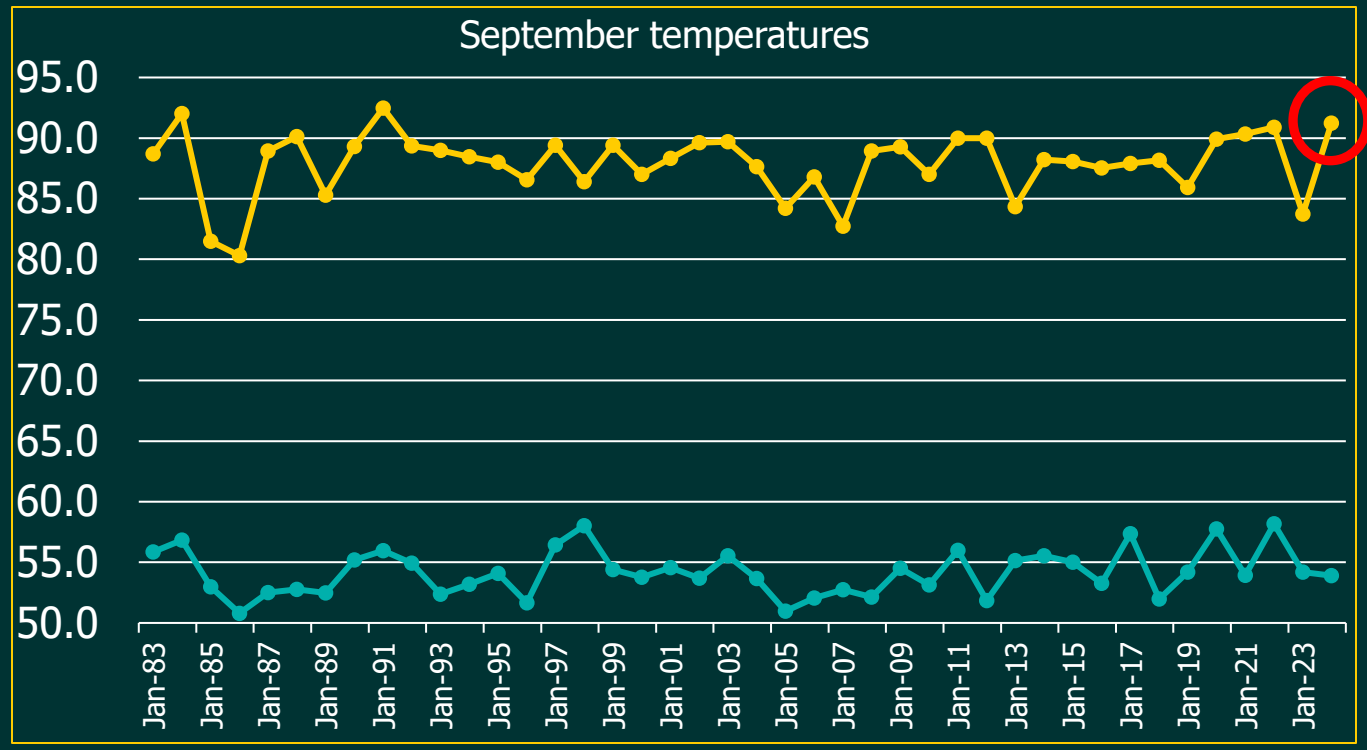


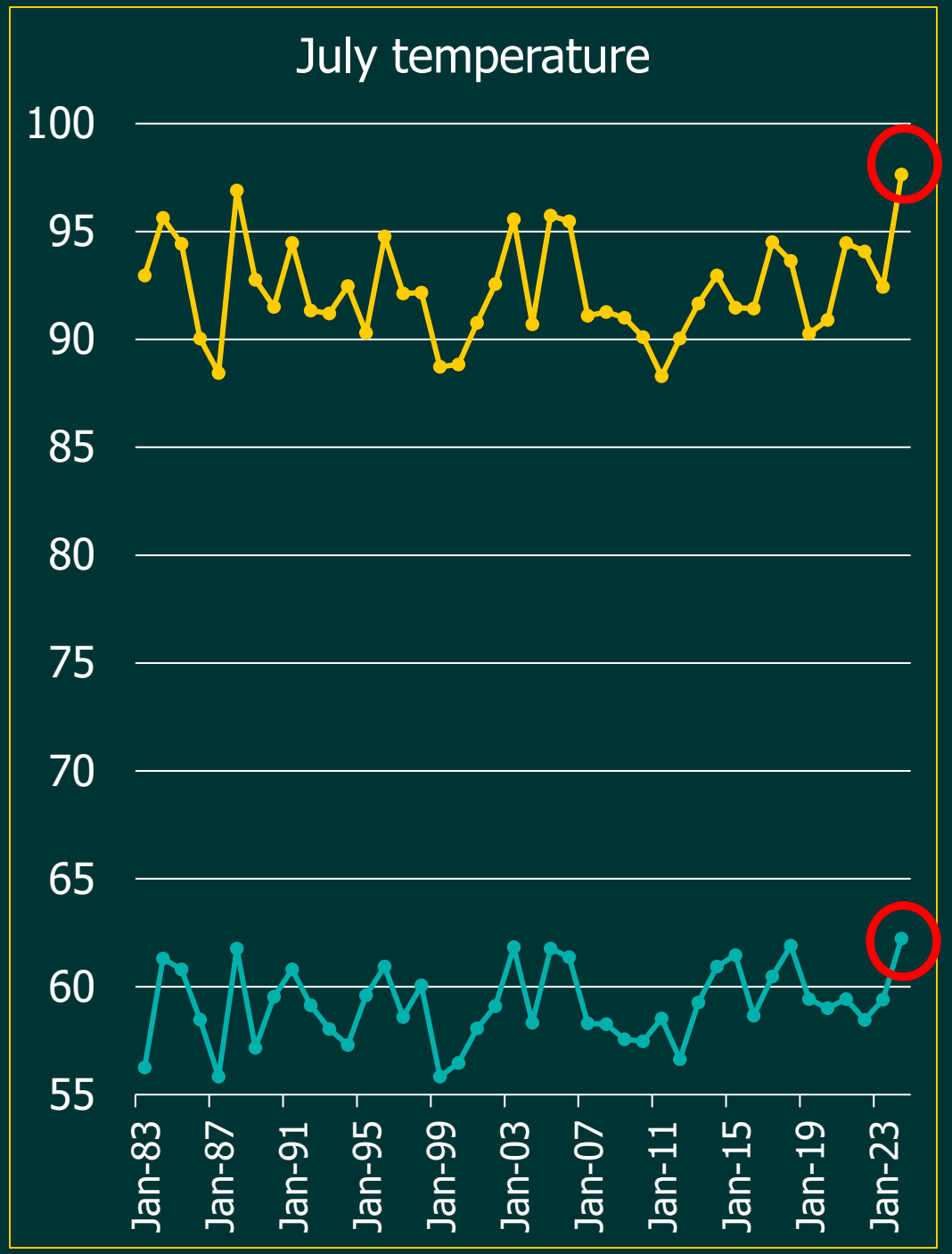

# Why a relatively short season?

- 40% planted to long duration varieties
  - M209, M211, M401
- Late planting
  - early May rains
- Normal harvest despite late planting
  - Warm summer
  - Favorable weather for harvest

# 2024 Season

- Warmest July on record
  - Average day time high of 98. Over half of days above 100
  - Early planted rice flowering in late July (blanking?)
  - High nighttime temps can reduce yields
- Warmest September since 1991
  - Grain fill for a lot of rice (quality)



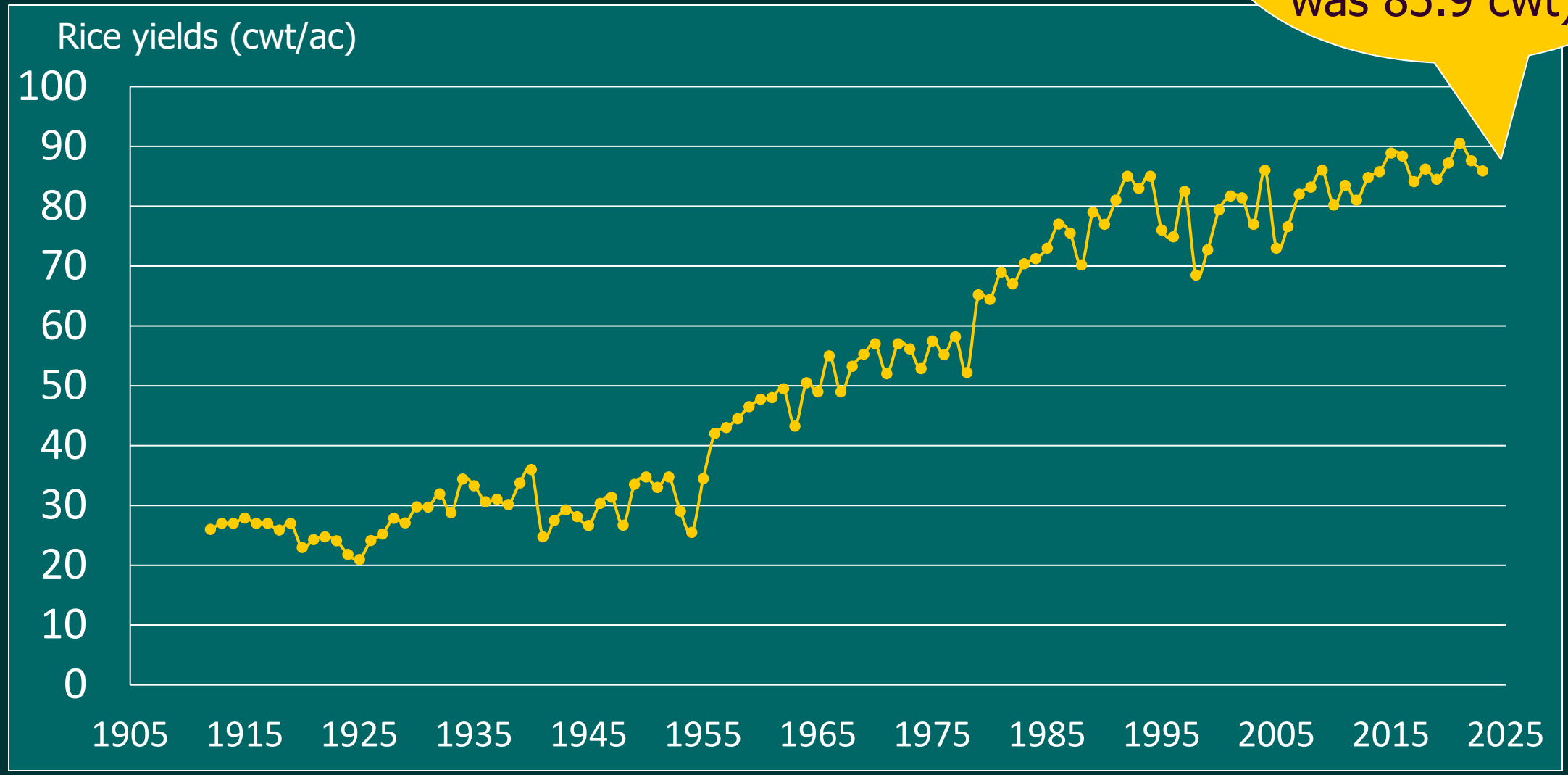



# 2024 Season (cont)

- Yields were generally lower
  - Large variance depending on planting date
- Quality:
  - Low head rice yields, some chalk
    - Warm September, M-211 (1/5 of acreage)
- Insect pest and disease
  - Normal; blast low
- Weeds
  - A lot of watergrass and redstem
    - Not uncommon in late planted years

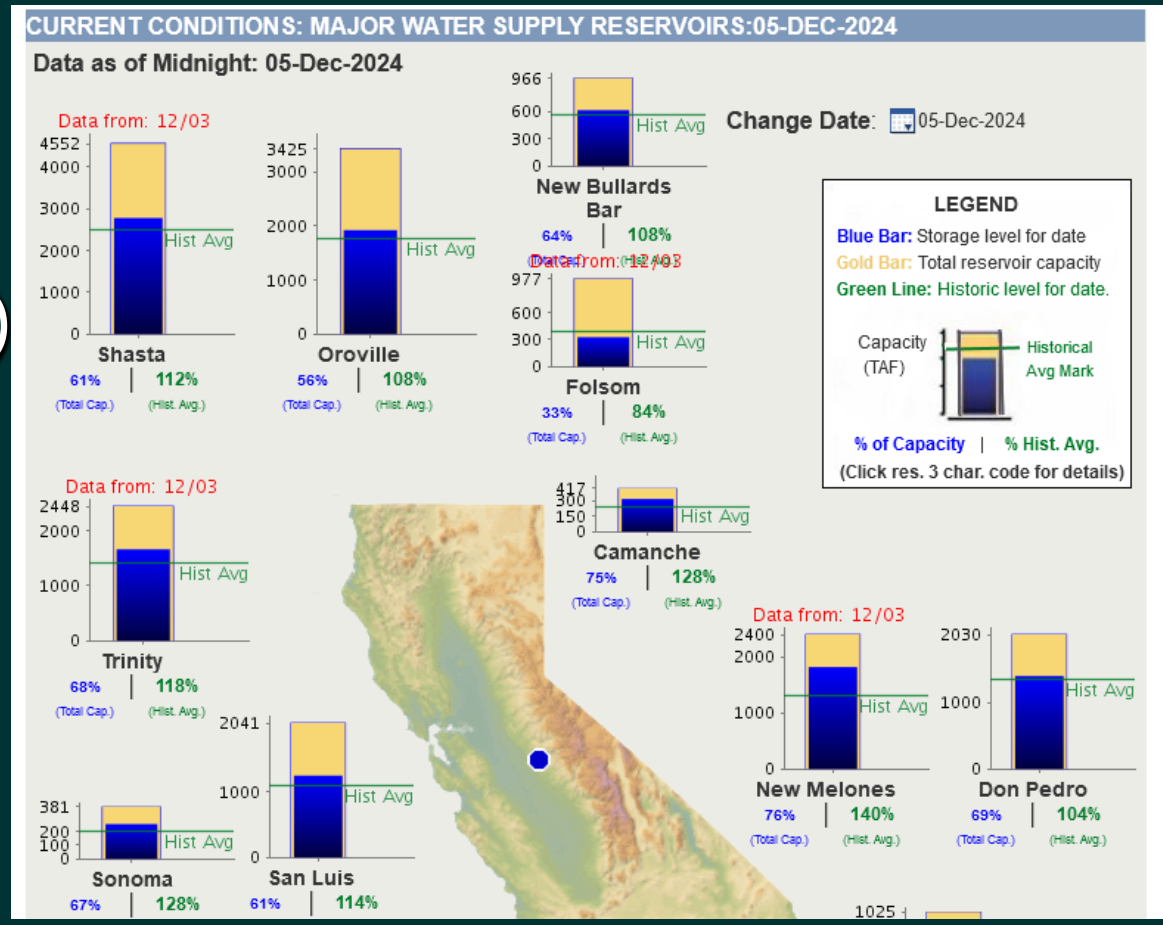
# California rice yields (1912 to 2023)

Guessing 2024 yields will be 84 cwt (2023 was 85.9 cwt)



# 2025 Outlook

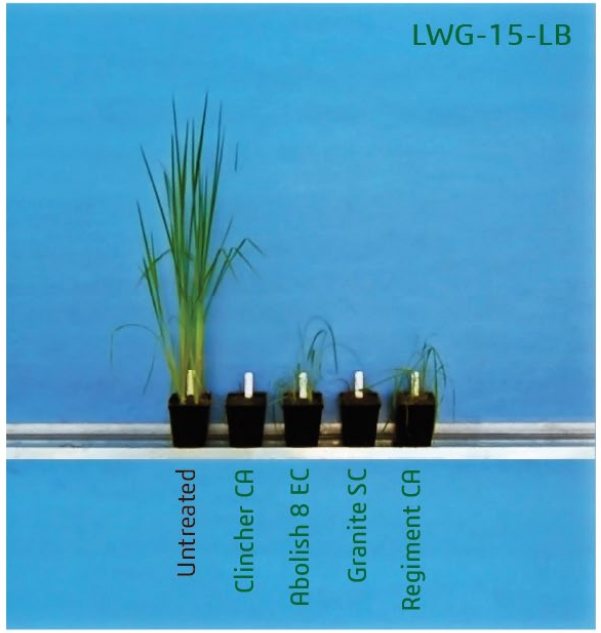
- As of Dec 5:
  - Reservoirs: above normal
    - Shasta (112%); Oroville (108%)
  - Rainfall: above normal
    - 141% above normal
    - Mostly due to one large rainfall event
  - Snowpack: high for this date
    - 211% of normal for Dec 5



# Research

## UCCE Winter grower meetings
## Feb 10-13, 2025

Susceptible Population





California Rice Research Board

# Evaluation of herbicide programs and new herbicides

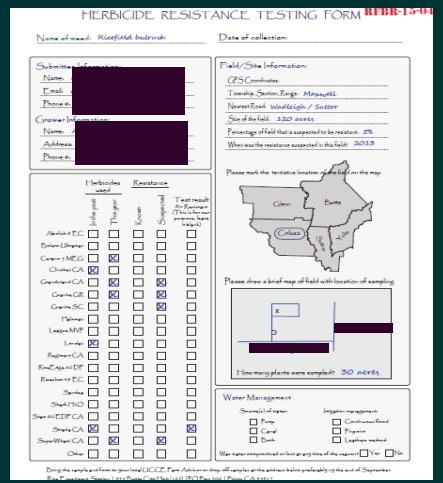
- New herbicides being evaluated or optimized
  - Loyant
  - Pyraclonil (Zembu): some on-farm issues with crop injury
  - Tetflupyrolimet (promising grass control)
  - Vantek, pendimethalin formulation for water seeded rice
  - Oxyfluorfen on Roxy rice
  - Cliffhanger (Benzobicyclon)
- Herbicides for control of Walter's barnyard grass

Kassim Al-Khatib & Whitney Brim-DeForest

# Herbicide resistance

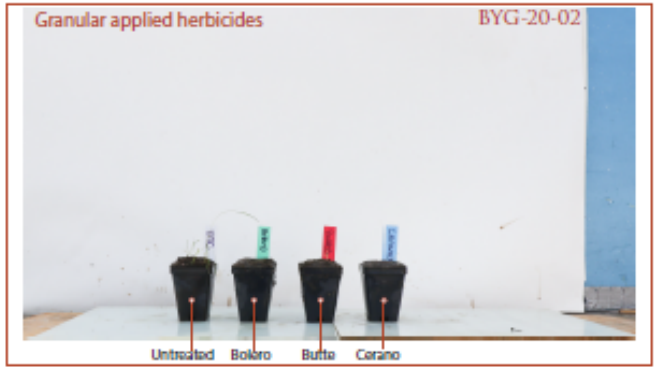
- Study mechanisms of resistance
- Testing program for growers
  - 40-100 samples tested per year
  - Resistance tested for all potential herbicides
  - New insights into resistance

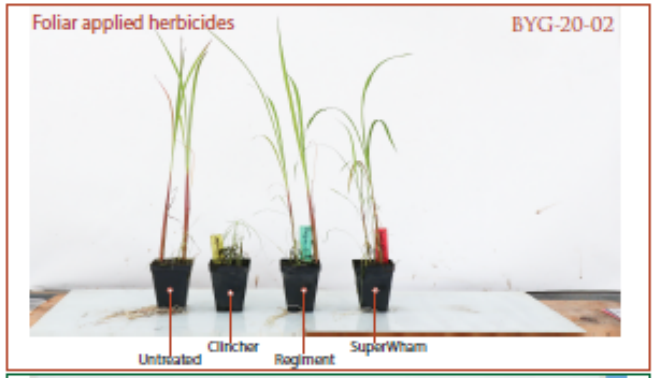
Kassim Al-Khatib & Whitney Brim-DeForest

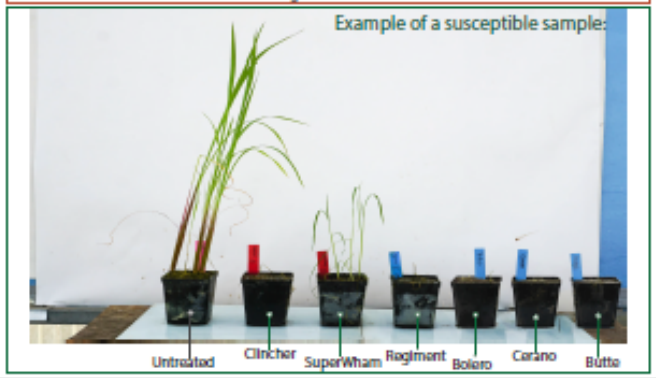



| HERBICIDES TESTED | RESISTANCE STATUS |
|---|---|
| VLCFA inhibitor<br>**Bolero®**<br>thiobencarb | Your sample is NOT resistant.<br>**NO**<br>All tested samples are susceptible. |
| HPPD inhibitor + ALS inhibitor<br>**Butte®**<br>benzobicyclon + halosulfuron-methyl | Your sample is NOT resistant.<br>**NO**<br>96% of tested samples are susceptible. |
| Pigment synthesis inhibitor<br>**Cerano® 5MEG**<br>clomazone | Your sample is NOT resistant.<br>**NO**<br>97% of tested samples are susceptible. |
| ACCase inhibitor<br>**Clincher® CA**<br>cyhalofop-butyl | Your sample is MAY BE becoming resistant.<br>**YES**<br>23% survival rate on tested samples. |
| PS II inhibitor<br>**SuperWham®**<br>propanil | Your sample is resistant.<br>**YES**<br>96% survival rate on tested samples. |
| ALS inhibitor<br>**Regiment® CA**<br>bispyribac-sodium | Your sample is resistant.<br>**YES**<br>99% survival rate on tested samples. |

PHOTOGRAPH OF YOUR SAMPLE



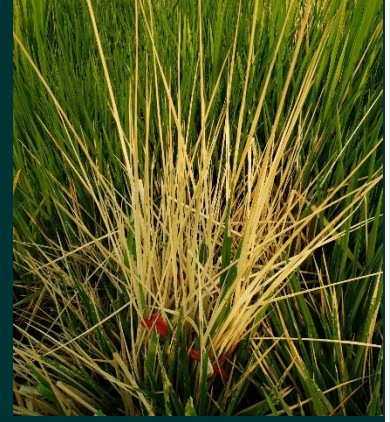



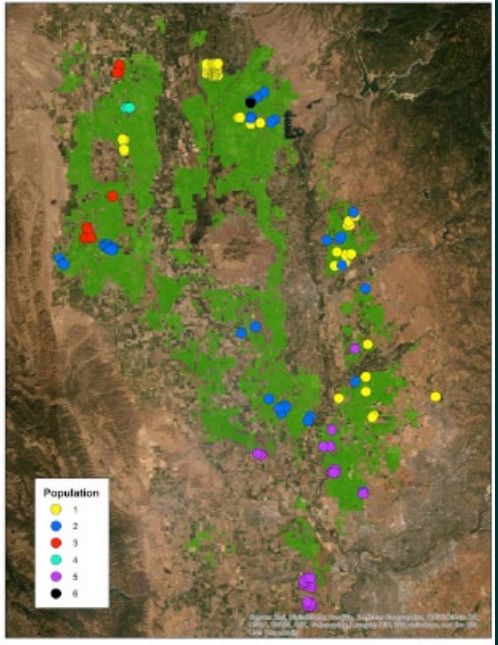

## General Principles of Herbicide Resistance Management

- Apply integrated weed management practices. Use multiple herbicide sites-of-action with overlapping weed spectrums in rotation, sequences, or mixtures.
- Use the full recommended herbicide rate and proper application timing for the hardest to control weed species present in the field.
- Scout fields after herbicide application to ensure control has been achieved. Avoid allowing weeds to reproduce by seed or to proliferate vegetatively.
- Monitor site and clean equipment between sites.
- When resistance to an herbicide develops there may be resistance to all herbicides with the similar mode of action.

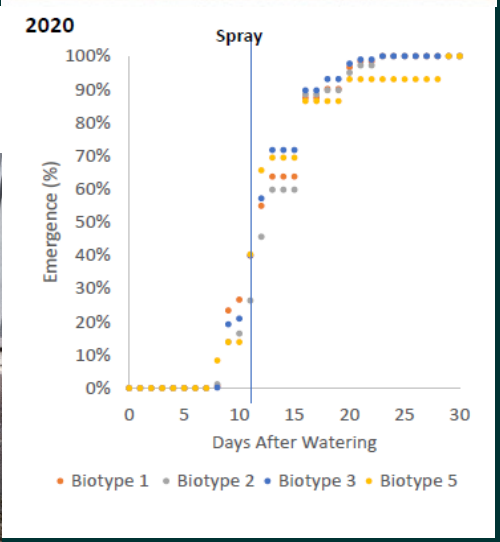
Source: Herbicide Resistance Action Committee

# Weedy rice






- Biotype ID and characterization
  - Phenotyping
  - Germination/ emergence
  - Seed bank longevity
- Monitoring populations
  - No indication of expanding acreage
- On going research efforts to manage
  - Stale seedbed
  - Herbicides to control

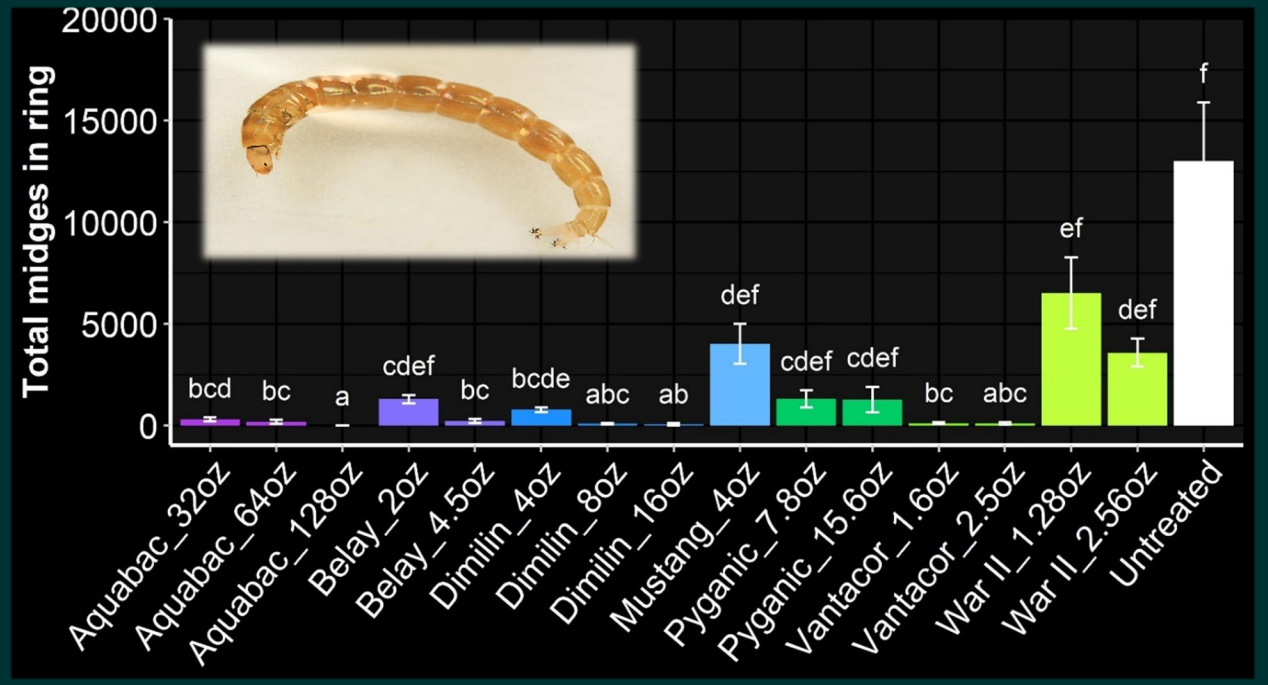


# Chemical/biological control for pests

Luis Espino

Ian Grettenberger

- Tadpole shrimp
  - Treatment and scouting
- Rice Seed Midge
  - Treatment
- Armyworms
  - Monitoring

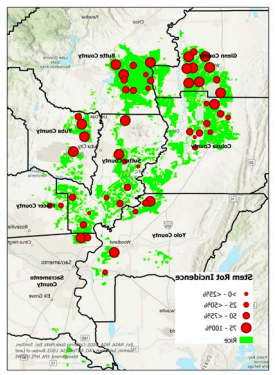


# Chemical/biological control for diseases

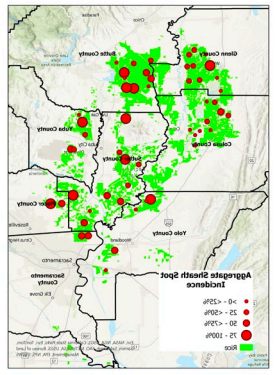
- Diseases
  - Aggregate sheath spot
  - Stem rot
  - Blast
  - Kernel smut
- Varietal susceptibility
- Response to various chemical treatments
- Disease survey

Luis Espino

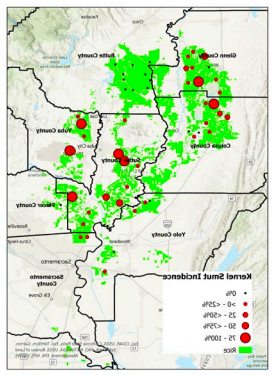

Stem Rot



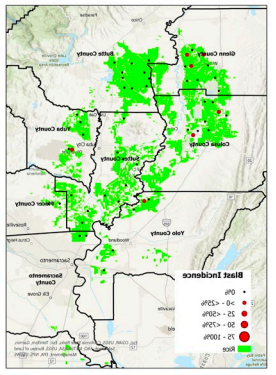
Aggregate Sheath Spot



Kernel Smut



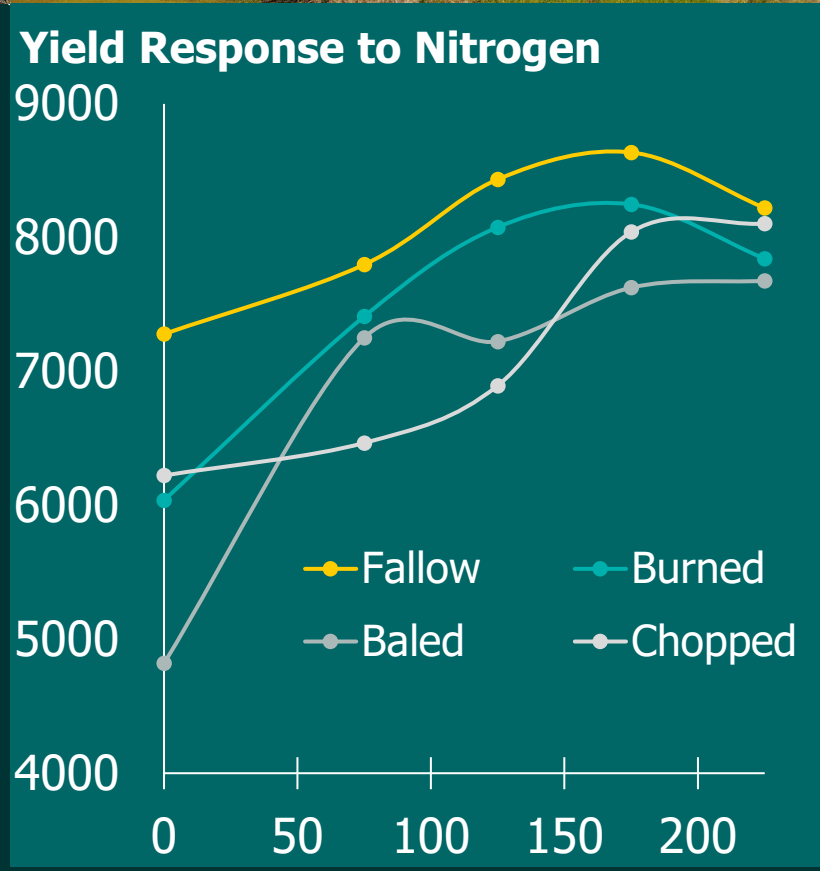
Blast



Bruce Linquist

# Cropping systems

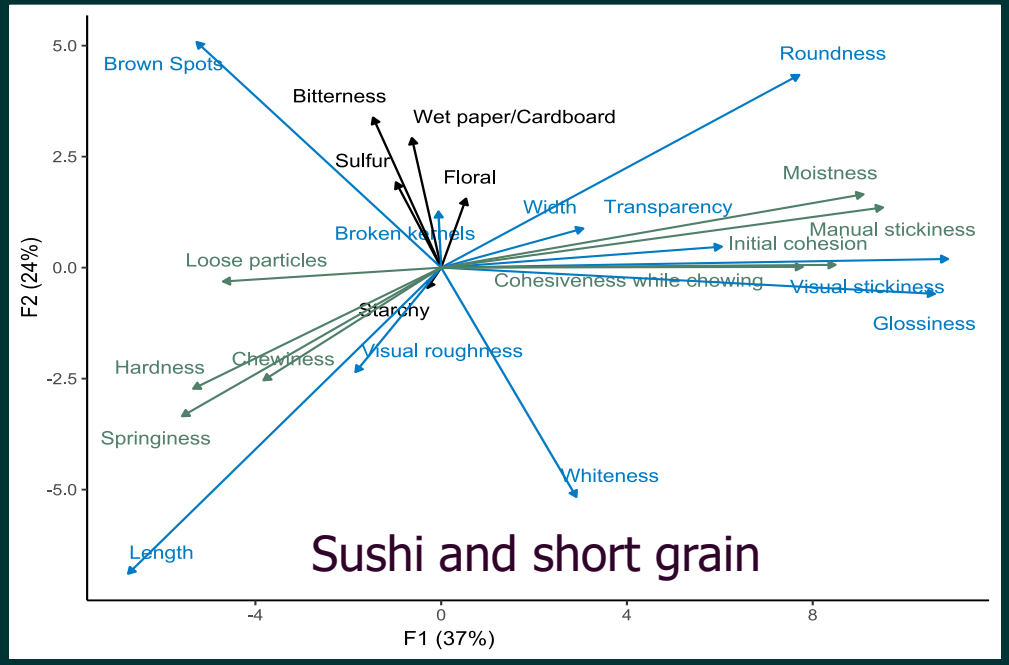
- Optimizing management of fields that have been fallowed
  - 10% of rice area is fallowed annually
    - Drought or Prevented Planting
- Crop establishment
  - "No-till" dry-seeding
    - stale seedbeds (previous year fallowed)
    - Various straw mgmt. treatments
  - Very promising results (on station and on-farm)
    - Yields, ability to plant early, weed control, water savings

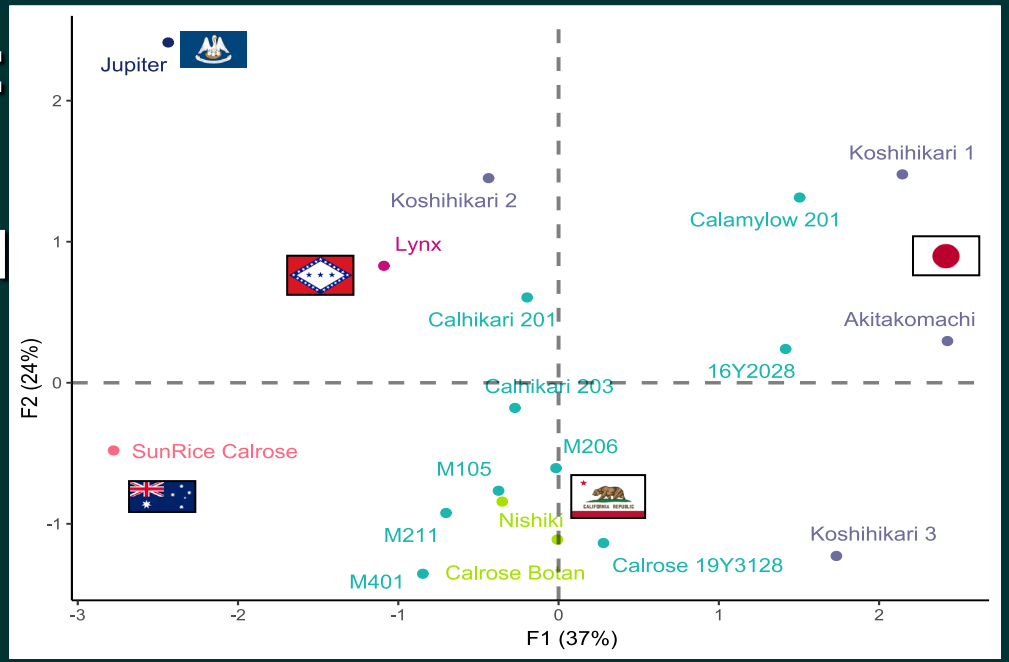


Jean-Xavier Guinard

# Sensory profiling of CA varieties

- In collaboration with the RES
- Quantifying sensory properties and consumer acceptance of CA varieties using:
  - Sensory descriptive analysis
  - Instrumental measurements of color, flavor and texture
  - Consumer tests
- Medium, short, long and specialty varieties



# Rice Experiment Station Overview 2024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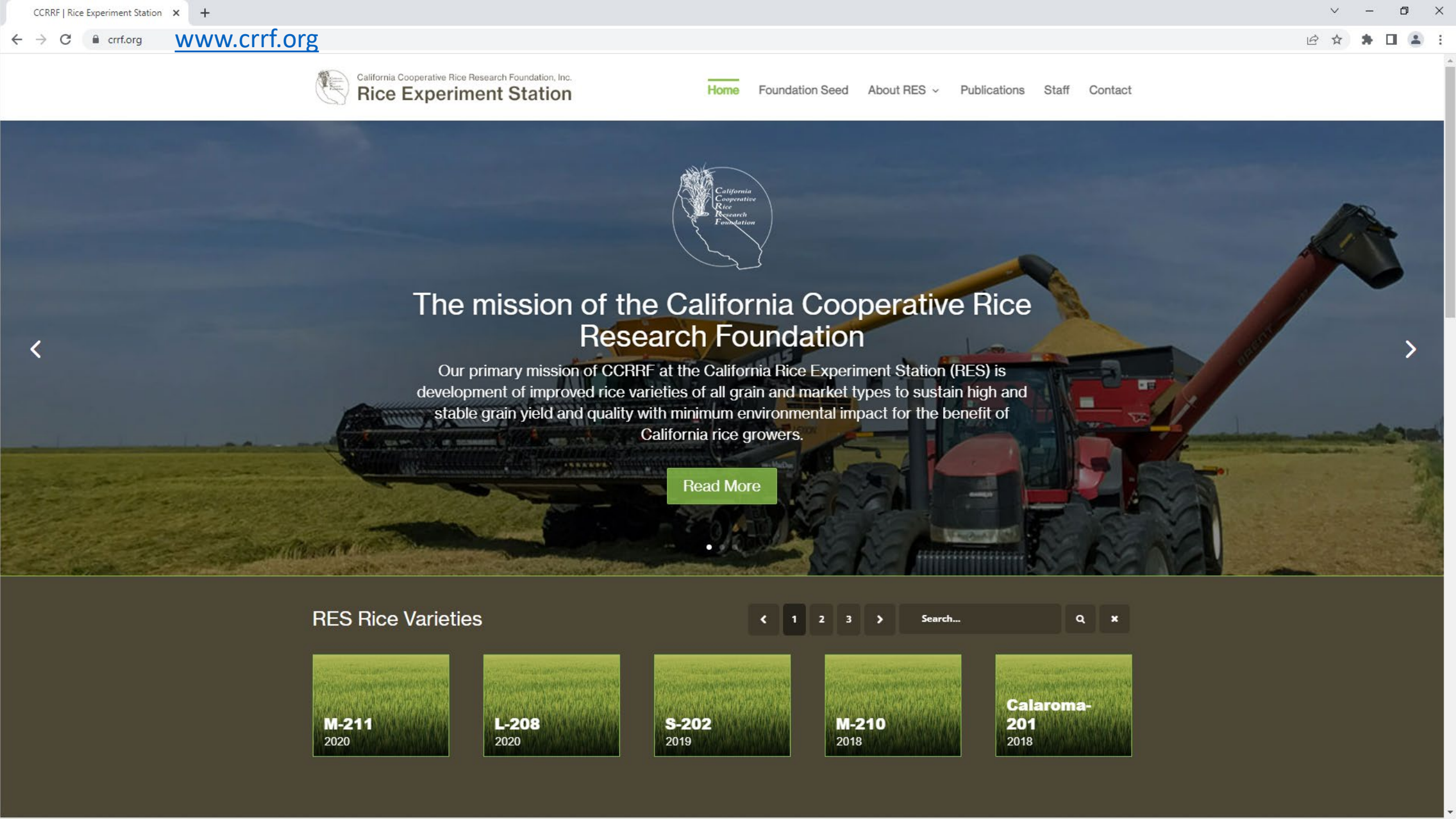
**www.crrf.org**


CCRRF | Rice Experiment Station
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The mission of the California Cooperative Rice Research Foundation
Our primary mission of CCRRF at the California Rice Experiment Station (RES) is development of improved rice varieties of all grain and market types to sustain high and stable grain yield and quality with minimum environmental impact for the benefit of California rice growers.
Read More
RES Rice Varieties
1
2
3
Search...
M-211
2020
L-208
2020
S-202
2019
M-210
2018
Calaroma-201
2018

# Interactive Map of Rice Trials and Current Rice Data for 2024

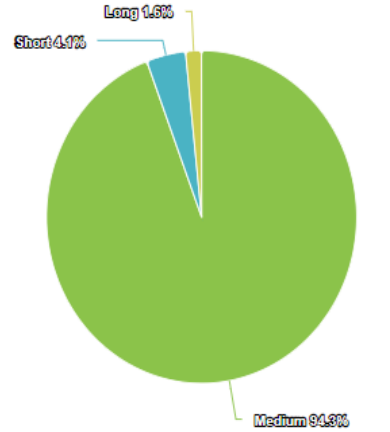
## Rice Variety Trials by CA Locations

RICE MAP
Click on any Trial Rice Location

## Estimated Rice Acreage Totals

| Grain Type | Year | CA Est. Acres | % Acres |
|---|---|---|---|
| Medium | 2024 | 460,000 | 94.3% |
| Short | | 20,000 | 4.1% |
| Long | | 8,000 | 1.6% |
| **Total** | | **488,000** | |
| Medium | 2023 | 485,000 | 94.4% |
| Short | | 18,000 | 3.5% |
| Long | | 11,000 | 2.1% |
| **Total** | | **514,000** | |

## Estimated Rice Acreage by Grain Type




## Rice Production and Trends of CCRRF Varieties

Rice Production of CCRRF Varieties from 2023-2024

View Production Data

Trend in CA Acreage of Small, Medium, and Long Grain Varieties

View Trend Data

## RES Rice Variety Profile

Performance | Grain Attributes | Paddy, Brown and Milled Grains

## Centennial Video

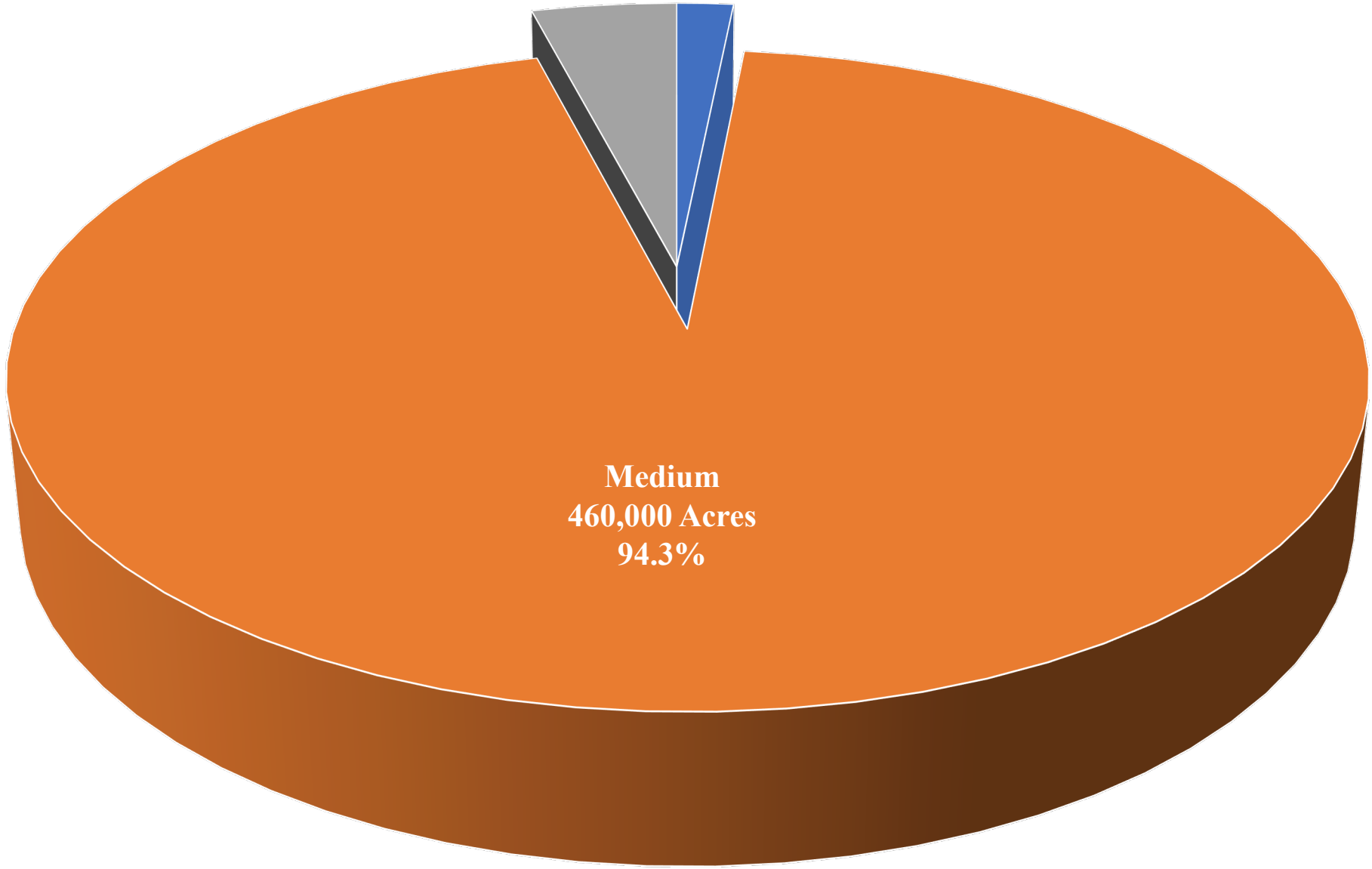
## Calendar of Upcoming Events

View All

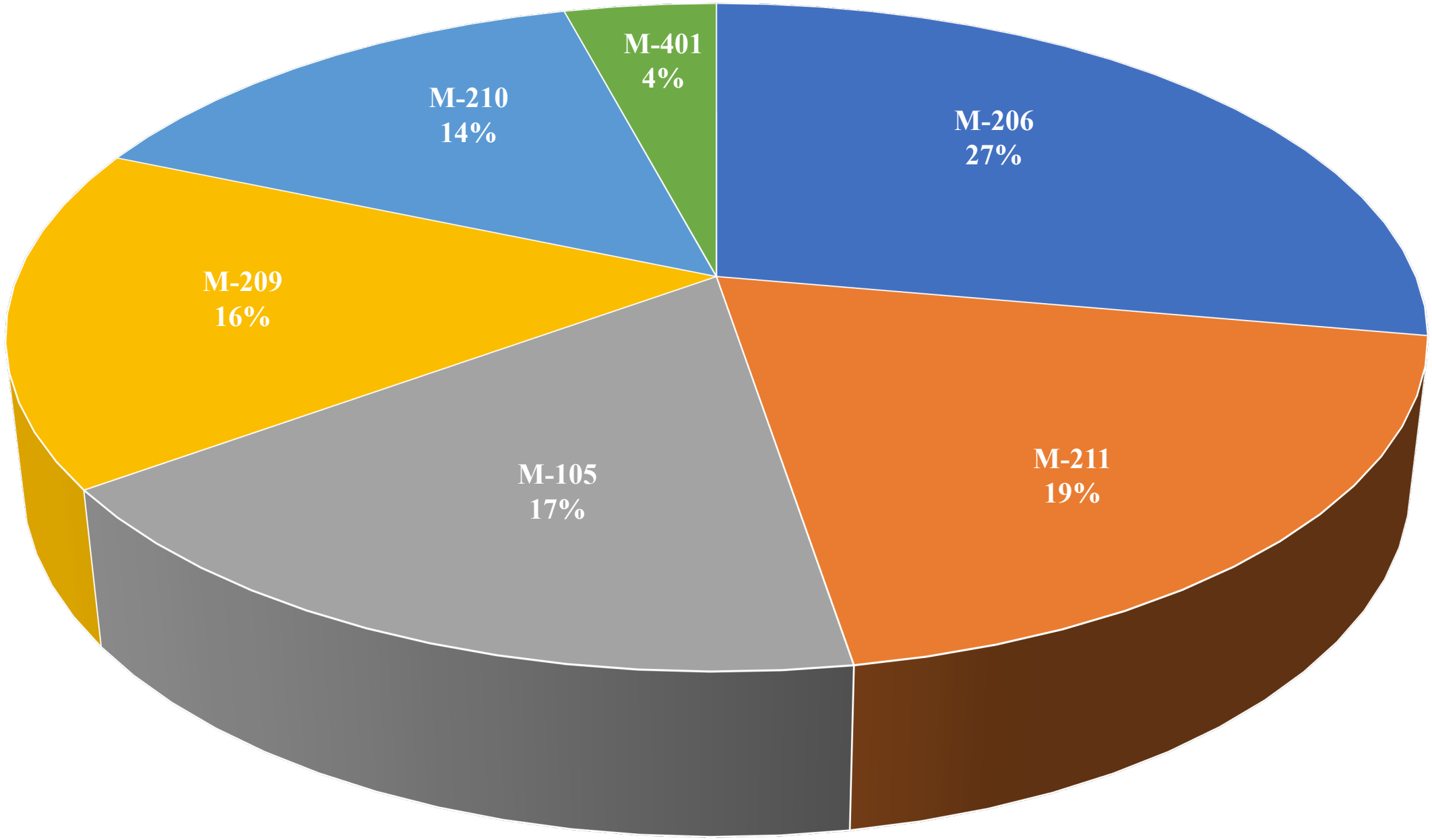
## Innovations

ROXY RPS®

# 2024 Acreage by Grain Size



# 2024 Medium Grain Variety by Acreage



# Rice Variety Trials By California Locations

## Location: Rice Experiment Station

Rice Variety Trials by CA Locations

**RICE MAP**
Click on any Trial
Rice Location

**Currently Viewing Year:**
2024


**California Cooperative Rice Research Foundation, Inc.**
**Rice Experiment Station**
955 Butte City Highway [Hwy 99]

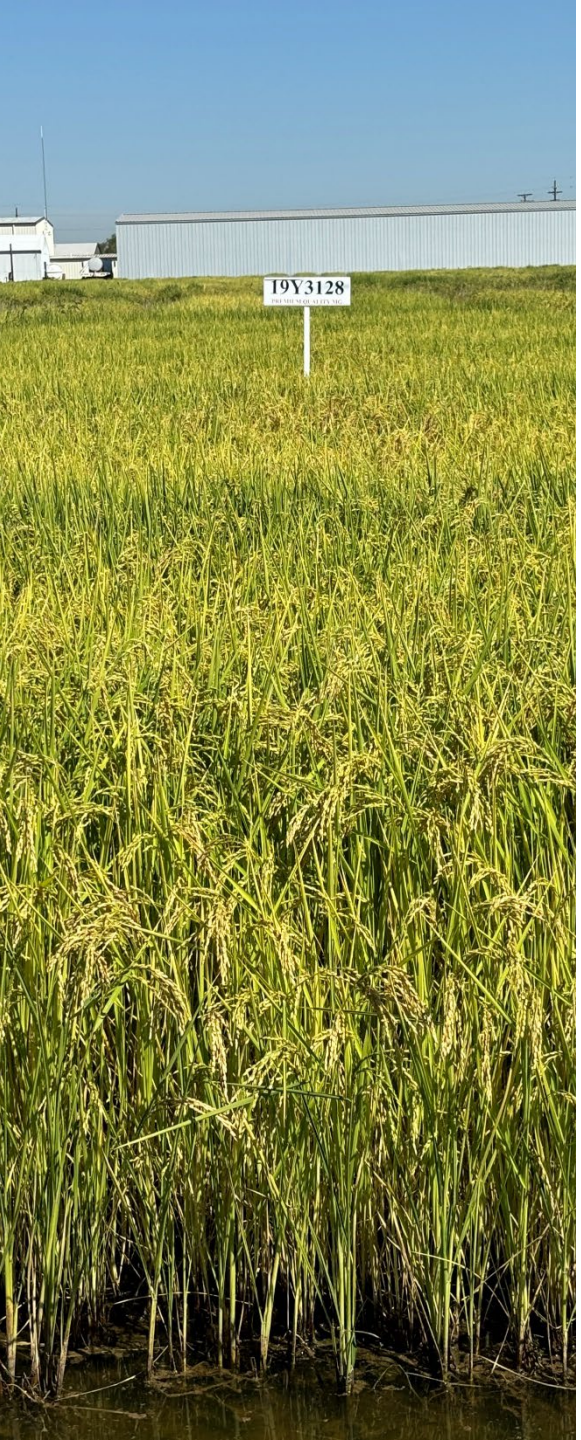
# 20Y4033, PROMISING FRAGRANT CALROSE

**(RM3850= M-206*2//A-202/M-206G7-3)**

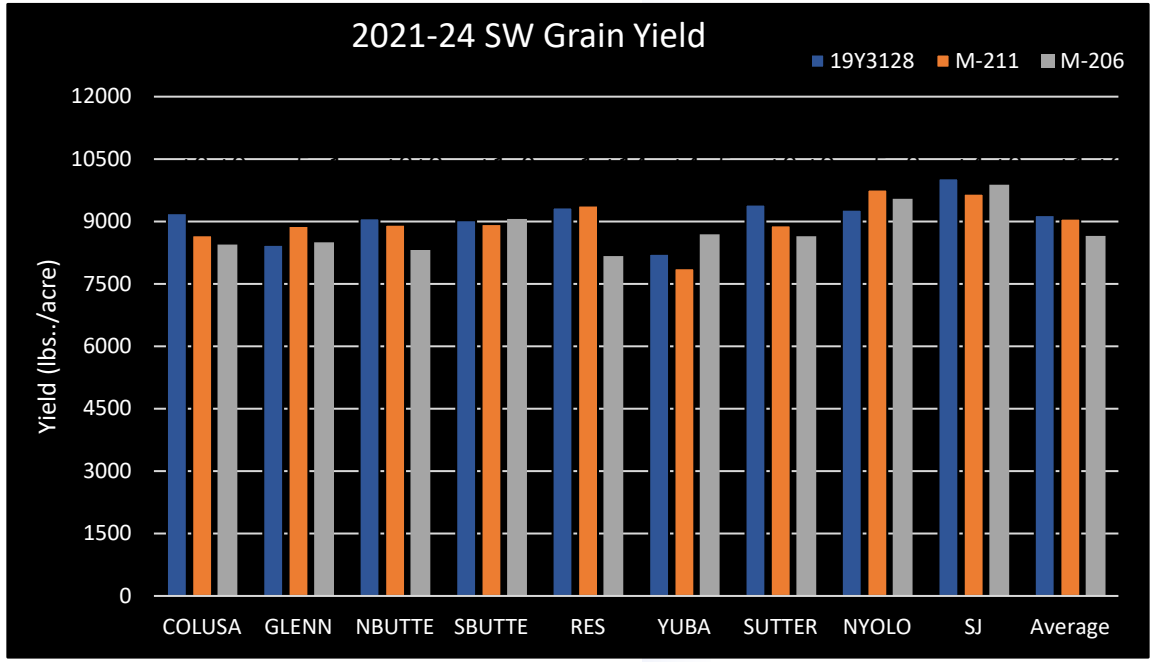
| 2021-23 SW Average | M-206 | 20Y4033 |
|---|---|---|
| Grain Yield (lb/a) | 8,706 | 8,585 |
| Harvest MC, % | 17 | 18 |
| Seedling Vigor | 4.8 | 4.8 |
| Days to 50% Heading | 88 | 87 |
| Lodging Potantial | 39 | 56 |
| Height (cm) | 97 | 101 |
| Panicle Blanking- SJ, GH (%) | 1, 5 | 1, 2 |
| Stem rot resistance | Sus (4.2) | Mod Res (2.7) |
| **2023 Grain Data** | | |
| Milling Yield at 18-22MC | 67% / 70% | 62% / 71% |
| Total Whiteness | 133 | 139 |
| Vitreous Whiteness | 125 | 127 |
| Average Length | 5.68 | 5.75 |
| Average Width | 2.45 | 2.53 |
| L/W | 2.32 | 2.27 |
| 1000-grain weight (g) | 20.66 | 21.54 |
| ChalkyKernel % | 2.1 | 2.8 |
| Taste value | 70 | 71 |
| Protein | 7.3 | 7.3 |
| Moisture | 13.8 | 13.2 |
| Amylose | 19.5 | 19.6 |

# 18Y2070, Promising Arborio Rice

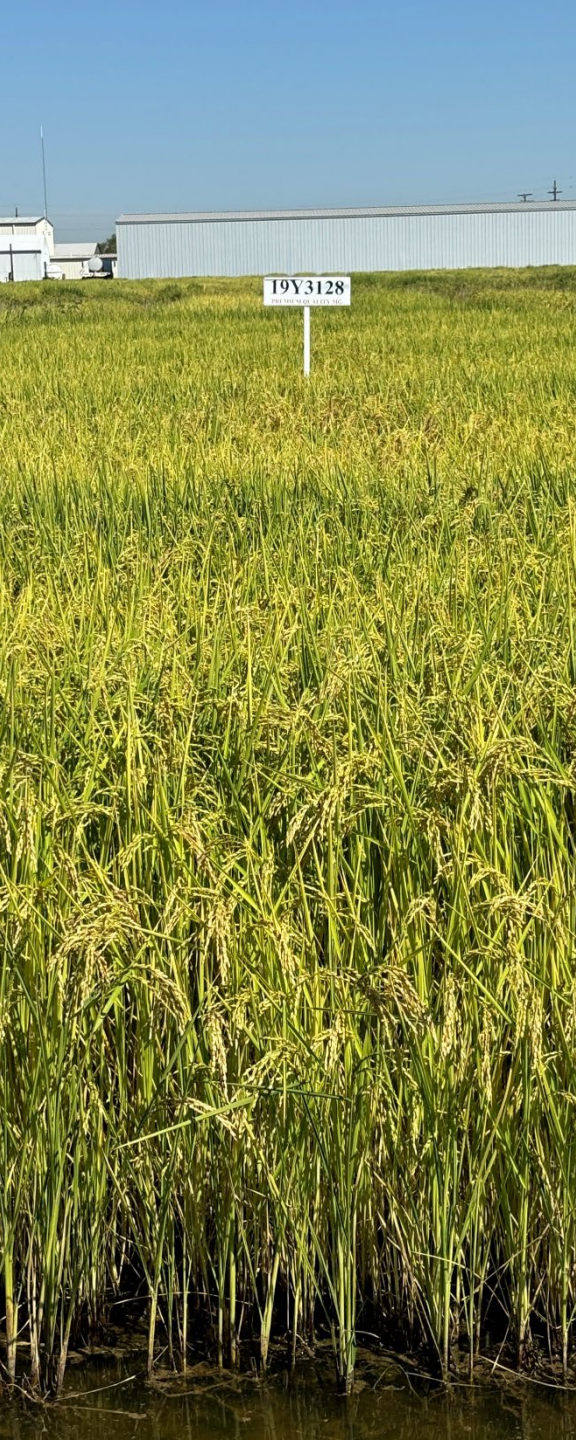

- 12% Yield advantage over 89Y235, 100% over Arborio
- With better milling yield than Arborio
- With smooth (glabrous) leaves and grains




CALROSE LINEAGE CULTIVARS

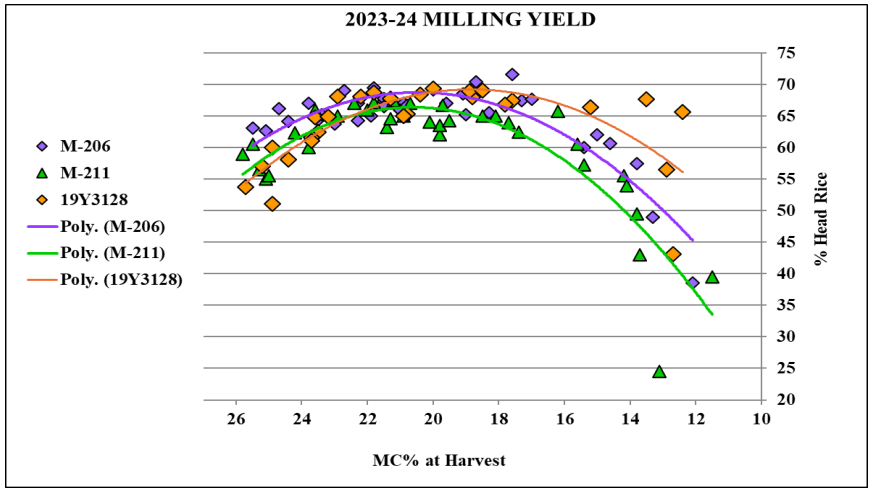


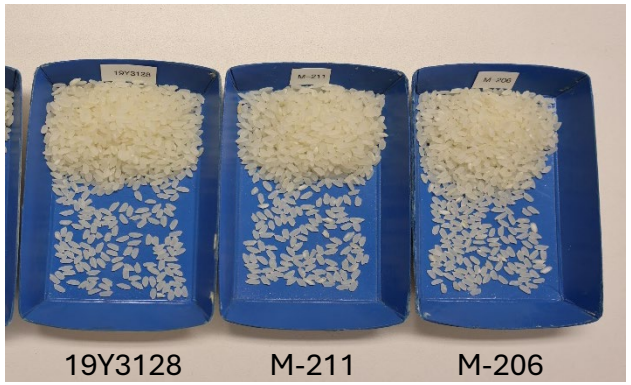

| ID | No of Tests | 4- YR Mean Yield (lbs../acre) | MC | Seedling Vigor | Days to 50% Flowering | % Lodging | Height (cm) |
|---|---|---|---|---|---|---|---|
| 19Y3128 | 34 | 9150 | 17 | 4.8 | 91 | 37 | 104 |
| M-211 | 34 | 9064 | 17 | 4.8 | 91 | 28 | 102 |
| M-206 | 34 | 8655 | 17 | 4.8 | 85 | 41 | 100 |
| | | | | | | | |
| MEAN | | 8957 | 17 | 4.8 | 89 | 35 | 102 |
| 5%LSD | | 421 | 1 | 0.0 | 4 | 20 | 3 |
| cv | | 10 | 15 | 1.4 | 9 | 117 | 7 |




CALROSE LINEAGE CULTIVARS

| Grain Trait \ Variety | 19Y3128 | M-206 | M-211 |
|---|---|---|---|
| **Milling Yield (2024)** | M | CK | CK |
| MC | 17.6 | 19.1 | 19.8 |
| %Head Rice | 68 | 66 | 62 |
| %Total | 70 | 71 | 69 |
| **S-21 (2024)** | | | |
| Total Whiteness | 129.21 | 143.33 | 148.31 |
| Vitreous Whiteness | 120.45 | 132.70 | 131.37 |
| Health Wholes | 95.44 | 95.27 | 82.45 |
| Average Length | 5.69 | 5.69 | 5.75 |
| Average Width | 2.52 | 2.51 | 2.70 |
| L/W | 2.25 | 2.27 | 2.13 |
| Total Chalky Area | 16.90 | 24.81 | 35.93 |
| % Whole Chalky | 3.49 | 3.65 | 16.64 |
| **VIBE (2024)** | | | |
| 1000-grain weight | 21.463 | 21.561 | 23.092 |
| Ave. Chalky Percentage | 3.81 | 1.477 | 8.574 |
| **SATAKE (2024)** | | | |
| TASTE | 80 | 76 | 82 |
| PROTEIN | 5.7 | 6.5 | 5.5 |
| AMYLOSE | 18.7 | 19 | 18.4 |
| **Protein_CAWL** | 5.06 | 5.4 | 4.6 |



# 16Y2028, a high-yielding, non-pubescent low amylose short grain rice

| Year | ID | Grain yield (lbs/acre, 14% MC) | %Yield adv. over CA-201 | Seedling vigor (1-5) | Days to 50% heading | Plant height (cm) | Lodging (%) |
|---|---|---|---|---|---|---|---|
| 2019 | 16Y2028 | 9,400 | 34 | 5.0 | 78 | 110 | 72 |
| | CA-201 | 7,000 | | 4.8 | 80 | 96 | 48 |
| 2020 | 16Y2028 | 9,419 | 28 | 4.8 | 87 | 102 | 62 |
| | CA-201 | 7,330 | | 4.9 | 80 | 94 | 45 |
| 2021 | 16Y2028 | 9,274 | 38 | 5.0 | 90 | 95 | 47 |
| | CA-201 | 6,706 | | 5.0 | 90 | 88 | 41 |
| 2022 | 16Y2028 | 8,498 | 34 | 4.8 | 90 | 101 | 68 |
| | CA-201 | 6,345 | | 4.8 | 90 | 92 | 48 |
| 2023 | 16Y2028 | 8,630 | 31 | 4.9 | 85 | 108 | 75 |
| | CA-201 | 6,601 | | 4.8 | 84 | 97 | 56 |
| 2024 | 16Y2028 | 8,838 | 37 | 4.8 | 83 | 107 | 73 |
| | CA-201 | 6,461 | | 4.8 | 82 | 99 | 51 |
| **Mean** | **16Y2028** | **9,010** | **34** | **4.9** | **86** | **104** | **66** |
| | **CA-201** | **6,741** | | **4.9** | **84** | **94** | **48** |

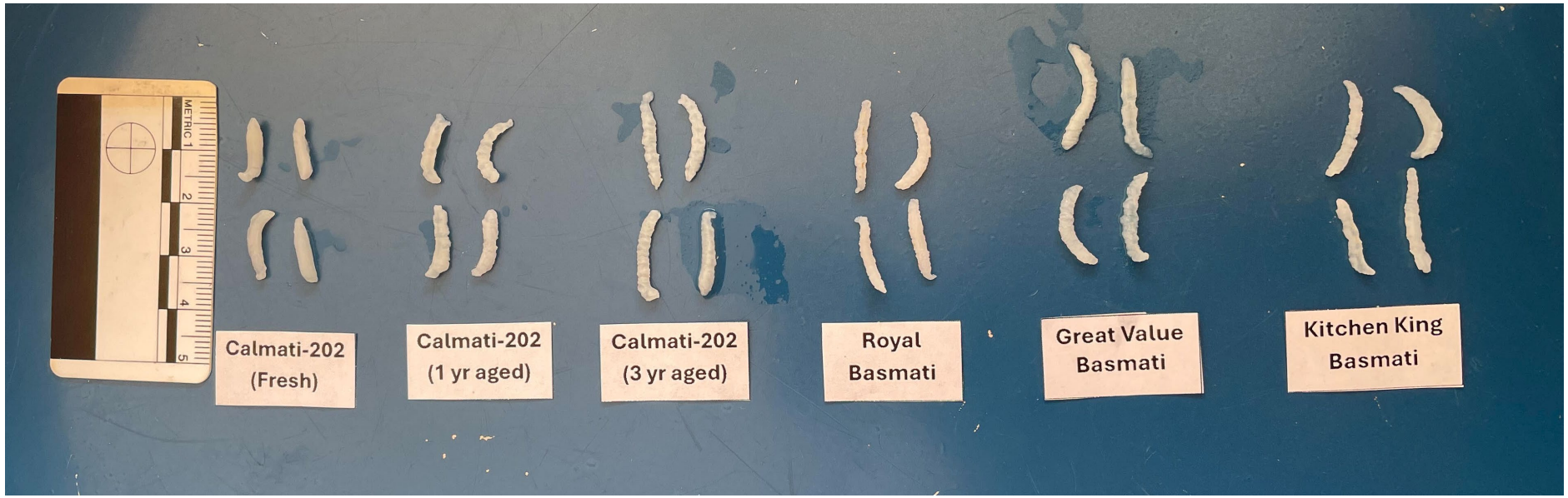
**CA-201**

**16Y2028**

# 2024 Long grain component

**Component**

- ✓ Regular (40%)
- ✓ Aromatic (20%)
- ✓ Jasmine (20%)
- ✓ Basmati (20%)





**High Amylose Rice & Low GI**

# 2025 Available Foundation Seed

<u>Long grain:</u> L-207, L-208, CJ-201, A-202

<u>Medium grain:</u>

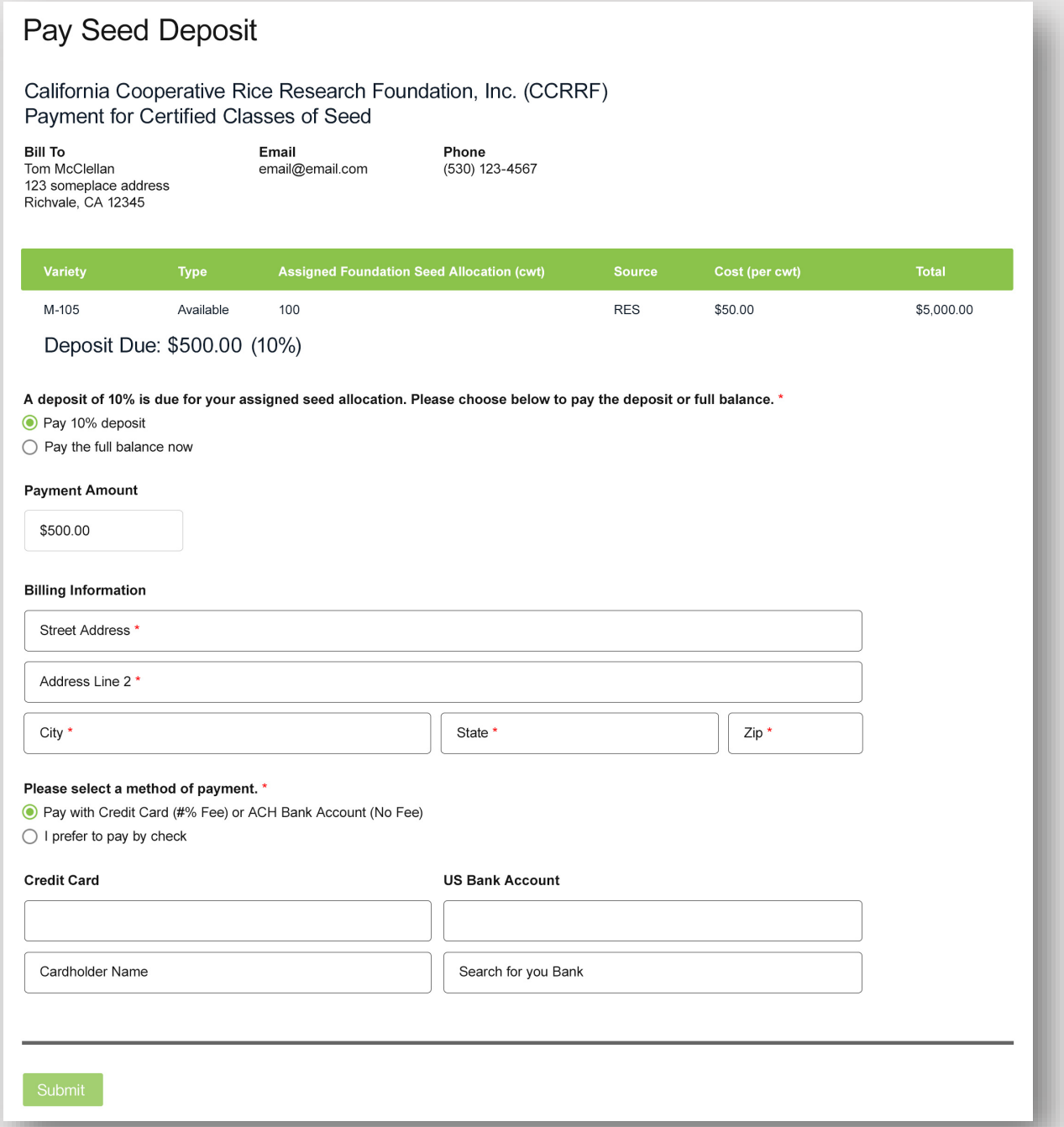
- M-211, M-105, M-206, M-209, M-210, M-401
- M-521 (research seed only)

<u>Short grain</u>:

- S-102, S-202
- Calmochi: CM-101, CM-203
- Calhikari: CH-201, CH-202, CH-203

# Foundation Seed Portal

- Seed rice growers will have online account with the ability to:
  - Request foundation seed allocation from CCIA
  - Receive allocation correspondence from CCIA
  - Accept or modify allocation
  - Sign warrantee & Disclaimer form; licensing agreements
  - Pay deposits/balance



Pay Seed Deposit

California Cooperative Rice Research Foundation, Inc. (CCRRF)
Payment for Certified Classes of Seed

**Bill To**
Tom McClellan
123 someplace address
Richvale, CA 12345

**Email**
email@email.com

**Phone**
(530) 123-4567

| Variety | Type | Assigned Foundation Seed Allocation (cwt) | Source | Cost (per cwt) | Total |
|---|---|---|---|---|---|
| M-105 | Available | 100 | RES | $50.00 | $5,000.00 |

Deposit Due: $500.00 (10%)

**A deposit of 10% is due for your assigned seed allocation. Please choose below to pay the deposit or full balance.** *
- (•) Pay 10% deposit
- ( ) Pay the full balance now

**Payment Amount**

$500.00

**Billing Information**

Street Address *

Address Line 2 *

City * | State * | Zip *

**Please select a method of payment.** *
- (•) Pay with Credit Card (#% Fee) or ACH Bank Account (No Fee)
- ( ) I prefer to pay by check

**Credit Card** | **US Bank Account**

Cardholder Name | Search for you Bank

Submit

# Thank you

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(530) 868-5481 (office)

(530) 774-3874

**UCCE Winter grower meetings**
**Feb 10-13, 2025**

**Field Day August 27, 2025**