

The Rice Experiment Station Rice Breeding Program

*K.S. McKenzie
V.C. Andaya
E. Jodari
S.O. PB Samonte
J.J Oster
C.B. Andaya
<http://www.crrf.org>*

California Cooperative Rice Research
Foundation



California Rice Experiment Station



Gus Doherty

**So where do
these rice
seeds come
from Dad?**

**Photo by J. Morris,
CRC**

Variety Development

Crossing
Parent Lines



Advance &
Select



Testing &
Purification



DEVELOPMENT OF M-105

2000 Summer RES Greenhouse

Cross R25878

S-301/M-204//M-104

2001 Hawaii Winter Nursery

01-HA1567-1 to 7

F₁ Transplants

2001 Summer RES & UC Davis Nursery

01BG-3910, DA-22235-40

F₂ Populations

2002 Summer RES

02-12189

F₃ Progeny Row

2003 Summer RES

F₄ Progeny Rows

2004 Summer RES

04P264

F₅ Small Plot Yield Test

2005 Summer RES

05-Y-471

**F₆ Large Plot Preliminary
Yield Tests**

2006 Statewide Yield Tests (VE)

F₇ Large Plot Yield Tests↓F

2007 Statewide Yield Test (VE&E)

**F₈ Large Plot Yield Tests F₉
2007-8 Hawaii Advancement**

2008 Statewide Yield Test (VE&E)

Headrows

F₉ Large Plot Yield Tests

**F₁₀ Rows 2008-9 Hawaii
Advancement**

2009 Statewide Yield Test (VE&E)

Headrow and breeder increase

F₁₀ Large Plot Yield Tests

F₁₁ Headrows & Breeder

2010 Statewide Yield Test (VE&E)

Strip Trials (3 locations)

Headrow and Foundation Seed

Production

F₁₁ Large Plot Yield Tests

and Strip Trials

F₁₂ Headrows & Breeder

Foundation Seed Production Field at RES

400 headrows



Breeder seed

Foundation Seed

RES Variety Release Steps

- 2 Notice of Experimental Increase-purification of seed of a selected promising experimental material –Board of Director testing /purification continues
(headrows)~400 panicles on 0.15 acres
 - 1 Proposal for Foundation Seed Increase-Board of Director Review/Approval
seed production, continue experimental testing, CCIA inspections
(headrows, breeder & foundation seed) ~8 cwt on 6 acres
 - 0 Proposal for Variety Release- Board of Directors Review/Approval
Decision made on Intellectual Property Protection
Review Approval for Seed Certification –CCIA-UC
Review and Approval CRC Certification Committee
Foundation Seed Allocated to CA Seed growers- CCIA
~600 cwt for Foundation seed for allocation
(RES continues to produce Foundation seed each year)
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- Commercial Seed Production (in theory!)
- +1 Seed growers grow Foundation Seed to produce Registered ~400 acres =30,600 cwt
 - +2 ½ used to grow Registered to produce Certified seed ~10,200 acres=736,950 cwt
 - +3 Certified seed should be widely available to growers ~490,000 acres

Review and Oversight

RES Rice Breeding Program

- Project leaders

- Director of Plant Breeding

- Director of Rice Experiment Station

CCRRF Board of Directors

- UC Liaison

- Rice Research Board Liaison

- California Marketing Organizations-quality evaluation and input

California Crop Improvement Association

UC Variety Release Committee

Rice Certification Committee- commercial impact

US Plant Variety Protection Office

US Patent Office

Variety Protection and Seed Laws

1. RES rice varieties are owned by the grower owned/funded California Cooperative Rice Research Foundation and are released cooperatively with the UC and USDA-ARS. http://www.crrf.org/ccrrf_res-v35_018.htm
2. Varieties release since 1988 have been protected under the US Plant Variety Protection Act Title 5-(to be sold as a class certified seed only).
California Department of Food and Agriculture (CDFA)
US Plant Variety Protection Office
3. US Utility Patents have been also obtained for varieties released since 2000.
US Patent Office
4. All RES varieties have been reviewed, classified/ and approved for commercial production under the requirements of the California Rice Certification Act.
California Rice Commission and CDFA
5. Export of seed for commercial production is prohibited and use of RES varieties for research or breeding requires a Material Transfer Agreement.
6. No royalties have been accessed on RES varieties.

A New Research Building at the Rice Experiment Station

providing storage for research combines and planters, a seed cleaning/sample drying room, milling lab, seed processing room, new cabinet driers, technician offices, restrooms, 2nd story storage, and a septic system for the entire facility.

