The Rice Experiment Station
Rice Breeding Program

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http://www.crrf.org
So where do these rice seeds come from Dad?
## Variety Development

### Crossing Parent Lines

- **2000 Summer RES Greenhouse** Cross R25878
  - S-301/M-204//M-104
- **2001 Hawaii Winter Nursery** 01-HA1567-1 to 7
  - F<sub>1</sub> Transplants
- **2001 Summer RES & UC Davis Nursery** 01BG-3910, DA-22235-40
  - F<sub>2</sub> Populations
- **2002 Summer RES** 02-12189
  - F<sub>3</sub> Progeny Row
- **2003 Summer RES**
- **2004 Summer RES** 04P264
  - F<sub>4</sub> Progeny Rows
  - F<sub>5</sub> Small Plot Yield Test
- **2005 Summer RES** 05-Y-471
  - F<sub>6</sub> Large Plot Preliminary Yield Tests
- **2006 Statewide Yield Tests (VE)**
- **2007 Statewide Yield Test (VE&E)**
- **2008 Statewide Yield Test (VE&E)** Headrows
  - F<sub>7</sub> Large Plot Yield Tests
  - F<sub>8</sub> Large Plot Yield Tests F<sub>9</sub> 2007-8 Hawaii Advancement
- **2009 Statewide Yield Test (VE&E)** Headrow and breeder increase
- **2010 Statewide Yield Test (VE&E)** Strip Trials (3 locations) Headrow and Foundation Seed Production
  - F<sub>9</sub> Large Plot Yield Tests
  - F<sub>10</sub> Rows 2008-9 Hawaii Advancement
- **2010 Statewide Yield Test (VE&E)**
  - F<sub>10</sub> Large Plot Yield Tests
  - F<sub>11</sub> Headrows & Breeder
  - F<sub>11</sub> Large Plot Yield Tests and Strip Trials
  - F<sub>12</sub> Headrows & Breeder

### Advance & Select

- **2008 Statewide Yield Test (VE&E)** Headrows
  - F<sub>10</sub> Large Plot Yield Tests
  - F<sub>11</sub> Headrows & Breeder
  - F<sub>11</sub> Large Plot Yield Tests and Strip Trials
  - F<sub>12</sub> Headrows & Breeder

### Testing & Purification

- **2008 Statewide Yield Test (VE&E)** Headrows
  - F<sub>10</sub> Large Plot Yield Tests
  - F<sub>11</sub> Headrows & Breeder
  - F<sub>11</sub> Large Plot Yield Tests and Strip Trials
  - F<sub>12</sub> 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)

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](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.