

1997 'Franklin' Wild Rice Foundation Seed Production And Variety Evaluation Project

Final Report

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Franklin Wild Rice Project

Overall Project Objectives

- I. To produce production quantities of Foundation 'Franklin' wild rice seed to supply the requirements of California wild rice growers.
- II. To evaluate the performance of 'Franklin' against current California wild rice varieties.

Seed Production

Earl Booth and Chip Sundstrom, UC Foundation Seed Project

Methods:

1. Two paddies of 0.77 and 0.62 acres were seeded at an approximate 40 to 50 lb/A rate the week of May 2nd with Breeder Class Franklin wild rice seed on the River Ranch in Fall River Mills, CA. Cultural practices were identical to those used in nearby commercial wild rice production. Isolation from other wild rice varieties greatly exceeded the 1320 ft. isolation standard for Foundation Seed.
2. Prior to harvest during the week of August 15th, the Foundation Seed Project (FSP) and the Shasta-Lassen Farm Advisor, Dan Marcum, organized a field day on July 17th. Ray Porter, the USDA breeder from Minnesota, was present to discuss the merits of his variety with approximately 25 growers (his trip report is attached).

Results:

1. Seed was harvested with a commercial combine and plots yielded 1710 and 1140 pounds of seed for the 0.77 and 0.62 acre paddies, respectively. Yield per acre figures calculated to be 2220 and 1840 lbs/A for the large and small paddies, respectively. **Average yield for the two plots was 2050 lbs/A.** (It should be noted that the lower yield in the smaller paddy was influenced by variable water depth due to hand leveling efforts vs. laser leveling in the larger paddy)
2. A total of **2,700 lbs. (dry/harvest wt.) of Foundation Seed is now available** for distribution in 1998.

1998 Seed Distribution Plans:

1. Jack Williams, Sutter County Farm Advisor, is requesting 50 lb. of seed for two variety trials in the Sacramento Valley.

2. Dan Marcum, Shasta-Lassen County Farm Advisor, is requesting 50 lb. of seed for one or two variety trials in the Fall River Mills area.
3. The balance of 2,600 lbs. (dry wt.) of Foundation Seed will be distributed equally between two Intermountain Region growers, Rickert and DeBraga, and two Valley growers, DeWit and McKenzie. Foundation seed will be sold at a commercial, plus premium, price for production of Certified Seed.
4. If demand for Certified Seed in crop year 1999 far exceeds supply, the FSP maintains the right to oversee distribution in order that Certified Seed is widely available geographically.
5. "Volunteers" from Foundation Seed production in 1998 must be destroyed because it is necessary for the FSP to limit seed distribution due to limited supplies. Following the 1998 crop year, all volunteers from previous crops are the grower's property. It is important to recognize that a volunteer crop will not possess the shattering resistance (<5%) of Foundation or Certified Seed. Studies have shown that shattering resistance is almost completely lost when volunteer crops are continuously produced.

Future Seed Maintenance Plans:

Provided that demand for Foundation Seed remains constant annually, it is expected that seed sale revenue will cover the cost of maintaining Franklin Breeders/Foundation Seed by the FSP. If seed sales are inadequate for this purpose and the industry still desires that true-to-type Franklin is available, an annual support grant from the Wild Rice Research Board will be necessary.

1997/98 Budget summary:

Date	Hours	Vehicle	Lodging	Food	Subtotal
1/30	\$48	--	--	--	\$48
5/2	\$264	\$120	--	\$37	\$421
5/29	\$300	\$313	--	\$48	\$661
7/15	\$96	\$20	--	--	\$116
7/17	\$200	\$313	--	--	\$513
8/14	\$97	\$60	\$102	\$74	\$333
8/15	\$341	\$60	--	\$74	\$475
8/17	\$48	--	--	--	\$48
8/18	\$288	\$130	--	\$37	\$455
9/12	\$48	--	--	\$35	\$83
1/26/98	2 rice soaking bins (\$343 + tax/each)				\$711
Dan Marcum allocation					\$1000
Ray Porter travel					\$1300
River Ranch contract payment					\$1500
Total					\$7664

WILD RICE

Zizania sp.

SEED CERTIFICATION STANDARDS IN CALIFORNIA

GENERAL STANDARDS -- The standards on this sheet are in part condensed and apply to wild rice. For greater detail and additional provisions, see the General Standards.

PLANTING STOCK -- In most varieties Breeder seed must be planted to produce Foundation seed. Foundation seed must be planted to produce Registered seed. Registered seed must be planted to produce Certified seed. In varieties where there is no Registered class Foundation seed must be planted to produce Certified seed. **NOTE:** Growers must inspect all planting equipment including aircraft, loaders, etc. prior to planting. A statement that this inspection was completed must accompany the application.

APPLICATION -- Application forms are available at the county Farm Advisor's office. Applications should be filled out and submitted to the Farm Advisor's office or directly to the CCIA office as soon as possible after planting and no later than eight (8) weeks after planting.

FIELD ELIGIBILITY -- Fields for certification must not have grown wild rice, the previous two (2) years.

ISOLATION -- Fields or portions of fields producing wild rice must be isolated from all other wild rice, including uncertified fields of the same variety, by a distance of at least 660' for the Certified class and 1320' for the Foundation and Registered classes.

FIELD INSPECTION -- Each field intended for certification must be inspected prior to harvest. At least one inspection shall be made usually about the time the grain is maturing and, in some cases, earlier and later inspections may be made.

Off-types -- Every field should be rogued to remove any plants of another crop or variety. Varieties cannot always be differentiated at field inspection. When differences can be distinguished, the maximum mixture of other varieties permitted is 1:50.

Weeds -- Fields must be free of any prohibited noxious weeds. Restricted noxious weeds, and common weeds difficult to separate must be controlled. No red rice is permitted

Fields may be refused certification due to unsatisfactory appearance caused by weeds, poor growth, poor stand, disease, insect damage, and any other condition which prevents accurate inspection or creates doubt as to identity of the variety.

A field inspection report will be sent to the applicant. If the field is approved a certification number will be assigned. This number must be on all containers of seed before they leave the field. It is the responsibility of the applicant to make sure his field has been inspected before it is harvested.

HARVESTING -- Harvesting is subject to the supervision of the County Agricultural Commissioner who must be contacted prior to harvest. Any seed moved out of the county for conditioning must be accompanied by an Intercounty Permit or Interstate Transfer issued by the Commissioner.

CONDITIONING AND SAMPLING – Conditioning of seed for certification may be done only in facilities approved for this purpose by the California Crop Improvement Association. It is the responsibility of the applicant to determine if the plant is eligible before delivering seed for conditioning. Conditioning, sampling, reconditioning, and blending must be supervised by the County Agricultural Commissioner. Conditioning equipment must be free from contaminating seed to the satisfaction of the supervising inspector.

SEED INSPECTION – The sample size for certified wild rice seed is two (2) pounds. The certification sample and enclosed sample form should be forwarded to the California Crop Improvement Association where it is examined for purity. In some instances varietal identity cannot be determined by visual seed inspections. Seed must be well screened and graded, bright in color, of good appearance, and meet the following standards for certified wild rice seed:

Pure Seed	N.S.
Inert Matter	N.S.
Other Crop Seed and Other Varieties	0.2%
In some instances varietal identity cannot be determined by visual seed inspections.	
Weed Seed	N.S.
Watergrass	
All classes	10 per lb
Red Rice	None
Noxious Weed Seed	None
Germination	N.S.

N.S.- No Standards

FINAL CERTIFICATION AND TAGGING – If the seed sample meets all standards a certificate is issued. Before certification is complete, however, each container must have an official tag or label attached. Certified seed may be sold to a grower in bulk without tagging if a properly filled out Bulk Sale Certificate accompanies the shipment. The tags and Bulk Sale Certificates are issued by the California Crop Improvement Association to the County Agricultural Commissioner who supervises their attachment.

Ray Porter, University of Minnesota
Trip Report
July 14-18, 1997

Raymond A. Porter
Wild Rice Breeder

At the invitation of the California wild rice industry, and through the funding of the California Wild Rice Program, I flew to Sacramento on Monday, July 14. My host was California Crop Improvement Association. On Tuesday, I visited the UC-Davis campus and spoke with Chip Sundstrom and Bob Stewart about certification standards which were still in the process of being drawn up for wild rice foundation, registered, and certified seed in California. These standards were being based on Minnesota standards and input from Ken Foster, Dan Marcum, Jack DeWit, Erv Oelke, and myself.

Later that afternoon, Earl Booth (Foundation Seed) and I drove to Ken Foster's facility outside of Woodland, where I talked with him and he showed me his plots and some of his lines. I believe the conversation was mutually beneficial, although neither of us shared anything earth-shattering.

On Wednesday, I met with Jim Hill, Chair of the Agronomy and Range Sciences Department. We discussed the wild rice industry in California and Minnesota, the possibility of future collaborative research with California researchers, and some of the results of the molecular mapping project on-going at the University of Minnesota. Dan Marcum and I then proceeded north to meet Jack Williams in Yuba City, where we had lunch and discussed future collaboration on variety testing.

Dan and I then continued to Goose Valley Ranch near Burney, where replicated test plots were planted with K2 (from Lyneta Ranch), Johnson (Goose Valley version), and Franklin (increased from breeder seed from my project). When I examined the plots I observed that K2 had a much lower plant density than the other two varieties, limiting its usefulness in yield comparisons that year. Also, it appeared that some of the Johnson had migrated in from the surrounding paddy in which the test was planted, probably when the seeds were moved around during flooding.

Dan and I and Ted DeBraga discussed some possible measures to limit this contamination in future tests. I also extolled the merits of using smaller plots with greater replication for yield testing. In order to examine the plots up-close, I had needed to purchase a pair of dive boots to wade out into the flooded paddy. Franklin appeared much as it does in Minnesota, having few shattering plants, somewhat shorter stature than Johnson, and more than a week earlier maturity than Johnson, and even somewhat earlier than K2, the variety from which Franklin was derived.

The form of K2 from Lyneta Ranch (Alturas) may have drifted to a later maturity under a California growing environment. It was too early to make a judgement on the shattering resistance of each of the varieties.

Wild rice variety testing in California

Daniel B. Marcum, Shasta-Lassen Farm Advisor, September 1997

Introduction: The objective of this trial is to compare field performance of two common clones of wild rice grown in California with Franklin, a wild rice variety which was released in Minnesota in 1992 and will probably be released in California for 1999 production.

Seed Sources: Table 1 summarizes characteristics of the three varieties.

Table 1. Wild rice varieties tested in 1997.

Variety	Release Date	Origin	Characteristics	Source
Johnson	1968	Algot Johnson, Minnesota	Tall, long season, robust	From Goose Valley 1996 production, bin P-1, Originally obtained from Al Eleshio, Fall River Valley, 1998 production.
K-2	1972	Kosbau brothers, Minnesota	Short stature, shorter season	From Lyneta Ranch in Modoc County, isolated production for over 10 years.
Franklin	1992	University of Minnesota	From K-2, Less Shattering	From UC owned stock grown on River Ranch, 1996 harvest, 2 nd crop in California.

Trial Location and Design: The trial was conducted in Goose Valley Ranch, 4 miles north of Burney, CA at 3,100 ft. Elevation. The previous crop was timothy hay and the site had not ever produced wild rice. Preplant fertilizer was 300 lb/ac 9-22-23, 300 lb/ac urea, and 30 lb/ac 22% zinc. Individual plots were 30' X 50' in size. Four replicates of each variety arranged in a block design were seeded at a 100 lb/ac rate. Germination rates of seed are listed in Table 2. Seeding was conducted on May 15th and harvest on September 6, 1997. The remainder rest of the field was planted to the variety Johnson and flooded immediately after seeding. Water depth was maintained at 24" and not varied throughout the season.

Table 2. Germination of wild rice seed used in 1997 yield trial at Goose Valley Ranch (a).

	Percent germination after 7 days (b)
Johnson	66 ± 6.2
K-2	13 ± 3.7
Franklin	63 ± 16.8

a) four replicates of 20 seed under 1.5" of water in an 8 oz Styrofoam cup at room temperature (~ 75°)
b) ± standard error.

Measurements: Harvest was by a commercial axial flow rice combine with a 16' wide header. Wild rice was collected directly in plastic sacks and weighed. Plant height was measured immediately before harvest. Maturity was a determined by a visual estimate of the date when the 80% dark kernel stage was achieved.

HOW TO APPLY FOR FOUNDATION SEED

Requests for foundation seed are due April 1st. The form on the right should be filled out and mailed or faxed to FSCS by the due date. Forms received after that date will be allocated on a first-come first-serve basis. Please remember to fold this application so the pre-addressed panel faces out for mailing.

Allocations of foundation seed are made by the Foundation Seed and Certification Service. Foundation Seed is in limited supply and is allocated for the production of registered or certified seed only.

All requests received after the due date will be considered only if there is seed available. A 20% fee will be charged for inventory restocking on all orders bagged and cancelled too late for reallocation.

For varieties of crops not listed below, please contact Earl Booth at the warehouse 530-752-2840 or the office at 752-0545. Public varieties not shown may be available from other state programs, and must be requested through the University of California, Davis, Foundation Seed program (FSCS). FSCS will purchase the seed from the appropriate program and assist with freight arrangements.

The producer or conditioner requesting the seed will be charged the cost of seed, freight and any expense required for testing. FSCS will invoice for all seed purchased, including seed from out of state. Listed are the varieties available this spring.

Questions?

TELEPHONE:
530-752-0545 office
530-752-2840 warehouse

FAX: 530-752-8355

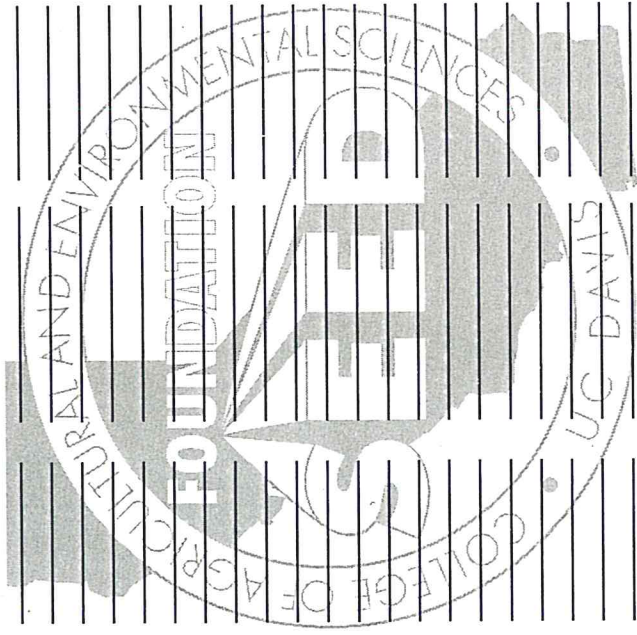
FOUNDATION SEED AVAILABLE

Please check the variety(s) you are requesting:

- | | | |
|-------------------|------------|--|
| ALFALFA | \$5.00/lb. | <input type="checkbox"/> Cuf 101 |
| | | <input type="checkbox"/> Moapa 69 |
| BARLEY | \$40/lb. | <input type="checkbox"/> UC 960 |
| BEANS | \$90/cwt. | <input type="checkbox"/> Black Turtle Soup T-39 |
| | | <input type="checkbox"/> CA Dark Red Kidney |
| | | <input type="checkbox"/> CA Early Light Red Kidney |
| | | <input type="checkbox"/> Linden Red Kidney |
| | | <input type="checkbox"/> Isles Dark Red Kidney |
| | | <input type="checkbox"/> Michigan Improved Cranberry |
| | | <input type="checkbox"/> Montcalm Dark Red Kidney |
| | | <input type="checkbox"/> UC Nichols Dark Red Kidney |
| | | <input type="checkbox"/> Sutter Pink |
| | | <input type="checkbox"/> UC Vallejo Dark Red Kidney |
| | | <input type="checkbox"/> White Kidney |
| | | <input type="checkbox"/> WK 2204 White Kidney |
| CLOVER | \$7.00/lb. | <input type="checkbox"/> Montefrio Rose |
| | \$4.00/lb. | <input type="checkbox"/> Multicut Berseem |
| | \$6.00/lb. | <input type="checkbox"/> Salina Strawberry |
| | \$1.50/lb. | <input type="checkbox"/> Acala SJ-2 |
| | | <input type="checkbox"/> Pima S-7 |
| COWPEAS | \$90/cwt. | <input type="checkbox"/> California Blackeye #5 |
| | | <input type="checkbox"/> California Blackeye 46 |
| | | <input type="checkbox"/> California Blackeye 88 |
| | | <input type="checkbox"/> Coronet |
| | | <input type="checkbox"/> UC 15 |
| GARBANZOS | \$90/cwt. | <input type="checkbox"/> Sweet Sudan |
| GRASSES | \$1.50/lb. | <input type="checkbox"/> Henderson Baby |
| LIMAS | \$100/cwt. | <input type="checkbox"/> Lee |
| | | <input type="checkbox"/> Maria |
| | | <input type="checkbox"/> Mezcla Baby |
| | | <input type="checkbox"/> Pat Baby |
| | | <input type="checkbox"/> UC Luna |
| | | <input type="checkbox"/> UC 92 |
| | | <input type="checkbox"/> Wilbur Baby |
| WATERMELON | \$8.00/lb. | <input type="checkbox"/> Crimson Sweet |
| | | <input type="checkbox"/> Jubilee |
| WILD RICE | \$2.00/lb. | <input type="checkbox"/> Franklin |

Earl Booth

Date of request		Acres for planting	
Lbs. Requested		County of field	



Company	
Mailing address	
City	State Zip
Signature of applicant	

Name of applicant	
Business phone	Fax number
Home phone	
<input type="checkbox"/> I'll pick up my seed <input type="checkbox"/> Please ship my seed Prices subject to change without notice.	

