

RED RICE (*Oryza sativa*) BIOTYPES COLLECTED IN THE SOUTHERN U.S. AVAILABLE FROM THE USDA-ARS NATIONAL SMALL GRAINS COLLECTION



David R. Gealy / Weed Physiology Research

USDA – ARS, Dale Bumpers National Rice Research Center, Stuttgart, Arkansas

Red Rice Background

- Major introduced weed of rice, and same species as rice
- Many biotypes in U.S. and worldwide
- Controlled effectively in Clearfield rice
- Some biotypes become resistant if outcrossed to Clearfield rice
- Some biotypes have natural tolerance to herbicides
- Biological and genetic aspects investigated in the U.S./worldwide:
 - outcrossing/gene flow
 - weed biology
 - rice disease resistance and crop improvement
 - molecular biology, and origins of rice
 - health/nutritional value



Summary

- 28 U.S. red rice biotypes now available from the USDA-ARS National Small Grains Collection (PI 653412 to PI 653439)
- ~ half of the biotypes were derived from 'single seeds'... well suited for molecular biology studies.
- Seed types are blackhull or strawhull, and awned or awnless.
- Time to heading, 71-90 days; plant heights 149-182 cm; kernel lengths 5.4-6.7 mm.
- Some biotypes are cold tolerant (PI 653413, PI 653414) or sensitive (PI 653412) during germination
- Some have dormant seeds (PI 653415), or are herbicide tolerant (PI 653424)
- Seed requests (5-g amounts) can be made through the website (http://www.ars-grin.gov/npgs/acc/acc_queries.html) or directed to Dr. Harold Bockelman, NSGC, Aberdeen, Idaho, 83210. Email: Harold.Bockelman@ars.usda.gov.

Biological and geographic information for the 28 red rice biotypes available from the USDA – ARS National Small Grains Collection in 2008.¹

Entry #	Plant Introduction Number	County	City / State	Hull Color	Awns	Emergence to Heading (days)	Plant Height (cm)
1	PI 653427	Clay	Arkansas	black	yes	79	171
2	PI 653436	Lawrence	Arkansas	straw	no	71	156
3	PI 653429	Poinsett	Arkansas	straw	no	73	-
4	PI 653431	Crittenden	Arkansas	straw	no	75	153
5	PI 653428	Perry	Arkansas	black	yes	81	182
6	PI 653414	Prairie	Arkansas	straw	no	76	178
7	PI 653433	Prairie	Arkansas	straw	no	77	161
8	PI 653417	Prairie	Arkansas	straw	yes	~ 87	-
9	PI 653412	Prairie	Arkansas	black	yes	75	172
10	PI 653413	Prairie	Arkansas	black	yes	83	158
11	PI 653425	Prairie	Arkansas	black	yes	84	167
12	PI 653434	Lee	Arkansas	straw	no	71	168
13	PI 653423 (StgS)	Arkansas	Stuttgart, Arkansas	straw	no	71	164
14	PI 653415	Arkansas	Stuttgart, Arkansas	black	yes	88	-
15	PI 653422 (StgB)	Arkansas	Stuttgart, Arkansas	black	yes	87	160
16	PI 653430	Arkansas	Stuttgart, Arkansas	black	yes	90	164
17	PI 653435	Desha	Arkansas	straw	no	71	149
18	PI 653437	Morehouse	Louisiana	straw	no	79	166
19	PI 653439	East Carroll	Louisiana	black	yes	83	159
20	PI 653420 (LA3)	Acadia	Louisiana	straw	yes	87	158
21	PI 653438	Coahoma	Mississippi	straw	no	72	157
22	PI 653416	Bolivar	Mississippi	straw	no	75	178
23	PI 653418		Mississippi	straw	no	74	162
24	PI 653421 (MS4)		Mississippi	straw	yes	89	161
25	PI 653419		Mississippi	black	yes	85	169
26	PI 653432	Bollinger	Missouri	straw	no	72	157
27	PI 653426	Dunklin	Missouri	straw	no	73	156
28	PI 653424 (TX4)	Harris	Katy, Texas	black	yes	81	167

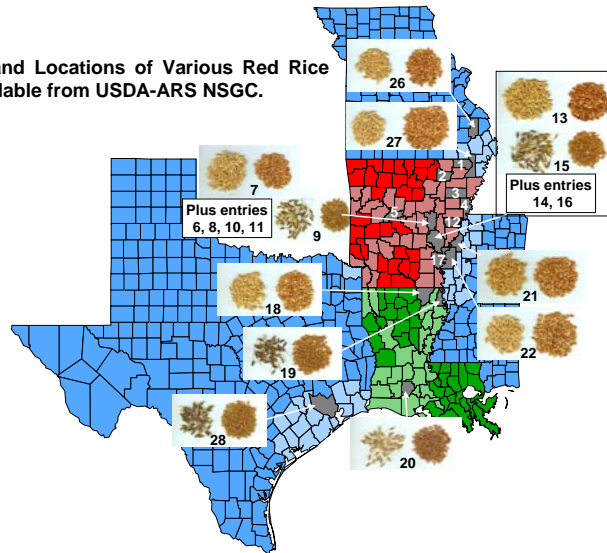
¹ Additional Information

Entry 20 was obtained from Louisiana State University

Entries 22 - 25 were obtained from Mississippi State University

Entry 28 was obtained from Texas A&M University

Seed Types and Locations of Various Red Rice Biotypes Available from USDA-ARS NSGC.



Plots of Diverse Red Rice Biotypes Grown at Stuttgart in 2007 (Numbers correspond to entries listed on table and map).



Acknowledgements

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