MISSISSIPPI RICE VARIETY TRIALS, 2022

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MISSISSIPPI'S OFFICIAL VARIETY TRIALS

MISSISSIPPI STATE UNIVERSITY™
MS AGRICULTURAL AND FORESTRY EXPERIMENT STATION

Mississippi Rice Variety Trials, 2022

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Find variety trial information online at ***mafes.msstate.edu/variety-trials***.

Mississippi Rice Variety Trials, 2022

The United States Department of Agriculture (USDA) National Agricultural Statistics Service (NASS) estimated the 2022 planted rice area in Mississippi based on reports from rice producers to be about 85,000 acres. The USDA Farm Service Agency (FSA), on the other hand, certified the 2022 harvested rice area in the state to be 84,566 acres. This FSA estimate is the lowest reported acreage for Mississippi rice since 1973 (49 years). It is more than 16,000 acres or 16% less than the rice acres in 2021, a record low at that time for the same period, and more than 51,000 acres (38%) less than the running 10-year average for Mississippi rice of 135,838 acres (2013–2022; Table 1).

The USDA NASS in January 2023 also reported the total rice production for Mississippi in 2022 to be 6.191 million hundredweight (cwt) or 314,517 metric tons, down 17% from the 2021 production of 7.474 million cwt or 379,696 metric tons. At the estimated December 2022 U.S. long-grain rice price of $16.50/cwt, Mississippi rice production value was $102.1 million, which was $4.2 million (5.2%) higher than in 2021 due to higher rice prices. Rice yield was 7,370 pounds (lb) per acre (A) or 164 bu/A (bu/A), down 30 lb/A from 2021 but still more than the 10-year moving average of 7,318 lb/A (162.6 bu/A). The record for statewide average yield, first set in 2014 and

Table 1. USDA National Agricultural Statistics survey of harvested rice acreage in Mississippi (nearest thousand) by year, 1949–2022.

Year	Acres	Year	Acres	Year	Acres	Year	Acres
1949	5,000	1969	60,000	1989	235,000	2009	243,000
1950	7,000	1970	51,000	1990	250,000	2010	303,000
1951	26,000	1971	51,000	1991	220,000	2011	157,000
1952	40,000	1972	51,000	1992	275,000	2012	129,000
1953	51,000	1973	62,000	1993	245,000	2013	124,000
1954	77,000	1974	108,000	1994	313,000	2014	190,000
1955	52,000	1975	171,000	1995	288,000	2015	149,000
1956	44,000	1976	144,000	1996	208,000	2016	194,000
1957	31,000	1977	111,000	1997	238,000	2017	118,000
1958	39,000	1978	215,000	1998	268,000	2018	135,000
1959	44,000	1979	207,000	1999	323,000	2019	116,000
1960	44,000	1980	240,000	2000	218,000	2020	171,000
1961	44,000	1981	337,000	2001	253,000	2021	101,000
1962	49,000	1982	245,000	2002	253,000	2022	85,000
1963	49,000	1983	161,000	2003	234,000	2023	—
1964	49,000	1984	190,000	2004	234,000	2024	—
1965	50,000	1985	188,000	2005	263,000	2025	—
1966	55,000	1986	198,000	2006	189,000	2026	—
1967	55,000	1987	198,000	2007	189,000	2027	—
1968	67,000	1988	260,000	2008	229,000	2028	—

then in 2020, remains at 7,420 lb/A (164.9 bu/A or 8,318 kilograms per hectare).

Fifteen counties produced rice in Mississippi during 2022 as certified by the USDA FSA (Table 2). The top rice-producing counties were Bolivar (23,500 acres), Tunica (18,671 acres), Sunflower (8,179 acres), Quitman (6,773 acres), and Panola (5,759 acres). As in 2021, only two counties planted more than 10,000 acres in 2022 compared to eight counties in 2020. Bolivar and Tunica Counties have been the top two rice-producing counties for Mississippi for 10 years running (2013–2022). As in 2021, all the top three counties with significant rice acreage registered a net loss in rice area during 2022. The counties with the highest reductions in rice acreage were Bolivar (4,631 acres), Washington (3,603 acres), and Tunica (3,456 acres).

The 2022 rice planting in Mississippi began in the last week of March. This planting window was similar to 2021 and was earlier than in previous years. Rainfall in mid-April, however, caused planting delays and the subsequent cool weather hampered the emergence of newly germinated, early-planted rice. By the end of April, many northern Mississippi rice areas had yet to be planted. By mid-May, 95% of southern Mississippi rice areas completed planting, while farms in northern Mississippi were only 0–70% planted. By the end of May, almost all of Mississippi rice farms were planted, with just a few northern Mississippi rice farm plantings extending into the first week of June. Historically, close to 90% of Mississippi rice is planted by the third week of May.

Among the few production issues reported in 2022 were (a) delayed fertilizer and herbicide applications in early-planted rice due to weather conditions that resulted in challenges for grass control; and (b) herbicide drift in early-planted rice that was reported in some areas. The mostly favorable weather during the later vegetative and reproductive growth stages, including minimal high nighttime temperature stress during the flowering period, the absence of serious disease and insect pest damage, and the absence of flooding issues like those seen in 2021, resulted in good yields. A favorable and timely harvesting reached the 75% completion level by the end of September, but this was a slower pace compared to 2021.

Table 2. USDA Farm Service Agency certified rice acres planted by county in Mississippi, 2013–2022.

County	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	10-yr. avg.
Adams	0	0	0	157	0	157	0	0	0	0	31
Bolivar	33,734	47,702	42,139	47,839	27,431	34,659	32,338	43,107	28,131	23,500	36,058
Carroll	0	0	0	0	0	0	0	102	0	0	10
Coahoma	8,109	14,453	9,933	12,885	7,788	9,970	5,768	10,248	7,115	4,482	9,075
DeSoto	1,190	2,316	99	1,896	1,261	1,605	586	1,009	585	770	1,132
Grenada	282	0	893	402	143	0	55	278	197	233	248
Holmes	121	203	195	655	0	1,036	126	207	0	154	270
Humphreys	1,475	3,426	2,576	5,695	3,874	4,264	4,089	6,242	2,478	398	3,452
Issaquena	1,115	483	345	764	427	435	0	0	100	271	394
Lee	3	3	0	3	0	0	0	0	0	0	1
Leflore	3,905	6,000	5,059	7,734	1,770	5,035	3,150	10,050	4,040	4,793	5,154
Panola	5,523	10,188	5,966	9,668	8,458	7,343	7,411	9,040	5,147	5,759	7,450
Quitman	8,766	15,565	12,220	20,515	10,763	10,311	10,248	15,056	5,852	6,773	11,607
Sharkey	433	857	789	1,123	282	647	0	202	186	0	452
Sunflower	13,635	25,241	15,612	19,944	7,843	12,458	9,854	19,284	10,816	8,179	14,287
Tallahatchie	6,964	12,859	7,142	12,330	7,083	6,803	7,890	10,361	6,133	4,967	8,253
Tate	934	1,082	955	1,123	822	797	935	1,220	682	948	950
Tunica	24,603	28,608	25,833	34,812	27,286	31,403	24,090	25,938	22,128	18,671	26,337
Washington	11,480	15,690	13,027	12,135	8,442	8,091	8,319	11,775	8,272	4,669	10,190
Yazoo	0	867	914	1,571	893	0	64	567	0	0	488
Total	122,272	185,543	143,697	191,251	114,565	135,014	114,923	164,686	101,862	84,566	135,838

ON-FARM VARIETY TRIALS

On-farm varietal evaluation is a vital step in the variety development process for many crops including rice. Conducting variety trials under producers' field conditions helps identify the released varieties or hybrids as well as elite experimental breeding lines that are best suited to specific growing environments, including niche markets. It also helps determine which specific entries are widely adapted to and/or have consistent performance across varying growing conditions. This information not only helps in future breeding, but also is important for proper deployment of released varieties.

It is typical in on-farm variety trials for standard varieties, hybrids, new releases, and elite experimental lines to be evaluated in their target growing environments. In the case of elite breeding lines, based on their performance in these multi-environment tests, the most promising are selected for possible release as new varieties. The information collected on these lines include yield and milling performance, insect and disease susceptibility, tolerance to environmental stresses, vigor, and lodging scores. However, apart from using the data generated for line advancement decisions, they could also be used to recycle yet-imperfect lines back into the hybridization program.

With the inclusion of released varieties from Mississippi and the Midsouth as entries in the on-farm trials, the testing process also helps local rice producers to determine the most suitable released variety to plant on their respective farms based on the test locations. By placing these trials at multiple key locations throughout the Mississippi Delta, varieties, hybrids, and elite lines are exposed to the prevalent growing conditions and practices that are commonly used in commercial production in Mississippi. Many of these growing conditions and management practices cannot be reproduced at the Mississippi State University's Delta Research and Extension Center in Stoneville, thus there is a great value to on-farm evaluations from a research and development perspective. In return, growers are afforded the opportunity to evaluate the current varieties and hybrids in commercial circulation, side-by-side under their own management conditions. Ultimately, this process helps them in deciding which variety or hybrid to use on their farms the following year and in placing advanced seed orders for their chosen varieties or hybrids accordingly.

Variety selection is one of the most important decisions a grower makes in crop production planning. Growers should attempt to select varieties that offer the best combination of yield and quality factors while also considering the variety's tolerance or susceptibility to both biological and environmental factors that could limit yield potential. As grain quality is becoming more important for improving U.S. rice global competitiveness, producers will benefit from having grain quality data for the commercial varieties evaluated in the variety trials. Millers, consolidators, and traders may also use this grain quality data for implementing strategies related to "identity preserved" that are gaining importance for improving overall rice grain quality. Rice research and Extension specialists can use variety trials as an educational platform for demonstrating the merits of on-farm evaluation to other scientific or technical staff, growers, private consultants, rice industry personnel, students, policy makers, and the public. Through these trials, interested parties are afforded a "first look" at new or potential releases from Mississippi State University and other participating rice breeding programs, including from the private industry.

TEST PROCEDURES

For 2022, the rice Official Variety Trials consisted of 34 entries including five hybrids/FullPage® herbicide technology-based materials, 14 Clearfield® or Provisia® purelines (six released varieties and eight elite experimental lines) and 15 conventional purelines (five released varieties and 10 elite experimental lines). All hybrids/Full Page® materials were provided by RiceTec; HorizonAg provided all the Clearfield® and Provisia® herbicide technology-based purelines; and the conventional pureline released varieties came from the public breeding programs of Mississippi (three), Arkansas (one), and Louisiana (one). Due to limited resources available for the year, the trials were conducted in only five locations in the Mississippi Delta: Benoit, Hollandale, Leland, Choctaw (Shaw), and Stoneville. Individual plots consisted of eight drilled rows that were 15 feet in length and spaced 8 inches apart. Varieties and experimental lines were planted at a seeding rate of 85 pounds of seed per acre, while the hybrids were planted at 25 pounds of seed per acre. Seeds were mechanically drilled approximately 1.25 inches deep into stale seedbeds at all locations. All entries were replicated three times at each location using a randomized complete block experimental design. Crop management practices for each location, as well as the stresses encountered, are presented in Tables 3–7. For more information on pesticide formulations and application rates, please refer to the pesticide product label information available on the Internet or to the Weed Control Guidelines for Mississippi (Extension Publication 1532; http://extension.msstate.edu/publications/weed-control-guidelines-for-mississippi).

Agronomic and crop phenology data were collected at appropriate times during the growing season. Lodging ratings were obtained on a plot-by-plot basis. The entire plot was harvested using a Wintersteiger Delta plot combine equipped with a computerized weighing system and a moisture meter. Due to differences in maturity, most of the entries at each location were required to have achieved the appropriate harvest moisture level prior to the test being harvested. Average harvest grain moisture levels for each entry are reported in Tables 3–7. Subsamples of each entry were collected at harvest, and these were used for measuring milling-related traits, bushel weight, and 1,000-seed weight. For yield, previous replicated research has shown that the border effect common in small-plot research could result in increases in grain yield estimates of 10% for inbred varieties and 15% for hybrids. Therefore, the plot yields reported for the test entries should be compared in a relative manner rather than just through the absolute values for the reported yield potential.

Analysis of variance procedure was conducted for all relevant data gathered from the trials. The Least Significant Difference (LSD) test at the 5% significance level may be used to determine if significant differences existed between entries. If the value of the yield difference between any two trial entries at a location, as computed from the yields reported in Tables 3–7, is greater than the LSD value for that location, the entries may be deemed to be statistically different from each other. In addition, a coefficient of variation (CV) was calculated for each test. This measure is an indication of the variability or "noise" in the trial, thus the level of precision of each test. Lower CV values indicate greater reliability of the test. Coefficient of variation values of 10% or less are generally considered to be optimum for plant breeding trials and CV values above 25% are considered unacceptable. The LSD and CV values for yield in these tests are reported in the footnotes of Tables 3–7.

RESULTS

To assist Mississippi rice producers in their variety selection process for 2023, preliminary results of the 2022 Rice Official Variety Trials were processed soon after harvesting ended. The preliminary summary tables were made available online by November 15, 2022, via the Mississippi Agricultural and Forestry Experiment Station Variety Trials website (http://mafes.msstate.edu/variety-trials/includes/crops/rice.asp).

Complete details on the performance of each entry at each of the five test locations are presented in Tables 3–7. As a result of the favorable early-season weather in 2022, the yield evaluations were planted in a relatively narrow window of only about 3.5 weeks (April 11 to May 4) compared to the 4-week planting windows for the 2019 and 2020 trials. The Stoneville trial was the last to be planted and, along with the Leland trial, was conducted at the DREC experiment station. Due to funding difficulties for the breeding program in 2022, off-station locations that were far from DREC, such as Tunica and Clarksdale, were not used in 2022. In general, plant stands were excellent, with uniform emergence and optimum plant density for all the five locations. Disease and insect pest incidence were not observed in the trials during the year. Lodging incidence was reported in all locations but only in a few entries — one entry each in Benoit (RU2104139), Leland (RU2104139), Shaw (RU2104139), and Stoneville (XP780). The highest lodging incidence occurred in Hollandale where 18 of the 34 entries (53%) lodged to varying degrees with the highest lodging observed in RU2104139 (85%) and XP780 (63%).

The average rice yield across entries and locations for the 2022 trials was 247 bu/A, or 2 bu/A (or 1%) higher than the 2021 average of 245 bu/A, and 9 bushels (4%) more than the 236 bu/A running 5-year variety trial overall yield average (2017–2021). In fact, the 2022 average yield is the second highest ever obtained in the Rice Official Variety Trials, exceeded only by the trial average yields in 2020 (259 bu/A).

Location yield averages ranged from 231 bu/A for Stoneville to 269 bu/A for Hollandale. Benoit (249 bu/A) and Choctaw/Shaw (248 bu/A) gave almost equal second highest yield values. Choctaw/Shaw was also the second highest-yielding site in 2021 and the highest-yielding location in the 2020 trials. For the third year running, the Stoneville location had good yields due to minimal black bird damage, unlike in past years when the location average yields for Stoneville were consistently below 200 bu/A.

The coefficient of variation or CV values for yield were all acceptable and ranged from 4.9% for Leland to 8.6% for Hollandale. These low CV values reflected the generally favorable growing conditions in 2022 and the absence of significant production challenges — and thus good yields, during the year. The grain yield summary data for all entries at each location are provided in Table 8. Moreover, summary data for all other measured parameters averaged over the seven locations are provided in Table 9.

Among hybrid/FullPage® entries, two non-herbicide tolerant entries — XP780 and XP778 — gave the highest yields of 339 and 338 bu/A, respectively, that were also the highest average yields among all entries in the trial. An herbicide-tolerant FullPage® entry (RT7241 FP) came in as a close third highest yielder with 334 bu/A. RT7241 FP was the second highest yielding entry in 2021. The conventional hybrid XP753, a regular entry in this group that was not tested in 2021 and 2022, had been the highest yielding hybrid in these trials for 6 of the last 9 years with an average yield across locations of 297 bu/A in 2018, 296 bu/A in 2017, 274 bu/A in 2016, 275 bu/A in 2015, 306 bu/A in 2014, and 278 bu/A in 2013 or an average yield of 284 bu/A for this entire 7-year period. Its yield superiority over other hybrids and conventional pureline entries had been consistent over the years. Historically, hybrids have yielded, on average, about 21% (46 bu/A) higher than pure line varieties, both for Clearfield® and conventional types, in the Mississippi Rice Official Variety Trials. For 2022, this hybrid/FullPage® group yield advantage was, on average, 34% over Clearfield® and 36% over conventional variety types. However, since the plot border effect is greater on hybrids than in purelines, the actual yield differences may be expected to be closer when comparing the highest yielding hybrid to the highest yielding purelines.

Among the 14 Clearfield®/Provisia® type pureline entries, the highest yielding entry was the commercial variety CLL18 (269 bu/A), followed by another released variety CLL16 (263 bu/A) that was also the second highest yielding entry for this group in 2021. Three experimental lines were among the top five highest yielders — RU2104087 (251 bu/A), RU2004071 (247 bu/A)), and RU2004195 (241 bu/A). These same three lines were also among the five highest yielding entries in the 2021 trials and RU2004071 was the second highest yielding in the 2020 trials. The newly released and Mississippi-bred long-grain Clearfield® variety CLHA02, which has the unique Cheniere-type cereal chemistry and was among the top entries for yield in the 2018, 2019, and 2020 trials, was ranked 10th out of the 14 entries in this group for 2022 with 231 bu/A followed by the newly released Provisia® pureline variety PVL03 (225 bu/A).

Among conventional purelines, the five highest yielding entries were all experimental lines under development — RU2004091 (249 bu/A), RU2004083 (246 bu/A), RU1904139 (243 bu/A), RU1904163 (242 bu/A), and RU2104127 (237 bu/A). RU2004091, RU1904139, and RU1904163 were the top three entries for yield in 2021, and RU1904163 was the second highest yielding entry in the 2020 trials. Diamond (236 bu/A), an Arkansas-bred variety that had become popular among Mississippi growers in recent years due to its having topped the 2019 and 2017 trials and that was the fourth highest yielding entry in 2021, ranked sixth for yield among the 15 entries in this group during 2022. The Mississippi-released variety Thad, which topped these trials in 2020, ranked eighth for yield with 235 bu/A in 2022 followed by the new Mississippi release Leland with 234 bu/A. Rex, another Mississippi variety that is still grown by some Mississippi growers due to its proven good performance in these trials, did not fare well in 2022 (226 bu/A). The newly released Louisiana-bred variety that has Thad as one of its parents (Addi Jo) was the lowest yielding conventional variety entered in this group during 2022 (223 bu/A).

Entries that begin with RU designations are elite experimental breeding lines that have performed well in the sequential, multistage, yield evaluation conducted by the MSU rice-breeding program. They have usually been entered or are about to be entered in the multistate Rice Uniform (hence, RU) Regional Research Nursery or URRN. This URRN system is conducted by public-breeding institutions in the U.S. to evaluate elite lines in other rice-growing states while sharing elite materials among U.S. breeders. The entries represent the best lines from different breeding programs and are typically at the final stages of testing. Entries from Mississippi in the URRN have the number “4” as the first digit of the last four digits of the RU designation (e.g. RU2004191).

Milling traits varied substantially among the test entries, and high-yielding entries did not necessarily have the best grain quality characteristics. Aside from these trait considerations for variety selection, performance stability over different environments and across years also needs to be considered. Certain varieties have had relatively stable performance over many years, thus have been adopted by Mississippi growers in the past. Thad has been unanimously accepted by all major rice-milling and exporting companies in the U.S. due to its excellent grain quality traits, which are also favored by sectors of the rice food-processing industry. Similarly, the new release Leland has also been rated very favorably for commercial acceptability and grain/milling quality by the U.S. rice-milling and export industry. Rex, on the other hand, continues to be grown by some rice growers due to its excellent yield stability over multiple locations both in Mississippi and other rice-growing states in the Midsouth.

Variety and hybrid reactions to common diseases and straight head disorder are listed in Table 10. Decisions about the use of fungicides should be made considering a variety’s susceptibility to a particular disease, the potential for the disease to cause economic loss, and efficacy of fungicides that are available to combat or prevent the respective disease.

Nitrogen fertilization rate guidelines are provided in Table 11. These guidelines were generated from multiyear, multisite N response studies conducted for newly released varieties. A combination of current economics, individual varieties' susceptibility to lodging, and yield potential are included in determining the rate guidelines. Annually, coarse-textured soils, commonly referred to as silt loams, require approximately 30 lb/A less nitrogen than fine-textured or clay soils. By applying less N on silt loam soils, disease and lodging incidence tend to decrease without sacrificing yield and quality.

Based on the 2022 Rice Official Variety Trial results and taking into consideration previous years' performance in the same trials, the conventional varieties suggested for Mississippi rice growers are Leland, Thad, Diamond, and Rex. The recent release CLHA02, in addition to Thad and CL163, all high-amylose varieties with excellent grain qualities and cereal chemistry profiles desired by the rice-processing industry, provides more varietal options to the U.S. rice-processing industry, as well as U.S. rice export markets requiring high-amylose rice.

RiceTec's hybrids using the FullPage® (FP) technology provide growers with new generation IMI herbicide tolerance to control red rice. For the 2022 entries, only RT7421 FP — the third highest yielding entry in this group with 334 bu/A — had been tested previously in these trials, when it was ranked fourth out of five hybrid entries in 2021. In the 2019, 2020, and 2021 trials, the hybrid RT7521FP consistently gave the highest yield among all entries, regardless of variety type. This FP hybrid, however, was not included in the 2022 trials. Detailed additional information on production of conventional and FullPage® hybrids is available at RiceTec Inc. (https://www.ricetec.com/products-services/seed-products/).

Among the Clearfield® released varieties that are offered exclusively by HorizonAg (http://www.horizon-seed.com/horizon/content/varieties), the recently released long-grain type CLL18, as well as CLL16 that was released the previous year, were the highest yielding commercially available entries. The other commercially available entries in this group — CLL15, CLL17, CLHA02, and PVL03 (a newly released variety being tested for the first time in 2022) — all had lower yields than five experimental breeding lines. CLHA02, developed by the MAFES rice-breeding program and released in 2021, is the only high-amylose rice option in commercial production today among long-grain Clearfield® rice varieties. There were no medium-grain Clearfield® entries in the 2022 trials. Clearfield® rice should be used as a tool with careful attention given to stewardship so that the technology can last into the future. Stewardship should encompass minimizing the potential for outcrossing of red rice and Clearfield® rice. Stewardship should also include the addition of postemergence and residual herbicides for grass control so that selection pressure that could break down herbicide resistance is minimized. It should be noted that incidences of ALS-resistant [Newpath®, Beyond®] barnyard grass and sedges have increased in the last few years. Outcrossing and grass resistance jeopardize this important technology. The new Provisia® line of commercial varieties such as PVL03 promises to be a useful companion technology to extend the usefulness of the Clearfield® rice system for controlling red rice. However, it is important to follow the technology recommendations, such as being out of rice for a year when switching from Clearfield® to Provisia® varieties.

As is well known to rice producers, no pureline variety or hybrid is always perfect for all cropping conditions. Each cropping year may bring about recurring or new biological and/or environmental factors with the potential to negatively impact varietal performance and, ultimately, a rice producer's bottom line. Breeders must, therefore, continue to develop new strains that satisfy the needs of both producers and end users. The breeding program must cater to the needs of rice growers who are faced with an ever-changing production landscape. At the same time, it must also consider the varying needs of millers, the food industry, and consumers who continually demand higher quality rice for consumption and/or processing. The best of these new strains must perform well under farm conditions before they can be released. Each new variety release would be expected to have qualities or characteristics that add value to end users. Ultimately, varietal performance over time and in different environments, in addition to economics, should be considered when choosing which variety to plant among the many available options. This is where the regular conduct of on-farm trials derives a great value for rice producers. For varieties with high yield potential, producers should consider risks such as lodging and disease incidence and plan to manage for those yield-limiting factors to derive maximum benefit. Planting several pureline varieties or hybrids, FullPage®, Clearfield®, Provisia®, and conventional types may help mitigate the risks associated with large production areas that are commonly found in Mississippi.

Table 3. Performance of rice varieties, hybrids, and experimental lines grown near Benoit, Mississippi (33.62834°N, 90.95356°W), 2022.[1]

Entry	Yield[2]	Whole milled rice	Total milled rice	Harvest moisture	Bushel weight	Plant height	50% heading[3]	Lodging[4]	Lodging score[5]	1,000 seed weight[6]
	bu/A	*%*	*%*	*%*	*lb*	*in*	*days*	*%*	*(1-5)*	*g*
Hybrids										
RTv7231 MA	311	62.2	70.8	15.4	43.6	40.0	78.5	0	1.0	23.4
RT7331 MA	306	57.9	73.1	15.0	43.8	42.8	79.5	0	1.0	23.7
RT7421 FP	392	64.2	73.2	19.0	41.7	46.0	80.5	0	1.0	23.1
XP778	336	63.6	73.8	16.2	43.9	43.0	80.0	0	1.0	23.3
XP780	359	64.3	72.5	23.3	43.4	45.3	81.5	0	1.0	26.0
Conventional										
Leland	226	65.0	73.9	21.0	48.7	45.0	81.0	0	1.0	23.1
Diamond	216	62.8	73.1	25.0	48.7	45.5	83.0	0	1.0	24.6
Rex	207	64.2	71.8	17.6	46.9	39.5	82.0	0	1.0	24.4
Thad	229	62.2	71.3	22.2	48.4	39.5	81.5	0	1.0	24.5
RU1904123	240	59.6	70.8	19.3	48.2	40.3	81.5	0	1.0	24.5
RU1904139	228	61.7	70.9	30.3	47.4	41.0	83.5	0	1.0	22.7
RU1904163	206	58.9	71.6	20.9	47.0	37.5	84.0	0	1.0	21.7
RU2004083	231	62.3	72.8	27.1	49.7	41.8	85.5	0	1.0	20.6
RU2004091	256	59.1	72.4	22.6	48.1	41.5	85.0	0	1.0	24.9
RU2004099	229	62.2	73.0	26.4	49.7	40.3	85.5	0	1.0	20.9
RU2104075	210	62.5	73.3	19.6	48.2	40.5	82.5	0	1.0	25.1
RU2104099	224	66.0	73.1	17.9	46.1	38.3	80.5	0	1.0	23.1
RU2104123	216	61.3	73.0	18.6	47.7	43.3	81.5	0	1.0	24.9
RU2104127	209	62.7	73.0	25.8	48.7	44.0	84.0	0	1.0	23.2
Addi Jo	210	65.8	73.2	24.5	48.8	38.8	94.0	0	1.0	23.7
Clearfield/Provisia										
CLL16	275	60.8	72.3	27.5	49.4	42.3	85.0	0	1.0	23.0
CLL18	291	59.6	71.3	24.4	46.6	41.8	82.5	0	1.0	21.6
PVL03	241	63.4	73.5	17.7	46.5	40.3	80.0	0	1.0	25.0
CLHA02	227	60.9	71.8	17.9	48.4	39.0	80.5	0	1.0	22.4
CLL15	245	64.2	72.8	18.6	46.9	37.3	81.0	0	1.0	22.4
CLL17	240	64.6	72.3	16.1	45.9	40.5	80.0	0	1.0	21.6
RU2004071	240	64.1	72.3	27.1	48.6	41.5	84.5	0	1.0	24.1
RU2004187	225	64.0	72.1	19.9	48.1	44.5	81.0	0	1.0	23.2
RU2004191	257	64.2	72.5	20.5	47.9	39.8	81.0	0	1.0	25.3
RU2004195	248	62.9	71.9	18.6	48.2	41.3	80.0	0	1.0	24.5
RU2004224	233	63.3	72.5	16.2	46.2	40.0	80.5	0	1.0	22.2
RU2104087	254	62.1	71.6	16.7	46.1	42.3	81.0	0	1.0	25.8
RU2104139	206	62.7	72.0	27.5	46.9	44.0	83.0	53	3.7	23.3

[1]**Planting date:** April 27.**Emergence:** May 7.**Fertilized:** DAP sulfate @100 lb/A on May 11, Urea @ 260 lb/A on June 1, Urea @100 lb/A on June 23. **Herbicides/Pesticides:** first spray on April 29 (Command 3ME @12.8 fl oz/A, Invade @16 fl oz/A, Sharpen [NY] @ 2 fl oz/A, Roundup Powermax 3 @ 32 fl oz/A), second spray on June 1 (Voyager 90/10 @ 6.4 fl oz/A, Permit Plus @ 0.75 dry oz/A, Grandstand CA @ 8 fl oz/A); third spray on June 16 (Invade @12.8 fl oz/A, Regiment CA @ 0.65 fl oz/A). **Harvested:** September 9.**LSD =** A difference of 21 bu/A is required for one variety to differ from another at the 5% probability level. **C.V. =** 5.1%

[2]Rough rice at 12% moisture.

[3]Days after emergence.

[4]Percent of plot that was lodged.

[5]Severity of lodging: 1 = plants totally erect, 5 = plants completely on ground.

[6]Weight of 1,000 kernels.

Table 4. Performance of rice varieties, hybrids, and experimental lines grown near Hollandale, Mississippi (33.14747°N, 91.05311°W), 2022.[1]										
Entry	Yield[2]	Whole milled rice	Total milled rice	Harvest moisture	Bushel weight	Plant height	50% heading[3]	Lodging[4]	Lodging score[5]	1,000 seed weight[6]
	bu/A	*%*	*%*	*%*	*lb*	*in*	*days*	*%*	*(1-5)*	*g*
					Hybrids					
RTv7231 MA	267	52.6	69.3	11.5	41.5	40.0	85.5	0	1.0	23.2
RT7331 MA	338	55.8	71.8	11.4	42.5	42.5	85.0	13	1.7	25.3
RT7421 FP	289	49.6	70.7	10.3	40.3	47.5	86.0	72	3.3	21.9
XP778	363	51.8	71.1	11.6	42.8	43.0	85.5	5	1.3	25.2
XP780	334	55.1	71.1	14.7	42.1	46.0	87.5	63	3.3	24.8
					Conventional					
Leland	287	59.6	72.7	12.7	47.6	45.8	88.0	0	1.0	24.3
Diamond	283	46.9	70.9	13.6	47.1	47.0	89.0	23	1.7	26.3
Rex	281	56.6	68.5	12.4	45.7	40.5	86.5	0	1.0	27.7
Thad	262	52.8	69.2	13.5	46.6	39.5	92.5	23	2.0	26.9
RU1904123	255	51.3	68.7	11.4	47.2	42.0	87.5	0	1.0	26.5
RU1904139	278	56.8	70.2	14.1	46.2	42.0	89.0	0	1.0	23.9
RU1904163	297	35.4	69.3	11.6	45.5	38.5	87.0	0	1.0	24.8
RU2004083	273	59.0	72.0	11.8	47.2	42.8	88.5	33	2.7	22.9
RU2004091	264	50.6	83.9	12.6	46.7	42.0	88.5	17	1.7	26.2
RU2004099	262	50.9	70.6	12.3	47.5	39.3	88.0	3	1.3	22.8
RU2104075	290	45.4	68.6	11.5	46.7	41.0	87.0	0	1.0	27.6
RU2104099	227	63.2	71.7	11.0	44.8	38.3	87.0	27	2.3	22.8
RU2104123	279	44.0	68.5	11.1	45.7	44.8	87.5	23	1.7	26.3
RU2104127	281	49.1	69.9	11.8	45.6	44.5	89.5	25	2.0	24.1
Addi Jo	281	59.8	70.8	12.6	46.6	38.3	90.5	0	1.0	24.8
					Clearfield/Provisia					
CLL16	260	45.9	69.1	13.3	46.7	42.5	88.0	48	2.7	22.6
CLL18	264	46.3	66.6	11.8	44.3	43.3	89.0	33	2.3	24.8
PVL03	251	53.5	70.5	10.4	45.1	41.3	87.0	0	1.0	27.4
CLHA02	248	57.2	70.2	12.7	46.8	39.3	88.0	17	1.7	23.5
CLL15	246	55.5	70.6	9.9	45.0	36.5	85.5	0	1.0	24.7
CLL17	230	58.0	70.4	11.2	44.4	40.3	89.0	72	3.7	22.6
RU2004071	292	60.8	71.8	12.8	46.2	42.0	90.5	0	1.0	25.3
RU2004187	238	59.2	69.6	12.4	46.4	45.0	88.0	17	2.0	25.0
RU2004191	256	51.3	67.1	12.2	45.4	39.5	86.0	0	1.0	27.7
RU2004195	263	51.3	68.1	11.4	46.2	41.0	87.0	0	1.0	26.9
RU2004224	210	59.9	70.0	11.8	45.2	41.3	85.5	0	1.0	24.8
RU2104087	295	51.1	66.9	11.9	44.5	43.3	87.5	0	1.0	28.2
RU2104139	133	37.9	65.1	13.3	42.3	44.5	87.0	85	4.7	21.1
RU2104219	279	53.8	68.4	12.0	46.2	40.0	87.0	0	1.0	24.4

[1]**Planting date:** April 11. **Emergence:** April 20. **Fertilized:** Ammonium Sulfate and DAP @100 lb/A on April 29, Urea @150 lb/A on May 18, Urea @ 100 lb/A on May 30, and Urea @100 lb/A on June 13. **Herbicides/Pesticides:** first spray on April 15 (RoundUp @1 qt/A, Command @ 1.6 fl oz/A, Sharpen @1.5 fl oz/A, and M.S.O. @1%), second spray on May 13 (Regiment @ 0.65 fl oz/A, and Grandstand @.5 pt/A, Phase II @1%). **Harvested:** September 1. **LSD =** A difference of 38 bu/A is required for one variety to differ from another at the 5% probability level.**C.V. =** 8.6%
[2]Rough rice at 12% moisture.
[3]Days after emergence.
[4]Percent of plot that was lodged.
[5]Severity of lodging: 1 = plants totally erect, 5 = plants completely on ground.
[6]Weight of 1,000 kernels.

Table 5. Performance of rice varieties, hybrids, and experimental lines grown near Leland, Mississippi (33.42300°N, 90.95710°W), 2022.[1]										
Entry	Yield[2]	Whole milled rice	Total milled rice	Harvest moisture	Bushel weight	Plant height	50% heading[3]	Lodging[4]	Lodging score[5]	1,000 seed weight[6]
	bu/A	*%*	*%*	*%*	*lb*	*in*	*days*	*%*	*(1-5)*	*g*
Hybrids										
RTv7231 MA	252	35.0	70.4	9.1	43.4	42.5	73.5	0	1.0	24.4
RT7331 MA	292	44.3	72.3	10.8	43.9	41.3	75.5	0	1.0	25.2
RT7421 FP	327	44.5	71.1	8.5	41.8	44.3	77.0	0	1.0	25.3
XP778	339	45.4	71.7	10.0	44.0	44.0	75.5	0	1.0	25.6
XP780	358	45.2	71.3	12.2	42.9	45.8	77.0	0	1.0	29.2
Conventional										
Leland	217	52.0	72.5	10.5	48.2	47.3	78.5	0	1.0	25.1
Diamond	222	44.0	72.2	11.9	48.4	44.8	80.5	0	1.0	27.6
Rex	210	59.3	70.5	10.0	46.9	43.0	80.5	0	1.0	27.4
Thad	215	45.8	70.2	10.8	47.8	43.3	80.0	0	1.0	26.2
RU1904123	222	43.1	69.7	11.1	48.3	39.8	80.5	0	1.0	27.2
RU1904139	232	56.4	71.3	16.1	47.8	42.0	81.0	0	1.0	26.0
RU1904163	232	33.7	71.5	10.7	46.7	42.8	81.5	0	1.0	24.6
RU2004083	237	57.8	73.2	11.3	49.6	45.0	80.0	0	1.0	24.5
RU2004091	238	56.8	71.5	11.5	47.0	43.3	81.0	0	1.0	27.3
RU2004099	223	47.1	72.5	10.8	48.7	43.3	81.5	0	1.0	25.2
RU2104075	219	52.2	71.6	10.1	47.5	45.8	87.5	0	1.0	27.3
RU2104099	202	65.2	72.7	10.2	45.8	39.0	81.0	0	1.0	25.6
RU2104123	230	49.0	71.7	10.0	47.7	42.0	76.5	0	1.0	27.5
RU2104127	234	52.6	73.0	10.9	47.9	44.5	81.0	0	1.0	26.4
Addi Jo	221	62.1	72.8	12.7	48.7	42.8	83.0	0	1.0	27.3
Clearfield/Provisia										
CLL16	257	50.1	71.2	13.6	49.0	44.8	81.0	0	1.0	26.5
CLL18	264	54.7	71.3	12.5	46.9	44.5	81.0	0	1.0	24.6
PVL03	210	50.8	71.5	9.8	46.1	43.8	79.5	0	1.0	28.3
CLHA02	216	46.7	71.0	11.0	48.8	39.5	79.5	0	1.0	24.6
CLL15	224	47.8	71.2	9.7	46.0	41.5	78.0	0	1.0	25.6
CLL17	225	55.2	71.2	9.5	45.7	44.0	79.0	0	1.0	24.2
RU2004071	214	46.1	70.5	12.7	48.0	43.0	81.0	0	1.0	27.7
RU2004187	223	60.2	70.8	10.7	47.4	45.5	79.0	0	1.0	25.5
RU2004191	228	54.4	70.8	10.3	47.3	46.3	78.5	0	1.0	28.5
RU2004195	230	41.8	69.6	10.4	47.6	44.8	77.5	0	1.0	28.2
RU2004224	197	57.5	71.4	9.7	46.4	39.5	78.0	0	1.0	25.1
RU2104087	225	53.3	69.9	9.9	45.2	44.5	79.5	0	1.0	27.3
RU2104139	234	60.0	72.2	13.5	46.4	48.8	82.5	57	2.7	24.7
RU2104219	217	61.8	73.0	11.4	48.1	44.0	82.0	0	1.0	23.6

[1]**Planting date:** May 3.**Emergence:** May 13.**Flooded:** June 24.**Fertilized:** (150 lb N/A using urea) June 23.**Herbicides:** First spray on April 29 (Sharpen @ 2 fl oz/A, Command @ 12 fl oz/A, Gramoxone @ 32 fl oz/A, Voyager @ 1 qt/100 gallons); second spray on June 1 (Facet @ 32 fl oz/A, Navigator @ 16 fl oz/A, Permit @ 2/3 oz/A, Stam @ 1 gal/A); third spray on June 23 (Stam @ 1 gal/A, Permit @ 2/3 oz/A, Facet @ 32 fl oz/A, Navigator @ 16 fl oz/A). **Harvested:** September 28.**LSD =** A difference of 19 bu/A is required for one variety to differ from another at the 5% probability level. **C.V. =** 4.9%

[2]Rough rice at 12% moisture.

[3]Days after emergence.

[4]Percent of plot that was lodged.

[5]Severity of lodging: 1 = plants totally erect, 5 = plants completely on ground.

[6]Weight of 1,000 kernels.

Table 6. Performance of rice varieties, hybrids, and experimental lines grown near Shaw, Mississippi (Choctaw; 33.62047°N, 90.74081°W), 2022.[1]

Entry	Yield[2]	Whole milled rice	Total milled rice	Harvest moisture	Bushel weight	Plant height	50% heading[3]	Lodging[4]	Lodging score[5]	1,000 seed weight[6]
	bu/A	*%*	*%*	*%*	*lb*	*in*	*days*	*%*	*(1-5)*	*g*
Hybrids										
RTv7231 MA	262	57.3	69.6	12.2	43.3	40.5	88.5	0	1.0	24.1
RT7331 MA	321	61.7	71.8	12.2	43.8	43.5	88.0	0	1.0	24.4
RT7421 FP	348	60.8	71.1	12.8	41.2	45.5	88.0	0	1.0	23.2
XP778	339	63.5	72.7	13.0	43.3	43.0	88.5	0	1.0	24.1
XP780	368	59.5	70.8	17.8	42.5	45.0	90.5	0	1.0	26.8
Conventional										
Leland	226	64.9	72.3	13.6	47.7	45.0	91.0	0	1.0	23.0
Diamond	240	62.2	72.6	14.6	47.4	44.8	91.5	0	1.0	25.5
Rex	228	60.5	69.1	13.4	46.2	39.3	89.5	0	1.0	26.6
Thad	247	62.7	70.1	14.7	47.3	40.0	92.5	0	1.0	25.5
RU1904123	222	58.4	69.3	12.5	47.0	39.3	89.5	0	1.0	25.4
RU1904139	239	59.2	70.0	18.7	47.2	40.3	92.0	0	1.0	25.0
RU1904163	239	49.9	70.0	12.8	45.7	37.0	90.0	0	1.0	24.2
RU2004083	250	59.3	70.5	13.9	48.2	41.3	91.5	0	1.0	22.3
RU2004091	246	56.9	70.7	16.1	46.6	41.3	91.0	0	1.0	25.9
RU2004099	216	57.2	70.7	13.4	47.7	41.8	91.0	0	1.0	21.9
RU2104075	222	54.0	69.5	11.6	46.5	40.0	89.5	0	1.0	26.9
RU2104099	212	64.1	71.3	12.4	45.2	39.0	90.0	0	1.0	23.8
RU2104123	234	53.2	70.0	11.3	46.6	42.3	90.5	0	1.0	26.0
RU2104127	224	58.2	71.7	12.1	46.3	42.5	92.5	0	1.0	24.9
Addi Jo	207	63.4	71.3	16.2	47.3	39.5	93.5	0	1.0	24.1
Clearfield/Provisia										
CLL16	261	58.7	69.7	18.3	47.7	43.0	91.0	0	1.0	23.1
CLL18	263	53.9	68.4	15.3	45.4	40.8	90.0	0	1.0	24.3
PVL03	221	56.7	70.7	11.4	45.4	39.8	90.0	0	1.0	26.8
CLHA02	240	61.6	70.1	13.8	47.1	39.3	91.0	0	1.0	23.2
CLL15	237	62.1	70.4	13.0	45.3	38.5	88.5	0	1.0	23.9
CLL17	240	63.5	70.0	12.6	44.1	41.3	89.5	0	1.0	22.1
RU2004071	235	62.8	70.4	18.1	47.2	41.3	93.5	0	1.0	24.5
RU2004187	227	63.2	69.9	14.9	46.9	44.8	91.0	0	1.0	24.8
RU2004191	231	61.0	69.8	14.3	46.7	40.3	89.5	0	1.0	26.9
RU2004195	245	62.0	69.7	13.9	47.0	42.0	89.5	0	1.0	26.2
RU2004224	215	63.0	70.5	12.5	45.4	39.0	88.5	0	1.0	22.8
RU2104087	258	63.0	68.3	12.7	45.1	41.8	91.0	0	1.0	27.2
RU2104139	231	60.8	69.9	19.5	46.0	44.0	90.0	38	2.3	24.1
RU2104219	237	64.7	71.9	13.9	46.7	42.3	90.0	0	1.0	23.0

[1]**Planting date:** April 11.**Emergence:** April 21.**Fertilized:** DAP/Am Sulfate (101.49 lb/A on April 29); Urea (100 lb/A on May 21, 98.52 lb/A on June 1, 191.72 lb/A on June 13, 78 lb/A on June 20). **Herbicides/Pesticides:** first spray on April 4 (Sharpen @ 1.50 fl oz/A, Invade @ 12.8 fl oz/A, Command 3ME @ 21.33 fl oz/A, Honcho K6 @ 32 fl oz/A, CruiserMaxx Rice 45 lb bag @ 48 fl oz/A); second spray on May 9 (Grandstand R @ .5 pt/A, Dyna-A-Pak @ 12.8 fl oz/A, Regiment @ .65 dry oz/A); third spray (Eclipse N @ 1.6 fl oz/A; fourth spray on July 7 (Stratego Fungicide @ 17 fl oz/A); fifth spray on July 21 (Warrior II with Zeon Technology @ 1.8 fl oz/A). **Harvested:** August 30.**LSD =** A difference of 22 bu/A is required for one variety to differ from another at the 5% probability level. **C.V. =** 5.3%

[2]Rough rice at 12% moisture.

[3]Days after emergence.

[4]Percent of plot that was lodged.

[5]Severity of lodging: 1 = plants totally erect, 5 = plants completely on ground.

[6]Weight of 1,000 kernels.

Table 7. Performance of rice varieties, hybrids, and experimental lines grown near Stoneville, Mississippi (33.39979°N, 90.86666°W), 2022.[1]										
Entry	**Yield[2]**	**Whole milled rice**	**Total milled rice**	**Harvest moisture**	**Bushel weight**	**Plant height**	**50% heading[3]**	**Lodging[4]**	**Lodging score[5]**	**1,000 seed weight[6]**
	bu/A	*%*	*%*	*%*	*lb*	*in*	*days*	*%*	*(1-5)*	*g*
					Hybrids					
RTv7231 MA	247	39.0	71.1	9.2	43.4	41.5	83.0	0	1.0	22.9
RT7331 MA	284	42.8	72.5	9.5	43.7	45.3	84.0	0	1.0	24.6
RT7421 FP	315	48.4	71.4	9.7	41.1	48.0	82.5	0	1.0	24.0
XP778	311	48.1	72.4	10.8	43.7	43.5	85.5	0	1.0	24.3
XP780	276	43.5	70.8	12.9	43.4	44.8	83.0	17	1.7	27.2
					Conventional					
Leland	214	59.6	73.2	11.3	47.8	45.5	83.0	0	1.0	24.4
Diamond	220	54.4	72.7	13.0	47.7	45.0	85.0	0	1.0	26.5
Rex	206	57.2	70.5	9.9	45.8	43.8	82.5	0	1.0	26.2
Thad	222	54.5	70.8	13.1	47.7	43.3	81.5	0	1.0	25.3
RU1904123	206	45.8	69.5	11.0	46.7	43.5	82.0	0	1.0	26.0
RU1904139	236	57.8	71.5	17.4	47.5	43.8	84.5	0	1.0	24.9
RU1904163	234	36.7	72.0	10.4	45.8	39.5	85.5	0	1.0	23.9
RU2004083	239	63.1	72.4	13.3	49.5	45.3	85.0	0	1.0	22.5
RU2004091	242	55.9	72.6	12.6	46.3	44.0	85.0	0	1.0	25.7
RU2004099	220	54.6	72.8	13.1	49.0	42.8	82.5	0	1.0	23.1
RU2104075	206	50.4	71.6	10.5	47.0	43.3	83.5	0	1.0	26.4
RU2104099	196	63.4	72.4	10.0	44.3	40.8	81.5	0	1.0	25.1
RU2104123	217	47.9	71.2	10.3	46.7	43.0	82.0	0	1.0	27.0
RU2104127	237	56.5	72.9	12.1	47.3	44.8	83.0	0	1.0	25.8
Addi Jo	196	64.5	72.4	13.6	47.9	40.3	81.0	0	1.0	25.2
					Clearfield/Provisia					
CLL16	261	54.8	71.7	14.5	48.3	46.0	84.0	0	1.0	25.6
CLL18	262	55.7	71.2	12.4	46.3	45.3	82.5	0	1.0	25.4
PVL03	204	51.9	72.6	9.4	45.4	42.3	84.0	0	1.0	25.9
CLHA02	225	53.0	71.7	11.4	47.6	40.0	83.0	0	1.0	23.4
CLL15	232	50.4	71.4	9.7	45.5	41.8	83.0	0	1.0	24.1
CLL17	226	52.3	70.8	9.2	44.5	41.0	85.5	0	1.0	22.7
RU2004071	254	61.2	72.3	17.3	48.0	41.8	82.5	0	1.0	25.0
RU2004187	205	63.1	71.6	11.1	47.2	45.5	86.0	0	1.0	24.6
RU2004191	212	57.0	71.0	11.6	46.5	41.8	83.5	0	1.0	27.5
RU2004195	219	47.5	70.3	10.6	46.6	43.5	84.5	0	1.0	26.2
RU2004224	182	58.5	71.0	10.9	45.8	40.0	82.5	0	1.0	23.9
RU2104087	223	49.0	69.1	9.6	45.3	44.5	86.0	0	1.0	27.7
RU2104139	206	54.0	70.9	13.7	46.4	45.8	82.5	0	1.0	25.6
RU2104219	211	58.9	72.2	11.0	47.5	42.0	82.0	0	1.0	23.9

[1]**Planting date:** May 4.**Emergence:** May 12.**Flooded:** June 24.**Fertilized:** (150 lb N/A using urea) on June 23.**Herbicides:** first spray on April 29 (Sharpen @ 2 fl oz/A, Command @ 12 fl oz/A, Gramoxone @ 32 fl oz/A, Voyager @ 1 qt/100 gallons); second spray on June 1 (Facet @ 32 fl oz/A, Navigator @ 16 fl oz/A, Permit @ 2/3 oz/A, Stam @ 1 gal/A); third spray on June 23 (Stam @ 1 gal/A, Permit @ 2/3 oz/A, Facet @ 32 fl oz/A, Navigator @ 16 fl oz/A). **Harvested:** September 28.**LSD =** A difference of 23 bu/A is required for one variety to differ from another at the 5% probability level. **C.V. =** 6.0%
[2]Rough rice at 12% moisture.
[3]Days after emergence.
[4]Percent of plot that was lodged.
[5]Severity of lodging: 1 = plants totally erect, 5 = plants completely on ground.
[6]Weight of 1,000 kernels.

Table 8. Average rough rice yields of varieties, hybrids, and experimental lines evaluated in on-farm trials at five locations in Mississippi, 2022.

Entry	Benoit	Hollandale	Leland	Shaw	Stoneville	Average	Stability[1]
	bu/A	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*	
			Hybrids				
RTv7231 MA	311	267	252	262	247	268	10
RT7331 MA	306	338	292	321	284	308	7
RT7421 FP	392	289	327	348	315	334	12
XP778	336	363	339	339	311	338	5
XP780	359	334	358	368	276	339	11
			Conventional				
Leland	226	287	217	226	214	234	13
Diamond	216	283	222	240	220	236	12
Rex	207	281	210	228	206	226	14
Thad	229	262	215	247	222	235	8
RU1904123	240	255	222	222	206	229	8
RU1904139	228	278	232	239	236	243	8
RU1904163	206	297	232	239	234	242	14
RU2004083	231	273	237	250	239	246	7
RU2004091	256	264	238	246	242	249	4
RU2004099	229	262	223	216	220	230	8
RU2104075	210	290	219	222	206	229	15
RU2104099	224	227	202	212	196	212	6
RU2104123	216	279	230	234	217	235	11
RU2104127	209	281	234	224	237	237	11
Addi Jo	210	281	221	207	196	223	15
			Clearfield/Provisia				
CLL16	275	260	257	261	261	263	3
CLL18	291	264	264	263	262	269	5
PVL03	241	251	210	221	204	225	9
CLHA02	227	248	216	240	225	231	6
CLL15	245	246	224	237	232	237	4
CLL17	240	230	225	240	226	232	3
RU2004071	240	292	214	235	254	247	12
RU2004187	225	238	223	227	205	224	5
RU2004191	257	256	228	231	212	237	8
RU2004195	248	263	230	245	219	241	7
RU2004224	233	210	197	215	182	207	9
RU2104087	254	295	225	258	223	251	12
RU2104139	206	133	234	231	206	202	20
RU2104219	251	279	217	237	211	239	11
Mean	249	269	238	248	231	247	
LSD (.05)	21	38	19	22	23		
CV (5)	5.1	8.6	4.9	5.3	6.0		
Planting Date	April 27	April 11	May 3	April 11	May 4	April 28	
Emergence date	May 7	April 21	May 13	April 21	May 12	May 9	

[1]Stability is calculated by dividing the standard deviation by the mean and multiplying by 100. The lower the number, the more stable it is across multiple locations.

Table 9. Average agronomic and milling performance of varieties, hybrids, and experimental lines grown at seven locations in Mississippi, 2022.												
Entry	**Origin**[1]	**Yield**[2]	**Whole milled rice**	**Total milled rice**	**Harvest moisture**	**Bushel weight**	**Plant height**	**50% heading**[3]	**Lodging**[4]	**Lodging**[5]	**1,000 seed weight**[6]	**Approximate seeds/pound**
		bu/A	*%*	*%*	*%*	*lb*	*in*	*days*	*%*	*(1-5)*	*g*	*no*
RTv7231 MA	RT	268	49.2	70.2	11.5	43.1	41	82	0	1	23.6	19237
RT7331 MA	RT	308	52.5	72.3	11.8	43.6	43	82	3	1	24.6	18425
RT7421 FP	RT	334	53.5	71.5	12.1	41.2	46	83	14	1	23.5	19319
XP778	RT	338	54.5	72.3	12.3	43.5	43	83	1	1	24.5	18531
XP780	RT	339	53.5	71.3	16.2	42.8	45	84	16	2	26.8	16940
Conventional												
Leland	MS	234	60.2	72.9	13.8	48.0	46	84	0	1	24.0	18932
Diamond	AR	236	54.0	72.3	15.6	47.9	45	86	5	1	26.1	17395
Rex	MS	226	59.6	70.0	12.7	46.3	41	84	0	1	26.5	17158
Thad	MS	235	55.6	70.3	14.9	47.6	41	86	5	1	25.7	17679
RU1904123	MS	229	51.6	69.6	13.1	47.5	41	84	0	1	25.9	17515
RU1904139	MS	243	58.3	70.7	19.3	47.2	42	86	0	1	24.5	18531
RU1904163	MS	242	42.9	70.8	13.3	46.2	39	86	0	1	23.8	19044
RU2004083	MS	246	60.3	72.2	15.5	48.8	43	86	7	1	22.6	20124
RU2004091	MS	249	55.9	74.2	15.1	46.9	42	86	3	1	26.0	17462
RU2004099	MS	230	54.4	71.9	15.2	48.5	41	86	1	1	22.8	19930
RU2104075	MS	229	52.9	70.9	12.7	47.2	42	86	0	1	26.7	17029
RU2104099	MS	212	64.4	72.2	12.3	45.2	39	84	5	1	24.1	18854
RU2104123	MS	235	51.1	70.9	12.3	46.9	43	84	5	1	26.3	17236
RU2104127	MS	237	55.8	72.1	14.5	47.2	44	86	5	1	24.9	18248
Addi Jo	LA	223	63.1	72.1	15.9	47.9	40	88	0	1	25.0	18145
Clearfield/Provisia												
CLL16	HA	263	54.0	70.8	17.4	48.2	44	86	10	1	24.2	18791
CLL18	HA	269	54.0	69.8	15.3	45.9	43	85	7	1	24.1	18807
PVL03	HA	225	55.3	71.7	11.7	45.7	41	84	0	1	26.7	17016
CLHA02	HA	231	55.9	70.9	13.4	47.7	39	84	3	1	23.4	19385
CLL15	HA	237	56.0	71.3	12.2	45.7	39	83	0	1	24.1	18807
CLL17	HA	232	58.7	70.9	11.7	44.9	41	85	14	2	22.6	20053
RU2004071	MS	247	59.0	71.4	17.6	47.6	42	86	0	1	25.3	17930
RU2004187	MS	224	61.9	70.8	13.8	47.2	45	85	3	1	24.6	18440
RU2004191	MS	237	57.5	70.2	13.8	46.8	42	84	0	1	27.2	16703
RU2004195	MS	241	53.1	69.9	13.0	47.1	43	84	0	1	26.4	17197
RU2004224	MS	207	60.4	71.0	12.2	45.8	40	83	0	1	23.8	19108
RU2104087	MS	251	55.7	69.1	12.2	45.3	43	85	0	1	27.2	16667
RU2104139	MS	202	55.0	70.0	17.5	45.6	45	85	47	3	23.8	19108
RU2104219	MS	239	61.1	71.8	13.2	47.3	42	84	0	1	23.4	19435
Mean		247	55.9	71.2	14.0	46.3	42	85	5	1	24.8	18329
LSD (.05)		10.0	6.3	4.7	1.0	0.3	1.5	0.9	8.3	0.3	2.9	

[1]AR = Arkansas; LA = Louisiana; MS = Mississippi; HA = Horizon Ag; RT = RiceTec.
[2]Rough rice at 12% moisture.
[3]Days after emergence.
[4]Percent of plot that was lodged.
[5]Severity of lodging: 1 = plants totally erect, 5 = plants completely on ground.
[6]Weight of 1,000 kernels.

Table 10. Reactions of rice varieties and hybrids to common diseases in the Midsouth.[1]												
Variety/ Hybrid	Sheath blight	Blast	Stem rot	Kernel smut	False smut	Brown leaf spot	Straight head	Lodging	Black sheath rot	Bacterial panicle blight	Narrow brown leaf spot	Leaf smut
Bowman	MS	S	S	S	S	R	MS	MS	MS	S	MR	—
Cheniere	S	S	S	S	S	MR	MR	MS	MS	MS	VS	MR
CL111	VS	S	VS	S	S	R	MS	S	S	S	S	—
CL142-AR	MS	S	S	S	S	R	MS	MS	S	S	MS	—
CL151	S	VS	VS	S	S	R	VS	S	S	VS	S	—
CL152	S	MS	—	—	S	—	MR	MR	—	MS	R	—
CL162	S	S	S	S	S	—	MR	VS	S	MR	R	—
CL261	MS	MS	S	MS	S	R	S	MR	MS	S	S	—
CLXL729	MS	MR	MS	MS	S	R	MR	S	MS	MR	MS	—
CLXL745	MS	MR	MS	MS	S	R	MR	S	MS	MR	MS	—
Cocodrie	S	S	S	S	S	MR	VS	MS	MS	VS	MS	MS
Mermentau	S	S	—	—	—	—	MS	—	—	MS	—	—
Rex	S	VS	—	—	—	—	MR	MR	—	VS	VS	—
RoyJ	MS	S	S	VS	S	MR	S	MR	MS	S	MR	—
Sabine	S	S	S	S	S	R	—	MR	S	S	MS	—
Taggart	MS	S	S	S	S	—	—	MS	S	S	—	—
Templeton	MS	R	S	S	S	—	—	MS	S	S	—	—
Wells	S	S	S	MS	S	MR	MR	S	—	VS	R	—
XL723	MS	MR	MS	MS	S	R	MR	S	MS	MR	MS	—
XL753	R	MR	—	—	—	—	—	—	—	MR	—	—

[1]Abbreviations: R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, VS = very susceptible. Note: These ratings are subject to change as new or further information may become available.

Table 11. Nitrogen fertilizer rate guidelines for selected rice varieties.				
Varieties	Clay soils[1]		Silt loam soils[2]	
	Preflood	Midseason	Preflood	Midseason
	lb/A	*lb/A*	*lb/A*	*lb/A*
Bowman	120-150	30-60	90-120	30-60
Cheniere	120-150	30-60	90-120	30-60
CL151[3]	90-135	0-45	90	45
CL152	120-150	45	120	45
CL153	120-150	30-60	90-120	30-60
CL163	120-150	45	120	45
CL172	120-150	30-60	90-120	30-60
Cocodrie	120-150	30-60	90-120	30-60
Diamond	120-150	30-60	90-120	30-60
Lakast	120-140	30-45	90-120	30-45
Mermentau	120-150	30-60	90-120	30-60
PVL01	120-150	30-60	90-120	30-60
PVL02[4]	120-150	30-60	90-120	30-60
Rex	120-150	45	120	45
Sabine	120-150	30-60	90-120	30-60
Thad	120-150	30-60	90-120	30-60

[1]Clay soils include soils with CEC greater than 20 $cmol_c\ kg^{-1}$.
[2]Silt loam soils include soils with CEC less than 20 $cmol_c\ kg^{-1}$.
[3]CL151 is highly prone to lodging.
[4]Limited data for both clay and silt loam soils. Recommendations are subject to change with further testing.

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