

RICE BREEDING

CL163: A NEW, HIGH-AMYLOSE CONTENT CLEARFIELD- RICE VARIETY

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MOST SOUTHERN U.S. RICE VARIETIES ARE LONG-GRAIN TYPES WITH INTERMEDIATE AMYLOSE CONTENT. CL163 HAS HIGH AMYLOSE CONTENT, MAKING THE COOKED RICE NON-STICKY AND THUS PREFERRED BY CONSUMERS IN EXPORT MARKETS FOR MISSISSIPPI RICE.

During 2014-2015, Clearfield® pureline varieties occupied 26% of the rice acreage in Mississippi. This varietal type remains highly vigorous even with New-path®, Clearpath® and Beyond® herbicide application due to its tolerance to imidazolinone and is thus pre-

ferred by many farmers for better weed management and red rice control. The MSU rice breeding program, through a licensing agreement with BASF®, develops Clearfield® pureline varieties in order to provide more crop management options to Mississippi growers.



Seeding rate

Drill seeded- 75 to 90 lbs/ac

Cooking characteristics

Apparent amylose- 26.4%

Gelantinization- intermediate

Cook type-long grain

Agronomic traits

Average yield-235 bu/ac

Milling yield- 57/69

Bushel weight- 44

Plant height- 40

Lodging- 14%

Days of heading- 89

Days to maturity- 130

Seed weight (1000)- 25

Seeds/lb- 18,041

Fertilization

Clay soils- 120 to 135 pounds of nitrogen per acre pre-flood followed by a mid-season treatment of 45 pounds of nitrogen per acre.

Silt loam soils- 120 pounds of nitrogen per acre pre-flood followed by a mid-season treatment of 45 pounds of nitrogen per acre.

Disease resistance

CL163 is susceptible to sheath blight, intermediate to bacterial panicle blight, and resistant to some races of rice blast.

Rice grain dimensions

	<u>Paddy</u>	<u>Brown</u>	<u>Milled</u>
Length (mm)	9.40	7.26	6.70
Width (mm)	2.74	2.36	2.28
Thickness (mm)	1.92	1.73	1.60
L/W ratio	3.44	3.08	2.94

In 2011, the program released its first Clearfield® product, CL162. In 2014/15, a new imidazolinone tolerant breeding line RU1104122 was identified for release. Named CL163, this pureline was developed from a cross between CL161, a imidazolinone tolerant variety, and a breeding line derived from Rosemont, Mars, Newrex, Tebonnet, and Bellemont. CL163 is high yielding, early maturing, semidwarf, and long-grain type. It has the Newrex cooking and processing properties favored by the parboiling and canning industry. Unlike previous Clearfield® releases, it has a high level of amylose content, which makes the cooked rice non-sticky, a trait desired by consumers in Central and South America where most Mississippi

rice is exported. CL163 matures two days later but has better straw strength than CL151, resulting in 20% less lodging. Grain yields average 235 bushels per acre in small plot tests. Milling yields average 57 percent whole and 69 percent total. Like CL151, it has some tolerance to rice blast but is susceptible to sheath blight. However, it is rated intermediate to bacterial panicle blight and moderately resistant to straighthead. With distinct quality traits, CL163 is a good candidate for identity preservation but can also be co-mingled with other southern varieties. This new Clearfield® release was under seed production in 2014/15 and will be widely available to growers in 2016 through Horizon Ag®.