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MILLING GUIDE

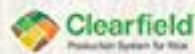


A Note from Tim Walker

General Manager,
Horizon Ag, LLC



For years, Horizon Ag has championed the industry's important efforts to improve rice quality—here in the United States and all over the world. We and our breeding partners pride ourselves on better grain quality that answers the concerns and needs of all rice buyers, both foreign and domestic. With our new, high-yielding Horizon Ag Clearfield® varieties, we've improved quality and cooking properties to meet market demands. And as we consider the seasons ahead, we look forward to continuing our efforts to help you and the industry achieve long-term viability.



CL111

CL111 is a southern U.S. Clearfield® long grain with intermediate amylose content and intermediate gel temp. It is the preferred long grain for Kellogg's and several other food companies. CL111 offers good field yield as well as milling yield.

GRAIN PROPERTIES

Shape Class Long
Scent Non-Scented
Milling Yield 61/71

PHYSIOCHEMICAL PROPERTIES

Amylose % 21
Gelatinization Temperature | °C 72.9

RAPID VISCO ANALYZER (AACC Method)

Peak 224
Trough 145
Breakdown 80
Final 259
Setback 35
Peak Time 6.07
Pasting Temperature | °C 80.8

GRAIN DIMENSIONS

	Length (mm)	Width (mm)	L/W Ratio	1000 Grain Weight (g)
Rough	9.68	2.53	3.83	28.1
Brown	7.41	2.24	3.31	23.3
Milled	7.31	2.18	3.35	22.2



ROUGH RICE



BROWN RICE



MILLED RICE



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CL151

CL151 is a southern U.S. Clearfield® long grain variety with intermediate amylose content and gel temp. It has been the predominant Clearfield variety for the past few years because of excellent field performance.

GRAIN PROPERTIES

Shape Class Long
Scent Non-Scented
Milling Yield 59/71

PHYSIOCHEMICAL PROPERTIES

Amylose % 22
Gelatinization Temperature | °C 74.8

RAPID VISCO ANALYZER (AACC Method)

Peak 225
Trough 128
Breakdown 97
Final 242
Setback 17
Peak Time 5.80
Pasting Temperature | °C 80.7

GRAIN DIMENSIONS

	Length (mm)	Width (mm)	L/W Ratio	1000 Grain Weight (g)
Rough	9.45	2.52	3.75	27.7
Brown	7.06	2.26	3.12	22.5
Milled	6.95	2.23	3.12	21.1



ROUGH RICE



BROWN RICE



MILLED RICE



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CL153

CL153 is a southern U.S. Clearfield® long grain variety with intermediate amylose content and gel temp. It has excellent field yield comparable to CL151 with a much better milling yield (on average 4 points higher whole compared to CL151), a lower propensity for chalk and a long, bold grain. CL153 also has improved agronomic characteristics such as improved blast tolerance and reduced lodging susceptibility. The reduction in lodging can also improve the overall quality of this variety, as lodging can affect milling yield especially in wet harvest years.



ROUGH RICE



BROWN RICE



MILLED RICE

GRAIN PROPERTIES

Shape Class	Long
Scent	Non-Scented
Milling Yield	61/71

PHYSIOCHEMICAL PROPERTIES

Amylose %	23
Gelatinization Temperature °C	73.05

RAPID VISCO ANALYZER (AACC Method)

Peak	219
Trough	135
Breakdown	84
Final	257
Setback	39
Peak Time	5.90
Pasting Temperature °C	79.7

GRAIN DIMENSIONS

	Length (mm)	Width (mm)	L/W Ratio	1000 Grain Weight (g)
Rough	9.76	2.50	3.92	26.6
Brown	7.30	2.17	3.37	21.8
Milled	7.07	2.13	3.33	19.5



Clearfield®
Production System for Rice

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CL163

CL163 is a southern U.S. Clearfield® long grain with much higher amylose content (approx. 25%) than most southern U.S. long grains and an intermediate gel temp. CL163's cereal chemistry makes it a great candidate for food service, parboiling, canning and other further processing.

GRAIN PROPERTIES

Shape Class Long
Scent Non-Scented
Milling Yield 59/70

PHYSIOCHEMICAL PROPERTIES

Amylose % 25
Gelatinization Temperature | °C 73.3

RAPID VISCO ANALYZER (AACC Method)

Peak 225
Trough 150
Breakdown 75
Final 286
Setback 61
Peak Time 5.91
Pasting Temperature | °C 79.4

GRAIN DIMENSIONS

	Length (mm)	Width (mm)	L/W Ratio	1000 Grain Weight (g)
Rough	9.76	2.67	3.67	27.6
Brown	7.35	2.31	3.18	23.0
Milled	7.04	2.21	3.18	20.3



ROUGH RICE



BROWN RICE



MILLED RICE



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CL172

CL172 is a southern U.S. Clearfield® long grain with intermediate amylose and gel temp. Even though the cereal chemistry appears to be that of a typical southern long grain, it cooks more like a higher amylose variety. CL172 also has a very low propensity for chalk and a large, bold grain, giving it exceptional package quality. Agronomic characteristics include blast resistance and lodging resistance as well as a competitive field yield and excellent milling yield.

GRAIN PROPERTIES

Shape Class Long
Scent Non-Scented
Milling Yield 60/70

PHYSIOCHEMICAL PROPERTIES

Amylose % 22
Gelatinization
Temperature | °C 72.7

RAPID VISCO ANALYZER (AACC Method)

Peak 226
Trough 134
Breakdown 92
Final 254
Setback 28
Peak Time 5.91
Pasting Temperature | °C 79.9

GRAIN DIMENSIONS

	Length (mm)	Width (mm)	L/W Ratio	1000 Grain Weight (g)
Rough	9.93	2.55	3.90	28.2
Brown	7.47	2.21	3.38	23.2
Milled	7.28	2.14	3.40	21.5



ROUGH RICE



BROWN RICE



MILLED RICE



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CL272

CL272 is a southern U.S. Clearfield® medium grain variety with a cereal chemistry profile, cook type and field yield that are similar to Jupiter. CL272 also has agronomic benefits over Jupiter such as improved blast resistance and better straw strength, which reduces lodging potential.

GRAIN PROPERTIES

Shape Class Medium
Scent Non-Scented
Milling Yield 57/70



ROUGH RICE



BROWN RICE



MILLED RICE

PHYSIOCHEMICAL PROPERTIES

Amylose % 10
Gelatinization Temperature | °C 65.4

RAPID VISCO ANALYZER (AACC Method)

Peak 289
Trough 181
Breakdown 92
Final 166
Setback -123

GRAIN DIMENSIONS

	Length (mm)	Width (mm)	L/W Ratio	1000 Grain Weight (g)
Rough	8.13	3.10	2.62	25.5
Brown	6.09	2.67	2.23	21.1
Milled	5.63	2.52	2.23	19.9



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