

# COOPERATIVE EXTENSION SERVICE

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# RISE INFORMATION

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## Grain Characteristics of Rice Varieties<sup>1</sup>

Rice is classified in three grain (kernel) types: short, medium, and long -grain. Classification of grain types is based on length to width ratios of rice kernels (Table 1). The length to width ratios of the paddy (rough rice), brown and milled kernel of the long, medium, and short grain rices are given Table 1.

Table 1. Kernel classification by grain dimensions.

Grain Type	Grain Form	Length/Width Ratio
Long	Paddy or Rough	$\geq 3.4$
	Brown	$\geq 3.1$
	Milled	$\geq 3.0$
Medium	Paddy or Rough	$\geq 2.3$
	Brown	$\geq 2.1$
	Milled	$\geq 2.0$
Short	Paddy or Rough	$\geq 2.2$
	Brown	$\geq 2.0$
	Milled	$\geq 1.9$

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Long grain varieties characteristically cook dry and fluffy and are used primarily in parboiled, quick-cooked, and processed rice products. Special purpose aromatic long-grain varieties include 'Della', 'Dellmont', and 'Jasmine 85'. 'Toro-2' are sticky (low-amylose) varieties that should not be commingled with other long-grains because of their non-typical physio-chemical characteristics.

Medium and short-grain rices cook moist and sticky in contrast to the dry, fluffy, long-grain types and are preferred for dry breakfast cereals, soups, baby foods, and brewing. Toro-2 is low amylose long grain variety that cooks sticky like medium grain varieties.

Rice kernel measurements for the long, medium and short-grain rice varieties are given in Tables 1 - 4. Kernel measurements were taken from official variety descriptions provided in the reference section. The actual kernel measurements for length, width, weight, etc... often vary when measured in different years due to differences in environmental conditions. The information provided here should be used as a relative guide for comparison of kernel characteristics.

This information may help rice producers understand why grain types need to be maintained separately for milling purposes. However, some grouping of different rice varieties may be necessary in handling and storage. This data can be used to group rice varieties with similar grain characteristics and minimize milling and quality losses. Most commercial rice millers can identify differences in varieties by the milling characteristics and some grouping of similar grain types must be done. Obviously, never mix long, medium, and short grain types. Special purpose aromatic varieties such as Della, Dellmont, Jasmine-85 and Toro-2 should always be stored separately.

Table 1. Rough, brown, and milled rice kernel dimensions and weights for long grain varieties.

Variety	Kernel Weight			Kernel Length			Kernel Width			Kernel Thickness			Length-Width Ratio		
	Rough	Brown	Milled	Rough	Brown	Milled	Rough	Brown	Milled	Rough	Brown	Milled	Rough	Brown	Milled
	mg			mm			mm			mm					
Adair	26.6	22.8	20.5	9.76	7.50	7.18	2.65	2.30	2.21	2.03	1.79	1.74	3.68	3.26	3.25
Alan	21.9	18.4	16.3	9.5	7.19	6.77	2.37	2.05	1.98	1.9	1.70	1.67	4.01	3.51	3.42
Bond	25.0	21.1	18.7	9.64	7.59	7.35	2.64	2.25	2.12	1.95	1.69	1.64	3.65	3.37	3.47
Cocodrie	25.6	20.6	20.2	9.33	7.14	7.10	2.52	2.20	2.17	1.94	1.77	1.74	3.70	3.25	3.27
Cypress	24.6	20.2	19.2	9.34	7.08	6.95	2.49	2.19	2.16	1.96	1.78	1.74	3.75	3.23	3.22
Drew	22.9	18.5	17.0	9.43	7.24	6.93	2.42	2.19	2.01	1.83	1.62	1.56	3.90	3.31	3.44
Gulfmont	25.8	21.3	19.9	9.49	7.28	7.11	2.68	2.29	2.24	1.99	1.72	1.67	3.54	3.18	3.17
Jackson	--	--	19.2	--	--	6.91	--	--	2.10	--	--	1.72	--	--	3.30
Jefferson	28.7	22.8	21.6	9.61	7.29	7.05	2.68	2.29	2.25	2.50	1.85	1.76	3.59	3.18	3.13
Jodon	25.0	21.1	17.8	9.59	7.71	7.12	2.51	2.32	2.22	1.93	1.81	1.72	3.82	3.32	3.21
Katy	20.8	16.9	15.7	9.34	7.20	6.65	2.41	2.05	1.99	1.88	1.62	1.57	3.87	3.51	3.34
Kaybonnet	20.8	17.4	15.7	9.23	7.07	6.63	2.36	2.04	1.95	1.89	1.66	1.62	3.91	3.47	3.40
L202	26.1	22.7	20.8	10.30	7.82	7.48	2.50	2.15	2.12	1.98	1.76	1.73	4.12	3.64	3.53
Labelle	21.3	17.8	16.4	8.76	6.96	6.69	2.33	2.03	1.95	1.85	1.63	1.58	3.76	3.43	3.43
Lacassine	24.8	20.9	18.7	9.30	7.27	7.07	2.56	2.24	2.15	1.96	1.74	1.69	3.63	3.25	3.29
LaGrue	25.1	21.0	19.0	9.36	7.43	7.07	2.58	2.21	2.13	1.96	1.77	1.70	3.63	3.36	3.32
Lebonnet	25.7	21.0	19.3	10.01	7.72	7.34	2.58	2.22	2.12	1.98	1.74	1.67	3.36	3.25	3.29

Table 2. Rough, brown, and milled rice kernel dimensions and weights for long grain varieties.

Variety	Kernel Weight			Kernel Length			Kernel Width			Kernel Thickness			Length-Width Ratio		
	Rough	Brown	Milled	Rough	Brown	Milled	Rough	Brown	Milled	Rough	Brown	Milled	Rough	Brown	Milled
	mg			mm			mm			mm					
Lemont	26.8	23.2	20.5	9.41	7.79	7.10	2.82	2.46	2.31	1.99	1.79	1.65	3.34	3.16	3.07
Madison	24.8	20.7	17.7	8.92	7.11	6.79	2.53	2.24	2.18	2.01	1.77	1.78	3.52	3.17	3.11
Maybelle	23.9	20.6	18.2	9.21	7.01	6.84	2.55	2.12	2.07	1.95	1.74	1.72	3.61	3.31	3.30
Millie	26.7	22.2	19.9	9.88	7.50	7.16	2.56	2.23	2.17	1.97	1.73	1.70	3.86	3.36	3.30
Newbonnet	23.3	18.9	18.1	9.44	7.34	7.15	2.46	2.13	2.06	1.93	1.71	1.66	3.84	3.45	3.47
RT7015	22.5	19.4	17.5	9.30	7.21	6.97	2.46	2.16	2.14	1.91	1.70	1.66	3.78	3.34	3.26
Rosemont	25.4	21.6	19.7	9.83	7.51	7.09	2.61	2.19	2.13	--	--	--	3.77	3.43	3.33
Skybonnet	25.1	20.3	18.8	9.33	7.15	7.00	2.61	2.19	2.10	1.92	1.67	1.63	3.57	3.26	3.33
Starbonnet	20.9	16.9	15.9	9.10	7.10	6.90	2.50	2.10	2.1	1.90	1.60	1.60	3.70	3.30	3.30
Tebonnet	23.5	20.0	18.1	9.43	7.27	6.84	2.49	2.10	2.01	1.93	1.71	1.65	3.79	3.46	3.40
Texmont	26.6	22.0	20.5	9.47	7.38	6.97	2.67	2.28	2.23	--	--	--	3.55	3.24	3.13
Wells	25.1	21.3	18.9	9.46	7.34	7.00	2.31	2.05	1.94	1.80	1.63	1.51	4.1	3.58	3.61

Table 3. Rough, brown, and milled rice kernel dimensions and weights for medium grain varieties.

Variety	Kernel Weight			Kernel Length			Kernel Width			Kernel Thickness			Length-Width Ratio		
	Rough	Brown	Milled	Rough	Brown	Milled	Rough	Brown	Milled	Rough	Brown	Milled	Rough	Brown	Milled
	mg			mm			mm			mm					
Bengal	27.4	23.7	21.8	8.27	6.45	6.04	3.15	2.79	2.64	2.14	2.04	1.92	2.63	2.31	2.29
Earl	26.7	22.6	20.7	8.15	6.36	6.01	3.13	2.73	2.59	2.07	1.99	1.92	2.63	2.33	2.32
Lafitte	25.6	21.2	18.6	7.99	5.86	5.75	2.92	2.62	2.60	--	--	--	2.73	2.23	2.21
Mars	23.5	21.2	18.7	8.35	6.26	6.07	3.00	2.53	2.46	2.06	2.06	1.81	2.78	2.47	2.47
M-201	--	22.5	--	--	6.10	--	--	2.80	--	--	--	--	--	2.18	--
M-202	--	23.1	--	--	6.15	--	--	2.90	--	--	--	--	--	2.12	--
M-204	--	23.6	--	--	6.20	--	--	2.85	--	--	--	--	--	2.18	--
Orion	23.4	20.0	18.9	8.06	6.13	5.72	3.24	2.81	2.65	2.04	1.76	1.72	2.49	2.18	2.16
Rico-1	27.2	21.4	19.9	7.81	6.01	5.66	3.13	2.84	2.66	2.21	1.94	1.81	2.50	2.12	2.13

Table 4. Rough, brown, and milled rice kernel dimensions and weights for specialty long grain varieties.

Variety	Kernel Weight			Kernel Length			Kernel Width			Kernel Thickness			Length-Width Ratio		
	Rough	Brown	Milled	Rough	Brown	Milled	Rough	Brown	Milled	Rough	Brown	Milled	Rough	Brown	Milled
	mg			mm			mm			mm					
Della	24.7	19.7	17.7	9.52	7.34	7.14	2.61	2.24	2.13	1.94	1.72	1.69	3.65	3.28	3.35
Dellmati	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dellrose	25.7	20.4	18.5	9.34	7.14	6.79	2.67	2.29	2.22	2.02	1.78	1.72	3.50	3.12	3.06
Dellmont	25.3	21.4	19.1	9.69	7.66	6.98	2.55	2.15	2.10	--	--	--	3.80	3.56	3.31
Dixiebelle	22.4	17.7	16.8	8.59	6.78	6.68	2.48	2.15	2.12	1.85	1.62	1.59	3.46	3.15	3.15
Jasmine 85	--	22.4	--	--	7.07	--	--	2.29	--	--	1.77	--	--	3.09	--
Rexmont	24.1	19.6	17.7	9.34	7.29	7.03	2.52	2.14	2.02	1.92	1.68	1.60	3.71	3.41	3.36
Toro-2	--	--	21.2	--	--	7.9	--	--	2.3	--	--	--	--	--	3.43

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