

Foreword

The Philippine National Standard (PNS) for Grains – Grading and classification – Paddy and milled rice prescribes the standard specifications on the quality, packaging, labeling, including test and analysis, of grains, specifically paddy and milled rice, to help ensure efficiency, order, and fair trade in the grains production and marketing system. It is an adaption of the Primer on Philippine Grains Standardization Program (PGSP) developed by the National Food Authority (NFA) and its cooperators (farmers, millers, traders/retailers, National Government Agencies, Local Government Units, and other private organizations) for the continuing advocacy, enforcement, and or monitoring activities on PGSP among their respective constituencies or sectors.

To facilitate the standardization process, the Bureau of Agriculture and Fisheries Standards (BAFS) created a Technical Working Group (TWG) authorized under Special Order No. 793 Series of 2017. The TWG was composed of technical experts from the following agencies, institutions, and groups: NFA, Philippine Rice Research Institute (PhilRice), Agricultural Training Institute (ATI), DA Rice Program, Food and Nutrition Research Institute (FNRI), Philippine Center for Postharvest Development and Mechanization (PHilMech), Philippine Agricultural Journalist, Inc. (PAJ), and Agricultural Machineries Manufacturers and Dealers Association of the Philippines, Inc. (AMMDA).

This document was drafted in accordance with the editorial rules of the BPS Directives, Part 3.

Introduction

As the Philippines faces the challenges and opportunities of globalization in the 21st century, characterized among others, by technological disruptions as well as rising public expectations and consumer preferences for quality products and services, grains standardization is undoubtedly one of the key strategies for accelerating the modernization and enhancing the global competitiveness of agriculture sector.

The National Food Authority (NFA), by virtue of Presidential Decree (P.D.) No. 4 issued 26 September 1972, as amended by PD 1770, is mandated to promote the integrated growth and development of the grains industry, including the formulation and enforcement of the national grains standards in collaboration with various sectors. As a regulatory agency, the NFA promotes the use of quality and safety standards in the rice and corn industry through the Philippine Grains Standardization Program (PGSP). This is also in support of the Consumers Act of the Philippines (R.A. 7394) and the Food Safety Act of 2013 (R.A. 10611) and in line with the country's deregulation and trade liberalization policies as a member of the World Trade Organization (WTO).

The adoption of a revised standards for paddy, milled rice and corn as a Philippine National Standard (PNS) under the auspices of the Bureau of Agriculture and Fisheries Standards (BAFS) is in accordance with the provisions of the Agriculture and Fisheries Modernization Act of 1997 that is supportive of the rice production enhancement program of the government.

The PNS Grains - Grading and classification – Paddy and milled rice covers the quality and safety standards, along with prescribed packaging materials, labeling, and price tags that are embodied in the NFA rules and regulations on grains business. It considers the following benefits or advantages of grains standardization to farmers, traders, millers, retailers, processors, academe, researchers, and other stakeholders:

- a. Improvement on the efficiency by reduction of post-harvest losses
- b. Increased public awareness on food quality and safety
- c. Promotion of consumers' right and welfare
- d. Availability of competitively-priced rice
- e. Fair and reasonable returns from rice post-production and marketing
- f. Rice industry competitiveness in the domestic and international markets

1 Objectives

This Standard provides specific guidance to promote product quality and safety, ensure efficiency, and strengthen competitiveness in rice post-production and marketing. Moreover, this Standard aims to support effective implementation or institutionalization of the national grains standards, particularly rice, through continuing advocacy, enforcement, and monitoring activities among rice farmers, millers, traders/ wholesalers and retailers, and the general consuming public.

2 Scope

This Standard covers the recommended product specifications, packaging and labeling of *Indica*-type paddy and milled rice to be sold in the local and international market. It is neither applicable to other products derived from rice, nor to specialty rice.

3 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

National Grains Standards for Rice & Corn, 1997

Primer on Philippine Grain Standardization Program, Rev. 2002

ISO 7301, *Rice – Specification*

PNS/BAFS 162:2015, *Pesticide Residues in Rice: Maximum Residue Limits (MRLs)*

PNS/BAFS 194:2017, *General Standard for Contaminants and Toxins in Food and Feed*

4 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

4.1**amylose**

type of starch with glucose molecules having a straight-chain, or linear, structure. Its percentage determines the tenderness or firmness of cooked rice and its staling property when left unattended at room temperature

4.2**brewers**

chips

binlid

small pieces of kernels that pass through a sieve having 1.4 mm round perforation

4.3**broken kernels**

brokens

pieces of kernels smaller than 75 % of the average length of the whole kernel

4.4**chalky kernels**

kernels, whole or broken, 50 % or more of which is similar to the color of white chalk

4.5**contrasting type**

paddy/rice kernels of different varieties other than the variety designated, wherein the size, shape, and color differ distinctly from the characteristics of kernels of the variety designated

4.6**damaged kernels**

<milled rice> kernels which are obviously damaged by insects, water, diseases and/ or any other means seen by the naked eye

4.7**damaged grains**

<paddy> grains which have germinated, distinctly damaged by insects, microorganisms, water, heat and/or any other means

4.8**degree of milling**

extent to which the bran layers have been removed in hulled rice

4.8.1**undermilled rice****UMR**

rice kernel from which the hull, germ, outer bran layer, and the greater part of the inner bran layers have been removed but parts of the lengthwise streaks of the bran layers remain in more than 40 % of the kernels

4.8.2**regular milled rice****RMR**

rice kernel from which the hull, the germ, the outer bran layers and the greater part of the inner bran layers have been removed but parts of the lengthwise streaks of the bran layers remain in 20 % to 40 % of the kernels

4.8.3**well milled rice****WMR**

rice kernels from which the hull, the germ, the outer bran layers and the greater part of the inner bran layers have been removed, but parts of the lengthwise streaks of the bran layers remain in less than 20 % of the kernels

4.8.4**overmilled rice**

153 **OMR**
154 rice kernel from which the hull, the germ, the bran layers, and part of the
155 endosperm have been removed
156

157 **4.9**

158 **discolored kernels**

159 yellow kernel

160 fermented kernels

161 kernels that have changed their original color as a result of heating and other means
162

163 **4.10**

164 **foreign matter**

165 <milled rice> all matters other than whole or broken rice kernels such as (a) foreign
166 seeds, husks, bran and (b) sand, dust
167

168 **4.11**

169 **foreign matter**

170 <paddy> all matters other than paddy grains such as (a) chaff, straw, other crop
171 seeds and (b) sand, gravel, dirt, pebbles, stones, lumps of earth, clay, mud
172

173 **4.12**

174 **gelatinization temperature**

175 **GT**

176 range of temperature within which starch granules start to swell irreversibly in hot water
177 with accompanied loss of birefringence and crystallinity
178

179 **4.13**

180 **germ**

181 small portion which lies on the ventral side of the rice kernel from where the seed
182 germinates
183

184 **4.14**

185 **glycemic index**

186 physiological classification of dietary carbohydrates based on the blood glucose response
187 from a food relative to the standard glucose solution or starchy food
188

189 **4.15**

190 **grade**

191 designation indicating the degree of quality of paddy or milled rice
192

193 **4.15.1**

194 **premium grade**

195 meets the highest grade requirements as set forth in the herein prescribed
196 national standards
197

198 **4.15.2**

199 **grade no. 1**

200 meets the second highest grade requirements for rice as set forth in the herein
201 prescribed national standards
202

203 **4.15.3**

204 **grade no. 2**

205 lower in quality than grade no. 1 but higher in quality than grade no. 3, based on
206 the grade requirements for rice as set forth in the herein prescribed national
207 standards
208

209 **4.15.4**

210 **grade no. 3**

211 lower in quality than grade no. 2 but higher in quality than grade no.4 based on
212 grade requirements for milled rice as set forth in the herein prescribed national
213 standards. Any paddy variety which meets the lowest grade requirements for
214 paddy as set forth in the herein prescribed national standards
215

216 **4.15.5**

217 **grade no. 4**

218 lower in quality than grade no. 3 but higher in quality than grade no.5 based on
219 the grade requirements for milled rice as set forth in the herein prescribed
220 national standards
221

222 **4.15.6**

223 **grade no. 5**

224 meets the lowest grade requirement for milled rice as set forth in the herein
225 prescribed national standards
226

227 **4.16**

228 **grain size**

229 grain length

230 category of at least 80 % of the sample of paddy or whole milled rice kernels to which the
231 sample belongs and is measured in millimeters
232

233 **4.16.1**

234 **extra long**

235 <milled rice> rice with 80 % or more of the whole milled rice kernels having a
236 length equal to 7.5 mm and above
237

238 **4.16.2**

239 **extra long**

240 <paddy> length of the full size paddy grain is 9.9 mm and above
241

242 **4.16.3**

243 **long**

244 <milled rice> rice with 80 % or more of the whole milled rice kernels having a
245 length equal to 6.4 mm to 7.4 mm
246
247

248	4.16.4
249	long
250	<paddy> length of the full size paddy grain (excluding the awn and the
251	pedicel) is between 8.8 mm to 9.8 mm
252	
253	4.16.5
254	medium
255	<milled rice> rice with 80 % or more of the whole milled rice kernels having a
256	length of 5.5 mm to 6.3 mm
257	
258	4.16.6
259	medium
260	<paddy> length of the full size paddy grain (excluding the awn and the
261	pedicel) is between 8.0 mm to 8.7 mm
262	
263	4.16.7
264	short
265	<milled rice> rice with 80 % or more of the whole milled rice kernels having a
266	length of less than 5.5 mm
267	
268	4.16.8
269	short
270	<paddy> length of the full size paddy grain (excluding the awn and the
271	pedicel) is below 8.0 mm
272	
273	4.17
274	immature kernels
275	head rice or broken kernels which are light green and chalky with soft texture
276	
277	4.18
278	Indica rice
279	one of the two major subspecies of rice characterized by long and thin grains, which are
280	generally fluffy when cooked
281	
282	4.19
283	iron-fortified rice
284	milled rice to which fortificant kernels (rice kernel coated or extruded with iron) are
285	added to enhance its nutritive value
286	
287	4.20
288	maximum level
289	ML
290	maximum concentration of a contaminant recommended by Philippine National
291	Standards which is legally permitted in rice
292	
293	4.21
294	maximum residue limit
295	MRL

296 maximum concentration of a pesticide residue (expressed as mg/kg), recommended by
 297 Philippine National Standard which is legally permitted in rice

298

299 **4.22**

300 **milled rice**

301 kernels obtained after removal of hull and bran

302

303 **4.23**

304 **moisture content**

305 **MC**

306 water content of paddy and milled rice expressed in percentage (%) as received

307

308 **4.24**

309 **paddy**

310 rough rice

311 palay

312 unhulled grain of *Oryza sativa* L., which means grain with the glumes enclosing the kernel

313

314 **4.25**

315 **purity**

316 percentage of paddy free of foreign matter

317

318 **4.26**

319 **red kernels**

320 kernels that have red bran covering, wholly or partly

321

322 **4.27**

323 **rice variety**

324 specific name given to a rice (*Oryza sativa*) line that results from genetic improvement
 325 and approved for commercial release by a national agency or traditional rice that has
 326 been selected a long time ago but has not undergone formal seed system

327

328 **4.28**

329 **specialty rice**

330 any rice variety (traditional or modern) possessing special qualities such as glutinous
 331 (e.g. Malagkit Sungsong, NSIC Rc13, Rc15, Rc17, Rc21), aromatic (e.g. Milagrosa, Azucena,
 332 NSIC Rc218, NSIC Rc148, Rc218, Rc324SR, Rc344SR), pigmented (e.g. Balatinaw, NSIC
 333 Rc19), japonica (e.g. NSIC Rc170, Rc242SR, Rc304SR, Rc414SR), and micronutrient-dense
 334 rice (e.g. high iron rice)

335

336 **4.28.1**

337 **aromatic rice**

338 rice that naturally gives off pleasant and fragrant odor

339

340 **4.28.2**

341 **glutinous rice**

342 special variety of rice whose kernels are opaque. The starch component consists
 343 of 0 % to 2 % amylose

4.28.3***Japonica* rice**

one of the two major subspecies of rice which have rounder and thicker grains, which are generally sticky when cooked

4.28.4**pigmented rice**

kind of rice with varying shades of red to black caused by the natural pigment anthocyanin found in its bran layers

4.29**weed seeds and other crop seeds**

seeds of any plant other than rice

4.30**woven polypropylene****WPP**

polypropylene (thermoplastic resin material that is produced by polymerization of propylene) strips/threads/yarns that have been woven in two directions, the warp (yarn running lengthwise in a woven material) and the weft (yarn running perpendicular to the warp) to create a light and strong material. It could be in laminated or non-laminated form

5 Quality standards

These parameters are further defined in terms of intrinsic or acquired characteristics of paddy and milled rice as summarized in Tables 1 and 2.

5.1 Quality standards for paddy

5.1.1 Paddy should be classified as extra long, long, medium, or short according to grain size.

5.1.2 Paddy should conform with the grade requirements specified in Table 1.

Table 1 – Grade requirements for paddy

Parameter	Grade			
	Premium	Grade no. 1	Grade no. 2	Grade no. 3
Grade factors (% by weight)				
Purity, min.	98.00	95.00	90.00	85.00
Total foreign matter, max.	2.00	5.00	10.00	15.00
(a) Weed seeds and	0.10	0.15	0.25	0.50

Parameter	Grade			
	Premium	Grade no. 1	Grade no. 2	Grade no. 3
other crop seeds, max.				
(b) Other foreign matters, max.	1.90	4.85	9.75	14.50
Defectives Chalky and immature kernels, max.	3.00	6.00	12.00	20.00
Damaged kernels, max.	0.50	1.50	3.00	5.00
Discolored kernels, max.	0.50	2.00	4.00	8.00
Contrasting types, max.	3.00	6.00	10.00	18.00
Red kernels, max.	1.00	3.00	5.00	10.00

5.1.2.1 Paddy which exceeds the maximum limit or falls short of the minimum requirements for any grade factor or parameter of a given grade shall be given the next lower grade.

5.1.2.2 Paddy which does not meet the requirements for any of the grades shall be graded as **Off-Grade Paddy**.

5.1.2.3 The maximum percentage of (a) weed seeds and other crop seeds shall not be exceeded but the maximum percentage of (b) other foreign matter may be exceeded provided that the maximum percentage of total foreign matter is not exceeded.

5.1.2.4 Milled rice should be classified as extra long, long, medium, or short according to grain size.

5.2 Quality standards for milled rice

5.2.1 Milled rice shall be classified as overmilled rice, well milled rice, regular milled rice, or undermilled rice according to degree of milling.

5.2.2 Milled rice shall conform with the grade requirements specified in Table 2.

Table 2 – Grade requirements for milled rice

Parameter	Grade					
	Premium	Grade no. 1	Grade no. 2	Grade no. 3	Grade no. 4	Grade no. 5
Grade factors (% by weight)						
Broken kernels, max. (total including brewers)	5.00	10.00	15.00	25.00	35.00	45.00
Brewers, max.	0.10	0.20	0.40	0.60	1.00	2.00
Defectives						
Damaged kernel, max.	0.50	0.70	1.00	1.50	2.00	3.00
Discolored kernel, max.	0.50	0.70	1.00	3.00	5.00	8.00
Chalky kernel, max.	4.00	5.00	7.00	9.00	12.00	15.00
Immature kernel, max.	0.20	0.30	0.50	1.00	1.50	2.00
Contrasting type, max.	3.00	5.00	10.00	-	-	-
Red kernel, max.	1.00	2.00	4.00	5.00	6.00	7.00
Foreign matters, max.	0.025	0.10	0.15	0.17	0.20	0.25
Paddy, max. (no. per 1,000 grams)	5.00	10.00	15.00	20.00	25.00	30.00

5.2.2.1 Milled rice which exceeds the maximum limit or falls short of the minimum grade requirement for any grade factor or parameter of a given grade shall be given the next lower grade.

5.2.2.2 Milled rice which does not meet the requirement for any of the grades shall be graded as **Off-Grade Rice**.

5.2.2.3 The maximum percentage of broken kernels may be exceeded provided that the maximum percentage of brewers is not exceeded.

5.2.2.4 Milled rice which contains 50 % or more red grains shall be graded according to the grade requirements in Table 2 and the word **Red Kernel** shall be added as part of the grade designation.

5 Food safety parameters

These parameters are further defined in terms of Maximum Residue Limits (MRLs) for pesticides, maximum level (ML) for contaminants (heavy metals), moisture content, presence of insect infestation, and microbial infection.

5.1 Maximum Residue Limits (MRLs)

The MRLs for rice shall be in conformance with the limits stated under the Philippine National Standards (PNS/BAFS 162:2015) Pesticide Residues in Rice: Maximum Residue Limits (MRLs) or its latest issuance.

5.2 Maximum Level (ML)

The ML for rice shall be in conformance with the limits stated under the PNS General Standard for Contaminants and Toxins in Food and Feed (PNS/BAFS 194:2017) or its latest issuance.

5.3 Moisture content

The maximum moisture content for paddy and milled rice shall be in conformance with the set value which is 14 % as stated under the PNS Code of Good Agricultural Practice for Rice (PNS/BAFS 141:2015) and PNS Organic Milled Rice (PNS/BAFPS 42:2008).

5.4 Insect infestation

Rice shall be free of any live stored grain pest.

5.5 Microbial infection

Rice shall be free of signs of microbial infection.

6 Packaging and labeling

These are specified in terms of prescribed packaging capacity and net weight in metric system of measurement, packaging materials, and required labeling information, among others. These are summarized in Table 3.

6.1 Dried paddy shall be packed in clean and appropriate packaging material in accordance with the PNS Code of Good Agricultural Practice for Rice. Packaging materials previously used for feeds and other chemically contaminated containers shall not be used.

6.2 Packaging materials to be used for milled rice shall be brand new and food-grade. Suitable food-grade ink shall be used for printing or labeling on the packaging material.

6.3 Packaging and labeling for milled rice shall be in accordance to the standard set under Table 3.

Table 3 – Standard packaging and labeling for milled rice

Commodity, classification and grade	Packaging			Labeling	
	Capacity kg	Type of material	Color of packaging material	Nominal net weight	Other required information
1. Big package	50, 25	WPP with or without transparent ^a areas Laminated WPP with or without transparent ^a areas		This amount of milled rice exclusive of the packaging/ container (sack) shall be declared/ labeled in “nominal net weight” in “SI” (International Systems of Units) units. This is the use of the unit symbol “kg” for unit name kilogram/ kilograms and the unit symbol “g” for unit name gram/ grams which shall have a space after the numerical value (50 or 25). Example: Net Weight: 50 kg or 25 kg This shall be declared on either the principal display panel or the information	- Grade of milled rice - Degree of milling - Moisture content: 14% maximum - Identity of the product (e.g., milled rice) - Name and address of miller, owner (in case of custom milling), supplier, packer, importer, or distributor of the milled rice - Name and address of the sack manufacturer, supplier, or distributor - Manufacturing date of the sack - Crop year of the milled rice
Premium grade rice			Light yellow, transparent area is also light yellow		
WMR Grade No. 1, 2, 3, 4, and 5			White, transparent area is also white		
RMR Grade Nos. 1, 2, 3, 4, or 5			White, transparent area is also white		

Commodity, classification and grade	Packaging			Labeling	
	Capacity kg	Type of material	Color of packaging material	Nominal net weight	Other required information
				panel in parallel to the base of the packaged product. Ambiguous expressions such as “approximate”, “standard”, “when packed”, and “as packed” following the net weight shall not be used as part of the quantity declaration.	
2. Small package	1, 2, 5, 10	Polyethylene (for 1, 2, 5 kg) WPP (for 5 and 10 kg) Kraft paper (for 1 and 2 kg)	Polyethylene bags should be color-coded. However, color-coded paper corresponding to the degree of milling and grade of the commodity may be inserted inside the package.	The same labeling of nominal net weight for big packages shall be followed for small packages.	The same required information for big packages shall be printed/ labeled in small packages.
^a For easy identification of the milled rice being contained					

7 Price tag of retailing unpacked rice

The price tag to be used in retailing unpacked rice shall be in accordance with the standard requirement set under Table 4.

Table 4 – Standard requirement for price tag in unpacked rice for retail

Particulars	Standard requirement
A. Size of price tag (length by width)	21.5 cm x 16.5 cm
B. Color of price tag	

Particulars	Standard requirement
• Premium grade rice	Light yellow
• Well milled rice Grade nos. 1, 2, 3, 4, or 5	White
• Regular milled rice Grade nos. 1, 2, 3, 4, or 5	White
C. Color of print on price tag	Black
D. Prescribed information	Price per kilogram (P/kg) Classification Iron-fortified rice Grade

7.1 Unpacked milled rice for retail must be displayed in rice boxes painted with food-grade white paint which shall be free of posters/advertisements. The white painted wooden rice boxes should be covered to ensure that the rice will not be exposed to pests and other contaminants that may cause harm to the consumers. The prescribed color-coded price tag shall be conspicuously displayed on the grains box.

7.2 The required information shall be printed in bold letter and figures (except the unit symbol “kg” for the unit name “kilogram/s”) on the color-coded price tag.

8 Methods of test and analysis

The methods of test and analysis for rice should conform with the procedures of the competent authority.

9 Hygiene

It is recommended that the products covered by the provisions of this Standard be prepared and handled in accordance with the PNS Good Warehousing Practices for Bagged Grains (PNS/BAFS 195:2016).

Annex A (informative)

Amylose content in rice

Table A.1 – Grouping of rice varieties according to amylose content (AC) and gelatinization temperature (GT)

Cluster	AC ^a	GT ^b	Freshly cooked rice texture
1A	L	L	Tender
1B	L	I/HI	Tender
1C	I	I/HI	Tender
2A	H	I	Moderately tender
2B	I	L	Moderately tender to hard
3	H	L	Hard
^a L = Low AC; I = Intermediate; H = High (NCT, 1996; Juliano et al., 2012)			
^b L = Low; I = Intermediate; HI = High-Intermediate (NCT, 1996)			

Table A.2 – Rice varieties grouped according to cluster

Cluster	AC ^a	GT ^b	Freshly cooked rice texture	Varieties
1A	L	L	Tender	NSIC Rc21, NSIC Rc31, PSB Rc72H (MESTISO), NSIC Rc104 (BALILI), NSIC Rc128 (MABANGO 1), NSIC Rc160 (TUBIGAN 14), NSIC Rc170 (MS 11), NSIC Rc176H (MESTISO 13), NSIC Rc182 (SALINAS 1), NSIC Rc218 SR (MABANGO 3), NSIC Rc220 SR (JAPONICA 1), NSIC Rc266H, NSIC Rc268H, NSIC Rc288, NSIC Rc304, NSIC Rc436, NSIC Rc468, NSIC Rc474, NSIC Rc480, NSIC Rc482, NSIC Rc484, NSIC Rc488, NSIC Rc502, NSIC Rc504
1B	L	I	Tender	NSIC Rc172 (MS 13), NSIC Rc178H (MESTISO 14), NSIC Rc188 (SALINAS 4), NSIC Rc196H (MESTISO 16), NSIC Rc208H (MESTISO 22), NSIC Rc210H (MESTISO 23), NSIC Rc224 (TUBIGAN 19), NSIC Rc234H (MESTISO 27), NSIC Rc236H (MESTISO 28), NSIC Rc242, NSIC Rc246H, NSIC Rc260H, NSIC Rc262H, NSIC Rc274, NSIC Rc320H, NSIC Rc330, NSIC Rc332, NSIC Rc456, NSIC Rc486, NSIC Rc490
1B	L	HI	Tender	NSIC Rc130 (TUBIGAN 1), NSIC Rc190 (SALINAS 5), NSIC Rc290, NSIC Rc292, NSIC Rc396, NSIC Rc400, NSIC Rc404
1C	I	I	Tender	NSIC Rc174H (MESTISO 12), NSIC Rc186 (SALINAS 3), NSIC Rc23, NSIC Rc25, NSIC Rc27, NSIC Rc29, NSIC Rc192 (SAHOD ULAN 1), NSIC Rc198H (MESTISO 17), NSIC Rc200H (MESTISO 18), NSIC Rc202H (MESTISO 19), NSIC Rc204H (MESTISO 20), NSIC Rc206H (MESTISO 21), NSIC Rc212 (TUBIGAN 15), NSIC Rc214 (TUBIGAN 16), NSIC Rc216 (TUBIGAN 17), NSIC Rc222 (TUBIGAN 18), NSIC Rc226 (TUBIGAN 20), NSIC Rc228H (MESTISO 24), NSIC Rc232H (MESTISO 26), NSIC Rc254H, NSIC Rc256H, NSIC Rc258H, NSIC Rc264H, NSIC Rc270H, NSIC Rc284, NSIC Rc296, NSIC Rc314H, NSIC Rc322H, NSIC Rc324, NSIC Rc326, NSIC Rc336, NSIC Rc344SR, NSIC Rc350H, NSIC Rc356, NSIC Rc358, NSIC Rc360, NSIC Rc380H, NSIC

Cluster	AC ^a	GT ^b	Freshly cooked rice texture	Varieties
				Rc382H, NSIC Rc384H, NSIC Rc408, NSIC Rc432, NSIC Rc446, NSIC Rc492, NSIC Rc494
1C	I	HI	Tender	NSIC Rc11 (CANLAON), PSB Rc14 (RIO GRANDE), PSB Rc18 (ALA), PSB Rc20 (CHICO), PSB Rc22 (LILIW), NSIC 2014 Rc25, PSB Rc28 (AGNO), PSB Rc30 (AGUS), PSB Rc32 (JARO), PSB Rc42 (BALIWAG), PSB Rc54 (ABRA), PSB Rc58 (MAYAPA), PSB Rc62 (NAGUILIAN), PSB Rc64 (KABACAN), PSB Rc78 (PAMPANGA), PSB Rc80 (PASIG), PSB Rc82 (PEÑARANDA), PSB Rc84 (SIPOCOT), PSB Rc100 (SANTIAGO), NSIC Rc110 (TUBIGAN 1), NSIC Rc112 (TUBIGAN 2), NSIC Rc120 (MATATAG 6), NSIC Rc122 (ANGELICA), NSIC Rc124H (MESTISO 4), NSIC Rc132H (MESTISO 6), NSIC Rc168H (MESTISO 11), NSIC Rc194 (SUBMARINO 1), NSIC Rc298, NSIC Rc300, NSIC Rc302, NSIC Rc338, NSIC Rc342, NSIC Rc346, NSIC Rc352, NSIC Rc362H, NSIC Rc368H, NSIC Rc370H, NSIC Rc372H, NSIC Rc390, NSIC Rc392, NSIC Rc398, NSIC Rc402, NSIC Rc410, NSIC Rc412, NSIC Rc418, NSIC Rc422, NSIC Rc424, NSIC Rc426, NSIC Rc428, NSIC Rc430, NSIC Rc434, NSIC Rc438, NSIC Rc442, NSIC Rc448, NSIC Rc458, NSIC Rc460, NSIC Rc462, NSIC Rc464, NSIC Rc466, NSIC Rc476
2A	H	I	Moderately tender	IR69726-29-1-2-2-2 (MATATAG2), PSB Rc3 (GINILINGAN PUTI), NSIC Rc9 (APO), PSB Rc74 (AKLAN), NSIC Rc276, NSIC Rc282, NSIC Rc286, NSIC Rc386H, NSIC Rc388H, NSIC Rc444, NSIC Rc450, NSIC Rc452, NSIC Rc454, NSIC Rc496
2A	H	HI	Moderately tender	PSB Rc16 (ENNANO), PSB Rc24 (CAGAYAN), PSB Rc36 (MA-AYON), PSB Rc38 (RINARA), PSB Rc40 (CHAYONG), PSB Rc56 (DAPITAN), PSB Rc60 (TUGATOG), PSB Rc66 (AGUSAN), PSB Rc68 (SACOBIA), PSB Rc76H (PANAY), PSB Rc102 (MAMBURAO), NSIC Rc364H, NSIC Rc366H, NSIC Rc374H, NSIC Rc376H
2B	I	L	Moderately tender to hard	PSB Rc34 (BURDAGOL), PSB Rc50 (BICOL), PSB Rc90 (BUGUEY), NSIC Rc106 (SUMILAO), NSIC Rc134 (TUBIGAN 4), NSIC Rc136H (MESTISO 7), NSIC Rc138 (TUBIGAN 5), NSIC Rc146 (PJ7), NSIC Rc148 (MABANGO 2), NSIC Rc166H (MESTISO 10), NSIC Rc180H (MESTISO 15), NSIC Rc230H (MESTISO 25), NSIC Rc238, NSIC Rc240, NSIC Rc244H, NSIC Rc248H, NSIC Rc250H, NSIC Rc252H, NSIC Rc272, NSIC Rc278, NSIC Rc280, NSIC Rc294, NSIC Rc306H, NSIC Rc308, NSIC Rc310H, NSIC Rc312H, NSIC Rc316H, NSIC Rc318H, NSIC Rc328, NSIC Rc334, NSIC Rc348, NSIC Rc354, NSIC Rc378H, NSIC Rc394, NSIC Rc406, NSIC Rc414, NSIC Rc416, NSIC Rc420, NSIC Rc440, NSIC Rc478
3	H	L	Hard	PSB Rc6 (CARRANGLAN), PSB Rc8 (TALAVERA), PSB Rc44 (GOHANG), PSB Rc46 (SUMADEL), PSB Rc86 (MATNOG), PSB Rc92 (SAGADA), PSB Rc94 (HUNGDUAN), PSB Rc96 (IBULAO), PSB Rc98 (LIAN), NSIC Rc152 (TUBIGAN 10), NSIC Rc164H (MESTISO 9), NSIC Rc340, NSIC Rc470, NSIC Rc472, NSIC Rc498, NSIC Rc500

^a Amylose Content; L= Low; I = Intermediate; H = High (NCT, 1996; Juliano et al., 2012)

Cluster	AC^a	GT^b	Freshly cooked rice texture	Varieties
^b Gelatinization Temperature; L= Low; I = Intermediate; HI = High-Intermediate (NCT, 1996)				

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Annex B
(informative)

Glycemic index of rice varieties

Rice variety	GI value (Mean + SEM)	Classification (Low, medium, or high)
PSB RC 10	50 ± 3	Low
Brown rice IR 64	51 + 1	Low
Brown rice (Sinandomeng)	55 ± 2	Low
IR 64	57 ± 3	Medium
PSB RC 18	59 ± 4	Medium
Improved malagkit sung song	63 ± 2	Medium
PSB RC 12	63 ± 3	Medium
PSB RC 160	70 ± 4	High
Sinandomeng	75 ± 4	High
Japonica rice	88 + 6	High

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