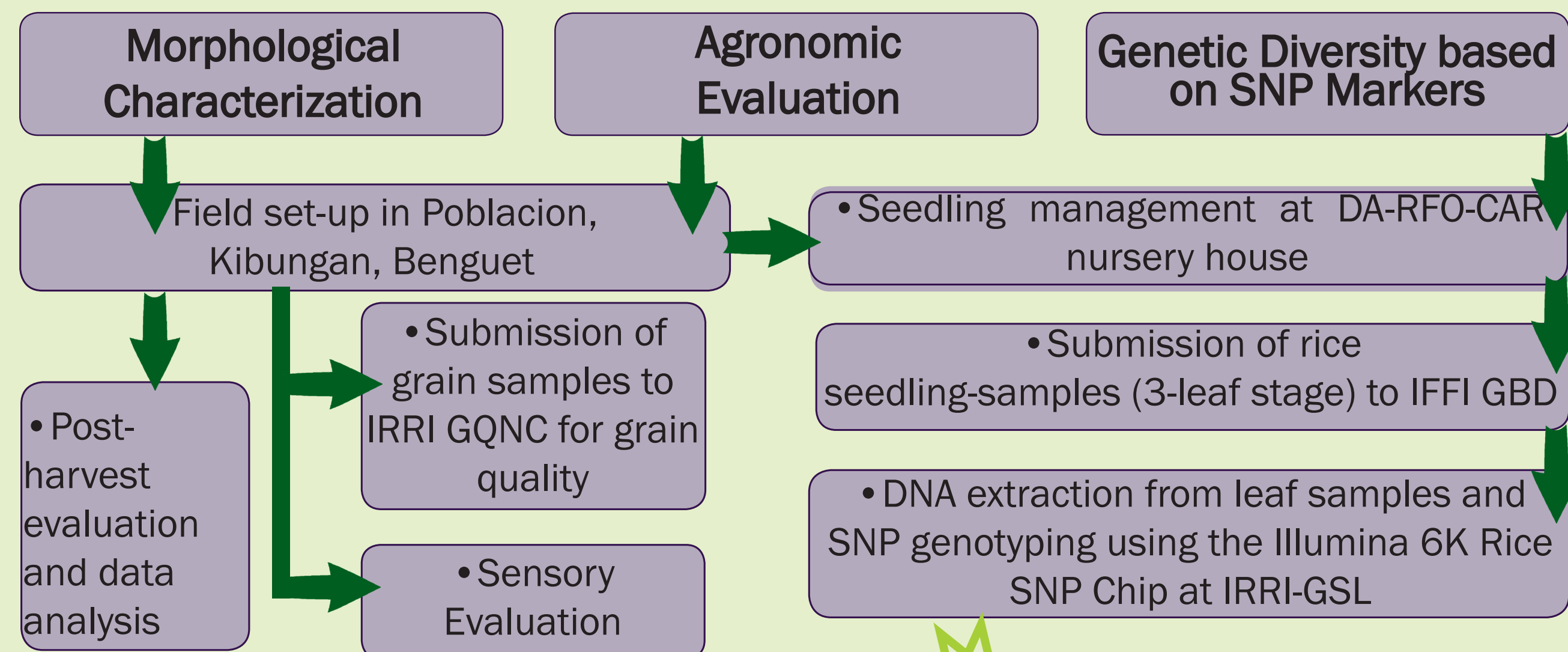


INTRODUCTION

- A landrace is defined as a variety with a high capacity to tolerate biotic and abiotic stress resulting in high yield stability and an intermediate yield level under a low input agricultural system (Manholt, 1909 as cited by Zeven, 1998).
- In the Philippines, the Cordillera rice terraces may be considered as one of the biodiversity hotspots in terms of genetic diversity in rice. It is home to hundreds of rice landraces.
- Characterization provides benchmark information that serves as main basis for future work on enhancing performance of rice landraces for their conservation and sustained use.
- The study aimed to characterize rice landraces collected in Benguet based on morphological and genetic traits; determine relationships and diversity; evaluate their yield, grain quality; and, determine the most preferred landraces based on yield performance.
- The results are valuable for future researches to increase yield and explore other value-addition interventions for a higher farmers' profit. Moreover, the findings can be used by stakeholders for rice landraces conservation and protection.



MATERIALS AND METHODS

1
2
3
4

Shannon-Weaver index (H') revealed that the qualitative morpho traits of Benguet landraces are generally less diverse

DESCRIPTORS	H'	DESCRIPTION	DOMINANT TRAIT	%	# OF TRAITS OBSERVED
Leaf Blade Color	0.10	LD	Green	92.90	2
Leaf Blade Pubescence	0.00	I	Pubescent	100.00	1
Auricle Color	0.10	LD	Yellowish Green	92.90	2
Flag Leaf Attitude	0.23	LD	Semi-erect	71.40	2
Culm Anthocyanin Color	0.38	LD	Purple Lines	50.00	3
Culm Underlying Node Color	0.16	LD	Green	85.70	2
Mean	0.17	LD			
Stigma Color	0.26	LD	White	57.10	2
Color of Apiculus	0.54	MD	Purple	42.90	5
Presence of Awn	0.45	LD	Absent	42.90	4
Panicle Attitude of Main Axis	0.20	LD	Strongly Drooping	78.60	2
Panicle Attitude of Branches	0.20	LD	Open	78.60	2
Panicle Thresholdability	0.00	I	Difficult	100.00	1
Lemma and Palae Pubescence	0.56	MD	Short hairs on lower and medium on upper portion	35.70	5
Sterile Lemma Color	0.31	LD	Straw	64.29	3
Caryopsis Shape	0.29	LD	Spindle-Shaped	78.60	4
Caryopsis Pericarp Color	0.45	LD	Brown	42.86	4
Mean	0.33	LD			
Grand Mean	0.25	LD			

Legend:
0.76 - 0.99 High Diversity (HD)
0.46 - 0.75 Moderate Diversity (MD)
0.01 - 0.45 Low Diversity (LD)
0.00 Invariant (I)

RESULTS

The panicle attitude of main axis of secondary branches of evaluated Benguet landraces are similar (low diversity).

Panicles and Grains of Glutinous Rice Landraces



(a) Kintoman; (b) Bongkitan; (c) Balatinaw; and, (d) Ginolot

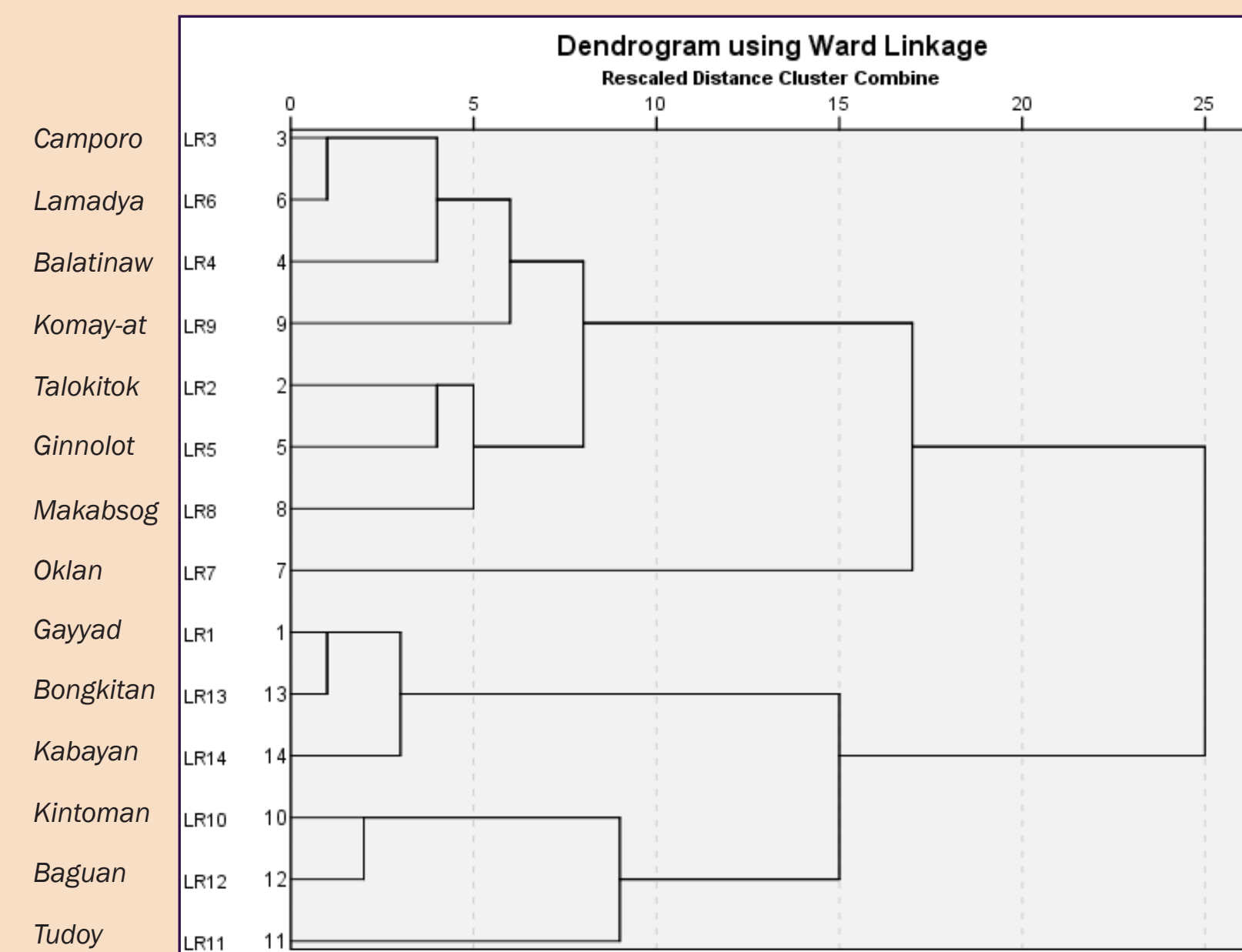
Panicles and Grains of Non-Glutinous Rice Landraces



(a) Tudoy; (b) Taloktok; (c) Lamadya; (d) Komay-at; (e) Gayyad; (f) Kabayan; (g) Baguan; (h) Camporo; (i) Makabsog; and, (j) Oklan

The SNP markers (genotyping) confirmed clustering of Benguet based on morpho agronomic traits

Morpho-Agronomic Characters



SNP Markers



Morpho-Genetic Characterization, Diversity Analysis and Evaluation of Rice Landraces in Benguet

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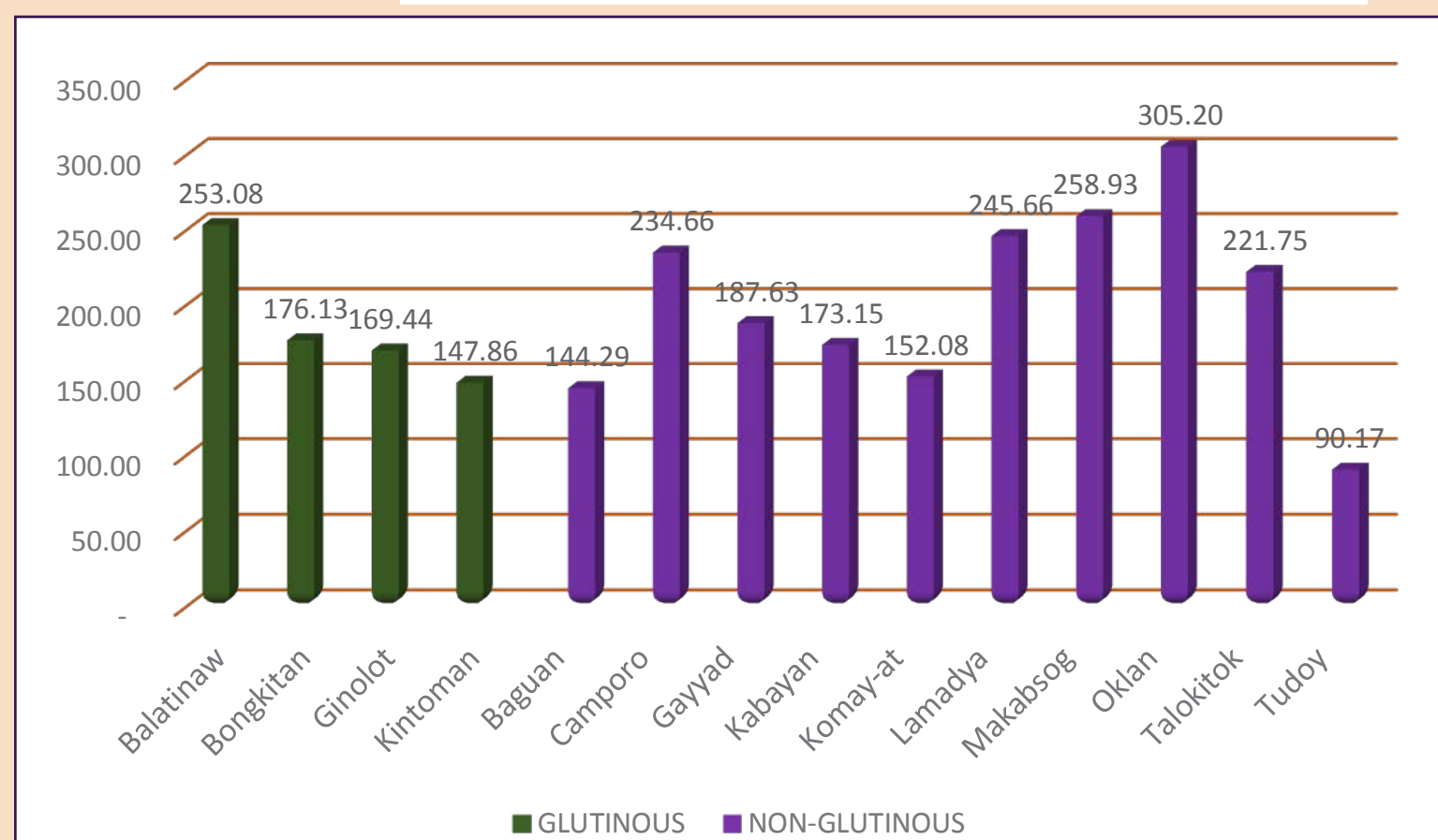
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CONCLUSIONS

- The Benguet rice landraces have moderately diverse quantitative but low diverse qualitative morpho-agronomic traits.
- Genotypic data has confirmed relationships among landraces based on expression of traits in the field. The use of morpho-agronomic traits alone could be sufficient in differentiation of a few or limited number of landraces.
- Grain yield had strong positive correlation with number of productive tillers and panicles per plant but negative correlation with leaf blade and flag leaf length and width.
- Oklan, Makabsog, Balatinaw and Lamadya are the most promising landraces based on positive morpho-agronomic traits, yield performance and better grain quality.

Yield Performance of Benguet rice landraces is generally low



Most of the Benguet rice landraces have positive cooking traits

RICE LANDRACES	AMYLOSE CONTENT		GELATINIZATION TEMPERATURE		GEL CONSISTENCY	
	%BY WEIGHT	CLASSES ^{a/}	CLASSES	mm	CLASSES ^{b/}	
GLUTINOUS						
Balatinaw	0	Waxy	Low	100	Soft	
Bongkitan	0	Waxy	Low	94	Soft	
Ginolot	2.3	Waxy	Intermediate	85	Soft	
Kintoman	2.5	Waxy	Intermediate/Low	100	Soft	
NON-GLUTINOUS						
Baguan	22.7	Intermediate	Intermediate/Low	83	Soft	
Camporo	24.1	Intermediate	Intermediate/Low	63	Soft	
Gayyad	17.5	Low	Low	58	Medium and flaky	
Kabayan	21.4	Intermediate	Low	64	Soft	
Komay-at	23.6	Intermediate	Intermediate	95	Soft	
Lamadya	23.5	Intermediate	Intermediate/Low	68	Soft	
Makabsog	21.9	Intermediate	Intermediate/Low	79	Soft	
Oklan	25.5	High	Intermediate/Low	75	Soft	
Taloktok	22.5	Intermediate	Intermediate/Low	73	Soft	
Tudoy	23.4	Intermediate	Intermediate/Low	73	Soft	

^aIRRI's routine classification system on AC: waxy (0-2%), very low (3-9%), low (10-19%), intermediate (20-25%), and high (>25%)
^bIRRI's routine classification system on GC: hard and very flaky (<40 mm), medium and flaky (41-60 mm), and soft (>61 mm)

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