## Table 2. List of descriptors for Rice

1	Des.#	Descriptor	Descriptor state	Recording stage	Remarks
2   aponica   3   avanica   4   hitermediates (hybrids)   1   Light green   2   Light purple   3   Purple   3   Purple   4   avanica   4   Awn colour   0   avanics   After anthesis   1   Straw   2   Gold   3   Brown   4   Red   5   Purple   5   Back   5   Purple   6   Black   5   Purple   5   Short and fully awned   5   Short and fully awned   7   Long and partly awned   5   Short and fully awned   7   Long and partly awned   7   Latte vegetative   1   Light green   2   Creen   3   Jurple   1   Light green   2   Creen   3   Jurple   1   Light green   2   Creen   3   Jurple   1   Light green   2   Light gold   3   Jurple lines   4   Light gold   4   Light gold   5   Leaf angle   Light gold   4   Light gold   5   Leaf angle   Light gold   4   Light gold   4   Light gold   5   Leaf angle   Light gold   5   Leaf angle   Light gold   4   Light green	1	Accession number			
3   Auricle colour	2	Variety group			
Auricle colour					
Auricle colour					
2 Light purple   3 Purple   4 Red   4 Red   5 Purple			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
3 Purple	3	Auricle colour		Late vegetative	
Awn colour					
1. Straw   2 Gold   3 Brown   4 Red   5 Purple   6 Black   5 Purple   6 Black   6 Short and fully awned   7 Long and partly awned   9 Long and fully awned   9 Long and fully awned   9 Long and fully awned   7 Long and partly awned   9 Long and fully awned   9 Long and fully awned   7 Long and partly awned   9 Long and fully awned   4 Purple   4 Purple   7 Collar colour   1 Light green   Late vegetative   2 Green   3 Purple   8 Culm angle   1 Erect (<30°)   At flowering   3 Intermediate (~45°)   5 Open (~60°)   7 Spreading (>60°)   9 Procumbent   9 Culm internode   1 Green   Near maturity   Culm umber   1 Green   Near maturity   1 Culm umber   1 Green   Near maturity   1 Culm umber   Tiller number with panicles   After flowering to maturity   At late reproductive stage internode   1 Erect   At anthesis   3 Intermediate   5 Horizontal   7 Descending   1 Erect   At anthesis   1 Internode   1 Erect   At anthesis   1 Internode   1 Inter					
2 Gold   3 Brown   4 Red   5 Purple   6 Black   6 Black   6 Black   7 Long and partly awned   7 Long and partly awned   9 Long and fully awned   7 Long and partly awned   9 Long and fully awned   7 Long and partly awned   9 Long and fully awned   7 Long and partly awned   9 Long and fully awned   7 Long and partly awned   9 Long and fully awned   1 Green   1 Light green   2 Green   3 Purple   9 Late vegetative   9 Procumbent   1 Green   Near maturity   9 Procumbent   1 Green   Near maturity   1 Culm internode   1 Green   Near maturity   1 Culm longth (cm)   1 Culm longth (c	4	Awn colour		After anthesis	
3 Brown   4 Red   5 Purple   6 Black   6 Black   7 Long and partly awned   5 Short and fully awned   7 Long and partly awned   9 Long and fully awned   1 Green   1 Light purple   9 Late vegetative   1 Light green   1 Late vegetative   1 Light green   9 Late vegetative   1 Erect (<30°)   At flowering   1 Erect (<30°)   5 Open (~60°)   7 Spreading (~60°)   9 Procumbent   9 Procumbent   1 Green   Near maturity   1 Culm internode   1 Green   Near maturity   1 Light gold   3 Purple lines   4 Purple   1 Culm length (cm)   1 From soil surface to panicle   After flowering to maturity   1 Diameter of basal internode   1 Erect   At anthesis   1 Erect   At anthesis   1 Internode   1 Erect   2 Internode   1 Erect   4 Erect					
4 Red   5 Purple   6 Black   6 Black   6 Black   6 Black   7 Long and partly awned   7 Long and partly awned   9 Long and fully awned   9 Long and fully awned   7 Long and partly awned   9 Long and fully awned   9 Long and fully awned   7 Long and partly awned   9 Long and fully awned   9 Procumbent   9 Procumbent   9 Procumbent   9 Procumbent   9 Procumbent   9 Procumbent   9 Long and fully gold   9 Procumbent   9 Procumbent   9 Long and fully gold   9 Long and fully gold   9 Long and fully gold   9 Procumbent   9 Procumbent   9 Long and fully gold   9 Procumbent   9 Procumbent   9 Procumbent   9 Long and fully gold   9 Procumbent   9 Proc					
Section   Sect					
Savaning					
5			•		
1 Short and partly awned   5 Short and fully awned   7 Long and partly awned   9 Long and fully awned   9 Purple   9 Late vegetative   9 Culm angle   1 Erect (<30°)				77	
Short and fully awned   7 Long and parity awned   9 Long and fully awned   9 Late vegetative   1 Erect (<30°)   At flowering   1 Erect (<30°)   At flowering   1 Erect (<50°)   7 Spreading (>60°)   9 Procumbent   9 Procumbent   1 Green   Near maturity   9 Procumbent   1 Green   Near maturity   1 Evaluation   1 Eva	5	Awning		Flowering to maturity	
Form					
Search   Search   Colour   C					
Gereau   Late vegetative   Purple   International Part					
colour    2 Purple lines   3 Light purple   4 Purple   7   Collar colour   1 Light green   Late vegetative   2 Green   3 Purple   7   2 Green   3 Purple   7   2 Green   3 Purple   7   2 Green   7	- 6	Racal last chaoth		Late vegetative	
3 Light purple   4 Purple	U			Late vegetative	
A Purple   Late vegetative   Collar colour   Light green   Late vegetative   Collar colour   Light green   Late vegetative   Collar colour   Collar colour colour   Collar colour   Col		Coloui			
Collar colour					
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	7	Collar colour	*	Late vegetative	
Section   Culmangle   1   Erect (<30°)   At flowering	,	Conar Colour		Late vegetative	
Culm angle					
Social Process   Soci	8	Culm angle	•	At flowering	
Sopen (~60°)   7 Spreading (>60°)   9 Procumbent   9   Culm internode colour   1 Green   Near maturity   2 Light gold   3 Purple lines   4 Purple   10   Culm length (cm)   from soil surface to panicle   After flowering to maturity   11   Culm number   Tiller number with panicles   After antheisis to near maturity   12 Diameter of basal internode   hase   1 Erect   At anthesis   3 Intermediate   5 Horizontal   7 Descending   1 Erect   At maturity   14   Grain width   Width in mm at widest part of   At maturity   15   Leaf angle   Note on leaf below the flag leaf   Late vegetative   1 Erect   5 Horizontal   9 Droopy   16   Leaf blade colour   1 Light green   Late vegetative   1 Erect   2 Green   1 Erect   2 Green   1 Erect   2 Erect   2 Erect   2 Erect   2 Erect   3 Erect   4 Erect   4 Erect   4 Erect   4 Erect   5 Horizontal   9 Droopy   1 Erect   4 Erect   4 Erect   4 Erect   5 Horizontal   9 Droopy   1 Erect   2 Erect   4 Erect   4 Erect   4 Erect   4 Erect   5 Horizontal   9 Droopy   1 Erect   4 Erect   4 Erect   4 Erect   5 Horizontal   9 Droopy   1 Erect   4 Erect   4 Erect   4 Erect   5 Horizontal   9 Droopy   1 Erect   4 Erect   4 Erect   4 Erect   5 Horizontal   9 Droopy   1 Erect   4 Erect   4 Erect   4 Erect   5 Horizontal   9 Droopy   1 Erect   4 Erect		Ü			
7 Spreading (>60°) 9 Procumbent  1 Green 2 Light gold 3 Purple lines 4 Purple 10 Culm length (cm) 11 Culm number 11 Culm number 12 Diameter of basal internode internode 13 Flag leaf angle 14 Grain width 15 Leaf angle 16 Leaf blade colour  16 Leaf blade colour  17 Spreading (>60°) 9 Procumbent 1 Green Near maturity Near maturity After flowering to maturity After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After antheisis to near maturity At late reproductive stage After an			` ′		
9 Culm internode colour  1 Green  2 Light gold 3 Purple lines 4 Purple  10 Culm length (cm) 1 Tiller number with panicles Diameter of basal internode internode  1 Erect 5 Horizontal 7 Descending  1 Erect 5 Horizontal 9 Droopy  1 Light gold 1 After anturity  After antheisis to near maturity At late reproductive stage base  1 Erect 5 Horizontal 9 Droopy  1 Light green Late vegetative    Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative   Late vegetative					
9 Culm internode colour  1 Green 2 Light gold 3 Purple lines 4 Purple 10 Culm length (cm) 11 Culm number 11 Culm number 12 Diameter of basal internode 13 Flag leaf angle 14 Grain width 15 Leaf angle 1 Grain width 1 Culm number 1 Erect 5 Horizontal 7 Descending 1 Light green 1 Late vegetative 1 Leaf blade colour 1 Light green 2 Green 1 Late vegetative 2 Light gold 3 Purple lines 4 Purple 4 After flowering to maturity After antheisis to near maturity At late reproductive stage 4 Late vegetative 5 Horizontal 9 Droopy 4 Late vegetative					
colour    2 Light gold   3 Purple lines   4 Purple					
3 Purple lines   4 Purple   10   Culm length (cm)   from soil surface to panicle   After flowering to maturity   11   Culm number   Tiller number with panicles   After antheisis to near maturity   12   Diameter of basal internode   base	9			Near maturity	
4 Purple  10 Culm length (cm) from soil surface to panicle After flowering to maturity  11 Culm number Tiller number with panicles After antheisis to near maturity  12 Diameter of basal internode base  13 Flag leaf angle		colour			
10 Culm length (cm) from soil surface to panicle After flowering to maturity  11 Culm number Tiller number with panicles After antheisis to near maturity  12 Diameter of basal internode base  13 Flag leaf angle					
11       Culm number       Tiller number with panicles       After antheisis to near maturity         12       Diameter of basal internode       Outer diameter of main culm base       At late reproductive stage         13       Flag leaf angle       1 Erect       At anthesis         3 Intermediate       5 Horizontal         7 Descending       4t maturity         14       Grain width       Width in mm at widest part of at maturity         15       Leaf angle       Note on leaf below the flag leaf and below the flag leaf	1.0		•	Lag d	
12 Diameter of basal internode base Outer diameter of main culm base At late reproductive stage  13 Flag leaf angle 1 Erect At anthesis 3 Intermediate 5 Horizontal 7 Descending  14 Grain width Width in mm at widest part of At maturity  15 Leaf angle Note on leaf below the flag leaf 1 Erect 5 Horizontal 9 Droopy  16 Leaf blade colour 1 Light green Late vegetative 2 Green			_	·	
internode base 1  Flag leaf angle 1 Erect At anthesis 3 Intermediate 5 Horizontal 7 Descending 1  Grain width Width in mm at widest part of At maturity 1  Leaf angle Note on leaf below the flag leaf Late vegetative 1 Erect 5 Horizontal 9 Droopy 1  Leaf blade colour 1 Light green Late vegetative 2 Green					
Flag leaf angle   1 Erect	12			At late reproductive stage	
3 Intermediate 5 Horizontal 7 Descending  14 Grain width Width in mm at widest part of At maturity  15 Leaf angle Note on leaf below the flag leaf Late vegetative  1 Erect 5 Horizontal 9 Droopy  16 Leaf blade colour 1 Light green 2 Green  Late vegetative					
5 Horizontal 7 Descending  14 Grain width Width in mm at widest part of At maturity  15 Leaf angle Note on leaf below the flag leaf 1 Erect 5 Horizontal 9 Droopy  16 Leaf blade colour 1 Light green 2 Green  Late vegetative  1 Late vegetative	13	Flag leaf angle		At anthesis	
7 Descending  14 Grain width Width in mm at widest part of At maturity  15 Leaf angle Note on leaf below the flag leaf Late vegetative  1 Erect 5 Horizontal 9 Droopy  16 Leaf blade colour 1 Light green 2 Green  Late vegetative					
14 Grain width Width in mm at widest part of At maturity  15 Leaf angle Note on leaf below the flag leaf Late vegetative  1 Erect 5 Horizontal 9 Droopy  16 Leaf blade colour 1 Light green 2 Green  Late vegetative					
15 Leaf angle Note on leaf below the flag leaf Late vegetative  1 Erect 5 Horizontal 9 Droopy  16 Leaf blade colour 1 Light green 2 Green  Late vegetative		~	·		
1 Erect       5 Horizontal         9 Droopy       9 Droopy         16 Leaf blade colour       1 Light green       Late vegetative         2 Green       2 Green			=		
5 Horizontal 9 Droopy  16 Leaf blade colour 1 Light green 2 Green  Late vegetative	15	Leaf angle	Note on leaf below the flag leaf	Late vegetative	
9 Droopy 16 Leaf blade colour 1 Light green Late vegetative 2 Green			1 Erect		
16 Leaf blade colour 1 Light green Late vegetative 2 Green			5 Horizontal		
2 Green			9 Droopy		
	16	Leaf blade colour	1 Light green	Late vegetative	
3 Dark green			2 Green		
			3 Dark green		

	I	4 Dyumla tina		1
		4 Purple tips		
		5 Purple margins		
		6 Purple mixed with green		
		7 Purple blotch		
4.5	7 011 1	8 Purple	<b>*</b>	
17	Leaf blade	1 Glabrous	Late vegetative	
	pubescence	2 Intermediate		
		3 Pubescent		
18	Leaf length	Data in cm on leaf just below the flag leaf	Early flowering	
19	Leaf width	Data in cm on widest portion of leaf just below the flag leaf	Early flowering	
20	Lemma and palea	0 Straw	After anthesis to hard dough stage	
20	_		After anthesis to hard dough stage	
	colour	1 Gold furrows on straw		
		2 Brown spots on straw		
		3 Brown furrows on straw		
		4 Brown		
		5 Reddish to light purple		
		6 Purple spots on straw		
		7 Purple furrows on straw		
		8 Purple		
		9 Black		
		10 White		
21	Lemma and palea	1 Glabrous	Near maturity	
	pubescence	2 Hairs on lemma keel	Trout maturity	
	pubescence			
		3 Hairs on upper portion		
		4 short hairs		
		5 Long hairs		
22	Ligule colour	1 White	Late vegetative	
		2 Purple lines		
		3 Purple		
23	Ligule length	Data in mm from base of the	After anthesis	
		collar to the tip		
24	Ligule shape	1 Acute	Late vegetative	
		2 Cleft		
		3 Truncate		
25	Panicle axis	1 Straight	Near maturity	
		2 Droopy		
26	Panicle length	Data in cm from panicle base to	Near maturity	
27	Panicle type	1 Compact	Near maturity	
	V.1	2 Intermediate	•	
		3 Open		
28	Secondary branching	0 Absent	Near maturity	
	of panicle		<del></del>	
	or pullion	1 Light		
		2 Heavy		
		3 Clustered		
29	Seedling height		At 5-leaf stage	
<u> </u>	becuming height	shoot to the tip of tallest leaf	Pit 5-icai stage	
30	Sterile lemma colour	1 Straw	At maturity	
		2 Gold	-	
		3 Red		
		4 Purple		
31	Sterile lemma length	Data on each of the two sterile	Afier harvest	
<i>J</i> 1	(mm)	lemmas	11101 1111 1001	
	[(11111)	iciiiiias	<u>I</u>	<u> </u>

1	I	0.41	T	1
		0 Absent		
		1 Short (≤1.5 mm)		
		3 Medium (1.6-2.5 mm)		
		5 > 2.5 mm but shorter than the		
		lemma		
		7 Equal or longer than the		
		9 Asymmetrical		
32	Stigma colour	Recording between 9 am to 2	At anthesis	
		pm with aid of hand lens		
		1 White		
		2 Light green		
		3 Yellow		
		4 Light purple		
		5 Purple		
33	Maturity	No. of days from seeding to		
		85% of the grains are ripened		
34	Panicle exsertion	1 Well exserted	Near maturity	
		3 Moderately well exserted		
		5 Just exserted		
		7 Partly exserted		
		9 Enclosed		
35	Panicle threshability	1 Difficult	At maturity	
		3 Moderately difficult	,	
		5 Intermediate		
		7 Loose		
		9 Easy		
36	Plant height (cm)	From soil surface to tip of the	Near maturity	
30		tallest panicle, awns excluded	Treat maturity	
37	Tillering ability	1 >25 tillers	After anthesis to near maturity	
		3 Tiller number 20-25	I invert unitables to from fravourity	
		5 Tiller number 10-19		
		7 Low (5-9 tillers)		
		9 Very low (<5 tillers)		
38	Grain yield		at 13% moisture content of the grain	
	Grain from			
		excluded, report in kg ha <sup>-1</sup> basis		
39	Stress-Soil salinity	Susceptibility scored on 1-9	Growth stage 3-4*	Codes for growth
		scale, where		stages are given in
				the end
		1 Plant growth near normal		
		3 Some reduction in tillering,		
		some leaves discoloured		
		5 Growth and tillering reduced,		
		leaves discoloured		
		7 Growth ceases, some plants		
		9 Almost all plants dead		
40	Stress-Iron toxicity	Susceptibility scored on 1-9	Growth stage 2-5	
	<b> </b>	scale, where		
		0 Growth and tillering normal		
		1 Reddish-brown spots or		
		discolouration on tips of older		
		3 Growth and tillering normal,		
		older leaves turn brown, purple		
		or orange-yellow		
		5 Growth retarded, leaves		
Ī	i	5 Growin retarded, reaves		1
		discolored		

1	I	7.0	T
		7 Growth ceases, most leaves	
	a. a.i.	9 Most plants dead	
41	Stress-Cold	Susceptibility scored 1-9 scale,	Growth stage 1; 4-9
		where	
		1 Normal plants	
		3 Growth slightly retarded	
		5 Growth moderately retarded,	
		leaves turn yellowish	
		7 Growth severely retarded,	
		leaves yellow and panicles	
		9 Growth severely retarded,	
		panicle not exserted	
42	Stress-Heat	Heat damage recorded on	
		fertility of spike, where	
		1 > 80% fertility	
		3 Fertility range from 61-80%	
		5 Fertility range from 41-60%	
		7 Fertility range from 11-40%	
		9 Fertility <11%	
43	Virus-Rice grassy	1 No symptoms seen	Growth 4-6
	stunt	3 Pale green and slightly narrow	
		leaves	
		5 Pale green and narrow leaves	
		7 Pale green and narrow leaves	
		with rust spots	
		9 More than 30% height	
		reduction, several small tillers	
44	Virus-Rice Tungro	1 No symptoms seen	Growth stage 3-5
		3 Height reduction by 1-10%	
		5 Height reduction 11-30%	
		7 Height reduction 31-50%,	
		with yellow to orange leaf	
		9 Height reduction >50%,	
		leaves discoloured	
45	Bacterial leaf streak	0 No lesions seen	Growth stage 3-6
	(Xanthomonas	1 Small brown specks of pin	
	oryzae pv. Oryzicola)	point size	
		3 Large number of lesions on	
		upper leaves	
		5 Lesions affecting 4-10% of	
		the leaf area	
		7 Lesions affecting 10-50% of	
		the leaf area	
		9 More than 75% of leaf area	
		affected	
46	Leaf blast	0 No lesions seen	Growth stage 2-3
	(Pyricularia grisea)		
	- j. velizari va grusca j	1 Small brown specks of pin	
		point size	
		2 Small roundish to slightly	
		elongated necrotic gray spots	
		3 Large number of lesions on	
		upper leaves	
		4 Lesions 3 mm size, <4% of	
		leaf area affected	
I	I	5 Leaf area affected 4-10%	

	1			
		6 Leaf area affected 11-25%		
		7 Leaf area affected 26-50%		
		8 Leaf area affected 51-75%		
		9 More than 75% of leaf area		
		affected		
47	Panicle blast	0 Few lesions only on pedicels		
	(Pyricularia Oryzae)	1 Lesions on several pedicels		
		and secondary branches		
		3 Lesions seen on primary		
		branches or middle of panicle		
		5 Lesions partly around the base		
		or lower part of the panicle axis		
		7 Lesions completely around		
		panicle base or panicle axis near		
		base also on 30% of the filled		
		9 Lesions completely around		
		and on >30% of filled grains		
48	Insect-Brown Plant	0 No damage	Growth stage 3-9	
	hopper (Nilaparvata	1 Slight yellowing of few plants		
	lugens)	3 Leaves partially yellow		
		5 Leaves yellow, some stunting		
		7 More than half of plants		
		wilting or with hopperburn		
		9 All plants dead		
49	Insect-Gall midge	0 No damage	Growth stage 2-5	
	(Orselia oryzae)	1 Less than 1% damage		
		3 Damage 1-5%		
		5 Damage 6-10%		
		7 Damage 11-25%		
		9 Damage >25%		
50	Insect-Leaf folder	0 No damage	Growth stage 3-9	
	(Cnaphalocrosis	1 Damage 1-10%		
	medinalis)	3 Damage 11-20%		
		5 Damage 21-35%		
		7 Damage 36-50%		
		9 Damage >50%		
51	Stem borers (Chilo	Cause deadhearts as well	Growth stage 3-9	
	polychysus, Chilo	whitehead and both scored		
	auricilius, Sesamia	separately on 1-9 scales		
	inferens, Chilo			
	suppressalis,			
	Scirpophaga			
50	incertula;			<u> </u>
52	Stress-Deep water	Elongation in deepwater		
		recorded on 1-9 scale, 1=best		
52	Ctmaga C1	elongation and 9=poorest		
53	Stress-Submergence	Scored % comparative survival		
<i>5 A</i>	Stragg Drawal-4	on 1-9 scale		1
54	Stress-Drought	Damage scored at vegetative		
		stage or as affect on spikelet fertility, both on 1-9 scale		
Crowt	l h cycle traits	nerumy, bour on 1-9 scale		1
Growt	n cycle traits			

		ī	In	
55	Effective seeding		Date when seeds were first moistened; this is	
	date		the date of soaking for pre-soaked seed, or the	
			date of sowing for dry seed sown onto a wet	
			seedbed, or the date when rain or other	
			moisture becomes available to seed sown dry	
56	First Heading		Date on which the first flush of flowers is	
30	riist neadilig			
			observed. It is specified either as the number of	
			days from effective seeding date to first	
			heading date or as the date of effective seeding	
57	Heading		Date on which 80% of the plants are heading. It	
			is specified either as the number of days from	
			effective seeding date to main heading date or	
			as effective seeding date and main heading date	
58	Days to Maturity		Maturity is the date on which 80% of the grains	
36	Days to Maturity			
- 50	T : C 1	1 1	on the panicles are fully ripened.	
59	Life cycle	1 Annual	The completeness of plant growth in a growing	
			season. Stage: after ratooning.	
		2 Perennial		
		3 Intermediate		
Vegeta	tive data	•		
	Coleoptile:	0 Absent	Observed in 6-7-day-old seedlings	
	anthocyanin	1 Very weak	, , , , , , , , , , , , , , , , , , , ,	
	colouration	3 Weak		
	Colouration	5 Medium		
		7 Strong		
<i>C</i> 1	T C -1		Day and the state of the state	
61	Leaf sheath:	0 Absent	Presence and intensity of anthocyanin	
	anthocyanin		colouration on the outer surface of the sheath	
	colouration		on the penultimate leaf. Stage: late vegetative	
		3 Weak		
		5 Medium		
		7 Strong		
62	Leaf blade:	0 Absent	Stage: late vegetative	
	presence/absence of			
	anthocyanin			
	colouration	1 Present		
-62			G. 1.	
	Leaf blade:	1 On tips Only	Stage: late vegetative	
	distribution of	2 On margins only		
	anthocyanin	3 In blotches		
	colouration	4 Even (uniform purple)		
64	Leaf margin:	1 Glabrous (no Hairs)	Assess pubesence of leaf margins. Stage: late	
	pubescence	(	vegetative	
	Paocecinco	2 Hairy or ciliated	- Cgcmire	
65	Lioula reservice de co	·	Stage, often onthesis	
65	Ligule margin shape	1 Entire	Stage: after anthesis	
		2 Scalloped or toothed		
		99 Other (specify in descriptor		
		7.6, Notes)		
66	Ligule margin	0 Absent		
	hairiness	1 Present		
67	Ligule pubesence	1 Glabrous	Visual assessment using hand lens. Stage: after	
	5 - r		anthesis	
		2 Partially hirsute: hairs	until COID	
		covering less than 50% of the		
		LUCA VARING LACE THAN SILVE OF THA	1	
		3 Mostly or generally hirsute: hairs covering more than		

68	Flag leaf: length		Measure length of the flag leaf, from the ligule	
08				
	(cm)		to the top of the blade, on five representative	
			plants. Calculate average to nearest cm. Stage:	
	F11C		7 days after anthesis	
69	Flag leaf: width (cm)		Measure width at the widest portion of the flag	
			leaf on five representative plants. Calculate	
			average to nearest cm. Stage: 7 days after	
70	Culm: Kneeing	0 Absent	Prostrate cultivars only (i.e. with Culm habit =	
	ability		9). Measured after flowering in conditions	
			where culms have fallen flat due to receding	
			water flow. The stems of cultivars with kneeing	
			ability start to grow upright with 3 to 4 nodes	
		1 Present		
71	Culm: anthocyanin	0 Absent	The presence and distribution of purple colour	
	colouration		from anthocyanin, observed on the outer	
			surface of the nodes on th culm. Stage: after	
			flowering to near maturity	
		1 Purple		
		2 Light purple		
		3 Purple lines		
72	Culm: underlying	0 No underlying colour visible	The underlying colour of the outer surface of	
	node colour	due to anthocyanin	the nodes on the culm, ignoring any	
			anthocyanin colouration. Stage: after flowering	
		1 Light gold		
		2 Green		
73	Culm: internode	0 Absent	The presence and distribution of purple colour	
	anthocyanin		from anthocyanin, observed on the outer	
			surface of the internodes on th culm. Stage:	
		1 Purple		
		2 Purple lines		
74	Culm: lodging	1 Very weak (all plants flat)	Scored at maturity based on the observed	
	resistance		degree of lodging	
		3 Weak (most plants nearly		
		5 Intermediate (most plants		
		leaning about 45)		
		7 Strong (most plants leaning		
		about 20 from vertical)		
		9 Very strong (all plants		
75	Culm: strength	1 Very weak	Assessed by gently pushing the titlers back and	
			forth at a distance of about 30 cm from the	
			ground. This test gives some indication of	
		2 17 1	stiffness and resilence. Stage: at harvest	
		3 Weak		
		5 Intermediate		
		7 Strong		
77	Looftgarage	9 Very Strong	Estimated by observing all laces to the d	
76	Leaf : senescence	1 Very early (all leaves lost	Estimated by observing all leaves below the	
		their green colour before grain	flag leaf for their retention of greeness. Stage:	
		3 Early (all leaves have lost		
		their green colour at harvest).		
		5 Intermediate (one leaf still		
		green at harvest).		
		7 Late (two or more leaves still green at harvest).		
		9 Very late (all leaves still		
		green at harvest).		
		green at narvest).		

Formation   2   Vegetative crown and stolon   3   Vegetative crown, stolon and weak filzones   4   Vegetative crown, stolon and weak filzones   4   Vegetative crown, stolon and weak filzones   5   Strong filzones with tubers   5   Strong filzones with tubers   6   Strong filzones with tubers   6   Strong filzones with tubers   78   Male sterility   1   Effectively absent <25%   Stage: at anthesis   5   Stage: at ant	77	Rhizome and stolon:	1 Vegetative crown	Observe when plants are ready for harvest	
3 Vegetative crown and weak hizomes		formatiom	2. Vegetative crown and stolon		
#Workers with tubers   A Vegetative crown, stolon and weak rhizomes   A Vegetative crown, stolon and weak rhizomes   S Strong rhizomes with tubers      Reproductive traits recorded before harvest   Strong rhizomes with tubers					
weak rhizomes   5 Strong rhizomes and no   5 Strong rhizomes with tubers			_		
weak rhizomes   5 Strong rhizomes and no   5 Strong rhizomes with tubers			4 Vegetative crown, stolon and		
Reproductive traits recorded before harvest			_		
Reproductive traits recorded before harvest   1 Effectively absent: <25%   Stage: at anthesis   1 Effectively absent: <25%   Stage: after anthesis   1 Effectively absent: <25%			5 Strong rhizomes and no		
The first sterility   Stage: at authesis			6 Strong rhizomes with tubers		
Sterile polen   2 Intermediate   3 Male sterile:>95% sterile   (Wild species), Record the average of five samples. Stage: at anthesis   wild species	Repro	luctive traits recorde	d before harvest		
2 Intermediate   3 Male sterile: >95% sterile	78	Male sterility	1 Effectively absent: <25%	Stage: at anthesis	
3 Male sterile: >95% sterile			sterile polen		
Anther: length (mm)					
Samples. Stage: at anthesis			3 Male sterile: >95% sterile		
80	79	Anther: length (mm)		= =	
Stage: cultivated species after anthesis to hard apiculus (early observation, recorded after anthesis to hard dough stage (pre-ripening stage); wild species observation, recorded after anthesis to hard dough stage)   4 Green   5 Red   6 Red apex   7 Purple   8 Purple apex   9 Black   9 Black   9 Black   9 Black   1 Very weak   2 Very equarter only   3 Very length (mm)   4 Very short (<5 mm)   5 None (awnless)   5 None (awnless)   7 None (awnless)   8 None (awnless				* *	
Stage: cultivated species after anthesis to hard dough stage (pre-ripening stage); wild species observation, recorded after anthesis to hard dough stage)	80	Anther: colour		(Wild species). Satge: at anthesis	
apiculus (early observation, recorded after anthesis to hard dough stage)  82					
observation, recorded after anthesis to hard dough stage)  82 Lemma: anthocyanin of Red apex 9 Black 9 Purple 9 Black 9 Stage: after anthesis to hard dough satge (pre- ripening stage)  82 Lemma: anthocyanin of area below apiculus (early observation, recorded after anthesis to hard dough satge)  83 Awns: distribution 1 Very weak 9 Strong 1 Very			1 White		
after anthesis to hard dough stage)  82				dough stage (pre-ripening stage); wild species	
dough stage)  4 Green 5 Red 6 Red apex 7 Purple 8 Purple apex 9 Black  82 Lemma: anthocyanin colouration of area below apiculus (early observation, recorded after anthesis to hard dough satge)  83 Awns: distribution  84 Awn: length (mm)  85 Awns: thickness (mm)  85 Awns: thickness (mm)  86 Panicle: arrangement   Worded    87 Red    88 Awns: distribution    88 Awns: thickness (mm)  89 Auns: distribution    80 Green  5 Red 6 Red apex 7 Purple 8 Stage: after anthesis to hard dough satge (preripening stage)  8 Stage: after anthesis to hard dough satge (preripening stage)  8 Stage: after anthesis to hard dough satge (preripening stage)  8 Stage: after anthesis					
S Red   6 Red apex   7 Purple   8 Purple apex   9 Black   9 Black   1 Very weak   3 Meah   4 Members and thocyanin   4 Members are applied to the panicle. Stage: after anthesis to hard dough satge (preciping stage)   1 Very weak   5 Medium   4 Members are applied to the panicle. Stage: after anthesis to hard dough satge (preciping stage)   1 Very weak   5 Medium   4 Members are applied to the panicle. Stage: after anthesis to hard dough satge (preciping stage)   1 Very weak   5 Medium   4 Members are applied to the panicle. Stage: after anthesis of the spikelet. Stage: aft					
6 Red apex 7 Purple 8 Purple apex 9 Black    82 Lemma: anthocyanin colouration of area below apiculus (early observation, recorded after anthesis to hard dough satge) 1 Very weak 5 Medium 4 dough satge) 7 Strong 7 Strong 7 Strong 7 Strong 1 Trip only 2 Upper quarter only 3 Upper half only 4 Upper furee-quarters only 5 Whole length 8 Awn: length (mm) 1 None (awnless) 8 Record the average length of 10 representative spikelets, at 1 cm fro the apiculus of the spikelets, at 1 cm fro the apiculus of the spikelets, at 1 cm fro the apiculus of the spikelets, at 1 cm fro the apiculus of the spikelets, Stage: after anthesis 8 Stage: after anthesis 1 cm fro the apiculus of the spikelets, at 1 cm fro the apiculus of the spikelets, at 1 cm fro the apiculus of the spikelets, Stage: after anthesis 1 cm fro the apiculus of the spikelets, at 2 cm fro the apiculus of the spikelets, at 2 cm fro the apiculus of the spikelets, at 2 cm fro the apiculus of the spikelets, at 2 cm fro the apiculus of the spikelets, at 2 cm fro the apiculus of the spikelets, at 2 cm fro the apiculus of the spikelet. Stage: after anthesis		dough stage)			
Record the average length of 10 representative spikelets. Cultivated species: measure of the longest awn. Stage: after anthesis. Alternatively, cultivated species can be coded					
8 Purple apex 9 Black					
Second the average length of 10 representative spikelets. Cultivated species can be coded			•		
Lemma: anthocyanin colouration of area below apiculus (early observation, recorded after anthesis to hard dough satge)   1 Very weak   3 Weak   4 General dough satge)   1 Very weak   3 Weak   4 General dough satge)   1 Very weak   3 Weak   4 General dough satge)   1 Tip only   2 Upper quarter only   3 Upper half only   4 Upper three-quarters only   5 Whole length   5 Whole length   6 None (awnless)   7 Surong   7 Surong   7 Surong   7 Surong   7 Surong   84 Awn: length (mm)   1 Tip only   2 Upper quarter only   3 Upper half only   4 Upper three-quarters only   5 Whole length   6 None (awnless)   7 Surong   7 Surong   7 Surong   8 Surong the panicle. Stage: flowering to maturity   8 Surong the panicle. Stage: flowering to maturity   9 Surong the panicle. Stage: after anthesis. Alternatively publicated species: measure of the longest awn. Stage: maturity. Wild species: measure random awns. Stage: after anthesis. Alternatively, cultivated species can be coded   1 Very short (<5 mm)   5 Intermediate (~15 mm)   7 Long (~30 mm)   9 Very long (>40 mm)   9 Very lon					
colouration of area below apiculus (early observation, recorded after anthesis to hard dough satge)  83 Awns:distribution  84 Awn: length (mm)  85 Awns: thickness (mm)  85 Awns: thickness (mm)  86 Panicle: arrangement   1 Whorled  86 Panicle: arrangement   1 Whorled  86 Panicle: arrangement   1 Whorled  87 Strong  89 The presence and distribution of awns along the panicle. Stage: flowering to maturity  9 The presence and distribution of awns along the panicle. Stage: flowering to maturity  9 The presence and distribution of awns along the panicle. Stage: flowering to maturity  1 Tip only 2 Upper quarter only 3 Upper half only 4 Upper three-quarters only 5 Whole length  1 Very short (<5 mm)  1 Very short (<5 mm)  2 Short (~8 mm)  3 Short (~8 mm)  5 Intermediate (~15 mm)  7 Long (~30 mm)  9 Very long (>40 mm)  86 Panicle: arrangement   1 Whorled  87 Stage: after anthesis	0.2				
below apiculus (early observation, recorded after anthesis to hard dough satge)  83 Awns:distribution  84 Awn: length (mm)  85 Awns: thickness (mm)  85 Awns: thickness (mm)  86 Panicle: arrangement  86 Panicle: arrangement  87 Strong  1 Very weak 3 Weak 3 Weak 5 Medium 4 Weak 5 Medium 6 None (awnless)  1 The presence and distribution of awns along the panicle. Stage: flowering to maturity 1 Tip only 2 Upper quarter only 3 Upper half only 4 Upper three-quarters only 5 Whole length  8 Record the average length of 10 representative spikelets. Cultivated species: measure of the longest awn. Stage: maturity. Wild species: measure random awns. Stage: after anthesis. Alternatively, cultivated species can be coded  8 Awns: thickness (mm) 7 Long (~30 mm) 9 Very long (>40 mm)  8 Stage: after anthesis  8 Panicle: arrangement 1 Whorled  1 Whorled  1 Very short of the apiculus of the spikelet. Stage: after anthesis  8 Stage: after anthesis	82	•	0 Absent		
observation, recorded after anthesis to hard dough satge)  83 Awns:distribution  84 Awn: length (mm)  85 Awns: distribution  86 Panicle: arrangement  87 Strong  88 Awns: distribution  88 Awns: distribution  89 Awns: distribution  80 None (awnless)  80 Medium  81 The presence and distribution of awns along the panicle. Stage: flowering to maturity  80 None (awnless)  81 The presence and distribution of awns along the panicle. Stage: flowering to maturity  80 None (awnless)  81 The presence and distribution of awns along the panicle. Stage: flowering to maturity  82 Upper quarter only  83 Upper half only  84 Upper three-quarters only  85 Whole length  86 Panicle: arrangement  86 Panicle: arrangement  87 Nedium  88 Nedium  88 Nedium  88 Nedium  88 Nedium  88 Nens: thickness  80 Panicle: arrangement  80 None (awnless)  80 None (awnless)  81 Record the average length of 10 representative spikelets, at 1 cm fro the apiculus of the spikelets. Stage: after anthesis				ripening stage)	
after anthesis to hard dough satge)  83 Awns:distribution  84 Awn: length (mm)  85 Medium  7 Strong  86 Awns: distribution  87 Strong  88 Awns:distribution  89 Awns:distribution  80 None (awnless)  80 The presence and distribution of awns along the panicle. Stage: flowering to maturity  1 Tip only  2 Upper quarter only 3 Upper half only 4 Upper three-quarters only 5 Whole length  80 None (awnless)  81 Record the average length of 10 representative spikelets. Cultivated species: measure of the longest awn. Stage: anter anthesis.  82 Alternatively, cultivated species can be coded  1 Very short (<5 mm) 3 Short (~8 mm) 5 Intermediate (~15 mm) 7 Long (~30 mm) 9 Very long (>40 mm)  82 Awns: thickness (mm)  83 Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  84 Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis		below apiculus (early	1 Very weak		
Awns:distribution   O None (awnless)   The presence and distribution of awns along the panicle. Stage: flowering to maturity					
Awns:distribution    O None (awnless)   The presence and distribution of awns along the panicle. Stage: flowering to maturity					
the panicle. Stage: flowering to maturity  1 Tip only 2 Upper quarter only 3 Upper half only 4 Upper three-quarters only 5 Whole length  84 Awn: length (mm)  0 None (awnless)  Record the average length of 10 representative spikelets. Cultivated species: measure of the longest awn. Stage: maturity. Wild species: measure random awns. Stage: after anthesis.  Alternatively, cultivated species can be coded  1 Very short (<5 mm) 3 Short (~8 mm) 5 Intermediate (~15 mm) 7 Long (~30 mm) 9 Very long (>40 mm)  85 Awns: thickness (mm)  Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  86 Panicle: arrangement 1 Whorled  Stage: after anthesis					
1 Tip only   2 Upper quarter only   3 Upper half only   4 Upper three-quarters only   5 Whole length   84 Awn: length (mm)   0 None (awnless)   Record the average length of 10 representative spikelets. Cultivated species: measure of the longest awn. Stage: maturity. Wild species: measure random awns. Stage: after anthesis. Alternatively, cultivated species can be coded   1 Very short (<5 mm)   3 Short (~8 mm)   5 Intermediate (~15 mm)   7 Long (~30 mm)   9 Very long (>40 mm)   85 Awns: thickness (mm)   Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis   86 Panicle: arrangement   1 Whorled   Stage: after anthesis	83	Awns:distribution	0 None (awnless)		
2 Upper quarter only 3 Upper half only 4 Upper three-quarters only 5 Whole length  84 Awn: length (mm)  0 None (awnless)  Record the average length of 10 representative spikelets. Cultivated species: measure of the longest awn. Stage: maturity. Wild species: measure random awns. Stage: after anthesis.  Alternatively, cultivated species can be coded  1 Very short (<5 mm) 3 Short (~8 mm) 5 Intermediate (~15 mm) 7 Long (~30 mm) 9 Very long (>40 mm)  85 Awns: thickness (mm)  Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  86 Panicle: arrangement 1 Whorled  Stage: after anthesis			1 TC: 1	the panicle. Stage: flowering to maturity	
3 Upper half only 4 Upper three-quarters only 5 Whole length  84 Awn: length (mm)  0 None (awnless)  Record the average length of 10 representative spikelets. Cultivated species: measure of the longest awn. Stage: maturity. Wild species: measure random awns. Stage: after anthesis.  Alternatively, cultivated species can be coded  1 Very short (<5 mm) 3 Short (~8 mm) 5 Intermediate (~15 mm) 7 Long (~30 mm) 9 Very long (>40 mm)   85 Awns: thickness (mm)  Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  86 Panicle: arrangement  1 Whorled  Stage: after anthesis			1 .		
4 Upper three-quarters only 5 Whole length  84 Awn: length (mm)  85 None (awnless)  86 Panicle: arrangement  86 Awn: length (mm)  86 Very short (= 1 Whorled)  87 Whole length  88 Upper three-quarters only 5 Whole length  88 Record the average length of 10 representative spikelets. Cultivated species: measure of the longest awn. Stage: after anthesis.  88 Awn: length (mm)  89 None (awnless)  80 Record the average length of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  80 Stage: after anthesis  80 Stage: after anthesis					
S Whole length   S Wh					
Awn: length (mm)  O None (awnless)  Record the average length of 10 representative spikelets. Cultivated species: measure of the longest awn. Stage: maturity. Wild species: measure random awns. Stage: after anthesis.  Alternatively, cultivated species can be coded  1 Very short (<5 mm)  3 Short (~8 mm)  5 Intermediate (~15 mm)  7 Long (~30 mm)  9 Very long (>40 mm)  Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  86 Panicle: arrangement  Whorled  Stage: after anthesis					
spikelets. Cultivated species: measure of the longest awn. Stage: maturity. Wild species: measure random awns. Stage: after anthesis.  Alternatively, cultivated species can be coded  1 Very short (<5 mm) 3 Short (~8 mm) 5 Intermediate (~15 mm) 7 Long (~30 mm) 9 Very long (>40 mm)  85 Awns: thickness (mm)  Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  86 Panicle: arrangement 1 Whorled  Stage: after anthesis	84	Awn: length (mm)		Record the average length of 10 representative	
longest awn. Stage: maturity. Wild species: measure random awns. Stage: after anthesis. Alternatively, cultivated species can be coded  1 Very short (<5 mm) 3 Short (~8 mm) 5 Intermediate (~15 mm) 7 Long (~30 mm) 9 Very long (>40 mm)  Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  86 Panicle: arrangement 1 Whorled  Stage: after anthesis	0-1	Awn. length (mm)	o None (awmess)		
measure random awns. Stage: after anthesis. Alternatively, cultivated species can be coded  1 Very short (<5 mm) 3 Short (~8 mm) 5 Intermediate (~15 mm) 7 Long (~30 mm) 9 Very long (>40 mm)  Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  86 Panicle: arrangement  1 Whorled  Stage: after anthesis					
Alternatively, cultivated species can be coded  1 Very short (<5 mm) 3 Short (~8 mm) 5 Intermediate (~15 mm) 7 Long (~30 mm) 9 Very long (>40 mm)  Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  86 Panicle: arrangement  1 Whorled  Stage: after anthesis					
1 Very short (<5 mm) 3 Short (~8 mm) 5 Intermediate (~15 mm) 7 Long (~30 mm) 9 Very long (>40 mm)  Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  86 Panicle: arrangement  1 Whorled  Stage: after anthesis					
3 Short (~8 mm) 5 Intermediate (~15 mm) 7 Long (~30 mm) 9 Very long (>40 mm)  85 Awns: thickness (mm)  Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  86 Panicle: arrangement 1 Whorled  Stage: after anthesis			1 Very short (<5 mm)	,	
5 Intermediate (~15 mm) 7 Long (~30 mm) 9 Very long (>40 mm)  85 Awns: thickness (mm)  Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  86 Panicle: arrangement 1 Whorled  Stage: after anthesis					
7 Long (~30 mm) 9 Very long (>40 mm)  85 Awns: thickness (mm) Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  86 Panicle: arrangement 1 Whorled Stage: after anthesis					
9 Very long (>40 mm)  85 Awns: thickness (mm)  (mm)  86 Panicle: arrangement   1 Whorled   Stage: after anthesis   Record the average width of 10 representative spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis					
(mm) spikelets, at 1 cm fro the apiculus of the spikelet. Stage: after anthesis  86 Panicle: arrangement 1 Whorled Stage: after anthesis					_
spikelet. Stage: after anthesis  86 Panicle: arrangement 1 Whorled Stage: after anthesis	85	Awns: thickness	-	Record the average width of 10 representative	
86 Panicle: arrangement 1 Whorled Stage: after anthesis		(mm)		spikelets, at 1 cm fro the apiculus of the	
of primary branches		_	1 Whorled	Stage: after anthesis	
		of primary branches			

ı		2 Alternative	T	
97	Daniala, annahan af	2 Alternative	Decembed from 5 maniples on wild arraign only	
	Panicle: number of		Recorded from 5 panicles on wild species only.	
	basal primary		The number of primary panicle branches	
00	branches Panicle: distance		attached to the basal whorl of the panicle.	
			Record the average of five representatives	
	from base to lowest		panicles when fully exserted.	
89	spikelet insertion Panicle: texture of	1 Scabrous	A seems by mining fingers from the bess	
89	main axis	Scabrous	Assess by running fingers from the base	
	mam axis	2 Smooth	towards the tip of the panicle axis. Stage: at full	
90	Panicle: number per	3 Low	Record the number of panicles per plant (see	
90	plant	3 Low	descriptor 5.6, Field spacing). Stage: early	
	piant		ripening. Alternatively, panicle number can be	
			coded as follows:	
		5 Intermediate	coded as follows.	
		7 High		
91	Panicle: attitude of	1 Erect (compact panicle)	The compactness of the panicle, classified	
91	branches	Elect (compact panicle)	according to its mode of branching, angle of	
	branches		primary branches, and spikelet density. Stage:	
			cultivated species, near maturity; wild species,	
		3 Semi-erect (semi-compact	cultivated species, hear maturity, who species,	
		panicle)		
		5 Spreading (open panicle)		
		7 Horizontal		
		9 Drooping		
92	Panicle: shattering	1 Very low (<1%)	Observed as the extent to which grains have	
1 2	rumere. snattering	1 VOIY 10W (<170)	shattered from the panicle. Hold in hand with	
			mild pressure. Stage: at maturity or harvest	
		3 Low (~3%)		
		5 Moderate (~15%)		
		7 High (~35%)		
		3 Very high (>50%)		
Traits	recorded after harves	st and before final processing		
93	Awn colour (late	0 Absent (awnless)		
	observation)			
		1 Straw		
		2 Gold		
		3 Brown (tawny)		
		4 Red		
		5 Purple		
		6 Black		
94	Lemma and palea	1 Glabrous	Visual assessment of the presence and	
	pubesence		distribution of mature grains using hand lens.	
		2 Hairs on lemma keel		
		3 Hairs on upper portion		
		4 Short hairs		
0.5	т	5 Long hairs (velvety)		
95	Lemma: anthocyanin			
	colouration of keel	1 Very weak		
		3 Weak		
		5 Medium		
2 -	<b>-</b>	7 Strong		
96	Lemma: anthocyanin	0 Absent		
	colouration of area	1 Very weak		
		1 Very weak 3 Weak 5 Medium		

		7 Strong		
97	Lemma: colour of	1 010 White		
	apiculus (late	2 020 Straw		
	observation)	3 052 Brown (tawny)		
	,	4 060 Green		
		5 070 Red		
		6 071 Red apex		
		7 080 Purple		
		8 087 Purple apex		
		9 100 Black		
98	Lemma: shape of	1 Pointed	Stage: after harvest	
70	apiculus	1 Tomica	Stage. arter harvest	
		2 Curved		
99	Longer sterile lemma		Record the average length of the longer sterile	
	length (mm)		lemma on five spikelets. May be coded as:	
	<i>B</i> ( )	5 Medium		
		7 Long		
		9 Extra long		
100	Sterile lemma shape	0 Absent		
	1	1 Linear (long and slender)		
		2 Subulate or setaceous (linear		
		and tapering to a fine piont, set		
		with or consisting of bristles)		
		3 Triangular (and very small)		
101	Spikelet fertility	1 Completely sterile (0%)	The abundance of well-developed spikelets as a	
			percentage of the total number of spikelets on	
			five representative panilces. May be coded as:	
		2 Highly sterile (1-49%)		
		3 Partly sterile (50-74%)		
		4 Fertile (75-90%)		
		5 Highly fertile (>90%)		
102	Grain: length (mm)		Measured as the distance from the base of the	
			lowermost glume to the tip (apiculus) of the	
			fertile lemma or palea, whichever is longer. On	
			awned cultivars, measure to a point comparable	
			to the tip of the apiculus (exclude the awn).	
			Preferably, measure with calliper or photo-	
			enlarger. Average of 10 representative grains.	
103	Grain: thickness		Preferably, measure with a calliper or photo-	
	(mm)		enlarger. Average of 10 representative grains.	
			Stage: after harvest	
104	Grain: 100-grain		Random sample of 100 well-developed, whole	
	weight (g)		grains, dried to 13% moisture content. Weigh	
			on a precision balance	
105	Grain: 10-grain		(10-grain samples are taken because of the low	
	weight (g)		seed production of wild rice). Random sample	
			of 10 well-developed, whole grains, dried to	
			13% moisture content. Weigh on a precision	
			balance. Satage: post-harvest	
	Caryopsis: length			
	Caryopsis: width			
108	Caryopsis: shape	1 Round		
		2 Semi-round		
		3 Half spindle-shaped		
		4 Spindle-shaped		

		5 Long spindle-shaped		
109	Caryopsis: pericarp	1 010 White		
10)	colour			
	Colour	2 051 Light brown		
		3 055 Speckled brown		
		4 050 Brown		
		5 070 Red		
		6 088 Variable purple		
		7 080 Purple		
110	Endosperm types	1 Non-glutinous (non-waxy)	By visual observation, two types of endosperm	
110		2 Intermediate	of polished rice are distinguishable. In	
		3 Glutinous (waxy)	glutinous rice, which does not have amylose,	
		e Graning as (wairy)	the endosperm appears a waxy white. In non-	
			glutinous rice, which contains amylose, the	
			endosperm appears cloudy and translucent.	
Plant d	lescriptors for evaluat	tion	endosperm appears eroudy and transfacent.	
1 lant (	Grain cooking and			
	quality traits			
111		0 No reaction	Place hulls from 10 grains into a petri dish of 5	
111	reaction	o ivo reaction	cm diameter, and 5 ml of 1.5% phenol solution;	
	reaction		cover thepetri dish, and keep at room	
			temperature for 1 day. Record the reaction of	
		2.1:1.	temperature for 1 day. Record the reaction of	
		3 Light 5 Medium		
		7 Dark		
112	Commonicación	0 Non-scented	From a color discussion in the freehles have set a	
112	Caryopsis scent	U Non-scented	From cooked kernel. Use freshly harvested	
			grain. A molecular marker for fragrance is	
			described in Section 12.3, Fragrance	
		1 Lightly scented		
112		2 Scented		
113	Endosperm amylase	0 Waxy-glutinous (<3)	Amylose content of all cultivars of low	
	content(%)		amylose and many of intermediate amylose is	
			sensitive to high temperatures during grain-	
			filling. Molecular markers for classifying	
			amylose are listed in Section 12.1, Amylose	
		1 Very low (~9)		
		3 Low (~17)		
		5 Intermediate (~20)		
		7 High (~23)		
		9 Very High (>25)		
114	Gelatinization	1 Not affected but chalky	Gelatinization temperature increases injaponica	
	temperature by alkali-		cultivars when grain-filling occurs under high	
	digestion value		temperatures. Molecular markers are described	
		2 Swollen	in Section 11.2 for classifying gelatinization	
		3 Swollen with collar	temperature. This test is simpler but less	
		incomplete and narrow	precise than the alternative test described in	
		4 Swollen with collar complete	Section 83.5.	
		and wide		
		5 Split or segmented with collar		
		complete and wide		
		6 Dispersed, merging with collar		
		7 Completely dispersed and		

	la	T	D100 111 1 1 1 1 (D00)	1
115	Gelatinization		Differential scanning calorimetry (DSC)	
	temperature by alkali-		measures the energy required to melt starch	
	digestion value		crystals and reports the onset temperature, peak	
			temperature, conclusion temperature and	
			enthalpy of gelatinization. The peak	
			temperature provides a precise measure of	
			gelatinization temperature. CT falls into two	
			groups when DSC is used, with peak	
116	Gel coqsistenpy	1 81—100 mm Soft	Ground rice (01 g) is placed in a test tube with	
		2 61—80 mm Soft	thymol blue (0.025% in ethanol, 0.2 ml) and	
		3 41—60 mm Intermediate	ICON (0.2N, 2 ml). The tube is shaken to	
		4 36—40 mm Hard	ensure contents are mixed, boiled (8 mm),	
		5 < 36mm Hard	rested (5 mirt) and then placed in an ice-bath	
			(15 mm). Cooled tubes are laid flat on graph	
			paper for 1 hour, and then the distance that the	
			gel travels is measured. Age of the rice, degree	
117	Brown rice protein		ger da velo io incuoned rigo of the free, degree	
'''	content [% DW]			
118	Lysine content [%			
	Parboiling loss [%		Percentage of solids lost when parboiled.	
	Elongation ratio.		Ratio of cooked rice length to milled rice	
Abiotic	c stress sensitivity	0 No visible sign of sensitivity		
		1 Very low or almost no visible		
		sign of sensitivity		
		3 Low		
		5 Intermediate		
		7 High		
		9 Very high		
121	Alkali injury			
	Phosphorus			
	Zinc deficiency			
Biotic	stress sensitivity	1 Very low or no visible sign of		
	v	sensitivity		
		3 Low		
		5 Intermediate		
		7 High		
		9 Veryhigh		
Disease	AC	y crymgn		
	Cochliobolus		Brown spot	
127	miyabeanus (Brown		Dio nii spot	
	spot)			
125	Sphaerulina oryzina		Norrow brown loof anot	
123	-		Narrow brown leaf spot	
	(Narrow brown leaf			
126	spot)		T C 11	
126	Monographella		Leaf scald	
	albescens (Leaf		D	
127	Xanthomonas oryzae		Bacterial blight	
<u></u>	pv. oryzae			
		nd mycoplasma-like organisms		
128	Rice ragged stunt		Rice ragged stunt disease	
	Ivaria (RCSV)	I		
120	virus (RGSV)		37 11 1 6	
	Mycoplasma		Yellow dwarf	
			Yellow dwarf Rice yellow mottle	

virus (RHBV)  132   Thanatephorus   Sheath blight (ShB)	121	D1 1 - 1 - 1 - 1 - 1 - 1	n' 1 . ' . 11			
Thanatephorus   Caccimeris	131	Rice hoja blanca	Rice hoja blanca			
cucumeris   Sarocladium oryzae   Sheath rot (ShR)	100					
134   Sarocladium oryzae   Sheath rot (ShR)   Grain discolouration   Biplotaris, Atlemaria   Grain discolouration   Biplotaris, Atlemaria   Grain discolouration   Grain discolourati	132	-	Sheath blight (ShB)			
134   Sarocladium   Grain discolouration   Bipolaris, Alternaria     135   Ustlaginoidea vivens   False smut (FSm)     136   Tilletia barclayana   Kernel smut (KSm)     137   Balansia oryzea- sativae   Udbatta disease (UDb)   sativae     138   Gibberella fujikuroi   Bakanae disease     139   Magnaporthe salvini   Stem rot (SR)     140   Diylenchus angustus   Ufra (U)     1nsects     141   Tagosodes orizicolus     (Rice delphacid (RDel)     (Rice d						
Bipolaris, Alternaria		· · · · · · · · · · · · · · · · · · ·				
135   Ustilaginoidea virens   False smut (FSm)	134	· ·	Grain discolouration			
136 Tilletia barclayana Kernel smut (KSm) 137 Balansia oryzae- sativae 138 Gibberella fujikuroi 139 Magnaporthe salvini 140 Ditylenchus angustus 141 Sogatella furcifera 142 Tagosodes orizicolus (Rice delphacid 143 Cnaphalocrosis medinalis 144 Nymphula 145 Hydrellia philippina 146 Leptocorisa 147 Strenchaetothrips biformis (Thrips) 148 Biochemical markers 149 Biochemical markers 140 Biochemical markers 141 Special Speci						
137   Balansia oryzae-   sativae						
Sativae   Bakanae disease   Sibberella fujikuroi   Stem rot (SR)     140   Divfenchus angustus   Ufra (U)     Insects   Whitebacked planthopper (WBPH)     142   Tagosodes orizicolus (Rice delphacid   Rice delphacid (RDeI)     143   Craphalocrosis medinalis     144   Nymphula   Caseworm (CS)     145   Hydrellia philippina   Rice whorl maggot (RWM)     146   Leptocorisa   Rice bug (RB)     147   Strenchaetothrips biformis (Thrips)     148   Biochemical markers   Refer to Descriptors for genetic markers     148   Molecular markers   For general standards for molecular markers, refer to Descriptors for genetic markers, refer to Descriptors for genetic markers     149   Amylose content   Selatinization temperature     150   Gelatinization temperature   Selatinization     151   Fragrance   Cytological     152   Chromosome number   Determined through pollen samples taken at	136	Tilletia barclayana	Kernel smut (KSm)			
138   Gibberella fujikuroi   Stem rot (SR)     140   Ditylenchus angustus   Ufra (U)     Insects     141   Sogatella furcifera   Whitebacked planthopper (WBPH)     142   Tagosodes orizicolus (Rice delphacid (RDel)     143   Craphalocrosis medinalis     144   Nymphula   Caseworm (CS)     145   Hydrellia philippina   Rice whorl maggot (RWM)     146   Leptocorisa   Rice bug (RB)     147   Strenchaetothrips biformis (Thrips)     148   Biochemical markers   Specify methods used and cite reference(s). Refer to Descriptors for genetic markers technologies, available in pdf (portable document format) from the Bioversity Web site (www.bioversity. cgiar.org) or by email request     Molecular markers   For general standards for molecular markers, refer to Descriptors for genetic markers technologies, available in pdf from the Bioversity Web site (www.bioversity. Cgiar.org) or by email request     149   Amylose content   Security	137	Balansia oryzae-	Udbatta disease (UDb)			
139   Magnaporihe salvini		sativae				
Ditylenchus angustus   Ufra (U)	138	Gibberella fujikuroi	Bakanae disease			
Insects	139	Magnaporthe salvini	Stem rot (SR)			
Insects	140	Ditylenchus angustus	Ufra (U)			
Tagosodes orizicolus (Rice delphacid (RDel)						
Rice delphacid   Caphalocrosis   Leaf folder (LF)	141	Sogatella furcifera	Whitebacked planthopper (WBPH)			
Rice delphacid   Caphalocrosis   Leaf folder (LF)	142	Tagosodes orizicolus	Rice delphacid (RDeI)			
Leaf folder (LF)		· ·	, ,			
medinalis   144   Nymphula   Caseworm (CS)   Rice whorl maggot (RWM)     145   Hydrellia philippina   Rice bug (RB)     147   Strenchaetothrips   biformis (Thrips)     148   Biochemical markers   Specify methods used and cite reference(s). Refer to Descriptors for genetic markers   technologies, available in pdf (portable document format) from the Bioversity Web site (www.bioversity. cgiar.org) or by email request	143		Leaf folder (LF)			
144   Nymphula   Caseworm (CS)     145   Hydrellia philippina   Rice whorl maggot (RWM)     146   Leptocorisa   Rice bug (RB)     147   Strenchaetothrips   biformis (Thrips)     148   Biochemical markers   Specify methods used and cite reference(s). Refer to Descriptors for genetic markers technologies, available in pdf (portable document format) from the Bioversity Web site (www.bioversity. cgiar.org) or by email request     Molecular markers   For general standards for molecular markers, refer to Descriptors for genetic markers technotogies, available in pdf from the Bioversity Web site (www.bioversity. W		*				
Rice whorl maggot (RWM)	144		Caseworm (CS)			
Rice bug (RB)		•	` /			
Thrips biformis (Thrips)  148 Biochemical markers  Specify methods used and cite reference(s). Refer to Descriptors for genetic markers technologies, available in pdf (portable document format) from the Bioversity Web site (www.bioversity. cgiar.org) or by email request  Molecular markers  For general standards for molecular markers, refer to Descriptors for genetic markers technologies, available in pdf from the Bioversity Web site (www.bioversitycgiar.org) or by email request to bioversity-  149 Amylose content 150 Gelatinization temperature 151 Fragrance Cytological  152 Chromosome number  Determined through pollen samples taken at						
biformis (Thrips)  148 Biochemical markers  Specify methods used and cite reference(s).  Refer to Descriptors for genetic markers technologies, available in pdf (portable document format) from the Bioversity Web site (www.bioversity. cgiar.org) or by email request  Molecular markers  For general standards for molecular markers, refer to Descriptors for genetic markers technotogies, available in pdf from the Bioversity Web site (www.bioversitycgiar.org) or by email request to bioversity-  149 Amylose content  150 Gelatinization temperature  151 Fragrance  Cytological  152 Chromosome number  Determined through pollen samples taken at						
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	152	Chromosome number				
booting stage or from the root tip of						
153 Ploidy level Aneuploid or structural rearrangement	153	Ploidy level	Aneuploid or structural rearrangement			

*Growth stages	Code
	1 Germination
	2 Seedling
	3 Tillering
	4 Stem elongation
	5 Booting
	6 Heading
	7 Milk stage
	8 Dough stage
	9 Mature grain