

**Table S1.** The number of accessions in each flora and species.

Flora	Number of accessions	Species	Number of accessions
IB4	6	<i>M. sacchariflorus</i>	6
		<i>M. floridulus</i>	16
IIID10	69	<i>M. lutarioriparius</i>	9
		<i>M. sacchariflorus</i>	3
		<i>M. sinensis</i>	41
IIID11	75	<i>M. floridulus</i>	33
		<i>M. sinensis</i>	42
IIID12	22	<i>M. floridulus</i>	1
		<i>M. sinensis</i>	21
IIID7	39	<i>M. sacchariflorus</i>	30
		<i>M. sinensis</i>	9
IIID8	80	<i>M. sacchariflorus</i>	63
		<i>M. sinensis</i>	17
		<i>M. floridulus</i>	59
IIID9	151	<i>M. lutarioriparius</i>	28
		<i>M. sacchariflorus</i>	15
		<i>M. sinensis</i>	49
IIIIE14	1	<i>M. sinensis</i>	1
IVG21	16	<i>M. floridulus</i>	3
		<i>M. sinensis</i>	13
IVG22	8	<i>M. floridulus</i>	1
		<i>M. sinensis</i>	7
IVG23	4	<i>M. sinensis</i>	4
<b>Total</b>	<b>471</b>	-	<b>471</b>

**Table S2.** Comparison of the percentages for the differences between the primary core collections and the initial collections.

Primary core collection code	Primary core collection evaluation parameters				Number of accessions
	VD%	MD%	CR%	VR%	
NGR20	14.3	38.1	84.6	99.9	95
NGR25	33.3	38.1	86.0	101.6	118
NGR30	100.0	42.9	85.8	100.9	142
NGR35	100.0	38.1	88.1	99.1	164
NGR40	100.0	38.1	89.3	99.1	187
NGR45	100.0	38.1	93.6	99.0	211
NGR50	100.0	38.1	92.7	100.1	244
D-C20	95.2	38.1	88.8	107.4	134
D-C25	95.2	38.1	90.4	107.2	141
D-C30	100.0	38.1	92.3	106.6	150
D-C35	100.0	38.1	92.6	105.1	159
D-C40	100.0	38.1	93.5	105.3	167
D-C45	100.0	38.1	97.1	105.4	177
D-C50	100.0	38.1	97.6	104.4	197
D-G20	95.2	38.1	91.1	106.0	138
D-G25	100.0	38.1	92.3	105.1	150
D-G30	100.0	38.1	92.6	104.4	161
D-G35	100.0	38.1	97.0	105.0	174
D-G40	100.0	38.1	97.4	104.5	189
D-G45	100.0	38.1	97.6	103.8	203
D-G50	100.0	38.1	98.3	103.9	216
D-L20	90.5	33.3	90.3	105.7	134
D-L25	95.2	38.1	93.1	105.9	145
D-L30	100.0	38.1	96.5	105.1	163
D-L35	100.0	38.1	97.1	104.6	177
D-L40	100.0	38.1	97.7	104.4	194
D-L45	100.0	38.1	98.2	104.5	210
D-L50	100.0	38.1	98.3	104.0	231
D-LG20	90.5	38.1	89.2	104.5	130
D-LG25	100.0	38.1	92.0	106.3	145
D-LG30	100.0	33.3	92.7	104.2	159
D-LG35	100.0	33.3	95.6	103.5	176
D-LG40	100.0	33.3	95.9	104.6	194
D-LG45	100.0	38.1	97.5	104.5	217
D-LG50	100.0	38.1	98.3	103.5	237
D-P20	95.2	38.1	91.5	105.9	127
D-P25	95.2	38.1	92.6	104.4	138
D-P30	100.0	38.1	94.6	104.4	157
D-P35	100.0	38.1	95.2	103.9	177
D-P40	100.0	38.1	96.2	103.6	198
D-P45	100.0	33.3	96.4	103.2	220
D-P50	100.0	33.3	97.4	102.6	248
D-S20	90.5	38.1	89.2	104.9	131
D-S25	95.2	38.1	93.1	105.1	140
D-S30	100.0	38.1	96.6	105.5	155
D-S35	100.0	38.1	96.7	104.2	170
D-S40	100.0	38.1	97.6	105.0	185

D-S45	100.0	38.1	97.8	104.4	208
D-S50	100.0	38.1	98.1	103.9	228
D-SG20	90.5	38.1	91.6	104.7	129
D-SG25	90.5	38.1	93.1	103.6	142
D-SG30	100.0	38.1	95.3	103.3	157
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D-SG40	100.0	38.1	96.5	104.0	194
D-SG45	100.0	38.1	98.2	104.1	218
D-SG50	100.0	38.1	98.2	103.3	238
R-C20	76.2	38.1	87.6	108.0	134
R-C25	90.5	38.1	90.2	106.6	141
R-C30	95.2	38.1	92.4	107.1	150
R-C35	95.2	38.1	92.8	106.7	159
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PD-C20	100.0	33.3	100.0	113.1	134
PD-C25	100.0	38.1	100.0	112.4	141
PD-C30	100.0	38.1	100.0	112.0	150
PD-C35	100.0	38.1	100.0	111.4	159
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PR-C20	100.0	33.3	100.0	112.8	134
PR-C25	100.0	38.1	100.0	112.0	141
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PR-P50	100.0	33.3	100.0	105.6	248
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PR-SG45	100.0	33.3	100.0	107.5	218
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**Note:** VD%, Percentage of significant difference ( $\alpha=0.05$ ) between primary core collection and the

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initial collection for variance of traits;  $MD\%$ , Percentage of significant difference ( $\alpha=0.05$ ) between primary core collection and the initial collection for mean of traits;  $CR\%$ , Coincidence rate;  $VR\%$ , Variable rate; NGR,D,R,PD,PR stand for non-group random sampling method, deviation sampling method, prior and deviation sampling method, and prior sampling method, respectively; C, G, L, LG, P, S, SG stand for constant strategy, genetic diversity index strategy, logarithm strategy, genetic diversity index adjusted with logarithmic proportional strategy, proportional strategy, square root strategy, genetic diversity index adjusted with square root proportional strategy, respectively; 20, 25, 30, 35, 40, 45, 50 stand for the ratio of primary collection in initial collection.

**Table S3.** Rank of the integrative score of 5 parameters from candidate core collections. Shannon-Weaver diversity index ( $H$ ), coefficient of variation ( $CV$ ), variance of phenotypic value ( $VPV$ ), variance of phenotypic frequency ( $VPF$ ), and ratio of phenotype retained ( $RPR$ ).

Sampling Scheme	Scores					Total Scores	Rank
	VPV	H	CV	VPF	RPR		
PD-G20	1	5	3	26	24	59	4
PD-G25	6	7	8	22	19	62	6
PD-G30	9	12	7	17	13	58	2
PD-G35	14	15	12	15	13	69	13
PD-G40	18	18	13	12	13	74	18
PD-G45	22	25	19	8	3	77	23
PD-G50	23	28	22	6	3	82	26
PD-LG20	3	2	5	28	24	62	6
PD-LG25	5	1	9	24	19	58	2
PD-LG30	13	4	16	18	13	64	9
PD-LG35	16	7	17	14	3	57	1
PD-LG40	20	16	18	10	3	67	10
PD-LG45	25	27	24	5	3	84	27
PD-LG50	27	26	27	1	3	84	27
PR-G20	4	10	4	25	26	69	13
PR-G25	8	13	6	21	26	74	18
PR-G30	11	22	2	19	19	73	17
PR-G35	12	19	15	16	13	75	20
PR-G40	17	21	14	11	13	76	22
PR-G45	21	19	20	7	3	70	15
PR-G50	24	24	25	4	1	78	24
PR-LG20	2	3	1	27	28	61	5
PR-LG25	7	6	11	23	23	70	15
PR-LG30	10	9	10	20	19	68	11
PR-LG35	15	11	21	13	3	63	8
PR-LG40	19	14	23	9	3	68	11
PR-LG45	26	17	26	3	3	75	20
PR-LG50	28	22	28	2	1	81	25

Note: PD-G, PD-LG, PR-G, PR-LG stand for prior and deviation sampling method combined with genetic diversity index strategy, prior and deviation sampling method combined with logarithmic proportional strategy, prior sampling method combined with genetic diversity index strategy, prior sampling method combined with logarithmic proportional strategy. 20, 25, 30, 35, 40, 45, 50 stand for the ratio of primary collection in initial collection.