



Marker-Assisted Breeding Data

Loading SSR Data

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Good Morning!

Steps in loading SSR data

Transformation



Loading Markers

Loading GEMS

	A	B	D	E	F	G	H	I	J	K	L
1	PRIMER_ID	PRIMER	DESIGNATION	GID	ALLELE_ID	ALLELE	ALLELE_NAME	ALLELE_ID	ALLELE	ALLELE_NAME	Row Tag
2					ALLELE2	ALLELE2		ALLELE1	ALLELE1		ALLELE_NO
3	59	RM490	IR 81213:47	2452183				1257	107	A	
4	59	RM490	IR 81213:74	2452184				1257	107	A	
5	59	RM490	IR 81213:126	2452185	1408	93	B	1257	107	A	
6	59	RM490	IR 81213:140	2452186				1257	107	A	
7	59	RM490	IR 81213:129	2452187	1408	93	B	1257	107	A	

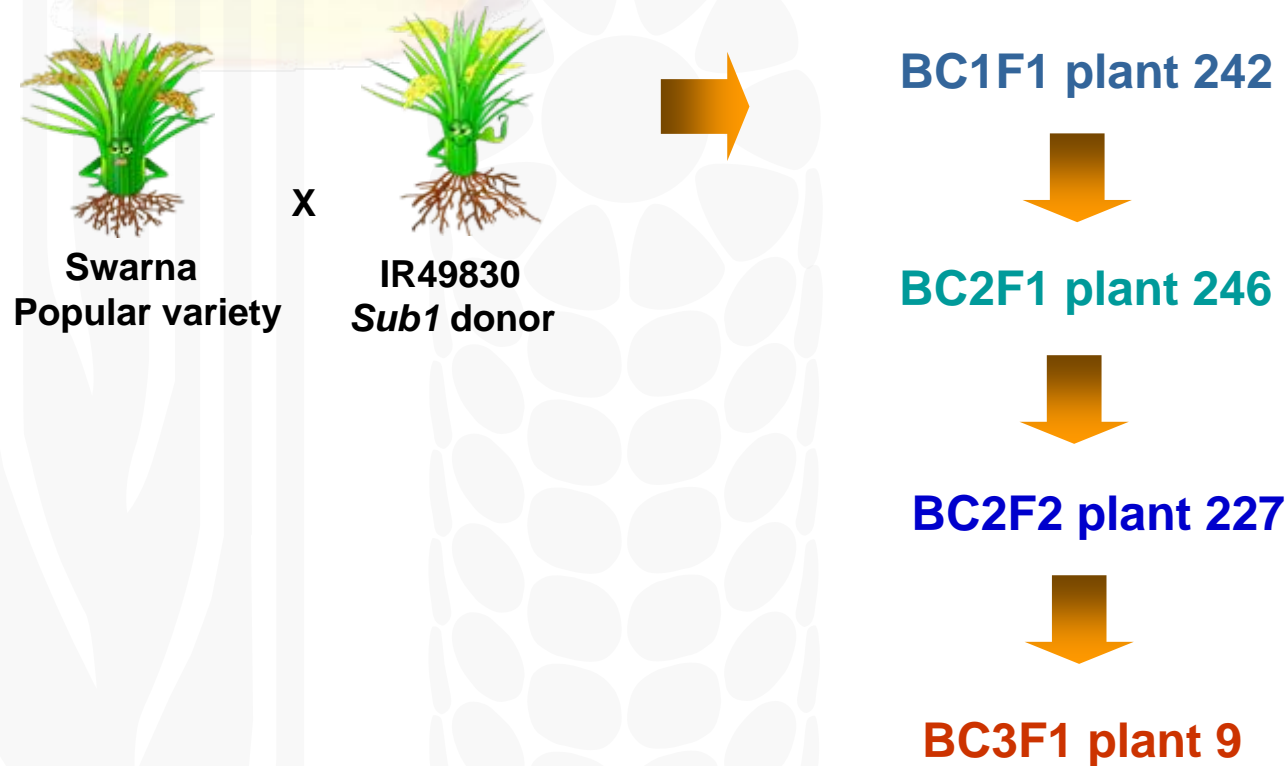
	A	B	E	F	G	H	I	J	K	L	M	N	O	P	Q
1			1	1	1	1	2	2	2	2	2	3	3	3	3
2		BC1F1	M1	M2	M3	M4	M1	M2	M3	M4	M5	M1	M2	M3	M4
			RM490	RM583	RM34	RM212	RM110	RM174	RM324	RM497	RM482	RM60	RM231	RM7	RM411
9	6	141	A	A		H	A	A	A	A	H	A	A	H	H
10	7	142	A	A		H	A	A	A	A	A	H	H	H	H
11	8	152	A	A		A	H	A	A	A	A	A	A	A	H
12	9	170	A	A		A	A	H	H	A	A	H	A	A	H
13	10	175	H	H		H	A	A	A	A	H	A	A	A	H
14	11	216	A	H		A	A	H	H	H	H	H	H	H	A
15	12	220	H	A		H	A	H	H	B	H	B	B	B	B
16	13	242	A	A		A	H	A	A	A	A	A	A	A	A
17	14	244	H	H		H	A	A	A	A	H	A	A	A	H
18	15	261	H	H		A	H	H	H	A	A	A	A	A	A
19	16	289	H	H		H	A	A	A	A	H	H	A	A	A
20	17	337	A	A		H	H	H	H	H	H	H	H	H	A
21	18	382	A	A		A	H	H	H	H	H	A	A	A	A

BC3F2 Plant 9 selected / BC3F1 Plant 227 / BC2F2 Plant 246 / BC2F1 Plant 242 / BC1F1 /

NUM

Transformation

Marker-assisted backcrossing (MAB) for submergence tolerance in rice (*Swarna-Sub1*)



Transformation

	A	B	AT	AU	AV	AW	AX	AY
1			8	9	9	9	9	9
2		BC1F1	M7	M1	M2	M3	M4	M5
3			RM264	RM316	RM464	SSR1	RM219	RM524
4	1	47	H	H	H	H	H	A
5	2	74	A	H	H	H	A	A
6	3	126	H	A	A	A	A	H
7	4	140	A	A	A	A	A	A
8	5	129	A	H	H	H	A	H
9	6	141	A	A	A	A	A	H
10	7	142	A	A	A	A	A	H
11	8	152	A	H	H	H	A	A
12	9	170	H	H	H	H	A	A
13	10	175	A	H	H	H	A	H
34	31	495	A	H	H	H	A	A
35	32	498	H	H	H	H	A	A
36	33	505	A	H	H	H	A	A
37	34	634	A	H	H	H	A	H
38	35	646	A	H	H	H	A	A
39	36	691	A	H	H	H	A	H
40	37	74	A	H	H	H	A	A
41	38	126	H	A	A	A	A	H
42	39	129	A	H	H	H	A	H
43	40	140	A	A	A	A	A	A
44	41	141	A	A	A	A	A	H
45	42	142	A	A	A	A	A	H
46	43	152	A	H	H	H	A	A
47	44	170	H	H	H	H	A	A
48	45	337	H	H	H	H	A	H
49	46	382	H	A	A	A	A	A
50	47	Swarna	A	A	A	A	A	A
51	48	IR49830	B	B	B	B	B	B
52	49	A	140	190	230		190	190
53	50	B	178	200	235	265	222	198
54								

Chromosomes

Markers

A-Recurrent Parent (RP)

B-Donor Parent (DP)

H-Genotype of both parents

A - Swarna

B - IR49830

Allele size

Transformation

	A	B	C	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1				1	1	1	1	2	2	2	2	2	3	3	3	3	3	
2			BC1F1	M1	M2	M3	M4	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5	
3				RM490	RM583	RM34	RM212	RM110	RM114	RM324	RM497	RM482	RM60	RM231	RM7	RM411	RM186	
4	2452183	1	47	A	A	.	A	H	H	H	H	.	A	A	A	H	H	
5	2452184	2	74	A	A	.	A	A	H	H	H	H	H	H	A	A	A	
6	2452185	3	126	H	H	.	H	A	H	H	A	A	H	H	A	A	A	
7	2452186	4	140	A	A	.	H	A	H	H	H	H	H	H	A	A	A	
8	2452187	5	123	H	H	.	A	A	H	H	H	H	A	A	A	H	H	
9	2452188	6	141	A	A	.	A	A	A	A	A	A	A	A	A	H	H	
10	2452189	7	142	A	A	.	A	A	A	A	A	A	A	A	A	H	H	
11	2452190	8	152	A	A	.	A	A	A	A	A	A	A	A	A	H	H	
12	2452191	9	170	A	A	.	A	A	A	A	A	A	A	A	A	H	H	
13	2452192	10	175	H	H	.	A	A	A	A	A	A	A	A	A	H	H	
14	2452193	11	216	A	A	.	A	A	A	A	A	A	A	A	A	H	H	
15	2452194	12	220	H	H	.	A	A	A	A	A	A	A	A	A	H	H	
16	417794	47	S	A									A	A	A	A	A	
17	88474	48	IR49830	B									B	B	B	B	B	
18		49		107									170	190	160	110	116	
19		50		93									160	160	180	106	130	
20																		
21			BC1F1	M1	M2	M3	M4	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5	
22				RM490	RM583	RM34	RM212	RM110	RM114	RM324	RM497	RM482	RM60	RM231	RM7	RM411	RM186	
23																		
24	2452183	1	47	107	107	107	107	107	107	107	107	107	170	130	160	110	116	
25	2452184	2	74	107	107	107	107	107	107	107	107	107	170	130	160	110	116	
26	2452185	3	126	107	107	107	107	107	107	107	107	107	170	130	160	110	116	
27	2452186	4	140	107	107	107	107	107	107	107	107	107	170	130	160	110	116	
28	2452187	5	123	107	107	107	107	107	107	107	107	107	170	130	160	110	116	
29	2452188	6	141	107	107	107	107	107	107	107	107	107	170	130	160	110	116	
30	2452189	7	142	107	107	107	107	107	107	107	107	107	170	130	160	110	116	
31	2452190	8	152	107	107	107	107	107	107	107	107	107	170	130	160	110	116	
32	2452191	9	170	107	107	107	107	107	107	107	107	107	170	130	160	110	116	
33	2452192	10	175	107	107	107	107	107	107	107	107	107	170	130	160	110	116	
34	2452193	11	216	107	107	107	107	107	107	107	107	107	170	130	160	110	116	
35	2452194	12	220	107	107	107	107	107	107	107	107	107	170	130	160	110	116	
36	417794	47	S	107									170	190	160	110	116	
37	88474	48	IR49830															
38		49																
39		50																
40																		
41																		
42			BC1F1	M1	M2	M3	M4	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5	
43				RM490	RM583	RM34	RM212	RM110	RM114	RM324	RM497	RM482	RM60	RM231	RM7	RM411	RM186	
44	IR 81213:47	1	47														106	130
45	IR 81213:74	2	74															
46	IR 81213:126	3	126	93														
47	IR 81213:140	4	140															130
48	IR 81213:123	5	123	93													106	130
49	IR 81213:141	6	141														106	130
50	IR 81213:142	7	142														106	130
51	IR 81213:152	8	152														106	130
52	IR 81213:170	9	170														106	130
53	IR 81213:175	10	175	93	180		135					185					106	130
54	IR 81213:216	11	216		180				220	165	210	185	160	160	180		106	130
55	IR 81213:220	12	220	93			135		220	165	210	185	160	160	180	106	106	130
56	SWARN.	47	S															
57	IR 49830	48	IR49830	93	180		135	160	220	165	210	185	160	160	180	106	130	
58		49																
59		50																
60																		

Raw Data

A

H

B

Transformation

GEMS-Transpose Genotype Data

Study ▾ Setup ▾ Utilities ▾ Add-ins ▾ Help ▾

File Edit View Tools Variate GEMS

E50

Transpose Genotype Data

Get Marker ID

Get Allele ID

M

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	PRIMER_ID	PRIMER	DESIGNATION	GID	ALLELE_ID	ALLELE	ALLELE NAME	ALLELE_ID	ALLELE	ALLELE2	ALLELE2									
2					ALLELE2	ALLELE2			ALLELE1	ALLELE1										
3																				
4																				
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Data Matrix

Transformation

ICIS Workbook - Import Genotype Data

IRIS
international rice
information system
...the world's rice biology repository

This tool imports genotype data into the Observation sheet.

Data Sheet

Column Header Cells: \$F\$57:\$BP\$57

Row Header Cells: \$A\$58:\$A\$105

Allele Count: 1 1st Allele: ALLELE

Include unfilled scores in transposition

OK Cancel

Observation Sheet

PRIMER

GID

GEMS

Transpose Genotype Data

Get Marker ID

Get Allele ID

ICIS Workbook - Import Genotype Data

IRIS
international rice
information system
...the world's rice biology repository

This tool imports genotype data into the Observation sheet.

Data Sheet

Column Header Cells: \$F\$111:\$BP\$111

Row Header Cells: \$A\$112:\$A\$159

Allele Count: 1 1st Allele: ALLELE

Include unfilled scores in transposition

OK Cancel

Observation Sheet

PRIMER

DESIGNATION

Transformation

	A	B	C	D	E	F	G	H	I	J	K	L
1	PRIMER_ID	PRIMER	DESIGNATION	GID	ALLELE_ID	ALLELE	ALLELE NAME	ALLELE_ID	ALLELE	ALLELE NAME		Row Tag
2					ALLELE2	ALLELE2		ALLELE1	ALLELE1			ALLELE_NO
3		RM490	IR 81213:126	2452183		93			107			
4		RM490	IR 81213:129	2452184		93			107			
5		RM490	IR 81213:175	2452185		93			107			
6		RM490	IR 81213:220	2452186		93			107			
7		RM490	IR 81213:244	2452187		93			107			
8		RM490	IR 81213:261	2452188		93			107			
9		RM490	IR 81213:289	2452189		93			107			
10		RM490	IR 81213:394	2452190		93			107			
11		RM490	IR 81213:395	2452191		93			107			
12		RM490	IR 81213:396	2452192		93			107			
13		RM490	IR 81213:442	2452193		93			107			
14		RM490	IR 81213:452	2452194		93			107			
15		RM490	IR 81213:462	2452195		93			107			
16		RM490	IR 81213:474	2452196		93			107			
17		RM490	IR 81213:494	2452197		93			107			
18		RM490	IR 81213:495	2452198		93			107			
19		RM490	IR 81213:498	2452199		93			107			
20		RM490	IR 81213:634	2452200		93			107			
21		RM490	IR 81213:126	2452201		93			107			
22		RM490	IR 81213:129	2452202		93			107			
23		RM490	IR 49830-7-1-2-3	2452203		93			107			
24		RM583	IR 81213:126	2452204		180			107			
25		RM583	IR 81213:129	2452205		180			107			
26		RM583	IR 81213:175	2452206		180			107			
27		RM583	IR 81213:216	2452207		180			107			
28		RM583	IR 81213:244	2452208		180			107			
29		RM583	IR 81213:261	2452209		180			107			
30		RM583	IR 81213:289	2452210		180			107			
31		RM583	IR 81213:394	2452211		180			107			
32		RM583	IR 81213:395	2452212		180			107			
33		RM583	IR 81213:396	2452213		180			107			

Transformation

Loading Markers

- Get Marker ID
- Get Allele ID

The screenshot displays the Microsoft Excel interface with the 'GEMS' menu open. The menu options are 'Transpose Genotype Data', 'Get Marker ID', and 'Get Allele ID'. The 'Get Marker ID' option is highlighted in yellow. Below the menu, three dialog boxes are overlaid on the spreadsheet:

- ICIS Workbook - Import Genotype Data:** This dialog box is for importing genotype data from an observation sheet. It includes fields for 'Column Header Cells' and 'Row Header Cells', and a checkbox for 'Include unfilled scores in transposition'.
- ICIS Workbook - Get GEMS Info:** This dialog box prompts the user to specify the marker name column in the observation sheet. The 'Marker Name' field is set to 'PRIMER_ID'. It also has a checkbox for 'Register new names automatically'.
- ICIS Workbook - Get GEMS Info:** This dialog box prompts the user to specify the marker ID and allele name columns. The 'Marker ID' field is set to 'ALLELE_ID' and the 'Allele Name' field is set to 'ALLELE_NAME'. It also has a checkbox for 'Register new names automatically'.

The background spreadsheet shows a table with columns labeled PRIMER_ID, PRIMER, GID, DESIGNATION, ALLELE_ID, ALLELE, ALLELE NAME, ALLELE_ID, and ALLELE. The first row contains data for marker 'PRM100' with allele 'A'.

Get Marker ID

ICIS Workbook - Get GEMS Info

IRIS
international rice
information system
...the world's rice biology repository

This tool extracts GEMS
IDs from the GEMS
database.

Specify the marker name column in the Observation
Choose an item from the list.

Marker Name: PRIMER

Register new names automatically

OK Cancel

GEMS

- Transpose Genotype Data
- Get Marker ID
- Get Allele ID

Pointer to PRIMER_ID

Loading Markers

Get Allele ID

ICIS Workbook - Get GEMS Info

IRIS
international rice
information system
...the world's rice biology repository

This tool extracts GEMS IDs from the GEMS database.

Specify the marker ID & allele name columns in the
Choose an item from the list.

Marker ID: PRIMER_ID

Allele Name: ALLELE

Register new names automatically

OK Cancel

Pointer to ALLELE_ID1

GEMS

- Transpose Genotype Data
- Get Marker ID
- Get Allele ID

ICIS Workbook - Get GEMS Info

IRIS
international rice
information system
...the world's rice biology repository

This tool extracts GEMS IDs from the GEMS database.

Specify the marker ID & allele name columns in the
Choose an item from the list.

Marker ID: PRIMER_ID

Allele Name: ALLELE

Register new names automatically

OK Cancel

Pointer to ALLELE_ID2

Loading Markers

Loading GEMS

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	PRIMER_ID	PRIMER	DESIGNATION	GID	ALLELE_ID	ALLELE	ALLELE NAME	ALLELE_ID	ALLELE	ALLELE NAME		Row Tag	
2					ALLELE2	ALLELE2		ALLELE1	ALLELE1			ALLELE_NC	
3	59	RM490	IR 81213:47	2452183				1257	107	A			
4	59	RM490	IR 81213:74	2452184				1257	107	A			
5	59	RM490	IR 81213:126	2452185		93	B	1257	107	A			
6	59	RM490	IR 81213:140	2452186				1257	107	A			
7	59	RM490	IR 81213:129	2452187		93	B	1257	107	A			
8	59	RM490	IR 81213:141	2452188				1257	107	A			
9	59	RM490	IR 81213:142	2452189				1257	107	A			
10	59	RM490	IR 81213:152	2452190				1257	107	A			
11	59	RM490	IR 81213:170	2452191				1257	107	A			
12	59	RM490	IR 81213:175	2452192		93	B	1257	107	A			
13	59	RM490	IR 81213:216	2452193				1257	107	A			
14	59	RM490	IR 81213:220	2452194		93	B	1257	107	A			
15	59	RM490	IR 81213:242	2452195				1257	107	A			
16	59	RM490	IR 81213:244	2452196		93	B	1257	107	A			
17	59	RM490	IR 81213:261	2452197		93	B	1257	107	A			
18	59	RM490	IR 81213:289	2452198		93	B	1257	107	A			
19	59	RM490	IR 81213:337	2452199				1257	107	A			
20	59	RM490	IR 81213:382	2452200				1257	107	A			
21	59	RM490	IR 81213:394	2452201		93	B	1257	107	A			
22	59	RM490	IR 81213:395	2452202		93	B	1257	107	A			
23	59	RM490	IR 81213:396	2452203		93	B	1257	107	A			
24	59	RM490	IR 81213:398	2452204				1257	107	A			
25	59	RM490	IR 81213:420	2452205				1257	107	A			
26	59	RM490	IR 81213:438	2452206				1257	107	A			
27	59	RM490	IR 81213:442	2452207		93	B	1257	107	A			
28	59	RM490	IR 81213:452	2452208		93	B	1257	107	A			
29	59	RM490	IR 81213:462	2452209		93	B	1257	107	A			
30	59	RM490	IR 81213:474	2452210		93	B	1257	107	A			