

GitHub Repository: <https://github.com/jnsantos123/irri>

Web Application: <https://jsantos1.shinyapps.io/preTrialApp/>

Merge Function: Merges metadata and plot-level data of a trial based on identified variables.

1. Make sure that extracted data are stored in a single folder and that metadata and plot level data of each trial are next to each other.
2. Set “x” object as the directory of the folder containing the extracted data.
3. Set “y” object as the directory where the merged data will be stored.
4. Run “Merge” function with parameters “x” and “y”.

Traits List Function: Identifies traits that appeared in at least one trial from a collection of trials.

1. Make sure that you have completed merging the data before proceeding to this step.
2. Set “x” object as the directory where the merged data are stored.
3. Set “y” object as the directory where the traits list will be stored.
4. Run “traits” function with parameters “x” and “y”

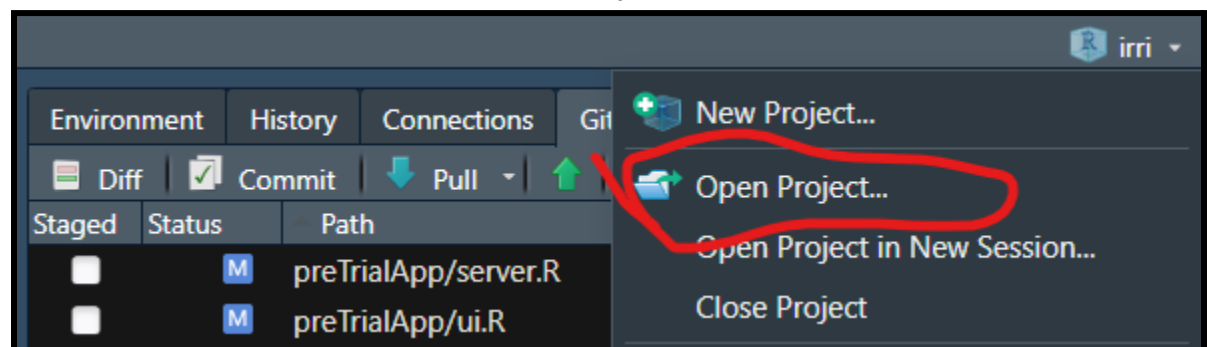
Traits Summary Function: Identifies which of the listed traits are present per trial and checks the completeness of data per trait.

1. Make sure that you have completed merging and identifying traits before proceeding to this step.
2. Set “x” object as the directory where the merged data are stored.
3. Set “y” object as the directory where the trait summary will be stored.
4. Set “z” object as the directory of the traits list file.
5. Run “traitSummary” function with parameters “x”, “y”, and “z”.

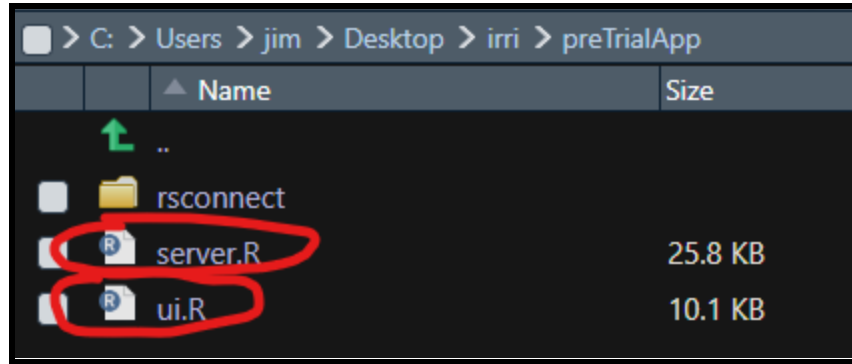
Pre-Trial App

1. Retrieving scripts for the web application

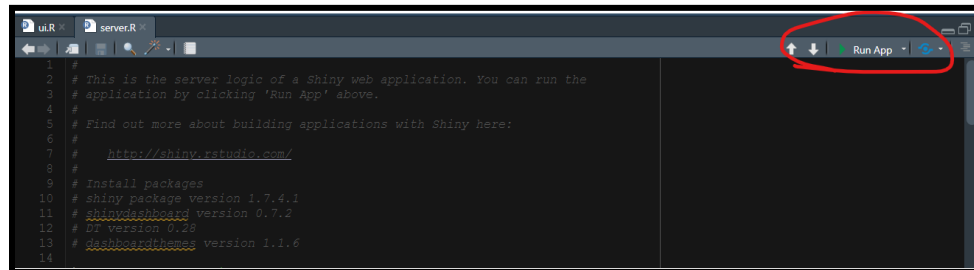
- a. Download the scripts from the GitHub repository
<https://github.com/jnsantos123/irri>.
- b. Unzip the downloaded scripts and open the project **irri-master** in RStudio.



- c. Open the **ui.R** and **server.R** from the **preTrialApp** folder. (Double click on the file to open it)



- d. Run app. If the current R and package versions are not compatible with the app, install the versions used in creating the app found at the top of the scripts.



2. Experimental Design

- a. Choose an experimental design to be implemented

Options: Alpha-Lattice
Partially Replicated

Experimental Design

Select Design

Alpha-Lattice

Alpha-Lattice
Partially Replicated

Number of replications:

2

Save

- b. If the design is alpha-lattice,
i. **Input:** Number of entries and replications

- ii. **Output:** Possible field row and column combinations; Block sizes for a given column.
- iii. Click **“Save”** to view the output or make changes.

Experimental Design

Select Design
Alpha-Lattice

Number of entries:
100

Number of replications:
2

Save

Rows	Columns	Possible Block Size
1	200	1, 2, 4, 5, 8, 10, 20, 25, 40, 50, 100, 200
2	100	1, 2, 4, 5, 10, 20, 25, 50, 100
4	50	1, 2, 5, 10, 25, 50
5	40	1, 2, 4, 5, 8, 10, 20, 40
8	25	1, 5, 25
10	20	1, 2, 4, 5, 10, 20
20	10	1, 2, 5, 10
25	8	1, 2, 4, 8
40	5	1, 5
50	4	1, 2, 4
100	2	1, 2
200	1	1

- c. If the design is partially replicated,
 - i. **Input:** Add the number of groups first. Then, populate the entries and replications per group.
 - ii. **Output:** Possible field row and column combinations.
 - iii. Click **“Save”** to view the output or make changes.

Experimental Design

Select Design
Partially Replicated

Add Group Entry
Remove Group Entry

Group Entry 1
Replication 1
10
5

Group Entry 2
Replication 2
15
3

Group Entry 3
Replication 3
95
1

Group Entry 4
Replication 4
15
4

Group Entry 5
Replication 5
10
6

Save

Total Entries	Total Plots
145	310

Rows	Columns
1	310
2	155
5	62
10	31
31	10
62	5
155	2
310	1

3. Field Dimension

- a. **Input:** Field dimension (length and width in meters) and frequency.

Field Dimension

Field Length (in meters):	Number of Fields (Horizontal):
100	1
Field Width (in meters):	Number of Fields (Vertical):
100	1

- b. Choose what planting method will be used

Options: Direct-seeded
 Transplanted

- c. If direct-seeded will be used,

- i. Input: Spacing within rows of a plot; Number of plant rows per plot; Length of plot rows in meters.

Field Dimension

Field Length (in meters):	Number of Fields (Horizontal):
100	1
Field Width (in meters):	Number of Fields (Vertical):
100	1
Establishment	
Direct seeded	
Plot row spacing (in meters):	Number of plant rows (per plot):
0.2	20
Plot row length (in meters):	
1.7	
Save	

- d. If transplanted will be used,

- i. Input: Spacing within rows and hills of a plot; Number of plant rows and hills per plot.

Field Dimension

Field Length (in meters):

Number of Fields (Horizontal):

Field Width (in meters):

Number of Fields (Vertical):

Establishment

Transplanted

Plot row spacing (in meters)

Number of plant rows (per plot)

Plot hill spacing (in meters)

Number of plant hills (per plot)

Save

- e. Click **“Save”** to view the output or make changes.
- Output: Field and Plot Areas (in square meters)
 Number of rows and columns that could fit in the field

Field Dimension

Field Length (in meters):

Number of Fields (Horizontal):

Field Width (in meters):

Number of Fields (Vertical):

Establishment

Direct seeded

Plot row spacing (in meters):

Number of plant rows (per plot):

Plot row length (in meters):

Save

Area (in square meters)

10000

Plot Area (in square meters)

6.80

4. Field Layout

- a. If the design is partially replicated,

- i. Select the number of row and column combination to be used for the layout.

Select number of row and column

(none) ▲

(none)

31, 10

- ii. Select which plot order will be implemented

Select number of row and column

31, 10 ▼

Plot Ordering

Row-Serpentine ▲

Row-Serpentine

Left-to-Right

- iii. Click **“Save”** to view the output or make changes.

Output: Approximate measure for the field length and width
Field Layout

Field Layout

Select number of row and column		Approx. Length Approx. Width									
31, 10 ▼		2.00		6.20							
Plot Ordering		col 1	col 2	col 3	col 4	col 5	col 6	col 7	col 8	col 9	col 10
Row-Serpentine ▼		row 1	1	2	3	4	5	6	7	8	10
		row 2	20	19	18	17	16	15	14	13	11
		row 3	21	22	23	24	25	26	27	28	30
		row 4	40	39	38	37	36	35	34	33	31
		row 5	41	42	43	44	45	46	47	48	50
		row 6	60	59	58	57	56	55	54	53	51
		row 7	61	62	63	64	65	66	67	68	70
		row 8	80	79	78	77	76	75	74	73	71
		row 9	81	82	83	84	85	86	87	88	90
		row 10	100	99	98	97	96	95	94	93	91

Save

- b. If the design is alpha-lattice

- i. Select the number of rows and columns combination to be used for the layout

Field Layout

Select number of row and column

(none) ▲

(none)
8, 25
10, 20
20, 10
25, 8
40, 5
50, 4

Save

- ii. Select which plot order will be implemented

Field Layout

Select number of row and column

10, 20 ▼

Plot Ordering

Row-Serpentine ▲

Row-Serpentine
Left-to-Right
Left-to-Right

Save

- iii. Select which replication order will be implemented

Field Layout

Select number of row and column

10, 20

Plot Ordering

Left-to-Right

Replication Ordering

Top-to-Bottom

Left-to-Right

Top-to-Bottom

- iv. Click **“Save”** to view the output or make changes.
- Output: Approximate measure for the field length and width
- Field Layout

Field Layout

Select number of row and column

10, 20

Plot Ordering

Left-to-Right

Replication Ordering

Top-to-Bottom

Save

	Approx. Length										Approx. Width						
	4.00										2.00						
	col 1	col 2	col 3	col 4	col 5	col 6	col 7	col 8	col 9	col 10	col 11	col 12	col 13	col 14	col 15	col 16	col 17
row 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
row 2	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
row 3	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
row 4	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77
row 5	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97
partition 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
row 6	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117
row 7	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137
row 8	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157