ARM 9 Trial Management Features & Enhancements

See www.gdmdata.com/resources/meetings.htm for presentation copy
(Meeting Calendar link on left navigation panel of www.gdmdata.com)
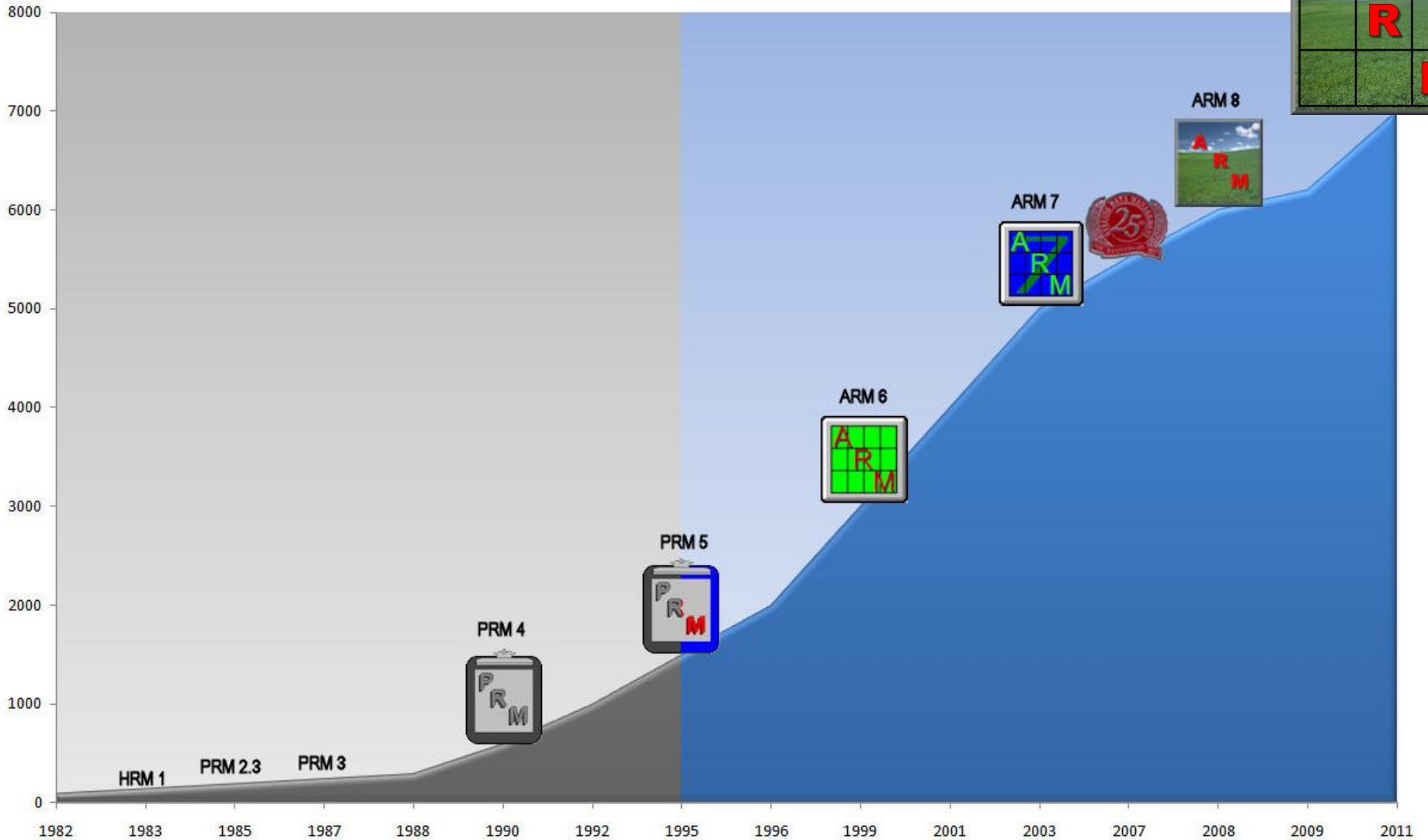
Steven R. Gylling
Gylling Data Management, Inc.

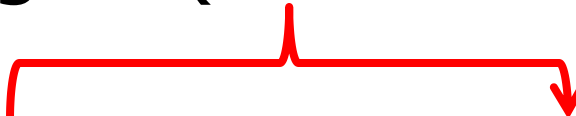# ARM 9 – Evolution of ARM Software

Total ARM User Licenses Over Time

ARM 9 Design Objectives

- **More user friendly**
  e.g. automation and "guides"

- **More manageable**
  e.g. connect tasks to Outlook

- **Better data quality**
  e.g. automatic data checking

Treatments Editor

- Color bands also display in non-scrolling region (Trt No. to Treatment Name)

Trt Line	Trt No.	Type	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit
1	1	CHK	Untreated Check					
2	2	FUNG	TUB	250	G/L	EC	0.5	L/ha
3	3	FUNG	TUB	250	G/L	EC	1	L/ha
4	4	FUNG	TILT 250	250	G/L	EC	0.5	L/ha
5	5	FUNG	MICO 60	600	G/L	EC	1.5	L/ha
6	5	FUNG	FUNGOL	200	G/L	SC	1.25	L/ha

Assessments

- Much greater flexibility to link additional related information to an assessment, such as:
    - Digital photograph.
    - "Damaged plot" marker (plot drowned out or treatment was misapplied).
    - Bar code label ID.
    - GPS Coordinates.
    - Comment.
- Enter dates as assessment values

Assessments – Linked Image

Assessment Data Images

- Enhanced for defining multiple images per plot

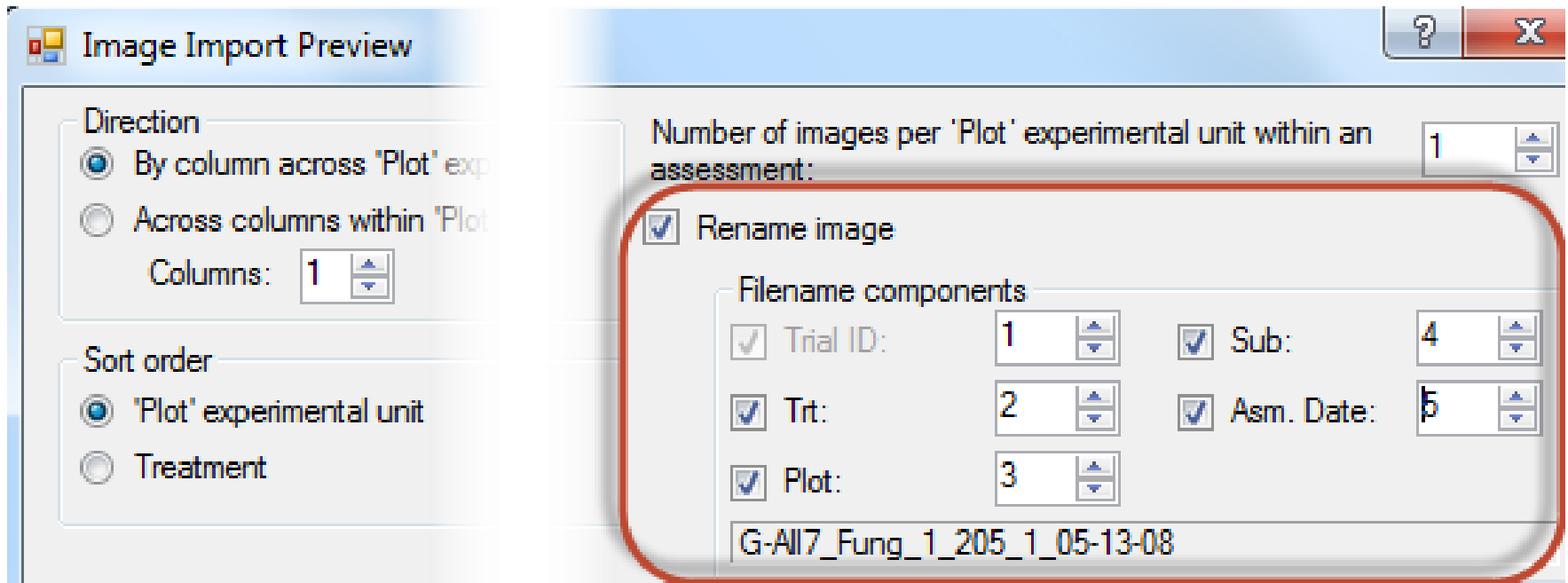 - Specify number of images per plot when subsamples are defined
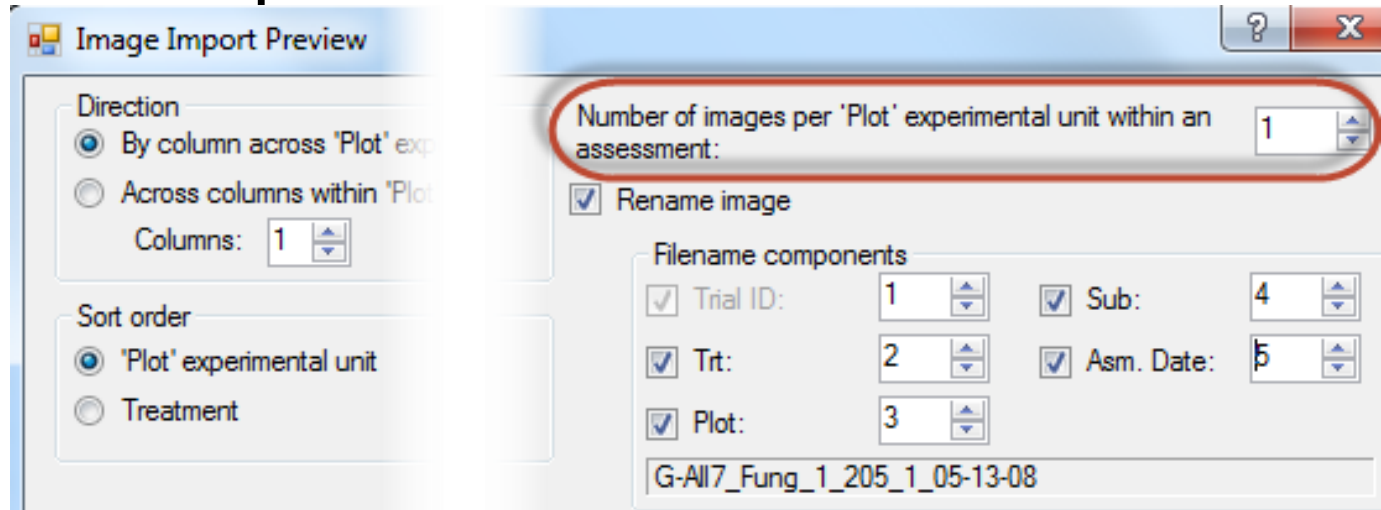
Assessment Data Images

- Example of 2 images for plot 101 col. 6

Assessment Data Images

- More 'Rename images' choices

Assessment Data Images

- View data images grouped by treatment

Assessment Data Editor $^{(8.5.0+)}$

- When cursor is in a calculated column, column heading of source column(s) are highlighted (like Excel formulas)

P	P	P	T1 AUDPC
0	0	0	1

8	9	10	11 (Calculated)
30	50	80	1765.0
80	90	94	3949.0

- Calculated columns also identified

Experimental "Plot" Unit ID

- Expanded flexibility to describe an experimental "plot" unit:
    - Plot ID (number) that is number or text e.g. A1
    - Globally unique plot ID assigned centrally by corporate headquarters
    - Permanent ID (bar code, RFID tag, or tree ID)
    - GPS boundaries of experimental unit
    - Database Globally Unique ID (e.g. Microsoft GUID)

Assessment Review Tools

- Shortcuts to data review & quality checks

- Check treatment variability and differences

- Look for spatial effects/influences

Assessment Map

- Assessment Description tab selects data header fields to describe each column on map and map report
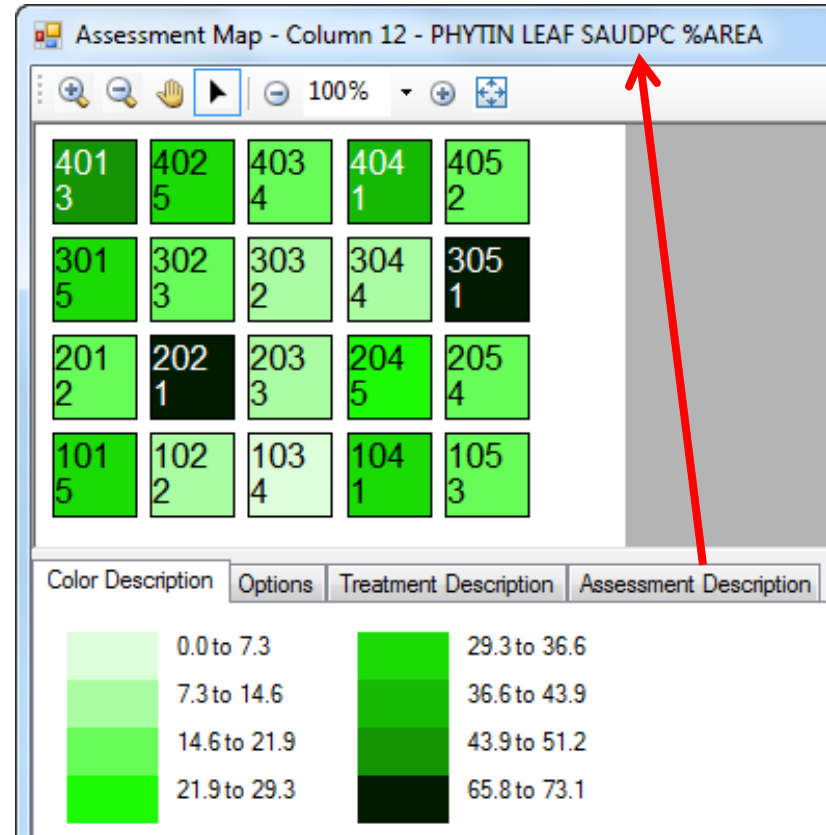
Trial Map Enhancements

Check/Ref (read from Settings)

Color palette

Trial Map Enhancements

Outside border plots

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Numbering

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Define custom palette

Trial Map Enhancements

- Click-and-drag to move objects.

- Define color to use for each treatment.

- Zoom in/out.

- Auto-fit trial map dialog to current map size and shape.

- Save trial map dialog size and zoom level in each trial.

Trial Map Enhancements

- Special colors to identify check and reference treatments - map and graph

- Treatment color selection palette of 999 unique color + symbol combinations

- Border plot options on right-click menu

Tasks

- Re-designed Schedule Tasks editor

Tasks

- Schedule tasks relative to:
  - Fixed date
  - Application Date
  - Emergence Date
  - Planting Date

Tasks

- Relative tasks adjust to date changes
  - Initial planned dates:

Type	Description	Timing	-	Planned	+	Completed
Treatment application - for A	First application - Regrowth	04/15/13		04/15/13		
Assessment - for 1	% control and phyto assessment	7 Days After A		04/22/13		
Assessment - for 2	% control and phyto assessment	14 Days After A		04/29/13		
Assessment - for 3	% control and phyto assessment	21 Days After A		05/06/13		

  - Revised plan after application is made:

Type	Description	Timing	-	Planned	+	Completed
Treatment application - for A	First application - Regrowth	04/15/13		04/15/13		4/20/2013
Assessment - for 1	% control and phyto assessment	7 Days After A		04/27/13		
Assessment - for 2	% control and phyto assessment	14 Days After A		05/04/13		
Assessment - for 3	% control and phyto assessment	21 Days After A		05/11/13		

Tasks

- ## Display tasks on Master Calendar
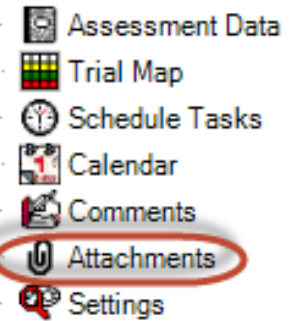
Tasks

- Create Outlook appointments from tasks

Linked Outlook Appointments

- Changes to scheduled task dates in ARM are automatically applied to linked Outlook tasks when trial is saved.

- Changes made by moving ARM-linked Outlook appointments are copied back to tasks in ARM trial the next time that trial is opened in ARM

Attachments

- Attachments editor is an index of photos, documents, other related files
- To attach:
  - Drag-and-drop files from Windows Explorer
  - Select "Attach" button on editor, then browse to file to link
  - Paste image into rich text field such as Comments or Conclusions

Attach Assessment Images

- Images/photos of assessments should be attached in Assessment Data editor:
    - Click into relevant plot and data column
    - Select Attach button on Properties panel
    - Select image in Open dialog
    - Confirm position on Image Import Preview
    - Select image file rename options to clearly identify trial and plot linkage
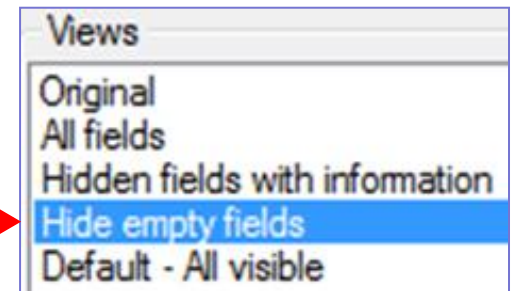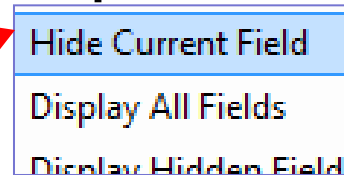
Image:

Attach

Remove
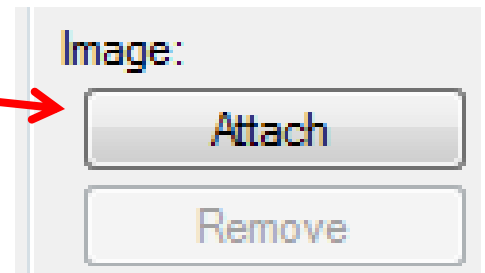
Editor Views to Simplify/Tailor

Create saved editor views hide unused editor fields (simplify editor screens).

1. To hide un-needed fields either:

Treatment Field	Visible
Form Type	☑
Lot Code	☐
Density	☑
Registration Num	☐
Re-Entry Interval	☐
Description	☑
Cost	☐

- Clear checkboxes on View Options dialog for the editor.

- Right-click and Hide Field on editor itself.

Hide Current Field
Display All Fields
Display Hidden Field

- Fill desired fields, then use "Hide empty fields" view.

Views
Original
All fields
Hidden fields with information
Hide empty fields
Default - All visible

Editor Views to Simplify/Tailor

2. On View Options dialog for the editor select "Save View" button

3. Assign a useful name:
   "My view", "Turf view", "Cereals", etc.

■ Also use views to select site description, assessment header, and treatment fields to print on reports

Create Protocol – Design tab

- Define number of treatments in single-factor protocols in Design tab of Settings dialog

- Treatments editor is pre-filled

Create Protocol – Design tab

- Define number of levels per factor

- Treatments editor is pre-filled

Protocol Settings

| General | Design | Treatment | Application | Layout |

Split-Plot

Factors: 2

		Levels
A:	Herbicide	2
B:	Variety	3

Treatments - Line 2

Trt Line	Trt No.	Type	Treatment Name
1			Start of Factor A (Herbicide)
2	1	HERB	
3	2	HERB	
4			Start of Factor B (Variety)
5	1	VAR	
6	2	VAR	
7	3	VAR	

Create Trial - Merge Factor to

- New Settings option to define auto-merge actions for combining factors when creating a multi-factor trial (e.g. copying rates or growth stages to factor that defines tested products)
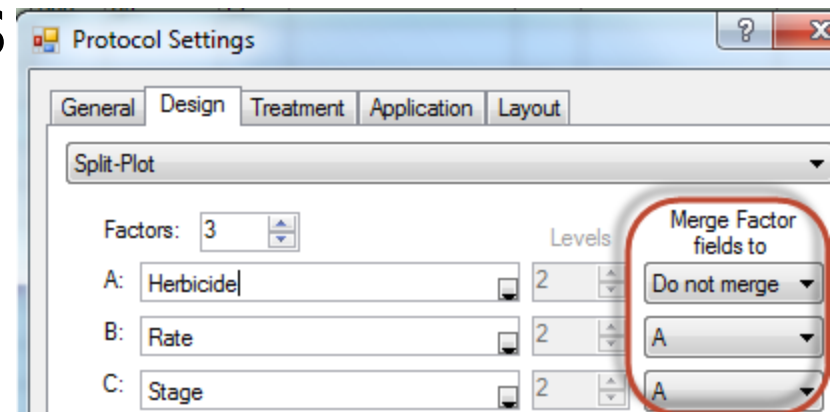
Create Trial - Merge Factor to

- These protocol treatments:

Trt Line	Trt No.	Type	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage	Appl Code
1			Start of Factor A (Herbicide)							
2	1	HERB	Tub|	500	g/L	EC				
3	2	HERB	Tilt	600	g/L	EC				
4			Start of Factor B (Rate)							
5	1		Low rate				25	g AI/ha		
6	2		High rate				50	g AI/ha		
7			Start of Factor C (Stage)							
8	1		Early						EAPOCR	A
9	2		Late						LAPOCR	B

Create Trial - Merge Factor to

- Result in these trial treatments

Trt Line	Trt No.	Type	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	Factor ID	Level No.
1	1	HERB	Tub	500	g/L	EC	25	g Al/ha	EAPOCR	A	A	1
2	1		Low rate				25	g Al/ha			B	1
3	1		Early						EAPOCR	A	C	1
4	2	HERB	Tub	500	g/L	EC	25	g Al/ha	LAPOCR	B	A	1
5	2		Low rate				25	g Al/ha			B	1
6	2		Late						LAPOCR	B	C	2
7	3	HERB	Tub	500	g/L	EC	50	g Al/ha	EAPOCR	A	A	1

18	6		Late						LAPOCR	B	C	2
19	7	HERB	Tilt	600	g/L	EC	50	g Al/ha	EAPOCR	A	A	2
20	7		High rate				50	g Al/ha			B	2
21	7		Early						EAPOCR	A	C	1
22	8	HERB	Tilt	600	g/L	EC	50	g Al/ha	LAPOCR	B	A	2
23	8		High rate				50	g Al/ha			B	2
24	8		Late						LAPOCR	B	C	2

Study Rule Required and Recommended Field Colors

- Required=pink background:

  Latitude of LL Corner °:

  Longitude of LL Corner °:

- Recommended=blue background:

  Overall Moisture Conditions:

Study List

- Use study list as the ARM desktop when current study is closed

- More study list entry fields, to give more flexible filters and sorts

- Easier filtering method to locate ARM studies that meet desired criteria

Study List as ARM desktop

Study List

- Enter 'filters' to find desired studies

- Tutorial mode shows only studies in Tutorial folder, for ARM and ST

Find Trials using Study List

- How to find trials with treatment(s), crop(s), and weed(s) of interest:

1. Display only trials

    Study Type
    - All/No Filter
    - ◉ Trials Only
    - Protocols Only
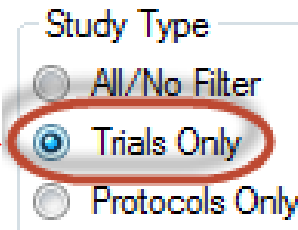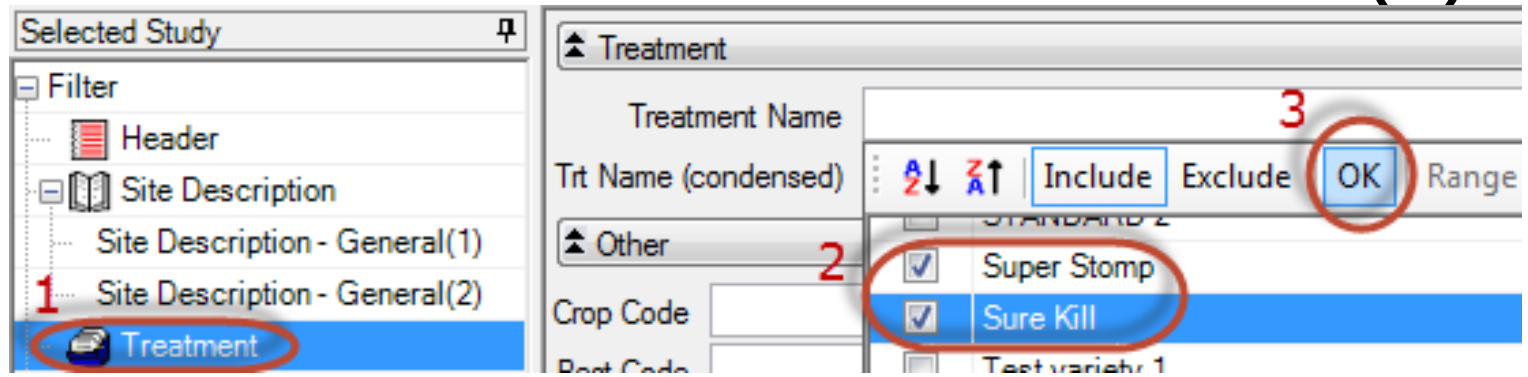
2. Display unique treatment names

    ⬆ Treatment
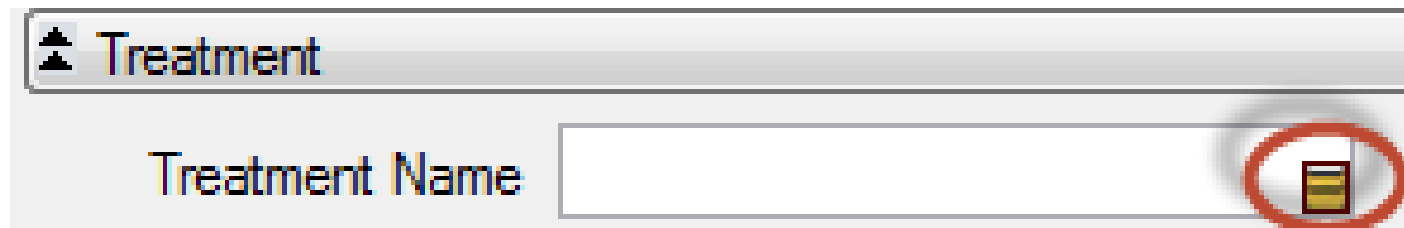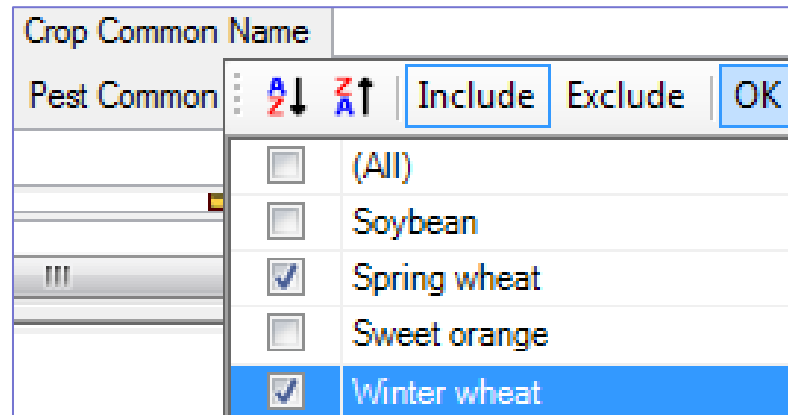
    Treatment Name [   ] 🟨

Find Trials using Study List

3. Select trials with desired treatment(s)

4. Identify desired crop(s)

Find Trials using Study List

3. Identify desired weed(s)

4. Open matching trials from grid

Export Assessment Data

- File - Export - Data Export
- Create file to open in other programs
- Settings to analyze with SAS, R, etc.

Export Assessment Data

- Settings to graph means of treatments