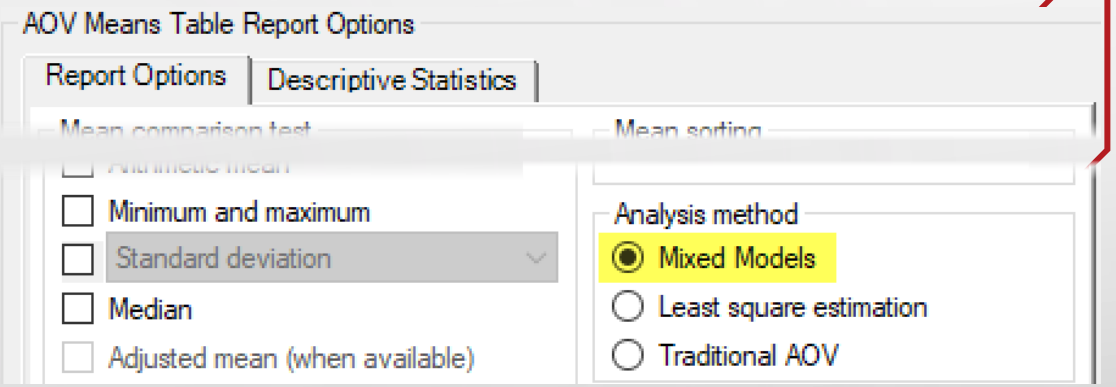
ARM 2026 Changes

Updates to ARM software in 2026

AOV Means Table report

Mixed Models Analysis



Added Mixed Models analysis for AOV Means Table report

Number of Decimals Data Entry Date	No missing data	Same data w/missing plots
Trt No. Treatment Name Rate Rate Unit Appl Code	1*	2*
1 S	54.5 c	55.0 c
2 S C	75.8 a	76.0 a
3 S C	66.0 b	66.0 b
4 U	0.0 d	0.0 d
LSD P=.05	5.46	6.17
Standard Deviation	3.41	3.69
CV	7.01	8.29
Grand Mean	49.06	46.93
Treatment F (mixed)	393.3649	318.5032
Treatment Prob(F) (mixed)	0.0001	0.0001
Replicate F	0.934	0.662
Replicate Prob(F)	0.4634	0.6013
Treatment F	386.905	286.187
Treatment Prob(F)	0.0001	0.0001

Better estimate of means

Mixed Model supplements least squares analysis

Mixed Models Analysis

Why use Mixed Models analysis?

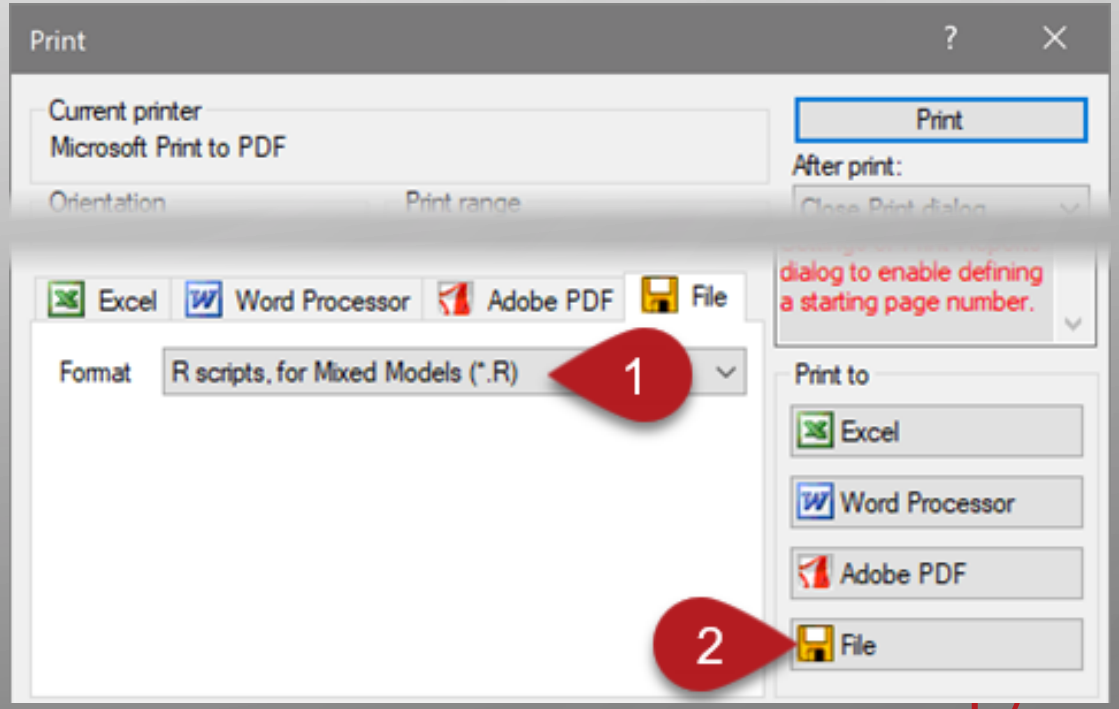
- **Missing data**: Calculates less biased (more conservative) estimate of treatment means
- **Blocking failure**: Better handles when replicate effect is not estimable (Replicate Prob(F) not significant)

When neither of the above occur, results are identical to Least Squares; *thus, it is always better to choose Mixed Models*

Export R script

Export full AOV analysis routine* as an R script

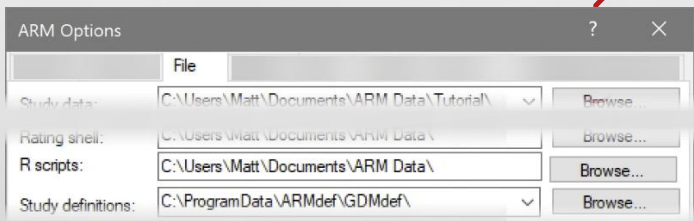
- Replicate ARM's analysis in R
- Write your own code "on top of" what ARM performs



Print to File > R scripts from Print dialog

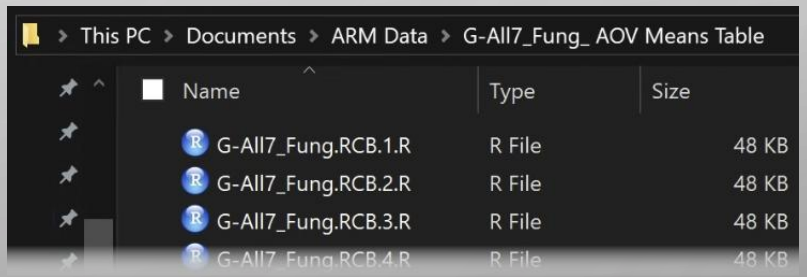
**Only available when running Mixed Models analysis*

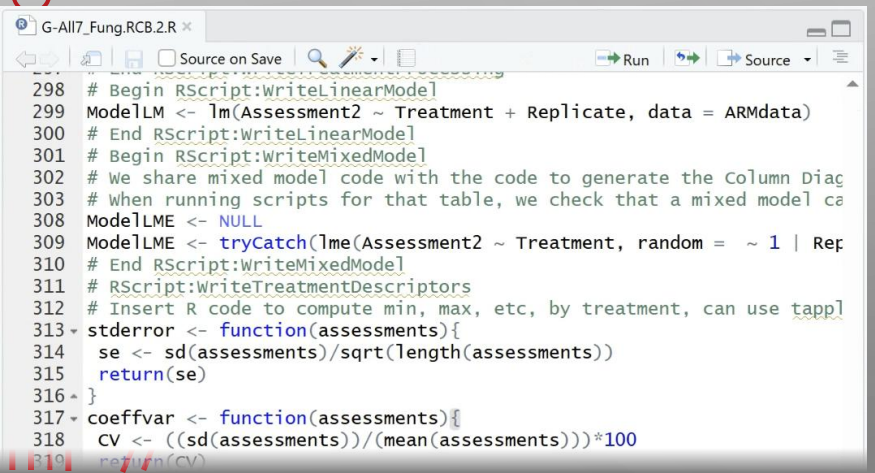
Export R script



Creates a folder at the “R scripts” path specified at Tools > Options > File tab

Saves a script file (.R) for each column in the report





Each script loads the data, fits the model, and performs all calculations in the AOV Means Table report, with comments throughout.

Generalized Linear Models (GLM)

Perform Generalized Linear Model analysis

- Fits a linear model to the data, and analysis is of the model (not raw values)
- Key benefit: no longer requires normality of data
- Dispersion tests the model's goodness-of-fit

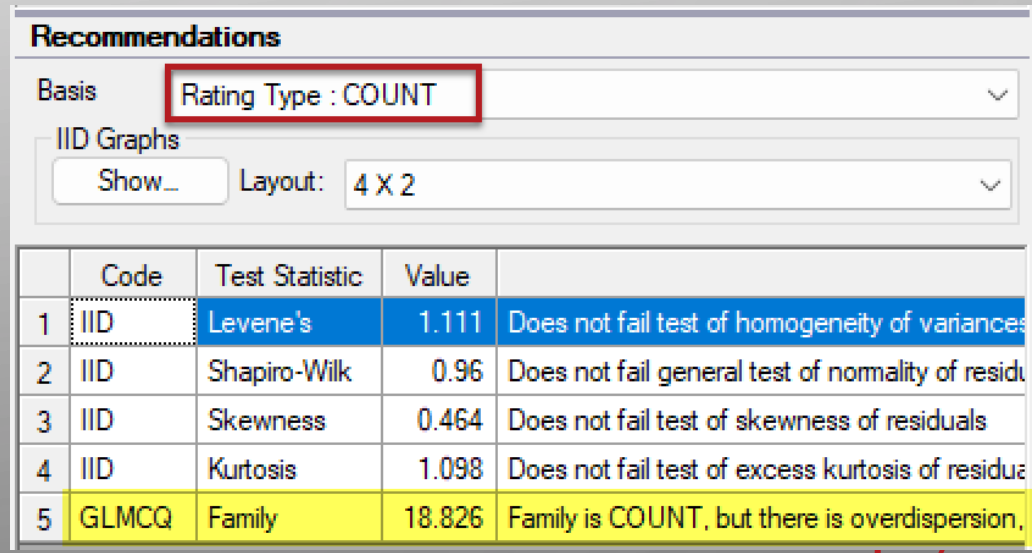
Only supported for CRD, RCB, and Latin Square designs

Part Rated		PLANT, P COUNT NUMBER	PLANT, P COUNT NUMBER
Rating Type			
Rating Unit			
Number of Subsamples		1	1
ARM Action Codes		IID	GLMC
Trt No.	Treatment Name	1	3 dGLMC
1	1	394.8 a	391.0 a
2	2	413.0 a	409.1 a
3	3	86.8 b	85.9 b
4	4	37.8 b	37.4 c
5	5	35.3 b	34.9 c
6	6	79.3 b	78.5 b
LSD P=.05		77.63	0.12$
Standard Deviation		51.51	.
CV		29.53	.
Levene's Prob(F)		0.389	0.982
P(Shapiro-Wilk)^		0.4304	0.0745
P(Skewness)^		0.3361	0.1884
P(Kurtosis)^		0.2436	0.5079
GLM Dispersion		.	18.8259
Replicate F		1.618	264.699x
Replicate Prob(F)		0.2272	0.0001x
Treatment F		48.320	340.892x
Treatment Prob(F)		0.0001	0.0001x

When to use GLM?

Column Diagnostics panel recommends when a GLM is appropriate

- Set the Basis to Rating Type or Rating Unit
- If ARM recognizes the type of data as appropriate to fit a GLM model*,
- then a GLM Action Code is recommended



	Code	Test Statistic	Value	
1	IID	Levene's	1.111	Does not fail test of homogeneity of variances
2	IID	Shapiro-Wilk	0.96	Does not fail general test of normality of residu
3	IID	Skewness	0.464	Does not fail test of skewness of residuals
4	IID	Kurtosis	1.098	Does not fail test of excess kurtosis of residua
5	GLMCQ	Family	18.826	Family is COUNT, but there is overdispersion,

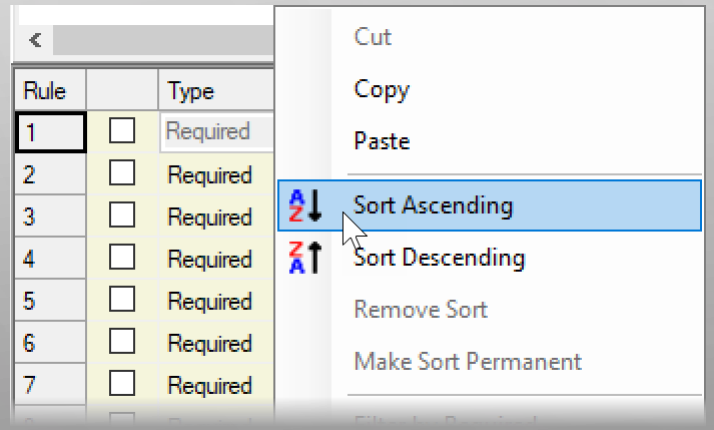
* Count data ~ Poisson distribution, percentage data ~ Binomial distribution

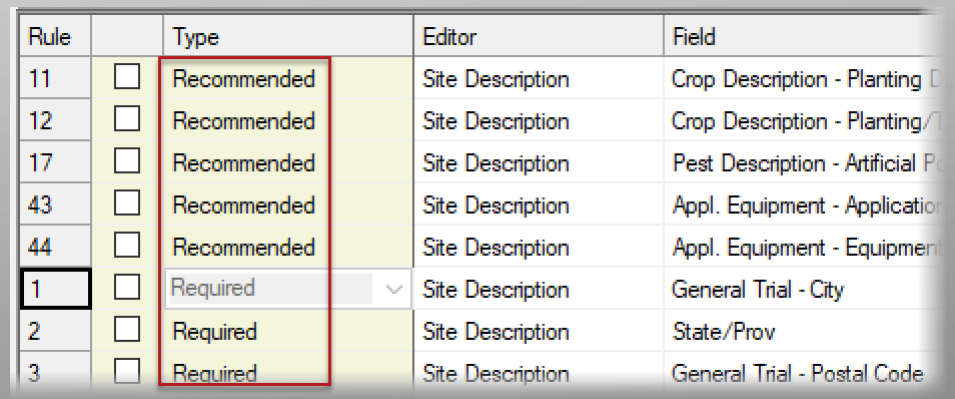
Study Rules

Sort & Filter the Study Rules Grid

Sort the list of Study Rules to group similar rules together

- Right-click > **Sort** Ascending/Descending, or click the column header



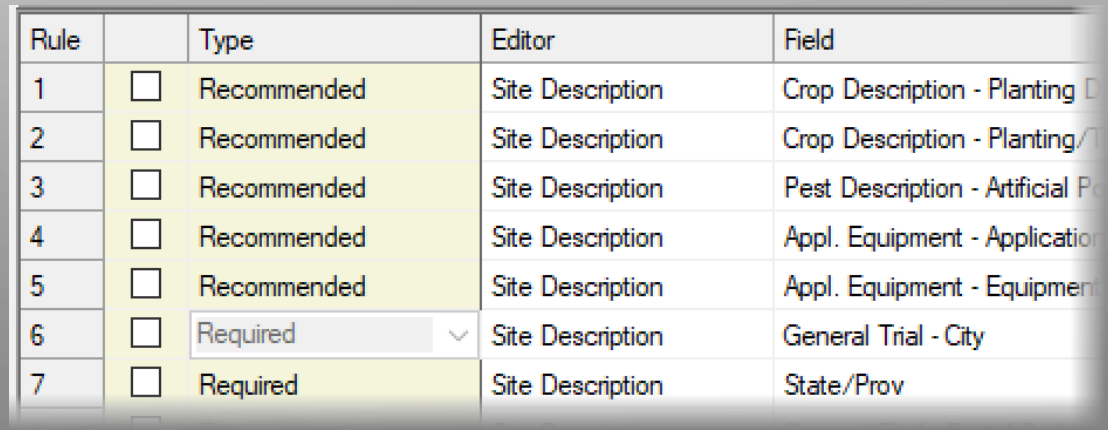


- To clear the sort: change editors or right-click > **Remove Sort**

Sort & Filter the Study Rules Grid

To save the new order, right-click > **Make sort permanent**

- Renumbers the rules to match the current sort
- To revert to the original order, use Edit > Undo.
  Changes are permanent once you save and exit the study.

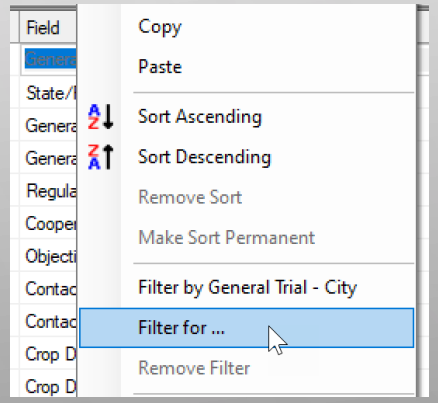


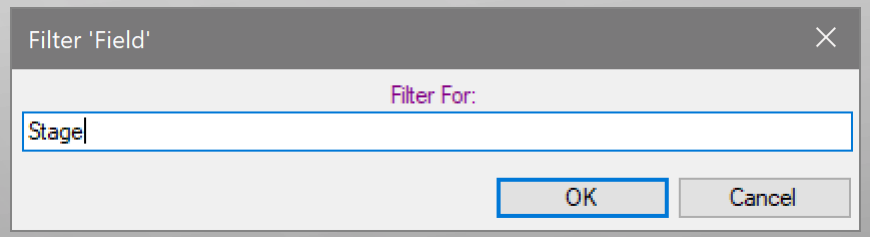
Rule		Type	Editor	Field
1	☐	Recommended	Site Description	Crop Description - Planting
2	☐	Recommended	Site Description	Crop Description - Planting/
3	☐	Recommended	Site Description	Pest Description - Artificial
4	☐	Recommended	Site Description	Appl. Equipment - Applicatio
5	☐	Recommended	Site Description	Appl. Equipment - Equipmen
6	☐	Required	Site Description	General Trial - City
7	☐	Required	Site Description	State/Prov

Sort & Filter the Study Rules Grid

Filter the Study Rules using Right-click menu, to find rules of interest

- **Filter For** - enter a keyword to see only rules containing that value





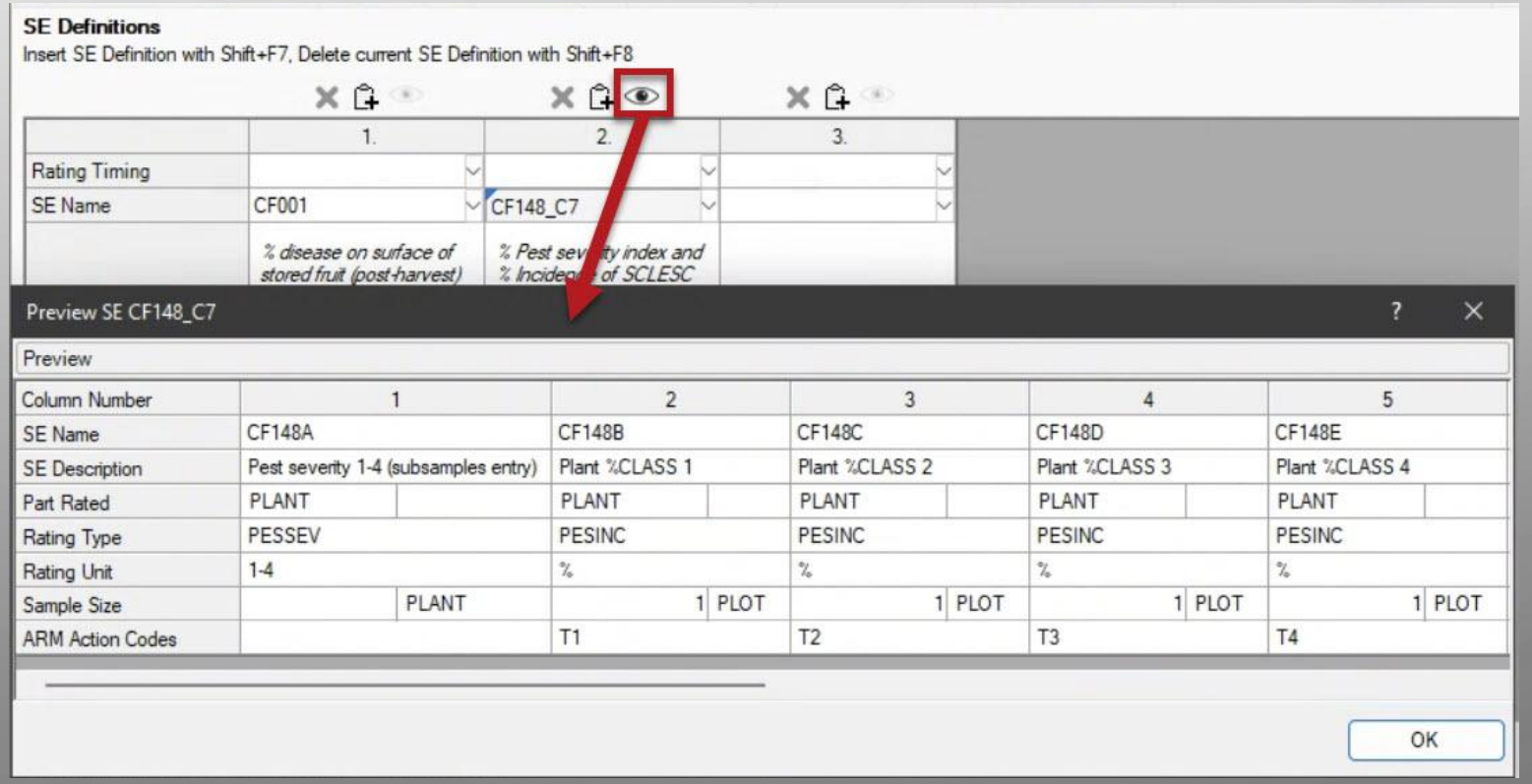
Rule	Type	Editor	Field
31	Required	Site Description	Crop Stage at Appl. - Crop Stage Scale Used
32	Required	Site Description	Crop Stage at Appl. - Stage Majority
33	Required	Site Description	Pest Stage at Appl. - Density Average
47	Required	Assessment Data	Crop Stage Majority/Min
48	Required	Assessment Data	Pest Stage Majority/Min
70	Required	Site Description	Crop Stage at Appl. - Treated Canopy Height

- **Filter By** – show only rules that match the selected entry
- To clear the filter: **Remove Filter** from right-click or Properties panel

Site Description

Preview SE

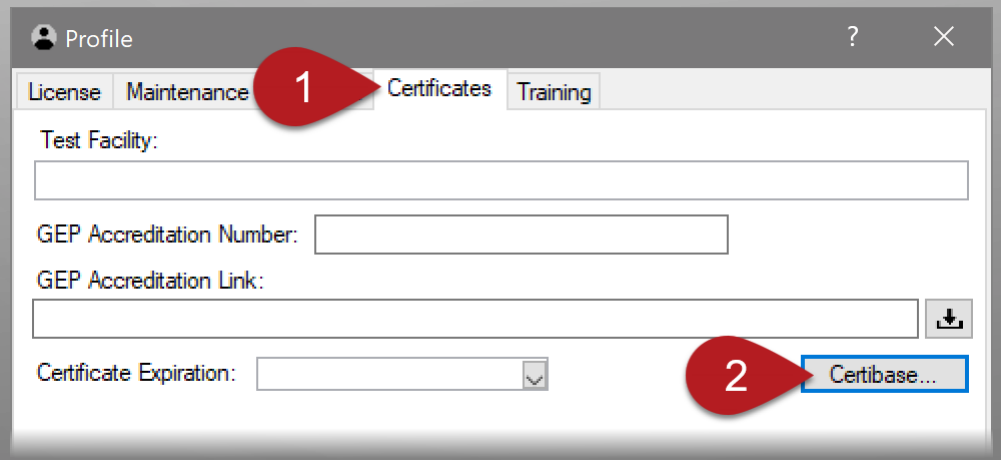
Added shortcut button on SE Definitions table to preview selected SE:



GEP Accreditation Certificate

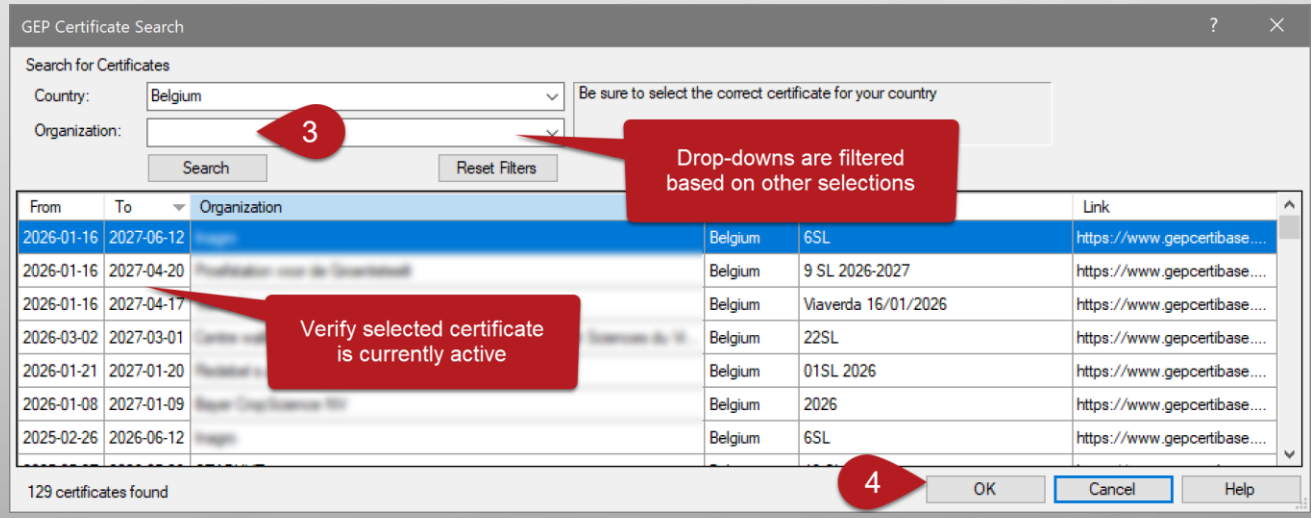
Search the GEP Certificate Database System (Certibase) within ARM to populate GEP Accreditation details (test facility and certificate)

1. Select Help > Profile > Certificates tab
2. Click on **Certibase** button

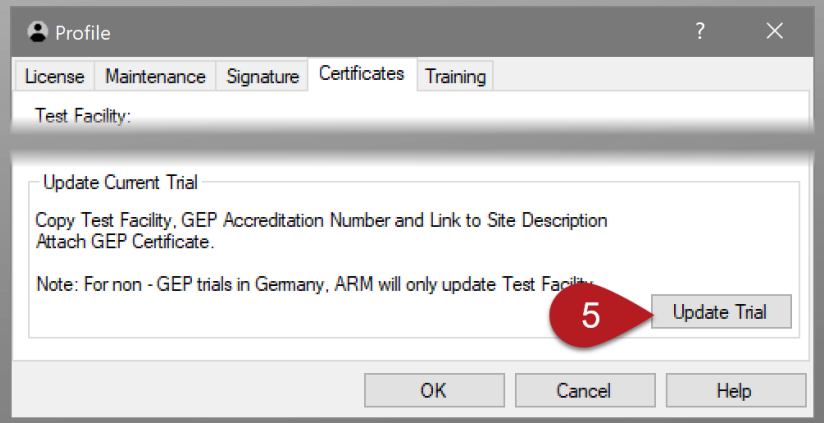


GEP Accreditation Certificate

3. Select Country and/or Organization and click **Search**
4. Choose an active certificate and click OK to save to Profile



5. Select **Update Trial** to copy selected certificate details to current trial

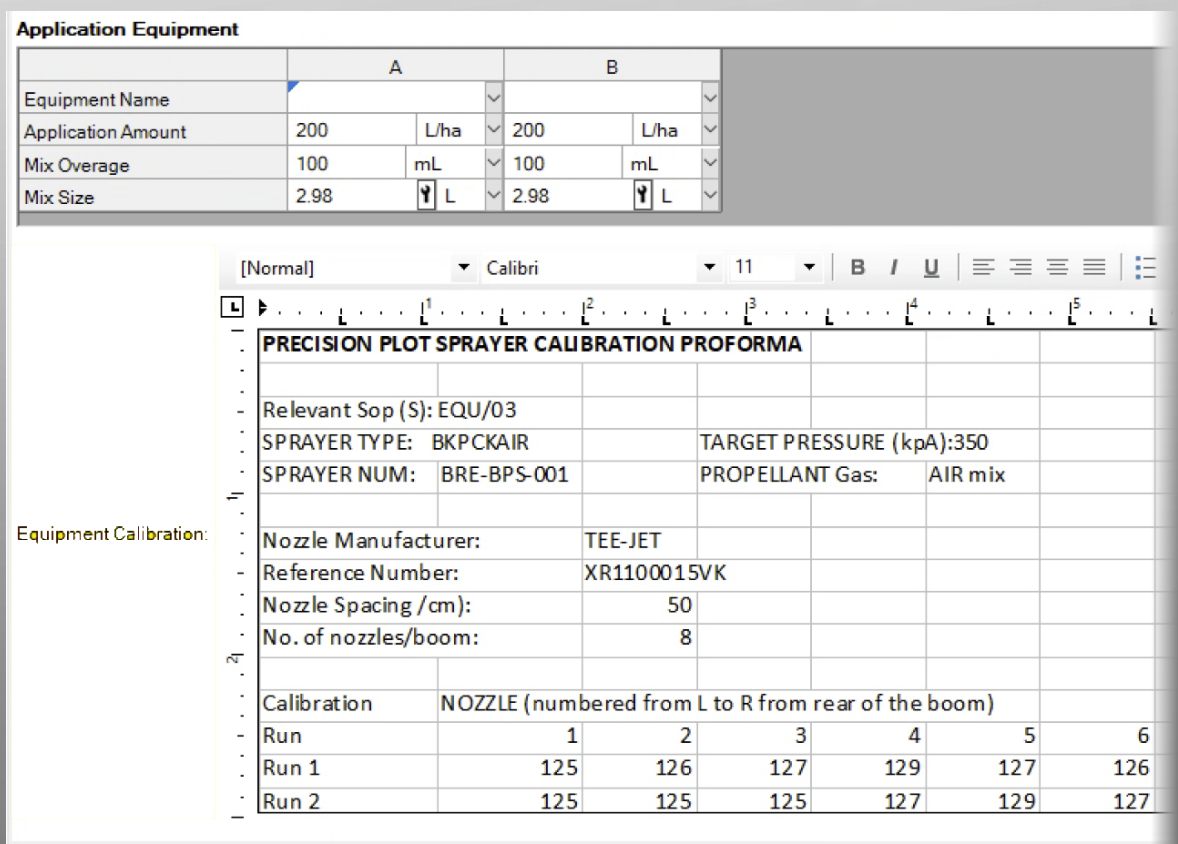


Equipment Calibration

Added rich text fields for documenting calibration reports

Simply paste entire calibration report into this field

Available on both Equipment and Appl Equipment sections



Application Equipment

	A		B	
Equipment Name				
Application Amount	200	L/ha	200	L/ha
Mix Overage	100	mL	100	mL
Mix Size	2.98	L	2.98	L

Equipment Calibration:

[Normal] Calibri 11 B I U

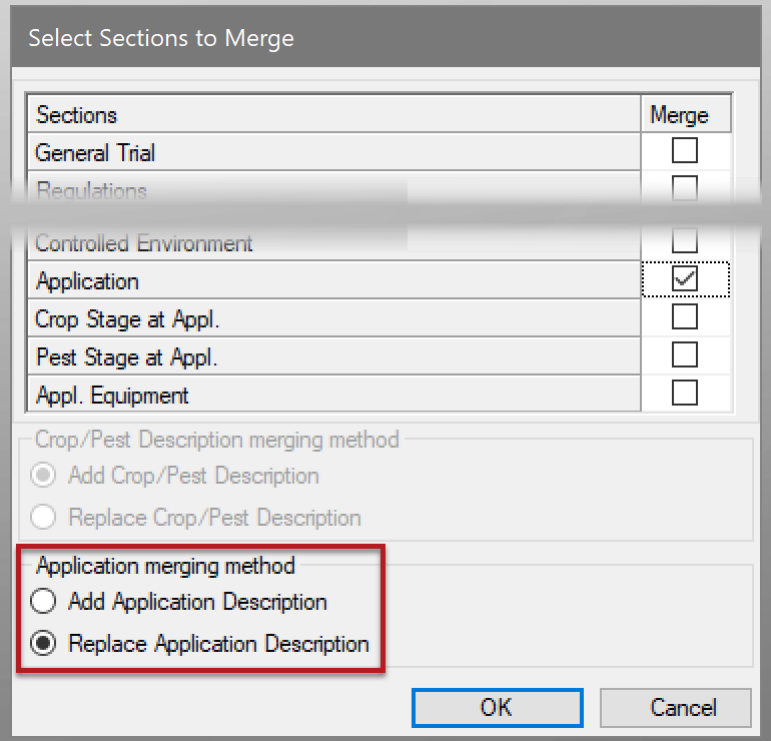
PRECISION PLOT SPRAYER CALIBRATION PROFORMA						
Relevant Sop (S): EQU/03						
SPRAYER TYPE: BKPCKAIR			TARGET PRESSURE (kpA):350			
SPRAYER NUM:	BRE-BPS-001		PROPELLANT Gas:		AIR mix	
Nozzle Manufacturer:		TEE-JET				
Reference Number:		XR1100015VK				
Nozzle Spacing /cm):		50				
No. of nozzles/boom:		8				
Calibration	NOZZLE (numbered from L to R from rear of the boom)					
Run	1	2	3	4	5	6
Run 1	125	126	127	129	127	126
Run 2	125	125	125	127	129	127

Merge > Replace Application Description

Enhanced Merge function to **replace** Application Description details

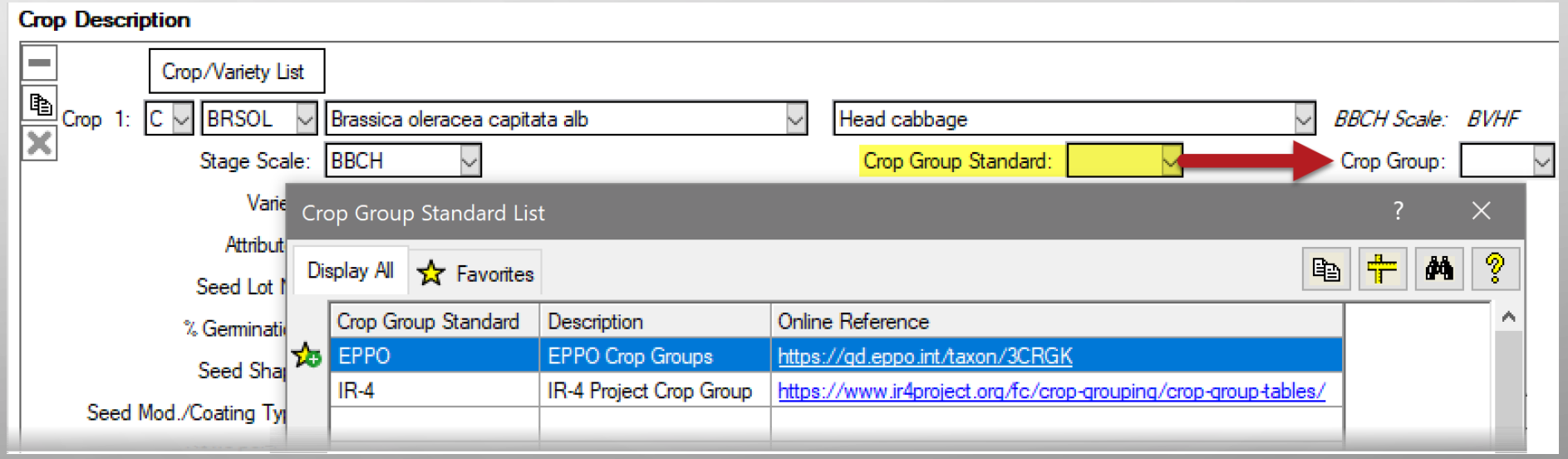
Deletes all existing applications and copies the chosen appl. sections to the current trial

Previously applications were always added to current study, which may not align with treatment list or other details

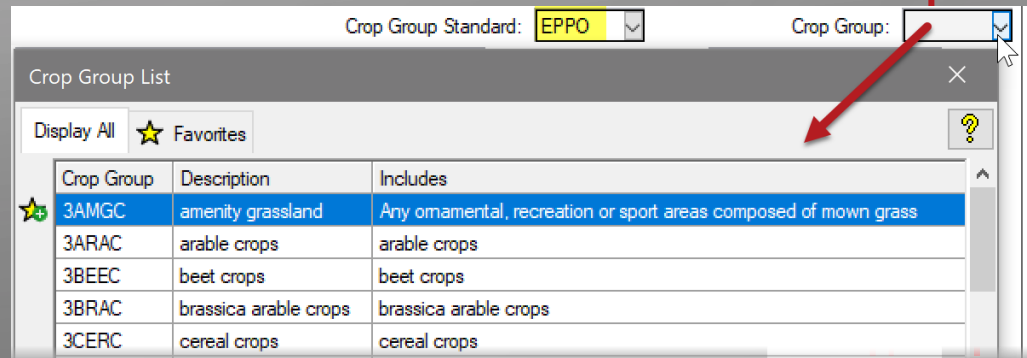


Crop Group Standard

Define which grouping system to use for Crop Group



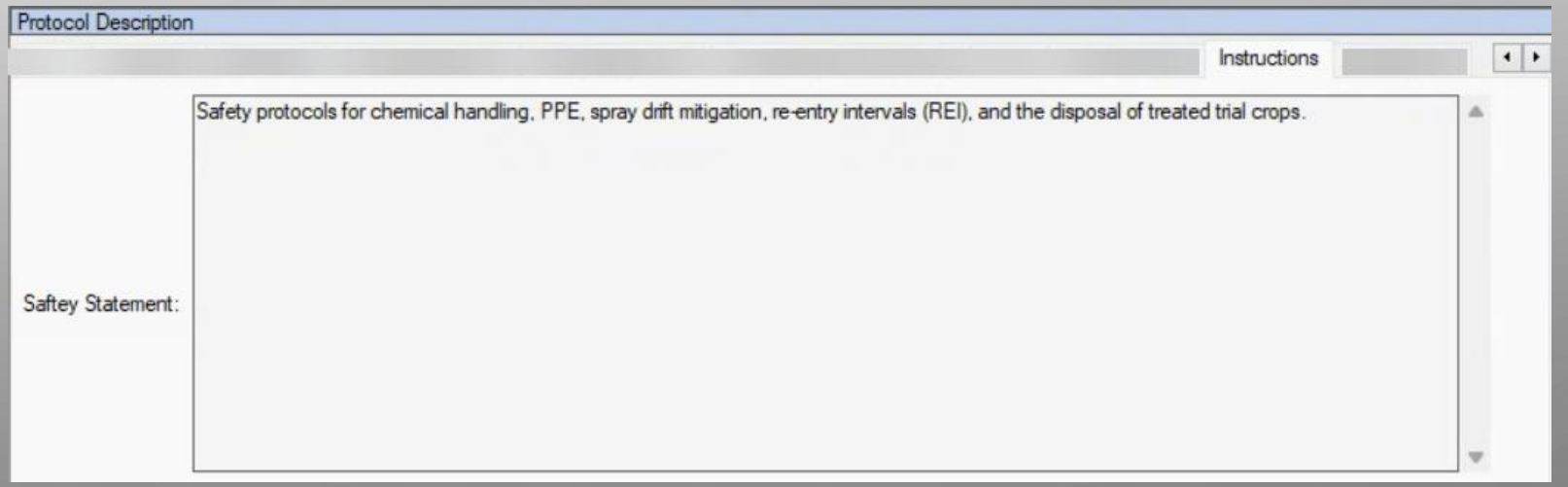
Also added EPPO crop groups,
previously only IR-4 groups were available



Safety Statement

Added Safety Statement long text field to Protocol Instructions

Document safety protocols for chemical handling, PPE, spray drift mitigation, re-entry intervals (REI), and the disposal of treated trial crops.

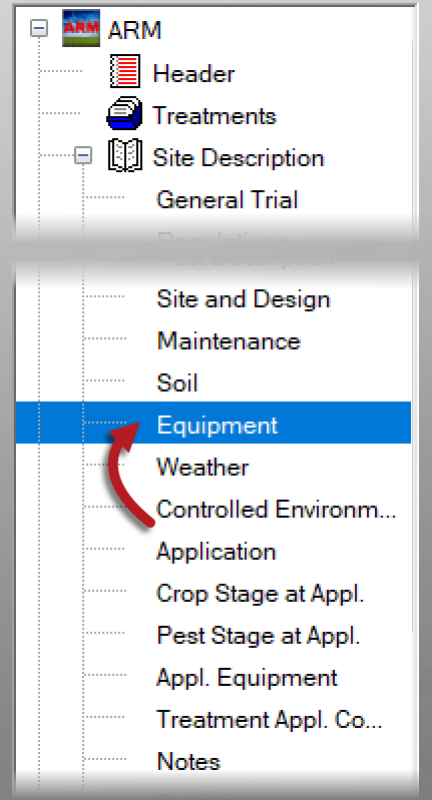


Note: this field is read-only in a trial, like other protocol instruction fields

Equipment tab

Rearranged the list of sections to better place Equipment tab chronologically

Why? Equipment should be defined first,
and then those records can be linked
to the later sections
(e.g. Weather station or growth chamber)

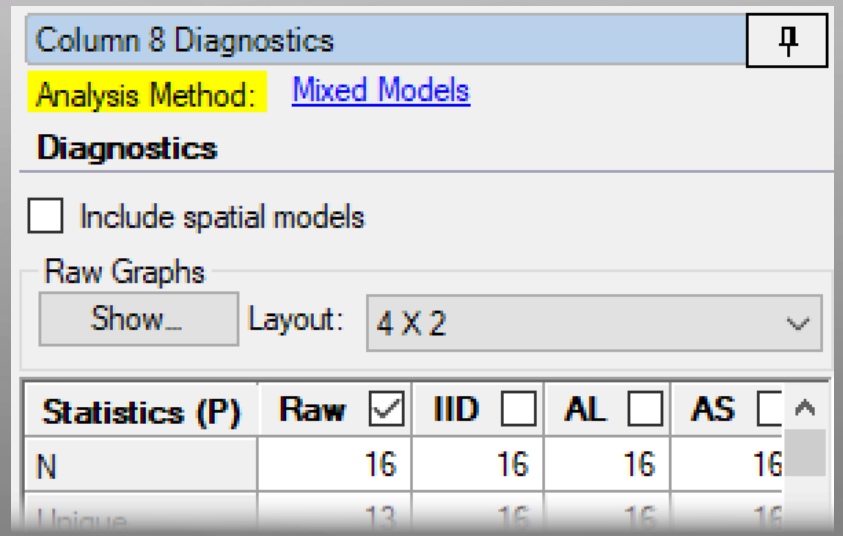


Assessment Data

Column Diagnostics panel

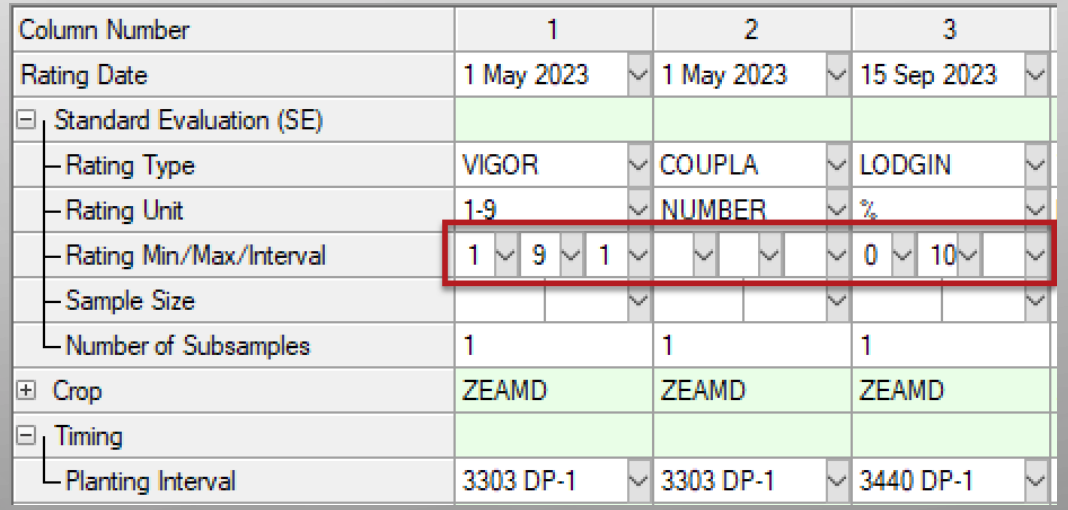
Added the Analysis Method to the interface

- Clearly identifies which analysis is running
- Easy to change the selection if necessary



Improved entry field sizing

Multi-field rows now sized to fit within the available column width



Column Number	1	2	3
Rating Date	1 May 2023	1 May 2023	15 Sep 2023
⊟ Standard Evaluation (SE)			
Rating Type	VIGOR	COUPLA	LODGIN
Rating Unit	1-9	NUMBER	%
Rating Min/Max/Interval	1 9 1		0 10
Sample Size			
Number of Subsamples	1	1	1
⊞ Crop	ZEAMD	ZEAMD	ZEAMD
⊟ Timing			
Planting Interval	3303 DP-1	3303 DP-1	3440 DP-1

Benefit: Columns can be narrowed to fit more on the screen, without losing header details

Study List

Study List

Added Sponsor Organization to the study list table

Selected	Study ID	Cooperator	Cooperator Organization	Sponsor	Sponsor Organization
☐	G-All7_Herb_01	Eddie Munster	Munster's Mining and More	Sponsor Name	Sponsor Company, Inco.
☐	G-All7_SDTR_Inoc_001	Eddie Munster	Munster's Mining and More	Sponsor Name	Sponsor Company, Inco.

Use the study list to search and filter across all of your research trials to find studies matching your chosen criteria
e.g. "What have we done on Peanuts with product XYZ to fight thrips"

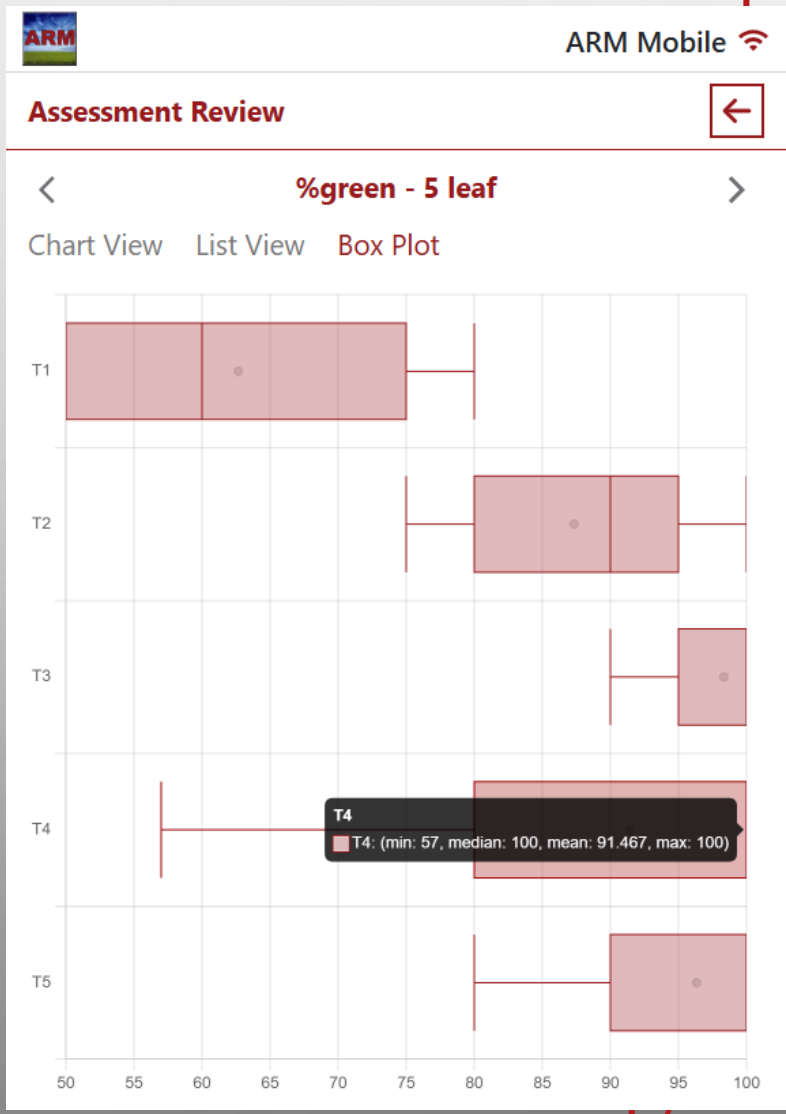
ARM Mobile

Box Whisker Graph

Review distribution of each treatment individually

Outliers are identified for further investigation

Includes all subsamples values, making it easier to identify potentially incorrect entries even across hundreds of data points

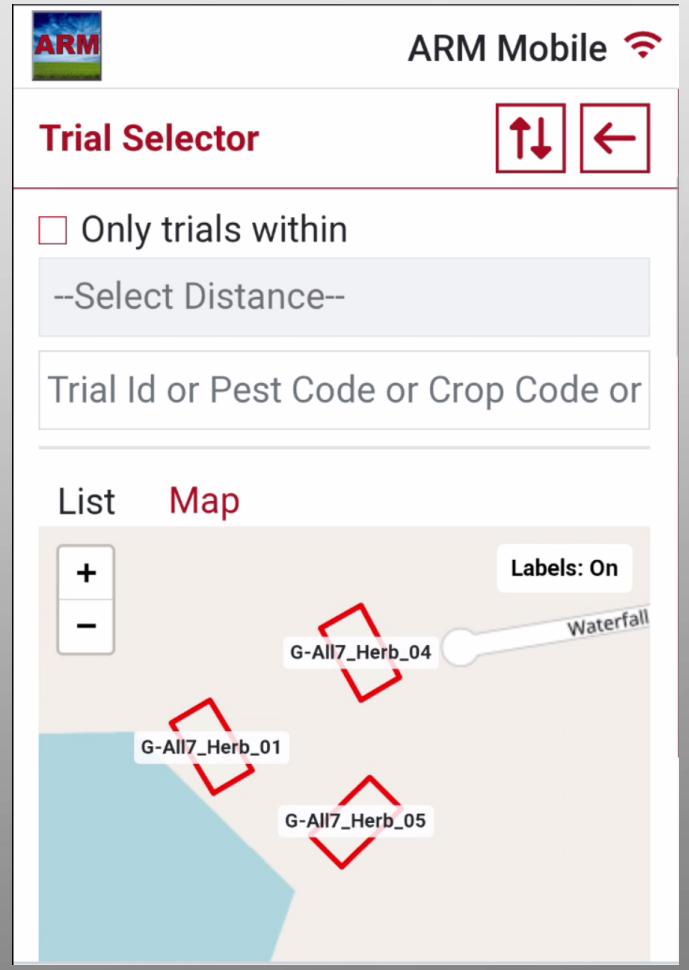


Geospatial Features

Trial Definitions are now georeferenced

Visualize the trials on a satellite map to select those **near you**
Instead of browsing a list of all trials…

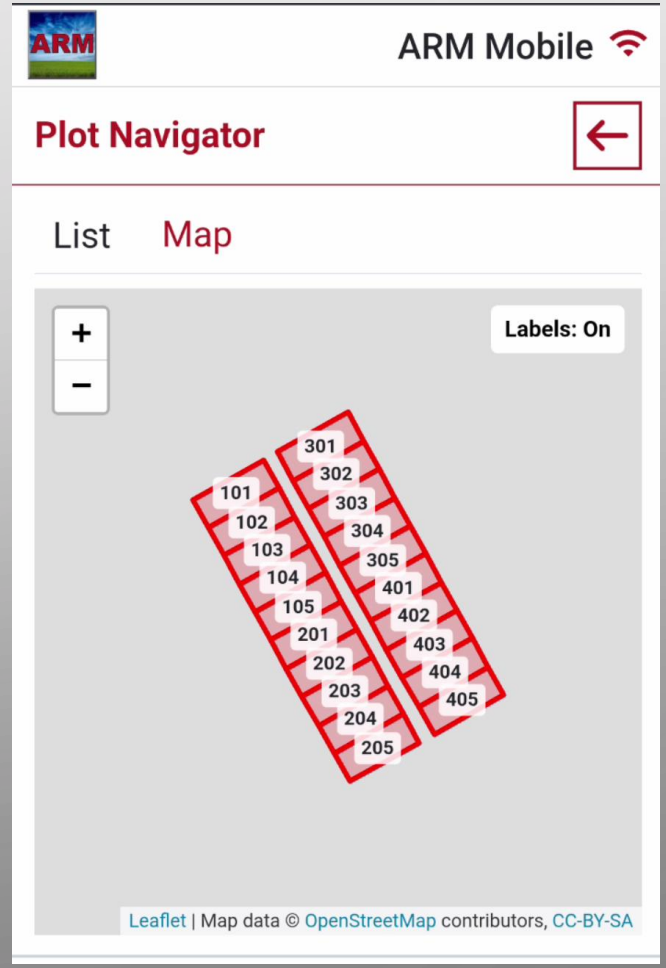
Note: definitions from previous ARM versions will need to be **re-exported** to use geospatial features in the app



Geospatial Features

Select individual plots from the map when navigating during the assessment

Note: These locations are defined within ARM Geospatial Map on the desktop



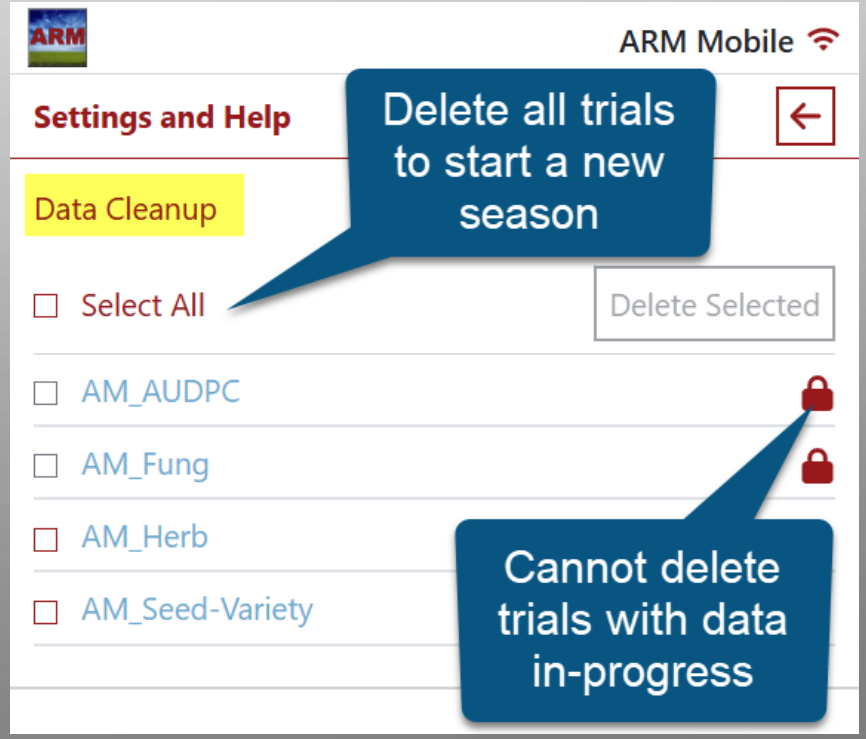
Data Cleanup

Select multiple trials to delete from device at one time

Perfect for starting a new season or research project, instead of removing them one-by-one

Trials with any in-progress data cannot be removed

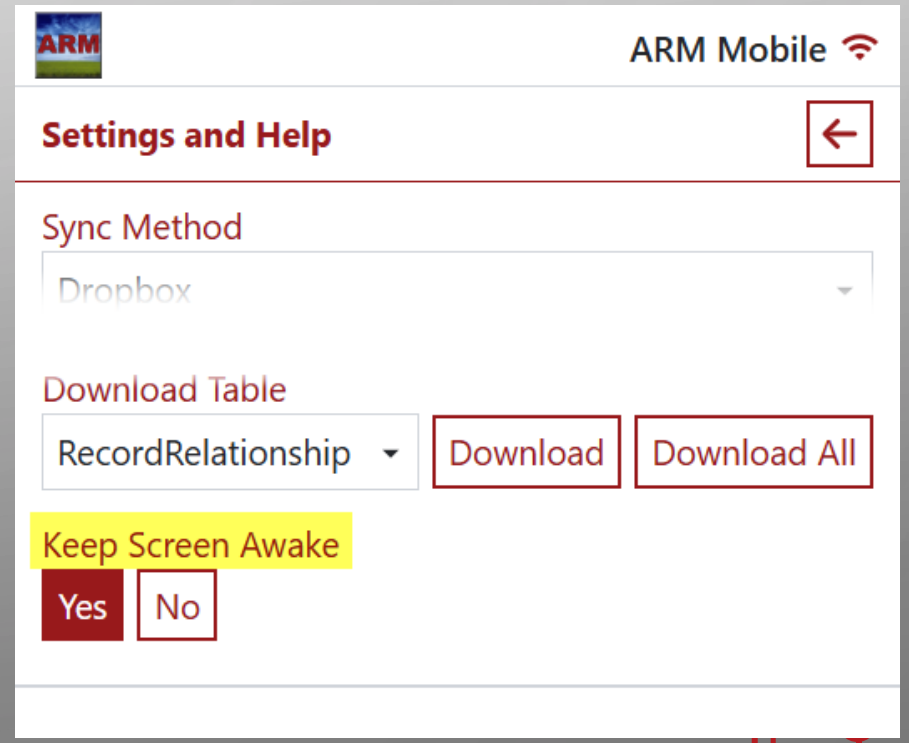
Found under “Settings and Help” menu



Keep Screen Awake

Prevent screen from turning off while taking notes in ARM Mobile

Overrides device screen timeout so screen does not lock while taking a longer assessment



Note: on iOS this option does not save across sessions, so must be turned on each time