Gylling Data Management, Inc.

Providing Research Software Solutions Since 1982!

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Staying Current Newsletter
Tips to keep in the Top Quartile

Newsletter

Thank you for taking the time to read our newsletters. We continue to publish newsletters every quarter with current topics and tips. Previous versions are at: http://gdmdata.com/Resources/Newsletters.

Please contact us at GDM.ARM.Support@gdmdata.com with questions and suggestions.

Topics in this newsletter:

Is ARM compatible with Windows 10?

Microsoft release date for Windows 10 was July 29, 2015. GDM is currently evaluating how ARM software will perform with Windows 10. The following are conclusions from initial GDM testing:

New Computers:

- We **do recommend** a PC with Windows 10 when ordering a new computer.

Current Computers:

- For Tablet Data Collectors (TDC), we recommend **waiting** until the **end of this research season** before upgrading to Windows 10. This ensures no loss in functionality during the research season.
- For your primary ARM computer, if you decide to upgrade to Windows 10, we also recommend **waiting** until **end of this research season** to install Windows 10. Upgrading to a new operating system could result in unforeseen upgrade or compatibility issues with ARM or other important software.

During the next months we will test installing Windows 10 on Windows 7 and 8.1 computers in our office, and update these recommendations with our findings.

Storing your Tablet Data Collector during the winter months

When the research season comes to a close here are steps to "winterize" your TDC hardware. Follow these steps below if TDC will not be used very often during the offseason. The hardware's expected life can be diminished if proper precautions are not taken to properly store the unit.

- Run the Windows Defender full scan (see: http://windows.microsoft.com/en-us/windows/using-defender#1TC=windows-8), to scan all areas of your computer for malware.
  - Swipe from the right to display Charms, select Search, and enter 'defender'.
  - Select 'Full' under Scan options and click 'Scan now' button. This may take 1-2 hours.
- Charge the unit to between 40-50% and then unplug from the charger.
  - "This minimizes age-related capacity loss while keeping the battery operational and allowing for some self-discharge." – Battery University (located here: http://batteryuniversity.com/learn/article/how_to_store_batteries).
- Perform a full power off of the unit (as opposed to the hibernation-like Shut Down of Windows 8), to limit self-discharge that occurs over time.
  - Swipe from the right to display Charms, then select Settings – Change PC Settings.
  - Select Update & Recovery – Recovery – Advanced Startup – Restart Now button.
  - Once Advanced Startup menu appears, select 'Turn off your PC'.
- Store the unit in a cool place; 15°C (60°F) is optimal.
  - Storage temperatures above room temperature speed up permanent battery capacity loss.
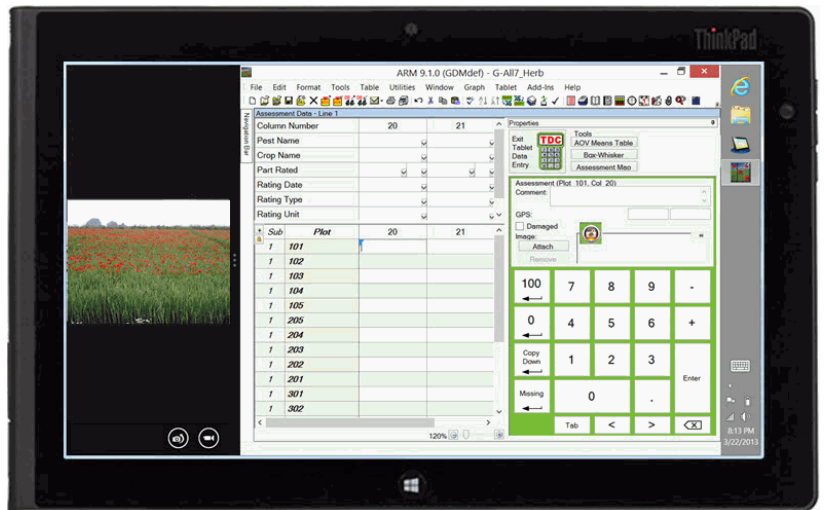
Your tablet will benefit if every 4 weeks the unit is turned on and charged back to the 40-50% range. Run Windows updates or browse the internet for a few minutes, to keep the unit active. This helps ensure the tablet is ready for data collection when the next field season begins.

How do I set the number of decimals for summary means in Summary reports?

By default, ARM reports one more decimal accuracy on means than the most precise data point entered in a data column. For example, if the data points of 36, 45 and 98.02 are entered in a data column, ARM reports three decimals of accuracy on the means.

There are two methods to control or to set the number of decimals accuracy. Method 1 is recommended.

Method 1:

Enter the number of decimals of accuracy in the **Number of Decimals** plot data header for each data column.

If you cannot see a 'Number of Decimals' field on the plot data header, then check whether this field is hidden in the current Assessment Data View. Select Tools - Options then Assessment Data View, and be sure that 'Visible' is checked for the 'Number of Decimals' field.

Assessment Data - Line 34			
Column Number	4 (Calculated)	5	6 (Calculated)
Pest Code	SEPTTR	SEPTTR	SEPTTR
Pest Scientific Name	Mycosphaerella	Mycosphaerella	Mycosphaerella
Plant-Eval Interval	210 DP-1	246 DP-1	246 DP-1
ARM Action Codes	TAB[3]		TAB[5]
Number of Decimals	2	1	3

| ✦	Sub	Rep	Blk	Col	Plot ▲	Trt	4 (Calculated)	5	6 (Calculated)
	1	1	1	1	101	3	54.00	0.8	83.001
	1	1	1	2	102	1	0.00	7.7	0.000
	1	1	1	3	103	4	72.00	1.1	90.571
	1	1	1	4	104	2	74.00	1.2	75.830

Method 2:

The second method is the easiest method is to use the 'Force Number of Decimals Accuracy to' option on the General Report Summary Options window.

Caution: Forcing number of decimals to 0 or 1 in General Summary Report Options is **very likely** to hide important differences for small treatment means, such as yield values less than 25.

Here are the steps:

1. Select File - Print Reports.
2. Select one of the 'Summary' reports from the Available Reports window on the left.
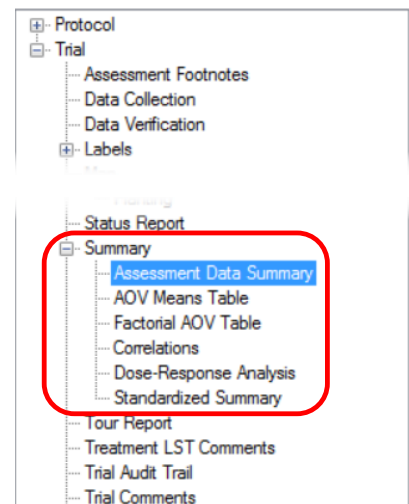
3. Click on the 'General Summary' tab (for some reports, it may be the 'Report Options' tab), then type in the number of decimal accuracy to use.
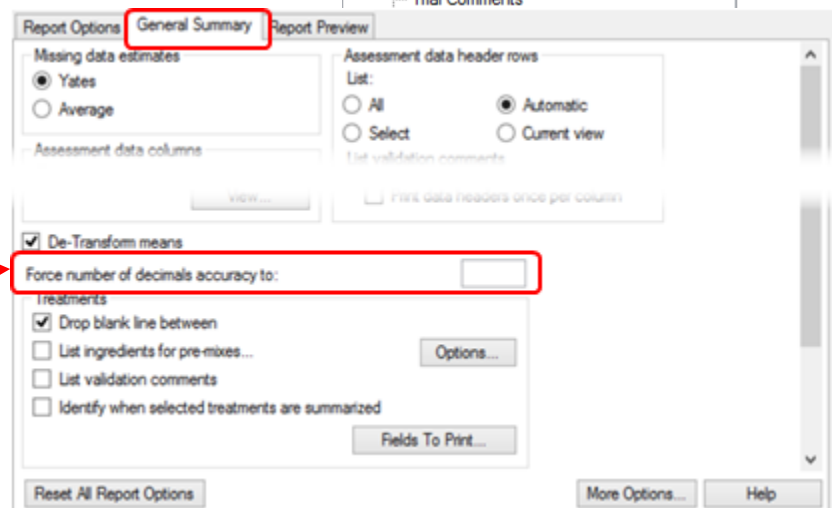
Why do all treatment means have 'a' as the mean comparison letter?

While there may be considerable differences between treatment means, it is possible that the AOV Means Table report lists 'a' as the mean comparison letter for all treatments in a particular column. This can occur when running a 'protected' mean comparison test, which is a statistically-recommended practice. A 'protected' mean comparison test does not perform mean comparisons unless the analysis indicates there are significant differences between treatments.

Select 'Only when significant AOV Treatment P(F)' checkbox on the AOV Means Table Report

- Enables the 'protected' mean comparisons.
- If the AOV test statistic F is not significant at the defined alpha level, ARM will not perform mean comparisons.

- ARM displays the mean comparison symbol defined in the 'Symbol indicating no significant difference between treatment means'. If this option is blank, ARM displays 'a' beside all treatment means

Symbol is left blank, so 'a' prints when no significant difference is detected.

Symbol '-' indicates there are no significant differences between treatment means

What should I do if my data does not meet the assumptions of AOV?

There are several assumptions that the AOV analysis makes about the data in order to draw conclusions. The two assumptions that ARM tests for are:

➢ Normality
➢ Homogeneity of variances

If these assumptions are not met, the resulting analysis **may be completely invalid**.

There are a few things that the researcher can try in order to 'correct' the data to fit the assumptions of AOV. It should be stressed that these techniques are **not fudging** the data, but rather **applying statistically-sound, industry-standard processes** that help identify actual treatment differences which can be hidden for data that does not meet assumptions. One result can be a mean comparison test that fails to separate the actual treatment differences. With ARM, these techniques can be automatically suggested using the option 'Apply automatic transformations or treatment exclusions …' on the General Summary Report Options.

1. **Apply** automatic transformation - ARM can apply one of the following automatic data correction transformations:

   In Assessment data, 'ARM Action Codes' field:

   a. **Square root (AS)** - often used with 'count' rating types (e.g. # of insects per plant).
   b. **Arcsine square root percent (AA)** - used with counts taken as percentages/proportions.
   c. **Log (AL)** - can only be used for non-negative numbers.

   The purpose of applying a transformation is to correct data so it fits the assumptions of AOV - a transformation often fixes non-normality and/or non-homogeneity of variances by reducing the scale of the data.

Since the transformed data and resulting means will be on a different scale, use the '**De-transform means**' option on the **General Summary report options** to de-transform the means into the original units. Note that this does not affect any results, but rather converts the displayed means into the original units to make the report easier to understand.

2. **Exclude Treatments** - ARM can exclude a treatment from the analysis, most often to fix non-homogeneity of variances. Although this may always be desirable, because all treatments are included in the study for a reason, this option basically makes the best of a tough situation. If something isn't done to meet the assumptions of AOV, it is possible an **entire** study cannot be evaluated using AOV.
In Assessment Data, 'ARM Action Code' field:

Use '**ETn**' Action Code, where '**n**' equals the treatment number to be excluded from analysis.

In the example on the right, treatment 2 will be excluded from analysis of AOV.

Additionally, ARM can apply the **EC** action code to exclude the check treatment. **EC** is often used for data where the untreated check plots are counts of weeds, while the other plots are a '% control' type of rating (thus a different rating type). Also, when comparing performance of different crop protection products, frequently analyzing the check is not necessary or beneficial.

3. **Exclude Replicates** - ARM can exclude a replicate from the analysis as well in order to meet the assumptions. Again, this is not always beneficial, but in certain cases is necessary in order to perform an appropriate analysis.
In Assessment Data, 'ARM Action Code' field:

Use '**ERn**' Action Code, where '**n**' equals the replicate to be excluded from analysis.

In the example on the right, replicate 3 will be excluded from analysis of AOV.

If none of the above correction techniques are able to fix non-normality and/or non-homogeneity of variances, the AOV analysis is less precise. Further statistical analysis will need to be performed in order to draw conclusions from the data.

Meeting Calendar

GDM will be at the following meetings in the next few months. Visit our website for all the current information: http://gdmdata.com/Resources/Meeting%20Calendar.

Asia Pacific Weed Science Society (APWSS) October 13-16, 2015, in Hyderad, India.

- ARM Training Monday, October 12, 2015
  - o Requires registration through the meeting website.

GDM ARM Training Workshop Wednesday, October 21, 2015, in Milan, Italy

- Contact François Mercken (http://www.gdmdata.com/About%20Us/Representatives/Demeter%20Data%20Management%20s.p.r.l/) for information.

GDM ARM Training Workshop Thursday, October 23, 2015, in Slagelse, Denmark

- Contact Andrew Norton (http://www.gdmdata.com/About%20Us/Representatives/PDM%20Associates/) for information.

American Society of Agronomy (ASA), Crop Science Society of America (CSSA), Soil Science Society of America (SSSA), and **Entomological Society of America (ESA)** November 15-18, 2015, in Minneapolis, Minnesota, Booth #1020.

- GDM ARM Software Workshop, Sunday, November 15, 2015 from 1:00PM - 3:30PM, Hyatt Regency Minneapolis, Room Greenway A.
  - o Please register for free workshop on our website (http://gdmdata.com/registration/4/step/0/).
- Data Preservations Through Structured Research Data Management, Wednesday, November 18, 3:00PM - 4:00PM, in the Demonstration Theater.

Northeastern Plant, Pest, and Soils Conference (NEPPSC), January 3-7, 2016, in Philadelphia, Pennsylvania, Sheraton Society Hill

- Introduction to ARM Workshop, Sunday, January 3, 1:00PM - 5:00PM
  - o Includes general overview of ARM menu choices, creating and using protocols, creating a trial from a protocol, and editing trials.
  - o Requires registration through the meeting website.
- Advanced ARM Workshop, Monday, January 4, 8:00AM - 12:00PM
  - o Includes using statistical power to plan protocols, using randomization quality to improve trial precision, assessment review tools, and statistical analysis and reporting.
  - o Requires registration through the meeting website.

**National Alliance of Independent Crop Consultants (NAICC)** January 26-30, 2016, in Orlando, Florida.

- GDM ARM Training: Getting Started with ARM, Tuesday, January 26, 2016 from 8:00AM - 5:00PM.
  - o Please register for free workshop on our website (http://gdmdata.com/registration/5/step/0/).
- 17th Annual ARM Tips and Techniques Workshop Wednesday, January 27 from 8:00AM - 12:00PM
  - o Please register for free workshop on our website (http://gdmdata.com/registration/5/step/0/).

Weed Science Society of America (WSSA), Southern Weed Science Society (SWSS) February 8-11, 2016, in San Juan, Puerto Rico.

Use 'Send To' for exchanging data

This topic is repeated from the June newsletter as a reminder of the best way to provide ARM trial results to a sponsor. 'Sent To' ensures that the sponsor receives all trial attachments, and the trial is provided in the sponsor's preferred trial format.

Cooperator: Use Send To – External Sponsor/Cooperator… to send data to Sponsor.
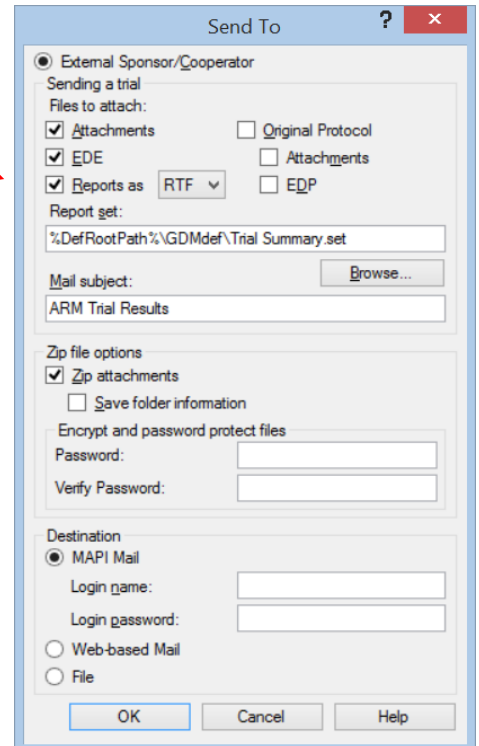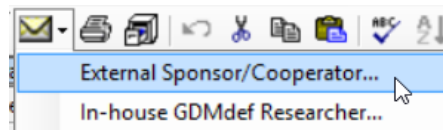
➢ Ensures that the study is valid and required fields are completed.

➢ Creates an email to send **Sponsor** with files attached.

➢ **Sponsor** saves all files to their computer.

➢ ARM 'knows' to send **both ARM 9** and **ARM 2015** study versions, plus include attachments such as pictures and additional files.

Did you know?

Use 'View Options' to sort Assessment Data columns

If a study has many ratings (assessment data columns) you may want to sort the columns temporarily to make data review easier. Below is an example of how to do this.

1. In ARM study, Assessment Data, click on 'View Options' button in 'Properties' panel (located along right side of screen).
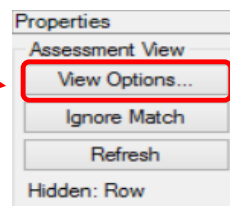
2. Type the number '1' in 'Rating Type' sort column, then the number '2' in 'Rating Date' sort column. This will sort data columns first by the Rating Type, then by Rating Date.

3. Optionally, check the 'Display sort as tabs' box to display each different sort group as separate tabs on the assessment data editor.

4. Click 'OK' to view sort in Assessment Data.

Note tabs along bottom for each 'Rating Type'. Columns on a tab are subsequently ordered by 'Rating Date'.

How do I print Assessment data columns in a specific order?

If you have used the 'View Options' in Assessment data to sort your data, you can easily 'Print Reports' using the same order previously defined. Below are the steps.

1. In ARM Study, select File - Print Reports. Then select a 'Summary' report, such as 'AOV Means Table' from the 'Available Reports'.
2. Click the 'General Summary' tab and select the 'Current view' button from the 'Assessment data columns' area.

   This will arrange the printed report in the same order as in the current view.

An alternate option to print Assessment data columns in a specific order is to select columns manually. Below are the steps.

1. In ARM Study, select File - Print Reports. Then select a 'Summary' report, such as 'AOV Means Table' from the 'Available Reports'.
2. Click the 'General Summary' tab and click the 'Select' button from the 'Assessment data columns' area.

3. ARM will then prompt which data columns to print. Select columns by clicking on the heading of each column to select, or by typing the data column number. An example column order is: 11, 13, 9.

'Check for Updates' to keep current

Run the 'Check for Updates' (**Help - Check for Updates**) often to keep ARM on the current supported version. All issue fixes and enhancements are distributed via 'Check for Updates'.

Please visit our website for the latest information on updates made to ARM 2015 here:

http://gdmdata.com/media/documents/ARM_Change_Log.txt. Check back often for more updates.
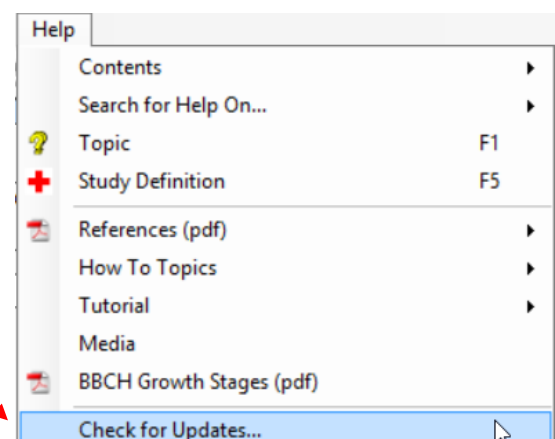
➢ Click **Help – Check for Updates** often to make sure ARM is the most recent version.

Questions or need help?

The most efficient way to receive ARM support is to use 'Request ARM Support' feature under Help.

1. Click Help - Request ARM Support.

2. Select a purpose, then click **Next**.

3. Check boxes to include current ARM study and report set option, then click **Finish.**

4. ARM will prepare an email with Zip file attached.

5. **Write** an informative sentence or two about the **issue** you are having, what you expected to see, what you see and the steps you used to create.

6. Send the email.

7. Our support staff will get back to you with follow-up questions if necessary to answer your issue.
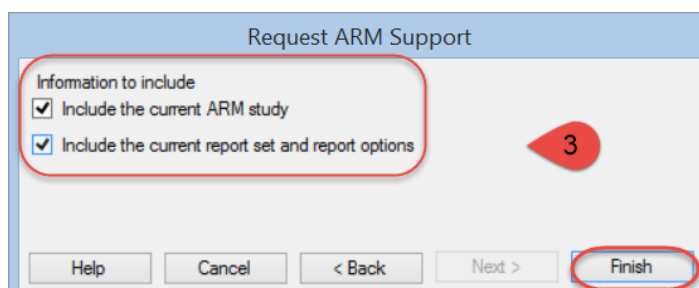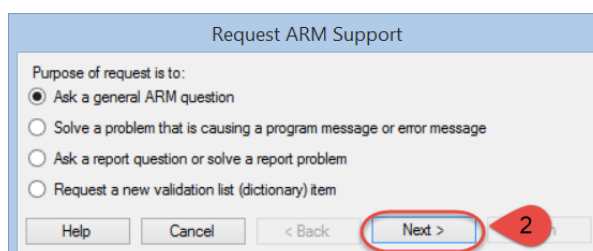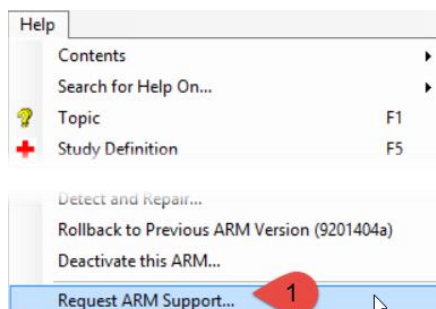
ARM 9 Limited Support

- Beginning January 1, 2016, ARM 9 licenses will not be reassigned except during upgrade to ARM 2016.
- ARM 9 support will end December 31, 2016.
- No new features are being added to ARM 9.
- Discounts to upgrade ARM 9 to ARM 2015/2016 end February 29, 2016.

View the currently supported software versions and products policy at:
http://gdmdata.com/Support/Supported%20Products/.

- ➢ Use the 'Write To Us' link to request a current price list for ARM 2015.
- ➢ View Frequently Asked Questions (FAQs) about ARM version 2015 and newer on our website.
- ➢ The ARM 2015 Overview explains many of the new features in ARM 2015.
- ➢ The Feature Comparison chart illustrates the differences between ARM 2015+ and older versions.