ARM Quick Reference

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Introduction

This document describes various tricks and shortcuts for improving efficiency when using ARM.

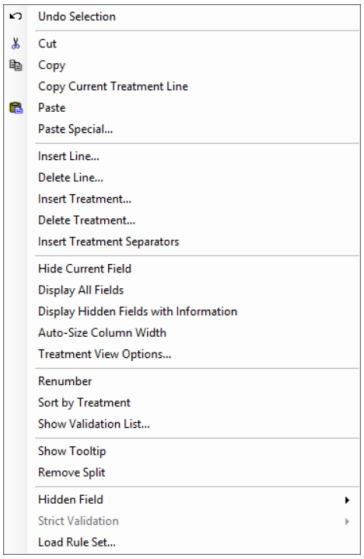
Terminology

Study is used for information that applies to both a protocol and a trial.
Protocol is a plan for a trial. It does not contain a randomization or space for assessment data. Protocols are stored with a file extension that begins with ".prt", such as .prt9.
Trial is the realization of a protocol. It has a treatment randomization, trial map, and space to enter assessments and location details. Trials are stored with a file extension that begins with ".dat".
Study definition is an ARM "template" that defines structure of protocols and trials. For example, G-All7 is a typical template used for most protocols and trials. However, some large corporate manufacturers who began using ARM before the year 2000 have customized study definitions that have a different name.

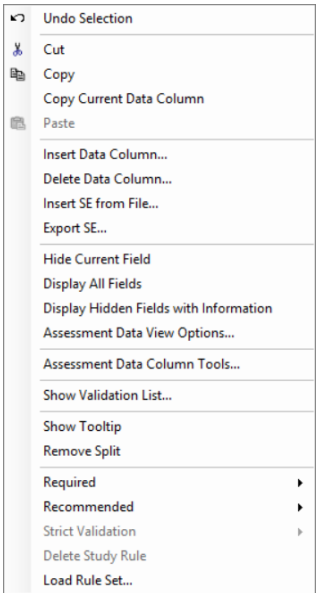
Right Click Menu

The quickest way to find what choices are available is to use the right mouse button. Right click on an editor or field to display the list of available choices. Each editor will have the choices available for their screen.

Treatment Editor



Assessment Data Editor



ARM Required File Extensions

.dat0	ARM 2015 or newer Trial
.dat9	ARM 9 Trial
.dat8	ARM 8 Trial
.dat	ARM 7 or older Trial
.pdv	Plot Data View
.set	Report Set
.dcf	Data Collector File

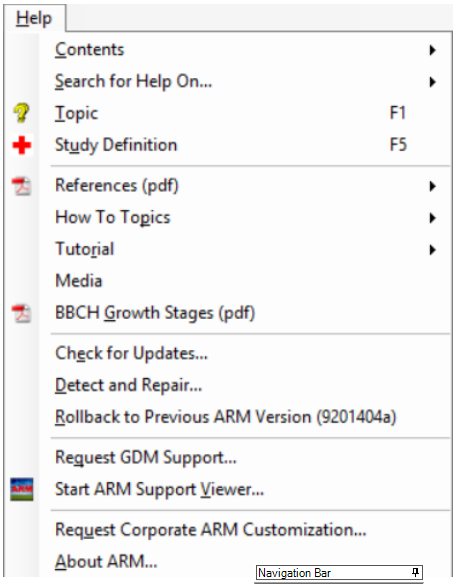
.prt0	ARM 2015 or newer Protocol
.prt9	ARM 9 Protocol
.prt8	ARM 8 Protocol
.prt	ARM 7 or older Protocol
.ede	NACA Electronic Data Exchange
.fld	Field Description
.se	Standard Evaluation (customized .def)

'GDM Recommends' Symbol

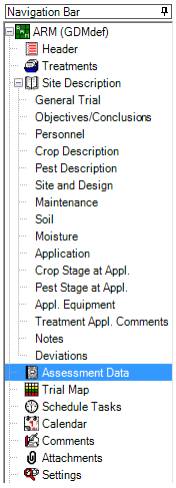
This symbol is included in ARM documentation on options and procedures that GDM highly recommends. There are cases where GDM feels strongly about using a particular option over a different option, depending on the circumstances. The documentation will provide a detailed description of why the option or procedure is preferred, while still providing information about all available options.

Getting Started

General Overview of ARM Menu Choices

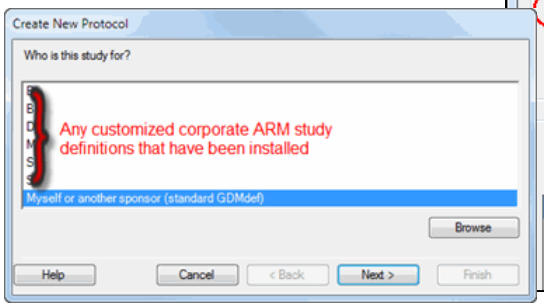


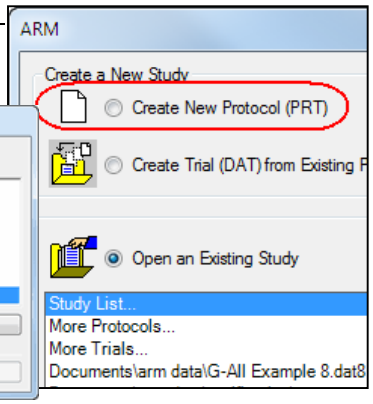
1. **Help**:
   a. F1, any Help button, or displays help on current ARM screen.
   b. F5 or on a study editor displays help about current data entry field.
   c. ARM Quick Reference card is very useful; print it as a convenient reference!
   d. Use Tutorial for an introduction and overview of ARM, and How To Topics for information on typical ARM tasks.
2. **File**: most File commands are available on the toolbar, which is faster to use:
3. **Edit**: Undo and block commands are available on toolbar: Click right mouse button (right-click) on study editors for common edit commands.
4. **Format** and **Table** are for editing "rich text" in Trial Comments and Site or Protocol Description.
5. **Tools**: several Tools commands are on toolbar: Right-click menu on study editor for available Tools.
6. **Utilities**: Migrate Studies and Settings to New Computer, Install License, Rebuild Study List, and Conversion Calculator are the most used commands.
7. **Window**: Split command. Study editors are on toolbar: and Navigation bar:



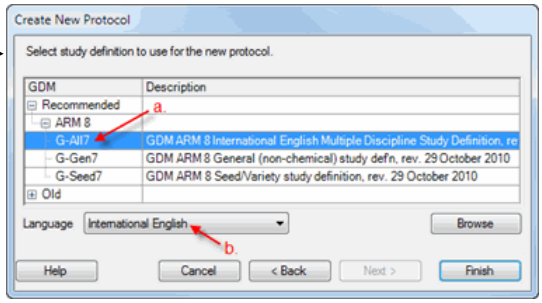
Creating and Using Protocols

1. Create protocol by selecting New Protocol icon on toolbar , File - Create Protocol, or from "Startup Wizard."
   a. Define who study is for:
   Any customized corporate ARM study definitions installed on your PC are listed on the upper portion of dialog. Note that the ARM install does not include customized study definitions. These are provided with a special installation program at request of a research sponsor.





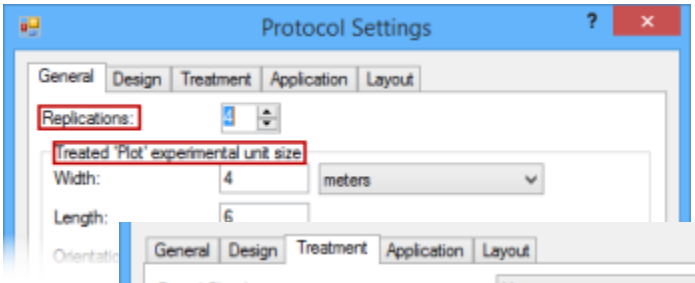
b. "Who is the study for?" selection determines which study definition(s) are listed on the next dialog: →

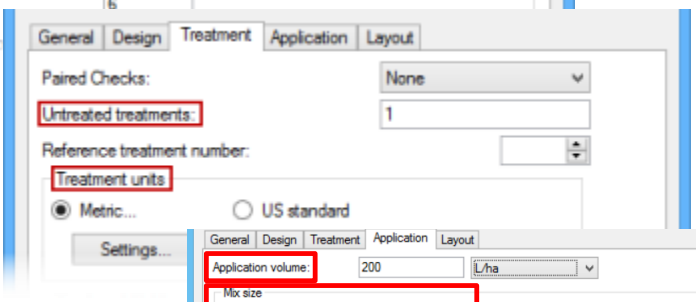


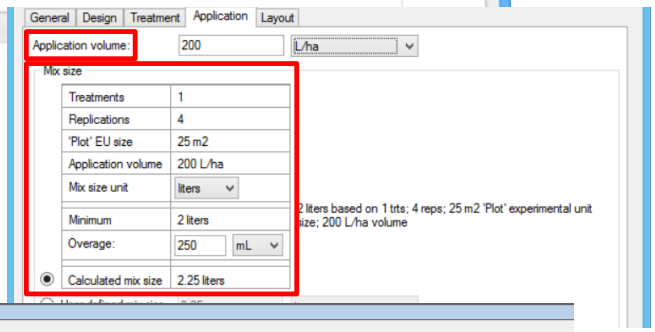
i. a=Definition: Listed are choices for "Myself or another sponsor (standard GDMdef)" company. The recommended study definition is highlighted by default, such as "G-All7" in the example above.

ii. b=Language: If the default study definition language is not appropriate, then select a different definition language by clicking the down arrow on the language drop-down.

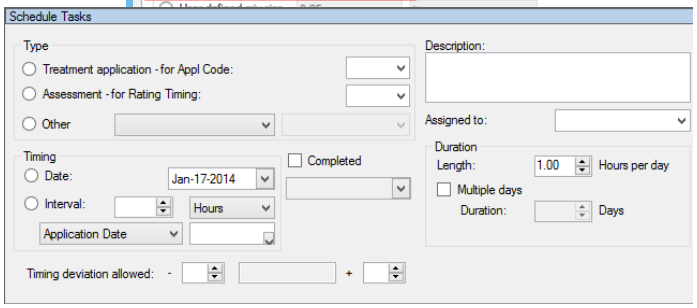
c. After selecting “Finish” button, then define appropriate Protocol Settings on the New Protocol dialog.





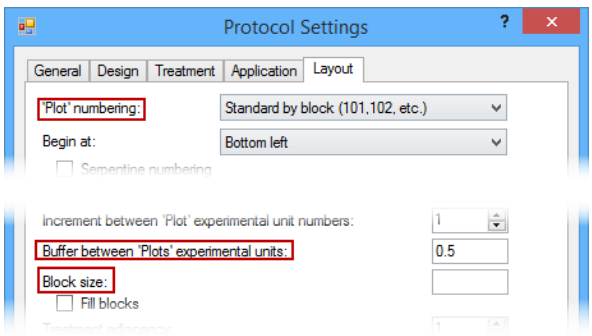


2. Review of Settings dialog tabs.
   a. General: Replications, Plot size (used for product calculations and some rate conversions)
   b. Design: Select proper design for study, and plan appropriate replicates to achieve desired precision.
   c. Treatment: Untreated treatments, specify treatment units.
   d. Application: Application volume and calculate appropriate mix size for liquid applications.
3. Entering header, overview of how to move between various data entry fields
4. Entering treatments, description of various data entry fields, copy/paste, keyboard shortcuts
5. Entering tasks:
   a. Type each task “from scratch”
   b. Copy/paste existing tasks from another study
   c. Tools - Merge - from ARM Study to merge tasks from another protocol



Creating a Trial from a Protocol

1. Begin by selecting the Create Trial wizard from toolbar  , File - Create Trial, or from “Startup Wizard”.
2. Modify a proposed randomization on Trial Map.
   a. Select Settings button to change:
      i. General: number of replications, plot size.
      ii. Layout: change numbering and position of plots, buffer between plots.
      Tips: Set “Block size” smaller than number of treatments to split replicates into smaller blocks. Set “Block size” larger then number of treatments with “Fill blocks” to get more than one replicate into the same block giving “side by side” replicates.



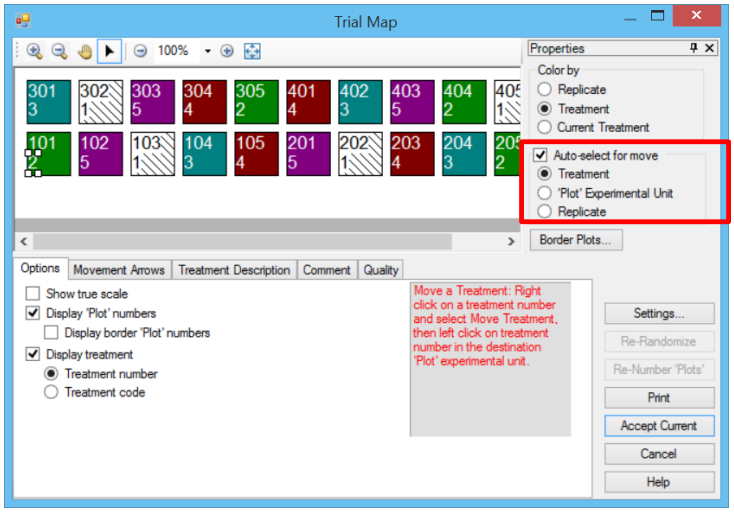
iii. Design: change experiment design, which may influence number of treatments or how treatment information must be entered!

b. Use Auto-Select option to drag and drop treatments, plots, and replicates.

c. “Color by” options control how trial map is colored: by Replicate, Treatment, or Factor (for multi-factor experiment designs).

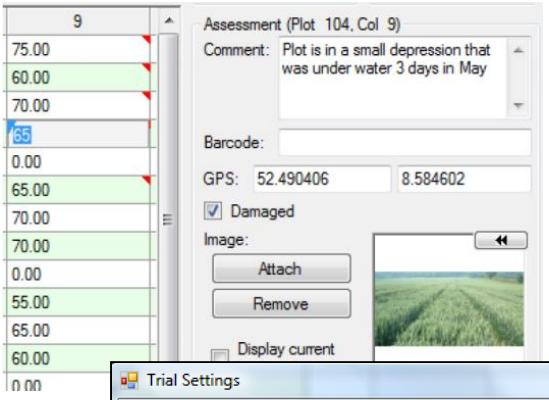
d. Right click to insert multiple columns or rows in a trial map to define a blank space to move multi-plot units (replicate or factor).

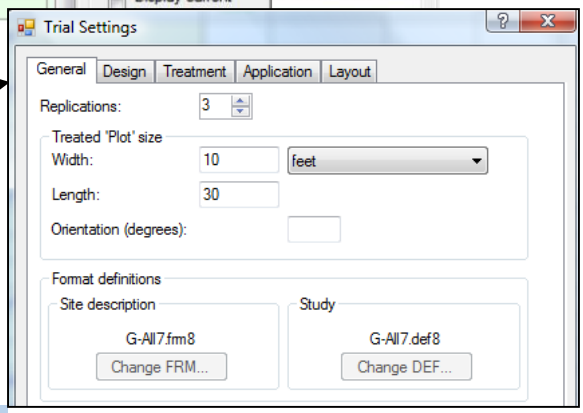
3. Name and save the new trial

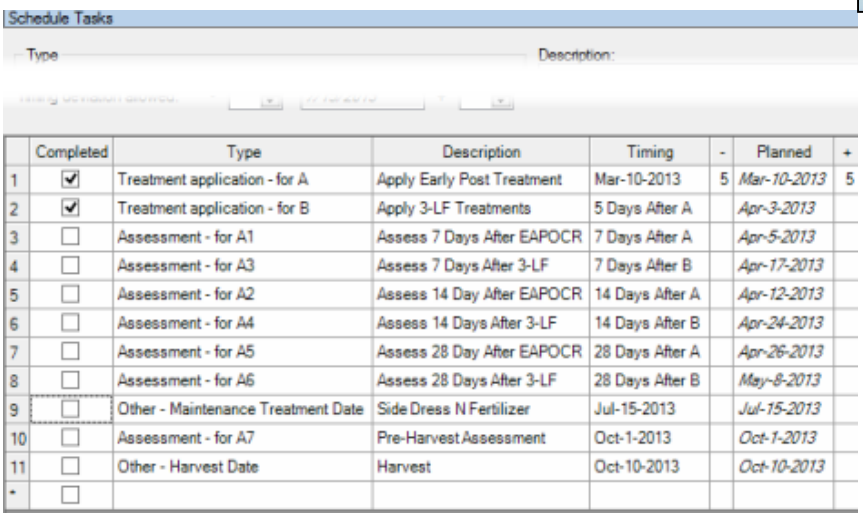


Editing Trials

1. Printing trial establishment reports
   a. Trial map
   b. Spray/seeding plan report and options
   c. Data collection and verification reports
2. Entering assessment data
   a. Copy/paste shortcuts
   b. Copying data from spreadsheet
   c. Special plot data tools
3. Entering site description information
   a. Copy/paste shortcuts
   b. Tools - Merge - from ARM Study
4. Changing settings that influence the trial
5. Use attachments to manage linked trial information
6. Use tasks to manage work calendars





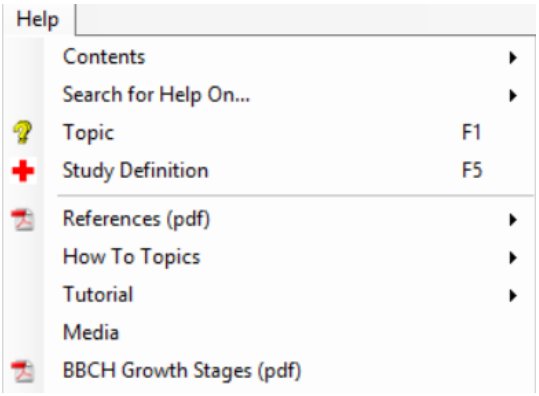


	Completed	Type	Description	Timing	-	Planned	+
1	☑	Treatment application - for A	Apply Early Post Treatment	Mar-10-2013	5	Mar-10-2013	5
2	☑	Treatment application - for B	Apply 3-LF Treatments	5 Days After A		Apr-3-2013	
3	☐	Assessment - for A1	Assess 7 Days After EAPOCR	7 Days After A		Apr-5-2013	
4	☐	Assessment - for A3	Assess 7 Days After 3-LF	7 Days After B		Apr-17-2013	
5	☐	Assessment - for A2	Assess 14 Day After EAPOCR	14 Days After A		Apr-12-2013	
6	☐	Assessment - for A4	Assess 14 Days After 3-LF	14 Days After B		Apr-24-2013	
7	☐	Assessment - for A5	Assess 28 Day After EAPOCR	28 Days After A		Apr-26-2013	
8	☐	Assessment - for A6	Assess 28 Days After 3-LF	28 Days After B		May-8-2013	
9	☐	Other - Maintenance Treatment Date	Side Dress N Fertilizer	Jul-15-2013		Jul-15-2013	
10	☐	Assessment - for A7	Pre-Harvest Assessment	Oct-1-2013		Oct-1-2013	
11	☐	Other - Harvest Date	Harvest	Oct-10-2013		Oct-10-2013	
*	☐						

Resources

ARM Help

Select Help on the toolbar then choose the following.

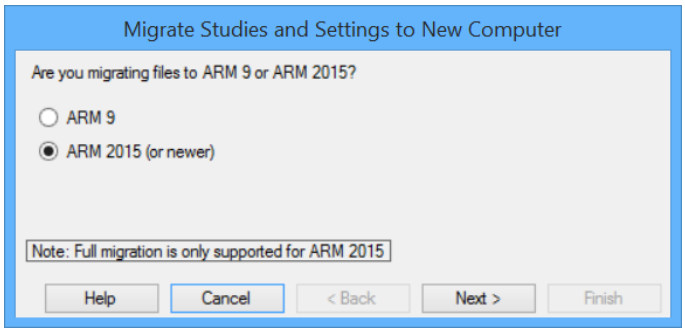


- **Contents** – Display all topics in the ARM help system.
- **Search for Help On** – Enter text to search all Help topics for. For example, type “Excel” to find all topics mentioning Excel spreadsheets.
- **Topic** – Display help for the current topic (F1).
- **Study Definition** – Display any study definition help for the current study editor (F5).
- **References** (pdf) – Display several ARM Reference documents in pdf form on various subjects.
- **How To Topics** – Descriptions of how to perform many tasks within ARM.
- **Tutorial** – PowerPoint overview of general features in ARM.
- **BBCH Growth Stages** (pdf) – Display a description of BBCH growth stages for various crops, as appropriate for the current ARM program language.

Utilities

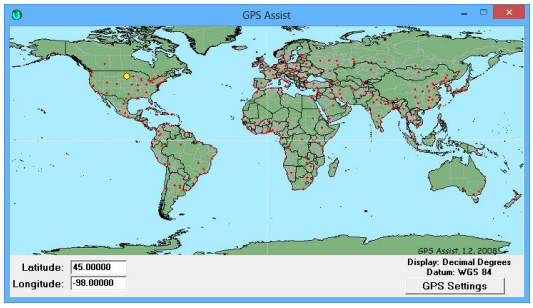
ARM includes resources helpful for your project. Select **Utilities** on the toolbar then choose the following.

Migrate Studies and Settings to New Computer



Migrate Studies and Settings to New Computer is a wizard to migrate all ARM associated studies and files to a new computer.
Note: Full migration is only support for ARM 2015 and newer

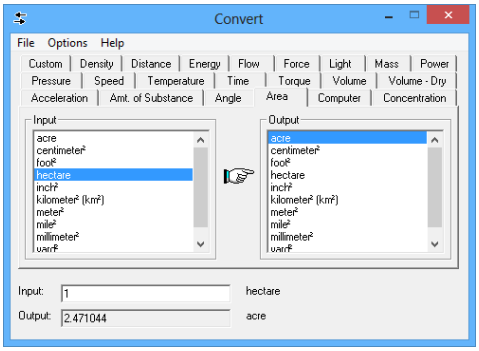
GPS Helper



GPS Assist is a tool to help find approximate Latitude and Longitude locations.

Note: Any changes made in this dialog are not returned to ARM.

Conversion Calculator



Convert is a tool to assist with unit conversion calculations.

Select an input unit and magnitude, then select desired output unit.

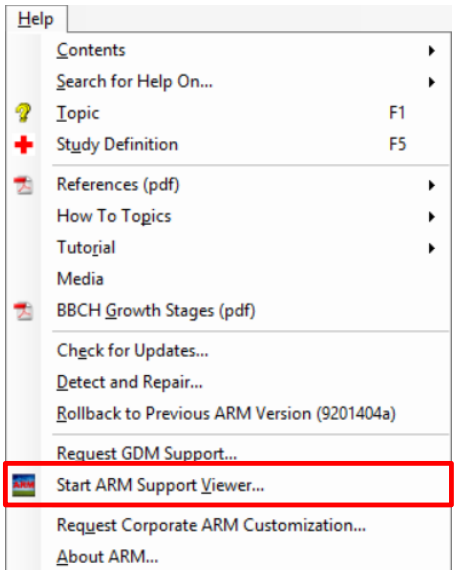
Note: Any changes made in this dialog are not returned to ARM.

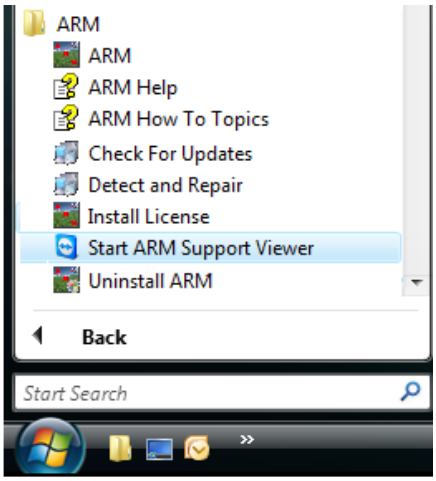
ARM Support Viewer

A licensed, customized version of the TeamViewer "Quick Support" program allows GDM support staff to connect to and troubleshoot a user's computer. Using the ARM Support viewer:

- Does not install any new software on your computer.
- Temporarily hides the Windows desktop background so only current programs are visible.
- Shares the entire computer desktop. Please close email or confidential material before connecting.

Connecting to GDM





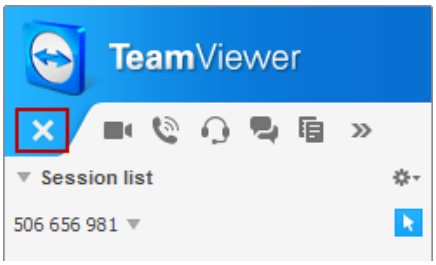
In ARM, select Help – "Start ARM Support Viewer…"

Or

In Windows, select Start – All Programs – ARM – "Start ARM Support Viewer"

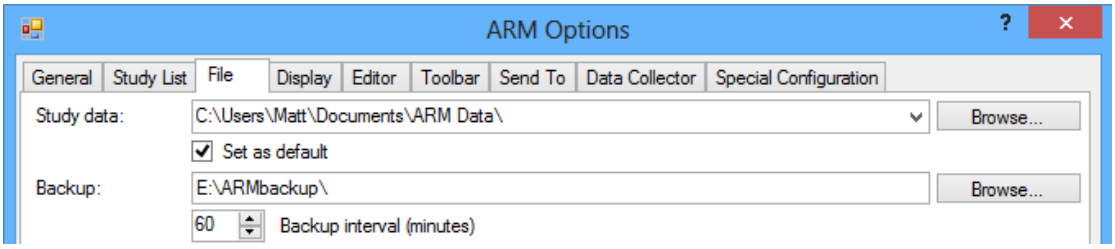
Support Viewer shares the entire computer desktop to allow for diagnosing issues that occur from other programs that are running.

1. Start ARM Support Viewer (see above).
2. Read the disclaimer and click the **Accept** button on **Disclaimer** screen to agree.
3. Read the **ID** and **Password** to the GDM support person.
4. The password is different every time Support Viewer starts, so it is impossible for GDM to see the screen until the password is read.
5. The session can be ended **at any time** by clicking the X in the TeamViewer screen.



Backing up Studies

ARM can store automatic backups and histories of studies whenever they are changed.



Select Tools – Options – File tab.

Define the path and interval that backups will occur.

Selecting a backup location

GDM Recommends

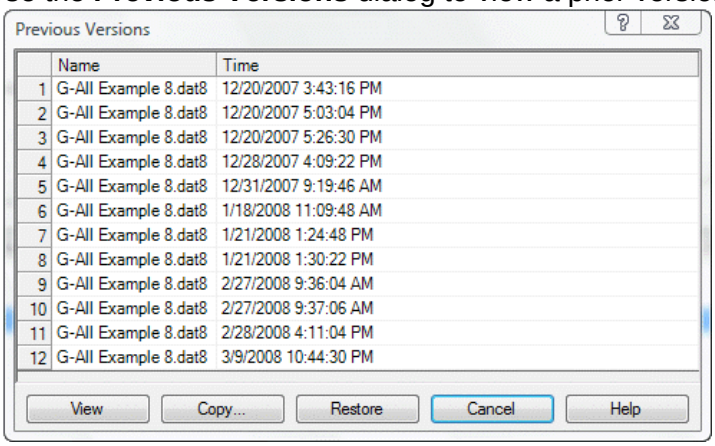
All drives eventually fail, even solid state drives such as flash drives, so always store backups on a completely separate device. A different partition of a hard drive is not a separate device; if the hard drive fails then all partitions are lost.

- If your studies are stored on a local hard drive, then use a different device, such as a flash drive or SD card as a backup device.
- If your studies are saved on a shared network drive, then either the C drive of your PC or another separate network drive can be used as a backup device.

Remember that just storing studies on a network drive does not provide the previous versions you can easily obtain by defining a backup device for ARM to use.

Restoring Previous Versions

Use the **Previous Versions** dialog to view a prior version of a file and restore or copy an archived study.



From the study list, right-click on a file and select **Previous Versions**.

Lists all previous versions of a study currently stored in the ARM backup folder.

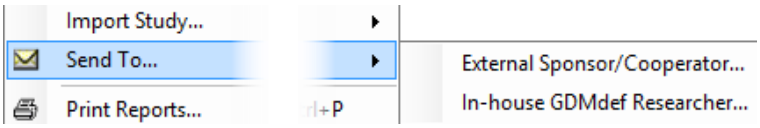
View
Open the selected archived study in separate ARM window as read-only.

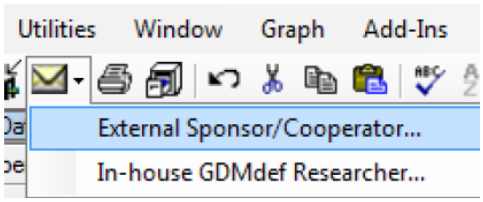
Copy
Copy the selected archived study to a different folder.

Restore
Overwrite the current version of the selected ARM study with the selected archived study file.

Emailing a Study Using "Send To"

The **Send To** command creates an email message containing the current study and related files.

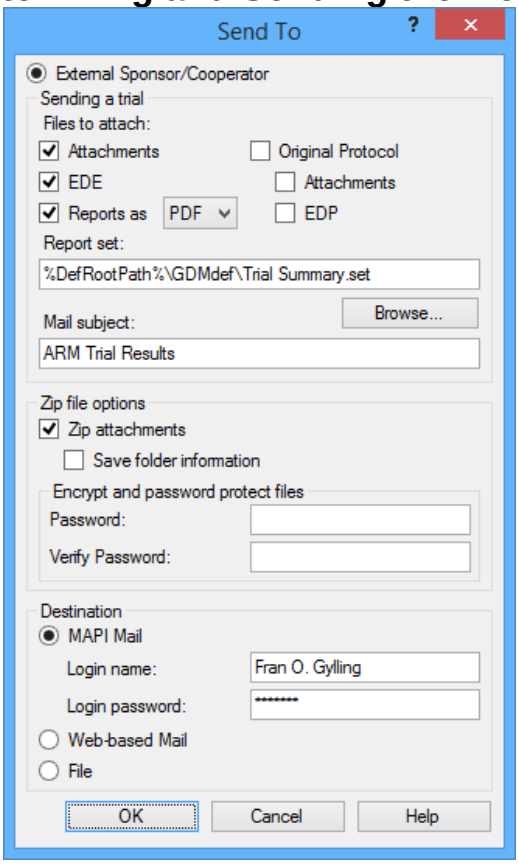




Select File - Send To, or select the envelope button on the toolbar. Then choose what type of person will receive the study:

- **External Cooperator** is someone who may be using different study definitions with their ARM program, or not using the latest ARM version.
- **In-House Researcher** is someone who is in the same company, or who is using the same ARM study definitions

Customizing and Sending the Message



GDM Recommends

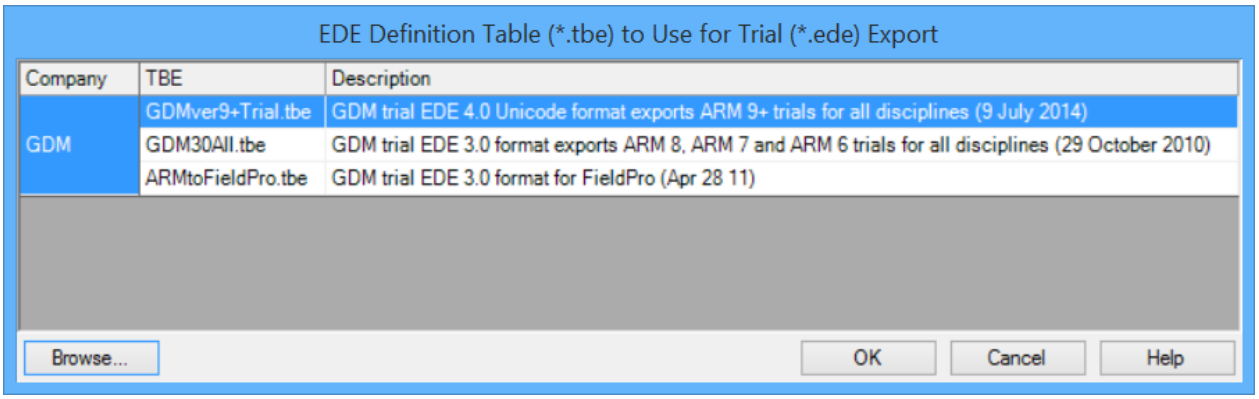
1. Recommended options:
   a. Include **Attachments**, **EDE**, and **Reports as PDF** using a summary report set such as “Trial Summary.set”
   b. When sending multiple attachments, like pictures, use the **Zip attachments** option.
2. If your email program is not running, then enter any login information needed to start Outlook, or select **Web-based Mail** to utilize email in a browser.
3. Click **OK**.
4. ARM validates the trial.
5. ARM exports the .ede in GDM30*.tbe format and prints any reports.
6. The ARM Message viewer displays any messages from actions that occur when creating the email (validation, exporting .ede, printing reports). Click **OK** to close the message dialog.
7. A new message containing the study will be created in the destination program/location.
8. Send the email after filling in the **To…** field, and any message contents.

Which .tbe to Choose when Creating .ede file?

When sending an .ede to someone using ARM, use the **GDM30All** format to ensure that all trial information is included in the .ede. (Use File - Export - EDE to begin exporting to .ede.)

- Use ARMtoFieldPro.tbe when sending trials to FieldPro software.

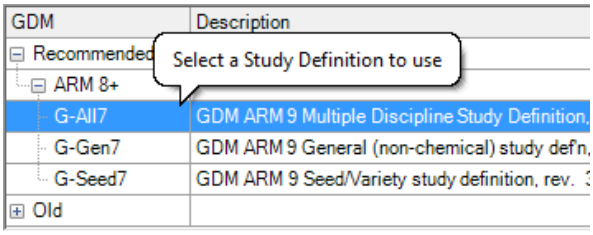
When sending an .ede to a non-ARM user, use the **Ede30*** or **Ede31*** format for transfers.



ARM Study Definitions

ARM includes updated study definition (templates) features and new data entry fields that are requested by our clients. All standard GDM study definitions used since 1990 are included with ARM, so ARM can open ARM and PRM protocols and trials.

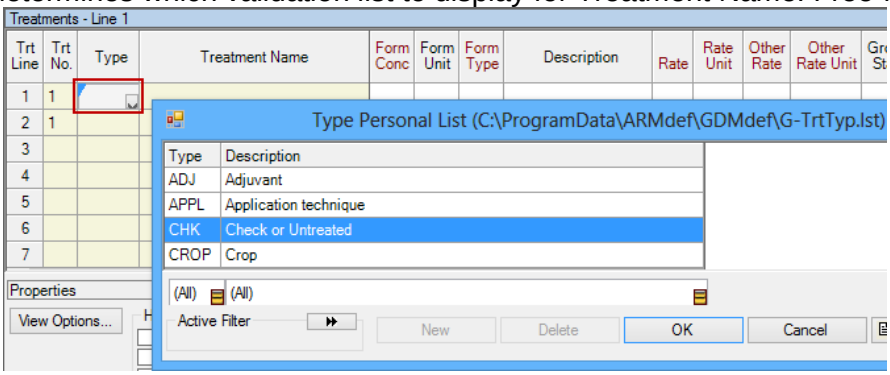
GDM Recommends/Supports G-All7, G-Gen7, and G-Seed7 Definitions



- The G-All7.def definition is a multi-discipline study definition. It uses full EPPO Bayer pest code lists, crop specific BBCH growth stage code lists, new data entry fields, and word processor formatting in many comment fields.
- EPPO/Bayer species codes and BBCH growth stage codes are in master database tables. The pest codes are separated by discipline to reduce validation list size.
- For many data entry fields there is a tool tip describing the information field. Click into a field and hold the mouse cursor over the field to show any tool tip.

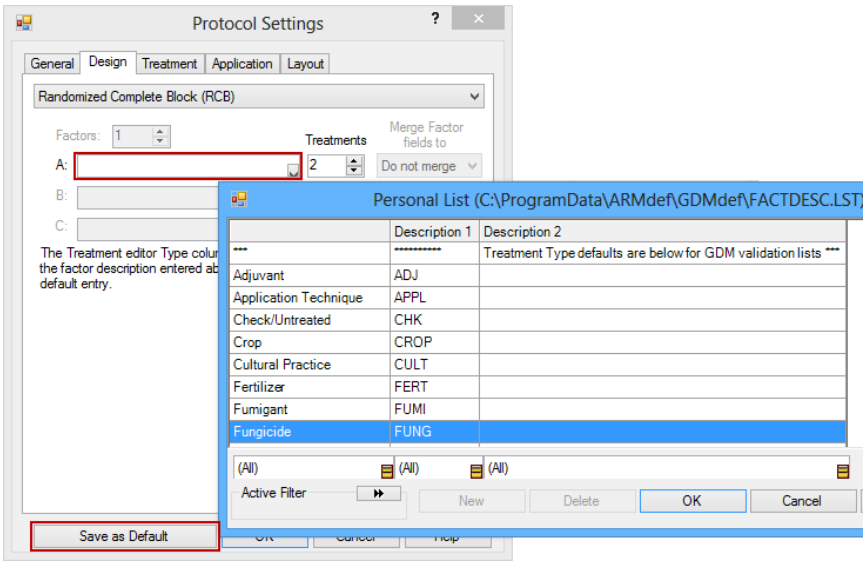
Treatment Editor—Treatment Type Field (G-All7)

In the Treatment Editor, the **Treatment Type** field defines the discipline, or category of product, that determines which validation list to display for Treatment Name. Free-form entries are not allowed.



To select a treatment type in the Treatments editor:

1. Place the cursor in the **Type** column.
2. Press F9 or the drop-down arrow and choose from the list.
3. Press OK to continue.



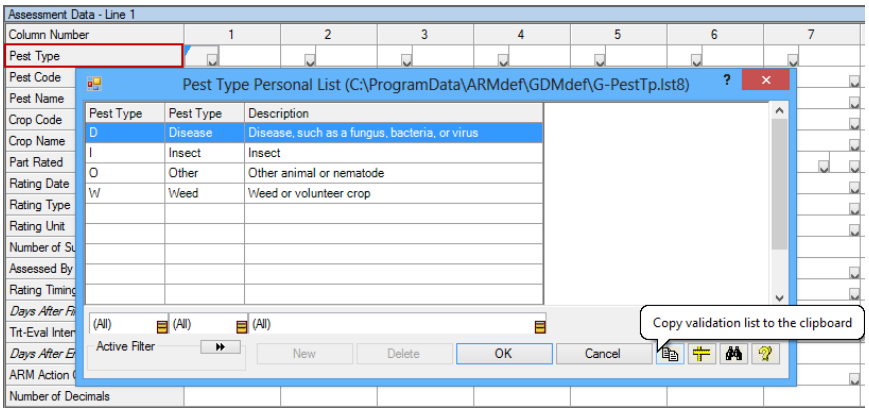
To define a default **Treatment Type** entry that ARM will enter in a new treatment line when creating a new protocol:

1. Select Window – Settings.
2. On the Design Tab, click in **Factor A** and press **F9** or drop-down arrow.
3. Select a category from the lower half of the list and press **OK**.
4. Press the **Save as Default** button to set the current settings as the default for new protocols.

Press **OK** to continue.

Assessment Data Editor – Pest Type (G-All7)

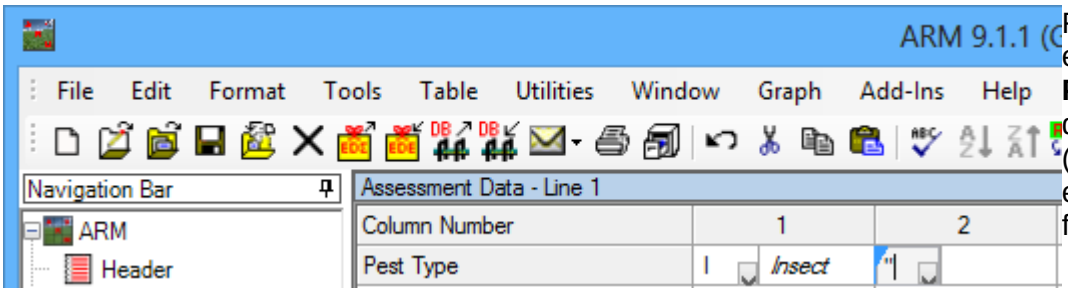
The **Pest Type** field identifies which validation list for **Pest Name** and **Pest Code** is used.



Press **F9** or press down arrow in the **Pest Type** field to choose the pest discipline, such as **Disease (D)**, **Insect (I)**, **Other animal or nematode (O)**, or **Weed or volunteer crop (W)**.

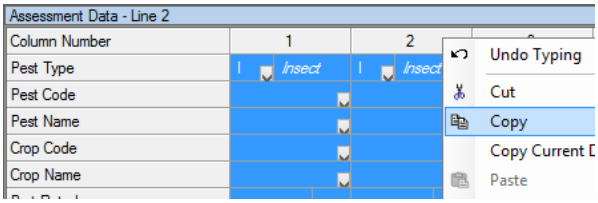
The **Copy Validation List to Clipboard** button copies the entire list to the Windows clipboard.

Assessment Data Editor – Copying a Single Column

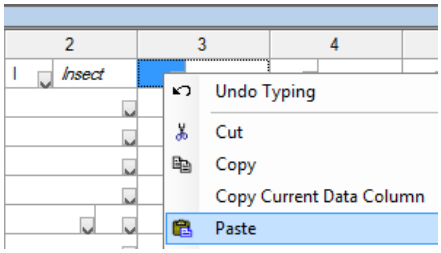


From the Assessment Data editor, type the **"** character in **Pest Type** to copy the entire data column heading at left (only recognized when entered in the first header field). Then press **Enter**.

Assessment Data Editor – Copying Multiple Columns



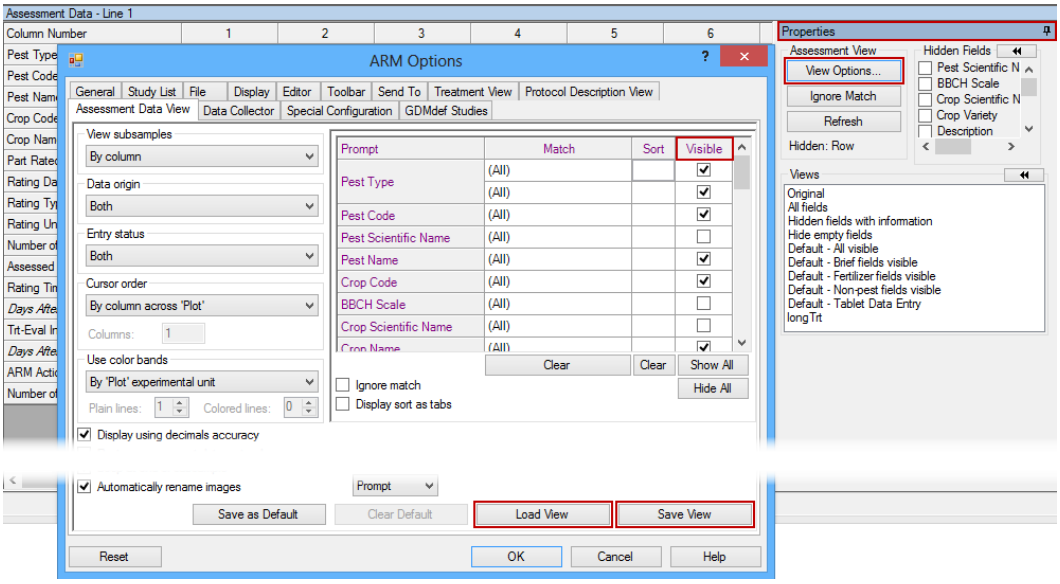
Mark a series of data columns by dragging across the **Column Number** headings. Right-click a highlighted cell, select **Copy**, and then right-click in new column and select **Paste**.



Choosing Fields in G-All7

There may be entry fields that you do not use in your research.

Assessment Data Editor – Assessment Data View



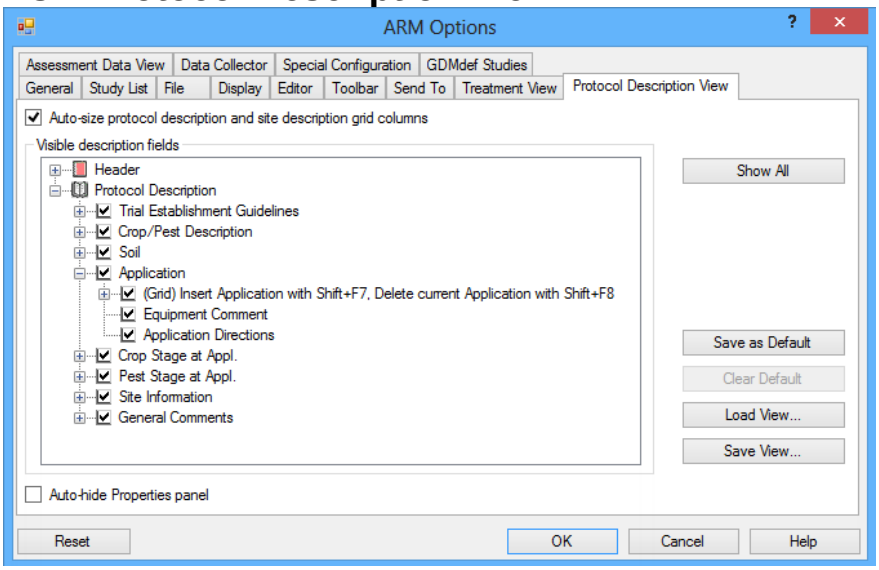
From the Assessment Data Editor's Properties Panel, select **View Options**.

Select the rows to be visible from the **Visible** column.

Save View will save current view settings in a *.pdv file for future use. Use **Load View** to retrieve saved or suggested default settings for certain disciplines.

Press **Save As Default** if these settings are to be used for all new protocols created.

Options – Protocol Description View



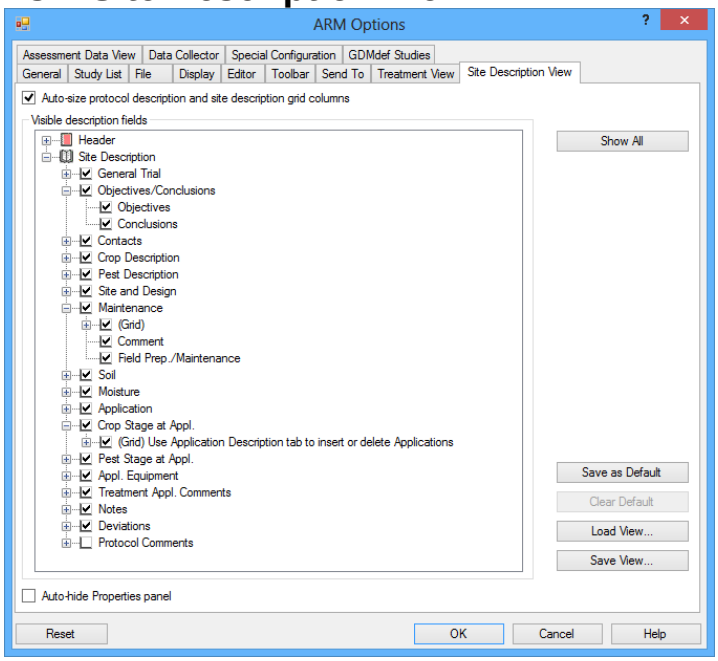
In a Protocol, select Tools – Options – Protocol Description View.

Choose items to be used. Uncheck any item to not be included.

Press **Save As Default** to keep choices for all new protocols created.

To save and use multiple formats, use the **Save View** and **Load View** buttons.

Options – Site Description View



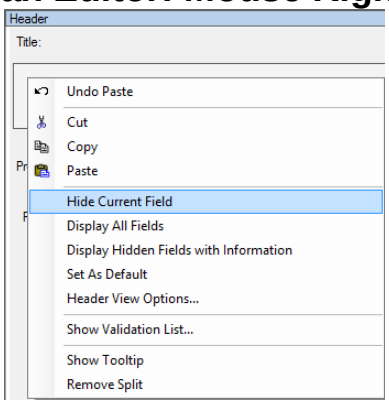
In a Trial, select Tools – Options – Site Description View.

Choose items to be used. Uncheck any item to not be included.

Press **Save As Default** to keep choices for all new protocols created.

To save and use multiple formats, use the **Save View** and **Load View** buttons.

Hiding Fields in an Editor: Mouse Right-Click



Right-click in a field on any editor.

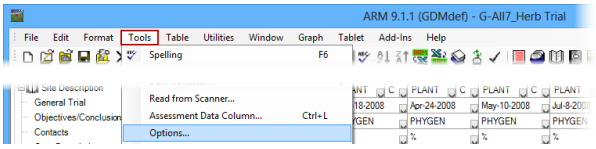
Select the **Hide Current Field** option to hide the selected field from view.

Select the **Display All Fields** option to display all currently hidden fields.

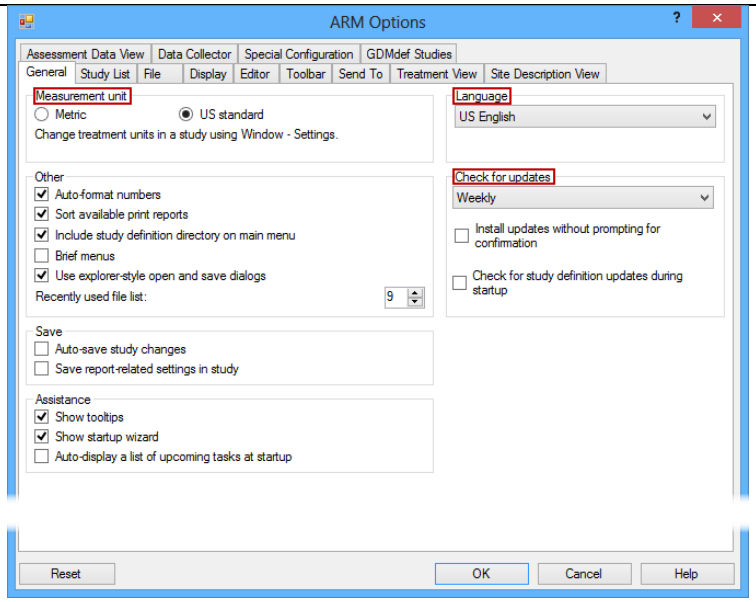
Select the **Display Hidden Fields with Information** option to display all hidden fields that contain information.

ARM Options

Select Tools – Options to open the **Options** dialog.



Options – General Tab



Select Tools – Options – General Tab.

Language

Set the **Language** to use for ARM menus.

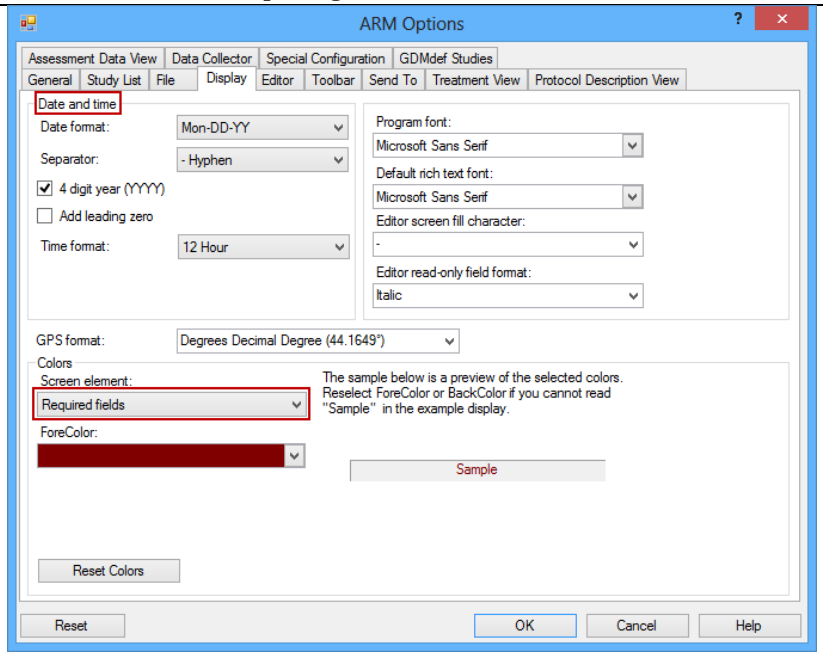
Measurement unit

Set the **Measurement unit** for page setup dialogs on reports.
Note: See Treatment Unit to set the default unit for study definitions.

Check for updates

Set the frequency that ARM checks for the availability of free updates.

Options – Display Tab



Select Tools – Options – Display Tab.

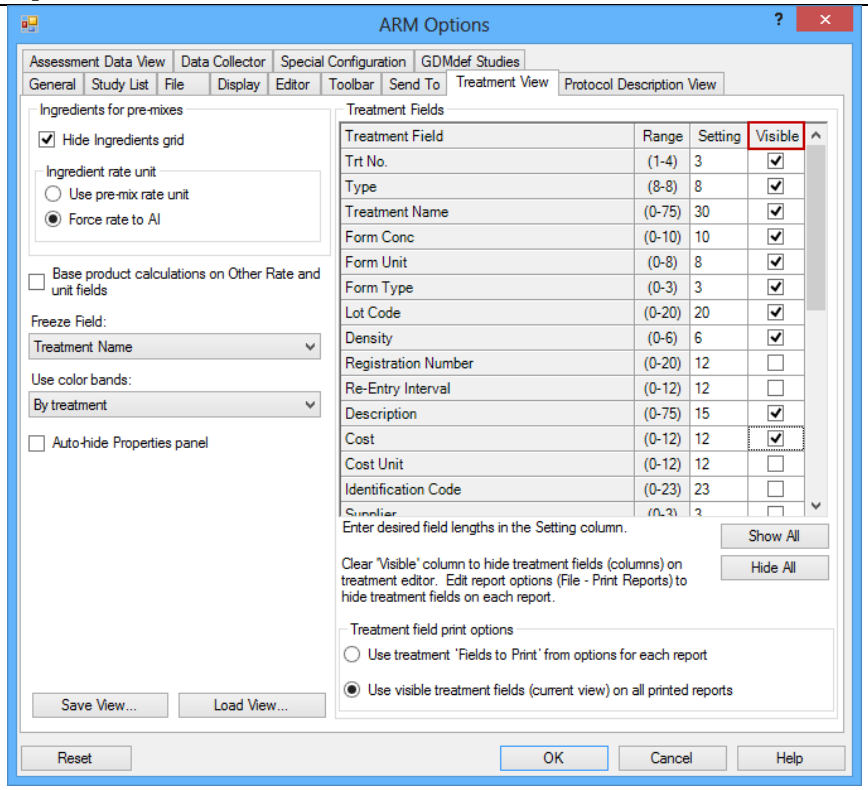
Date and time

Set the format of dates and times displayed on ARM editors and reports.

Why are Data Entry Fields Different Colors?

Colored fields represent fields marked as **Required** by the Study Rules.

Options – Treatment View Tab



Select Tools – Options – Treatment View Tab.

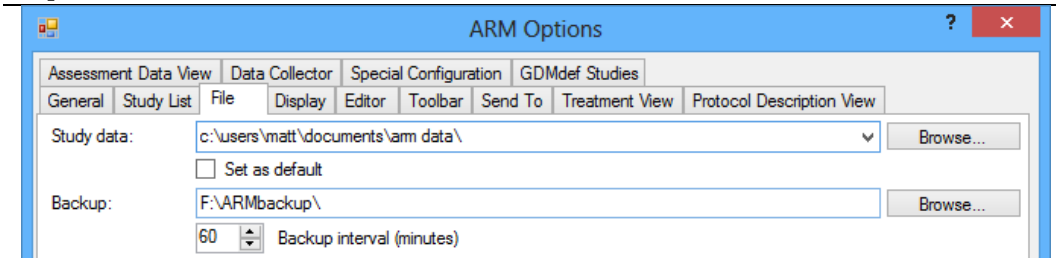
Select the columns to display on the Treatments Editor using the **Visible** column of the **Treatment Fields** options.

Printing Treatment Fields

Use the **Treatment field print options** to define what treatment fields are printed.

- Note that selecting **Use visible treatment fields (current view) on all printed reports** will override any **Fields to Print** option on all reports.

Options – File Tab



Select Tools – Options – File Tab.

Define where to store backup data and the time interval that backups will occur.

GDM Recommends

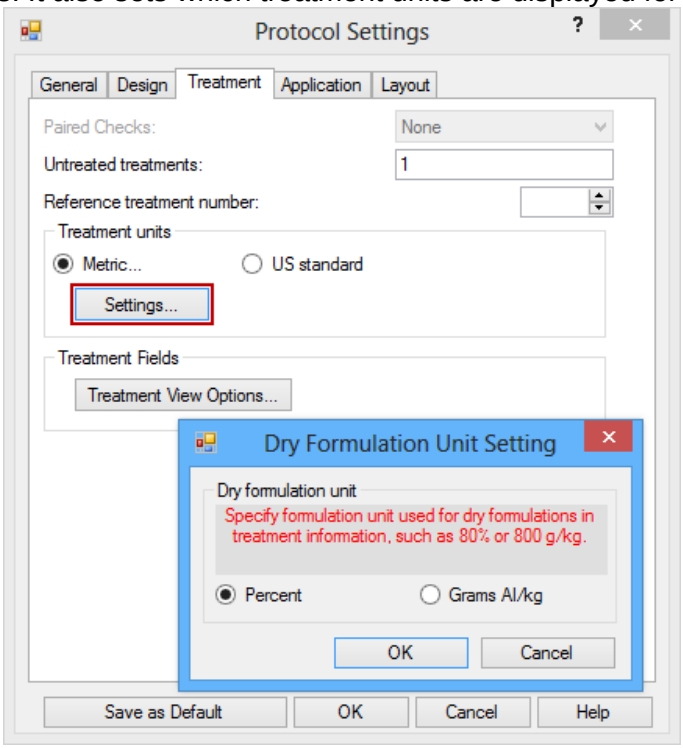
An SD card is recommended for backup as an inexpensive and secure storage option. The Backup interval should be a minimum of every 60 minutes.

Backup data must be stored in a folder named 'ARMbackup' to clearly identify the backup folder for ARM studies. Select File – Open Study From List and right-click on the file to open and select **Previous Versions** to view the backed up versions of the study.

This feature offers the advantage of being able to go back to *any* time in the historical life of the file. Making a backup of a computer's files will only save the *last* saved copy, which may or may not be the desired version.

Settings – Treatment Unit: Metric or US Standard

The treatment unit is set by study in the Window – Settings dialog. A default unit can be set for each study definition. The treatment unit sets a default formulation concentration unit for chemical products entered as treatments. It also sets which treatment units are displayed for the primary treatment rate unit.



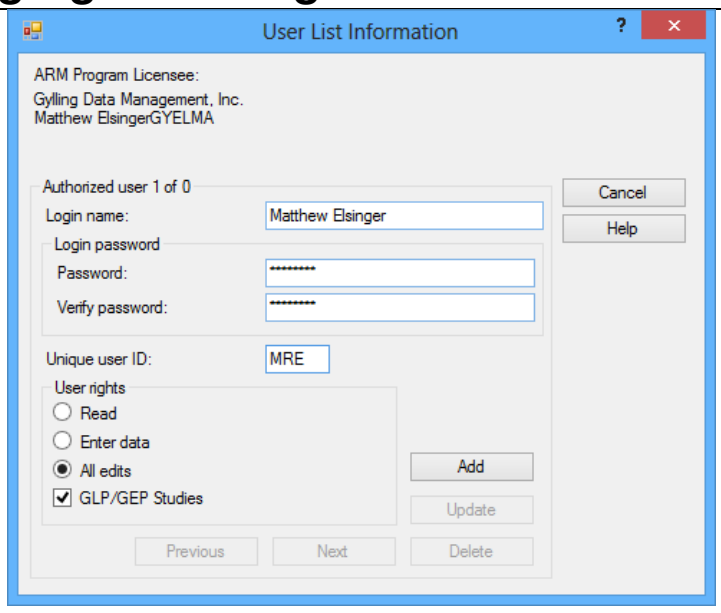
To set treatment units:

1. Begin a new protocol or open an existing study.
2. Choose Window – Settings and click the Treatment tab.
3. Set the **Treatment units** option to **Metric** or **US standard**.
4. For **Metric**, also define a default unit for dry chemical formulations (% or grams AI/kg) by pressing the **Settings** button.

For study definitions with a second rate and unit field, the treatment unit setting does not restrict which rate unit displays in the list.

Press the **Save as Default** button for all new files to use these settings.

Changing Your Login Password



Select Edit – User List.

Type the desired login password into both the **Password** and **Verify password** boxes to change the password needed to log in to ARM.

Enter a unique user ID for each user to identify each edit made by this user in the GLP/GEP audit trail log.

GDM Recommends The user's initials is the recommended ID.

Click **Update** if button is not grayed out. Otherwise click **Add**.

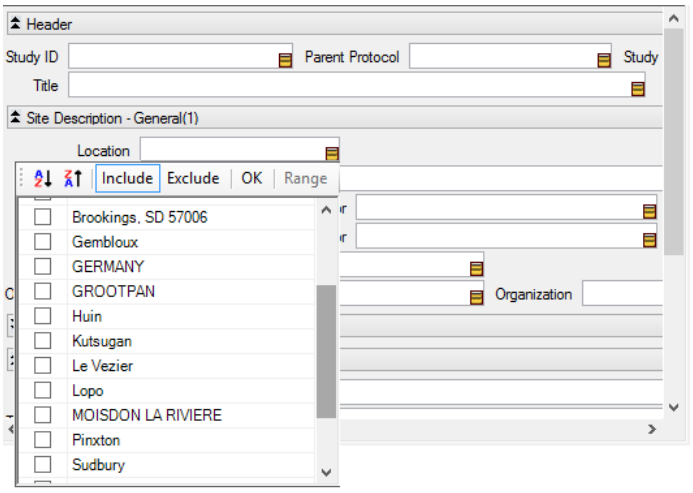
Study List

Use the Study List table to select one or more ARM studies to open.

Locating Studies in Study List

Select File – Open – Study from List. Use the following features to locate studies when the study list is large:

Filter



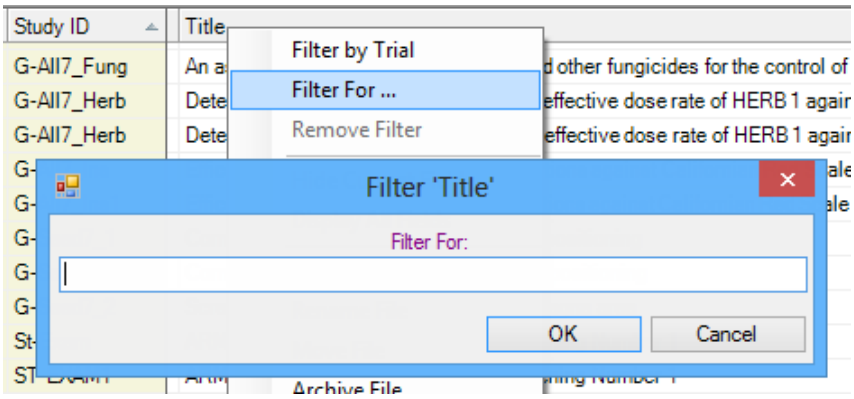
Define one or more filters to display only studies that match the contents of the specified fields.

In the Study List editor, click on the yellow filter icon in the field to filter. Select one or more items from the filter list and select:

- **Include** will display all studies containing the selected items.
- **Exclude** will display all studies that *do not* contain the selected items.

Press **OK** to display the results.

Filter For



Display only studies that include the specified text in the current study list column. Enter a phrase including several words (such as “on wheat”) to display only studies that contain the exact phrase.

To display studies with "wheat" in the title:

1. Right click on the **Title** column.
2. Select “Filter For.”
3. Type “wheat.”
4. Press **Enter** or select OK.

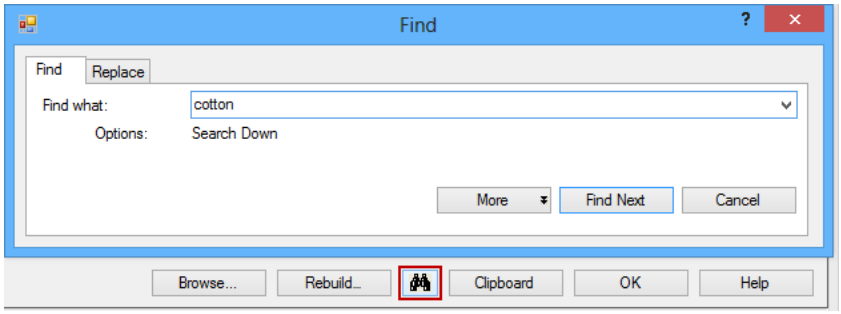
Use **Filter For** in combination with **Filter** to further reduce the number of studies displayed. To display studies that include “wheat” in the title and are in one location, use **Filter** on the **Location** field, then use **Filter For** on the **Title** column.

Sort

Apply a sort to change the order studies display in the list.

In the grid section that displays items in the list, click once on a column heading to sort the list in ascending order (from A to Z) according to information entered in the column. Click the column heading again to sort in descending order (from Z to A). The list is sorted by **Last Opened** by default.

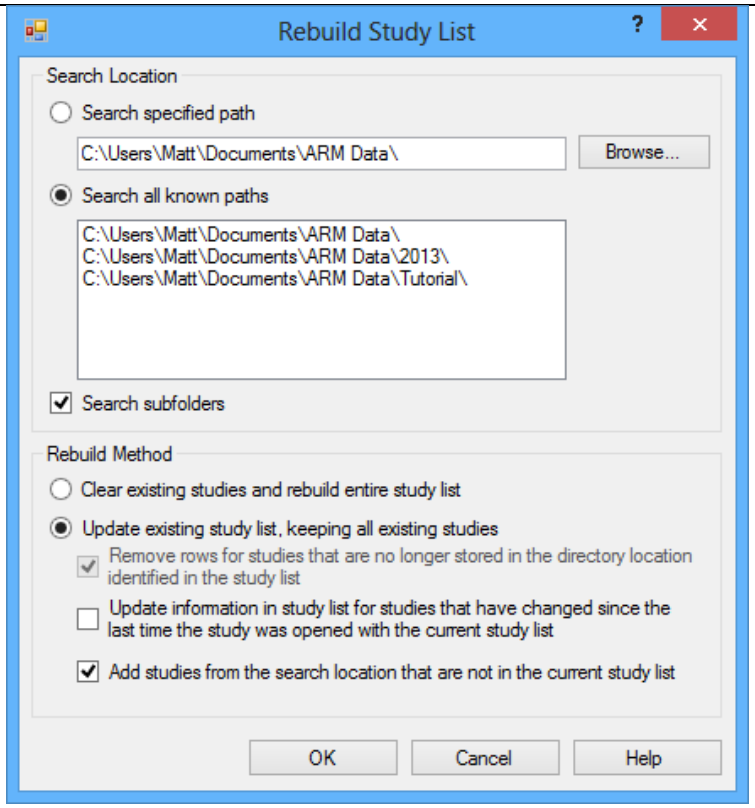
Find



In the lower right corner of the study list, click the binoculars button to use the **Find** command. ARM will search for the first study that contains the specified item in any column of the list.

For example, using the Find dialog to search for "cotton" locates the first study with the word cotton in any of its columns.

Rebuilding the Study List



Select Utilities – Rebuilt Study List.

Search Location

Define the file path(s) ARM will search for studies.

- **Search specified path** will search for studies only in the listed path.
- **Search all known data paths** will search in a list of paths from which you have previously opened studies.

Rebuild Method

Define what to do with the list of existing studies that are currently in the study.

- **Clear existing studies** will start from an empty list.
- **Update existing study list** will add onto the current list, keeping the existing studies.

Note: This feature *does not delete* any studies, only alters what studies are in the Study List.

Validating Studies

What is Validation?

Validation is a checking process to help you avoid mistakes while editing study information. ARM contains lookup tables, called validation lists, to help enter information consistently. These lists also function as cross-checks for common mistakes.

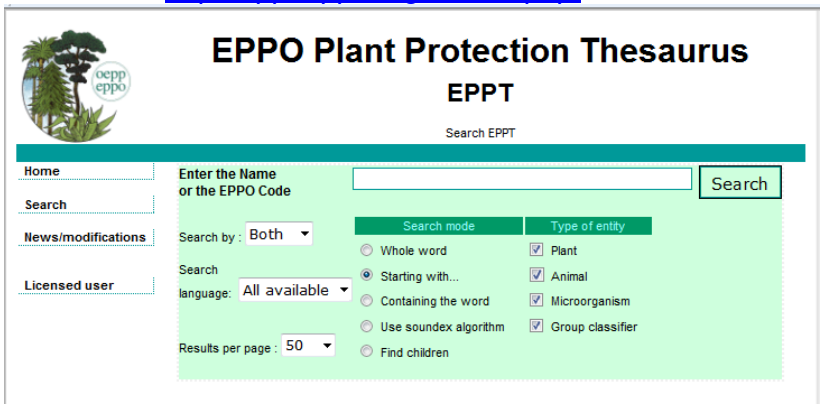
Keyboard Commands to use with validation lists

F9	Validate current field entry against corresponding validation list
Shift F9	Display validation list for current data entry field
Ctrl F9	Add validation items to the corresponding Master List
Ctrl C	Copy validation list to clipboard (only when validation list is displayed)
Ctrl A	Validate study, and stop at first error
Ctrl E	Validate study, and list all errors in the message viewer

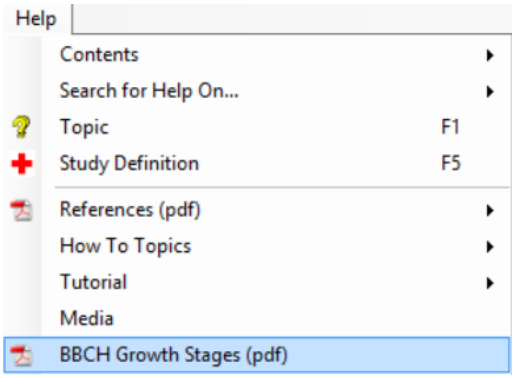
Master Validation Lists – EPPO Bayer and BBCH Crop Growth Stage Lists

EPPO pest Bayer code lists and BBCH crop growth stage lists are very large lists that are maintained in a database. For example, the EPPO weed (plant) list contains more than 27000 records. These lists are not editable within ARM.
Note: Validation lists in the database display as Master validation lists.

Use the EPPO Plant Protection Thesaurus to search for EPPO codes.
The website is [http://eppt.eppo.org/search.php.](http://eppt.eppo.org/search.php)

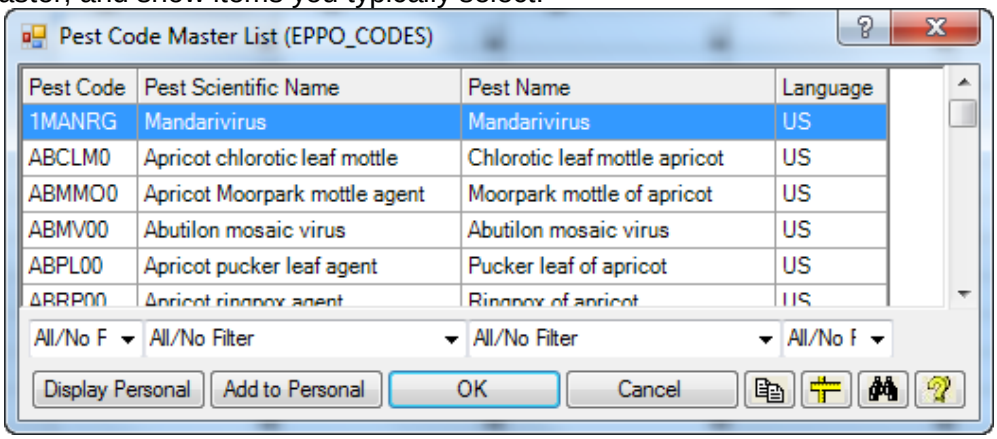


Select Help – BBCH Growth Stage to review the PDF documentation.



Personal validation lists

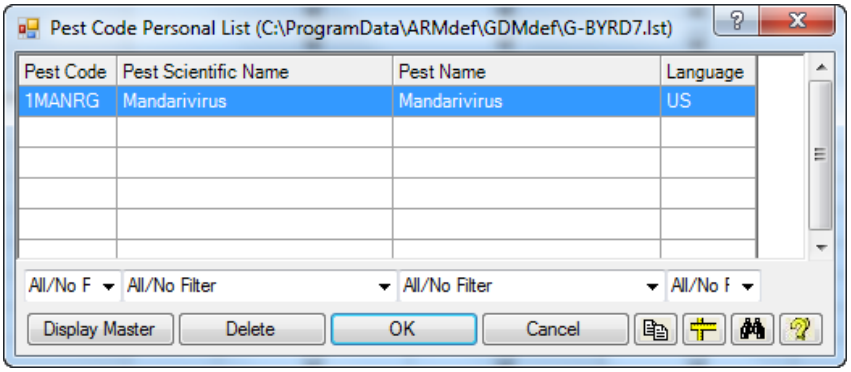
GDM recommends adding frequently used items to a personal validation list so the validation lists display faster, and show items you typically select.



1. Begin a new protocol using G-All7.def, or open an existing study.
2. In the Assessment Data Editor, click into **Pest Type**, press **F9**, and select an entry.
3. Click into **Pest Code**, press **F9**.
4. If there is a **Display Maste**r button visible (if a personal

list is currently displayed), then click this button.

5. Highlight a commonly used pest, and then click **Add to Personal** button.



The next time you display this pest code list, the personal list will display with the selected pest in the list.

Finding Items in a Validation List

Press **F9** in a validated field to display a validation list, and then use one of the search commands to search through both validated items and comments:

Search by

- Type the first letter of an item to step to the item that begins with that letter.
- Type the first few letters of an item to step to the next item that matches. ARM stops searching when you pause typing letters.

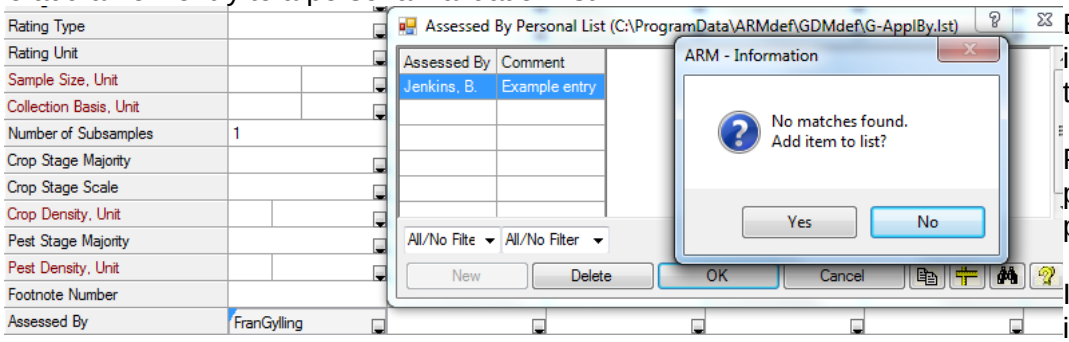
Find

- Press Ctrl+F to use the **Find** command on the Edit Menu, *or*
- Click the **Find** button (binoculars button) at bottom right of validation list.

Use Down Arrow / Up Arrow or Page Down / Page Up keys to scroll through the validation list.

Changing Information in Editable Validation List

To add a new entry to a personal validation list:

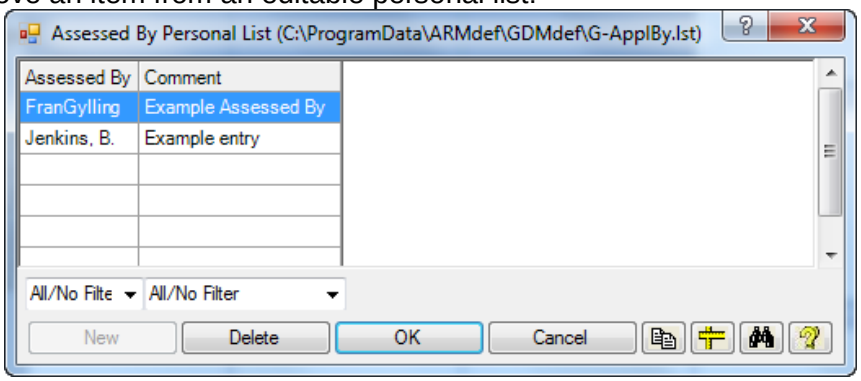


Enter the information to add into the validated field(s) of the study editor.

Put the cursor into the primary validated field, and press F9.

If you are asked to add the information then choose Yes.

To remove an item from an editable personal list:



Press **F9** to display the validation list.

Select the desired item, and press the **Delete** button.

Select **OK** to confirm deletion.

Keyboard Commands

General Keyboard Commands

F1	Topic specific help
F5	Study definition specific help (if present)
Tab / Shift+Tab	Within **help file**, select the next / previous link
Esc	Leave dialog box without making modifications
Alt Down Arrow	Display list in a combo box (an edit box with down arrow at right side)
Ctrl+Z	ARM Undo feature (or Edit – Undo)

Common Study Editor Commands

The following editor commands work with all study editors:

Enter	Advance to the next field
Shift+Tab / Alt+Left Arrow	Move to previous field or column in current line
Tab / Alt+Right Arrow	Move to next field or column within current line
Up Arrow / Down Arrow	Next line / Previous line
Right Arrow / Left Arrow	Left/right within current field, or previous/next field if at start/end of field
Page Up / Page Down	Next screen / Previous screen
Backspace	Erase character to left of the cursor
Alt Backspace	Undo the last change made in the editor text box for the current field
Delete	Erase character to the right of the cursor
F6	Spell check
F11 / F12	Move to previous / next field
Shift+Up Arrow/Shift+Down Arrow	Begin / extend block marks in direction of arrows

Header, Protocol and Site Description Editor Commands

Enter	Close paragraph in **wrapped** text block
Shift+Enter	Extend block mark
Ctrl+Left Arrow	Previous word in current **text** field
Ctrl+Right Arrow	Next word in current **text** field
Shift+F7	Insert one instance of a **repeating** section (only in an elastic site description section)
Shift+F8	Delete one instance of a **repeating** section (only in an elastic site description section)
Shift+Esc	Exit **wrapped** text field and move to previous
Esc	Exit **wrapped** text field or grid and move to next field

Treatment Editor Commands

“	In **Treatment Name** field, duplicate entire treatment line above
‘	Duplicate single corresponding field from above
Alt+C	Display ingredients dialog, to calculate a premix rate for current treatment line from a desired ingredient rate
Home	First character in current treatment field
End	Last character in current treatment field
Ctrl+Home	Current field in first treatment line
Ctrl+End	Current field in last treatment line
Alt+Home	First field in current treatment line (left side)
Alt+End	Last field in current treatment line (right side)
Ctrl+Alt+Home	First field in first treatment line (upper left corner)
Ctrl+Alt+End	Last field in last treatment line (lower right corner)
F7	Insert blank lines above current treatment line
Ctrl+F7	Insert blank treatment separator lines
F8	Delete treatment lines
F9	Validate current treatment field entry
Shift+F9	Display validation list for current treatment field
Ctrl+F9	Add to master validation list for current treatment field
Ctrl+T	Sort into treatment order
Shift+Down Arrow	If current field is **Treatment Number,** will mark entire line
Ctrl+Del	If current field is **Treatment Number**, delete treatment line without confirmation

Assessment Data Editor Commands

The Treatment Editor commands listed above apply, as well as:

“	Duplicate entire data **header** at left (only when entered in **first** / top header field)
‘	Duplicate **header** entry at left of data column
‘or * or o	Duplicate assessment **data** entry from assessment data line above current line
Z or O	Enter 0 into current blank assessment data entry cell and advance to next entry cell ("Z" for Zero, the letter O for number 0)
C or H or I	Enter 100 into current blank assessment data entry cell and advance to next entry cell ("C" for "Centi-", "H" for "Hundred", the letter "I" looks like number 1)
Tab	Move right to the next assessment data column
Ctrl+Page Down	Move right 1 screen page
Ctrl+Page Up	Move left 1 screen page
Alt+A	Move cursor to next blank data column
# Enter	View footnote # (typed into footnote number field)
.	Missing data identifier
Shift+Alt+Left / Right Arrow	Extend block mark to another column
F2	If in an assessment **data cell**, display Subsample Editor
Mouse shortcut	Click on the assessment data header prompts to scroll one column left

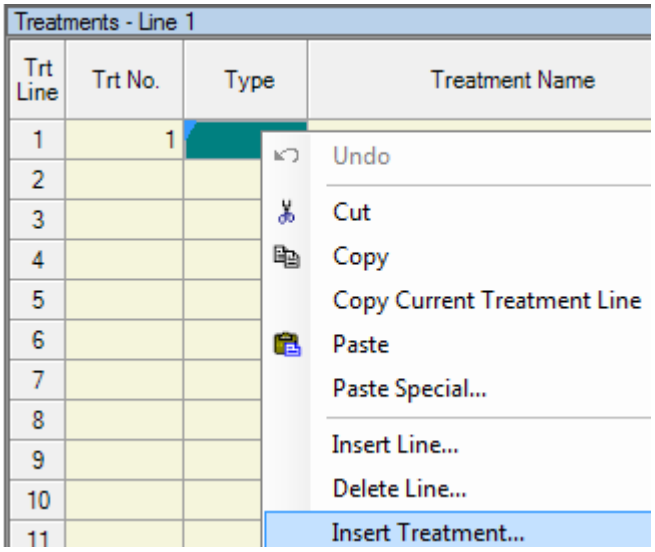
Right Mouse Button

The right-click menu shows context-specific actions that are available. See Right Click Menu for more information.

Entering Treatments

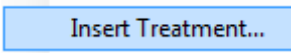
Inserting Treatments versus Treatment Lines

Each treatment line defines one component of a treatment so one treatment can consist of more than one line of treatment information.

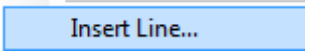


Open the Treatments editor, right-click in any cell and select:

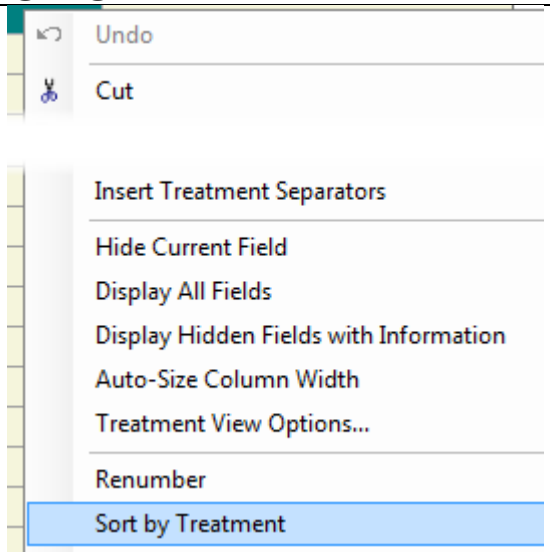
Insert Treatment to add a *new* treatment to the current study. In a trial, assessments for the new treatment are added at the end of each replicate.



Insert Line to add more treatment lines to an *existing* treatment

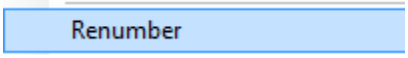


Arranging Treatment Information

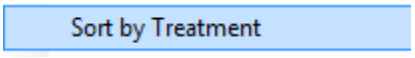


Open the treatment editor, click the right mouse button, and then select from the right-click menu:

Renumber to re-assign treatment numbers. A new treatment number is assigned at each blank line or number change.



Sort by Treatment to arrange treatments in consecutive order.



Treatments & Plots in Split Plot or Factorial Trial

The number of treatments is calculated by multiplying the number of levels in each factor as below:

(Factor A * Factor B * Factor C) + Comparison Treatments

The number of plots in a trial is calculated by multiplying:

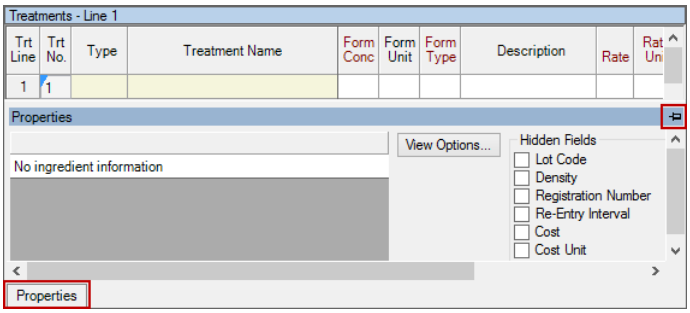
Number of Treatments * Number of Replications

Calculating Ingredient Rates in a Pre-mix

For treatment products that contain more than one ingredient, the rate of each ingredient can be calculated from the product rate. The products must be defined in the validation list with ingredient information entered in the correct format.
In ARM, press **F1** to display help, and then find **Validation List Item Format** in the **Index**. See the "Sure-Kill" example for the correct ingredient format.

To display the ingredient dialog when it is hidden:

1. Right-click mouse on treatment editor.
2. Select **Treatment View Options**.
3. Clear the checkbox for **Hide Ingredients grid**.
4. Open the Properties Panel and click the pin button to keep the panel in view.



Rate / Rate Unit and Other Rate / Other Rate Unit

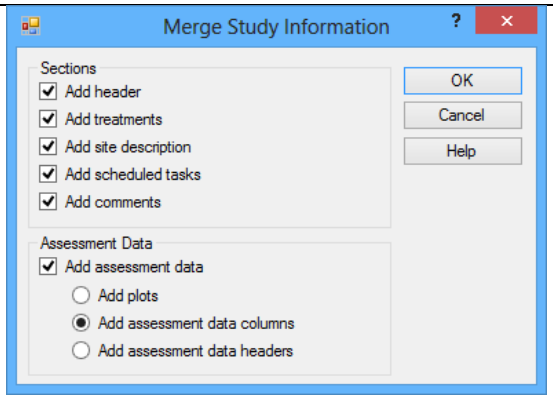
Many study definitions include two pairs of rate and unit fields.

- Two different views of the same rate for each treatment line can be helpful. Examples include: an AI-based unit (g AI/ha) and a product-based unit (L/ha), or a metric unit and a US standard unit.
- The first (left-most) rate fields are the primary rate and unit fields for product amount calculations.
- The second (right-most) rate fields are calculated from the primary rate and unit entries.
- In GDMdef study definitions the right-most unit fields are named **Other Rate**. In older study definitions they were named **Product Rate**.

New Rate Units

Contact GDM for any modifications to the list of rate units that are displayed in the treatments editor. Please do **not** attempt to add new rate units yourself! The rate unit definition includes values that greatly influence product amount calculations.

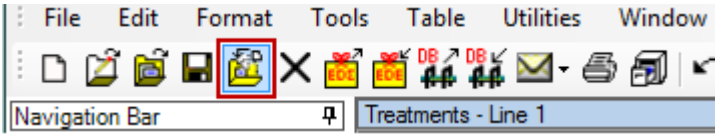
Copying Information from a Similar Study



Select Tools – Merge – from ARM Study to copy information like the header, treatments, site description, tasks, comments, and assessment data with columns and data headers from an existing study.

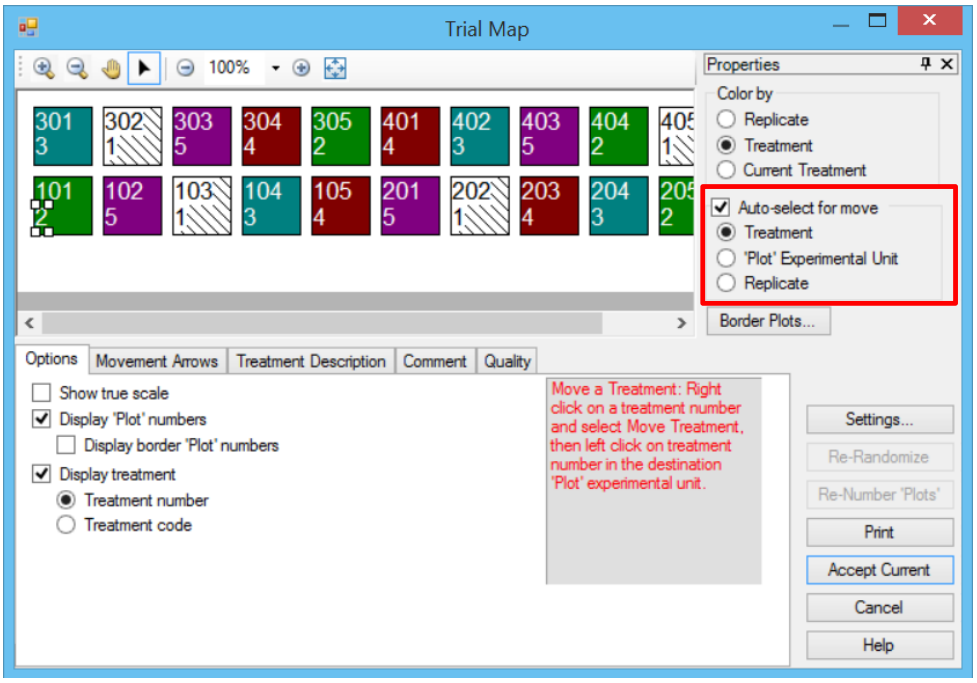
Editing a Randomization

Before trial is established



Open a protocol; select File – Create Trial or choose **Create Trial** icon to assign a randomization.

After trial is established



Open a trial; select Window – Trial Map.

To switch the positions of two treatments:

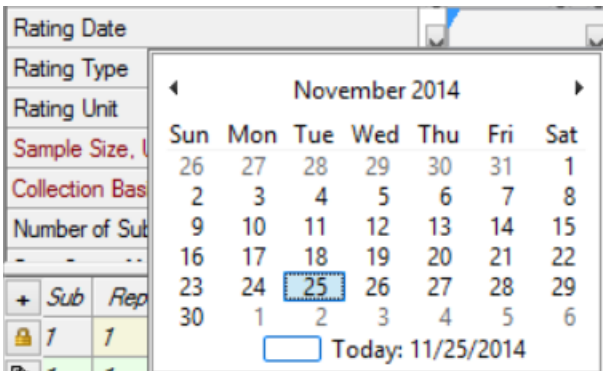
1. Check the **Auto-Select** box and then choose **Treatment**.
2. Click on a treatment number.
3. Drag the treatment number to a new plot.

The cursor will display a slashed circle if the treatment cannot be moved to the current cursor location.

Experimental units and replicates can be also be moved using the **Auto-Select** option.

Entering Assessment Data

Inserting Today's Date

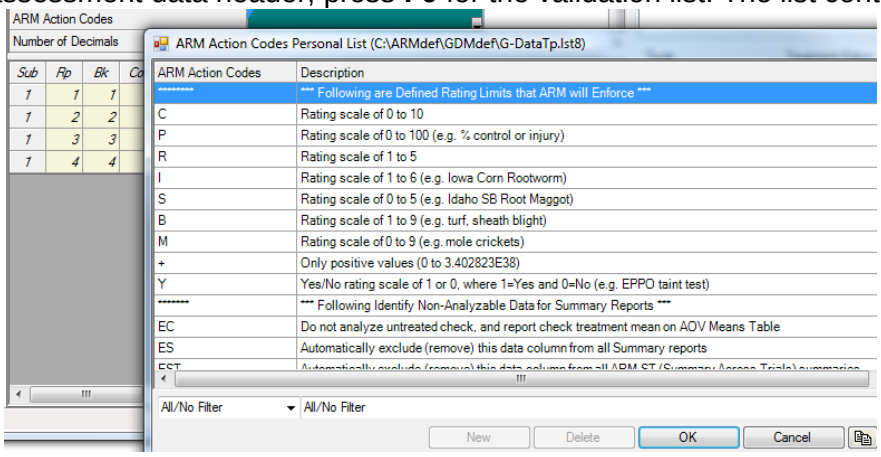


Press the **spacebar** in any study editor date field to insert today's date in the current date format.

Or click the down arrow in a date field and click the **Today** button.

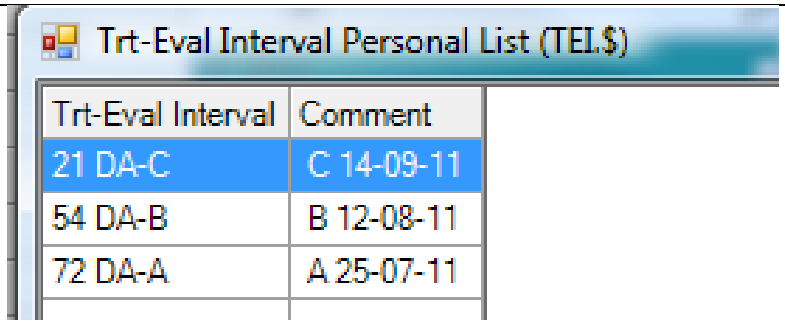
Using ARM Action Codes in Assessment Data Headers

ARM Action Codes identifies special actions that ARM should perform. In the **ARM Action Codes** field of the assessment data header, press **F9** for the validation list. The list contains special actions for columns of data:



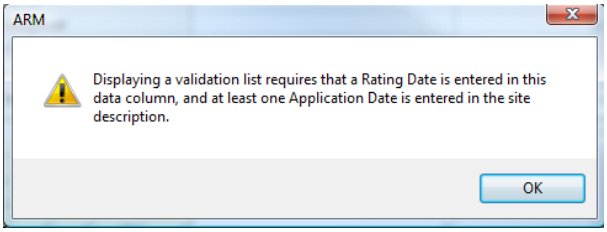
- Defined rating limits, such as limiting entries to a range of 0 - 100.
- Special AOV Means Table calculations for percent control.
- Transformation ID codes for built-in transformations.
- Mean comparison ID codes for Standardized Summaries.
- Indexes for EPPO rating scales.
- General calculations. Identify non-analyzable data for summary reports.

Treatment Evaluation Interval (TEI)

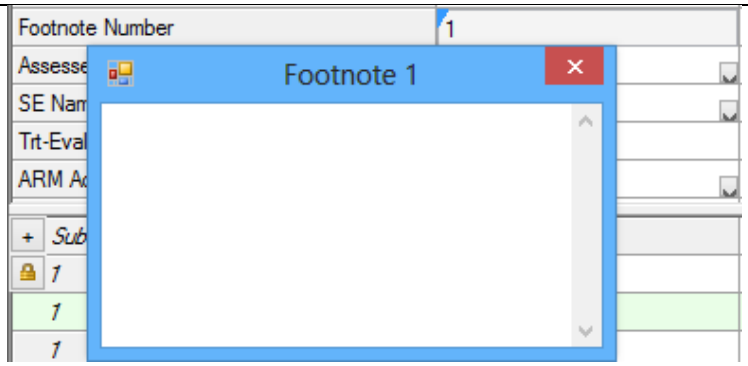


TEI is the number of days after (or before) an application when the assessment was performed. ARM will automatically add the TEI or list the choices in the drop down list when there are multiple application dates in a trial.

If this dialog display, then enter an Assessment Date in the current data column so TEI can be calculated relative to date of the assessment.



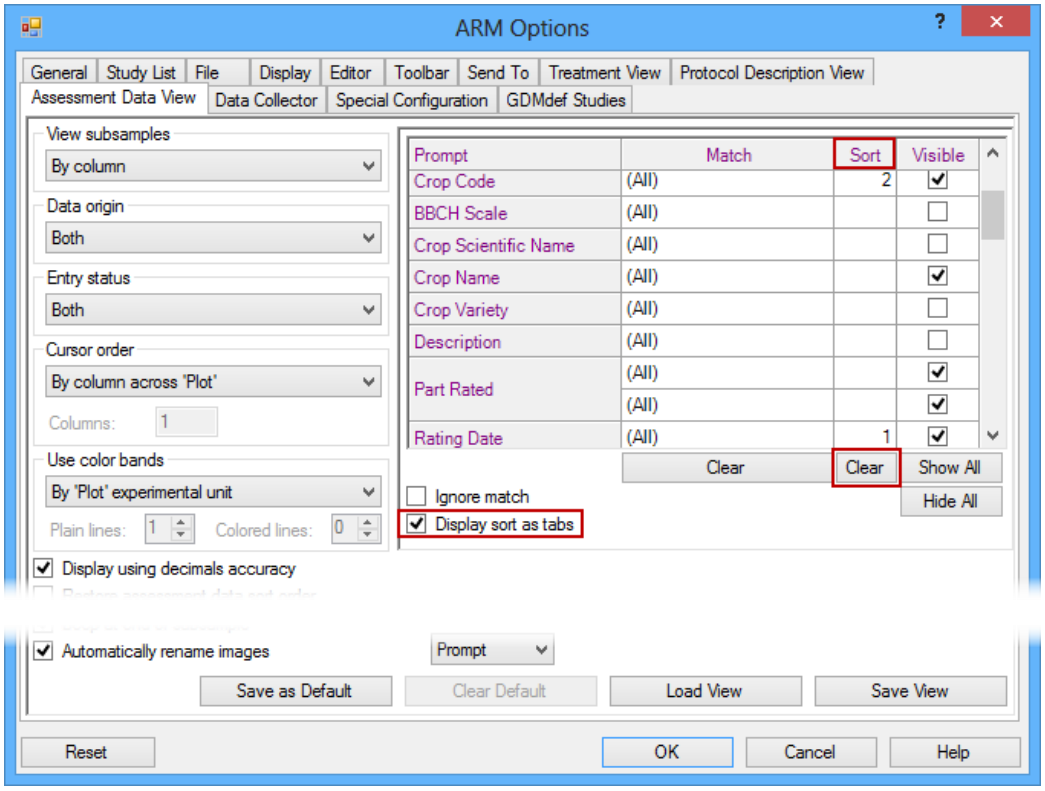
Footnotes



In the Assessment Header, type a footnote number in the Footnote field. Then press **Enter** to display the footnote textbox.
Note: Several data columns can reference the same footnote number.

Sorting Assessment Data Headers

Select Tools – Options – Assessment Data View.



Click the **Clear** button below the **Sort** column to remove any current sort.

Put cursor in the **Sort** column of the data header field you wish to sort (such as **Rating Date**).

Enter a **1** to identify this as the first sort field.

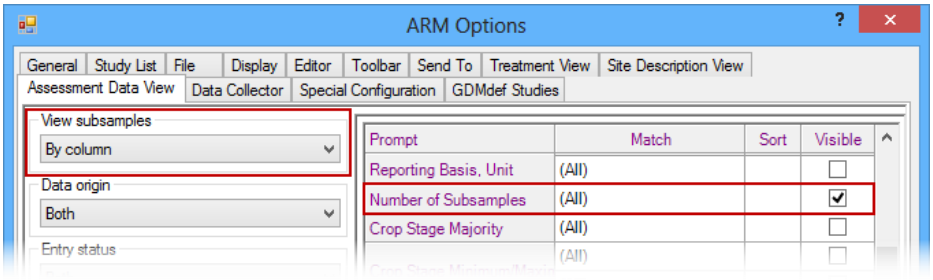
If you wish to apply a sort within rating date, then put **2** in the second sort field (**Crop Code**).

Set the **Display sort as tabs** option to create a separate editor tab for each rating date.

Select **OK** to apply the sort.

Viewing Subsamples

Select Tools – Options – Assessment Data View.

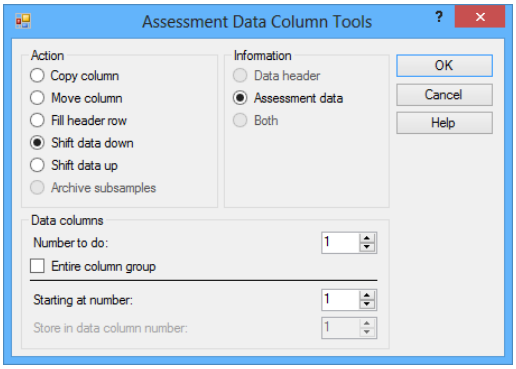


Set the **View subsamples** option to **By column**.

Check that **Number of Subsamples** data header row is visible (grid in upper right of dialog).

Enter the number of subsamples to view in the assessment data header of each data column.

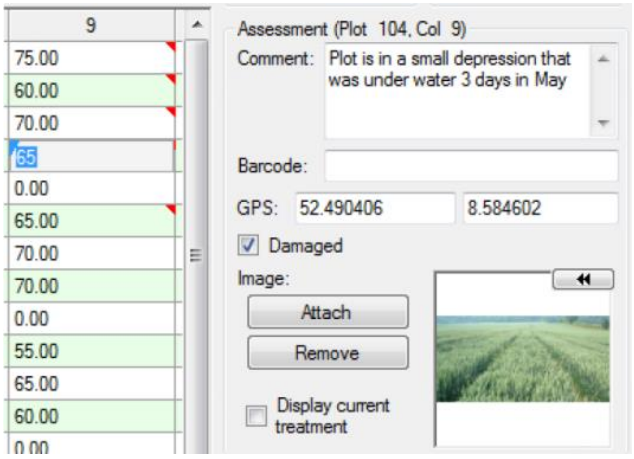
Whoops, Missed a Plot when Entering Data



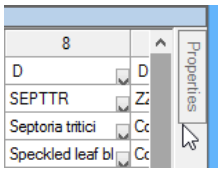
Open the Assessment Data editor and place the cursor in the missed assessment cell.

Select Tools – Assessment Data Column – Shift Data Up or Shift Data Down. Indicate the data column for action and how many times the column should be shifted. Press **OK** to shift the data.

Properties Panel: Additional Assessment Information



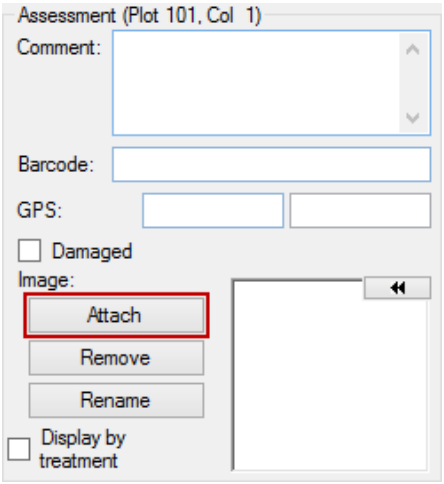
Select the **Properties** button on the Assessment Data editor to display the Properties Panel.



Enter additional information for an assessment.

- Digital photograph
- Comment
- Damaged value marker
  - A damaged assessment is not analyzed
- GPS Coordinates
- Bar Code label ID

Attaching Images

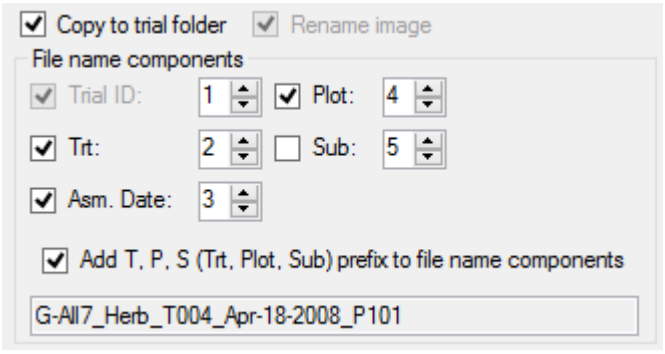


To attach an image to an individual assessment:

- From the Assessment Data editor, click the **Attach** button on the Assessment Data Properties Panel.
- Drag and drop image file(s) onto a specific assessment data cell within the Assessment Data editor.
- Take a photo with the **Tablet Data Collector** (available only on TDC installations).

File name components

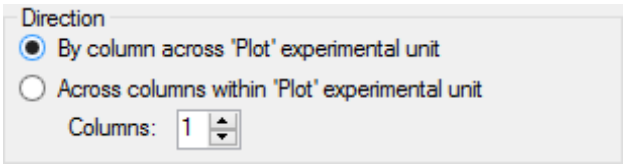
Defines the way image files are renamed when they are attached.



Rename Image
Rename the image file according to the **File name components** options. When **Copy to trial folder** is not selected, this option will keep the images in their original folder.

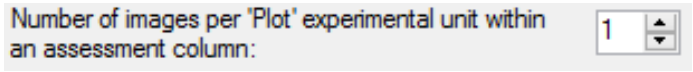
Copy to trial folder
Copy the image files to the folder where the currently loaded trial is located. The files are automatically renamed according to the **File name components** options.

Attaching multiple images



By column across 'Plot' experimental unit
Subsequent images that are attached will default to the next line in the Assessment Data editor within the current column.

Across columns within 'Plot' experimental unit
Subsequent images that are attached will default to the next column, within the current experimental unit, for the number of columns specified by the **Columns** option.



To attach more than one image to a single experimental unit per column, increase the **Number of images per 'Plot' experimental unit** option to the desired number of images.

Copying and Pasting from Spreadsheet

GDM Recommends

Mark a block to copy in Excel, right-click into the destination cell in the Assessment Data editor and select **Paste**. Include "Plot" as the column heading in the block copied from Excel to identify a column of plot numbers.

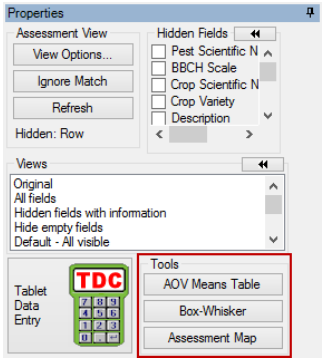
Press **F1** in Assessment Data Editor for hints and more information.

Transferring Information from ARM to Excel/PDA

Select the **Push** button  on the ARM toolbar to push a trial to an Excel rating shell, PDA, or Psion Workabout Enhanced Rating Shell.

After collecting ratings, select the **Pull** button  to pull ratings into the original trial.

Data Quality



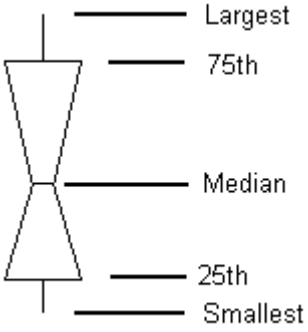
ARM provides several tools to review assessment data to ensure the quality of data. These tools can be accessed from the **Tools** section on the Properties Panel of the Assessment Data editor. If the panel is not opened, click on the Properties tab to open the panel.

AOV Means Table

The **AOV Means Table** button displays a preview of the AOV Means Table report beginning at the current data column, and including all columns after the current that contain data. This report uses the current AOV Means Table Report Options settings on the Print Reports dialog.

Box-Whisker Graph

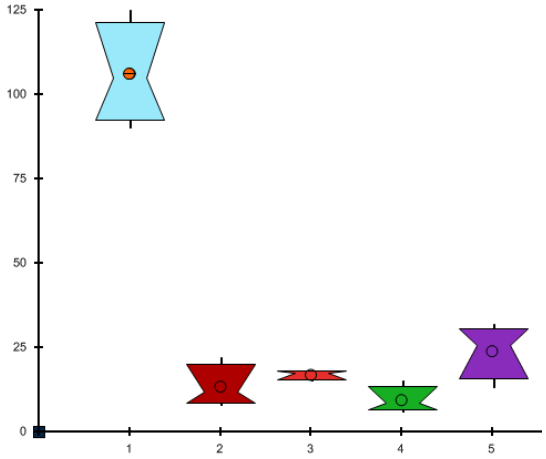
The **Box-Whisker** button displays a box-whisker graph of the current data column. A Box-Whisker graph illustrates the spread of treatment data groups around their medians, using a "box" and "whiskers" to break down each data group by percentiles. The **box** extends from 25th to the 75th percentile and is divided by the median. The **whiskers** extend from ends of the box to largest and smallest observation.



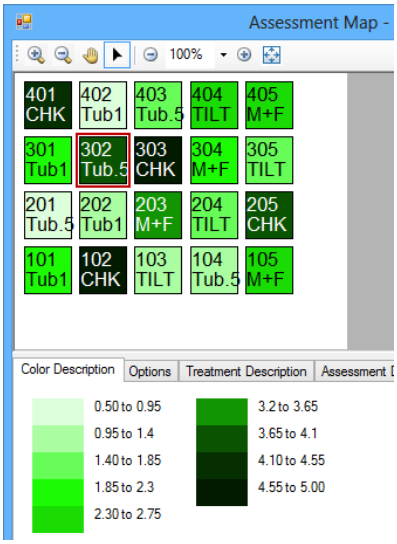
- Each box is one treatment, numbered from left to right.
- Height of box indicates amount of variability for the treatment. Any plus symbol + identifies a possible plot or subsample outlier.
- The narrow “waist” of box is the 50th percentile. A low plot data value will force waist below the midpoint of box.
- Treatment name will not display at bottom of graph if too many fields are included per treatment. Select Tools – Options – Labels Tab to edit labels.

A Box-Whisker graph:

- Shows variability within a treatment, thus is a measure of assessment consistency within each treatment. Waist position is skewed when one replicate is somewhat higher or lower than others.
  (E.g. when waist is “high”, then value in one of the replicates is somewhat lower than in other replicates.)
- Provides a visual mean comparison, since treatments where boxes overlap are likely not significantly different.
- Simplest method to identify heterogeneous treatments.



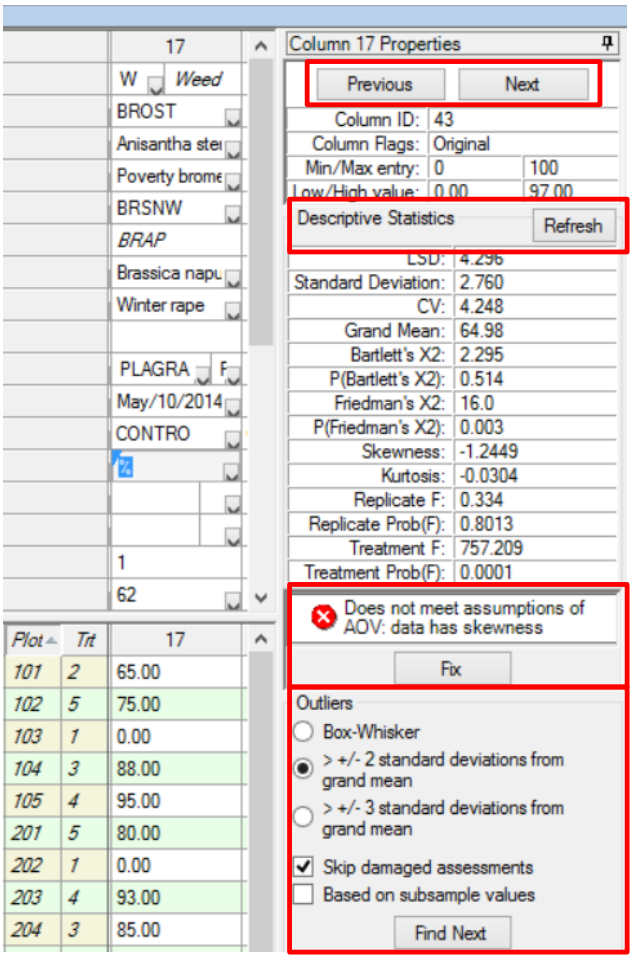
Assessment Map



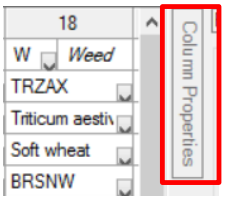
The **Assessment Map** button displays assessment data values on a trial map to help identify spatial effects that can occur from variations within the trial site. For example, if crop yield appears consistently lower in one corner of the trial, it may indicate a lower soil quality in that area of the trial.

- Differences in assessment values are indicated by color intensity. Lower values display in lighter colors than higher values.
- For example, note that the box for treatment 2 “Tub.5” in the third replicate (plot 302) is substantially darker than treatment 2 in the other replicates. This indicates that replicate 3 could be causing the larger data value for this plot.

Column Properties



The assessment data editor includes an optional **Column Properties** panel that is docked beside the Assessment Data Properties panel. This panel provides in-depth information about the data column that the cursor is in.



Mouse over the **Column Properties** tab to display the properties panel if it is hidden.

Click the pin button on the caption bar to pin or auto-hide the bar.

Use the **Previous** and **Next** buttons to move the cursor to the column that is left or right of the current data column.

Descriptive Statistics lists all descriptive statistics available for the AOV Means Table report.

Press **Refresh** button if changes have been made to the current assessment column that affect AOV analysis to re-generate the descriptive statistics.

Press **Fix** button to allow ARM to suggest a data correction technique to use so the data will fit the assumptions of AOV.

Use the **Outliers** tool to find possible outliers in the currently selected data column. Select a method for determining whether a data point is considered an outlier.

Entering Site Description

Increasing and Decreasing Repeating Sections

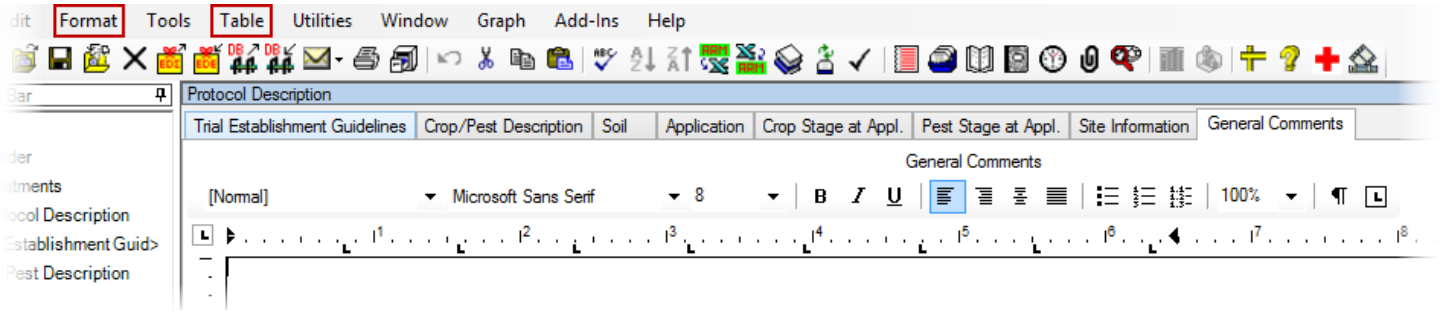
Protocol / Site Description editors use repeating sections to add more instances of data entry rows or columns, such as applications.

- Press **Shift+F7** with the cursor in a repeating section to add one section.
- Press **Shift+F8** with the cursor in a repeating section to delete the current repeating section.
- Put the cursor in the Ins/Del Columns here field to increase or decrease number of columns using the **Shift+F7** or **Shift+F8** command.

The right-click menu also has commands to "Insert Repeating Section" and "Delete Repeating Section".

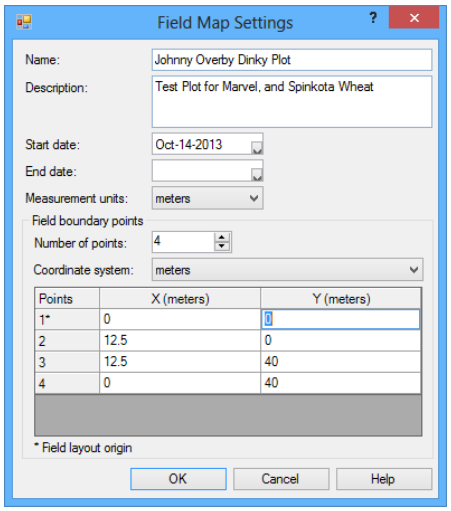
Using Tables and Fonts in Rich Text Fields

The ARM GDMdef study definitions support rich text in large comment fields such as the **Comments**, **Objectives** and **Conclusions** editors.
Use the **Table** menu commands from the toolbar to add, edit, and delete tables. Use the **Format** menu to define font size, color, and other font features.
Choices on the **Format** and **Table** menu are disabled if a data entry field does not support rich text.



Field Map

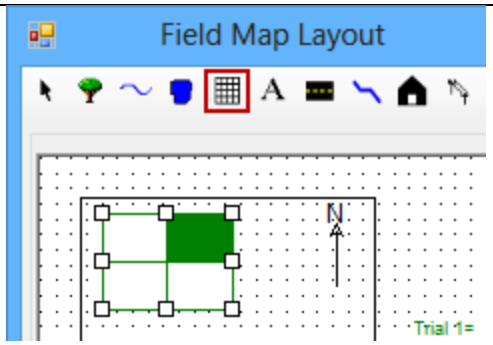
Creating a Field Map



Select File – New Field Map. Define corners of the field with point 1 (the origin) beginning at the lower left corner of the field. Enter either as X and Y coordinates or GPS coordinates.

Select **OK** to create the field map. Then name the file to save and press **OK** to continue.

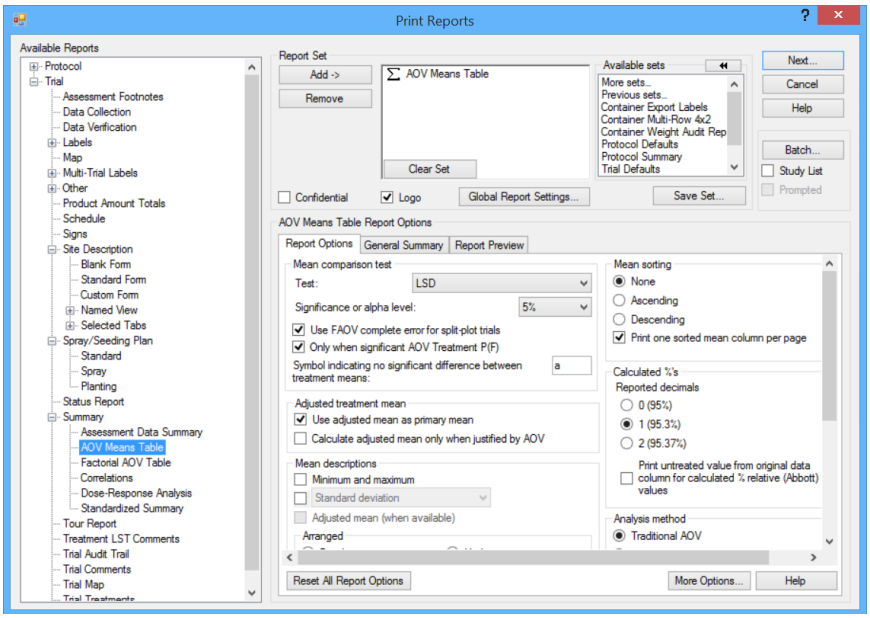
Adding a Trial to Field Map



1. Click the grid toolbar button to define a trial.
2. Click and drag the left mouse button from top left corner of the trial in the field map to the bottom right corner of the trial on the map to draw the trial on the map.
3. Double-click the trial grid to display a trial map.
4. Click the **Add Study** button, and select the trial to add.
5. Click the **Accept Current** button to use this trial.
6. Click **Save** to save the updated field map.

Printing Reports

Setting Print Options



Each report has its own set of options.

Highlight the report then either:

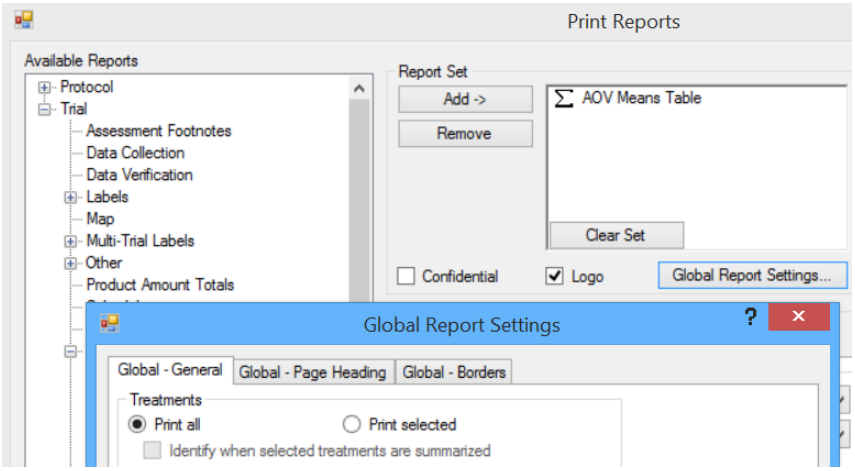
Right click the report name and choose **Report Options**.

or

Edit report options in report options window

Global Settings

The three Global Settings tabs control general settings that apply across all ARM reports.



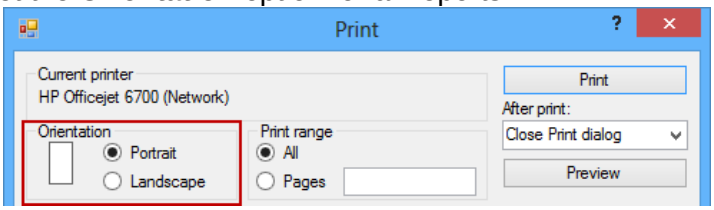
Global – General
Define how treatments and assessment data headers will print.

Global – Page Heading
Define how the header information and page numbering will print.

Global – Borders
Define how the borders will print with the assessment data.

Portrait or Landscape Printing

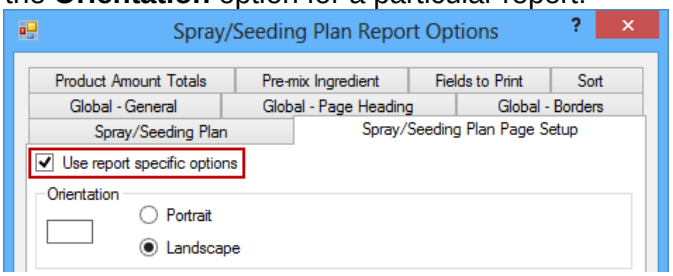
To set the **Orientation** option for all reports:



From the **Print Reports** dialog, select **Next**.

On the **Print** dialog, use the **Orientation** option to set the page orientation for <u>all</u> reports.

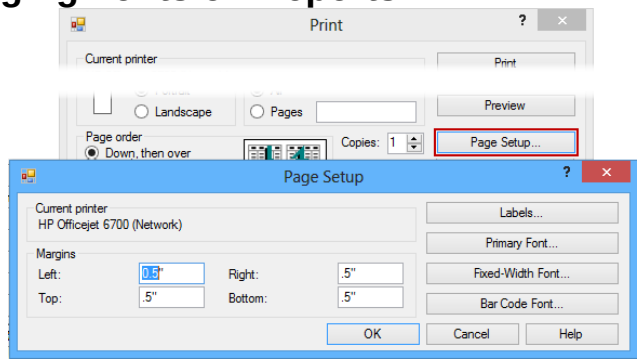
To set the **Orientation** option for a particular report:



Press Edit Report Options – Page Setup tab.

Check **Use report specific options** to override the default setting for all reports, and use the **Orientation** option selected on this screen.

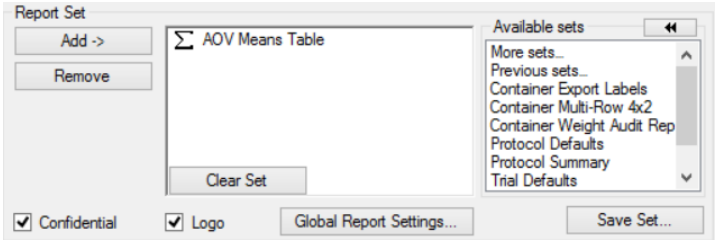
Changing Fonts on Reports



Select File – Page Setup.

Use **Primary Font** and **Fixed-Width Font** to define desired font and size to use on reports.

Report Sets



A **Report Set** is a collection of reports that are selected to print.
Click on a report in the **Available Reports** list, then click **Add** button to add the report to the end of the report set list.

Press the **Insert** key on the keyboard to add the currently selected report in the **Available Reports** section to above the cursor position in the report set.

The **Save Set** button will save the report set list with all options for the reports in the set.
Use the **Available sets** button to select and load these reports sets to print at another time.

Click **Clear Set** to clear the current selection of reports.

Printing the Site Description

There are several different forms that customize the way the site description can be printed.

Custom Form

This form uses the Site Description report options set by the user. This is the report that was called “Site Description” in previous ARM versions.

There are several common scenarios for printing the Site Description. The other available forms are pre-set configurations of the Site Description report options for these common scenarios.

Blank Form

All Site Description fields are included, and empty fields are printed with a blank following the prompt. This form is intended to be used as a fill-in form for entering information (example: % Sand _____).
Note: The Site Description report options are not available for this report, and no changes are made to the current report options when this form is used.

Standard Form

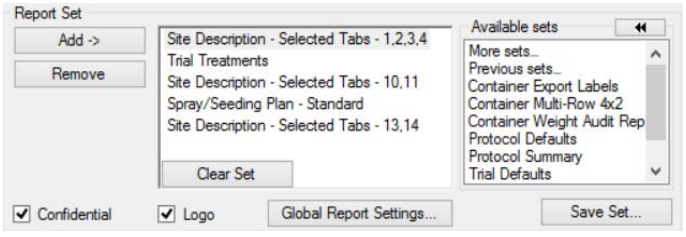
Blank fields are compressed out of the report, leaving only those Site Description fields that contain data. This is the most concise way to display all information entered into the Site Description.
Note: The Site Description report options are not available for this report, and no changes are made to the current report options when this form is used.

Named View

Select a Site Description view to determine the particular set of fields to print. These view files can be created and modified from the Site Description View options of the Options dialog. The Site Description report options are available for this report when a Named View is selected.
Note: This will not change, or use, the current view in ARM—only access a saved view *.ddv file.

Selected Tabs

Print only selected sections, or tabs, of the Site Description. This can be used to interleave the Site Description tabs throughout a report. This form uses the Site Description report options, which can be set by right-clicking the Custom Form report and selecting **Edit Report Options** before selecting tabs.



1. Click the small plus sign ⊞ next to the **Selected Tabs** option in the **Available Reports** section of the Print Reports dialog to display the selection prompt.
2. Choose the tabs to include for the particular section, and press **OK**.
3. These tabs are then added in one entry on the current report set. More reports can then be added as desired.

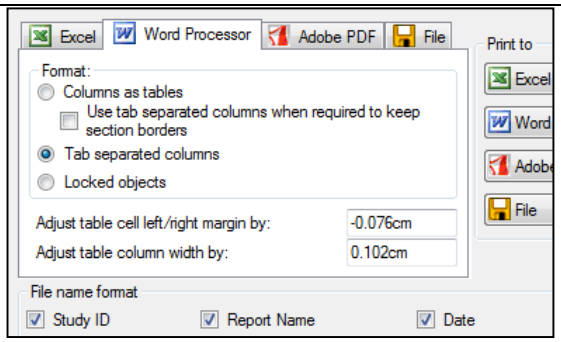
Print Menu

The **Print** menu includes shortcut buttons for printing reports to file. Each file choice has specific options.

a. Excel button “pushes” report directly into Excel.

b. Word Processor button creates *.rtf file and opens the file in Word.

c. Adobe button creates standard Adobe *.pdf file and opens the default *.pdf reader program.



Spray/Seeding Plan Report Questions

Why no product amount calculations?

- A recognized formulation type (such as EC), rate, and rate unit must be entered before ARM can calculate a product amount for formulated chemicals.
- For active ingredient rates, the formulation concentration must also be entered. Ensure the **mix size** option on the Application tab of the Settings dialog is larger than zero to obtain any mix basis rate units.
- For seed rate units (SEEDS/M2, SEEDS/HA), a rate and unit must be defined. Enter the Thousand Grain Weight (TGW) to obtain calculation of grams seed.

Why are dry product amounts 10 times too large (or small)?

- Insure that the default metric dry formulation unit is set correctly in the Settings dialog.
- Enter the actual formulation concentration unit in the treatments editor.

How do I control which treatment fields are printed?

- Use the **Treatment Fields to Print** button on report options to identify which treatment, rate, and unit fields to include on a report.

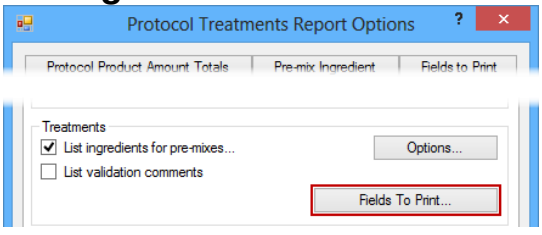
Summary Results

Always confirm your Summary Report options. What are the selected options for the Mean Comparison Test?

Standardized Summary

This report uses mean comparison test identifier codes listed in **ARM Action Codes** field in each assessment data column to determine how that column should be analyzed. The report prints in a format that is very similar to the AOV Means Table report.

Printing Both Sets of Treatment Rates and Units

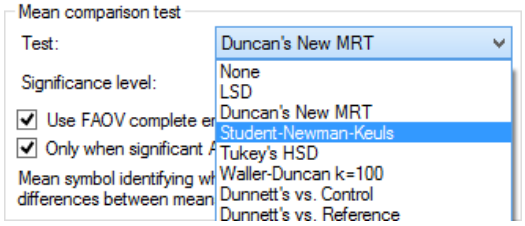


ARM can support study definitions with two sets of treatment rate and unit fields. (Typically to list both active ingredient and product rates, or metric and US units.)

Use the **Treatment Fields to Print** button on report options to identify the rate and unit fields to include on a report.

AOV Means Table

Analyze all single factor designs, or 2 factor designs with significant A*B interactions, or 3 factor designs with significant A*B*C interactions. Some key options are:

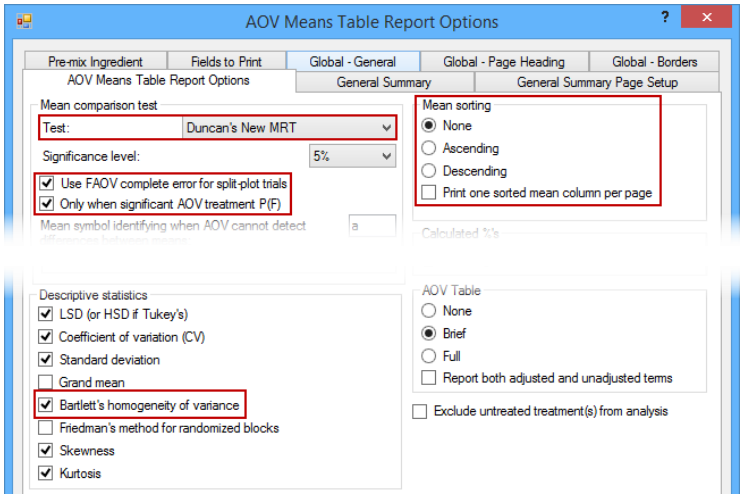


- **Mean comparison test**
  The first four mean comparison tests are listed in order of most liberal to most conservative. A liberal test is more likely to identify random differences as significant, while a conservative test is more likely to ignore actual treatment differences.

  Notes regarding the LSD (Least Significant Difference) test:
  (1) Use with "Only when significant AOV treatment P(F)" option for *Fisher's Protected LSD* test.
  (2) Use when analyzing only 2 treatments (General -Global - Print selected) for *Paired t-Test*.
  (3) When using LSD to make an unplanned comparison of the highest and lowest mean in a trial with more than two treatments, the difference between treatments can be substantial even when there is no treatment effect. Some statisticians have determined that when using 5% LSD for a trial with:
    (a) Three treatments, the significance level is actually 13%
    (b) Six treatments, the significance level is 40%
    (c) Ten treatments, the significance level is 60%
    (d) Twenty treatments the significance level is 90%.

ii. **Use FAOV complete error term for split-plot trials** option automatically uses appropriate error term for AOV Means Table analysis of a split-plot or strip-block trial.

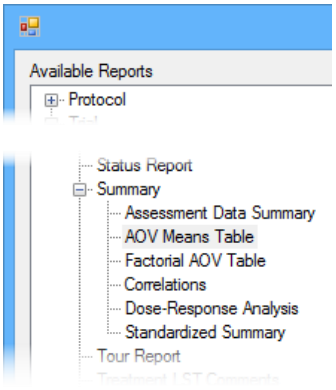
iii. **Only when significant AOV treatment P(F)** option give a "protected" mean comparison test, since mean comparisons are only performed when analysis indicates there are significant differences between treatments at probability level specified for the mean comparison test.
Note: Using this option with LSD mean comparison test gives "Fisher's Protected LSD" test.



iv. **Bartlett's homogeneity of variance** option helps identify treatment heterogeneity, important because homogeneous treatment variance is an assumption for AOV.

v. **Mean sorting** option sorts treatment means from low-to-high or high-to-low on the report.

b. Factorial AOV - to perform initial analysis of all multi-factor designs, identify if there are significant interactions between factors (A*B, A*B*C, etc.), and calculate means for each factor level averaged across remaining factors.
c. Correlations - to determine degree of association between data columns.
d. Dose-Response Analysis - to estimate the treatment rate that provides the desired response level.
e. Standardized Summary - an AOV means table report that performs only the mean comparison test identified by ARM Action Code in each data column.



Assumptions of AOV - data are random, independent, normally distributed, and have a common variance. Detect violations of AOV assumptions using:

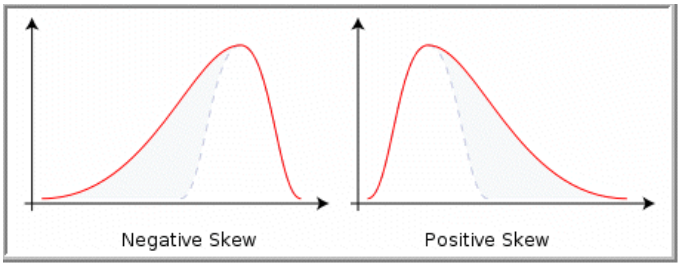
a. Bartlett's test of homogeneity of variance

Assessment data columns with probability >=95% of treatment heterogeneity or non-normal data are indicated by * in descriptive statistics section at bottom of AOV Means Table report.

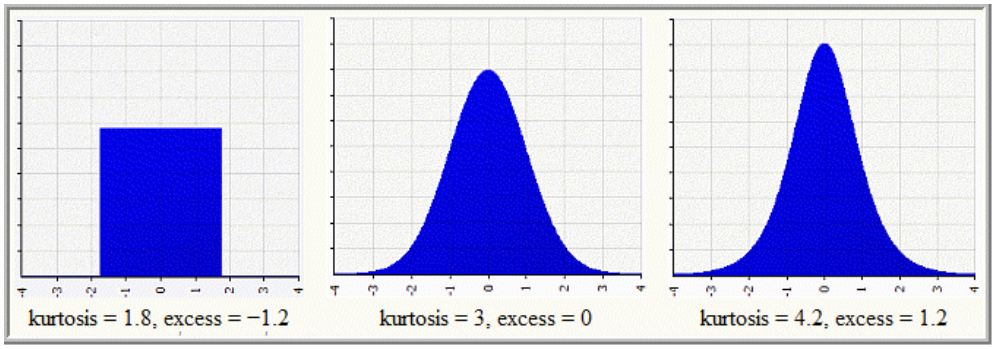
Trt No.	Treatment Name	11	12	13	14
1	Untreated	106.3 a	106.3	105.5 a	105.9 a
2		13.5 bc	13.5 b	12.6 cd	13.0 cd
3		17.0 bc	17.0 b	17.0 bc	17.0 c
4		9.5 c	9.5 b	9.0 d	9.2 d
5		24.0 b	24.0 a	22.8 b	23.4 b
LSD (P=.05)		8.93	6.15	0.14t	0.62t
Bartlett's X2		12.244	6.488	7.706	5.596
P (Bartlett's X2)		0.016*	0.09	0.103	0.231
Skewness		1.6078*	0.677	0.8784	1.34*
Kurtosis		1.0506	-0.0687	-0.2758	0.399

b. Skewness and Kurtosis tests of normality

i. Skewness measures asymmetry of the data distribution, meaning that the peak on a data distribution graph is shifted either right or left:



ii. Kurtosis measures "peakedness" of data distribution, meaning the peak is either flatter or sharper than a normal distribution: (ARM reports *excess kurtosis* as shown below.)



Limiting Number of Decimals for Data Reports

Assessment Data - Line 15		
Column Number	9	
Rating Timing	2	
Days After First/Last Applic.	*13*	*13*
Trt-Eval Interval	13 DA-A	
Plant-Eval Interval	236 DP-1	
ARM Action Codes	P	
Number of Decimals	2	

+	Sub	Rp	Bk	Col	Plot	Trt	9
	1	*1*	*1*	*1*	*101*	*4*	75.00
	1	*1*	*1*	*2*	*102*	*2*	60.00

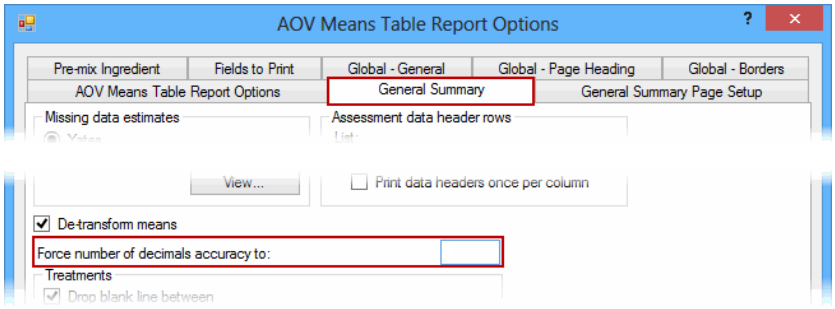
To limit the number of decimals of accuracy by column:

GDM Recommends

In the Assessment Data header, use the **Number of Decimals** field for each column.

By default ARM prints one more decimal of accuracy than the most precise data item.

To limit the number of decimals of accuracy across all reports:



Select File – Print Reports. Select a summary report, press the **Edit Report Options** button, and click on the **General Summary** tab.

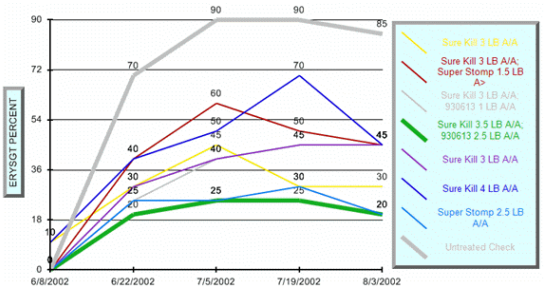
Then enter the number of decimals in the **Force number of decimals accuracy to** field.

Printing Excel Report Link Workbook

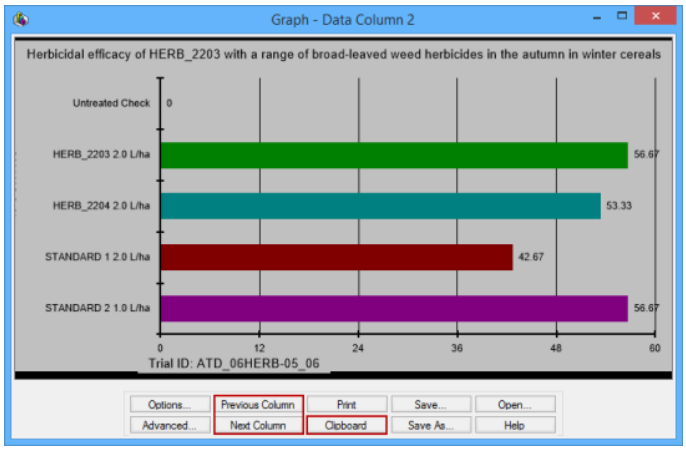
The report link workbook is a method to create customized site description reports that are printed in Microsoft Word. A template document is used to define the report format, and to link with a special Microsoft Excel report link template where ARM prints trial information.

Open the ReportLink.xls and example ReportLinkTemplate.doc in the GDMdef study definition directory for an example. The ReportLink.xls includes cell comments describing how to use the workbook. Hold the mouse cursor over cells with a red mark in the upper left to view comments. The Word template document must link to cells in column D of ReportLink.xls to obtain trial site description information.

Graphing Data



1. Graph types and recommended uses:
   a. Bar - most suitable for discrete treatments, such as comparison of different treatment products
   b. Line - used to show trends in values over a continuous scale, like different rates of a treatment product
   c. Box-Whisker - A Box-Whisker graph illustrates the spread of treatment data groups around their medians, using a "box" and "whiskers" to break down each data group by percentiles. The **box** extends from 25th to the 75th percentile and is divided by the median. The **whiskers** extend from ends of the box to largest and smallest observation.



2. Graph **tips:**
   a. Use **Horizontal** bar graph to better display long treatment names.
   b. Use Next Data/Previous Data buttons on Graph window to display the same graph for other data columns.
   c. The Clipboard button is the easiest way to copy graphs to another program; select Paste in destination program to include the graph.
   d. Treatment selection order (e.g. 5 4 3 2 1) determines treatment order on a graph.

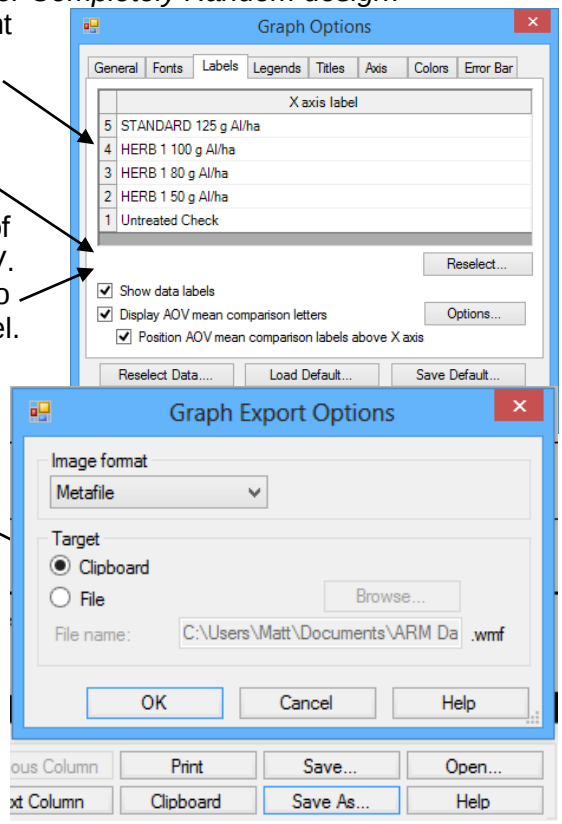
e. Use “Error Bar” tab on Graph Options to display standard deviation or standard error bars
Note: The error bars on ARM graphs are calculated using appropriate error terms from AOV. On many graph programs (such as Excel) error bars are *only correct for Completely Random design*.

f. The Treatment Description on Trial Map is used for treatment labels on graph, giving a brief 1-line description of each treatment. Edit the treatment description to adjust (typically shorten) treatment labels for graphs and map reports.

g. Use “Show data labels” on Labels tab of Graph Options to display treatment mean values.

h. Use “Display AOV mean comparison letters” on Labels tab of Graph Options to display mean comparison letters from AOV. Options button displays AOV Means Table Report options, to choose a different mean comparison test or significance level.

3. To export graphs to other software, display the graph, then:
   a. Press the Clipboard button to copy the graph to the clipboard, to paste into another program.
   b. Press **Save As** button and select **File** for the **Target** option to save the graph to a file on disk.



Remember: Typically 20% of ARM features are enough to perform all needed activities. Increasing to 30% helps you perform those activities most efficiently.