ARM 9.0.5

Features

January 2013

Gylling Data Management, Inc.
Treatments Editor

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

<table>
<thead>
<tr>
<th>Trt Line</th>
<th>Trt No.</th>
<th>Type</th>
<th>Treatment Name</th>
<th>Form Conc</th>
<th>Form Unit</th>
<th>Form Type</th>
<th>Rate</th>
<th>Rate Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>CHK</td>
<td>Untreated Check</td>
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</tr>
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<td>TUB</td>
<td>250</td>
<td>G/L</td>
<td>EC</td>
<td>0.5</td>
<td>L/ha</td>
</tr>
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<td>FUNG</td>
<td>TUB</td>
<td>250</td>
<td>G/L</td>
<td>EC</td>
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<td>L/ha</td>
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<td>FUNG</td>
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<td>G/L</td>
<td>EC</td>
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<td>L/ha</td>
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<td>EC</td>
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<td>FUNGOL</td>
<td>200</td>
<td>G/L</td>
<td>SC</td>
<td>1.25</td>
<td>L/ha</td>
</tr>
</tbody>
</table>
Assessment Data Editor

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

- Calculated columns also identified
Assessment Map

- Assessment Description tab selects data header fields to describe each column on map and map report
Assessment Data Images

- Enhanced for defining multiple images per plot
  - Specify number of images per plot when subsamples are defined
Assessment Data Images

- Example of 2 images for plot 101 col. 6
Assessment Data Images

- More ‘Rename images’ choices

![Image Import Preview](image1.png)

![Number of images per 'Plot' experimental unit within an assessment](image2.png)
Trial Map Enhancements

- Special colors to identify check and reference treatments - map and graph
- Treatment color selection palette of 999 unique color + symbol combinations
- Border plot options on right-click menu
Trial Map Enhancements

Check/Ref (read from Settings)

Color palette
Trial Map Enhancements

Outside border plots

Numbering

Define custom palette

January 2013
Graphs

- Display untreated/check and reference treatments with special colors
- Hover mouse over outlier 'X' on box-whisker graph to show plot number(s) (especially useful with subsamples)
Graphs

- Auto-size graph title boxes in new graph to optimize using graph space
- Resize y-axis to show all outliers of box-whisker graph (previously you had to manually size)
Graphs

- Use as default the size and position from previous graph
- Suppress 0 on box-whisker graph for missing treatments
- Modified Y-axis for box-whisker graphs to reduce extra space above graphs when maximum values exceed 100
Print Reports:
Remove page break when...

- 'Remove page break when blank space exceeds (%)' option reduces unused space on report pages
Print Reports:
Remove page break when...

- Can shrink 4 pages to 1
New Site Description Reports

- New Site Description reports simplify changing between common report uses
New Site Description Reports

- Allow printing several report segments
New Site Description Reports

- Allows you to create your own custom reports
Print Selected Replicates

- General Summary report option to exclude replicates that may be damaged
Print Selected Replicates

- Similar prompting as selected data columns or header rows
AOV Means Table Report OSLs

- New significance levels for LSD, SNK, and Tukey's mean comparisons of 15, 20, 25, 30, 40, 50%
AOV Means Table Report OSLs

- Allows selecting appropriate significance levels according to ‘penalty of failure’ for tested treatments. For example, new ‘plant health’ products frequently improve yield, however a failure loses only cost of the product, so reduced significance levels are more appropriate than for crop protection tests.
Heterogeneity/Skewness/Kurtosis on Summary Reports

- ARM 9 always tests homogeneity of variance and normality for summaries.
- Possible solutions are listed on Summary Report Messages:
  - Apply data correction transformation
  - Exclude check treatment
  - Exclude treatment with highest or lowest standard deviation (if either works)*

  * ARM cannot automatically apply
Heterogeneity/Skewness/Kurtosis on Summary Reports

- Apply automatic transformations or treatment exclusions to data columns that violate assumptions of AOV:
  - Prompt
  - Yes
  - No
Heterogeneity/Skewness/Kurtosis on Summary Reports

When ‘Prompt’ a confirmation dialog identifies violation(s) and asks:

![ARM - SPECIAL CONFIRMATION](image)

Apply automatic data correction transformation 'Log(n+1)’ to data column 5 to correct heterogeneity of variance/skewness/kurtosis?
Apply automatic data correction transformation 'Arcsine square root percent' to data column 7 to correct heterogeneity of variance/skewness/kurtosis?
Apply automatic data correction transformation 'Arcsine square root percent' to data column 8 to correct skewness?
Apply automatic data correction transformation 'Log(n+1)’ to data column 9 to correct heterogeneity of variance?
Apply automatic data correction transformation 'Log(n+1)’ to data column 11 to correct skewness/kurtosis?

Should ARM automatically apply the suggested correction?

Select ‘Yes’ to apply the correction for column 5. ARM will prompt individually for other columns.
Select ‘Yes To All’ to apply the corrections for all columns.
Select ‘No’ to not apply the correction for column 5. ARM will prompt individually for other columns.
Select ‘No To All’ if you do not wish to apply any corrections.
Heterogeneity/Skewness/Kurtosis on Summary Reports

- When ‘Yes’ or ‘Prompt’ the applied actions are listed in Report Messages
Heterogeneity/Skewness/Kurtosis on Summary Reports

- Corrections added to ARM Action Codes
  - AL=Automatic Log
  - AA=Automatic Arcsine Square Root Percent (only tested for 0-100 data)
  - AS=Automatic Square Root

<table>
<thead>
<tr>
<th></th>
<th>15 DA-B</th>
<th>15 DA-B</th>
<th>29 DA-B</th>
<th>29 DA-B</th>
<th>11 DA-C</th>
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</thead>
<tbody>
<tr>
<td>AL</td>
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<td>8</td>
<td>9</td>
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<tr>
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<td>0.00 b</td>
<td>15.28 a</td>
<td>0.00 c</td>
<td>2.31 b</td>
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</tbody>
</table>

January 2013
Heterogeneity/Skewness/Kurtosis on Summary Reports

- Exclude check treatment
  - EC=Exclude Check
Heterogeneity/Skewness/Kurtosis on Summary Reports

- ARM cannot automatically exclude a non-check treatment number, since there is no special ARM Action Code defined for this task.

- GDM plans to define a ‘ETn’ code, such as ET8 to exclude treatment number 8, so non-check treatments can also be automatically excluded.
Create Trial - Merge Factor to

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

- These protocol treatments:

<table>
<thead>
<tr>
<th>Trt Line</th>
<th>Trt No.</th>
<th>Type</th>
<th>Treatment Name</th>
<th>Form Conc</th>
<th>Form Unit</th>
<th>Form Type</th>
<th>Rate</th>
<th>Rate Unit</th>
<th>Growth Stage</th>
<th>Appl Code</th>
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<tbody>
<tr>
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<td></td>
<td></td>
<td>Start of Factor A (Herbicide)</td>
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<tr>
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<td>HERB</td>
<td>Tub</td>
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<td>g/L</td>
<td>EC</td>
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<td>4</td>
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<td>Start of Factor B (Rate)</td>
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<td>High rate</td>
<td>50</td>
<td>g Al/ha</td>
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<tr>
<td>7</td>
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<td>Start of Factor C (Stage)</td>
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<tr>
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<td>Late</td>
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</table>
Create Trial - Merge Factor to

- Result in these trial treatments

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<th>Form Type</th>
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<th>Rate Unit</th>
<th>Growth Stage</th>
<th>Appl Code</th>
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<th>Level No.</th>
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</tr>
</tbody>
</table>

January 2013
Validation Lists

- Database filter control for defining more than one filter per validation list column

- Display previous filters applied to a list

![Database filter control](image)
Validation Lists

- Previous Filters *

*Filters are only saved when this Tools - Options Editor choice is active.
Study Rule Required and Recommended Field Colors

- **Required** = pink background:
  - Latitude of LL Corner °:
  - Longitude of LL Corner °:

- **Recommended** = blue background:
  - Overall Moisture Conditions:
Study List

- Discipline field

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