ARM Tablet Data Collector

Steven R. Gylling, Ph.D.
Gylling Data Management, Inc.
ARM Tablet Data Collector

Win 8 Pro tablet + ARM + special ARM tablet features
What is ‘ARM’?

- Windows software for trial management
  - Enter treatments of interest, select design (RCB, CRD, Latin Square, 4 Lattices, Factorial RCB, Split-Plot, Strip-Block)
  - Randomize trial appropriately for design
  - Print trial management reports
  - Enter assessments and site information in structured format
  - Transform, statistically analyze, report, & graph results
ARM 9 – Evolution of ARM Software

Total ARM User Licenses Over Time
Actions that will Improve Assessment Quality

- Enter data only once to avoid transcription errors
- Employ appropriate range checking for assessed values
- Perform data quality checks before leaving trial site (analyze, graph)
- Include photographs that illustrate or support measurements & observations
Benefits of Using ARM Tablet Data Collector (TDC)

Use full ARM software at trial site on conveniently sized hardware that is readable in direct sunlight, plus:

- Optimized for collecting data
- Take photos directly into ARM trial file
- Record GPS coordinates into trial
- Perform data quality checks on-site
- Eliminates data transcription errors

July 2013
Special TDC Features

- Tablet Data Entry
- Tablet Image Capture
- Tablet GPS
Tablet Data Entry

- Component of Assessment Data editor
- Optimizes editor use on a small touch tablet computer
- Optimized screen
- Start image capture
- Shortcut keys
- Touch keypad
- Zoom
Tablet Data Entry Features

- Automatically reads valid data range from assessment unit field

- For 1 digit scales from 0-9, cursor moves automatically to next assessment data cell (no pressing Enter)
Tablet Data Entry Features

- Automatic limit dialog displays for out-of-range data, for immediately correcting an entry mistake
Tablet Data Review Tools

- Data analysis (Analysis of Variance)
- Box-Whisker Graph
- Assessment Map
AOV Means Table

- AOV=Analysis of Variance
- Treatment means
- Mean comparison test
- Descriptive statistics
- AOV assumption violations
- Evidence of significant treatment/rep. differences

<table>
<thead>
<tr>
<th>Rating Type</th>
<th>ARM Action Codes</th>
<th>COUINS</th>
<th>APC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trt Treatment No. Name</td>
<td>Rate</td>
<td>Rate Unit</td>
<td></td>
</tr>
<tr>
<td>1 Untreated Check</td>
<td>106.3 a</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>2 Sure Kill NIS</td>
<td>250 g ai/ha</td>
<td>0.5 % v/v</td>
<td>13.5 bc</td>
</tr>
<tr>
<td>3 Super Stomp NIS</td>
<td>250 g ai/ha</td>
<td>0.5 % v/v</td>
<td>17.0 bc</td>
</tr>
<tr>
<td>4 Sure Kill NIS</td>
<td>375 g ai/ha</td>
<td>0.5 % v/v</td>
<td>9.5 c</td>
</tr>
<tr>
<td>5 Super Stomp NIS</td>
<td>375 g ai/ha</td>
<td>0.5 % v/v</td>
<td>24.0 b</td>
</tr>
</tbody>
</table>

LSD (P=.05), Standard Deviation, CV, Bartlett's X2, P(Bartlett's X2), Skewness, Kurtosis

- Replicate F: 6.201
- Replicate Prob(F): 0.0087
- Treatment F: 197.210
- Treatment Prob(F): 0.0001

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls) Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL
Box-Whisker Description

- Shows treatment "spread" around median
- **Box** is from 25th to 75th percentile, around median
- **Whiskers** extend to largest and smallest non-outlier values
- **Outliers** (X) are points outside of the box by more than 1.5 times box height
Box-Whisker Graph

- Box height shows treatment stability across replicates
- Skewed waist position shows a replicate difference
- Simplest method to view treatment variance(s)
Assessment Map

- Displays assessment values on trial map.
- Values are indicated by color intensity.
- Lower values display in lighter colors.
- Color description is key to value colors.
Tablet Image Auto-Capture

- Take a picture. ARM “captures” the image and links it to the current plot.
Suggested “Camera” Position
Tablet Image Auto-Capture

- Automatically rename attached image
- Copy image to folder where trial is saved
Tablet GPS

- Reads current GPS coordinates from tablet hardware into Latitude and Longitude site description fields.

- Touch Tablet GPS button to read current position for indicated corner (e.g. LL).
Tablet Data Collector Inquiries

- Email your local GDM Representative, see http://gdmdata.com/distributors.htm or fran@gdmdata.com