



ARM

A software for data capture, reporting and trial management
of agricultural trials in field and lab





Information flow in ARM

?

How to use this presentation?

Protocol

.PRT

Trial

.DAT

Loc1.DAT

Loc2.DAT

Loc3.DAT

Report1

Report2

Report3

Data Collector

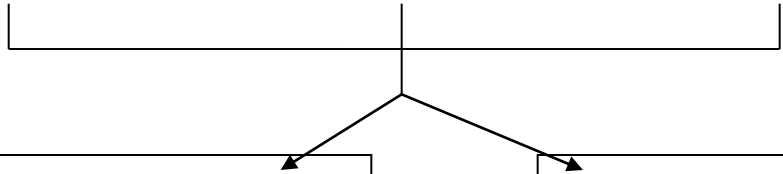
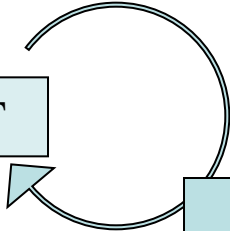
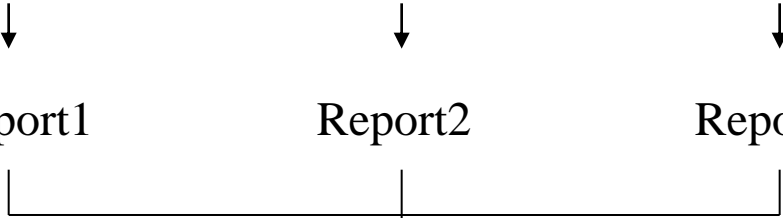
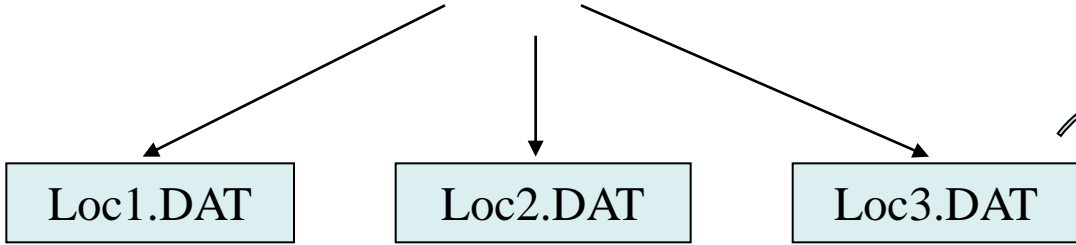
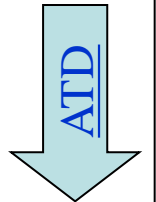
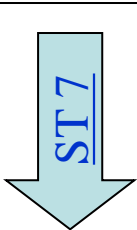
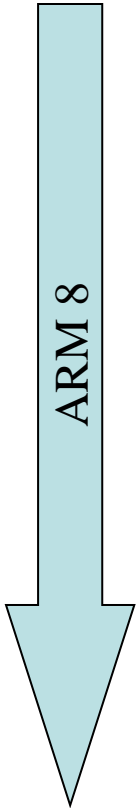
Summary Across Trials

Add-in to ARM 8

.STC

Trial database

Relational Access database



Introduction

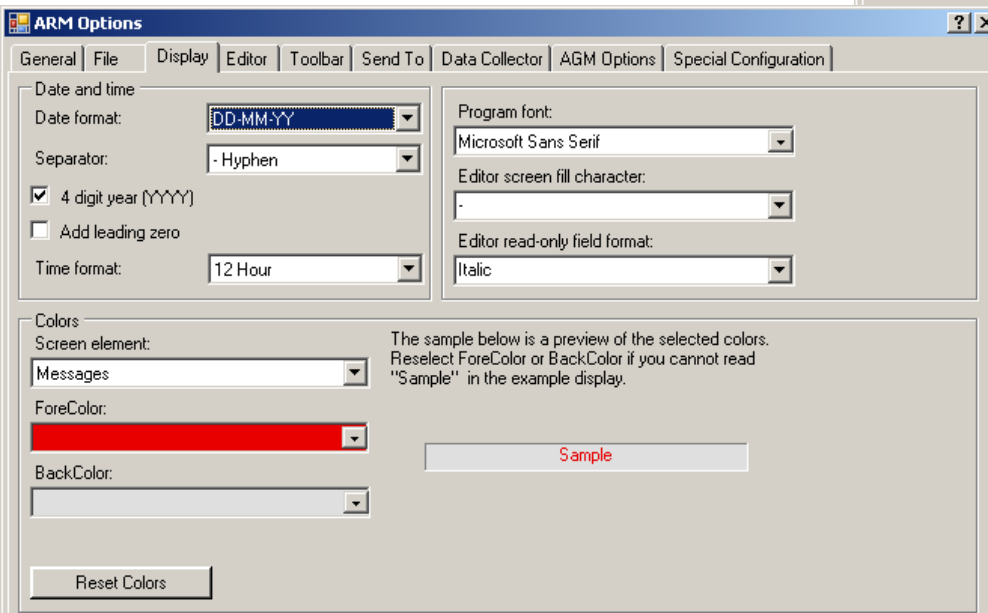
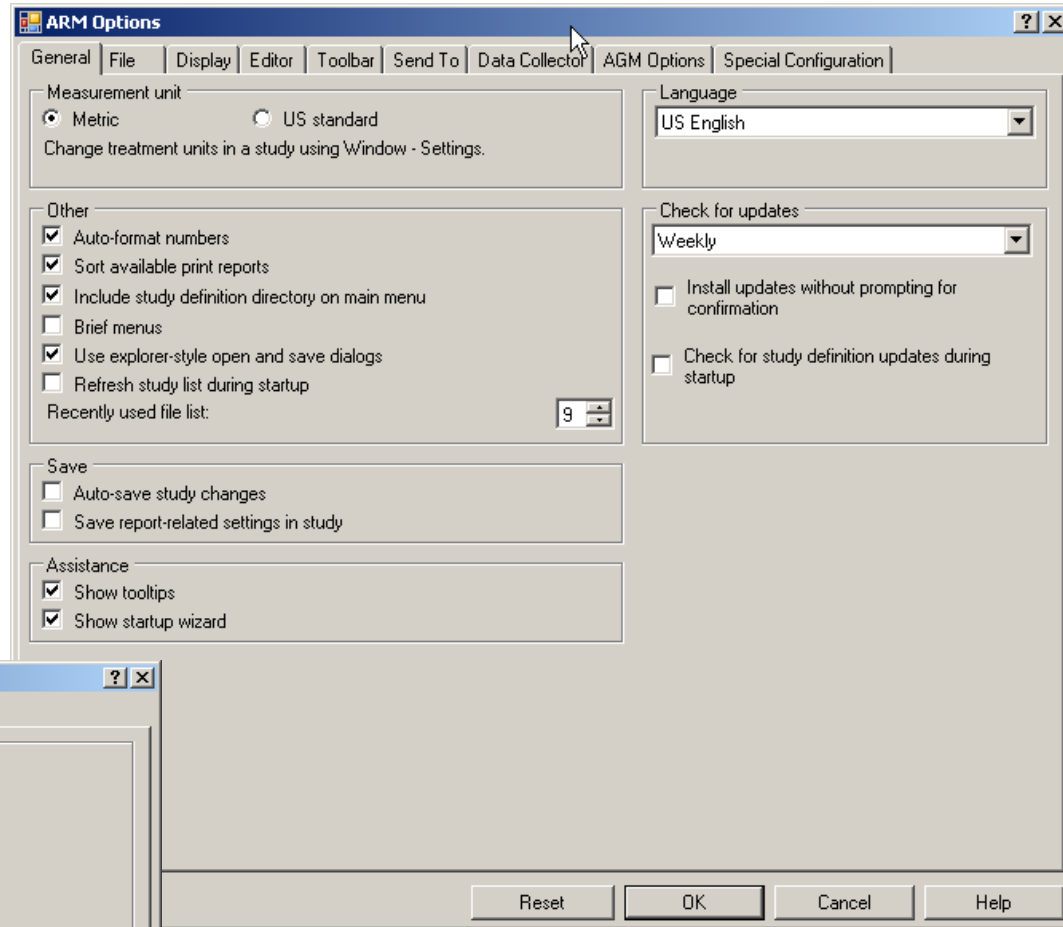


- Create one protocol
- Create one trial from a valid PRT
- Review the various trial sections
- Work across season
 - Print reports
 - Enter data
 - Subsamples
 - Convert yield
 - Create graphs
 - Validate trials
 - Transform data
 - Help within ARM 8
- Benefits of using ARM 8

ARM Basics options



- *Tools/Options*
- *Languages*
- *Settings:*
 - *Measurement units*
 - *Date formats*





Protocol

- It should contain all information needed to run trials

The screenshot displays the ARM (GDMDDef) software interface for a protocol titled "ARM (GDMDDef) - G-All7_Herb Protocol". The "Window" menu is open, showing a list of sections: Title, Split, Refresh Current Editor, Header, Treatments, Protocol Description, Description Section..., Assessment Data, Trial Map, Schedule Tasks, Calendar, Comments, Attachments, and Settings. A yellow box labeled "Sections" points to the "Description Section..." menu item. Another yellow box labeled "Section Settings" points to the "Study Director" field in the form, which contains the value "R.E. Cearch". The form also includes fields for "Protocol ID: G-All7_He", "Location: GERMAN", and "Project ID: G-All7_He". The left sidebar shows a navigation tree with categories like "ARM (GDMDDef)", "Header", "Treatments", "Protocol Description", "Assessment Data", "Schedule Tasks", "Calendar", "Attachments", "Settings", "Summary Across Trials", "Germplasm Manager", "Tasks", and "Master Calendar".



Protocol - Header

Header

ARM (GDMDDef) - G-All7_Herb Protocol

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Navigation Bar

ARM (GDMDDef)

- Header
- Treatments
- Protocol Description
 - Trial Establishment
 - Crop/Pest Description
 - Application
 - Crop Stage at Appl.
 - Pest Stage at Appl.
 - Site Information
 - General Comments

Header

Title:
Determination of the efficacy and lowest effective dose rate of HERB 1 against

Protocol ID: G-All7_Herb Trial ID:

Location: GERMANY Study Director: R.E. Cearch

Project ID: G-All7_Herb By: Your Name

Sponsor Contact:

Your screen might be different.

Some fields are hidden by default



Protocol – Treatments list

Treatments

ARM (GDMDDef) - G-All7_Herb Protocol

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Navigation Bar

Treatments - Line 31

Trit Lin	Trit No.	Type	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	Comment 1	Comment 2
1	1	CHK	UNTREATED											
2	2	HERB	HERB 1	100	GA/L	EC		50	g AI/ha	0.5	L/HA	A	early post application	
3	3	HERB	HERB 1	100	GA/L	EC		80	g AI/ha	0.8	L/HA	A	early post application	
4	4	HERB	HERB 1	100	GA/L	EC		100	g AI/ha	1.0	L/HA	A	early post application	
5	5	HERB	STANDARD	125	GA/L	EC		125	g AI/ha	1.0	L/HA	A	early post application	
6														
7														
8														

Navigation Bar

- ARM (GDMDDef)
- Header
- Treatments
- Protocol Description
 - Trial Establishment
 - Crop/Pest Description
 - Application
 - Crop Stage at Appl.
 - Pest Stage at Appl.
 - Site Information
 - General Comments
 - Assessment Data

Protocol – Protocol description



Description:
Protocol description in PRT
Site description in DAT

ARM (GDMDDef) - G-All7_Herb Protocol

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Navigation Bar

- ARM (GDMDDef)
- Header
- Treatments
- Protocol Description
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- Application
- Crop Stage at Appl.
- Pest Stage at Appl.
- Site Information
- General Comments
- Assessment Data
- Schedule Tasks
- Calendar
- Attachments
- Settings
- Summary Across Trials
- Germplasm Manager
- Tasks
- Master Calendar

Protocol Description

Trial Establishment Guidelines | Crop/Pest Description | Application | Crop Stage at Appl. | Pest Stage at Appl. | Site Information | General Comments

Trial Establishment Guidelines

Project ID: Study Design:

Developer: Untreated Arrangement:

Revision Number: Revision Status:

Revision Date: Issue Date:

Keywords:

Insert row with Shift+F7. Delete current row with Shift+F8

Trial ID	Responsible	Number of Trials	Site Requirements
123 a 1-5	R.E. Cearch	5	

Total Trials:

Some information is copied from General tab of Settings - make changes there

Conduct Under GLP: Validation Rules:

Conduct Under GEP:

	Guideline	Description
1.	PP 1/49(2)	Weeds in brassica oil crops
2.	PP 1/135(2)	Phytotoxicity assessment
3.	PP 1/152(2)	Design and analysis of efficacy evaluation trials
4.	PP 1/181(2)	

Objectives:

Protocol settings – General



Settings:

ARM (GDMDDef) - G-All7_Herb Protocol

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Navigation Bar

ARM (GDMDDef)
Header
Treatments
Protocol Description
Trial Establishment
Crop/Pest Description
Application
Crop Stage at Appl.
Pest Stage at Appl.
Site Information
General Comments
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Trit Lin	Trit No.	Type	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	Comment 1	Comment 2
1	1	CHK	UNTREATED											
2	2	HERB	HERB 1									A	early post application	
3	3	HERB	HERB 1									A	early post application	
4	4	HERB	HERB 1									A	early post application	
5	5	HERB	STANDARI									A	early post application	
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
21														
22														

Protocol Settings

General Design Treatment Application Layout

Replications: 4

Treated 'Plot' size
Width: 2.5 meters
Length: 10
Orientation (degrees):

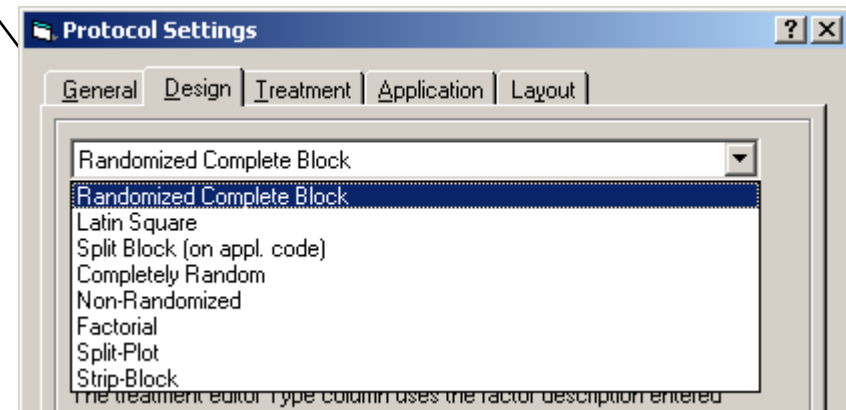
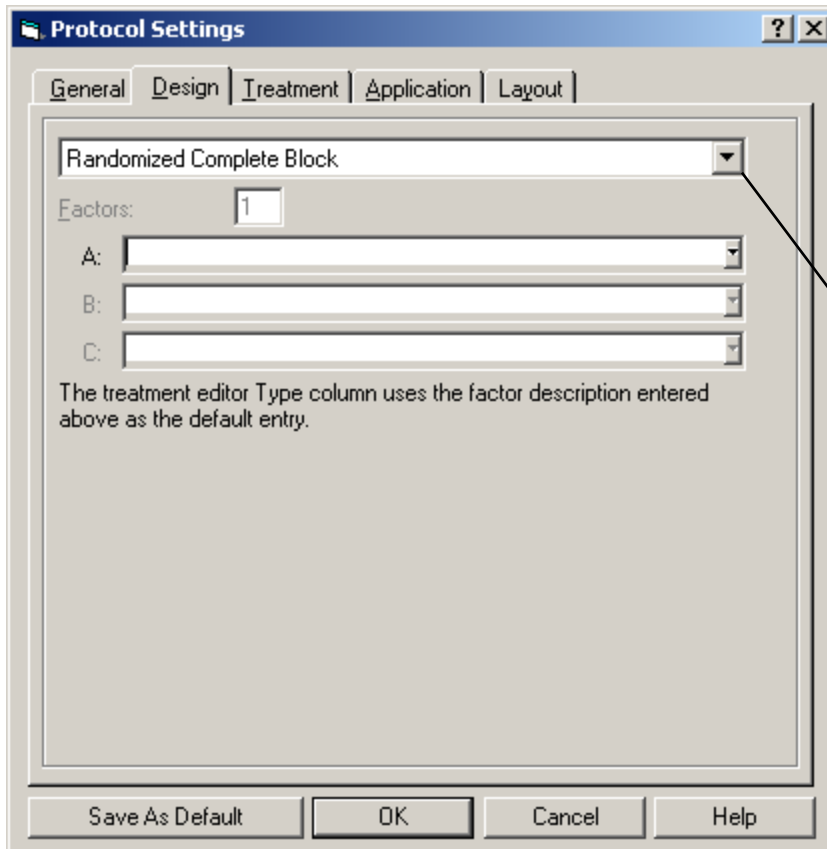
Format definitions
Site description: G-All7.frm
Study: G-All7.def
Change FRM... Change DEF...

Conduct under GLP/GEP

Save As Default OK Cancel Help



Protocol settings - Design





Protocol settings - Treatments

ARM (GDMDef) - G-All7_Herb Protocol

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Navigation Bar

ARM (GDMDef)
Header
Treatments
Protocol Description
Trial Establishment
Crop/Pest Descriptio
Application
Crop Stage at Appl.
Pest Stage at Appl.
Site Information
General Comments

Trt Lin	Trt No.	Type	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	Comment 1	Comment 2
1	1	CHK	UNTREATED											
2	2	HERB	HERB 1	100	GA/L	EC		50	g Al/ha	0.5	L/HA	A	early post application	
									g Al/ha	0.8	L/HA	A	early post application	
									g Al/ha	1.0	L/HA	A	early post application	
									g Al/ha	1.0	L/HA	A	early post application	

Protocol Settings

General Design Treatment Application Layout

Untreated treatments:

Reference treatment number:

Treatment units

Metric (g/kg)... US standard

Settings...

Treatment Fields

Treatment View Options...

Save As Default OK Cancel Help

Protocol settings - Application



ARM (GDMDDef) - G-All7_Herb Protocol

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Navigation Bar

- ARM (GDMDDef)
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Trt Lin	Trt No.	Type	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	Comment 1	Comment 2
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2	2	HERB	HERB 1	100	GA/L	EC		50	g AI/ha	0.5	L/HA	A	early post application	
3	3	HERB	HERB 1	100	GA/L	EC		80	g AI/ha	0.8	L/HA	A	early post application	
4	4	HERB	HERB 1										early post application	
5	5	HERB	STANDARD										early post application	
6														
7														

Protocol Settings

General | Design | Treatment | Application | Layout

Application volume: 300 l/ha

Mix size: 3.25 liters

(suggest 3.25 liters)

Mix overage: 250 ml

(Suggested mix based on number of reps, 'Plot' experimental unit size, volume, and overage.)

In-Furrow

Rows per plot for in-furrow: 0

Save As Default OK Cancel Help



Protocol settings - Layout

Protocol Settings [?] [X]

General | Design | Treatment | Application | **Layout**

Plot numbering: Standard by block (101,102, etc.)

Begin at: Bottom left

Serpentine numbering

Blocks as columns instead of rows

Non-randomized replicate: 0

Starting block number: 1

Increment between blocks: 1

Buffer between blocks: 0

Starting plot offset: 1

Increment between plots: 1

Buffer between plots: 0

Block size: []

Fill blocks

Treatment adjacency: 1

Save As Default | OK | Cancel | Help

Trial Map

401	402	403	404	405
4	5	3	1	2
301	302	303	304	305
5	4	2	3	1
201	202	203	204	205
4	5	1	2	3
101	102	103	104	105
3	4	5	1	2

Trial Map

301	302	303	304	305	401	402	403	404	405
3	2	4	1	5	5	2	3	1	4
101	102	103	104	105	201	202	203	204	205
1	2	3	4	5	2	4	3	1	5

Block size = 10. Option to fill blocks selected.

Protocol – Assessment data



Assessment data :
Only Assessment data headers in PRT

ARM (GDMDDef) - G-All7_Herb Protocol

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Navigation Bar

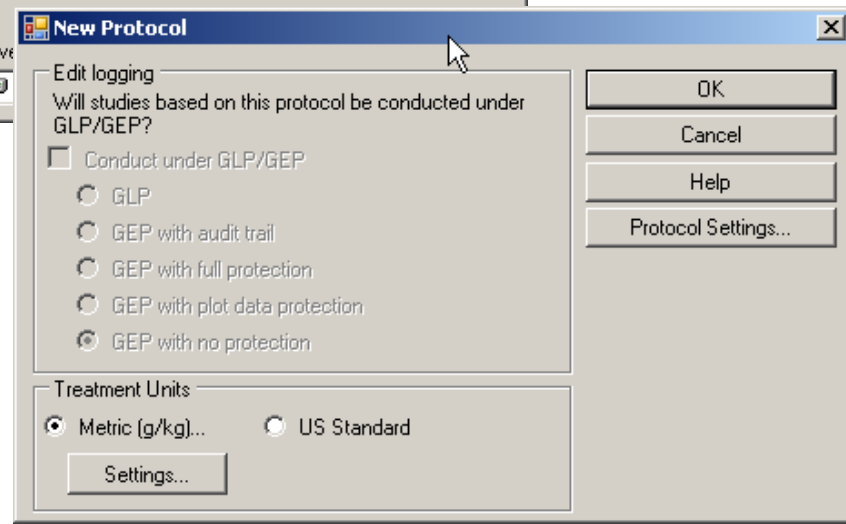
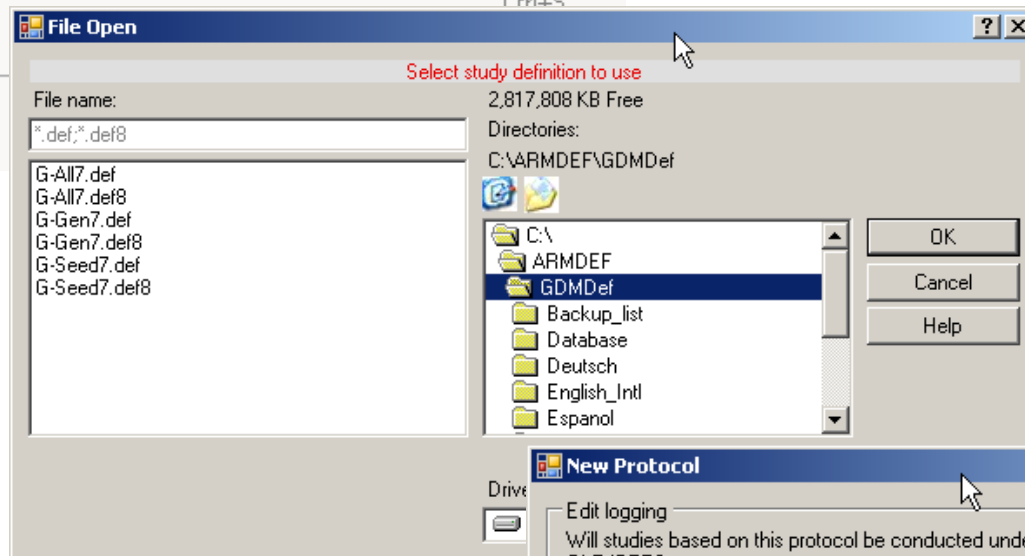
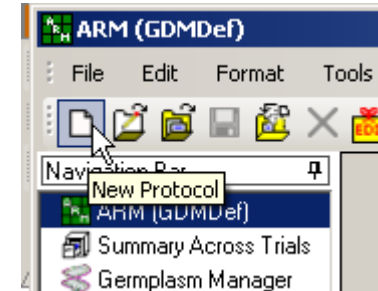
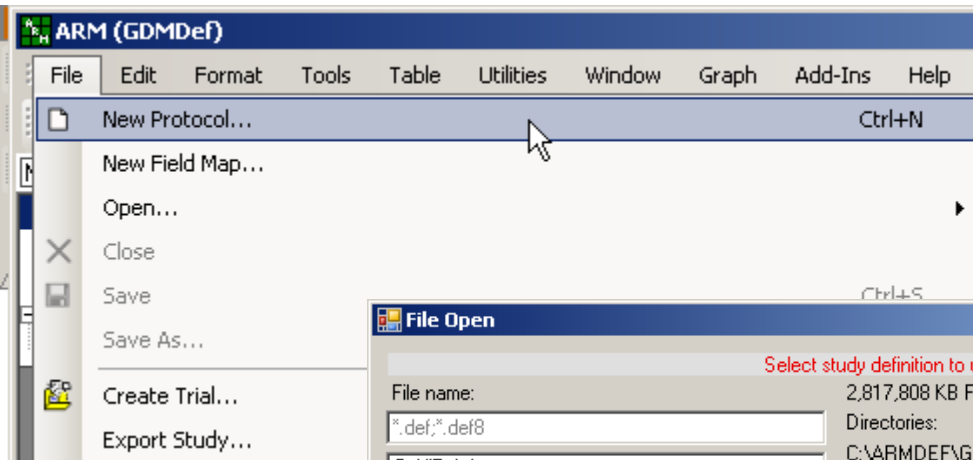
Assessment Data - Line 1

Column Number	1		2		3		4		5		6		7	
Pest Type									W	Weed	W	Weed	W	Weed
Pest Code									GGGAN		GGGAN		GGGAN	
Pest Scientific Name									Gramineae, annual		Gramineae, annual		Gramineae, annual	
Pest Name									Annual grasses		Annual grasses		Annual grasses	
Crop Code	BRSNN		BRSNN		BRSNN		BRSNN		BRSNN		BRSNN		BRSNN	
BBCH Scale	BRAP		BRAP		BRAP		BRAP		BRAP		BRAP		BRAP	
Crop Scientific Name	Brassica napus		Brassica napus		Brassica napus		Brassica napus		Brassica napus		Brassica napus		Brassica napus	
Crop Name	Rapeseed		Rapeseed		Rapeseed		Rapeseed		Rapeseed		Rapeseed		Rapeseed	
Description														
Part Rated	PLANT	C	PLANT	C	PLANT	C	PLANT	C	PLAGRA	P	PLAGRA	P	PLAGRA	P
Rating Date														
Rating Type	PHYGEN		PHYGEN		PHYGEN		PHYGEN		GROUND		GROUND		GROUND	
Rating Unit	%		%		%		%		%		%		%	
Number of Subsamples	1		1		1		1		1		1		1	
Crop Stage Scale	BBCH		BBCH		BBCH		BBCH		BBCH		BBCH		BBCH	
Pest Density, Unit									PERCENT		PERCENT		PERCENT	
Footnote Number									1		1		1	
Tri-Eval Interval	3		7		14		21		0		3		7	
Plant-Eval Interval														
Days After Emergence														
ARM Action Codes	P		P		P		P		PES		PES		PES	
Sort Order for View														
Number of Decimals	2		2		2		2		2		2		2	

Brief overview of open study, showing a few key settings, summarizing study information.

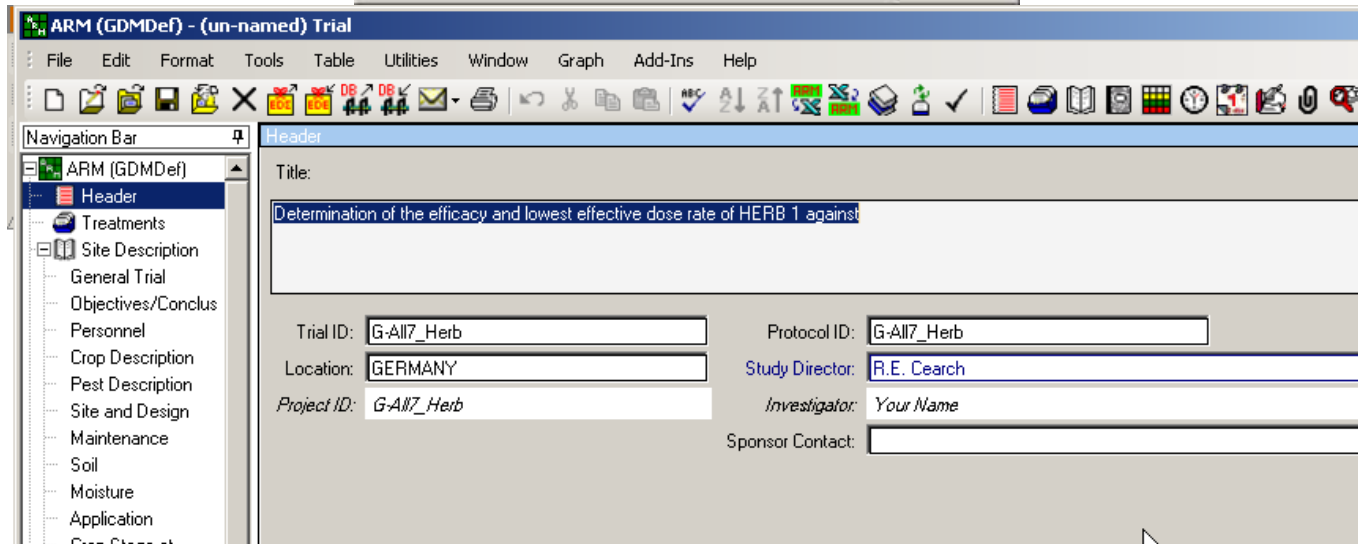
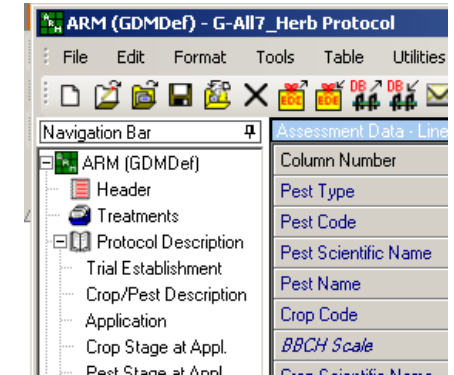
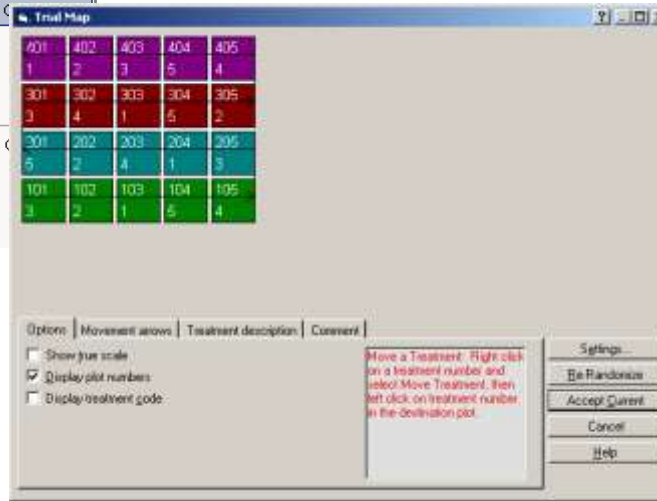
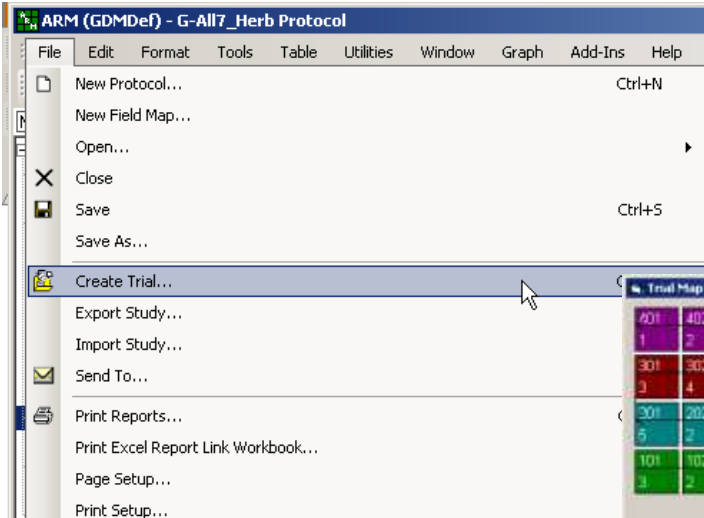


Create one Protocol





Create a trial





Trial – Header

ARM (GDMDDef) - (un-named) Trial

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Navigation Bar

ARM (GDMDDef)

- Header
- Treatments
- Site Description
 - General Trial
 - Objectives/Conclus
 - Personnel
 - Crop Description
 - Pest Description
 - Site and Design
 - Maintenance

Header

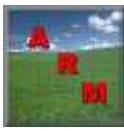
Title:
Determination of the efficacy and lowest effective dose rate of HERB 1 against

Trial ID: Protocol ID:

Location: Study Director:

Project ID: Investigator:

Sponsor Contact:



Trial - Treatments

ARM (GDMDef) - (un-named) Trial

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Navigation Bar

Treatments - Line 1

Trt Lin	Trt No.	Type	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	Comment 1	Comment 2
1		CHK	UNTREATED											
2	2	HERB	HERB 1	100	GA/L	EC		50	g AI/ha	0.5	L/HA	A	early post application	
3	3	HERB	HERB 1	100	GA/L	EC		80	g AI/ha	0.8	L/HA	A	early post application	
4	4	HERB	HERB 1	100	GA/L	EC		100	g AI/ha	1.0	L/HA	A	early post application	
5	5	HERB	STANDARD	125	GA/L	EC		125	g AI/ha	1.0	L/HA	A	early post application	
6														
7														

- No need to type again
- Information can be edited, for example:
 - Standard replaced by commercial name
 - Add lot codes, etc..



Trial - Settings

Trial Settings

General | GLP/GEP | Design | Treatment | Application | Layout

Replications:

Treated plot size

Width:

Length:

Orientation (degrees):

Format definitions

Site description:

Study:

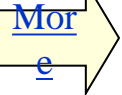
Conduct under GLP/GEP

- Some information can no longer be edited
- If changes are necessary, often easier
 - to change at PRT level
 - or before entering any data

Trial – Site description



Site description



ARM (GDMDDef) - G-All7_Fung Trial

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Navigation Bar

- ARM (GDMDDef)
- Header
- Treatments
- Site Description
- General Trial
- Objectives/Conclusion
- Personnel
- Crop Description
- Pest Description
- Site and Design
- Maintenance
- Soil
- Moisture
- Application
- Crop Stage at Appl.
- Pest Stage at Appl.
- Appl. Equipment
- Treatment Appl.
- Notes
- Deviations
- Assessment Data
- Trial Map
- Schedule Tasks
- Calendar
- Comments
- Attachments
- Settings
- Field Map Layout
- Summary Across Trials
- Germplasm Manager
- Tasks
- Master Calendar

Site Description

General Trial | Objectives/Conclusions | Personnel | Crop Description | Pest Description | Site and Design | Maintenance | Soil | Moisture | Application | Crop Stage at Appl.

General Trial Information

Edit on Personnel tab information for the 4 duplicate person/title fields below; right-click and select Hide Field to hide (remove) from reports.

Study Director: *R.E. Ceurch* Title: *Study Leader*

Investigator: *ARM Demonstration* Title:

Discipline: F *fungicide*

Trial Status: F *one-year/final* Trial Reliability: HIGH

Initiation Date: Planned Completion Date:

Trial Location

City: GEMBOLOUX Latitude of LL Corner °: 50.5667 N

State/Prov.: NAMUR Longitude of LL Corner °: 4.6833 E

Postal Code: 5030 Altitude of LL Corner, Unit: 152.00 M

Country: BLG

Map Reference: Angle y-axis to North °: 60.00

Directions:

Some information is copied from General tab of Settings - make changes there

Conducted Under GLP: Official Trial Code: B2004RTJ02N25

Conducted Under GEP: Other Trial Code:

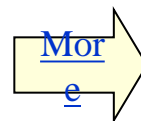
Validation Rules:

Insert row with Shift+F7. Delete current row with Shift+F8

	Guideline	Description
1.	PP 1/152(2)	Design and analysis of efficacy evaluation trials
2.	CEB189	Efficacy of Fungicides against diseases in cereals (Aerial trt)

Keywords:

Trial – Assessment data



ARM (GDMDel) - G-All7_Fung Trial

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Navigation Bar

- ARM (GDMDel)
 - Header
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 - Tasks
 - Master Calendar

Assessment Data - Line 1

Column Number	1	2	3	4	
Pest Type			D Disease	D Disease	D
Pest Code			SEPTTR	SEPTTR	SE
Pest Scientific Name			Septoria tritici	Septoria tritici	Se
Pest Name			Speckled leaf blotch	Speckled leaf blotch	Sp
Crop Code	TRZAW	TRZAW	TRZAW	TRZAW	TF
BBCH Scale	BCEA	BCEA	BCEA	BCEA	BC
Crop Scientific Name	Triticum aestivum (w	Triticum aestivum (w	Triticum aestivum (w	Triticum aestivum (w	Tri
Crop Name	Winter wheat	Winter wheat	Winter wheat	Winter wheat	Wi
Part Rated	LEAF C	PLANT C	LEAF3 P	LEAF3 P	LE
Rating Date	15-07-2005	15-07-2005	13-05-2005	13-05-2005	18
Rating Type	PHYGEN	VIGOR	PESSEV	PESSEV	PE
Rating Unit	%	%	%	%UNCK	%
Number of Subsamples	1	1	10	1	
Crop Stage Scale			BBCH	BBCH	BB
Pest Density, Unit			4.42 PERCENT	4.42 PERCENT	8
Trt-Eval Interval	7 DA-C	7 DA-C	28 DA-A	28 DA-A	15
Plant-Eval Interval	288 DP-1	288 DP-1	225 DP-1	225 DP-1	26
ARM Action Codes				TAB[3]	
Number of Decimals			2	2	

Sub	Rp	Bk	Col	Plot	Trt	1	2	3	4
1	1	1	1	101	3	0	100	1.00	54.00
1	1	1	2	102	1	0	100	10.00	0.00
1	1	1	3	103	4	0	100	1.00	72.00
1	1	1	4	104	2	0	100	0.00	74.00
1	1	1	5	105	5	0	100	10.00	46.00
1	2	2	1	201	2	0	100	0.00	80.49
1	2	2	2	202	3	0	100	2.00	73.17
1	2	2	3	203	5	0	100	0.00	17.07
1	2	2	4	204	4	0	100	5.00	58.54
1	2	2	5	205	1	0	100	3.00	0.00
1	3	3	1	301	3	0	100	0.00	52.17

Properties

- Assessment Data
 - View Options...
 - Ignore Match
 - Refresh
 - (Hidden Rows)
- Treatment Editor
 - Tile
 - Display current treatment

Trial – Comments



Comments

FIELD DEVIATIONS IN RELATION TO THE PROTOCOL

About PLOTS:

1. Every plot has a total surface of 25 sqm (2.5 m width x 10 m length)
2. Taking into account the crop system, as well as the equipment used by the farmer for phytosanitary protection over the field trial and the possible non uniformity of the infestation degree when that appears, it was decided to include the UTC within the experimental design. Since an appropriate system (plastic band along crop rows) to prevent side-effect influence of the spray in adjacent plots in every application was used, it was possible to limit individual surface to the indicated above.

About PRODUCTS:

The experimental product used in this trial was received from the Sponsor. Standards were bought in a local market.

About APPLICATIONS:

Nothing relevant to comment.

About CROP and WEEDS:

Pest name	Comment	Level
ALOMY	Good infestation. Well distributed.	1
BROST	Good infestation. Less weeds in replications 2 and 3.	2
TRZAX	Very important regrowth. Very uniform. Good control level.	1

Study List Updated

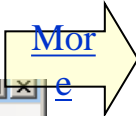
RTF
Possibilities

- Tables
- Enhanced font

Trial – Schedule



Schedule tasks



ARM (GDMDef) - G-All7_Fung Trial

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Navigation Bar

- ARM (GDMDef)
 - Header
 - Treatments
 - Site Description
 - General Trial
 - Objectives/Conclus
 - Personnel
 - Crop Description
 - Pest Description
 - Site and Design
 - Maintenance
 - Soil
 - Moisture
 - Application
 - Crop Stage at
 - Pest Stage at Appl.
 - Appl. Equipment
 - Treatment Appl.
 - Notes
 - Deviations
 - Assessment Data
 - Trial Map
 - Schedule Tasks**
 - Calendar
 - Comments
 - Attachments
 - Settings
 - Field Map Layout
 - Summary Across
 - Gemplasm
 - Tasks

Schedule Task

Description: Application (BBCH 37-39)

Assigned to: Technician 1

Completed

Type:

- Treatment application
- Assessment
- Other

 For application code: []
 Maintenance

Timing:

- Date: 15-03-2007
- Interval: [] Hours

 After application code: []
 Timing deviation allowed: - [] + []

Duration:

- Length: 3.00 Hours per day
- Multiple days
- Duration: 1 Days

Total hours: 18

Buttons: Previous, Next, New, Calendar, Print, Help

	Completed	Type	Description	Timing	-	Planned Date	+	Completed Date	Assigned to	Length (
1	<input type="checkbox"/>	Other - Maintenance	Application (BBCH 37-39)	15-03-2007		15-03-2007			Technician 1	
2	<input checked="" type="checkbox"/>	Other - Maintenance	Paths		7				Technician 1	
3	<input checked="" type="checkbox"/>	Treatment application - A	Application	15-04-2007	7	15-04-2007	7	16-04-2007	Technician 1	
4	<input checked="" type="checkbox"/>	Assessment - 1	Assessment 1	1 Months	3		3		Principal Investigator	
5	<input checked="" type="checkbox"/>	Treatment application - B	Application (BBCH 37-39)	06-06-2007	3	06-06-2007	3	04-06-2007	Principal Investigator	
6	<input checked="" type="checkbox"/>	Assessment - 2	Assessment 2		3		3			
7	<input checked="" type="checkbox"/>	Treatment application - C	Application - July	08-07-2007	3	08-07-2007	3	09-07-2007	Technician 2	
*	<input type="checkbox"/>									

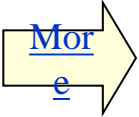
Buttons: Move Up, Move Down, Insert, Delete

Include completed tasks

Trial – Attachments



Attachments

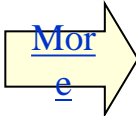


The screenshot shows the ARM (GDMDef) - G-All7_Fung Trial application window. The title bar reads "ARM (GDMDef) - G-All7_Fung Trial". The menu bar includes File, Edit, Format, Tools, Table, Utilities, Window, Graph, Add-Ins, and Help. The toolbar contains various icons for file operations and data management. On the left is a "Navigation Bar" with a tree view showing the trial structure: ARM (GDMDef), Header, Treatments, Site Description (expanded), General Trial, Objectives/Conclus, Personnel, Crop Description, Pest Description, Site and Design, Maintenance, Soil, Moisture, Application, Crop Stage at, Pest Stage at Appl., and Appl. Equipment. The main area is titled "Attachments" and contains a table with the following data:

Attach No	Name	Type	Modified	Description
1	My Documents\ARM Data\ARMtutor1101_0140.JPG	Unknown	23-06-2007	Picture assessment 2 - Overview

At the bottom of the Attachments window, there is a checkbox labeled "Hide attachments that are automatically added by ARM" and five buttons: Attach, Remove, Open, Print, and Help.

List – Personal list



ARM (GDMDef) - G-All7_Fung Trial

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Navigation Bar: ARM (GDMDef) > Site Description > General Trial

General Trial Information

Study Director: *R.E. Cearch* Title: *Study Leader*

Investigator: *ARM Demonstration*

Discipline: *F fungicide*

Trial Status: *F one-year/final*

Initiation Date: []

City: *GEMBLOUX* **F9**

State/Prov.: *NAMUR*

Postal Code: *5030*

Country: *BLG*

Map Reference: []

Directions: []

Conducted Under GLP: Official Trial Code: *B2004RTJ02N25*

Conducted Under GEP: Other Trial Code: []

Validation Rules: []

Insert row with Shift+F7. Delete current row with Shift+F8

Guideline	Description
1. PP 1/152(3)	Design and analysis of efficacy evaluation trials
2. CEB189	Efficacy of Fungicides against diseases in cereals (Aerial trt)

Keywords: []

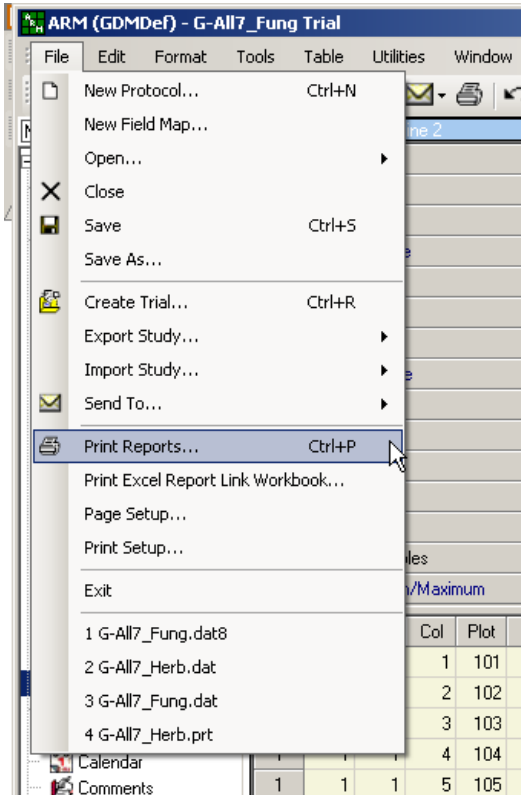
Personal List C:\ARMDEF\GDMDEF\G-GUIDE.LST8

1.	Description
PP 1/152(3)	Design and analysis of efficacy evaluation trials
PP 1/153(2)	Control of lodging and manipulation of canopy structure in rape
PP 1/154(2)	Control of suckers in Rubus
PP 1/155(2)	Control of suckers in tobacco
PP 1/156(3)	Accelerated ripening of oilseed crops and large-grain legumes
PP 1/157(3)	Regulation of growth in ornamentals by pre-harvest applications
PP 1/158(3)	Regulation of growth in pome fruits
PP 1/159(2)	Local wound treatments of apple
PP 1/160(2)	Thrips on glasshouse crops
PP 1/161(2)	Control of suckers in grapevine
PP 1/162(2)	Control of suckers in hop
PP 1/163(2)	Regulation of growth in forage pea
PP 1/164(2)	Sprout suppressants in potato

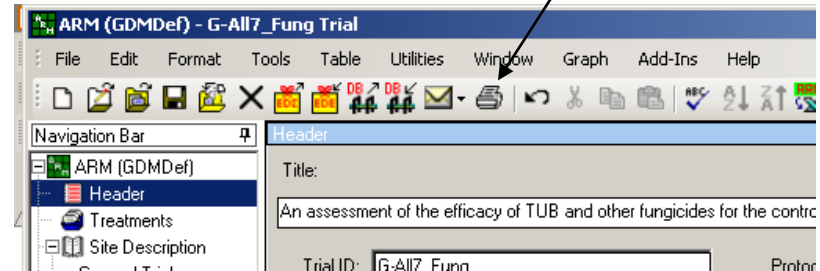
Some information is copied from General tab of Settings - make changes there



Print reports



Print reports



- Some reports are linked to PRT, some to DAT.
- It is not possible to print with a demo version.



Print reports – Main screen

Available reports

- PRT or DAT
- Subcategories
- Double Click to include
- Right Click to select options

Report set

= customised reports selected and printed together

- Can be saved, reloaded, emailed

Batch = possibility to select several files

Global settings

= all settings related to

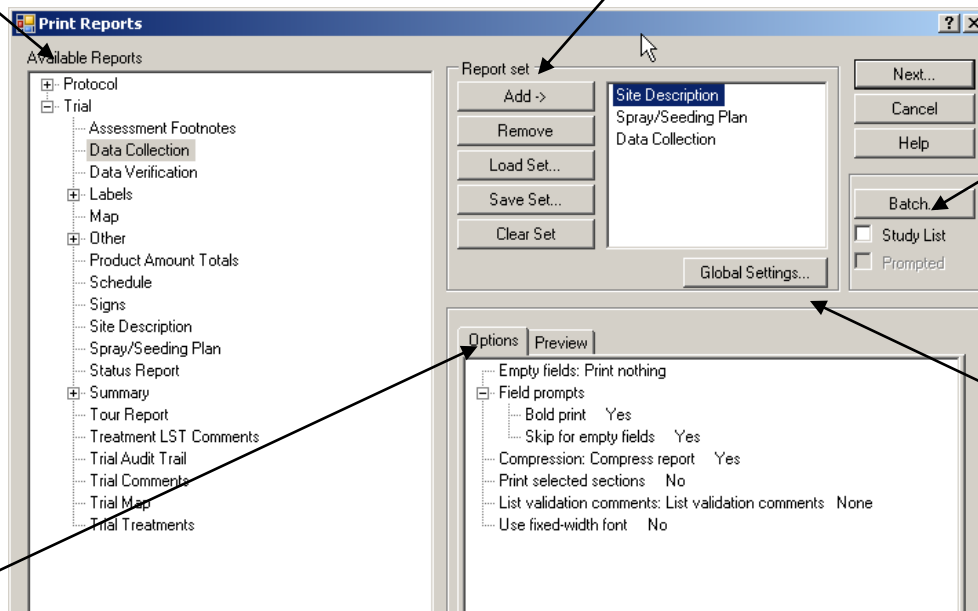
- Headers and Footer
- Date to be printed
- Page number
- Borders

Options

- Are specific for each report
- Display current options (report spec.)
- To modify, select report within the set and Right Click

Preview

- Report specific



Print reports – Setup



The screenshot shows the 'Print' dialog box with the following sections and options:

- Current printer:** HP Photosmart 2600 series
- Orientation:** Portrait (selected), Landscape
- Copies:** 1
- Print range:** All (selected), Pages
- Page numbering:** Sequential across reports (checked), Restart numbers for each study in batch (unchecked), Start page numbers at: 1
- Print to:** Excel, Word Processor, Adobe PDF, File
- Formatting:** Quick(Merged cells)
- Print each report set to new workbook:** Prompt
- File name format:** Study ID (checked), Report Name (checked), Date (checked)
- File name:** G-All7_Fung_Site Description_16-03-2008

Buttons on the right side: Print, Preview, Page Setup..., Print Setup..., Previous..., Close, Help.

Preview

Page Setup

- Margins
- Labels format
- Primary Font

Print Setup

- Paper size
- Portrait or Landscape
- Select printer
- Printer Properties

Previous

Back to Main screen

ARM will automatically print to Word and launch one document with similar name.

Page numbering

ARM will automatically Print to Excel

- One sheet by report
- More or less formatting available to allow fast export.



Print reports – Main reports - Protocols

- [Protocol Treatments](#)
- [Protocol Description](#)
- [Protocol Product Amount Total](#)

Click on a specific report for detailed information



Print reports – Main reports - Trials

- [Spray/Seeding plan](#)
- [Site Description](#)
- [Plot Map](#)
- [Data Collection](#)
- Summary
 - [Assessment Data Summary](#)
 - [AOV Means Table](#)
- [Tour Report](#)
- [Labels](#)

Click on a specific report for detailed information



Assessment data - View

Column Number	1	2	3	4	5
Pest Type			D Disease	D Disease	D Disease
Pest Code			SEPTTR	SEPTTR	SEPTTR
Pest Name			Speckled leaf blotch	Speckled leaf blotch	Speckled leaf blotch
Crop Code	TRZAW	TRZAW	TRZAW	TRZAW	TRZAW
BBCH Scale	BCER	BCER	BCER	BCER	BCER
Crop Name	Winter wheat	Winter wheat	Winter wheat	Winter wheat	Winter wheat
Crop Variety					
Part Rated	LEAF C	PLANT C	LEAF3 C	LEAF3 C	LEAF2 C
Rating Date	15/07/05	15/07/05	13/05/05	18/06/05	02/07/05
Rating Data Type	PHYSEM	PHYSEM	PESSEV	PESSEV	PESSEV
Rating Unit	%A	%A	%	%	%
Crop Stage			32	59	70
Crop Stage Scale			BBCH	BBCH	BBCH
Crop Density, Unit					
Pest Stage					
Pest Density, Unit			4.42 PERCENT	8.25 PERCENT	15.5 PERCENT
Footnote Number					
Days After First/Last Applic.	57		28		78 29
Tri-Eval Interval	7 D		28 DA-A		29 DA-B
Sub	Rp	Bk	Col	Plot	Tri
1	1	1	1	101	3 0
1	1	1	2	102	1 0
1	1	1	3	103	4 0
1	1	1	4	104	2 0
1	1	1	5	105	5 0
1	2	2	1	201	2 0
1	2	2	2	202	3 0
1	2	2	3	203	5 0
1	2	2	4	204	4 0
1	2	2	5	205	1 0
1	3	3	1	301	3 0
1	3	3	2	302	2 0
1	3	3	3	303	1 0
1	3	3	4	304	5 0
1	3	3	5	305	4 0

- Undo Selection
- Cut
- Copy
- Copy Current Data Column
- Paste
- Insert Data Column...
- Delete Data Column...
- Insert Subsamples...
- Delete Subsamples...
- Insert DCF from DatCol
- Insert DCF from File
- Insert SE from File...
- Hide Current Field
- Display All Fields
- Plot Data View Options...
- Sort by...
- Transform...
- Recalc Transformations
- Convert Yield...
- Plot Data Column Tools...
- Push Trial Rating Shell to Excel
- Pull Data from Excel Rating Shell
- Show Validation List...
- Show Tooltip

Properties

Plot Data View

View Options...

Ignore Match

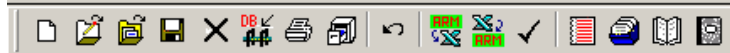
Refresh (Hidden Rows)

Treatment Editor

Tile

Display current treatment

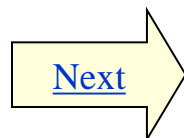
- Assessment Data View options control how plot subsamples and data columns display on the Assessment Data editor
- Access by Right-Click on the Assessment Data editor or by [View Options]



Column Number	7		8		9	
Pest Type	D Disease		D Disease		D Disease	
Pest Code	SEPTTR		SEPTTR		ZZYFY	
Pest Name	Septoria tritici		Septoria tritici		Complex, diff. fun	
Crop Code	TRZAW		TRZAW		TRZAW	
BBCH Scale	BCER		BCER		BCER	
Crop Name	Winter wheat		Winter wheat		Winter wheat	
Part Rated	LEAF2	P	LEAF2	P	LEAGRE	P
Rating Date	02/07/05		02/07/05		19/07/05	
Rating Data Type	PESSEV		CONTRO		AREA	
Rating Unit	%		%UNCK		%AREA	
Sample Size	10		10		5	
Sample Size Unit	LEAF		LEAF		LEAF	
Number of Subsamples	10		1		5	
Crop Stage	70		70		84	
Crop Stage Scale	BBCH		BBCH		BBCH	
Pest Density, Unit	15.5	PERCENT	15.5	PERCENT	1.75	PERCENT
Footnote Number					2	
Assessed By						
Days After First/Last Applic.	78	29	78	29	95	11
Trt-Eval Interval	29 DA-B		29 DA-B		11 DA-C	
Plant-Eval Interval	275 DP-1		275 DP-1		292 DP-1	
ARM Action Codes			TAB[7]			
Sort Order for View						
Number of Decimals	2		2		2	

Sub	Rp	Bk	Col	Plot	Trt	7	8	9
1	1	1	2	102	1	9.9	0	10
2	1	1	2	102	1	10		5
3	1	1	2	102	1	11		0
4	1	1	2	102	1	8		0
5	1	1	2	102	1	8.9		0
6	1	1	2	102	1	11		
7	1	1	2	102	1	11.5		
8	1	1	2	102	1	12		
9	1	1	2	102	1	10.2		
10	1	1	2	102	1	9.8		
1	2	2	5	205	1	16	0	0
2	2	2	5	205	1	11		0

Subsamples



- Subsamples

- Possibility to enter more than one data by plot
- Possibility to organize subsamples to make data entry and use easier.

10 subsamples in this trial

- 10 in column 7
- 5 in column 9
- 1 in column 8



Convert Yield

ARM (GDMDef) - G-All7_Fung Trial - [Plot Data - Line 1]

File Edit Format Tools Table Utilities Window Graph Add-Ins Help

Spelling F6
Renummer
Sort by...
Transform...
Recalc Transformations
Convert Yield...
Merge...
Data Collector...
Plot Data Column... Ctrl+L
Options...
Show Validation List Shift+F9
Validate Entry F9
Add To Master List Ctrl+F9
Refresh Editor from List
Validate Trial Ctrl+A
Validate Trial (log errors) Ctrl+E
About Validation List

	10	11	12	13							
TRZAW	TRZAW	TRZAW	TRZAW								
BCEA	BCEA	BCEA	BCEA								
Winter wheat	Winter wheat	Winter wheat									
GRAIN C	GRAIN C	GRAIN C									
07/08/05	07/08/05	07/08/05									
YIELD	MOIICON	YIELD									
KG	%	T-MET									
1	1	1									
Crop Stage	70	84	99	99							
Crop Stage Scale	BBCH	BBCH	BBCH	BBCH							
Pest Density, Unit	15.5 PERCENT	1.75 PERCENT									
Footnote Number		2		1							
Assessed By											
Days After First/Last Applic	78 29	95 11	114 30	114 30							
Trt-Eval Interval	29 DA-B	11 DA-C	30 DA-C	30 DA-C							
Plant-Eval Interval	275 DP-1	292 DP-1	311 DP-1	311 DP-1							
ARM Action Codes	TAB[7]			TY1 @UPOCR							
Sort Order for View											
Number of Decimals	2	2	2	1							
Sub	Rp	Bk	Col	Plot	Trt	8	9	10	11	12	13
1	1	1	2	102	1	0	10	8.25	12.1	8.61764	100
1	2	2	5	205	1	0	0	7.55	11.7	7.92234	100
1	3	3	3	303	1	0	0	7.3	11.3	7.69471	100
1	4	4	1	401	1	0	0	7.1	11.5	7.46702	100
1	1	1	4	104	2	85.3372	80	8.95	11.2	9.44456	109.595
1	2	2	1	201	2	95.0902	20	8.15	11.6	8.56161	108.069
1	3	3	2	302	2	86.3384	10	7.95	11.3	8.37985	108.904
1	4	4	3	403	2	88.2082	50	7.75	12.3	8.07694	108.168
1	1	1	1	101	3	98.7292	20	8.7	13	8.99465	104.374
1	2	2	2	202	3	99.4223	20	8.1	12.3	8.44171	106.555
1	3	3	1	301	3	94.7692	90	8.1	12.2	8.45133	109.833

Yield Conversion

Yield units
Current: Kilograms
Desired: Tonnes/Ha

Moisture adjustment
 Adjust to dry moisture percent = 15
Average moisture percent at harvest
 Use whole trial average percent =
 Use percent in data column number 11

Harvested plot size
Width: 1.1 meters
Length: 9

Yield conversion factor
1.010101 (adjusted for moisture)

Convert data column number: 10
Store in data column number: 12
Number of decimals accuracy: 2

OK Cancel Help



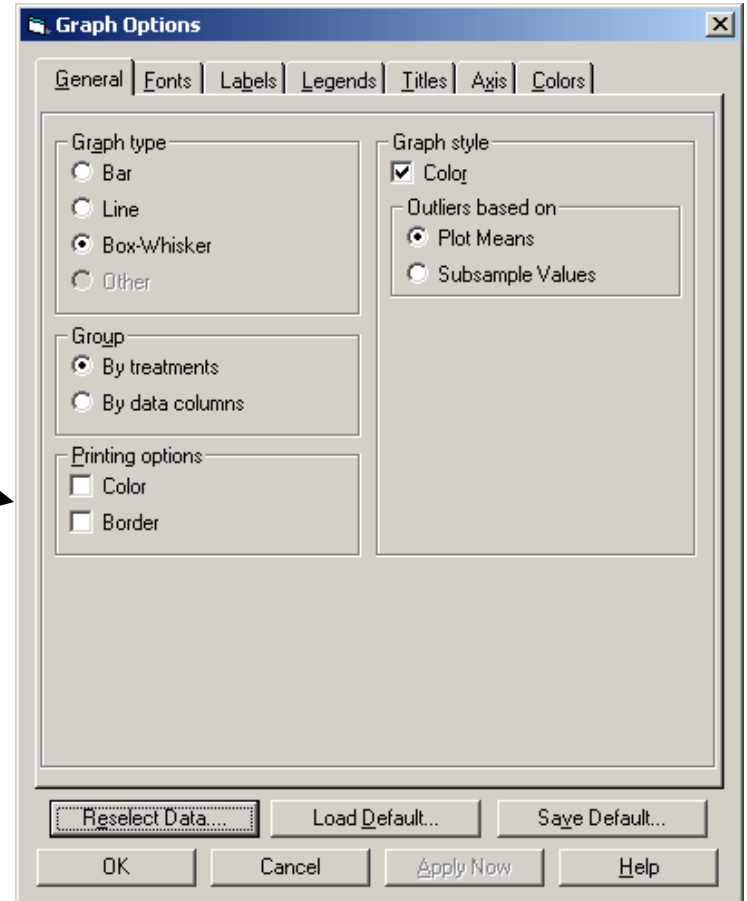
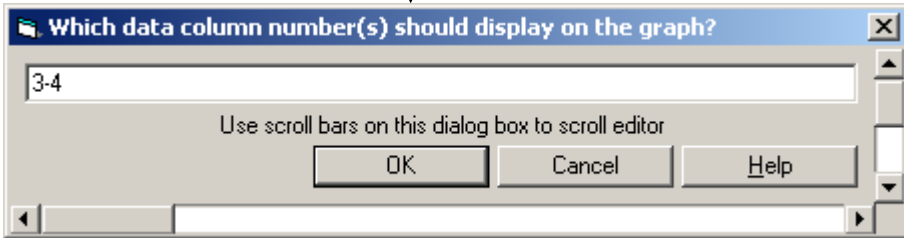
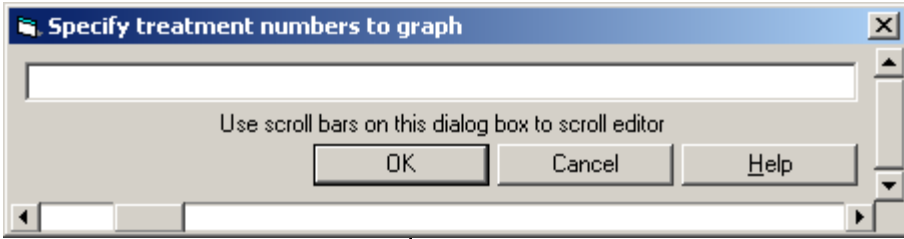
Graph



+ Menu *Graph*

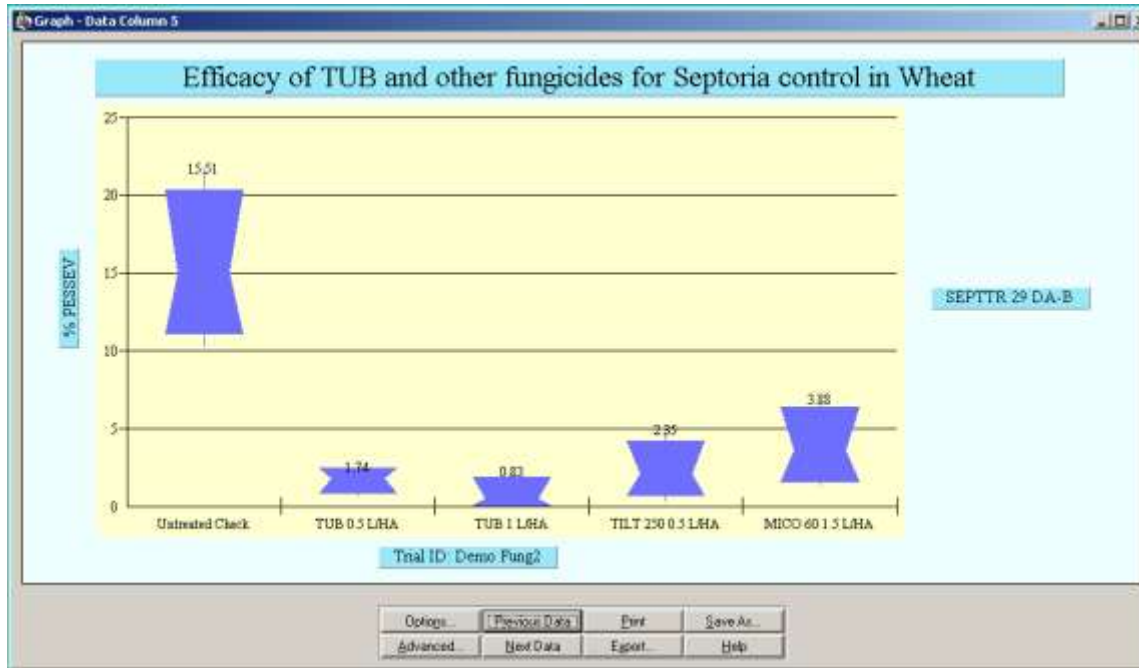
New graph

View graph





Graph- Box-Whisker



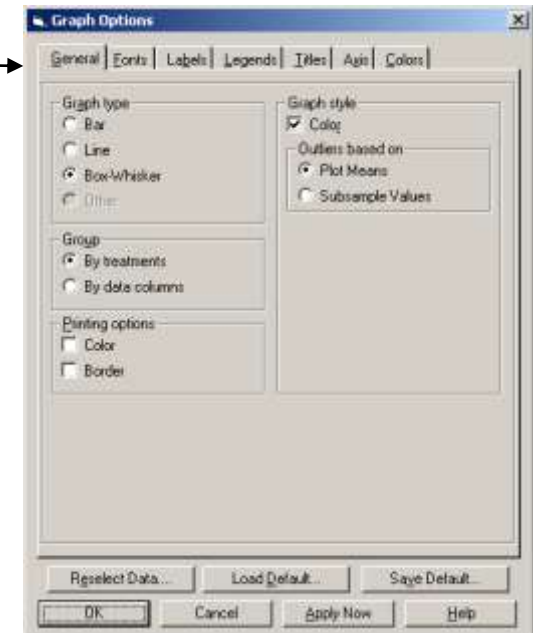
Box-whisker: indication of

- the treatment mean
- the assessment variability

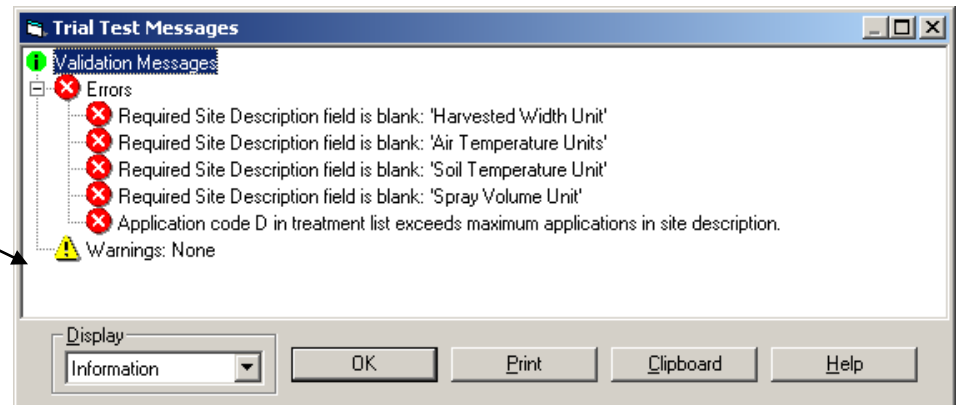
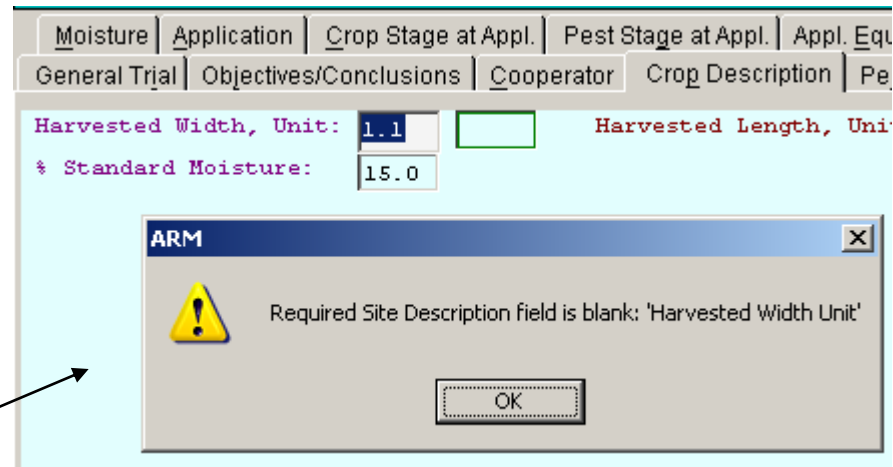
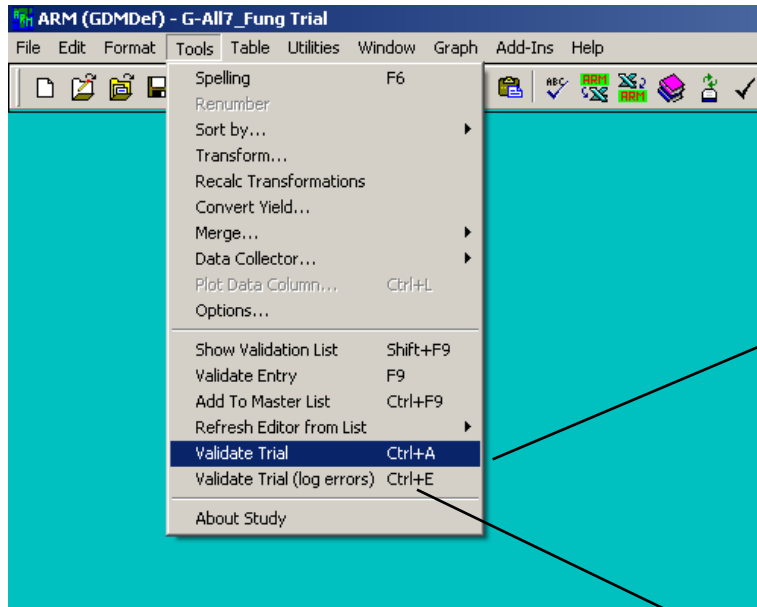
It requires 3 or more replicates.

Possibilities:

- Check for outliers
- Review all data by columns with [Next] & [Previous]
- Export to clipboard and then paste into PowerPoint® to transfer graphs.



Validation



ARM checks for errors, missing units and inconsistencies

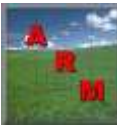
Files must be valid to be exported as .EDE

More validation rules might exist in customized formats





Transform data



Column Number	1		2		7	
Pest Type	I	Insect	I	Insect	I	Insect
Pest Code	MYZUPE		MYZUPE		MYZUPE	
Pest Name	Green peach aph		Green peach aph		Green peach aph	
Crop Code	PRNPS		PRNPS		PRNPS	
Crop Name	Peach		Peach		Peach	
Part Rated	SHOOT	P	SHOOT	P	SHOOT	P
Rating Date	30/Mar/00		03/Apr/00		03/Apr/00	
Rating Data Type	COUINS		COUINS		CONTRO	
Rating Unit					%UNCK	
Pest Stage	MIXED		MIXED		MIXED	
Assessed By	TTTT		TTTT		TTTT	
SE Name						
Days After First/Last Applic.	-1	-1	3	3	3	3
Trt-Eval Interval	-1 DA-A		3 DA-A		3 DA-A	
ARM Action Codes					THT[1,2]	
Number of Decimals					2	

Sub	Rp	Bk	Col	Plot	Trt	1		2		7	
1	1	1	1	1	5	129		22		82.43	
1	1	1	2	2	3	113		20		81.77	
1	1	1	3	3	2	151		12		91.81	
1	1	1	4	4	1	171		166		0.00	
1	1	1	5	5	7	118		3		97.38	
1	1	1	6	6	4	120		27		76.82	
1	1	1	7	7	6	114		29		73.80	
1	2	2	1	8	3	124		24		87.38	
1	2	2	2	9	7	91		11		92.12	
1	2	2	3	10	2	111		18		89.42	
1	2	2	4	11	4	143		42		80.85	
1	2	2	5	12	6	107		32		80.50	
1	2	2	6	13	5	121		23		87.60	
1	2	2	7	14	1	135		207		0.00	
1	3	3	1	15	7	121		4		98.08	
1	3	3	2	16	5	149		13		94.93	
1	3	3	3	17	4	119		42		79.51	
1	3	3	4	18	1	144		248		0.00	

Data Transformations

Transformations:

Square root $SQR(X+.5)$ Arcsine square root percent

Log $LOG(X+1)$

Average subsamples % Incidence (0 = none)

Sum subsamples % Incidence (1 = none)

Abbott (% of Untreated) Schneider-Orelli

Henderson-Tilton

AUDEPC (or AUAPC)

User formula

Formula:

Options:

Limit calculated values to positive

Calculate one value per plot if subsamples are present

Pre-treatment, post-trt. data column numbers:



Store in data column number:

Number of decimals accuracy:

- Menu **Tools|Transform**
- Standard transformations available
- User-defined formula, eventually stored in a list (F9)
- Relative or Absolute column number



How to get Help in ARM?

- Context-sensitive Help for dialog boxes
 -  button or F1
- For overviews of features and help with specific tasks in the study definition
 -  button or F5
- Tutorials or description of new features
 - Menu [Help|How to Topics](#)
- GDM web site at <http://www.gdmdata.com/index.htm>
 - FAQ – Customer support – News and Scheduled Training
- Local experts available at <http://www.gdmdata.com/Distributors.htm>
 - Check their web sites for FAQs and customer support



Distribution and use

> 5000 Licenses in 70 countries

- Ajay–SQM Group
- ArborGen
- Arysta LifeScience *
- BASF *
- Bayer CropScience *
- Cerexagri
- Cheminova A/S
- Chemtura Corporation
- Dongbu Hannong Chemical
- Dow AgroSciences *
- EDEN Bioscience
- FMC Ag Products Group
- Gowan
- Gustafson
- Helena Chemical Company *
- ISK Biosciences
- Monsanto *
- Nufarm
- Nutra-Park
- Pioneer Hybrid International
- The Scotts Company
- Sipcam
- Stähler
- Sumitomo Chemical Company *
- Syngenta *
- Taranaki NuChem Ltd



Benefits of using ARM

- For the trial technician, ARM is much more than an organized data storage
- ARM supports planning and management of trials:
 - Printout of all tasks to be performed in all trials for the next days
 - Spray sheets
 - Product calculation
 - For which plots, by application code
 - Sample orders
 - Plot or bottle labels
 - Data capture tables
 - Trial tour sheets



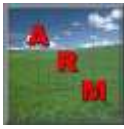
Benefits of using ARM - Continued

- Different languages supported for Menus and Screens:
 - [English](#)
 - [Spanish](#)
 - [Polish](#)
 - [German](#)
 - Italian
 - Japanese
 - [French](#)
 - [Portuguese](#)
 - [Korean](#)
- Data can be entered in one language, and read or printed in another
- Integrated graphics pack including Box-Whisker charts
- Entry support in many fields: for example application technology, addresses, ...



Benefits of using ARM - *Continued*

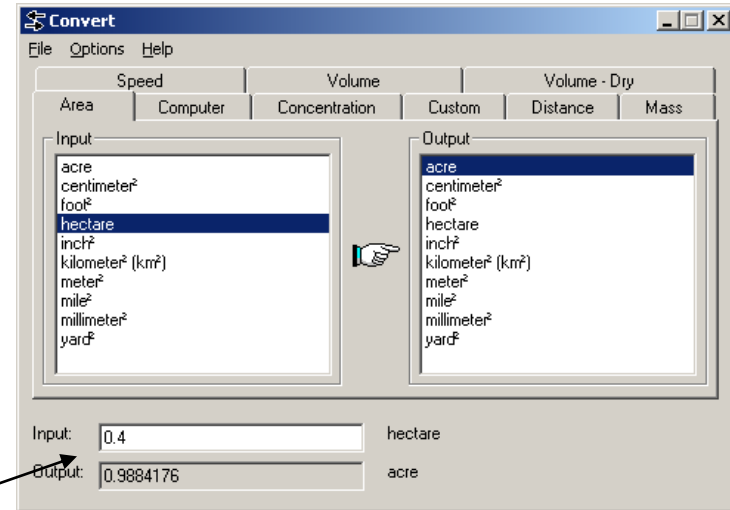
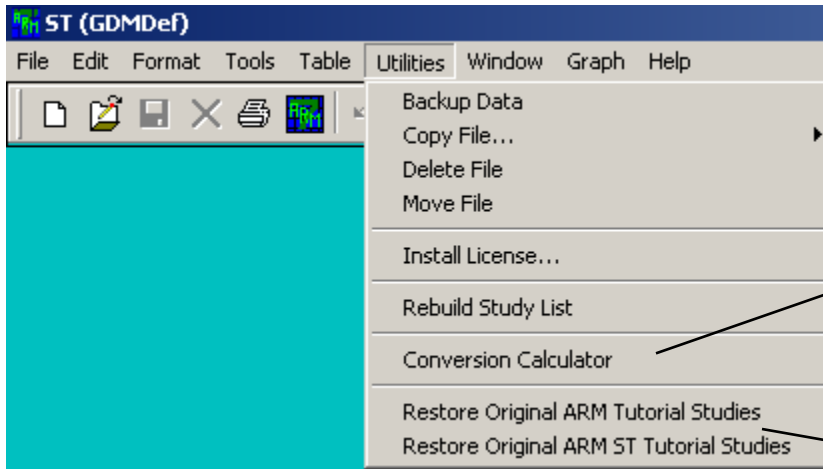
- Integrated stats package
 - analysis of variance
 - several mean separation tests
 - dose response analysis
 - correlation analysis
- Integrated functions for data transformation on non-homogeneous data (Log, square root, Arcsin)
- Several integrated calculation formulas
 - yield area, relative yields
 - Henderson&Tilton, Abbott
 - area under disease development curve
 - user-defined calculations



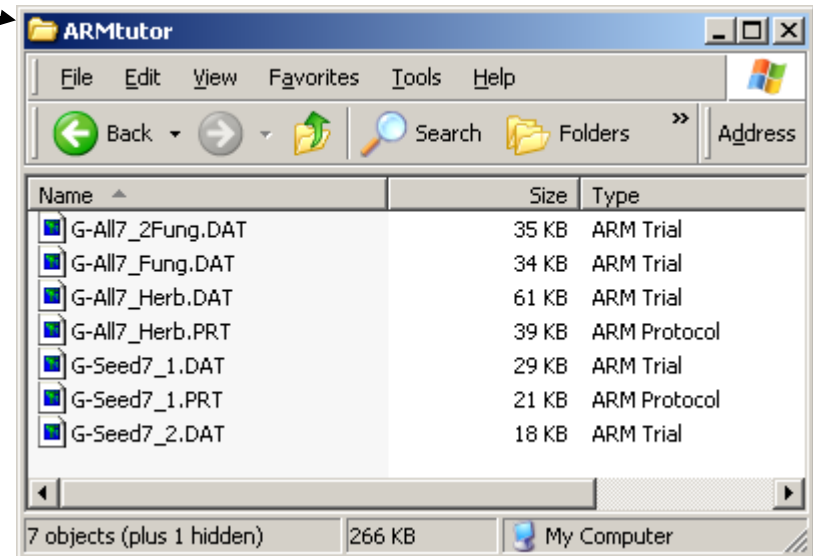
Benefits of using ARM - *Continued*

- Export and import data to Excel®
- Printing to Excel® and Word®
- ARM graphs can be exported to PowerPoint®
- Data exchange via .EDE (Electronic Data Exchange)
- Safe and easy use of standard evaluation files (.SE)
- Large lists manageable through master database
- Customizable reports
- Possibilities to easily enter subsamples
- Report sets of several report modules can be combined and saved for later use in other trials
- Extensive help including context sensitive help

Utilities



- Conversion calculator to easily convert any unit. Visible tabs can be customized.
- Restore Original ARM Tutorials studies into
My Documents\ARM Data\ARMTutor
(for example after a training or after practicing with this Tutorial)





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