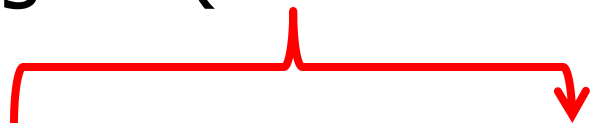
ARM 9.0.5 Features

Gylling Data Management, Inc.

Treatments Editor

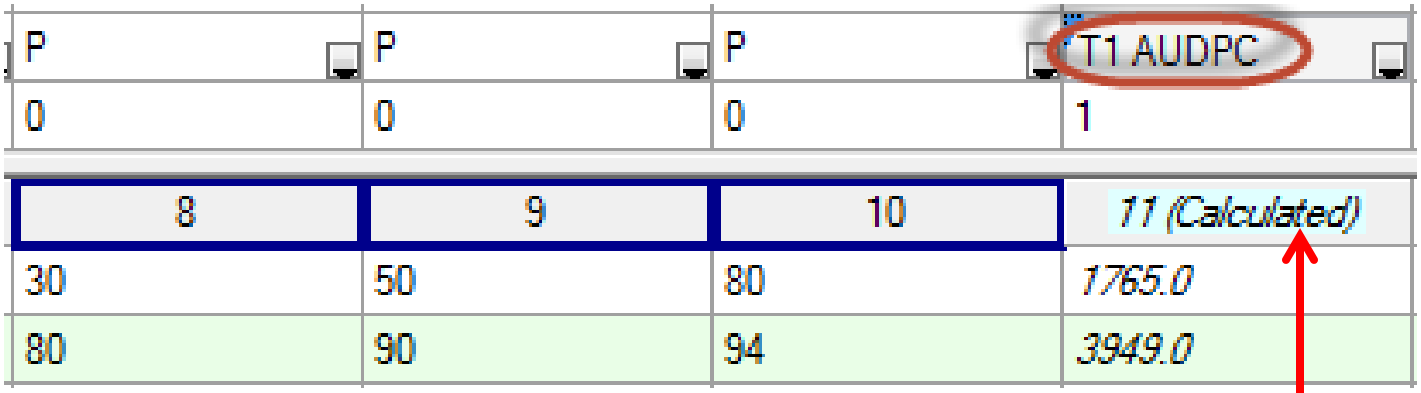
- Color bands also display in non-scrolling region (Trt No. to Treatment Name)



Trt Line	Trt No.	Type	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit
1	1	CHK	Untreated Check					
2	2	FUNG	TUB	250	G/L	EC	0.5	L/ha
3	3	FUNG	TUB	250	G/L	EC	1	L/ha
4	4	FUNG	TILT 250	250	G/L	EC	0.5	L/ha
5	5	FUNG	MICO 60	600	G/L	EC	1.5	L/ha
6	5	FUNG	FUNGOL	200	G/L	SC	1.25	L/ha

Assessment Data Editor

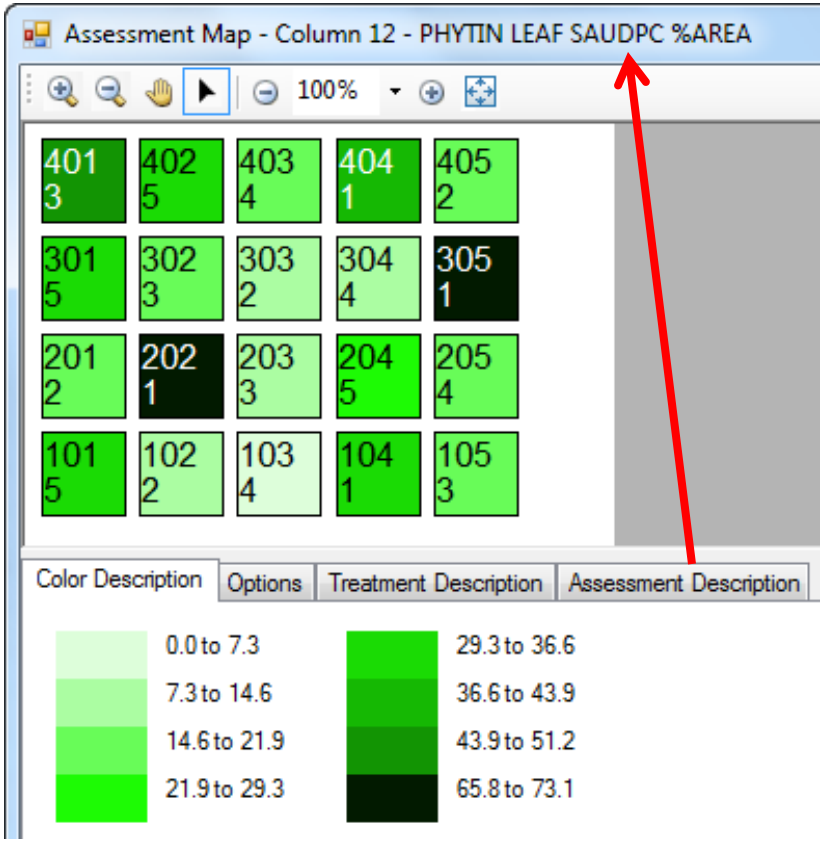
- When cursor is in a calculated column, column heading of source column(s) are highlighted (like Excel formulas)



- Calculated columns also identified

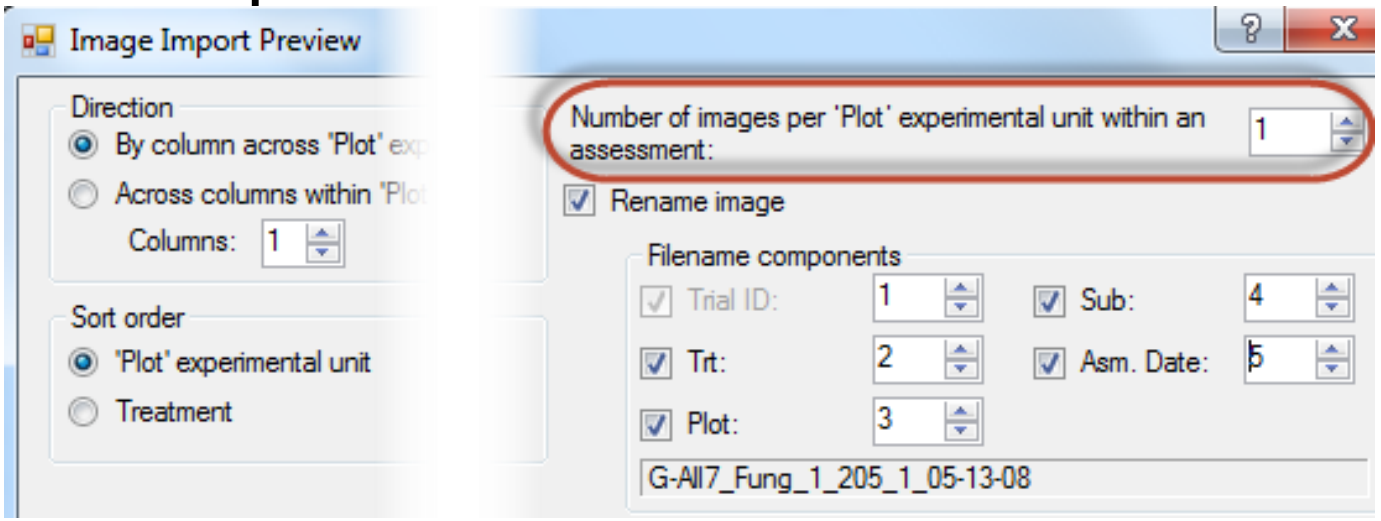
Assessment Map

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



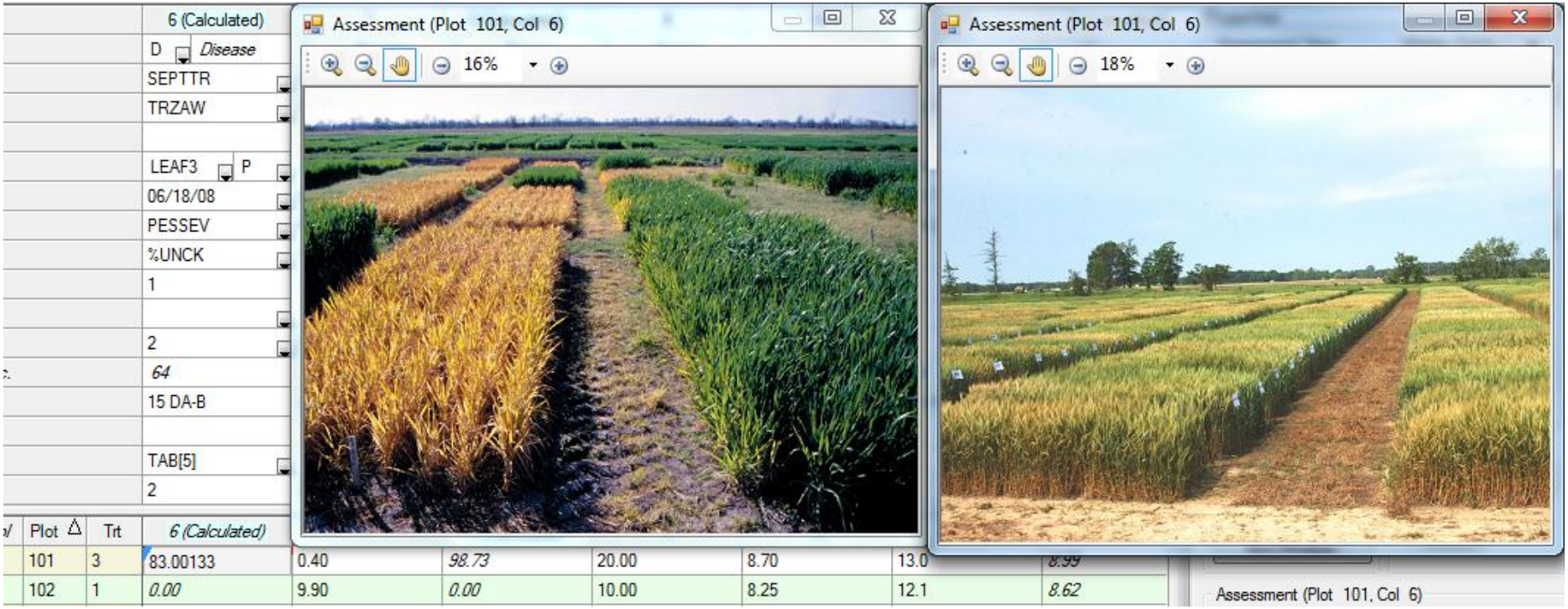
Assessment Data Images

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



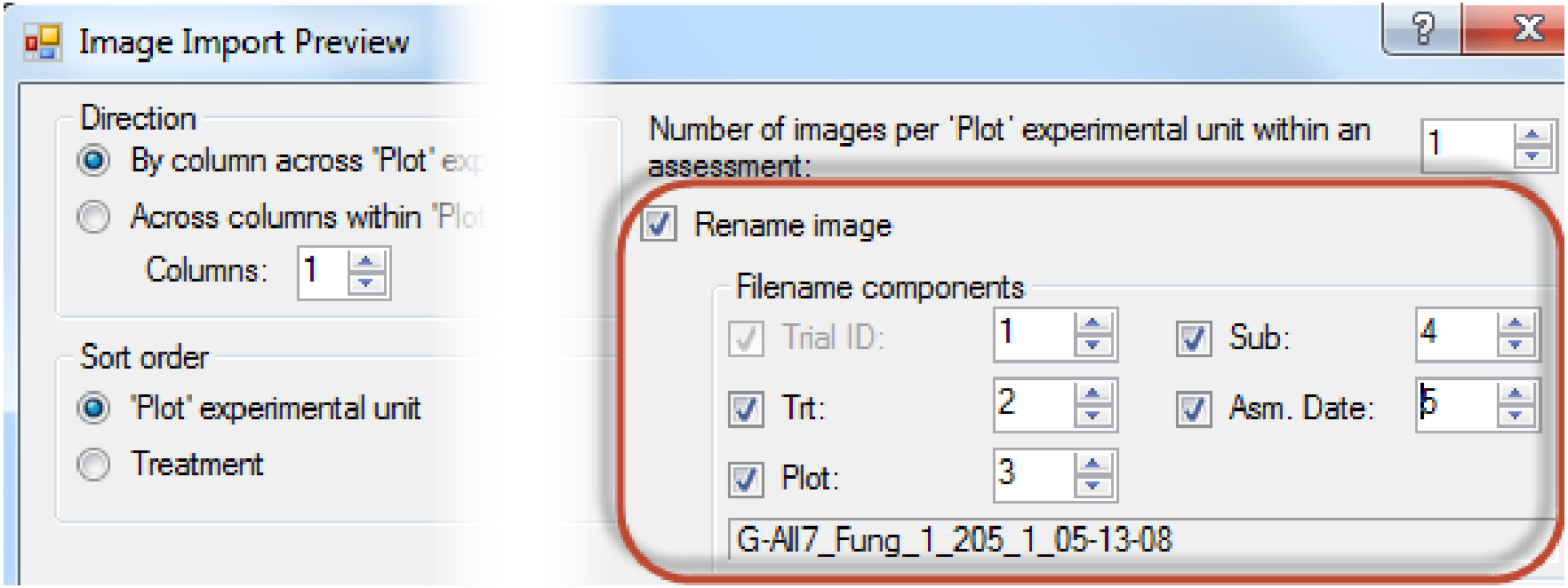
Assessment Data Images

- Example of 2 images for plot 101 col. 6



Assessment Data Images

- More 'Rename images' choices



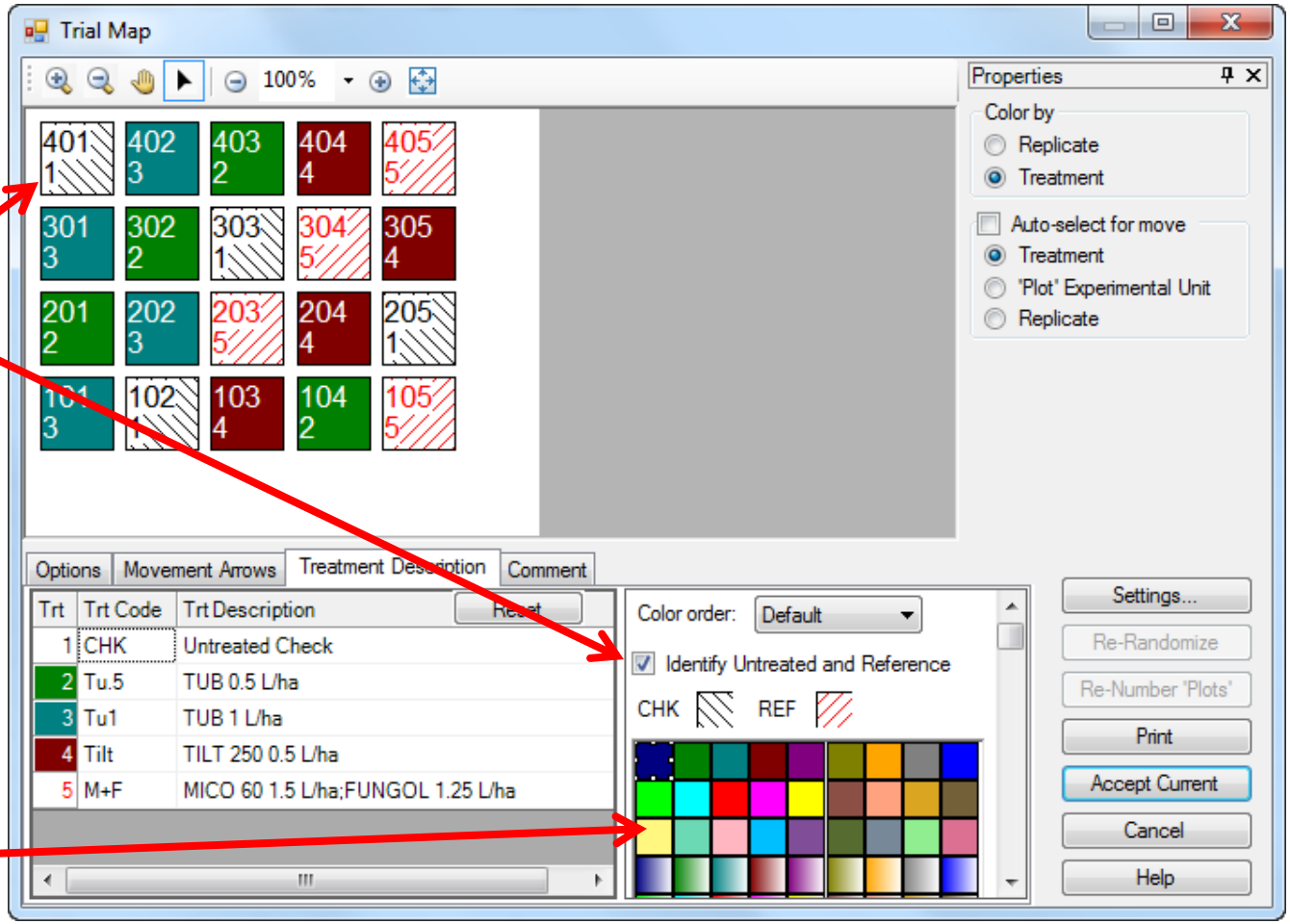
Trial Map Enhancements

- 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

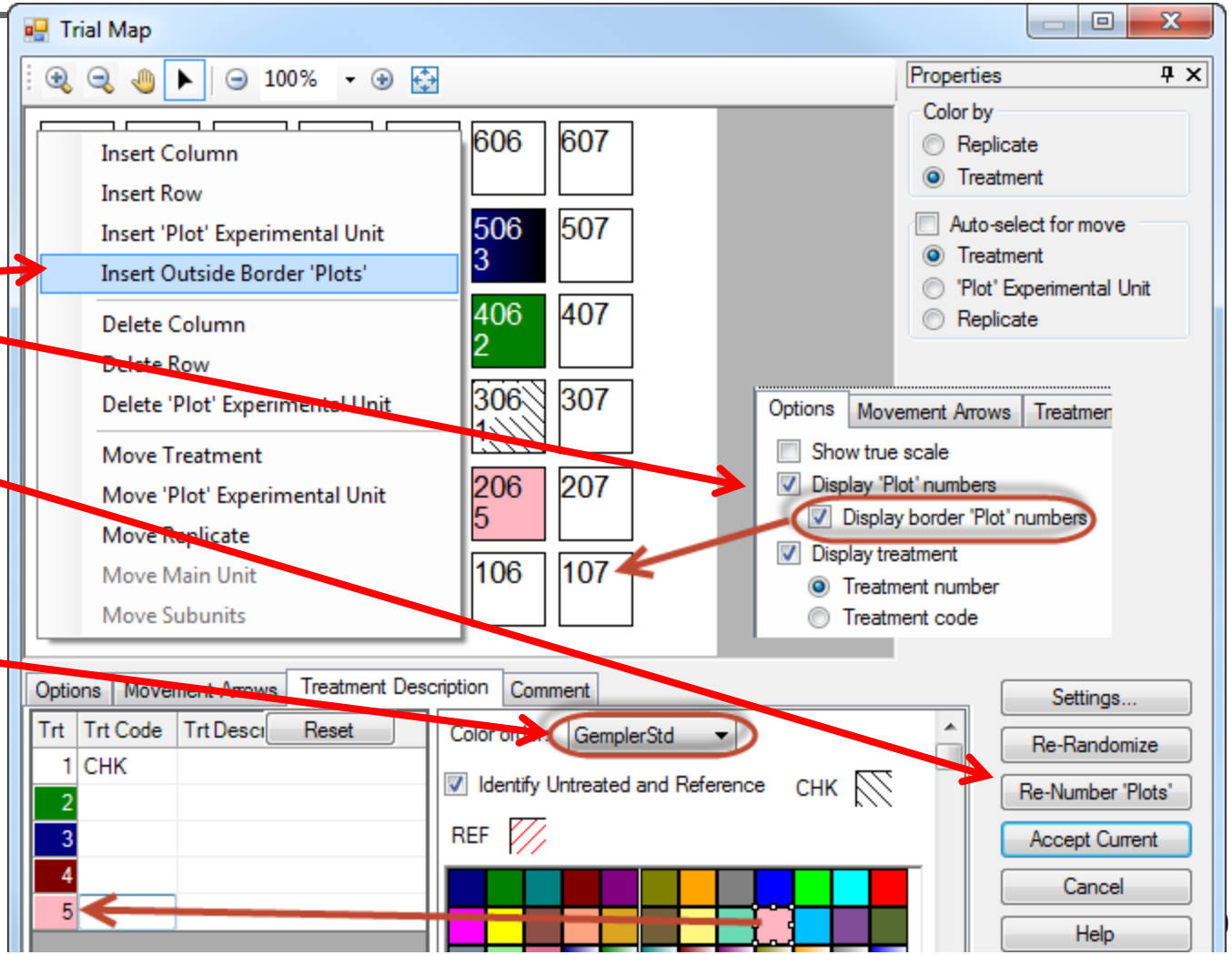
Outside border plots

==========

Numbering

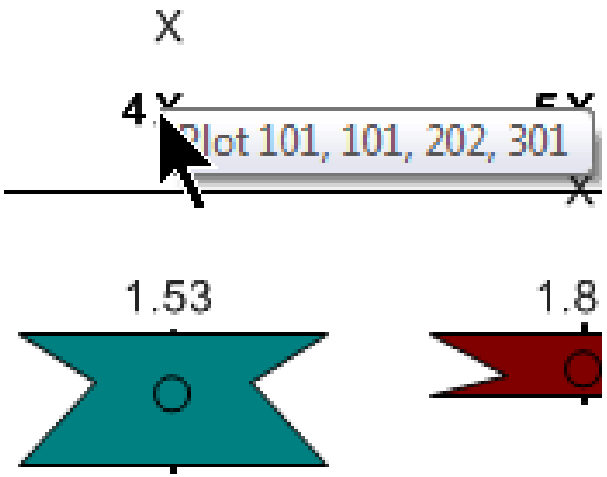
==========

Define custom palette



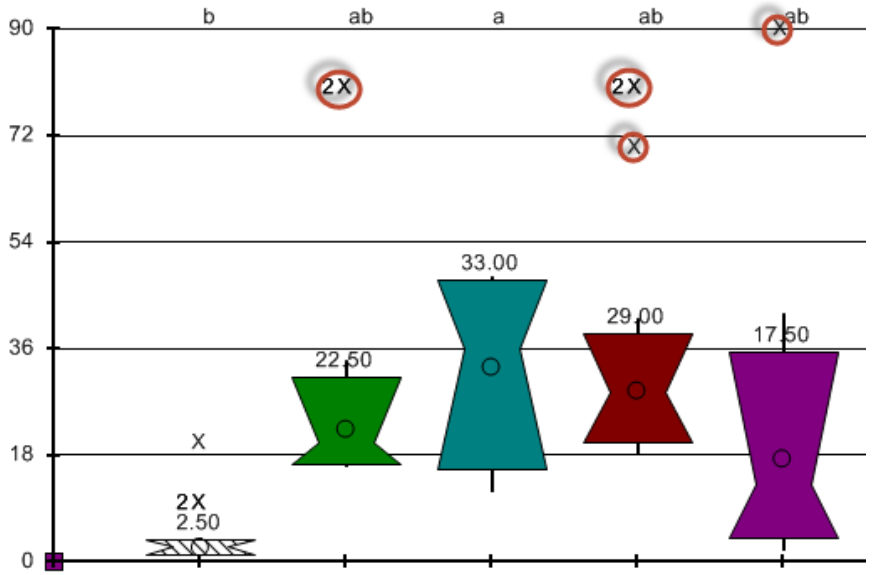
Graphs

- 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)

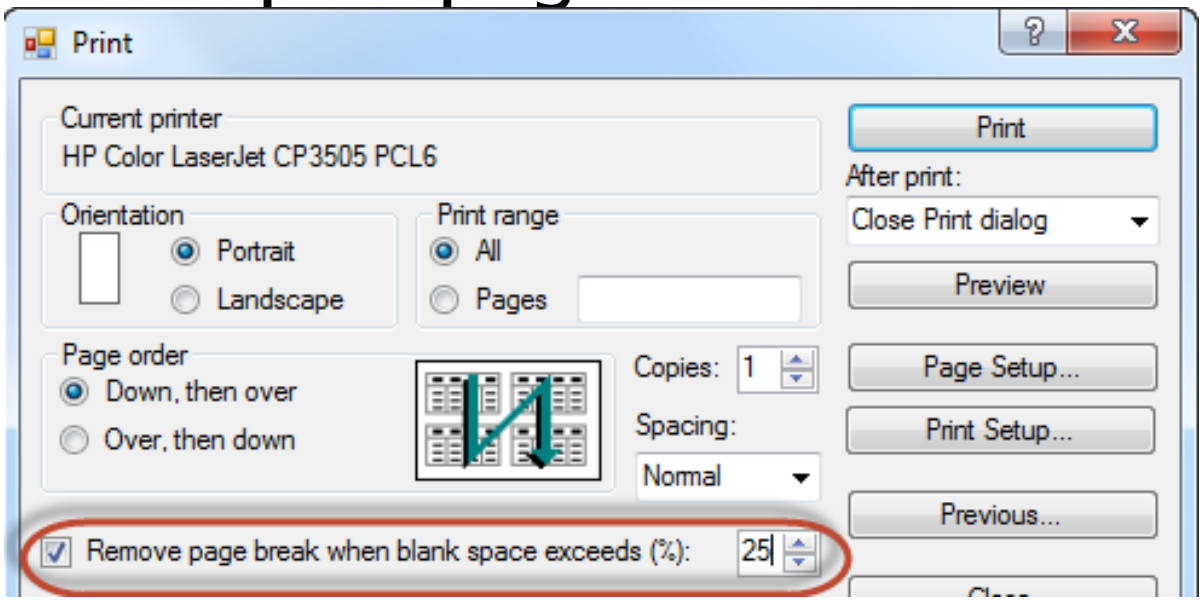


Graphs

- 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

Reps: 4 Appl Code: A Plots: 2.5 by 10 meters
Spray vol: 200 L/ha Mix size: 2.15 liters (min 2.15)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Product to Measure	Rep 1	2	3	4
3	TUB	250	G/L	EC	1	l/ha	ABC					10.75 ml/mx	101	202	301	402
1	Untreated Check						ABC						102	205	303	401
4	TILT 250	250	G/L	EC	0.5	l/ha	ABC					5.375 ml/mx	103	204	305	404
2	TUB	250	G/L	EC	0.5	l/ha	ABC					5.375 ml/mx	104	201	302	403
5	MICO 60	600	G/L	EC	1.5	l/ha	AB	250	L/HA	2.65	Liters	15.9 ml/mx	105	203	304	405

Reps: 4 Appl Code: B Plots: 2.5 by 10 meters
Spray vol: 200 L/ha Mix size: 2.15 liters (min 2.15)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Product to Measure	Rep 1	2	3	4
3	TUB	250	G/L	EC	1	l/ha	ABC					10.75 ml/mx	101	202	301	402
1	Untreated Check						ABC						102	205	303	401
4	TILT 250	250	G/L	EC	0.5	l/ha	ABC					5.375 ml/mx	103	204	305	404
2	TUB	250	G/L	EC	0.5	l/ha	ABC					5.375 ml/mx	104	201	302	403
5	MICO 60	600	G/L	EC	1.5	l/ha	AB	250	L/HA	2.65	Liters	15.9 ml/mx	105	203	304	405

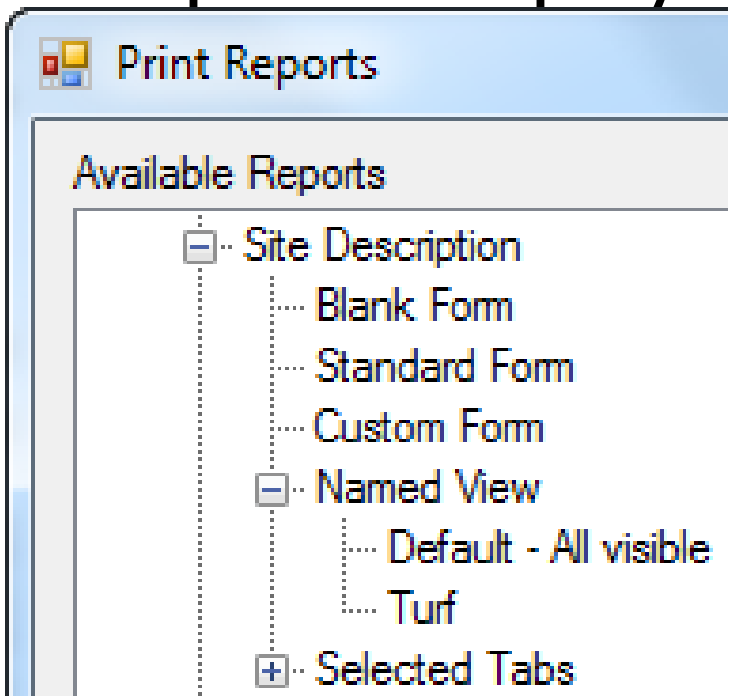
Reps: 4 Appl Code: C Plots: 2.5 by 10 meters
Spray vol: 200 L/ha Mix size: 2.15 liters (min 2.15)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Product to Measure	Rep 1	2	3	4
3	TUB	250	G/L	EC	1	l/ha	ABC					10.75 ml/mx	101	202	301	402
1	Untreated Check						ABC						102	205	303	401
4	TILT 250	250	G/L	EC	0.5	l/ha	ABC					5.375 ml/mx	103	204	305	404
2	TUB	250	G/L	EC	0.5	l/ha	ABC					5.375 ml/mx	104	201	302	403
5	FUNGOL	200	G/L	SC	1.25	l/ha	C					13.44 ml/mx	105	203	304	405

Sort Order: Application Code, Replicate 1

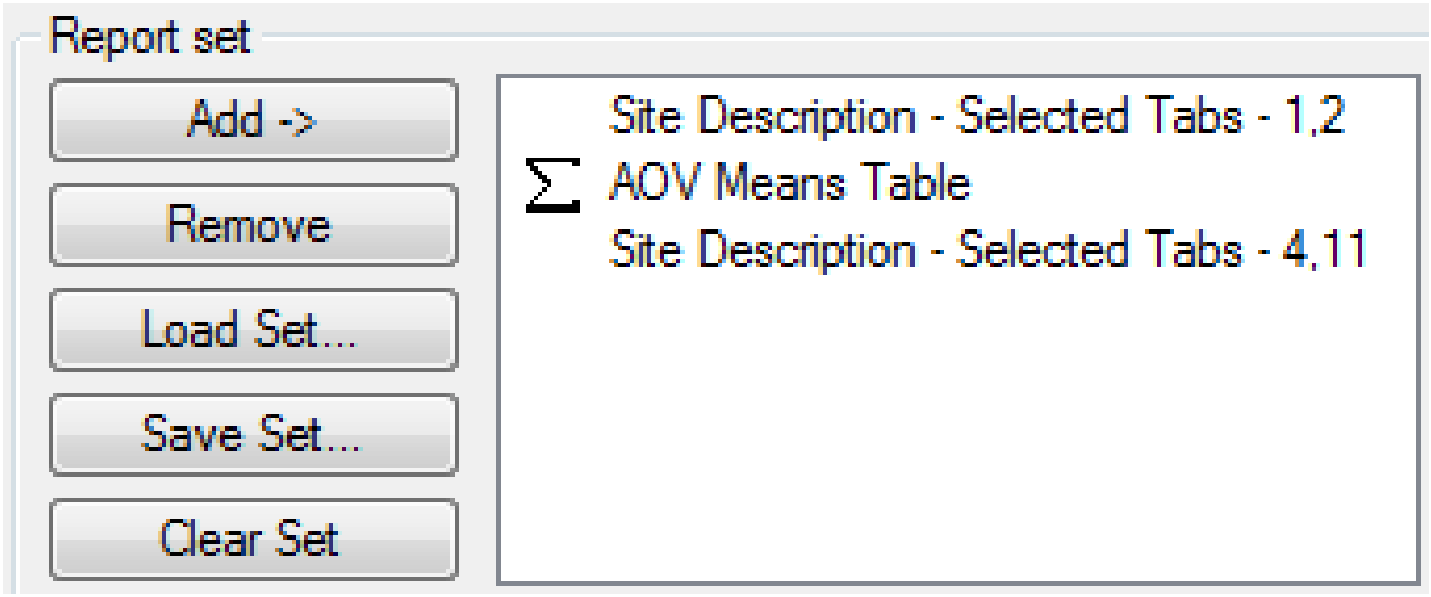
New Site Description Reports

- New Site Description reports simplify changing between common report uses



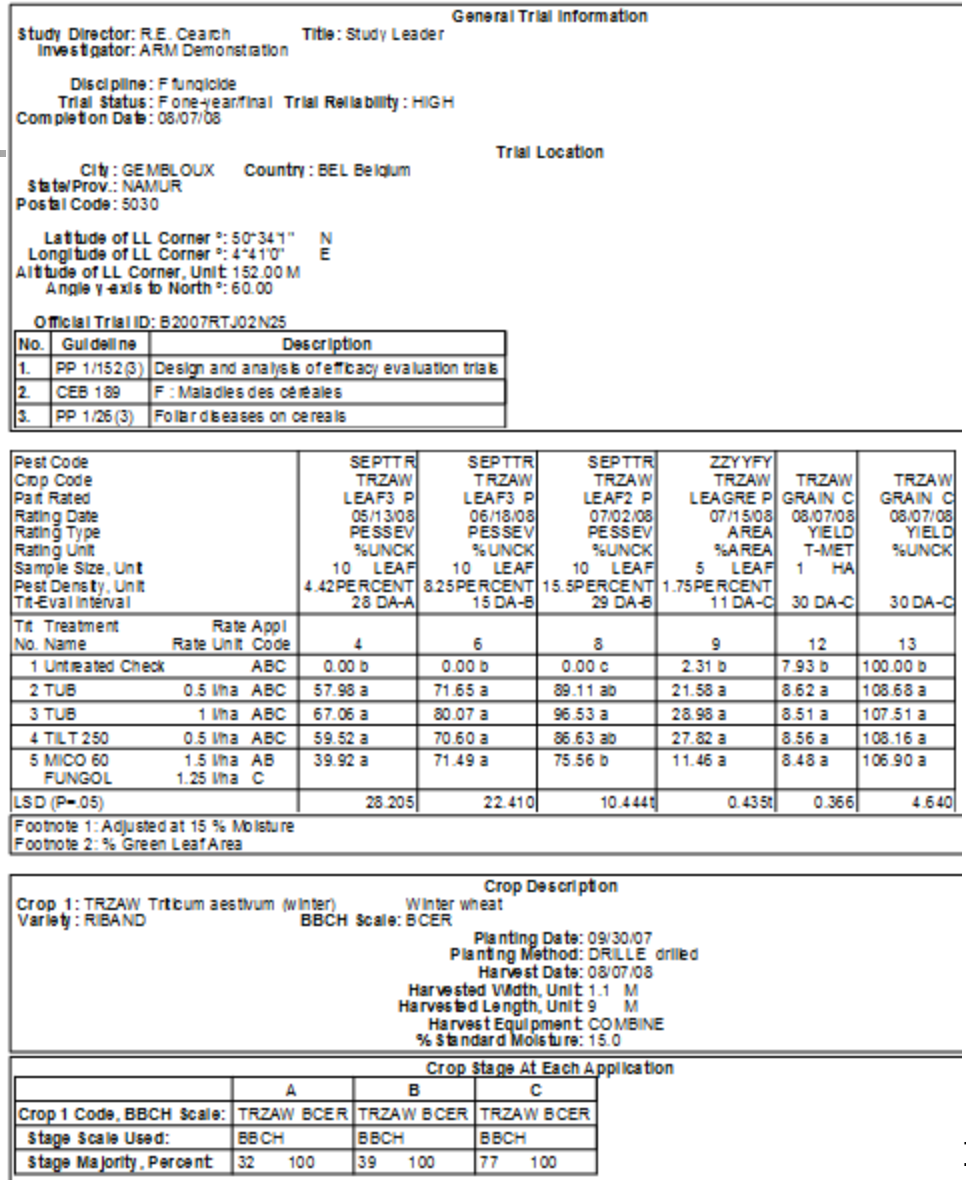
New Site Description Reports

- Allow printing several report segments



New Site Description Reports

- Allows you to create your own custom reports



General Trial Information

Study Director: R.E. Cearch Title: Study Leader
Investigator: ARM Demonstration

Discipline: F fungicide
Trial Status: F one-year/final Trial Reliability: HIGH
Completion Date: 08/07/08

Trial Location

City: GEMBLOUX Country: BEL Belgium
State/Prov.: NAMUR
Postal Code: 5030

Latitude of LL Corner °: 50°34'1" N
Longitude of LL Corner °: 4°41'0" E
Altitude of LL Corner, Unit: 152.00 M
Angle y-axis to North °: 60.00

Official Trial ID: B2007RTJ02N25

No.	Guideline	Description
1.	PP 1/152(3)	Design and analysis of efficacy evaluation trials
2.	CEB 189	F : Maladies des céréales
3.	PP 1/26(3)	Foliar diseases on cereals

Pest Code				SEPTTR	SEPTTR	SEPTTR	ZZYYFY	TRZAW	TRZAW
Crop Code				TRZAW	TRZAW	TRZAW	TRZAW	GRAIN C	GRAIN C
Part Rated				LEAF3 P	LEAF3 P	LEAF2 P	LEAGRE P	08/07/08	08/07/08
Rating Date				05/13/08	06/18/08	07/02/08	07/15/08	YIELD	YIELD
Rating Type				PESSEV	PESSEV	PESSEV	AREA	T-MET	%UNCK
Rating Unit				%UNCK	%UNCK	%UNCK	%AREA	1 HA	
Sample Size, Unit				10 LEAF	10 LEAF	10 LEAF	5 LEAF		
Pest Density, Unit				4.42PERCENT	8.25PERCENT	15.5PERCENT	1.75PERCENT		
Trt-Eval Interval				28 DA-A	15 DA-B	29 DA-B	11 DA-C	30 DA-C	30 DA-C
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code					
1	Untreated Check			ABC	0.00 b	0.00 b	0.00 c	2.31 b	7.93 b	100.00 b
2	TUB	0.5	l/ha	ABC	57.98 a	71.65 a	89.11 ab	21.58 a	8.62 a	108.68 a
3	TUB	1	l/ha	ABC	67.06 a	80.07 a	96.53 a	28.98 a	8.51 a	107.51 a
4	TILT 250	0.5	l/ha	ABC	59.52 a	70.60 a	86.63 ab	27.82 a	8.56 a	108.16 a
5	MICO 60	1.5	l/ha	AB	39.92 a	71.49 a	75.56 b	11.46 a	8.48 a	106.90 a
	FUNGOL	1.25	l/ha	C						
LSD (P=.05)					28.205	22.410	10.444t	0.435t	0.366	4.640

Footnote 1: Adjusted at 15 % Moisture
Footnote 2: % Green Leaf Area

Crop Description

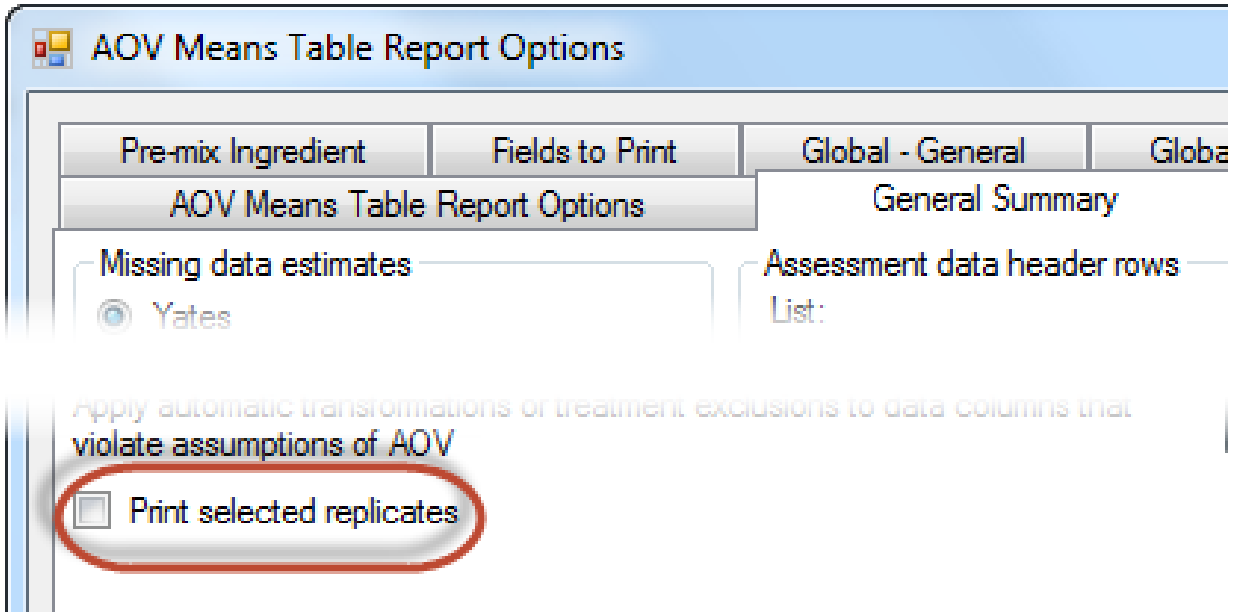
Crop 1: TRZAW Triticum aestivum (winter) Winter wheat
Variety: RIBAND BBCH Scale: BCER
Planting Date: 09/30/07
Planting Method: DRILLE drilled
Harvest Date: 08/07/08
Harvested Width, Unit: 1.1 M
Harvested Length, Unit: 9 M
Harvest Equipment: COMBINE
% Standard Moisture: 15.0

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	TRZAW BCER	TRZAW BCER	TRZAW BCER
Stage Scale Used:	BBCH	BBCH	BBCH
Stage Majority, Percent:	32 100	39 100	77 100

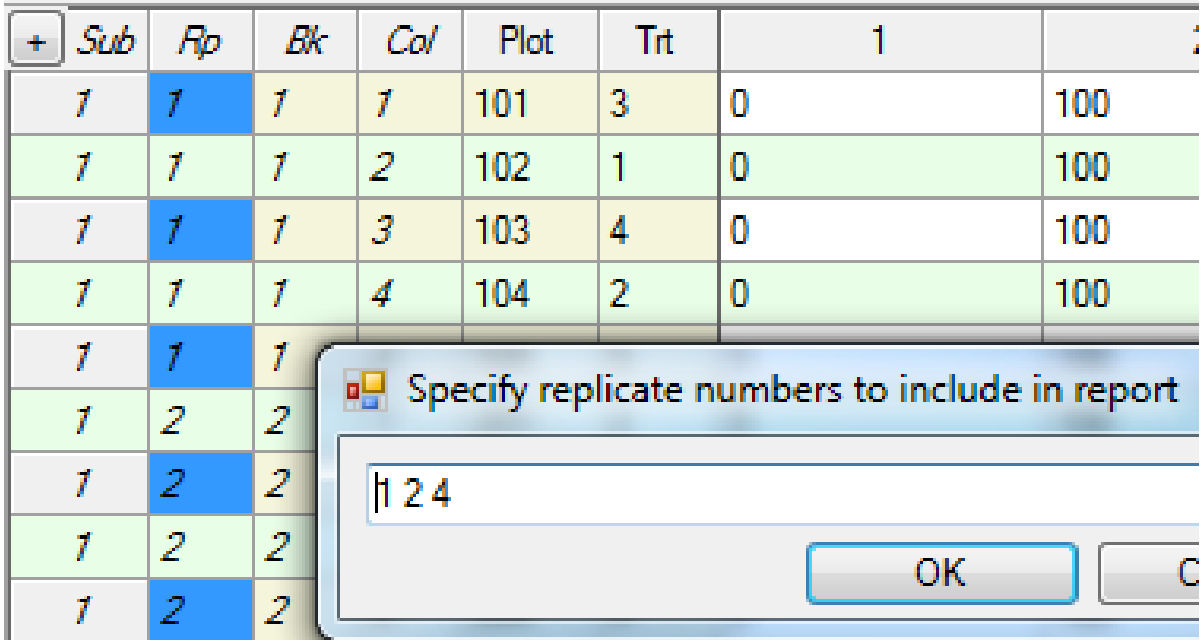
Print Selected Replicates

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



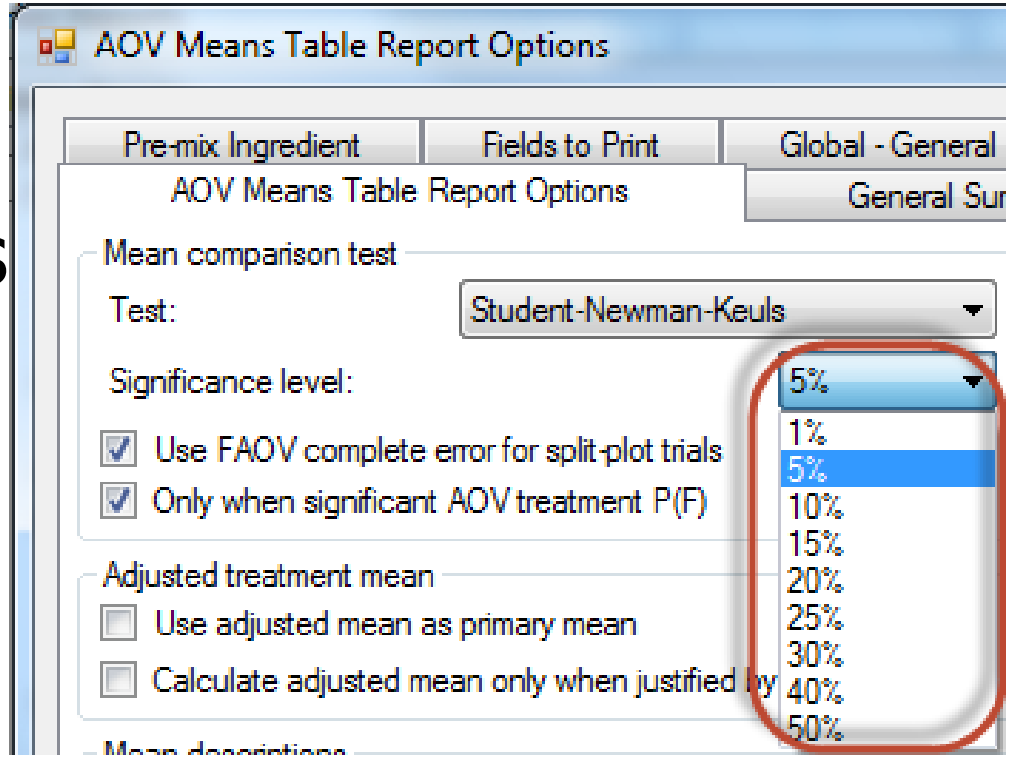
Print Selected Replicates

- 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

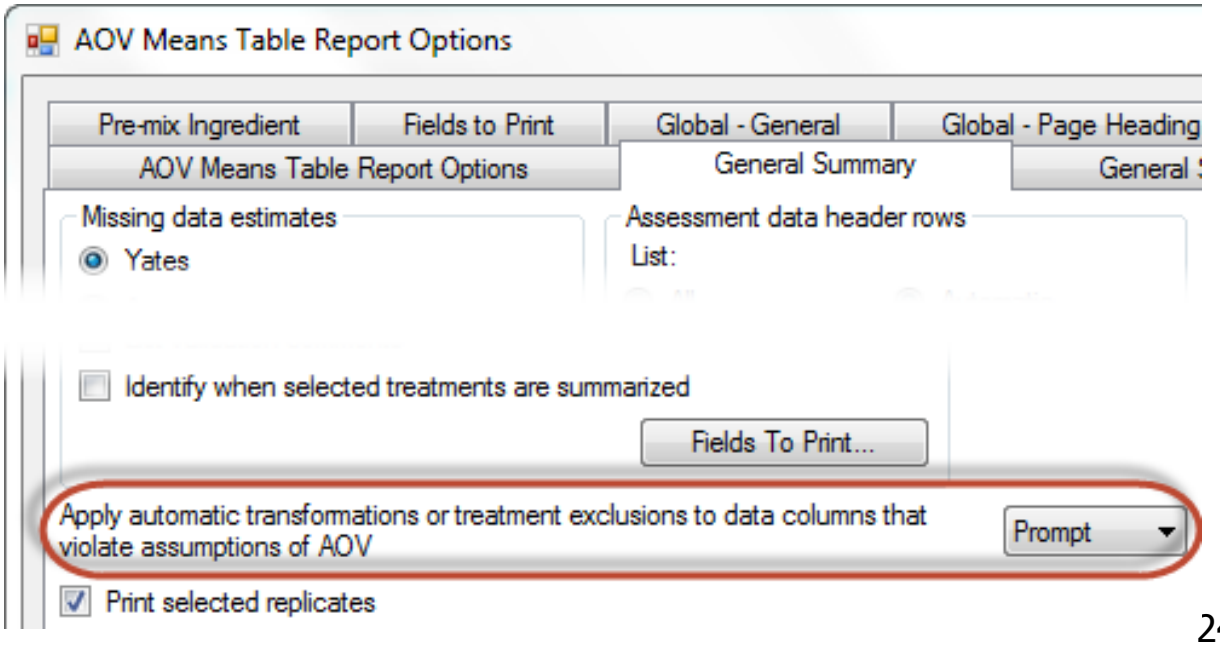
Heterogeneity/Skewness/ Kurtosis on Summary Reports

- 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

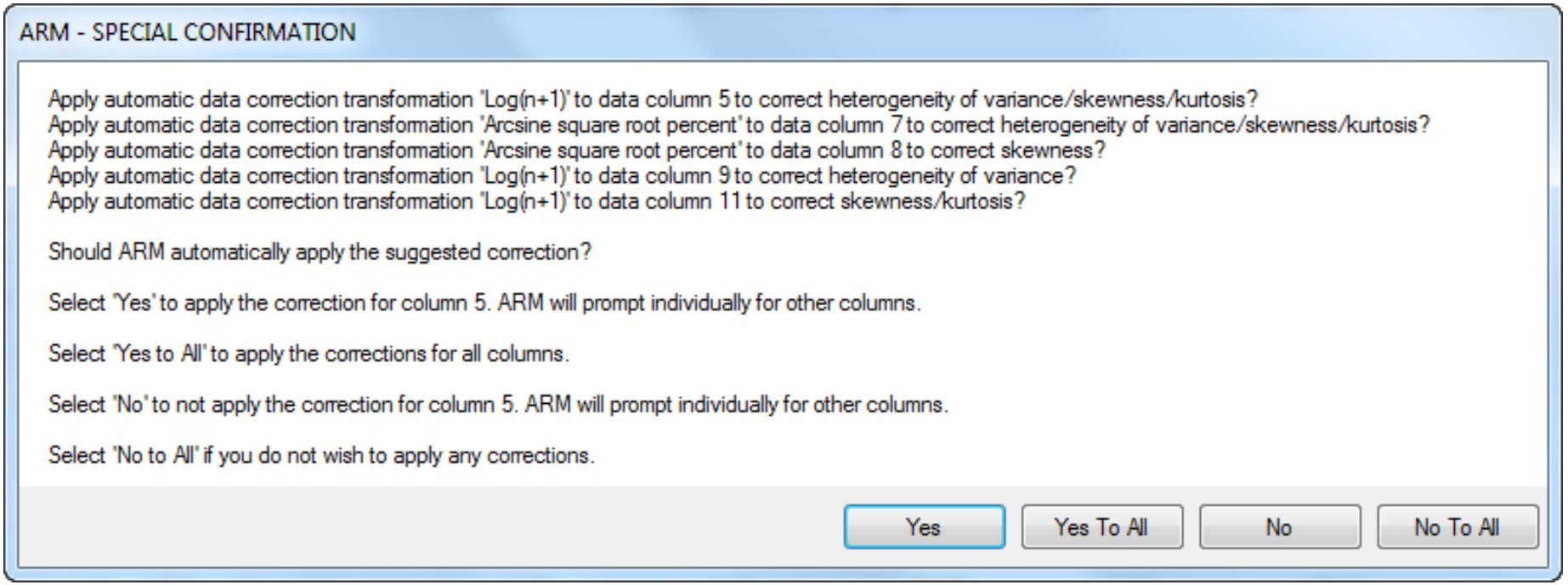
Heterogeneity/Skewness/ Kurtosis on Summary Reports

- Apply automatic transformations or treatment exclusions to data columns that violate assumptions of AOV:
  Prompt
  Yes
  No



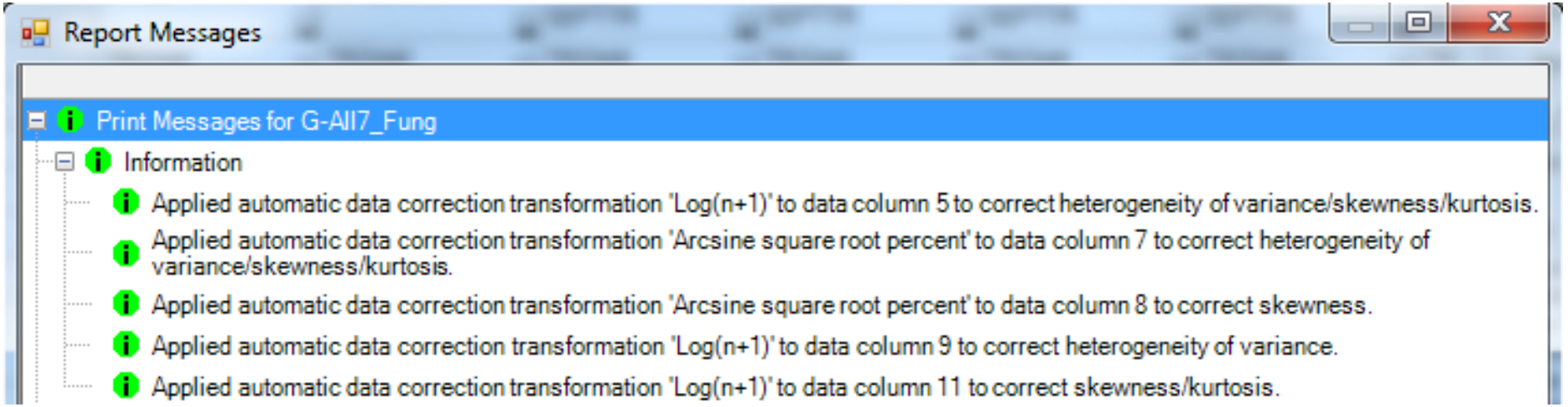
Heterogeneity/Skewness/ Kurtosis on Summary Reports

- When 'Prompt' a confirmation dialog identifies violation(s) and asks:



Heterogeneity/Skewness/ Kurtosis on Summary Reports

- When 'Yes' or 'Prompt' the applied actions are listed in Report Messages



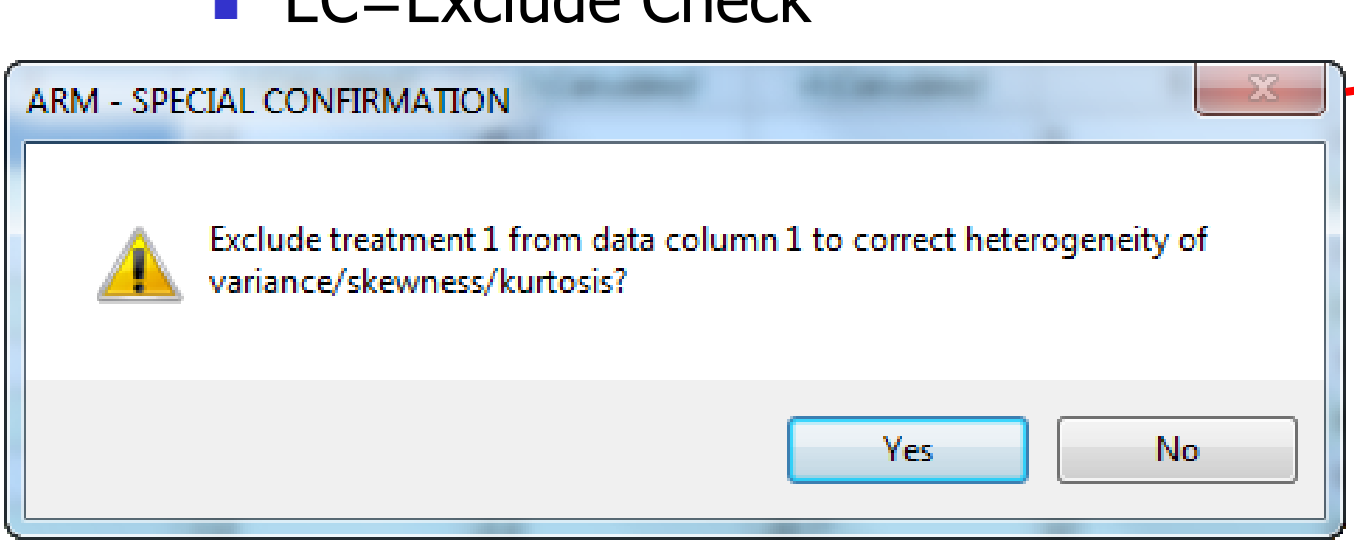
Heterogeneity/Skewness/ Kurtosis on Summary Reports

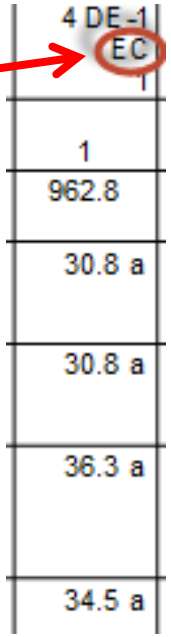
- Corrections added to ARM Action Codes
  - AL=Automatic Log
  - AA=Automatic Arcsine Square Root Percent (only tested for 0-100 data)
  - AS=Automatic Square Root

15 DA-B AL 2	15 DA-B TAB[5] 2	29 DA-B AA 2	29 DA-B AA TAB[7] 2	11 DA-C AL 2
5	6	7	8	9
7.82 a	0.00 b	15.28 a	0.00 c	2.31 b

Heterogeneity/Skewness/ Kurtosis on Summary Reports

- Exclude check treatment
  - EC=Exclude Check



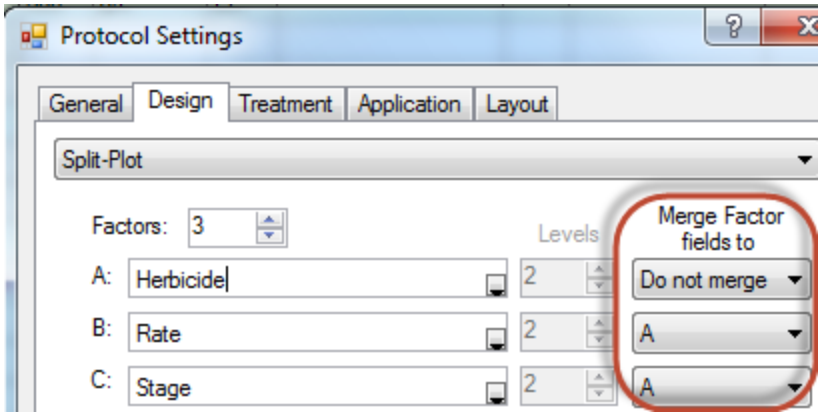


Heterogeneity/Skewness/ Kurtosis on Summary Reports

- 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:

Trt Line	Trt No.	Type	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage	Appl Code
1			Start of Factor A (Herbicide)							
2	1	HERB	Tub	500	g/L	EC				
3	2	HERB	Tilt	600	g/L	EC				
4			Start of Factor B (Rate)							
5	1		Low rate				25	g AI/ha		
6	2		High rate				50	g AI/ha		
7			Start of Factor C (Stage)							
8	1		Early						EAPOCR	A
9	2		Late						LAPOCR	B

Create Trial - Merge Factor to

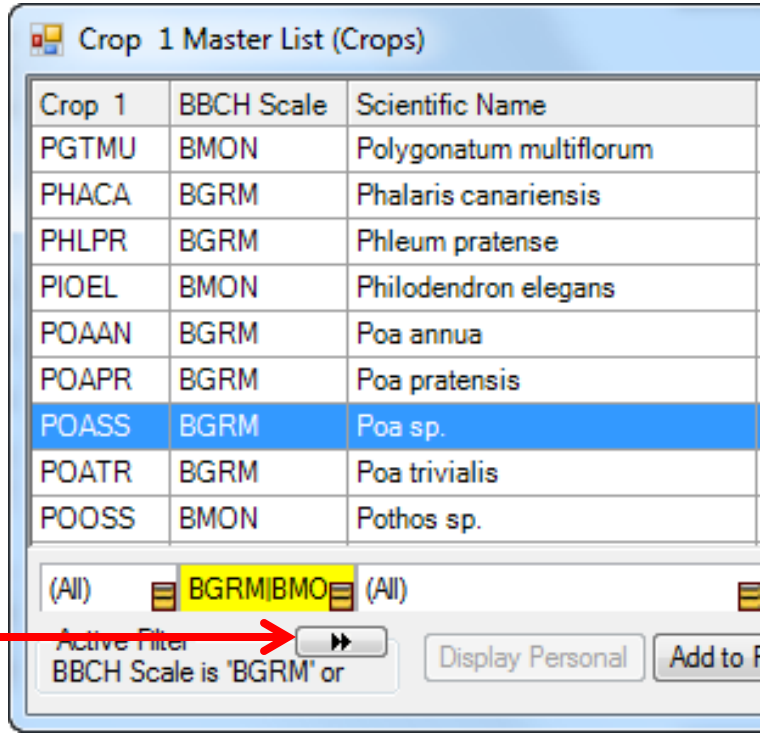
- Result in these trial treatments

Trt Line	Trt No.	Type	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	Factor ID	Level No.
1	1	HERB	Tub	500	g/L	EC	25	g AI/ha	EAPOCR	A	A	1
2	1		Low rate				25	g AI/ha			B	1
3	1		Early						EAPOCR	A	C	1
4	2	HERB	Tub	500	g/L	EC	25	g AI/ha	LAPOCR	B	A	1
5	2		Low rate				25	g AI/ha			B	1
6	2		Late						LAPOCR	B	C	2
7	3	HERB	Tub	500	g/L	EC	50	g AI/ha	EAPOCR	A	A	1
18	6		Late						LAPOCR	B	C	2
19	7	HERB	Tilt	600	g/L	EC	50	g AI/ha	EAPOCR	A	A	2
20	7		High rate				50	g AI/ha			B	2
21	7		Early						EAPOCR	A	C	1
22	8	HERB	Tilt	600	g/L	EC	50	g AI/ha	LAPOCR	B	A	2
23	8		High rate				50	g AI/ha			B	2
24	8		Late						LAPOCR	B	C	2

Validation Lists

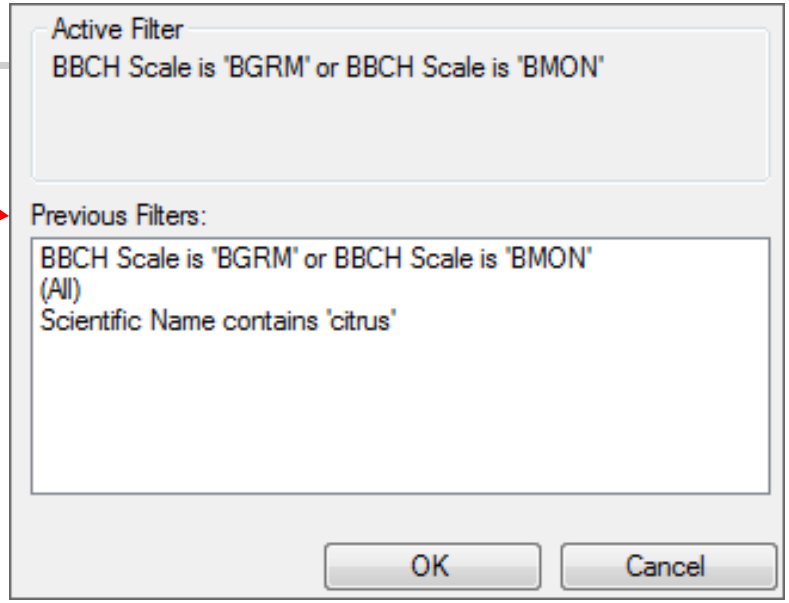
- Database filter control
  for defining more than one filter per validation list column

- Display previous filters applied to a list

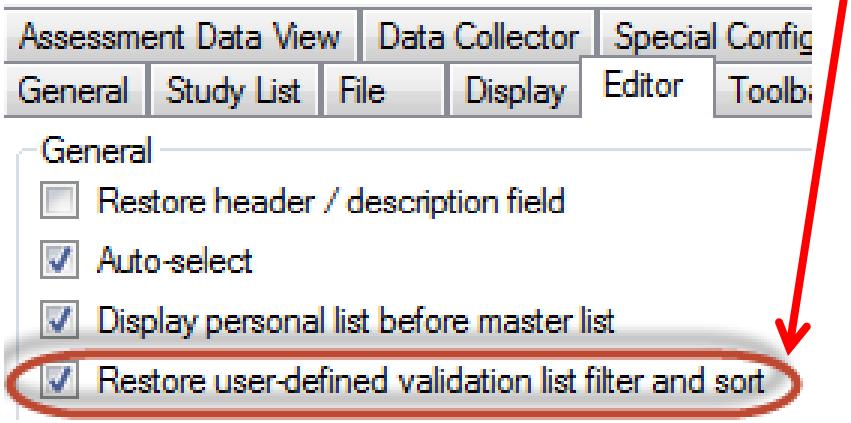


Validation Lists

- Previous Filters *

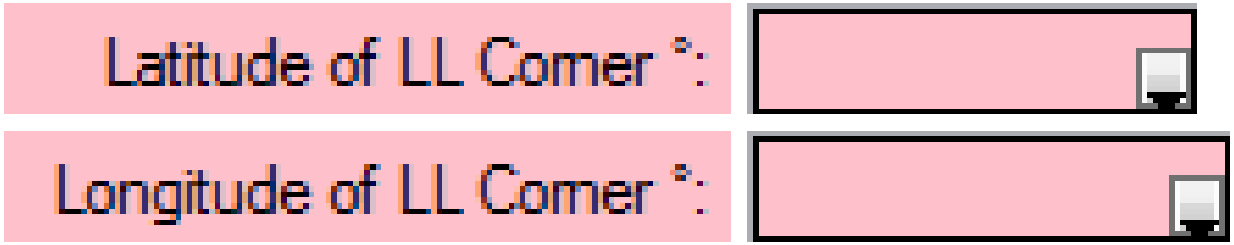


*Filters are only saved when this Tools - Options Editor choice is active

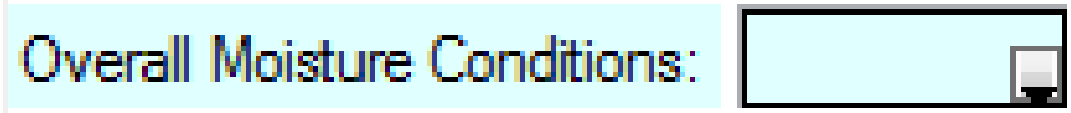


Study Rule Required and Recommended Field Colors

- Required=pink background:

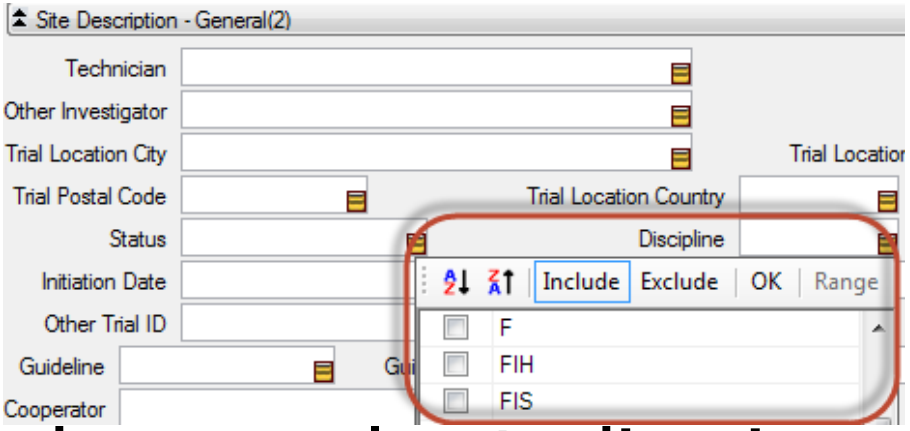


- Recommended=blue background:



Study List

- Discipline field



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