

RGMV Tables of means

Variate: Log_RGMV_1,Log_RGMV_2,Log_RGMV_3

Grand mean 15.348

Time Log_RGMV_1 Log_RGMV_2 Log_RGMV_3
 15.085 15.218 15.742

Age_1 New Old
 14.679 16.018

Cultivar_1 Bealey LP256 LP258 R141 R164
 15.009 15.022 15.403 15.810 15.498

Time Age_1 New Old
 Log_RGMV_1 14.250 15.920
 Log_RGMV_2 14.338 16.098
 Log_RGMV_3 15.448 16.036

Time Cultivar_1 Bealey LP256 LP258 R141 R164
 Log_RGMV_1 14.387 14.623 15.715 15.482 15.217
 Log_RGMV_2 14.897 14.940 15.197 15.661 15.395
 Log_RGMV_3 15.743 15.504 15.295 16.287 15.882

Age_1 Cultivar_1 Bealey LP256 LP258 R141 R164
 New 14.174 14.456 15.068 15.255 14.440
 Old 15.844 15.588 15.737 16.365 16.556

Time Age_1 Cultivar_1 Bealey LP256 LP258 R141 R164
 Log_RGMV_1 New 13.305 14.001 15.316 14.830 13.796
 Old 15.468 15.245 16.114 16.134 16.639
 Log_RGMV_2 New 13.698 14.144 14.684 14.823 14.339
 Old 16.095 15.735 15.711 16.498 16.452
 Log_RGMV_3 New 15.517 15.224 15.203 16.111 15.186
 Old 15.970 15.784 15.387 16.462 16.577

Standard errors of differences of means

Table	Time	Age_1	Cultivar_1	Time Age_1	Time Cultivar_1	Age_1 Cultivar_1	Time Age_1 Cultivar_1
rep.	30	45	18	15	6	9	3
s.e.d.	0.1905	0.2640	0.4174	0.3437	0.5434	0.5903	0.7684
d.f.	32.38	20	20	44.25	44.25	20	44.25
Except when comparing means with the same level(s) of							
Age_1				0.2695			
d.f.				32.38			
Cultivar_1					0.4261		
d.f.					32.38		
Age_1.Cultivar_1							0.6026
d.f.							32.38

Correction factors have been applied to residual d.f.(see analysis-of-variance table for details)

Log (RGMV) REML variance components analysis

Response variate: Log_RGMV
 Fixed model: Constant + Date + Age + Cultivar + Date.Age + Date.Cultivar + Age.Cultivar + Date.Age.Cultivar
 Random model: Plot.Date
 Number of units: 90

Plot.Date used as residual term with covariance structure as below

Sparse algorithm with AI optimisation

Covariance structures defined for random model

Covariance structures defined within terms:

Term	Factor	Model	Order	No. rows
Plot.Date	Plot	Identity	1	30
	Date	Uniform	1	3

Residual variance model

Term	Factor	Model(order)	Parameter	Estimate	s.e.
Plot.Date			Sigma2	0.886	0.1841
	Plot	Identity	-	-	-
	Date	Uniform	theta1	0.3851	0.1405

Tests for fixed effects

Sequentially adding terms to fixed model

Fixed term	Wald statistic	n.d.f.	F statistic	d.d.f.	F pr
Date	13.31	2	6.65	40.0	0.003
Age	25.75	1	25.75	20.0	<0.001
Cultivar	5.28	4	1.32	20.0	0.297
Date.Age	11.74	2	5.87	40.0	0.006
Date.Cultivar	9.63	8	1.20	40.0	0.321
Age.Cultivar	3.61	4	0.90	20.0	0.482
Date.Age.Cultivar	2.51	8	0.31	40.0	0.956

Table of predicted means for Constant

15.35 Standard error: 0.132

Table of predicted means for Date

Date 10-Apr-15 18-Sep-15 17-Feb-16

15.08 15.22 15.74

Standard error of differences: 0.1905

Table of predicted means for Age

Age New Old

14.68 16.02

Standard error of differences: 0.2640

Table of predicted means for Cultivar

Cultivar Bealey LP256 LP258 R141 R164

15.01 15.02 15.40 15.81 15.50

Standard error of differences: 0.4174

Table of predicted means for Date.Age

Age New Old

Date

10-Apr-15 14.25 15.92

18-Sep-15 14.34 16.10

17-Feb-16 15.45 16.04

Standard errors of differences

Average: 0.3140

Maximum: 0.3437

Minimum: 0.2695

Average variance of differences: 0.09991

Standard error of differences for same level of factor:

	Date	Age
Average:	0.3437	0.2695
Maximum:	0.3437	0.2695
Minimum:	0.3437	0.2695

Table of predicted means for Date.Cultivar

Cultivar	Bealey	LP256	LP258	R141	R164
Date					
10-Apr-15	14.39	14.62	15.72	15.48	15.22
18-Sep-15	14.90	14.94	15.20	15.66	15.40
17-Feb-16	15.74	15.50	15.30	16.29	15.88

Standard errors of differences

Average:	0.5266
Maximum:	0.5434
Minimum:	0.4261

Average variance of differences: 0.2790

Standard error of differences for same level of factor:

	Date	Cultivar
Average:	0.5434	0.4261
Maximum:	0.5434	0.4261
Minimum:	0.5434	0.4261

Table of predicted means for Age.Cultivar

Cultivar	Bealey	LP256	LP258	R141	R164
Age					
New	14.17	14.46	15.07	15.25	14.44
Old	15.84	15.59	15.74	16.36	16.56

Standard error of differences: 0.5903

Table of predicted means for Date.Age.Cultivar

Date	Cultivar	Bealey	LP256	LP258	R141	R164
Age						
10-Apr-15	New	13.31	14.00	15.32	14.83	13.80
	Old	15.47	15.25	16.11	16.13	16.64
18-Sep-15	New	13.70	14.14	14.68	14.82	14.34
	Old	16.09	15.74	15.71	16.50	16.45
17-Feb-16	New	15.52	15.22	15.20	16.11	15.19
	Old	15.97	15.78	15.39	16.46	16.58

Standard errors of differences

Average:	0.7570
Maximum:	0.7684
Minimum:	0.6026

Average variance of differences: 0.5748

Standard error of differences for same level of factor:

	Date	Age	Cultivar
Average:	0.7684	0.7447	0.7021
Maximum:	0.7684	0.7684	0.7684
Minimum:	0.7684	0.6026	0.6026

Average variance of differences:

0.5905	0.5580	0.4995
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BYDV:

Log(YDV) REML variance components analysis

Response variate: Log_YDV
Fixed model: Constant + Date + Age + Cultivar + Date.Age + Date.Cultivar + Age.Cultivar + Date.Age.Cultivar
Random model: Plot.Date
Number of units: 90

Plot.Date used as residual term with covariance structure as below

Sparse algorithm with AI optimisation

Covariance structures defined for random model

Covariance structures defined within terms:

Term	Factor	Model	Order	No. rows
Plot.Date	Plot	Identity	1	30
	Date	Uniform	1	3

Residual variance model

Term	Factor	Model(order)	Parameter	Estimate	s.e.
Plot.Date		Identity	Sigma2	3.170	0.636
	Plot	Identity	-	-	-
	Date	Uniform	theta1	0.3222	0.1439

Tests for fixed effects

Sequentially adding terms to fixed model

Fixed term	Wald statistic	n.d.f.	F statistic	d.d.f.	F pr
Date	3.43	2	1.72	40.0	0.193
Age	37.33	1	37.33	20.0	<0.001
Cultivar	32.28	4	8.07	20.0	<0.001
Date.Age	8.51	2	4.25	40.0	0.021
Date.Cultivar	3.04	8	0.38	40.0	0.925
Age.Cultivar	6.92	4	1.73	20.0	0.183
Date.Age.Cultivar	5.03	8	0.63	40.0	0.749

Dropping individual terms from full fixed model

Fixed term	Wald statistic	n.d.f.	F statistic	d.d.f.	F pr
Date.Age.Cultivar	5.03	8	0.63	40.0	0.749

Message: denominator degrees of freedom for approximate F-tests are calculated using algebraic derivatives ignoring fixed/boundary/singular variance parameters.

Table of predicted means for Constant

9.683 Standard error: 0.2406

Table of predicted means for Date

Date10-Apr-1518-Sep-1517-Feb-16

10.014 9.719 9.316

Standard error of differences: 0.3785

Table of predicted means for Age

AgeNew Old

8.212 11.153

Standard error of differences: 0.4813

Table of predicted means for Cultivar

Cultivar Bealey LP256 LP258 R141 R164

10.838 11.427 9.302 9.331 7.515

Standard error of differences: 0.7610

Table of predicted means for Date.Age

Age New Old

Date

10-Apr-15 8.201 11.827

18-Sep-15 7.955 11.483

17-Feb-16 8.482 10.149

Standard errors of differences

Average: 0.6041
Maximum: 0.6501
Minimum: 0.5352

Average variance of differences: 0.3681

Standard error of differences for same level of factor:

	Date	Age
Average:	0.6501	0.5352
Maximum:	0.6501	0.5352
Minimum:	0.6501	0.5352

Table of predicted means for Date.Cultivar

Cultivar	Bealey	LP256	LP258	R141	R164
Date					
10-Apr-15	11.154	11.669	10.013	9.642	7.591
18-Sep-15	11.157	11.265	9.373	9.534	7.265
17-Feb-16	10.203	11.348	8.521	8.818	7.689

Standard errors of differences

Average: 1.002
Maximum: 1.028
Minimum: 0.8462

Average variance of differences: 1.008

Standard error of differences for same level of factor:

	Date	Cultivar
Average:	1.028	0.8462
Maximum:	1.028	0.8462
Minimum:	1.028	0.8462

Table of predicted means for Age.Cultivar

Cultivar	Bealey	LP256	LP258	R141	R164
Age					
New	9.665	9.187	7.727	7.393	7.090
Old	12.011	13.668	10.878	11.269	7.940

Standard error of differences: 1.076

Table of predicted means for Date.Age.Cultivar

Date	Cultivar	Bealey	LP256	LP258	R141	R164
Age						
10-Apr-15	New	9.792	9.081	7.950	7.090	7.090
	Old	12.517	14.257	12.076	12.193	8.092
18-Sep-15	New	9.579	8.326	7.688	7.090	7.090
	Old	12.735	14.204	11.058	11.977	7.440
17-Feb-16	New	9.623	10.153	7.543	8.000	7.090
	Old	10.782	12.542	9.499	9.636	8.288

Standard errors of differences

Average: 1.436
Maximum: 1.454
Minimum: 1.197

Average variance of differences: 2.066

Standard error of differences for same level of factor:

	Date	Age	Cultivar
Average:	1.454	1.417	1.351
Maximum:	1.454	1.454	1.454
Minimum:	1.454	1.197	1.197

Average variance of differences:

2.113	2.016	1.841
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