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**Moddus 28R Austen Lakeland 2022 Yield** 75

09:42 Saturday, March 25, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable yield

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 483.92769161

1 1 483.11370314 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 232383

Residual 2010500

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Moddus 28R Austen Lakeland 2022 Yield 76

09:42 Saturday, March 25, 2023

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 483.1

AIC (Smaller is Better) 487.1

AICC (Smaller is Better) 487.6

BIC (Smaller is Better) 485.9

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 0.82 0.5950 **No Sig diff**

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 8198.62 748.81 24 10.95 <.0001

trtmnt M62\_21 7833.62 748.81 24 10.46 <.0001

trtmnt M62\_30 7282.10 748.81 24 9.72 <.0001

trtmnt M62\_37 8859.75 748.81 24 11.83 <.0001

trtmnt M125\_30 7881.50 748.81 24 10.53 <.0001

trtmnt M125\_37 8300.75 748.81 24 11.09 <.0001

trtmnt M62\_21+37 7861.42 748.81 24 10.50 <.0001

trtmnt M62\_21+30 9108.02 748.81 24 12.16 <.0001

trtmnt M62\_30+37 9133.60 748.81 24 12.20 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 365.00 1002.62 24 0.36 0.7190

trtmnt UTC M62\_30 916.53 1002.62 24 0.91 0.3697

trtmnt UTC M62\_37 -661.13 1002.62 24 -0.66 0.5159

trtmnt UTC M125\_30 317.13 1002.62 24 0.32 0.7545

trtmnt UTC M125\_37 -102.13 1002.62 24 -0.10 0.9197

trtmnt UTC M62\_21+37 337.20 1002.62 24 0.34 0.7396

trtmnt UTC M62\_21+30 -909.40 1002.62 24 -0.91 0.3734

trtmnt UTC M62\_30+37 -934.97 1002.62 24 -0.93 0.3603

trtmnt M62\_21 M62\_30 551.53 1002.62 24 0.55 0.5873

trtmnt M62\_21 M62\_37 -1026.13 1002.62 24 -1.02 0.3163

trtmnt M62\_21 M125\_30 -47.8750 1002.62 24 -0.05 0.9623

trtmnt M62\_21 M125\_37 -467.12 1002.62 24 -0.47 0.6455

trtmnt M62\_21 M62\_21+37 -27.8000 1002.62 24 -0.03 0.9781

trtmnt M62\_21 M62\_21+30 -1274.40 1002.62 24 -1.27 0.2159

trtmnt M62\_21 M62\_30+37 -1299.97 1002.62 24 -1.30 0.2071

trtmnt M62\_30 M62\_37 -1577.65 1002.62 24 -1.57 0.1287

trtmnt M62\_30 M125\_30 -599.40 1002.62 24 -0.60 0.5556

trtmnt M62\_30 M125\_37 -1018.65 1002.62 24 -1.02 0.3198

trtmnt M62\_30 M62\_21+37 -579.33 1002.62 24 -0.58 0.5688

trtmnt M62\_30 M62\_21+30 -1825.93 1002.62 24 -1.82 0.0811

trtmnt M62\_30 M62\_30+37 -1851.50 1002.62 24 -1.85 0.0772

trtmnt M62\_37 M125\_30 978.25 1002.62 24 0.98 0.3389

trtmnt M62\_37 M125\_37 559.00 1002.62 24 0.56 0.5823

trtmnt M62\_37 M62\_21+37 998.33 1002.62 24 1.00 0.3293

trtmnt M62\_37 M62\_21+30 -248.27 1002.62 24 -0.25 0.8065

trtmnt M62\_37 M62\_30+37 -273.85 1002.62 24 -0.27 0.7871

trtmnt M125\_30 M125\_37 -419.25 1002.62 24 -0.42 0.6796

trtmnt M125\_30 M62\_21+37 20.0750 1002.62 24 0.02 0.9842

trtmnt M125\_30 M62\_21+30 -1226.53 1002.62 24 -1.22 0.2331

trtmnt M125\_30 M62\_30+37 -1252.10 1002.62 24 -1.25 0.2238

trtmnt M125\_37 M62\_21+37 439.33 1002.62 24 0.44 0.6652

trtmnt M125\_37 M62\_21+30 -807.27 1002.62 24 -0.81 0.4286

trtmnt M125\_37 M62\_30+37 -832.85 1002.62 24 -0.83 0.4143

trtmnt M62\_21+37 M62\_21+30 -1246.60 1002.62 24 -1.24 0.2258

trtmnt M62\_21+37 M62\_30+37 -1272.17 1002.62 24 -1.27 0.2167

trtmnt M62\_21+30 M62\_30+37 -25.5750 1002.62 24 -0.03 0.9799

**Nothing**

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**Moddus 28R Austen Lakeland 2022 Height1** 84

09:42 Saturday, March 25, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable height

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 154.19406723

1 1 152.13967827 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 1.9873

Residual 9.1569

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Moddus 28R Austen Lakeland 2022 Height1 85

09:42 Saturday, March 25, 2023

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 152.1

AIC (Smaller is Better) 156.1

AICC (Smaller is Better) 156.6

BIC (Smaller is Better) 154.9

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 1.46 0.2224 No Sig diff

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 50.5250 1.6691 24 30.27 <.0001

trtmnt M62\_21 46.2750 1.6691 24 27.72 <.0001

trtmnt M62\_30 46.6000 1.6691 24 27.92 <.0001

trtmnt M62\_37 47.0500 1.6691 24 28.19 <.0001

trtmnt M125\_30 43.8500 1.6691 24 26.27 <.0001

trtmnt M125\_37 45.9000 1.6691 24 27.50 <.0001

trtmnt M62\_21+37 44.8500 1.6691 24 26.87 <.0001

trtmnt M62\_21+30 46.0750 1.6691 24 27.60 <.0001

trtmnt M62\_30+37 46.6000 1.6691 24 27.92 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 4.2500 2.1397 24 1.99 0.0585

trtmnt UTC M62\_30 3.9250 2.1397 24 1.83 0.0790

trtmnt UTC M62\_37 3.4750 2.1397 24 1.62 0.1174

~~trtmnt UTC M125\_30 6.6750 2.1397 24 3.12 0.0047~~

~~trtmnt UTC M125\_37 4.6250 2.1397 24 2.16 0.0409~~

~~trtmnt UTC M62\_21+37 5.6750 2.1397 24 2.65 0.0140~~

trtmnt UTC M62\_21+30 4.4500 2.1397 24 2.08 0.0484

trtmnt UTC M62\_30+37 3.9250 2.1397 24 1.83 0.0790

trtmnt M62\_21 M62\_30 -0.3250 2.1397 24 -0.15 0.8805

trtmnt M62\_21 M62\_37 -0.7750 2.1397 24 -0.36 0.7204

trtmnt M62\_21 M125\_30 2.4250 2.1397 24 1.13 0.2683

trtmnt M62\_21 M125\_37 0.3750 2.1397 24 0.18 0.8623

trtmnt M62\_21 M62\_21+37 1.4250 2.1397 24 0.67 0.5118

trtmnt M62\_21 M62\_21+30 0.2000 2.1397 24 0.09 0.9263

trtmnt M62\_21 M62\_30+37 -0.3250 2.1397 24 -0.15 0.8805

trtmnt M62\_30 M62\_37 -0.4500 2.1397 24 -0.21 0.8352

trtmnt M62\_30 M125\_30 2.7500 2.1397 24 1.29 0.2110

trtmnt M62\_30 M62\_21+37 1.7500 2.1397 24 0.82 0.4215

trtmnt M62\_30 M62\_21+30 0.5250 2.1397 24 0.25 0.8083

trtmnt M62\_30 M62\_30+37 -276E-16 2.1397 24 -0.00 1.0000

trtmnt M62\_37 M125\_30 3.2000 2.1397 24 1.50 0.1478

trtmnt M62\_37 M125\_37 1.1500 2.1397 24 0.54 0.5959

trtmnt M62\_37 M62\_21+37 2.2000 2.1397 24 1.03 0.3141

trtmnt M62\_37 M62\_21+30 0.9750 2.1397 24 0.46 0.6527

trtmnt M62\_37 M62\_30+37 0.4500 2.1397 24 0.21 0.8352

trtmnt M125\_30 M125\_37 -2.0500 2.1397 24 -0.96 0.3476

trtmnt M125\_30 M62\_21+37 -1.0000 2.1397 24 -0.47 0.6445

trtmnt M125\_30 M62\_21+30 -2.2250 2.1397 24 -1.04 0.3088

trtmnt M125\_30 M62\_30+37 -2.7500 2.1397 24 -1.29 0.2110

trtmnt M125\_37 M62\_21+37 1.0500 2.1397 24 0.49 0.6281

trtmnt M125\_37 M62\_21+30 -0.1750 2.1397 24 -0.08 0.9355

trtmnt M125\_37 M62\_30+37 -0.7000 2.1397 24 -0.33 0.7464

trtmnt M62\_21+37 M62\_21+30 -1.2250 2.1397 24 -0.57 0.5723

trtmnt M62\_21+37 M62\_30+37 -1.7500 2.1397 24 -0.82 0.4215

trtmnt M62\_21+30 M62\_30+37 -0.5250 2.1397 24 -0.25 0.8083

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**Moddus 28R Austen Lakeland 2022 Height2** 93

09:42 Saturday, March 25, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable height

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 141.59923208

1 1 134.06270911 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 2.7095

Residual 4.2803

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Moddus 28R Austen Lakeland 2022 Height2 94

09:42 Saturday, March 25, 2023

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 134.1

AIC (Smaller is Better) 138.1

AICC (Smaller is Better) 138.6

BIC (Smaller is Better) 136.8

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 3.20 0.0129

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 79.4000 1.3219 24 60.06 <.0001

trtmnt M62\_21 77.5250 1.3219 24 58.65 <.0001

trtmnt M62\_30 77.5000 1.3219 24 58.63 <.0001

trtmnt M62\_37 78.7250 1.3219 24 59.55 <.0001

trtmnt M125\_30 75.7500 1.3219 24 57.30 <.0001

trtmnt M125\_37 75.9000 1.3219 24 57.42 <.0001

trtmnt M62\_21+37 76.2500 1.3219 24 57.68 <.0001

trtmnt M62\_21+30 75.0000 1.3219 24 56.74 <.0001

trtmnt M62\_30+37 73.5250 1.3219 24 55.62 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 1.8750 1.4629 24 1.28 0.2122

trtmnt UTC M62\_30 1.9000 1.4629 24 1.30 0.2064

trtmnt UTC M62\_37 0.6750 1.4629 24 0.46 0.6487

trtmnt UTC M125\_30 3.6500 1.4629 24 2.50 0.0199

~~trtmnt UTC M125\_37 3.5000 1.4629 24 2.39 0.0249~~

~~trtmnt UTC M62\_21+37 3.1500 1.4629 24 2.15 0.0416~~

trtmnt UTC M62\_21+30 4.4000 1.4629 24 3.01 0.0061

~~trtmnt UTC M62\_30+37 5.8750 1.4629 24 4.02 0.0005~~

trtmnt M62\_21 M62\_30 0.02500 1.4629 24 0.02 0.9865

trtmnt M62\_21 M62\_37 -1.2000 1.4629 24 -0.82 0.4201

trtmnt M62\_21 M125\_30 1.7750 1.4629 24 1.21 0.2368

trtmnt M62\_21 M125\_37 1.6250 1.4629 24 1.11 0.2777

trtmnt M62\_21 M62\_21+37 1.2750 1.4629 24 0.87 0.3921

trtmnt M62\_21 M62\_21+30 2.5250 1.4629 24 1.73 0.0972

~~trtmnt M62\_21 M62\_30+37 4.0000 1.4629 24 2.73 0.0116~~

trtmnt M62\_30 M62\_37 -1.2250 1.4629 24 -0.84 0.4106

trtmnt M62\_30 M125\_30 1.7500 1.4629 24 1.20 0.2433

trtmnt M62\_30 M125\_37 1.6000 1.4629 24 1.09 0.2849

trtmnt M62\_30 M62\_21+37 1.2500 1.4629 24 0.85 0.4013

trtmnt M62\_30 M62\_21+30 2.5000 1.4629 24 1.71 0.1004

~~trtmnt M62\_30 M62\_30+37 3.9750 1.4629 24 2.72 0.0120~~

trtmnt M62\_37 M125\_30 2.9750 1.4629 24 2.03 0.0532

trtmnt M62\_37 M125\_37 2.8250 1.4629 24 1.93 0.0654

trtmnt M62\_37 M62\_21+37 2.4750 1.4629 24 1.69 0.1036

~~trtmnt M62\_37 M62\_21+30 3.7250 1.4629 24 2.55 0.0177~~

~~trtmnt M62\_37 M62\_30+37 5.2000 1.4629 24 3.55 0.0016~~

trtmnt M125\_30 M125\_37 -0.1500 1.4629 24 -0.10 0.9192

trtmnt M125\_30 M62\_21+37 -0.5000 1.4629 24 -0.34 0.7355

trtmnt M125\_30 M62\_21+30 0.7500 1.4629 24 0.51 0.6129

trtmnt M125\_30 M62\_30+37 2.2250 1.4629 24 1.52 0.1413

trtmnt M125\_37 M62\_21+37 -0.3500 1.4629 24 -0.24 0.8129

trtmnt M125\_37 M62\_21+30 0.9000 1.4629 24 0.62 0.5442

trtmnt M125\_37 M62\_30+37 2.3750 1.4629 24 1.62 0.1176

trtmnt M62\_21+37 M62\_21+30 1.2500 1.4629 24 0.85 0.4013

trtmnt M62\_21+37 M62\_30+37 2.7250 1.4629 24 1.86 0.0748

trtmnt M62\_21+30 M62\_30+37 1.4750 1.4629 24 1.01 0.3234----------------------------------------------------------------------------------------------------

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**Moddus 28R Austen Lakeland 2022 Height-Mat** 1

12:42 Monday, March 27, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable height

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 126.88319800

1 1 125.44327372 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 0.5854

Residual 3.4674

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Moddus 28R Austen Lakeland 2022 Height-Mat 2

12:42 Monday, March 27, 2023

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 125.4

AIC (Smaller is Better) 129.4

AICC (Smaller is Better) 129.9

BIC (Smaller is Better) 128.2

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 1.29 0.2955 **No Sig diff**

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 74.2500 1.0066 24 73.76 <.0001

trtmnt M62\_21 74.0000 1.0066 24 73.52 <.0001

trtmnt M62\_30 72.6750 1.0066 24 72.20 <.0001

trtmnt M62\_37 73.8250 1.0066 24 73.34 <.0001

trtmnt M125\_30 72.3500 1.0066 24 71.88 <.0001

trtmnt M125\_37 74.6000 1.0066 24 74.11 <.0001

trtmnt M62\_21+37 75.3500 1.0066 24 74.86 <.0001

trtmnt M62\_21+30 73.8500 1.0066 24 73.37 <.0001

trtmnt M62\_30+37 72.2500 1.0066 24 71.78 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 0.2500 1.3167 24 0.19 0.8510

trtmnt UTC M62\_30 1.5750 1.3167 24 1.20 0.2433

trtmnt UTC M62\_37 0.4250 1.3167 24 0.32 0.7497

trtmnt UTC M125\_30 1.9000 1.3167 24 1.44 0.1619

trtmnt UTC M125\_37 -0.3500 1.3167 24 -0.27 0.7927

trtmnt UTC M62\_21+37 -1.1000 1.3167 24 -0.84 0.4117

trtmnt UTC M62\_21+30 0.4000 1.3167 24 0.30 0.7639

trtmnt UTC M62\_30+37 2.0000 1.3167 24 1.52 0.1418

trtmnt M62\_21 M62\_30 1.3250 1.3167 24 1.01 0.3243

trtmnt M62\_21 M62\_37 0.1750 1.3167 24 0.13 0.8954

trtmnt M62\_21 M125\_30 1.6500 1.3167 24 1.25 0.2222

trtmnt M62\_21 M125\_37 -0.6000 1.3167 24 -0.46 0.6527

trtmnt M62\_21 M62\_21+37 -1.3500 1.3167 24 -1.03 0.3154

trtmnt M62\_21 M62\_21+30 0.1500 1.3167 24 0.11 0.9102

trtmnt M62\_21 M62\_30+37 1.7500 1.3167 24 1.33 0.1963

trtmnt M62\_30 M62\_37 -1.1500 1.3167 24 -0.87 0.3911

trtmnt M62\_30 M125\_30 0.3250 1.3167 24 0.25 0.8071

trtmnt M62\_30 M62\_21+37 -2.6750 1.3167 24 -2.03 0.0534

trtmnt M62\_30 M62\_21+30 -1.1750 1.3167 24 -0.89 0.3810

trtmnt M62\_30 M62\_30+37 0.4250 1.3167 24 0.32 0.7497

trtmnt M62\_37 M125\_30 1.4750 1.3167 24 1.12 0.2737

trtmnt M62\_37 M125\_37 -0.7750 1.3167 24 -0.59 0.5616

trtmnt M62\_37 M62\_21+37 -1.5250 1.3167 24 -1.16 0.2582

trtmnt M62\_37 M62\_21+30 -0.02500 1.3167 24 -0.02 0.9850

trtmnt M62\_37 M62\_30+37 1.5750 1.3167 24 1.20 0.2433

trtmnt M125\_30 M125\_37 -2.2500 1.3167 24 -1.71 0.1004

~~trtmnt M125\_30 M62\_21+37 -3.0000 1.3167 24 -2.28 0.0319~~

trtmnt M125\_30 M62\_21+30 -1.5000 1.3167 24 -1.14 0.2659

trtmnt M125\_30 M62\_30+37 0.1000 1.3167 24 0.08 0.9401

trtmnt M125\_37 M62\_21+37 -0.7500 1.3167 24 -0.57 0.5742

trtmnt M125\_37 M62\_21+30 0.7500 1.3167 24 0.57 0.5742

trtmnt M125\_37 M62\_30+37 2.3500 1.3167 24 1.78 0.0869

trtmnt M62\_21+37 M62\_21+30 1.5000 1.3167 24 1.14 0.2659

~~trtmnt M62\_21+37 M62\_30+37 3.1000 1.3167 24 2.35 0.0271~~

trtmnt M62\_21+30 M62\_30+37 1.6000 1.3167 24 1.22 0.2361

**Moddus 28R Austen Lakeland 2022 DTM** 37

09:42 Saturday, March 25, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable maturity

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 146.51094340

1 1 144.60864835 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 1.4282

Residual 6.9561

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Moddus 28R Austen Lakeland 2022 DTM 38

09:42 Saturday, March 25, 2023

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 144.6

AIC (Smaller is Better) 148.6

AICC (Smaller is Better) 149.1

BIC (Smaller is Better) 147.4

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 0.59 0.7738

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 93.1000 1.4478 24 64.31 <.0001

trtmnt M62\_21 96.2000 1.4478 24 66.45 <.0001

trtmnt M62\_30 94.3750 1.4478 24 65.19 <.0001

trtmnt M62\_37 93.0500 1.4478 24 64.27 <.0001

trtmnt M125\_30 94.8750 1.4478 24 65.53 <.0001

trtmnt M125\_37 93.9250 1.4478 24 64.88 <.0001

trtmnt M62\_21+37 93.5250 1.4478 24 64.60 <.0001

trtmnt M62\_21+30 93.5750 1.4478 24 64.63 <.0001

trtmnt M62\_30+37 94.7750 1.4478 24 65.46 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 -3.1000 1.8650 24 -1.66 0.1095

trtmnt UTC M62\_30 -1.2750 1.8650 24 -0.68 0.5007

trtmnt UTC M62\_37 0.05000 1.8650 24 0.03 0.9788

trtmnt UTC M125\_30 -1.7750 1.8650 24 -0.95 0.3507

trtmnt UTC M125\_37 -0.8250 1.8650 24 -0.44 0.6622

trtmnt UTC M62\_21+37 -0.4250 1.8650 24 -0.23 0.8217

trtmnt UTC M62\_21+30 -0.4750 1.8650 24 -0.25 0.8011

trtmnt UTC M62\_30+37 -1.6750 1.8650 24 -0.90 0.3780

trtmnt M62\_21 M62\_30 1.8250 1.8650 24 0.98 0.3376

trtmnt M62\_21 M62\_37 3.1500 1.8650 24 1.69 0.1042

trtmnt M62\_21 M125\_30 1.3250 1.8650 24 0.71 0.4843

trtmnt M62\_21 M125\_37 2.2750 1.8650 24 1.22 0.2344

trtmnt M62\_21 M62\_21+37 2.6750 1.8650 24 1.43 0.1644

trtmnt M62\_21 M62\_21+30 2.6250 1.8650 24 1.41 0.1721

trtmnt M62\_21 M62\_30+37 1.4250 1.8650 24 0.76 0.4523

trtmnt M62\_30 M62\_37 1.3250 1.8650 24 0.71 0.4843

trtmnt M62\_30 M125\_30 -0.5000 1.8650 24 -0.27 0.7909

trtmnt M62\_30 M125\_37 0.4500 1.8650 24 0.24 0.8114

trtmnt M62\_30 M62\_21+37 0.8500 1.8650 24 0.46 0.6526

trtmnt M62\_30 M62\_21+30 0.8000 1.8650 24 0.43 0.6718

trtmnt M62\_30 M62\_30+37 -0.4000 1.8650 24 -0.21 0.8320

trtmnt M62\_37 M125\_30 -1.8250 1.8650 24 -0.98 0.3376

trtmnt M62\_37 M125\_37 -0.8750 1.8650 24 -0.47 0.6432

trtmnt M62\_37 M62\_21+37 -0.4750 1.8650 24 -0.25 0.8011

trtmnt M62\_37 M62\_21+30 -0.5250 1.8650 24 -0.28 0.7807

trtmnt M62\_37 M62\_30+37 -1.7250 1.8650 24 -0.92 0.3642

trtmnt M125\_30 M125\_37 0.9500 1.8650 24 0.51 0.6151

trtmnt M125\_30 M62\_21+37 1.3500 1.8650 24 0.72 0.4761

trtmnt M125\_30 M62\_21+30 1.3000 1.8650 24 0.70 0.4925

trtmnt M125\_30 M62\_30+37 0.1000 1.8650 24 0.05 0.9577

trtmnt M125\_37 M62\_21+37 0.4000 1.8650 24 0.21 0.8320

trtmnt M125\_37 M62\_21+30 0.3500 1.8650 24 0.19 0.8527

trtmnt M125\_37 M62\_30+37 -0.8500 1.8650 24 -0.46 0.6526

trtmnt M62\_21+37 M62\_21+30 -0.05000 1.8650 24 -0.03 0.9788

trtmnt M62\_21+37 M62\_30+37 -1.2500 1.8650 24 -0.67 0.5091

trtmnt M62\_21+30 M62\_30+37 -1.2000 1.8650 24 -0.64 0.5260

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**Moddus 28R Esma Lakeland 2022 Yield** 78

09:42 Saturday, March 25, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable yield

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 491.46204600

1 1 483.82716958 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 1157983

Residual 1806825

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Moddus 28R Esma Lakeland 2022 Yield 79

09:42 Saturday, March 25, 2023

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 483.8

AIC (Smaller is Better) 487.8

AICC (Smaller is Better) 488.3

BIC (Smaller is Better) 486.6

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 1.60 0.1786 **NO Sig Diff bw trts**

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 7276.93 860.93 24 8.45 <.0001

trtmnt M62\_21 8041.73 860.93 24 9.34 <.0001

trtmnt M62\_30 9323.03 860.93 24 10.83 <.0001

trtmnt M62\_37 7585.55 860.93 24 8.81 <.0001

trtmnt M125\_30 7992.83 860.93 24 9.28 <.0001

trtmnt M125\_37 7795.60 860.93 24 9.05 <.0001

trtmnt M62\_21+37 7689.80 860.93 24 8.93 <.0001

trtmnt M62\_21+30 9208.33 860.93 24 10.70 <.0001

trtmnt M62\_30+37 6681.83 860.93 24 7.76 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 -764.80 950.48 24 -0.80 0.4289

~~trtmnt UTC M62\_30 -2046.10 950.48 24 -2.15 0.0416~~

trtmnt UTC M62\_37 -308.63 950.48 24 -0.32 0.7482

trtmnt UTC M125\_30 -715.90 950.48 24 -0.75 0.4587

trtmnt UTC M125\_37 -518.67 950.48 24 -0.55 0.5903

trtmnt UTC M62\_21+37 -412.87 950.48 24 -0.43 0.6679

trtmnt UTC M62\_21+30 -1931.40 950.48 24 -2.03 0.0534

trtmnt UTC M62\_30+37 595.10 950.48 24 0.63 0.5372

trtmnt M62\_21 M62\_30 -1281.30 950.48 24 -1.35 0.1902

trtmnt M62\_21 M62\_37 456.18 950.48 24 0.48 0.6356

trtmnt M62\_21 M125\_30 48.9000 950.48 24 0.05 0.9594

trtmnt M62\_21 M125\_37 246.13 950.48 24 0.26 0.7979

trtmnt M62\_21 M62\_21+37 351.93 950.48 24 0.37 0.7144

trtmnt M62\_21 M62\_21+30 -1166.60 950.48 24 -1.23 0.2316

trtmnt M62\_21 M62\_30+37 1359.90 950.48 24 1.43 0.1654

trtmnt M62\_30 M62\_37 1737.48 950.48 24 1.83 0.0800

trtmnt M62\_30 M125\_30 1330.20 950.48 24 1.40 0.1745

trtmnt M62\_30 M62\_21+37 1633.23 950.48 24 1.72 0.0986

trtmnt M62\_30 M62\_21+30 114.70 950.48 24 0.12 0.9050

~~trtmnt M62\_30 M62\_30+37 2641.20 950.48 24 2.78 0.0104~~

trtmnt M62\_37 M125\_30 -407.28 950.48 24 -0.43 0.6721

trtmnt M62\_37 M125\_37 -210.05 950.48 24 -0.22 0.8270

trtmnt M62\_37 M62\_21+37 -104.25 950.48 24 -0.11 0.9136

trtmnt M62\_37 M62\_21+30 -1622.78 950.48 24 -1.71 0.1007

trtmnt M62\_37 M62\_30+37 903.73 950.48 24 0.95 0.3512

trtmnt M125\_30 M125\_37 197.23 950.48 24 0.21 0.8374

trtmnt M125\_30 M62\_21+37 303.03 950.48 24 0.32 0.7526

trtmnt M125\_30 M62\_21+30 -1215.50 950.48 24 -1.28 0.2132

trtmnt M125\_30 M62\_30+37 1311.00 950.48 24 1.38 0.1805

trtmnt M125\_37 M62\_21+37 105.80 950.48 24 0.11 0.9123

trtmnt M125\_37 M62\_21+30 -1412.73 950.48 24 -1.49 0.1502

trtmnt M125\_37 M62\_30+37 1113.78 950.48 24 1.17 0.2528

trtmnt M62\_21+37 M62\_21+30 -1518.53 950.48 24 -1.60 0.1232

trtmnt M62\_21+37 M62\_30+37 1007.98 950.48 24 1.06 0.2995

~~trtmnt M62\_21+30 M62\_30+37 2526.50 950.48 24 2.66 0.0138~~

**Nothing here. No trends that make sense**

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**Moddus 28R Esma Lakeland 2022 Height1** 87

09:42 Saturday, March 25, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable height

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 132.05761580

1 1 132.05761580 0.00000000

Convergence criteria met.

Estimated G matrix is not positive definite.

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Moddus 28R Esma Lakeland 2022 Height1 88

09:42 Saturday, March 25, 2023

The Mixed Procedure

Covariance Parameter

Estimates

Cov Parm Estimate

rep 0

Residual 4.9089

Fit Statistics

-2 Res Log Likelihood 132.1

AIC (Smaller is Better) 134.1

AICC (Smaller is Better) 134.2

BIC (Smaller is Better) 133.4

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 1.95 0.0983

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 42.2500 1.1078 24 38.14 <.0001

trtmnt M62\_21 43.8500 1.1078 24 39.58 <.0001

trtmnt M62\_30 44.4750 1.1078 24 40.15 <.0001

trtmnt M62\_37 43.0250 1.1078 24 38.84 <.0001

trtmnt M125\_30 40.5250 1.1078 24 36.58 <.0001

trtmnt M125\_37 44.8500 1.1078 24 40.49 <.0001

trtmnt M62\_21+37 41.7500 1.1078 24 37.69 <.0001

trtmnt M62\_21+30 45.0750 1.1078 24 40.69 <.0001

trtmnt M62\_30+37 42.3500 1.1078 24 38.23 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 -1.6000 1.5667 24 -1.02 0.3173

trtmnt UTC M62\_30 -2.2250 1.5667 24 -1.42 0.1684

trtmnt UTC M62\_37 -0.7750 1.5667 24 -0.49 0.6253

trtmnt UTC M125\_30 1.7250 1.5667 24 1.10 0.2818

trtmnt UTC M125\_37 -2.6000 1.5667 24 -1.66 0.1100

trtmnt UTC M62\_21+37 0.5000 1.5667 24 0.32 0.7524

trtmnt UTC M62\_21+30 -2.8250 1.5667 24 -1.80 0.0839

trtmnt UTC M62\_30+37 -0.1000 1.5667 24 -0.06 0.9496

trtmnt M62\_21 M62\_30 -0.6250 1.5667 24 -0.40 0.6935

trtmnt M62\_21 M62\_37 0.8250 1.5667 24 0.53 0.6033

~~trtmnt M62\_21 M125\_30 3.3250 1.5667 24 2.12 0.0443~~

trtmnt M62\_21 M125\_37 -1.0000 1.5667 24 -0.64 0.5293

trtmnt M62\_21 M62\_21+37 2.1000 1.5667 24 1.34 0.1927

trtmnt M62\_21 M62\_21+30 -1.2250 1.5667 24 -0.78 0.4419

trtmnt M62\_21 M62\_30+37 1.5000 1.5667 24 0.96 0.3479

trtmnt M62\_30 M62\_37 1.4500 1.5667 24 0.93 0.3639

trtmnt M62\_30 M125\_30 3.9500 1.5667 24 2.52 0.0187

trtmnt M62\_30 M125\_37 -0.3750 1.5667 24 -0.24 0.8129

trtmnt M62\_30 M62\_21+37 2.7250 1.5667 24 1.74 0.0948

trtmnt M62\_30 M62\_21+30 -0.6000 1.5667 24 -0.38 0.7051

trtmnt M62\_30 M62\_30+37 2.1250 1.5667 24 1.36 0.1876

trtmnt M62\_37 M125\_30 2.5000 1.5667 24 1.60 0.1236

trtmnt M62\_37 M125\_37 -1.8250 1.5667 24 -1.16 0.2555

trtmnt M62\_37 M62\_21+37 1.2750 1.5667 24 0.81 0.4237

trtmnt M62\_37 M62\_21+30 -2.0500 1.5667 24 -1.31 0.2031

trtmnt M62\_37 M62\_30+37 0.6750 1.5667 24 0.43 0.6704

~~trtmnt M125\_30 M125\_37 -4.3250 1.5667 24 -2.76 0.0109~~

trtmnt M125\_30 M62\_21+37 -1.2250 1.5667 24 -0.78 0.4419

~~trtmnt M125\_30 M62\_21+30 -4.5500 1.5667 24 -2.90 0.0078~~

trtmnt M125\_30 M62\_30+37 -1.8250 1.5667 24 -1.16 0.2555

trtmnt M125\_37 M62\_21+37 3.1000 1.5667 24 1.98 0.0594

trtmnt M125\_37 M62\_21+30 -0.2250 1.5667 24 -0.14 0.8870

trtmnt M125\_37 M62\_30+37 2.5000 1.5667 24 1.60 0.1236

~~trtmnt M62\_21+37 M62\_21+30 -3.3250 1.5667 24 -2.12 0.0443~~

trtmnt M62\_21+37 M62\_30+37 -0.6000 1.5667 24 -0.38 0.7051

trtmnt M62\_21+30 M62\_30+37 2.7250 1.5667 24 1.74 0.0948

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**Moddus 28R Esma Lakeland 2022 Height2** 96

09:42 Saturday, March 25, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable height

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 132.99749385

1 1 123.09410227 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 2.3048

Residual 2.7779

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Moddus 28R Esma Lakeland 2022 Height2 97

09:42 Saturday, March 25, 2023

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 123.1

AIC (Smaller is Better) 127.1

AICC (Smaller is Better) 127.6

BIC (Smaller is Better) 125.9

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 1.35 0.2683

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 70.3250 1.1273 24 62.39 <.0001

trtmnt M62\_21 69.2750 1.1273 24 61.45 <.0001

trtmnt M62\_30 70.6500 1.1273 24 62.67 <.0001

trtmnt M62\_37 69.0000 1.1273 24 61.21 <.0001

trtmnt M125\_30 69.4000 1.1273 24 61.57 <.0001

trtmnt M125\_37 68.4750 1.1273 24 60.75 <.0001

trtmnt M62\_21+37 69.8250 1.1273 24 61.94 <.0001

trtmnt M62\_21+30 71.5750 1.1273 24 63.50 <.0001

trtmnt M62\_30+37 70.5750 1.1273 24 62.61 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 1.0500 1.1785 24 0.89 0.3818

trtmnt UTC M62\_30 -0.3250 1.1785 24 -0.28 0.7851

trtmnt UTC M62\_37 1.3250 1.1785 24 1.12 0.2720

trtmnt UTC M125\_30 0.9250 1.1785 24 0.78 0.4402

trtmnt UTC M125\_37 1.8500 1.1785 24 1.57 0.1296

trtmnt UTC M62\_21+37 0.5000 1.1785 24 0.42 0.6752

trtmnt UTC M62\_21+30 -1.2500 1.1785 24 -1.06 0.2994

trtmnt UTC M62\_30+37 -0.2500 1.1785 24 -0.21 0.8338

trtmnt M62\_21 M62\_30 -1.3750 1.1785 24 -1.17 0.2548

trtmnt M62\_21 M62\_37 0.2750 1.1785 24 0.23 0.8175

trtmnt M62\_21 M125\_30 -0.1250 1.1785 24 -0.11 0.9164

trtmnt M62\_21 M125\_37 0.8000 1.1785 24 0.68 0.5038

trtmnt M62\_21 M62\_21+37 -0.5500 1.1785 24 -0.47 0.6449

trtmnt M62\_21 M62\_21+30 -2.3000 1.1785 24 -1.95 0.0628

trtmnt M62\_21 M62\_30+37 -1.3000 1.1785 24 -1.10 0.2809

trtmnt M62\_30 M62\_37 1.6500 1.1785 24 1.40 0.1743

trtmnt M62\_30 M125\_30 1.2500 1.1785 24 1.06 0.2994

trtmnt M62\_30 M62\_21+37 0.8250 1.1785 24 0.70 0.4906

trtmnt M62\_30 M62\_21+30 -0.9250 1.1785 24 -0.78 0.4402

trtmnt M62\_30 M62\_30+37 0.07500 1.1785 24 0.06 0.9498

trtmnt M62\_37 M125\_30 -0.4000 1.1785 24 -0.34 0.7373

trtmnt M62\_37 M125\_37 0.5250 1.1785 24 0.45 0.6600

trtmnt M62\_37 M62\_21+37 -0.8250 1.1785 24 -0.70 0.4906

trtmnt M62\_37 M62\_21+30 -2.5750 1.1785 24 -2.18 0.0389

trtmnt M62\_37 M62\_30+37 -1.5750 1.1785 24 -1.34 0.1940

trtmnt M125\_30 M125\_37 0.9250 1.1785 24 0.78 0.4402

trtmnt M125\_30 M62\_21+37 -0.4250 1.1785 24 -0.36 0.7215

trtmnt M125\_30 M62\_21+30 -2.1750 1.1785 24 -1.85 0.0773

trtmnt M125\_30 M62\_30+37 -1.1750 1.1785 24 -1.00 0.3287

trtmnt M125\_37 M62\_21+37 -1.3500 1.1785 24 -1.15 0.2633

~~trtmnt M125\_37 M62\_21+30 -3.1000 1.1785 24 -2.63 0.0147~~

trtmnt M125\_37 M62\_30+37 -2.1000 1.1785 24 -1.78 0.0874

trtmnt M62\_21+37 M62\_21+30 -1.7500 1.1785 24 -1.48 0.1506

trtmnt M62\_21+37 M62\_30+37 -0.7500 1.1785 24 -0.64 0.5306

trtmnt M62\_21+30 M62\_30+37 1.0000 1.1785 24 0.85 0.4045

**No trends.**

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**Moddus 28R Esma Lakeland 2022 Height-Mat** 4

12:42 Monday, March 27, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable height

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 142.85468722

1 1 139.61554656 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 1.7155

Residual 5.6069

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Moddus 28R Esma Lakeland 2022 Height-Mat 5

12:42 Monday, March 27, 2023

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 139.6

AIC (Smaller is Better) 143.6

AICC (Smaller is Better) 144.1

BIC (Smaller is Better) 142.4

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 0.47 0.8642

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 66.6500 1.3530 24 49.26 <.0001

trtmnt M62\_21 66.5750 1.3530 24 49.21 <.0001

trtmnt M62\_30 66.1750 1.3530 24 48.91 <.0001

trtmnt M62\_37 65.0750 1.3530 24 48.10 <.0001

trtmnt M125\_30 66.1750 1.3530 24 48.91 <.0001

trtmnt M125\_37 65.0250 1.3530 24 48.06 <.0001

trtmnt M62\_21+37 64.7500 1.3530 24 47.86 <.0001

trtmnt M62\_21+30 64.9000 1.3530 24 47.97 <.0001

trtmnt M62\_30+37 64.7250 1.3530 24 47.84 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 0.07500 1.6744 24 0.04 0.9646

trtmnt UTC M62\_30 0.4750 1.6744 24 0.28 0.7791

trtmnt UTC M62\_37 1.5750 1.6744 24 0.94 0.3563

trtmnt UTC M125\_30 0.4750 1.6744 24 0.28 0.7791

trtmnt UTC M125\_37 1.6250 1.6744 24 0.97 0.3415

trtmnt UTC M62\_21+37 1.9000 1.6744 24 1.13 0.2677

trtmnt UTC M62\_21+30 1.7500 1.6744 24 1.05 0.3064

trtmnt UTC M62\_30+37 1.9250 1.6744 24 1.15 0.2616

trtmnt M62\_21 M62\_30 0.4000 1.6744 24 0.24 0.8132

trtmnt M62\_21 M62\_37 1.5000 1.6744 24 0.90 0.3792

trtmnt M62\_21 M125\_30 0.4000 1.6744 24 0.24 0.8132

trtmnt M62\_21 M125\_37 1.5500 1.6744 24 0.93 0.3638

trtmnt M62\_21 M62\_21+37 1.8250 1.6744 24 1.09 0.2865

trtmnt M62\_21 M62\_21+30 1.6750 1.6744 24 1.00 0.3271

trtmnt M62\_21 M62\_30+37 1.8500 1.6744 24 1.10 0.2802

trtmnt M62\_30 M62\_37 1.1000 1.6744 24 0.66 0.5175

trtmnt M62\_30 M125\_30 0 1.6744 24 0.00 1.0000

trtmnt M62\_30 M62\_21+37 1.4250 1.6744 24 0.85 0.4031

trtmnt M62\_30 M62\_21+30 1.2750 1.6744 24 0.76 0.4538

trtmnt M62\_30 M62\_30+37 1.4500 1.6744 24 0.87 0.3951

trtmnt M62\_37 M125\_30 -1.1000 1.6744 24 -0.66 0.5175

trtmnt M62\_37 M125\_37 0.05000 1.6744 24 0.03 0.9764

trtmnt M62\_37 M62\_21+37 0.3250 1.6744 24 0.19 0.8477

trtmnt M62\_37 M62\_21+30 0.1750 1.6744 24 0.10 0.9176

trtmnt M62\_37 M62\_30+37 0.3500 1.6744 24 0.21 0.8362

trtmnt M125\_30 M125\_37 1.1500 1.6744 24 0.69 0.4988

trtmnt M125\_30 M62\_21+37 1.4250 1.6744 24 0.85 0.4031

trtmnt M125\_30 M62\_21+30 1.2750 1.6744 24 0.76 0.4538

trtmnt M125\_30 M62\_30+37 1.4500 1.6744 24 0.87 0.3951

trtmnt M125\_37 M62\_21+37 0.2750 1.6744 24 0.16 0.8709

trtmnt M125\_37 M62\_21+30 0.1250 1.6744 24 0.07 0.9411

trtmnt M125\_37 M62\_30+37 0.3000 1.6744 24 0.18 0.8593

trtmnt M62\_21+37 M62\_21+30 -0.1500 1.6744 24 -0.09 0.9294

trtmnt M62\_21+37 M62\_30+37 0.02500 1.6744 24 0.01 0.9882

trtmnt M62\_21+30 M62\_30+37 0.1750 1.6744 24 0.10 0.9176

**Nothing.**

**Moddus 28R Esma Lakeland 2022 DTM** 40

09:42 Saturday, March 25, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable maturity

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 157.93102914

1 1 155.59609071 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 2.4637

Residual 10.3348

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Moddus 28R Esma Lakeland 2022 DTM 41

09:42 Saturday, March 25, 2023

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 155.6

AIC (Smaller is Better) 159.6

AICC (Smaller is Better) 160.1

BIC (Smaller is Better) 158.4

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 0.16 0.9942

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 95.2750 1.7887 24 53.26 <.0001

trtmnt M62\_21 95.6500 1.7887 24 53.47 <.0001

trtmnt M62\_30 95.3250 1.7887 24 53.29 <.0001

trtmnt M62\_37 95.5000 1.7887 24 53.39 <.0001

trtmnt M125\_30 95.1500 1.7887 24 53.19 <.0001

trtmnt M125\_37 95.8750 1.7887 24 53.60 <.0001

trtmnt M62\_21+37 96.5250 1.7887 24 53.96 <.0001

trtmnt M62\_21+30 94.5750 1.7887 24 52.87 <.0001

trtmnt M62\_30+37 94.4000 1.7887 24 52.77 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 -0.3750 2.2732 24 -0.16 0.8704

trtmnt UTC M62\_30 -0.05000 2.2732 24 -0.02 0.9826

trtmnt UTC M62\_37 -0.2250 2.2732 24 -0.10 0.9220

trtmnt UTC M125\_30 0.1250 2.2732 24 0.05 0.9566

trtmnt UTC M125\_37 -0.6000 2.2732 24 -0.26 0.7941

trtmnt UTC M62\_21+37 -1.2500 2.2732 24 -0.55 0.5875

trtmnt UTC M62\_21+30 0.7000 2.2732 24 0.31 0.7608

trtmnt UTC M62\_30+37 0.8750 2.2732 24 0.38 0.7037

trtmnt M62\_21 M62\_30 0.3250 2.2732 24 0.14 0.8875

trtmnt M62\_21 M62\_37 0.1500 2.2732 24 0.07 0.9479

trtmnt M62\_21 M125\_30 0.5000 2.2732 24 0.22 0.8278

trtmnt M62\_21 M125\_37 -0.2250 2.2732 24 -0.10 0.9220

trtmnt M62\_21 M62\_21+37 -0.8750 2.2732 24 -0.38 0.7037

trtmnt M62\_21 M62\_21+30 1.0750 2.2732 24 0.47 0.6406

trtmnt M62\_21 M62\_30+37 1.2500 2.2732 24 0.55 0.5875

trtmnt M62\_30 M62\_37 -0.1750 2.2732 24 -0.08 0.9393

trtmnt M62\_30 M125\_30 0.1750 2.2732 24 0.08 0.9393

trtmnt M62\_30 M125\_37 -0.5500 2.2732 24 -0.24 0.8109

trtmnt M62\_30 M62\_21+37 -1.2000 2.2732 24 -0.53 0.6024

trtmnt M62\_30 M62\_21+30 0.7500 2.2732 24 0.33 0.7443

trtmnt M62\_30 M62\_30+37 0.9250 2.2732 24 0.41 0.6877

trtmnt M62\_37 M125\_30 0.3500 2.2732 24 0.15 0.8789

trtmnt M62\_37 M125\_37 -0.3750 2.2732 24 -0.16 0.8704

trtmnt M62\_37 M62\_21+37 -1.0250 2.2732 24 -0.45 0.6561

trtmnt M62\_37 M62\_21+30 0.9250 2.2732 24 0.41 0.6877

trtmnt M62\_37 M62\_30+37 1.1000 2.2732 24 0.48 0.6328

trtmnt M125\_30 M125\_37 -0.7250 2.2732 24 -0.32 0.7525

trtmnt M125\_30 M62\_21+37 -1.3750 2.2732 24 -0.60 0.5509

trtmnt M125\_30 M62\_21+30 0.5750 2.2732 24 0.25 0.8025

trtmnt M125\_30 M62\_30+37 0.7500 2.2732 24 0.33 0.7443

trtmnt M125\_37 M62\_21+37 -0.6500 2.2732 24 -0.29 0.7774

trtmnt M125\_37 M62\_21+30 1.3000 2.2732 24 0.57 0.5727

trtmnt M125\_37 M62\_30+37 1.4750 2.2732 24 0.65 0.5226

trtmnt M62\_21+37 M62\_21+30 1.9500 2.2732 24 0.86 0.3995

trtmnt M62\_21+37 M62\_30+37 2.1250 2.2732 24 0.93 0.3592

trtmnt M62\_21+30 M62\_30+37 0.1750 2.2732 24 0.08 0.9393

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**Moddus 28R Hague Lakeland 2022 Yield** 81

09:42 Saturday, March 25, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable yield

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 487.49296751

1 1 483.50277454 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 679747

Residual 1879746

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Moddus 28R Hague Lakeland 2022 Yield 82

09:42 Saturday, March 25, 2023

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 483.5

AIC (Smaller is Better) 487.5

AICC (Smaller is Better) 488.0

BIC (Smaller is Better) 486.3

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 0.93 0.5081

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 8487.58 799.92 24 10.61 <.0001

trtmnt M62\_21 7002.25 799.92 24 8.75 <.0001

trtmnt M62\_30 8346.43 799.92 24 10.43 <.0001

trtmnt M62\_37 8737.68 799.92 24 10.92 <.0001

trtmnt M125\_30 7584.08 799.92 24 9.48 <.0001

trtmnt M125\_37 7285.00 799.92 24 9.11 <.0001

trtmnt M62\_21+37 7811.50 799.92 24 9.77 <.0001

trtmnt M62\_21+30 8070.20 799.92 24 10.09 <.0001

trtmnt M62\_30+37 6886.20 799.92 24 8.61 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 1485.33 969.47 24 1.53 0.1386

trtmnt UTC M62\_30 141.15 969.47 24 0.15 0.8855

trtmnt UTC M62\_37 -250.10 969.47 24 -0.26 0.7986

trtmnt UTC M125\_30 903.50 969.47 24 0.93 0.3606

trtmnt UTC M125\_37 1202.58 969.47 24 1.24 0.2268

trtmnt UTC M62\_21+37 676.08 969.47 24 0.70 0.4923

trtmnt UTC M62\_21+30 417.38 969.47 24 0.43 0.6707

trtmnt UTC M62\_30+37 1601.37 969.47 24 1.65 0.1116

trtmnt M62\_21 M62\_30 -1344.18 969.47 24 -1.39 0.1783

trtmnt M62\_21 M62\_37 -1735.43 969.47 24 -1.79 0.0861

trtmnt M62\_21 M125\_30 -581.82 969.47 24 -0.60 0.5540

trtmnt M62\_21 M125\_37 -282.75 969.47 24 -0.29 0.7731

trtmnt M62\_21 M62\_21+37 -809.25 969.47 24 -0.83 0.4121

trtmnt M62\_21 M62\_21+30 -1067.95 969.47 24 -1.10 0.2816

trtmnt M62\_21 M62\_30+37 116.05 969.47 24 0.12 0.9057

trtmnt M62\_30 M62\_37 -391.25 969.47 24 -0.40 0.6901

trtmnt M62\_30 M125\_30 762.35 969.47 24 0.79 0.4394

trtmnt M62\_30 M62\_21+37 534.93 969.47 24 0.55 0.5862

trtmnt M62\_30 M62\_21+30 276.23 969.47 24 0.28 0.7781

trtmnt M62\_30 M62\_30+37 1460.22 969.47 24 1.51 0.1451

trtmnt M62\_37 M125\_30 1153.60 969.47 24 1.19 0.2457

trtmnt M62\_37 M125\_37 1452.68 969.47 24 1.50 0.1471

trtmnt M62\_37 M62\_21+37 926.17 969.47 24 0.96 0.3489

trtmnt M62\_37 M62\_21+30 667.48 969.47 24 0.69 0.4977

trtmnt M62\_37 M62\_30+37 1851.47 969.47 24 1.91 0.0682

trtmnt M125\_30 M125\_37 299.07 969.47 24 0.31 0.7604

trtmnt M125\_30 M62\_21+37 -227.43 969.47 24 -0.23 0.8165

trtmnt M125\_30 M62\_21+30 -486.13 969.47 24 -0.50 0.6206

trtmnt M125\_30 M62\_30+37 697.87 969.47 24 0.72 0.4786

trtmnt M125\_37 M62\_21+37 -526.50 969.47 24 -0.54 0.5921

trtmnt M125\_37 M62\_21+30 -785.20 969.47 24 -0.81 0.4259

trtmnt M125\_37 M62\_30+37 398.80 969.47 24 0.41 0.6845

trtmnt M62\_21+37 M62\_21+30 -258.70 969.47 24 -0.27 0.7919

trtmnt M62\_21+37 M62\_30+37 925.30 969.47 24 0.95 0.3494

trtmnt M62\_21+30 M62\_30+37 1184.00 969.47 24 1.22 0.2338

**Nothing. No trends**

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**Moddus 28R Hague Lakeland 2022 Height1** 90

09:42 Saturday, March 25, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable height

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 154.51784901

1 1 153.03127966 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 1.6600

Residual 9.6186

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Moddus 28R Hague Lakeland 2022 Height1 91

09:42 Saturday, March 25, 2023

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 153.0

AIC (Smaller is Better) 157.0

AICC (Smaller is Better) 157.5

BIC (Smaller is Better) 155.8

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 0.85 0.5709 **No Sig diff**

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 48.0750 1.6792 24 28.63 <.0001

trtmnt M62\_21 51.6000 1.6792 24 30.73 <.0001

trtmnt M62\_30 47.8000 1.6792 24 28.47 <.0001

trtmnt M62\_37 48.5000 1.6792 24 28.88 <.0001

trtmnt M125\_30 49.5000 1.6792 24 29.48 <.0001

trtmnt M125\_37 51.5750 1.6792 24 30.71 <.0001

trtmnt M62\_21+37 48.5000 1.6792 24 28.88 <.0001

trtmnt M62\_21+30 49.2750 1.6792 24 29.34 <.0001

trtmnt M62\_30+37 48.4000 1.6792 24 28.82 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 -3.5250 2.1930 24 -1.61 0.1210

trtmnt UTC M62\_30 0.2750 2.1930 24 0.13 0.9013

trtmnt UTC M62\_37 -0.4250 2.1930 24 -0.19 0.8480

trtmnt UTC M125\_30 -1.4250 2.1930 24 -0.65 0.5220

trtmnt UTC M125\_37 -3.5000 2.1930 24 -1.60 0.1236

trtmnt UTC M62\_21+37 -0.4250 2.1930 24 -0.19 0.8480

trtmnt UTC M62\_21+30 -1.2000 2.1930 24 -0.55 0.5893

trtmnt UTC M62\_30+37 -0.3250 2.1930 24 -0.15 0.8834

trtmnt M62\_21 M62\_30 3.8000 2.1930 24 1.73 0.0960

trtmnt M62\_21 M62\_37 3.1000 2.1930 24 1.41 0.1703

trtmnt M62\_21 M125\_30 2.1000 2.1930 24 0.96 0.3478

trtmnt M62\_21 M125\_37 0.02500 2.1930 24 0.01 0.9910

trtmnt M62\_21 M62\_21+37 3.1000 2.1930 24 1.41 0.1703

trtmnt M62\_21 M62\_21+30 2.3250 2.1930 24 1.06 0.2996

trtmnt M62\_21 M62\_30+37 3.2000 2.1930 24 1.46 0.1575

trtmnt M62\_30 M62\_37 -0.7000 2.1930 24 -0.32 0.7523

trtmnt M62\_30 M125\_30 -1.7000 2.1930 24 -0.78 0.4458

trtmnt M62\_30 M125\_37 -3.7750 2.1930 24 -1.72 0.0980

trtmnt M62\_30 M62\_21+37 -0.7000 2.1930 24 -0.32 0.7523

trtmnt M62\_30 M62\_21+30 -1.4750 2.1930 24 -0.67 0.5076

trtmnt M62\_30 M62\_30+37 -0.6000 2.1930 24 -0.27 0.7867

trtmnt M62\_37 M125\_30 -1.0000 2.1930 24 -0.46 0.6525

trtmnt M62\_37 M125\_37 -3.0750 2.1930 24 -1.40 0.1737

trtmnt M62\_37 M62\_21+37 0 2.1930 24 0.00 1.0000

trtmnt M62\_37 M62\_21+30 -0.7750 2.1930 24 -0.35 0.7269

trtmnt M62\_37 M62\_30+37 0.1000 2.1930 24 0.05 0.9640

trtmnt M125\_30 M125\_37 -2.0750 2.1930 24 -0.95 0.3535

trtmnt M125\_30 M62\_21+37 1.0000 2.1930 24 0.46 0.6525

trtmnt M125\_30 M62\_21+30 0.2250 2.1930 24 0.10 0.9191

trtmnt M125\_30 M62\_30+37 1.1000 2.1930 24 0.50 0.6205

trtmnt M125\_37 M62\_21+37 3.0750 2.1930 24 1.40 0.1737

trtmnt M125\_37 M62\_21+30 2.3000 2.1930 24 1.05 0.3047

trtmnt M125\_37 M62\_30+37 3.1750 2.1930 24 1.45 0.1606

trtmnt M62\_21+37 M62\_21+30 -0.7750 2.1930 24 -0.35 0.7269

trtmnt M62\_21+37 M62\_30+37 0.1000 2.1930 24 0.05 0.9640

trtmnt M62\_21+30 M62\_30+37 0.8750 2.1930 24 0.40 0.6934

**Nothing. No trends**

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**Moddus 28R Hague Lakeland 2022 Height2**  99

09:42 Saturday, March 25, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable height

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 130.74272580

1 1 128.40611056 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 0.9004

Residual 3.7751

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Moddus 28R Hague Lakeland 2022 Height2 100

09:42 Saturday, March 25, 2023

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 128.4

AIC (Smaller is Better) 132.4

AICC (Smaller is Better) 132.9

BIC (Smaller is Better) 131.2

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 1.02 0.4508

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 81.4000 1.0812 24 75.29 <.0001

trtmnt M62\_21 82.1750 1.0812 24 76.01 <.0001

trtmnt M62\_30 80.1000 1.0812 24 74.09 <.0001

trtmnt M62\_37 80.7500 1.0812 24 74.69 <.0001

trtmnt M125\_30 78.6000 1.0812 24 72.70 <.0001

trtmnt M125\_37 80.0750 1.0812 24 74.06 <.0001

trtmnt M62\_21+37 80.4250 1.0812 24 74.39 <.0001

trtmnt M62\_21+30 80.3250 1.0812 24 74.30 <.0001

trtmnt M62\_30+37 80.4000 1.0812 24 74.37 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 -0.7750 1.3739 24 -0.56 0.5779

trtmnt UTC M62\_30 1.3000 1.3739 24 0.95 0.3535

trtmnt UTC M62\_37 0.6500 1.3739 24 0.47 0.6404

trtmnt UTC M125\_30 2.8000 1.3739 24 2.04 0.0527

trtmnt UTC M125\_37 1.3250 1.3739 24 0.96 0.3445

trtmnt UTC M62\_21+37 0.9750 1.3739 24 0.71 0.4848

trtmnt UTC M62\_21+30 1.0750 1.3739 24 0.78 0.4416

trtmnt UTC M62\_30+37 1.0000 1.3739 24 0.73 0.4737

trtmnt M62\_21 M62\_30 2.0750 1.3739 24 1.51 0.1440

trtmnt M62\_21 M62\_37 1.4250 1.3739 24 1.04 0.3100

~~trtmnt M62\_21 M125\_30 3.5750 1.3739 24 2.60 0.0156~~

trtmnt M62\_21 M125\_37 2.1000 1.3739 24 1.53 0.1395

trtmnt M62\_21 M62\_21+37 1.7500 1.3739 24 1.27 0.2149

trtmnt M62\_21 M62\_21+30 1.8500 1.3739 24 1.35 0.1907

trtmnt M62\_21 M62\_30+37 1.7750 1.3739 24 1.29 0.2087

trtmnt M62\_30 M62\_37 -0.6500 1.3739 24 -0.47 0.6404

trtmnt M62\_30 M125\_30 1.5000 1.3739 24 1.09 0.2858

trtmnt M62\_30 M125\_37 0.02500 1.3739 24 0.02 0.9856

trtmnt M62\_30 M62\_21+37 -0.3250 1.3739 24 -0.24 0.8150

trtmnt M62\_30 M62\_21+30 -0.2250 1.3739 24 -0.16 0.8713

trtmnt M62\_30 M62\_30+37 -0.3000 1.3739 24 -0.22 0.8290

trtmnt M62\_37 M125\_30 2.1500 1.3739 24 1.56 0.1307

trtmnt M62\_37 M125\_37 0.6750 1.3739 24 0.49 0.6277

trtmnt M62\_37 M62\_21+37 0.3250 1.3739 24 0.24 0.8150

trtmnt M62\_37 M62\_21+30 0.4250 1.3739 24 0.31 0.7597

trtmnt M62\_37 M62\_30+37 0.3500 1.3739 24 0.25 0.8011

trtmnt M125\_30 M125\_37 -1.4750 1.3739 24 -1.07 0.2937

trtmnt M125\_30 M62\_21+37 -1.8250 1.3739 24 -1.33 0.1966

trtmnt M125\_30 M62\_21+30 -1.7250 1.3739 24 -1.26 0.2214

trtmnt M125\_30 M62\_30+37 -1.8000 1.3739 24 -1.31 0.2025

trtmnt M125\_37 M62\_21+37 -0.3500 1.3739 24 -0.25 0.8011

trtmnt M125\_37 M62\_21+30 -0.2500 1.3739 24 -0.18 0.8571

trtmnt M125\_37 M62\_30+37 -0.3250 1.3739 24 -0.24 0.8150

trtmnt M62\_21+37 M62\_21+30 0.1000 1.3739 24 0.07 0.9426

trtmnt M62\_21+37 M62\_30+37 0.02500 1.3739 24 0.02 0.9856

trtmnt M62\_21+30 M62\_30+37 -0.07500 1.3739 24 -0.05 0.9569

**Nothing**

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**Moddus 28R Hague Lakeland 2022 Height-Mat** 7

12:42 Monday, March 27, 2023

The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable height

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 121.43127780

1 1 121.36717525 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 0.08523

Residual 3.2265

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Moddus 28R Hague Lakeland SARDA 2022 Height-Mat 8

12:42 Monday, March 27, 2023

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 121.4

AIC (Smaller is Better) 125.4

AICC (Smaller is Better) 125.9

BIC (Smaller is Better) 124.1

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 1.08 0.4073

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 75.9000 0.9099 24 83.41 <.0001

trtmnt M62\_21 76.2500 0.9099 24 83.80 <.0001

trtmnt M62\_30 74.5000 0.9099 24 81.88 <.0001

trtmnt M62\_37 75.1750 0.9099 24 82.62 <.0001

trtmnt M125\_30 73.7500 0.9099 24 81.05 <.0001

trtmnt M125\_37 74.3250 0.9099 24 81.68 <.0001

trtmnt M62\_21+37 73.7750 0.9099 24 81.08 <.0001

trtmnt M62\_21+30 73.9750 0.9099 24 81.30 <.0001

trtmnt M62\_30+37 75.4250 0.9099 24 82.89 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 -0.3500 1.2701 24 -0.28 0.7852

trtmnt UTC M62\_30 1.4000 1.2701 24 1.10 0.2813

trtmnt UTC M62\_37 0.7250 1.2701 24 0.57 0.5734

trtmnt UTC M125\_30 2.1500 1.2701 24 1.69 0.1035

trtmnt UTC M125\_37 1.5750 1.2701 24 1.24 0.2270

trtmnt UTC M62\_21+37 2.1250 1.2701 24 1.67 0.1073

trtmnt UTC M62\_21+30 1.9250 1.2701 24 1.52 0.1427

trtmnt UTC M62\_30+37 0.4750 1.2701 24 0.37 0.7117

trtmnt M62\_21 M62\_30 1.7500 1.2701 24 1.38 0.1810

trtmnt M62\_21 M62\_37 1.0750 1.2701 24 0.85 0.4057

trtmnt M62\_21 M125\_30 2.5000 1.2701 24 1.97 0.0607

trtmnt M62\_21 M125\_37 1.9250 1.2701 24 1.52 0.1427

trtmnt M62\_21 M62\_21+37 2.4750 1.2701 24 1.95 0.0631

trtmnt M62\_21 M62\_21+30 2.2750 1.2701 24 1.79 0.0859

trtmnt M62\_21 M62\_30+37 0.8250 1.2701 24 0.65 0.5222

trtmnt M62\_30 M62\_37 -0.6750 1.2701 24 -0.53 0.6000

trtmnt M62\_30 M125\_30 0.7500 1.2701 24 0.59 0.5604

trtmnt M62\_30 M62\_21+37 0.7250 1.2701 24 0.57 0.5734

trtmnt M62\_30 M62\_21+30 0.5250 1.2701 24 0.41 0.6830

trtmnt M62\_30 M62\_30+37 -0.9250 1.2701 24 -0.73 0.4735

trtmnt M62\_37 M125\_30 1.4250 1.2701 24 1.12 0.2730

trtmnt M62\_37 M125\_37 0.8500 1.2701 24 0.67 0.5097

trtmnt M62\_37 M62\_21+37 1.4000 1.2701 24 1.10 0.2813

trtmnt M62\_37 M62\_21+30 1.2000 1.2701 24 0.94 0.3542

trtmnt M62\_37 M62\_30+37 -0.2500 1.2701 24 -0.20 0.8456

trtmnt M125\_30 M125\_37 -0.5750 1.2701 24 -0.45 0.6548

trtmnt M125\_30 M62\_21+37 -0.02500 1.2701 24 -0.02 0.9845

trtmnt M125\_30 M62\_21+30 -0.2250 1.2701 24 -0.18 0.8609

trtmnt M125\_30 M62\_30+37 -1.6750 1.2701 24 -1.32 0.1997

trtmnt M125\_37 M62\_21+37 0.5500 1.2701 24 0.43 0.6689

trtmnt M125\_37 M62\_21+30 0.3500 1.2701 24 0.28 0.7852

trtmnt M125\_37 M62\_30+37 -1.1000 1.2701 24 -0.87 0.3950

trtmnt M62\_21+37 M62\_21+30 -0.2000 1.2701 24 -0.16 0.8762

trtmnt M62\_21+37 M62\_30+37 -1.6500 1.2701 24 -1.30 0.2063

trtmnt M62\_21+30 M62\_30+37 -1.4500 1.2701 24 -1.14 0.2649

**Nothing here. No trends**

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The Mixed Procedure

Model Information

Data Set WORK.PGR

Dependent Variable maturity

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

trtmnt 9 UTC M62\_21 M62\_30 M62\_37

M125\_30 M125\_37 M62\_21+37

M62\_21+30 M62\_30+37

rep 4 1 2 3 4

Dimensions

Covariance Parameters 2

Columns in X 10

Columns in Z 4

Subjects 1

Max Obs per Subject 36

Number of Observations

Number of Observations Read 36

Number of Observations Used 36

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 144.49424305

1 1 140.41233554 0.00000000

Convergence criteria met.

Covariance Parameter

Estimates

Cov Parm Estimate

rep 2.0948

Residual 5.6860

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The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood 140.4

AIC (Smaller is Better) 144.4

AICC (Smaller is Better) 144.9

BIC (Smaller is Better) 143.2

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

trtmnt 8 24 1.08 0.4112

Least Squares Means

Standard

Effect trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC 92.4750 1.3947 24 66.30 <.0001

trtmnt M62\_21 93.8500 1.3947 24 67.29 <.0001

trtmnt M62\_30 96.7500 1.3947 24 69.37 <.0001

trtmnt M62\_37 94.8750 1.3947 24 68.03 <.0001

trtmnt M125\_30 94.6500 1.3947 24 67.86 <.0001

trtmnt M125\_37 93.9500 1.3947 24 67.36 <.0001

trtmnt M62\_21+37 94.1500 1.3947 24 67.51 <.0001

trtmnt M62\_21+30 93.2500 1.3947 24 66.86 <.0001

trtmnt M62\_30+37 95.3250 1.3947 24 68.35 <.0001

Differences of Least Squares Means

Standard

Effect trtmnt \_trtmnt Estimate Error DF t Value Pr > |t|

trtmnt UTC M62\_21 -1.3750 1.6861 24 -0.82 0.4228

trtmnt ~~UTC M62\_30 -4.2750 1.6861 24 -2.54 0.0182~~

trtmnt UTC M62\_37 -2.4000 1.6861 24 -1.42 0.1675

trtmnt UTC M125\_30 -2.1750 1.6861 24 -1.29 0.2094

trtmnt UTC M125\_37 -1.4750 1.6861 24 -0.87 0.3904

trtmnt UTC M62\_21+37 -1.6750 1.6861 24 -0.99 0.3304

trtmnt UTC M62\_21+30 -0.7750 1.6861 24 -0.46 0.6499

trtmnt UTC M62\_30+37 -2.8500 1.6861 24 -1.69 0.1039

trtmnt M62\_21 M62\_30 -2.9000 1.6861 24 -1.72 0.0983

trtmnt M62\_21 M62\_37 -1.0250 1.6861 24 -0.61 0.5490

trtmnt M62\_21 M125\_30 -0.8000 1.6861 24 -0.47 0.6395

trtmnt M62\_21 M125\_37 -0.1000 1.6861 24 -0.06 0.9532

trtmnt M62\_21 M62\_21+37 -0.3000 1.6861 24 -0.18 0.8603

trtmnt M62\_21 M62\_21+30 0.6000 1.6861 24 0.36 0.7251

trtmnt M62\_21 M62\_30+37 -1.4750 1.6861 24 -0.87 0.3904

trtmnt M62\_30 M62\_37 1.8750 1.6861 24 1.11 0.2771

trtmnt M62\_30 M125\_30 2.1000 1.6861 24 1.25 0.2250

trtmnt M62\_30 M125\_37 2.8000 1.6861 24 1.66 0.1098

trtmnt M62\_30 M62\_21+37 2.6000 1.6861 24 1.54 0.1362

trtmnt M62\_30 M62\_21+30 3.5000 1.6861 24 2.08 0.0488

trtmnt M62\_30 M62\_30+37 1.4250 1.6861 24 0.85 0.4064

trtmnt M62\_37 M125\_30 0.2250 1.6861 24 0.13 0.8950

trtmnt M62\_37 M125\_37 0.9250 1.6861 24 0.55 0.5883

trtmnt M62\_37 M62\_21+37 0.7250 1.6861 24 0.43 0.6710

trtmnt M62\_37 M62\_21+30 1.6250 1.6861 24 0.96 0.3448

trtmnt M62\_37 M62\_30+37 -0.4500 1.6861 24 -0.27 0.7918

trtmnt M125\_30 M125\_37 0.7000 1.6861 24 0.42 0.6817

trtmnt M125\_30 M62\_21+37 0.5000 1.6861 24 0.30 0.7694

trtmnt M125\_30 M62\_21+30 1.4000 1.6861 24 0.83 0.4145

trtmnt M125\_30 M62\_30+37 -0.6750 1.6861 24 -0.40 0.6925

trtmnt M125\_37 M62\_21+37 -0.2000 1.6861 24 -0.12 0.9066

trtmnt M125\_37 M62\_21+30 0.7000 1.6861 24 0.42 0.6817

trtmnt M125\_37 M62\_30+37 -1.3750 1.6861 24 -0.82 0.4228

trtmnt M62\_21+37 M62\_21+30 0.9000 1.6861 24 0.53 0.5984

trtmnt M62\_21+37 M62\_30+37 -1.1750 1.6861 24 -0.70 0.4926

trtmnt M62\_21+30 M62\_30+37 -2.0750 1.6861 24 -1.23 0.2304