Relationship between seeding rate and first production year herbage yield of three varietues of alfalfa at Elora, Ontario, 1991

The GLIMMIX Procedure

Model Information	
Data Set	WORK.SEEDS
Response Variable	yield
Response Distribution	Gaussian
Link Function	Identity
Variance Function	Default
Variance Matrix	Not blocked
Estimation Technique	Restricted Maximum Likelihood
Degrees of Freedom Method	Containment

Class Level Information		
Class	**Levels**	**Values**
block	3	1 2 3
variety	3	Legend OAC Minto Vernal
rate	4	6 12 18 24

Number of Observations Read	36
Number of Observations Used	36

Dimensions	
G-side Cov. Parameters	1
R-side Cov. Parameters	1
Columns in X	20
Columns in Z	3
Subjects (Blocks in V)	1
Max Obs per Subject	36

Optimization Information	
Optimization Technique	Dual Quasi-Newton
Parameters in Optimization	1
Lower Boundaries	1
Upper Boundaries	0
Fixed Effects	Profiled
Residual Variance	Profiled
Starting From	Data

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Iteration History					
Iteration	Restarts	Evaluations	Objective Function	Change	Max Gradient
0	0	4	70.111242415	.	1.78E-15

Convergence criterion (ABSGCONV=0.00001) satisfied.

Fit Statistics	
-2 Res Log Likelihood	70.11
AIC (smaller is better)	74.11
AICC (smaller is better)	74.68
BIC (smaller is better)	72.31
CAIC (smaller is better)	74.31
HQIC (smaller is better)	70.49
Generalized Chi-Square	13.02
Gener. Chi-Square / DF	0.54

Covariance Parameter Estimates		
Cov Parm	Estimate	Standard Error
block	0.2134	0.2590
Residual	0.5427	0.1636

Type III Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
variety	2	22	30.91	<.0001
rate	3	22	4.45	0.0138
variety*rate	6	22	2.64	0.0441

variety Least Squares Means					
variety	Estimate	Standard Error	DF	t Value	Pr > |t|
Legend	10.4250	0.3411	22	30.56	<.0001
OAC Minto	10.2417	0.3411	22	30.02	<.0001
Vernal	8.2917	0.3411	22	24.31	<.0001

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rate Least Squares Means					
rate	Estimate	Standard Error	DF	t Value	Pr > |t|
6	8.9667	0.3625	22	24.73	<.0001
12	9.8333	0.3625	22	27.12	<.0001
18	10.2000	0.3625	22	28.13	<.0001
24	9.6111	0.3625	22	26.51	<.0001

variety*rate Least Squares Means						
variety	rate	Estimate	Standard Error	DF	t Value	Pr > |t|
Legend	6	9.1333	0.5020	22	18.19	<.0001
Legend	12	10.1000	0.5020	22	20.12	<.0001
Legend	18	11.7333	0.5020	22	23.37	<.0001
Legend	24	10.7333	0.5020	22	21.38	<.0001
OAC Minto	6	9.3000	0.5020	22	18.52	<.0001
OAC Minto	12	10.9667	0.5020	22	21.84	<.0001
OAC Minto	18	10.6000	0.5020	22	21.11	<.0001
OAC Minto	24	10.1000	0.5020	22	20.12	<.0001
Vernal	6	8.4667	0.5020	22	16.86	<.0001
Vernal	12	8.4333	0.5020	22	16.80	<.0001
Vernal	18	8.2667	0.5020	22	16.47	<.0001
Vernal	24	8.0000	0.5020	22	15.94	<.0001

Tests of Covariance Parameters Based on the Restricted Likelihood					
Label	DF	-2 Res Log Like	ChiSq	Pr > ChiSq	Note
test if block=0	1	74.5828	4.47	0.0172	MI

MI: P-value based on a mixture of chi-squares.