

The GLIMMIX Procedure

Model Information	
Data Set	WORK.HEIGHT
Response Variable	Height
Response Distribution	Gaussian
Link Function	Identity
Variance Function	Default
Variance Matrix Blocked By	GLB
Estimation Technique	Restricted Maximum Likelihood
Degrees of Freedom Method	Kenward-Roger
Fixed Effects SE Adjustment	Kenward-Roger

Class Level Information		
Class	Levels	Values
Year	8	Fifth First Fourth Initial Second Seventh Sixth Third
Location	2	Hill Farm LA Tech
Block	4	1 2 3 4
Family	6	AGH2 AGH25 AGHS1 AGHS2 AGHS3 AGHS4
GLB	48	AGH25_Hill Farm_1 AGH25_Hill Farm_2 AGH25_Hill Farm_3 AGH25_Hill Farm_4 AGH25_LA Tech_1 AGH25_LA Tech_2 AGH25_LA Tech_3 AGH25_LA Tech_4 AGH2_Hill Farm_1 AGH2_Hill Farm_2 AGH2_Hill Farm_3 AGH2_Hill Farm_4 AGH2_LA Tech_1 AGH2_LA Tech_2 AGH2_LA Tech_3 AGH2_LA Tech_4 AGHS1_Hill Farm_1 AGHS1_Hill Farm_2 AGHS1_Hill Farm_3 AGHS1_Hill Farm_4 AGHS1_LA Tech_1 AGHS1_LA Tech_2 AGHS1_LA Tech_3 AGHS1_LA Tech_4 AGHS2_Hill Farm_1 AGHS2_Hill Farm_2 AGHS2_Hill Farm_3 AGHS2_Hill Farm_4 AGHS2_LA Tech_1 AGHS2_LA Tech_2 AGHS2_LA Tech_3 AGHS2_LA Tech_4 AGHS3_Hill Farm_1 AGHS3_Hill Farm_2 AGHS3_Hill Farm_3 AGHS3_Hill Farm_4 AGHS3_LA Tech_1 AGHS3_LA Tech_2 AGHS3_LA Tech_3 AGHS3_LA Tech_4 AGHS4_Hill Farm_1 AGHS4_Hill Farm_2 AGHS4_Hill Farm_3 AGHS4_Hill Farm_4 AGHS4_LA Tech_1 AGHS4_LA Tech_2 AGHS4_LA Tech_3 AGHS4_LA Tech_4

Number of Observations Read	384
Number of Observations Used	384

Dimensions	
G-side Cov. Parameters	2
R-side Cov. Parameters	1
Columns in X	189
Columns in Z per Subject	1
Subjects (Blocks in V)	48
Max Obs per Subject	8

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Optimization Information	
Optimization Technique	Dual Quasi-Newton
Parameters in Optimization	2
Lower Boundaries	2
Upper Boundaries	1
Fixed Effects	Profiled
Residual Variance	Profiled
Starting From	Data

Iteration History					
Iteration	Restarts	Evaluations	Objective Function	Change	Max Gradient
0	0	4	419.85607123	.	3.56E-12

Convergence criterion (ABSGCONV=0.00001) satisfied.

Fit Statistics	
-2 Res Log Likelihood	419.86
AIC (smaller is better)	425.86
AICC (smaller is better)	425.94
BIC (smaller is better)	431.47
CAIC (smaller is better)	434.47
HQIC (smaller is better)	427.98
Generalized Chi-Square	37.31
Gener. Chi-Square / DF	0.13

Covariance Parameter Estimates			
Cov Parm	Subject	Estimate	Standard Error
Variance	GLB	0.06509	0.01921
AR(1)	GLB	0	.
Residual		0.1295	0.01154

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Type III Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Year	7	252	3715.43	<.0001
Location	1	36	100.98	<.0001
Year*Location	7	252	95.45	<.0001
Family	5	36	21.61	<.0001
Year*Family	35	252	5.27	<.0001
Location*Family	5	36	0.70	0.6304
Year*Location*Family	35	252	1.24	0.1731

F Test for Year*Location Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Fifth	1	161.5	105.11	<.0001

Simple Differences of Year*Location Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Location	_Location	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Fifth	Hill Farm	LA Tech	-1.3057	0.1274	161.5	-10.25	<.0001	<.0001

Tukey Grouping for Year*Location Least Squares Means Slice (Alpha=0.05)			
LS-means with the same letter are not significantly different.			
Slice	Location	Estimate	
Year Fifth	LA Tech	7.0217	A
Year Fifth			
Year Fifth	Hill Farm	5.7160	B

F Test for Year*Location Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year First	1	161.5	0.00	0.9793

Simple Differences of Year*Location Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Location	_Location	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year First	Hill Farm	LA Tech	-0.00330	0.1274	161.5	-0.03	0.9793	0.9793

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Tukey Grouping for Year*Location Least Squares Means Slice (Alpha=0.05)			
LS-means with the same letter are not significantly different.			
Slice	Location	Estimate	
Year First	LA Tech	0.8650	A
Year First			A
Year First	Hill Farm	0.8617	A

F Test for Year*Location Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Fourth	1	161.5	115.26	<.0001

Simple Differences of Year*Location Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Location	_Location	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Fourth	Hill Farm	LA Tech	-1.3672	0.1274	161.5	-10.74	<.0001	<.0001

Tukey Grouping for Year*Location Least Squares Means Slice (Alpha=0.05)			
LS-means with the same letter are not significantly different.			
Slice	Location	Estimate	
Year Fourth	LA Tech	5.4623	A
Year Fourth			
Year Fourth	Hill Farm	4.0950	B

F Test for Year*Location Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Initial	1	161.5	0.02	0.8976

Simple Differences of Year*Location Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Location	_Location	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Initial	Hill Farm	LA Tech	0.01642	0.1274	161.5	0.13	0.8976	0.8975

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Tukey Grouping for Year*Location Least Squares Means Slice (Alpha=0.05)			
LS-means with the same letter are not significantly different.			
Slice	Location	Estimate	
Year Initial	Hill Farm	0.4955	A
Year Initial			A
Year Initial	LA Tech	0.4791	A

F Test for Year*Location Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Second	1	161.5	3.50	0.0631

Simple Differences of Year*Location Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Location	_Location	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Second	Hill Farm	LA Tech	-0.2384	0.1274	161.5	-1.87	0.0631	0.0624

Tukey Grouping for Year*Location Least Squares Means Slice (Alpha=0.05)			
LS-means with the same letter are not significantly different.			
Slice	Location	Estimate	
Year Second	LA Tech	2.1884	A
Year Second			A
Year Second	Hill Farm	1.9500	A

F Test for Year*Location Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Seventh	1	161.5	0.40	0.5259

Simple Differences of Year*Location Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Location	_Location	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Seventh	Hill Farm	LA Tech	-0.08095	0.1274	161.5	-0.64	0.5259	0.5256

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Tukey Grouping for Year*Location Least Squares Means Slice (Alpha=0.05)			
LS-means with the same letter are not significantly different.			
Slice	Location	Estimate	
Year Seventh	LA Tech	9.1387	A
Year Seventh			A
Year Seventh	Hill Farm	9.0577	A

F Test for Year*Location Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Sixth	1	161.5	526.16	<.0001

Simple Differences of Year*Location Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Location	_Location	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Sixth	Hill Farm	LA Tech	-2.9212	0.1274	161.5	-22.94	<.0001	<.0001

Tukey Grouping for Year*Location Least Squares Means Slice (Alpha=0.05)			
LS-means with the same letter are not significantly different.			
Slice	Location	Estimate	
Year Sixth	LA Tech	8.8736	A
Year Sixth			
Year Sixth	Hill Farm	5.9524	B

F Test for Year*Location Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Third	1	161.5	31.59	<.0001

Simple Differences of Year*Location Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Location	_Location	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Third	Hill Farm	LA Tech	-0.7158	0.1274	161.5	-5.62	<.0001	<.0001

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Tukey Grouping for Year*Location Least Squares Means Slice (Alpha=0.05)			
LS-means with the same letter are not significantly different.			
Slice	Location	Estimate	
Year Third	LA Tech	3.3729	A
Year Third			
Year Third	Hill Farm	2.6572	B

F Test for Year*Family Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Fifth	5	161.5	17.82	<.0001

Simple Differences of Year*Family Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Family	_Family	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Fifth	AGH2	AGH25	-0.5088	0.2206	161.5	-2.31	0.0223	0.1952
Year Fifth	AGH2	AGHS1	-1.4087	0.2206	161.5	-6.39	<.0001	<.0001
Year Fifth	AGH2	AGHS2	-1.7111	0.2206	161.5	-7.76	<.0001	<.0001
Year Fifth	AGH2	AGHS3	-0.7408	0.2206	161.5	-3.36	0.0010	0.0115
Year Fifth	AGH2	AGHS4	-1.4383	0.2206	161.5	-6.52	<.0001	<.0001
Year Fifth	AGH25	AGHS1	-0.8999	0.2206	161.5	-4.08	<.0001	0.0009
Year Fifth	AGH25	AGHS2	-1.2023	0.2206	161.5	-5.45	<.0001	<.0001
Year Fifth	AGH25	AGHS3	-0.2320	0.2206	161.5	-1.05	0.2945	0.8997
Year Fifth	AGH25	AGHS4	-0.9295	0.2206	161.5	-4.21	<.0001	0.0005
Year Fifth	AGHS1	AGHS2	-0.3024	0.2206	161.5	-1.37	0.1723	0.7443
Year Fifth	AGHS1	AGHS3	0.6679	0.2206	161.5	3.03	0.0029	0.0321
Year Fifth	AGHS1	AGHS4	-0.02959	0.2206	161.5	-0.13	0.8934	1.0000
Year Fifth	AGHS2	AGHS3	0.9704	0.2206	161.5	4.40	<.0001	0.0002
Year Fifth	AGHS2	AGHS4	0.2728	0.2206	161.5	1.24	0.2179	0.8183
Year Fifth	AGHS3	AGHS4	-0.6975	0.2206	161.5	-3.16	0.0019	0.0215

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Tukey Grouping for Year*Family Least Squares Means Slice (Alpha=0.05)				
LS-means with the same letter are not significantly different.				
Slice	Family	Estimate		
Year Fifth	AGHS2	7.1120		A
Year Fifth				A
Year Fifth	AGHS4	6.8392		A
Year Fifth				A
Year Fifth	AGHS1	6.8096		A
Year Fifth				
Year Fifth	AGHS3	6.1416		B
Year Fifth				B
Year Fifth	AGH25	5.9097	C	B
Year Fifth			C	
Year Fifth	AGH2	5.4008	C	

F Test for Year*Family Least Squares Means Slice

Slice	Num DF	Den DF	F Value	Pr > F
Year First	5	161.5	0.72	0.6060

Simple Differences of Year*Family Least Squares Means
Adjustment for Multiple Comparisons: Tukey

Slice	Family	_Family	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year First	AGH2	AGH25	-0.00289	0.2206	161.5	-0.01	0.9896	1.0000
Year First	AGH2	AGHS1	-0.2847	0.2206	161.5	-1.29	0.1986	0.7899
Year First	AGH2	AGHS2	-0.2683	0.2206	161.5	-1.22	0.2256	0.8286
Year First	AGH2	AGHS3	-0.1805	0.2206	161.5	-0.82	0.4143	0.9639
Year First	AGH2	AGHS4	-0.2619	0.2206	161.5	-1.19	0.2368	0.8426
Year First	AGH25	AGHS1	-0.2818	0.2206	161.5	-1.28	0.2032	0.7970
Year First	AGH25	AGHS2	-0.2654	0.2206	161.5	-1.20	0.2306	0.8350
Year First	AGH25	AGHS3	-0.1777	0.2206	161.5	-0.81	0.4218	0.9664
Year First	AGH25	AGHS4	-0.2590	0.2206	161.5	-1.17	0.2420	0.8488
Year First	AGHS1	AGHS2	0.01642	0.2206	161.5	0.07	0.9408	1.0000
Year First	AGHS1	AGHS3	0.1042	0.2206	161.5	0.47	0.6374	0.9971
Year First	AGHS1	AGHS4	0.02282	0.2206	161.5	0.10	0.9177	1.0000
Year First	AGHS2	AGHS3	0.08776	0.2206	161.5	0.40	0.6913	0.9987

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Simple Differences of Year*Family Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Family	_Family	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year First	AGHS2	AGHS4	0.006401	0.2206	161.5	0.03	0.9769	1.0000
Year First	AGHS3	AGHS4	-0.08136	0.2206	161.5	-0.37	0.7127	0.9991

Tukey Grouping for Year*Family Least Squares Means Slice (Alpha=0.05)			
LS-means with the same letter are not significantly different.			
Slice	Family	Estimate	
Year First	AGHS1	0.9817	A
Year First			A
Year First	AGHS2	0.9653	A
Year First			A
Year First	AGHS4	0.9589	A
Year First			A
Year First	AGHS3	0.8775	A
Year First			A
Year First	AGH25	0.6998	A
Year First			A
Year First	AGH2	0.6970	A

F Test for Year*Family Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Fourth	5	161.5	20.56	<.0001

Simple Differences of Year*Family Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Family	_Family	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Fourth	AGH2	AGH25	-0.3428	0.2206	161.5	-1.55	0.1221	0.6294
Year Fourth	AGH2	AGHS1	-1.5691	0.2206	161.5	-7.11	<.0001	<.0001
Year Fourth	AGH2	AGHS2	-1.7651	0.2206	161.5	-8.00	<.0001	<.0001
Year Fourth	AGH2	AGHS3	-0.9453	0.2206	161.5	-4.29	<.0001	0.0004
Year Fourth	AGH2	AGHS4	-1.3959	0.2206	161.5	-6.33	<.0001	<.0001
Year Fourth	AGH25	AGHS1	-1.2262	0.2206	161.5	-5.56	<.0001	<.0001
Year Fourth	AGH25	AGHS2	-1.4223	0.2206	161.5	-6.45	<.0001	<.0001
Year Fourth	AGH25	AGHS3	-0.6025	0.2206	161.5	-2.73	0.0070	0.0727

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Simple Differences of Year*Family Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Family	_Family	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Fourth	AGH25	AGHS4	-1.0531	0.2206	161.5	-4.77	<.0001	<.0001
Year Fourth	AGHS1	AGHS2	-0.1960	0.2206	161.5	-0.89	0.3754	0.9490
Year Fourth	AGHS1	AGHS3	0.6237	0.2206	161.5	2.83	0.0053	0.0564
Year Fourth	AGHS1	AGHS4	0.1731	0.2206	161.5	0.78	0.4337	0.9699
Year Fourth	AGHS2	AGHS3	0.8198	0.2206	161.5	3.72	0.0003	0.0034
Year Fourth	AGHS2	AGHS4	0.3692	0.2206	161.5	1.67	0.0961	0.5505
Year Fourth	AGHS3	AGHS4	-0.4506	0.2206	161.5	-2.04	0.0427	0.3212

Tukey Grouping for Year*Family Least Squares Means Slice (Alpha=0.05)				
LS-means with the same letter are not significantly different.				
Slice	Family	Estimate		
Year Fourth	AGHS2	5.5407		A
Year Fourth				A
Year Fourth	AGHS1	5.3447	B	A
Year Fourth			B	A
Year Fourth	AGHS4	5.1715	B	A
Year Fourth			B	
Year Fourth	AGHS3	4.7209	B	C
Year Fourth				C
Year Fourth	AGH25	4.1184	D	C
Year Fourth			D	
Year Fourth	AGH2	3.7756	D	

F Test for Year*Family Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Initial	5	161.5	0.14	0.9815

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Simple Differences of Year*Family Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Family	_Family	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Initial	AGH2	AGH25	0.02700	0.2206	161.5	0.12	0.9027	1.0000
Year Initial	AGH2	AGHS1	-0.09858	0.2206	161.5	-0.45	0.6555	0.9977
Year Initial	AGH2	AGHS2	-0.02001	0.2206	161.5	-0.09	0.9278	1.0000
Year Initial	AGH2	AGHS3	-0.09166	0.2206	161.5	-0.42	0.6783	0.9984
Year Initial	AGH2	AGHS4	-0.1142	0.2206	161.5	-0.52	0.6053	0.9955
Year Initial	AGH25	AGHS1	-0.1256	0.2206	161.5	-0.57	0.5699	0.9929
Year Initial	AGH25	AGHS2	-0.04701	0.2206	161.5	-0.21	0.8315	0.9999
Year Initial	AGH25	AGHS3	-0.1187	0.2206	161.5	-0.54	0.5914	0.9946
Year Initial	AGH25	AGHS4	-0.1412	0.2206	161.5	-0.64	0.5230	0.9878
Year Initial	AGHS1	AGHS2	0.07857	0.2206	161.5	0.36	0.7221	0.9992
Year Initial	AGHS1	AGHS3	0.006927	0.2206	161.5	0.03	0.9750	1.0000
Year Initial	AGHS1	AGHS4	-0.01562	0.2206	161.5	-0.07	0.9436	1.0000
Year Initial	AGHS2	AGHS3	-0.07165	0.2206	161.5	-0.32	0.7457	0.9995
Year Initial	AGHS2	AGHS4	-0.09420	0.2206	161.5	-0.43	0.6699	0.9982
Year Initial	AGHS3	AGHS4	-0.02255	0.2206	161.5	-0.10	0.9187	1.0000

Tukey Grouping for Year*Family Least Squares Means Slice (Alpha=0.05)			
LS-means with the same letter are not significantly different.			
Slice	Family	Estimate	
Year Initial	AGHS4	0.5520	A
Year Initial			A
Year Initial	AGHS1	0.5363	A
Year Initial			A
Year Initial	AGHS3	0.5294	A
Year Initial			A
Year Initial	AGHS2	0.4578	A
Year Initial			A
Year Initial	AGH2	0.4378	A
Year Initial			A
Year Initial	AGH25	0.4108	A

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F Test for Year*Family Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Second	5	161.5	5.65	<.0001

Simple Differences of Year*Family Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Family	_Family	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Second	AGH2	AGH25	-0.09287	0.2206	161.5	-0.42	0.6743	0.9983
Year Second	AGH2	AGHS1	-0.7712	0.2206	161.5	-3.50	0.0006	0.0073
Year Second	AGH2	AGHS2	-0.9229	0.2206	161.5	-4.18	<.0001	0.0006
Year Second	AGH2	AGHS3	-0.5018	0.2206	161.5	-2.28	0.0242	0.2082
Year Second	AGH2	AGHS4	-0.6426	0.2206	161.5	-2.91	0.0041	0.0446
Year Second	AGH25	AGHS1	-0.6784	0.2206	161.5	-3.08	0.0025	0.0279
Year Second	AGH25	AGHS2	-0.8300	0.2206	161.5	-3.76	0.0002	0.0028
Year Second	AGH25	AGHS3	-0.4090	0.2206	161.5	-1.85	0.0656	0.4332
Year Second	AGH25	AGHS4	-0.5497	0.2206	161.5	-2.49	0.0137	0.1303
Year Second	AGHS1	AGHS2	-0.1517	0.2206	161.5	-0.69	0.4927	0.9832
Year Second	AGHS1	AGHS3	0.2694	0.2206	161.5	1.22	0.2237	0.8261
Year Second	AGHS1	AGHS4	0.1286	0.2206	161.5	0.58	0.5606	0.9921
Year Second	AGHS2	AGHS3	0.4211	0.2206	161.5	1.91	0.0580	0.3991
Year Second	AGHS2	AGHS4	0.2803	0.2206	161.5	1.27	0.2056	0.8007
Year Second	AGHS3	AGHS4	-0.1408	0.2206	161.5	-0.64	0.5243	0.9880

Tukey Grouping for Year*Family Least Squares Means Slice (Alpha=0.05)					
LS-means with the same letter are not significantly different.					
Slice	Family	Estimate			
Year Second	AGHS2	2.5035		A	
Year Second				A	
Year Second	AGHS1	2.3519		A	
Year Second				A	
Year Second	AGHS4	2.2232	B	A	
Year Second			B	A	
Year Second	AGHS3	2.0825	B	A	C
Year Second			B		C
Year Second	AGH25	1.6735	B		C

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Tukey Grouping for Year*Family Least Squares Means Slice (Alpha=0.05)					
LS-means with the same letter are not significantly different.					
Slice	Family	Estimate			
Year Second					C
Year Second	AGH2	1.5806			C

F Test for Year*Family Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Seventh	5	161.5	15.75	<.0001

Simple Differences of Year*Family Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Family	_Family	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Seventh	AGH2	AGH25	0.1012	0.2206	161.5	0.46	0.6469	0.9974
Year Seventh	AGH2	AGHS1	-1.2296	0.2206	161.5	-5.57	<.0001	<.0001
Year Seventh	AGH2	AGHS2	-1.2242	0.2206	161.5	-5.55	<.0001	<.0001
Year Seventh	AGH2	AGHS3	-0.5381	0.2206	161.5	-2.44	0.0158	0.1468
Year Seventh	AGH2	AGHS4	-1.1547	0.2206	161.5	-5.23	<.0001	<.0001
Year Seventh	AGH25	AGHS1	-1.3308	0.2206	161.5	-6.03	<.0001	<.0001
Year Seventh	AGH25	AGHS2	-1.3254	0.2206	161.5	-6.01	<.0001	<.0001
Year Seventh	AGH25	AGHS3	-0.6393	0.2206	161.5	-2.90	0.0043	0.0465
Year Seventh	AGH25	AGHS4	-1.2559	0.2206	161.5	-5.69	<.0001	<.0001
Year Seventh	AGHS1	AGHS2	0.005355	0.2206	161.5	0.02	0.9807	1.0000
Year Seventh	AGHS1	AGHS3	0.6915	0.2206	161.5	3.13	0.0020	0.0234
Year Seventh	AGHS1	AGHS4	0.07490	0.2206	161.5	0.34	0.7346	0.9994
Year Seventh	AGHS2	AGHS3	0.6861	0.2206	161.5	3.11	0.0022	0.0251
Year Seventh	AGHS2	AGHS4	0.06954	0.2206	161.5	0.32	0.7530	0.9996
Year Seventh	AGHS3	AGHS4	-0.6166	0.2206	161.5	-2.80	0.0058	0.0615

Tukey Grouping for Year*Family Least Squares Means Slice (Alpha=0.05)				
LS-means with the same letter are not significantly different.				
Slice	Family	Estimate		
Year Seventh	AGHS1	9.6536		A
Year Seventh				A
Year Seventh	AGHS2	9.6482		A
Year Seventh				A

The GLIMMIX Procedure

Tukey Grouping for Year*Family Least Squares Means Slice (Alpha=0.05)				
LS-means with the same letter are not significantly different.				
Slice	Family	Estimate		
Year Seventh	AGHS4	9.5787	B	A
Year Seventh			B	
Year Seventh	AGHS3	8.9621	B	C
Year Seventh				C
Year Seventh	AGH2	8.4240	D	C
Year Seventh			D	
Year Seventh	AGH25	8.3228	D	

F Test for Year*Family Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Sixth	5	161.5	27.96	<.0001

Simple Differences of Year*Family Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Family	_Family	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Sixth	AGH2	AGH25	-0.3353	0.2206	161.5	-1.52	0.1304	0.6515
Year Sixth	AGH2	AGHS1	-1.8840	0.2206	161.5	-8.54	<.0001	<.0001
Year Sixth	AGH2	AGHS2	-1.9521	0.2206	161.5	-8.85	<.0001	<.0001
Year Sixth	AGH2	AGHS3	-1.2217	0.2206	161.5	-5.54	<.0001	<.0001
Year Sixth	AGH2	AGHS4	-1.6303	0.2206	161.5	-7.39	<.0001	<.0001
Year Sixth	AGH25	AGHS1	-1.5486	0.2206	161.5	-7.02	<.0001	<.0001
Year Sixth	AGH25	AGHS2	-1.6167	0.2206	161.5	-7.33	<.0001	<.0001
Year Sixth	AGH25	AGHS3	-0.8864	0.2206	161.5	-4.02	<.0001	0.0011
Year Sixth	AGH25	AGHS4	-1.2950	0.2206	161.5	-5.87	<.0001	<.0001
Year Sixth	AGHS1	AGHS2	-0.06811	0.2206	161.5	-0.31	0.7579	0.9996
Year Sixth	AGHS1	AGHS3	0.6623	0.2206	161.5	3.00	0.0031	0.0346
Year Sixth	AGHS1	AGHS4	0.2536	0.2206	161.5	1.15	0.2519	0.8599
Year Sixth	AGHS2	AGHS3	0.7304	0.2206	161.5	3.31	0.0011	0.0135
Year Sixth	AGHS2	AGHS4	0.3217	0.2206	161.5	1.46	0.1466	0.6909
Year Sixth	AGHS3	AGHS4	-0.4086	0.2206	161.5	-1.85	0.0658	0.4341

The GLIMMIX Procedure

Tukey Grouping for Year*Family Least Squares Means Slice (Alpha=0.05)				
LS-means with the same letter are not significantly different.				
Slice	Family	Estimate		
Year Sixth	AGHS2	8.1945		A
Year Sixth				A
Year Sixth	AGHS1	8.1264		A
Year Sixth				A
Year Sixth	AGHS4	7.8728	B	A
Year Sixth			B	
Year Sixth	AGHS3	7.4642	B	
Year Sixth				
Year Sixth	AGH25	6.5778		C
Year Sixth				C
Year Sixth	AGH2	6.2425		C

F Test for Year*Family Least Squares Means Slice				
Slice	Num DF	Den DF	F Value	Pr > F
Year Third	5	161.5	8.12	<.0001

Simple Differences of Year*Family Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Family	_Family	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Third	AGH2	AGH25	-0.1341	0.2206	161.5	-0.61	0.5442	0.9904
Year Third	AGH2	AGHS1	-1.0244	0.2206	161.5	-4.64	<.0001	<.0001
Year Third	AGH2	AGHS2	-1.0013	0.2206	161.5	-4.54	<.0001	0.0001
Year Third	AGH2	AGHS3	-0.3330	0.2206	161.5	-1.51	0.1331	0.6585
Year Third	AGH2	AGHS4	-0.7438	0.2206	161.5	-3.37	0.0009	0.0110
Year Third	AGH25	AGHS1	-0.8903	0.2206	161.5	-4.04	<.0001	0.0010
Year Third	AGH25	AGHS2	-0.8673	0.2206	161.5	-3.93	0.0001	0.0015
Year Third	AGH25	AGHS3	-0.1989	0.2206	161.5	-0.90	0.3686	0.9458
Year Third	AGH25	AGHS4	-0.6097	0.2206	161.5	-2.76	0.0064	0.0667
Year Third	AGHS1	AGHS2	0.02302	0.2206	161.5	0.10	0.9170	1.0000
Year Third	AGHS1	AGHS3	0.6914	0.2206	161.5	3.13	0.0020	0.0234
Year Third	AGHS1	AGHS4	0.2806	0.2206	161.5	1.27	0.2052	0.8000
Year Third	AGHS2	AGHS3	0.6684	0.2206	161.5	3.03	0.0028	0.0319

The GLIMMIX Procedure

Simple Differences of Year*Family Least Squares Means Adjustment for Multiple Comparisons: Tukey								
Slice	Family	_Family	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
Year Third	AGHS2	AGHS4	0.2576	0.2206	161.5	1.17	0.2447	0.8518
Year Third	AGHS3	AGHS4	-0.4108	0.2206	161.5	-1.86	0.0643	0.4278

Tukey Grouping for Year*Family Least Squares Means Slice (Alpha=0.05)				
LS-means with the same letter are not significantly different.				
Slice	Family	Estimate		
Year Third	AGHS1	3.5000		A
Year Third				A
Year Third	AGHS2	3.4770		A
Year Third				A
Year Third	AGHS4	3.2194	B	A
Year Third			B	
Year Third	AGHS3	2.8086	B	C
Year Third			B	C
Year Third	AGH25	2.6097	B	C
Year Third				C
Year Third	AGH2	2.4756		C

Family Least Squares Means					
Family	Estimate	Standard Error	DF	t Value	Pr > t
AGH2	3.6292	0.1008	36	36.01	<.0001
AGH25	3.7903	0.1008	36	37.60	<.0001
AGHS1	4.6630	0.1008	36	46.26	<.0001
AGHS2	4.7374	0.1008	36	47.00	<.0001
AGHS3	4.1983	0.1008	36	41.65	<.0001
AGHS4	4.5520	0.1008	36	45.16	<.0001

Differences of Family Least Squares Means Adjustment for Multiple Comparisons: Tukey							
Family	_Family	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
AGH2	AGH25	-0.1611	0.1425	36	-1.13	0.2660	0.8656
AGH2	AGHS1	-1.0338	0.1425	36	-7.25	<.0001	<.0001
AGH2	AGHS2	-1.1081	0.1425	36	-7.77	<.0001	<.0001
AGH2	AGHS3	-0.5691	0.1425	36	-3.99	0.0003	0.0039

The GLIMMIX Procedure

Differences of Family Least Squares Means Adjustment for Multiple Comparisons: Tukey							
Family	_Family	Estimate	Standard Error	DF	t Value	Pr > t	Adj P
AGH2	AGHS4	-0.9227	0.1425	36	-6.47	<.0001	<.0001
AGH25	AGHS1	-0.8727	0.1425	36	-6.12	<.0001	<.0001
AGH25	AGHS2	-0.9471	0.1425	36	-6.64	<.0001	<.0001
AGH25	AGHS3	-0.4080	0.1425	36	-2.86	0.0070	0.0700
AGH25	AGHS4	-0.7616	0.1425	36	-5.34	<.0001	<.0001
AGHS1	AGHS2	-0.07436	0.1425	36	-0.52	0.6051	0.9950
AGHS1	AGHS3	0.4647	0.1425	36	3.26	0.0024	0.0272
AGHS1	AGHS4	0.1111	0.1425	36	0.78	0.4410	0.9693
AGHS2	AGHS3	0.5390	0.1425	36	3.78	0.0006	0.0069
AGHS2	AGHS4	0.1854	0.1425	36	1.30	0.2016	0.7827
AGHS3	AGHS4	-0.3536	0.1425	36	-2.48	0.0179	0.1569

Tukey Grouping for Family Least Squares Means (Alpha=0.05)			
LS-means with the same letter are not significantly different.			
Family	Estimate		
AGHS2	4.7374		A
			A
AGHS1	4.6630		A
			A
AGHS4	4.5520	B	A
		B	
AGHS3	4.1983	B	C
			C
AGH25	3.7903	D	C
		D	
AGH2	3.6292	D	