The SAS System

The GLM Procedure

Class Level Information		
Class	**Levels**	**Values**
bull	5	1 2 3 4 5

Number of Observations Read	30
Number of Observations Used	30

The SAS System

The GLM Procedure

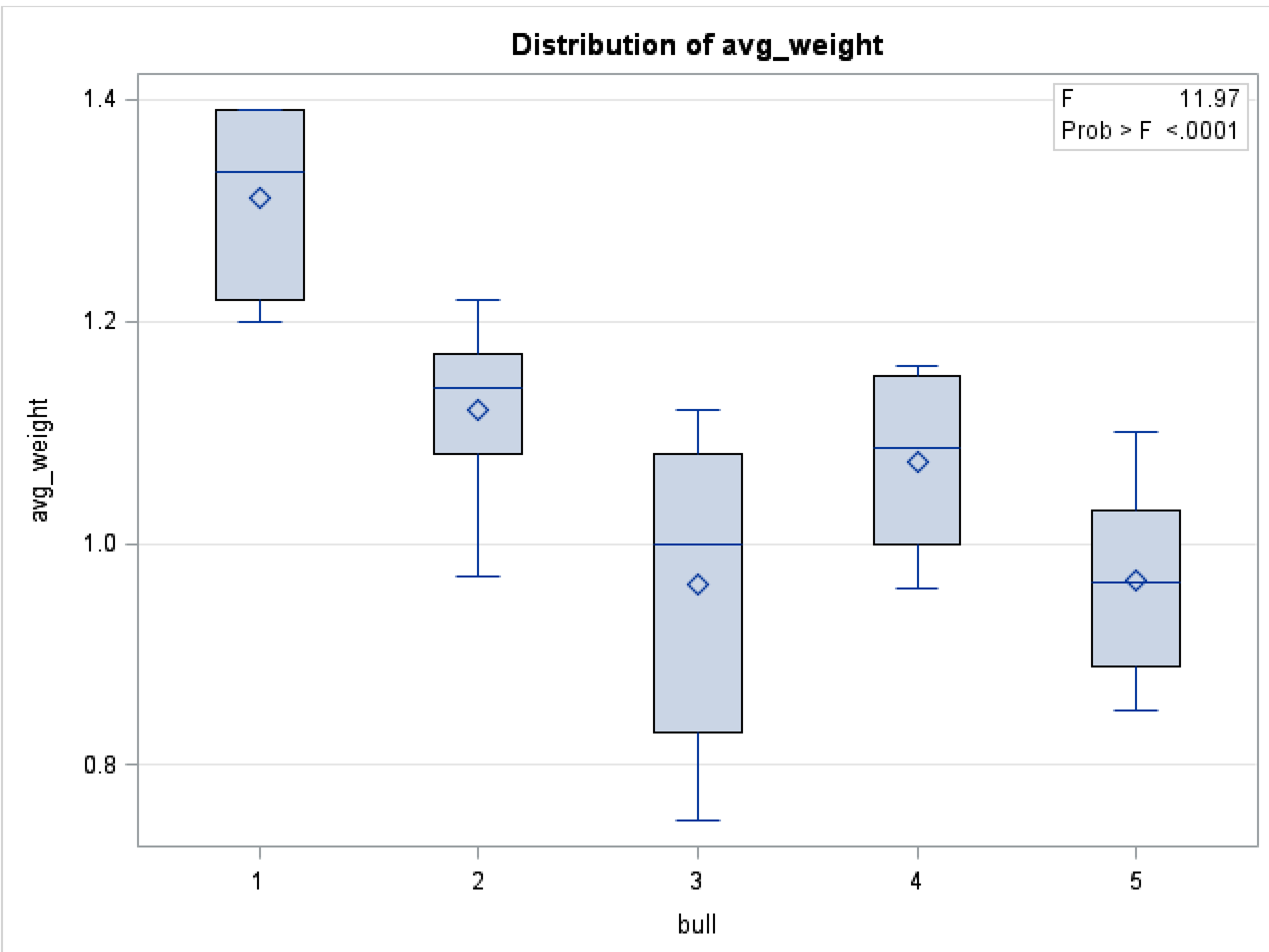
Dependent Variable: avg_weight

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	0.48914667	0.12228667	11.97	<.0001
Error	25	0.25548333	0.01021933		
Corrected Total	29	0.74463000			

R-Square	Coeff Var	Root MSE	avg_weight Mean
0.656899	9.299974	0.101091	1.087000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
bull	4	0.48914667	0.12228667	11.97	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
bull	4	0.48914667	0.12228667	11.97	<.0001



The SAS System

The GLM Procedure

Source	Type III Expected Mean Square
bull	Var(Error) + 6 Var(bull)

The SAS System

The Mixed Procedure

Model Information	
Data Set	WORK.BULL_CALF
Dependent Variable	avg_weight
Covariance Structure	Variance Components
Estimation Method	Type 3
Residual Variance Method	Factor
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Containment

Class Level Information		
Class	Levels	Values
bull	5	1 2 3 4 5

Dimensions	
Covariance Parameters	2
Columns in X	1
Columns in Z	5
Subjects	1
Max Obs Per Subject	30

Number of Observations	
Number of Observations Read	30
Number of Observations Used	30
Number of Observations Not Used	0

Type 3 Analysis of Variance

Source	DF	Sum of Squares	Mean Square	Expected Mean Square	Error Term	Error DF	F Value	Pr > F
bull	4	0.489147	0.122287	Var(Residual) + 6 Var(bull)	MS(Residual)	25	11.97	<.0001
Residual	25	0.255483	0.010219	Var(Residual)	.	.	.	.

Covariance Parameter Estimates	
Cov Parm	Estimate
bull	0.01868
Residual	0.01022

Fit Statistics	
-2 Res Log Likelihood	-37.3
AIC (smaller is better)	-33.3
AICC (smaller is better)	-32.8
BIC (smaller is better)	-34.1

The SAS System

The Mixed Procedure

Model Information	
Data Set	WORK.BULL_CALF
Dependent Variable	avg_weight
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
bull	5	1 2 3 4 5

Dimensions	
Covariance Parameters	2
Columns in X	1
Columns in Z	5
Subjects	1
Max Obs Per Subject	30

Number of Observations	
Number of Observations Read	30
Number of Observations Used	30
Number of Observations Not Used	0

Iteration History			
Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	-20.50311378	
1	1	-37.29276495	0.00000000

Convergence criteria met.

Covariance Parameter Estimates	
Cov Parm	Estimate
bull	0.01868
Residual	0.01022

Fit Statistics	
-2 Res Log Likelihood	-37.3
AIC (smaller is better)	-33.3
AICC (smaller is better)	-32.8

Fit Statistics	
BIC (smaller is better)	-34.1

Estimates								
Label	Estimate	Standard Error	DF	t Value	Pr > |t|	Alpha	Lower	Upper
Avg. daily weight gain	1.0870	0.06385	4	17.03	<.0001	0.05	0.9097	1.2643