

## The SAS System

### The Mixed Procedure

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	AFC
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
year	2	2009 2010
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	5
Columns in Z	0
Subjects	1
Max Obs Per Subject	215

Number of Observations	
Number of Observations Read	215
Number of Observations Used	215
Number of Observations Not Used	0

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	2.1326

Fit Statistics	
-2 Res Log Likelihood	775.5
AIC (smaller is better)	777.5
AICC (smaller is better)	777.5

<b>BIC (smaller is better)</b>	780.9
--------------------------------	-------

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>year</b>	1	212	1.65	0.2008
<b>trt</b>	1	212	1.09	0.2980

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	23.8364	0.1442	212	165.35	<.0001
<b>trt</b>	Pasture	24.0446	0.1380	212	174.25	<.0001

## The SAS System

### The Mixed Procedure

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	CE
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
year	2	2009 2010
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	5
Columns in Z	0
Subjects	1
Max Obs Per Subject	215

Number of Observations	
Number of Observations Read	215
Number of Observations Used	213
Number of Observations Not Used	2

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	0.5805

Fit Statistics	
-2 Res Log Likelihood	495.0
AIC (smaller is better)	497.0

<b>AICC (smaller is better)</b>	497.1
<b>BIC (smaller is better)</b>	500.4

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>year</b>	1	210	1.90	0.1693
<b>trt</b>	1	210	0.22	0.6394

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	1.3110	0.07561	210	17.34	<.0001
<b>trt</b>	Pasture	1.2619	0.07232	210	17.45	<.0001

## The SAS System

### The Mixed Procedure

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	MEMilk
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
year	2	2009 2010
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	5
Columns in Z	0
Subjects	1
Max Obs Per Subject	215

Number of Observations	
Number of Observations Read	215
Number of Observations Used	212
Number of Observations Not Used	3

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	23835322

Fit Statistics	
-2 Res Log Likelihood	4156.6
AIC (smaller is better)	4158.6

<b>AICC (smaller is better)</b>	4158.6
<b>BIC (smaller is better)</b>	4162.0

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>year</b>	1	209	25.77	<.0001
<b>trt</b>	1	209	0.14	0.7094

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	31005	484.53	209	63.99	<.0001
<b>trt</b>	Pasture	31255	465.53	209	67.14	<.0001

## The SAS System

### The Mixed Procedure

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	DOPN
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
year	2	2009 2010
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	5
Columns in Z	0
Subjects	1
Max Obs Per Subject	215

Number of Observations	
Number of Observations Read	215
Number of Observations Used	196
Number of Observations Not Used	19

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	5113.50

Fit Statistics	
-2 Res Log Likelihood	2208.9
AIC (smaller is better)	2210.9

<b>AICC (smaller is better)</b>	2210.9
<b>BIC (smaller is better)</b>	2214.2

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>year</b>	1	193	4.39	0.0375
<b>trt</b>	1	193	0.01	0.9032

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	126.45	7.4399	193	17.00	<.0001
<b>trt</b>	Pasture	125.21	7.0475	193	17.77	<.0001



## The SAS System

### The Mixed Procedure

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	SPC
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
year	2	2009 2010
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	5
Columns in Z	0
Subjects	1
Max Obs Per Subject	215

Number of Observations	
Number of Observations Read	215
Number of Observations Used	196
Number of Observations Not Used	19

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	3.4243

Fit Statistics	
-2 Res Log Likelihood	798.3
AIC (smaller is better)	800.3

<b>AICC (smaller is better)</b>	800.3
<b>BIC (smaller is better)</b>	803.6

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>year</b>	1	193	7.99	0.0052
<b>trt</b>	1	193	0.08	0.7746

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	2.5175	0.1925	193	13.08	<.0001
<b>trt</b>	Pasture	2.5934	0.1824	193	14.22	<.0001

## The SAS System

### The Mixed Procedure

year=2009

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	AFC
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	3
Columns in Z	0
Subjects	1
Max Obs Per Subject	103

Number of Observations	
Number of Observations Read	103
Number of Observations Used	103
Number of Observations Not Used	0

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	2.4492

Fit Statistics	
-2 Res Log Likelihood	385.0
AIC (smaller is better)	387.0

<b>AICC (smaller is better)</b>	387.0
<b>BIC (smaller is better)</b>	389.6

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>trt</b>	1	101	0.00	0.9648

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	24.0851	0.2283	101	105.51	<.0001
<b>trt</b>	Pasture	24.0714	0.2091	101	115.10	<.0001

## The SAS System

### The Mixed Procedure

year=2010

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	AFC
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	3
Columns in Z	0
Subjects	1
Max Obs Per Subject	112

Number of Observations	
Number of Observations Read	112
Number of Observations Used	112
Number of Observations Not Used	0

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	1.8394

Fit Statistics	
-2 Res Log Likelihood	387.3
AIC (smaller is better)	389.3

<b>AICC (smaller is better)</b>	389.3
<b>BIC (smaller is better)</b>	392.0

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>trt</b>	1	110	2.57	0.1119

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	23.6071	0.1812	110	130.25	<.0001
<b>trt</b>	Pasture	24.0179	0.1812	110	132.52	<.0001

## The SAS System

### The Mixed Procedure

year=2009

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	CE
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	3
Columns in Z	0
Subjects	1
Max Obs Per Subject	103

Number of Observations	
Number of Observations Read	103
Number of Observations Used	101
Number of Observations Not Used	2

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	0.7181

Fit Statistics	
-2 Res Log Likelihood	256.0
AIC (smaller is better)	258.0

<b>AICC (smaller is better)</b>	258.0
<b>BIC (smaller is better)</b>	260.6

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>trt</b>	1	99	0.11	0.7427

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	1.3261	0.1249	99	10.61	<.0001
<b>trt</b>	Pasture	1.3818	0.1143	99	12.09	<.0001



## The SAS System

### The Mixed Procedure

year=2010

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	CE
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	3
Columns in Z	0
Subjects	1
Max Obs Per Subject	112

Number of Observations	
Number of Observations Read	112
Number of Observations Used	112
Number of Observations Not Used	0

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	0.4571

Fit Statistics	
-2 Res Log Likelihood	234.1
AIC (smaller is better)	236.1

<b>AICC (smaller is better)</b>	236.2
<b>BIC (smaller is better)</b>	238.8

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>trt</b>	1	110	1.25	0.2660

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	1.2857	0.09035	110	14.23	<.0001
<b>trt</b>	Pasture	1.1429	0.09035	110	12.65	<.0001

## The SAS System

### The Mixed Procedure

year=2009

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	MEMilk
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	3
Columns in Z	0
Subjects	1
Max Obs Per Subject	103

Number of Observations	
Number of Observations Read	103
Number of Observations Used	102
Number of Observations Not Used	1

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	21252670

Fit Statistics	
-2 Res Log Likelihood	1978.8
AIC (smaller is better)	1980.8

<b>AICC (smaller is better)</b>	1980.9
<b>BIC (smaller is better)</b>	1983.4

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>trt</b>	1	100	0.14	0.7067

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	33038	679.72	100	48.61	<.0001
<b>trt</b>	Pasture	32692	616.05	100	53.07	<.0001

## The SAS System

### The Mixed Procedure

year=2010

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	MEMilk
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	3
Columns in Z	0
Subjects	1
Max Obs Per Subject	112

Number of Observations	
Number of Observations Read	112
Number of Observations Used	110
Number of Observations Not Used	2

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	26287472

Fit Statistics	
-2 Res Log Likelihood	2159.6
AIC (smaller is better)	2161.6

<b>AICC (smaller is better)</b>	2161.7
<b>BIC (smaller is better)</b>	2164.3

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>trt</b>	1	108	0.67	0.4155

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	29029	685.14	108	42.37	<.0001
<b>trt</b>	Pasture	29828	697.71	108	42.75	<.0001

## The SAS System

### The Mixed Procedure

year=2009

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	DOPN
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	3
Columns in Z	0
Subjects	1
Max Obs Per Subject	103

Number of Observations	
Number of Observations Read	103
Number of Observations Used	91
Number of Observations Not Used	12

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	8335.24

Fit Statistics	
-2 Res Log Likelihood	1063.7
AIC (smaller is better)	1065.7

<b>AICC (smaller is better)</b>	1065.8
<b>BIC (smaller is better)</b>	1068.2

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>trt</b>	1	89	0.00	0.9877

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	136.34	14.2583	89	9.56	<.0001
<b>trt</b>	Pasture	136.64	12.9114	89	10.58	<.0001



## The SAS System

### The Mixed Procedure

year=2010

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	DOPN
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	3
Columns in Z	0
Subjects	1
Max Obs Per Subject	112

Number of Observations	
Number of Observations Read	112
Number of Observations Used	105
Number of Observations Not Used	7

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	2378.33

Fit Statistics	
-2 Res Log Likelihood	1101.0
AIC (smaller is better)	1103.0

<b>AICC (smaller is better)</b>	1103.0
<b>BIC (smaller is better)</b>	1105.6

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>trt</b>	1	103	0.07	0.7874

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	116.38	6.7629	103	17.21	<.0001
<b>trt</b>	Pasture	113.81	6.6988	103	16.99	<.0001

## The SAS System

### The Mixed Procedure

year=2009

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	SPC
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	3
Columns in Z	0
Subjects	1
Max Obs Per Subject	103

Number of Observations	
Number of Observations Read	103
Number of Observations Used	91
Number of Observations Not Used	12

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	5.6670

Fit Statistics	
-2 Res Log Likelihood	414.6
AIC (smaller is better)	416.6

<b>AICC (smaller is better)</b>	416.6
<b>BIC (smaller is better)</b>	419.1

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>trt</b>	1	89	0.22	0.6404

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	2.8049	0.3718	89	7.54	<.0001
<b>trt</b>	Pasture	3.0400	0.3367	89	9.03	<.0001

## The SAS System

### The Mixed Procedure

year=2010

Model Information	
Data Set	WORK.HEIFER
Dependent Variable	SPC
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	Levels	Values
trt	2	Barn Pasture

Dimensions	
Covariance Parameters	1
Columns in X	3
Columns in Z	0
Subjects	1
Max Obs Per Subject	112

Number of Observations	
Number of Observations Read	112
Number of Observations Used	105
Number of Observations Not Used	7

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	1.5094

Fit Statistics	
-2 Res Log Likelihood	342.6
AIC (smaller is better)	344.6

<b>AICC (smaller is better)</b>	344.7
<b>BIC (smaller is better)</b>	347.3

<b>Type 3 Tests of Fixed Effects</b>				
<b>Effect</b>	<b>Num DF</b>	<b>Den DF</b>	<b>F Value</b>	<b>Pr &gt; F</b>
<b>trt</b>	1	103	0.06	0.8010

<b>Least Squares Means</b>						
<b>Effect</b>	<b>trt</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>DF</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
<b>trt</b>	Barn	2.2115	0.1704	103	12.98	<.0001
<b>trt</b>	Pasture	2.1509	0.1688	103	12.75	<.0001