The SAS System

Obs	variety	rep	yield_bu_a_13
1	USG7480ET	1	69.20
2	AV45V8E	1	54.71
3	USG7491ETS	1	55.95
4	AV49V9E	1	63.61
5	USG7480ET	2	55.53
6	AV45V8E	2	53.68
7	USG7491ETS	2	54.48
8	AV49V9E	2	58.10
9	USG7480ET	3	55.89
10	AV45V8E	3	49.71
11	USG7491ETS	3	55.49
12	AV49V9E	3	54.54
13	USG7480ET	4	60.02
14	AV45V8E	4	56.05
15	USG7491ETS	4	60.50
16	AV49V9E	4	66.10

lsd, root mse, cv

The GLM Procedure

Class Level Information		
Class	**Levels**	**Values**
rep	4	1 2 3 4
variety	4	AV45V8E AV49V9E USG7480ET USG7491ETS

Number of Observations Read	16
Number of Observations Used	16

lsd, root mse, cv

The GLM Procedure

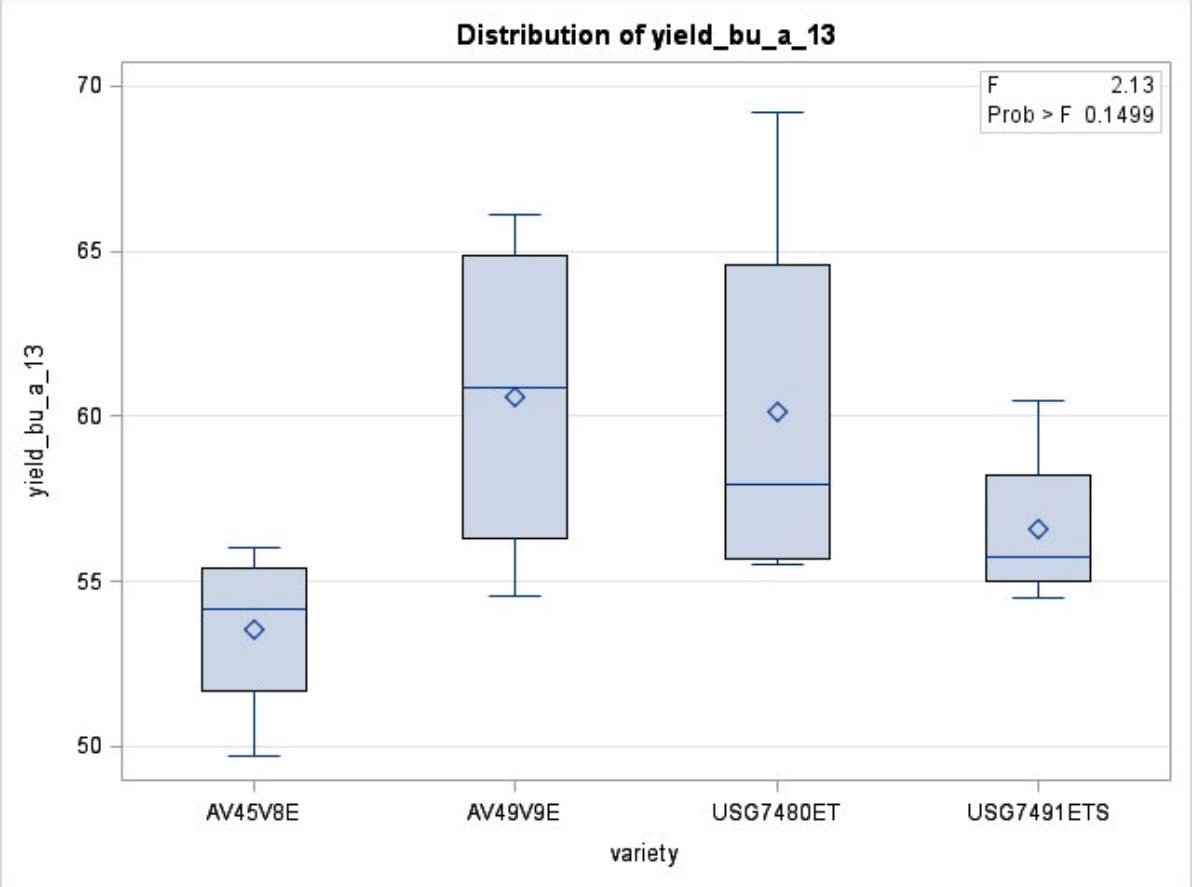
Dependent Variable: yield_bu_a_13

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	131.6506500	43.8835500	2.13	0.1499
Error	12	247.4104500	20.6175375		
Corrected Total	15	379.0611000			

R-Square	Coeff Var	Root MSE	yield_bu_a_13 Mean
0.347307	7.866350	4.540654	57.72250

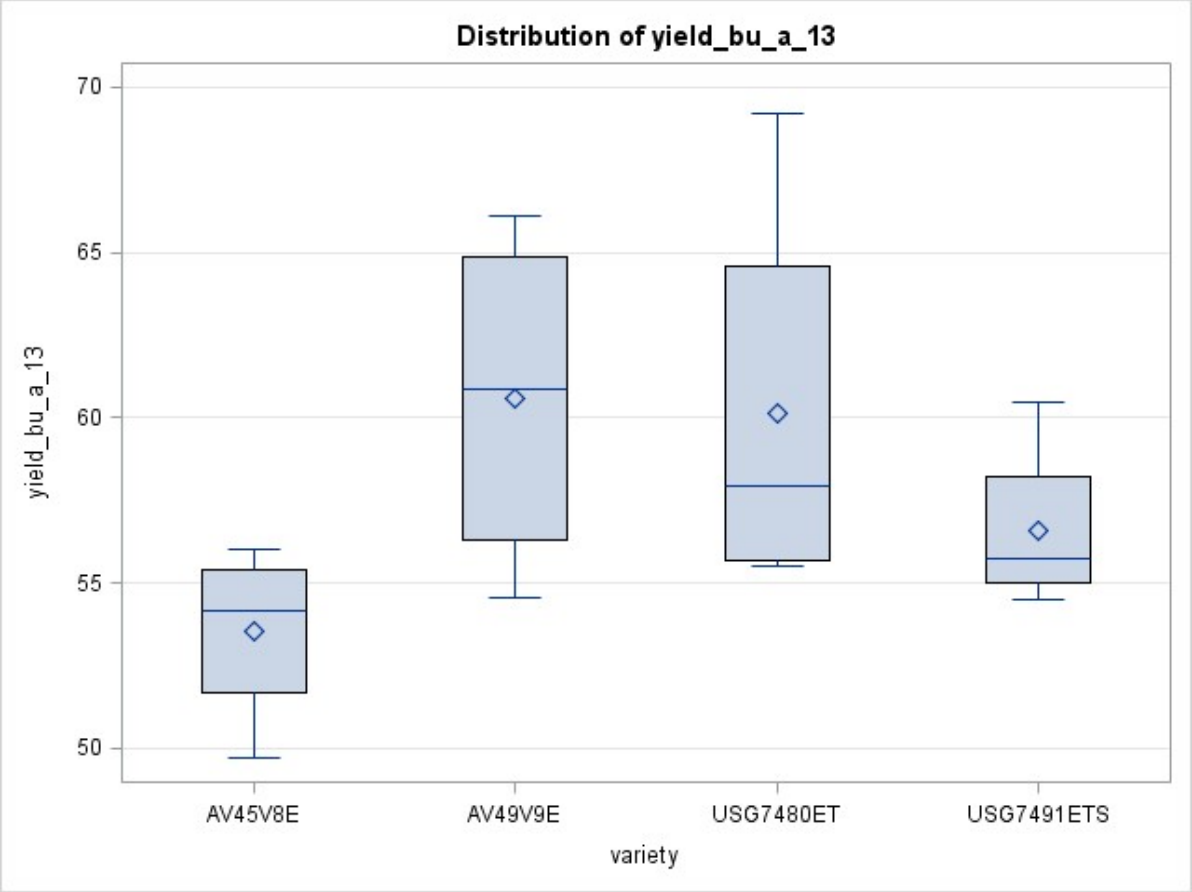
Source	DF	Type I SS	Mean Square	F Value	Pr > F
variety	3	131.6506500	43.8835500	2.13	0.1499

Source	DF	Type III SS	Mean Square	F Value	Pr > F
variety	3	131.6506500	43.8835500	2.13	0.1499



lsd, root mse, cv

The GLM Procedure



lsd, root mse, cv

The GLM Procedure

t Tests (LSD) for yield_bu_a_13

Note: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha	0.1
Error Degrees of Freedom	12
Error Mean Square	20.61754
Critical Value of t	1.78229
Least Significant Difference	5.7224

Means with the same letter are not significantly different.

t Grouping		Mean	N	variety
	A	60.588	4	AV49V9E
	A			
	A	60.160	4	USG7480ET
	A			
B	A	56.605	4	USG7491ETS
B				
B		53.538	4	AV45V8E

lsd, root mse, cv

The Mixed Procedure

Model Information	
Data Set	WORK.AVT_2020
Dependent Variable	yield_bu_a_13
Covariance Structure	Variance Components
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Kenward-Roger
Degrees of Freedom Method	Kenward-Roger

Class Level Information		
Class	Levels	Values
rep	4	1 2 3 4
variety	4	AV45V8E AV49V9E USG7480ET USG7491ETS

Dimensions	
Covariance Parameters	2
Columns in X	5
Columns in Z	4
Subjects	1
Max Obs per Subject	16

Number of Observations	
Number of Observations Read	16
Number of Observations Used	16
Number of Observations Not Used	0

Iteration History			
Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	75.91340682	
1	1	72.53570974	0.00000000

Convergence criteria met.

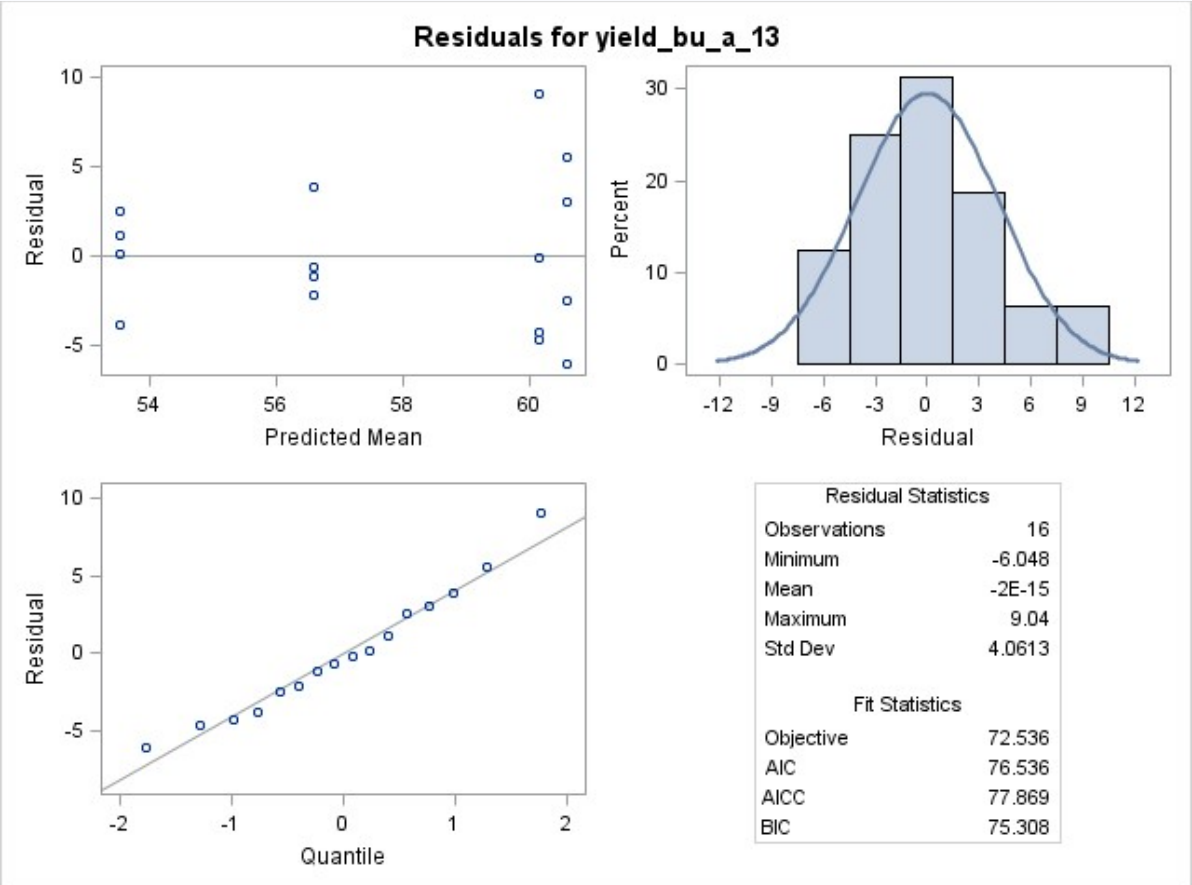
Covariance Parameter Estimates	
Cov Parm	Estimate
rep	10.1470
Residual	10.4705

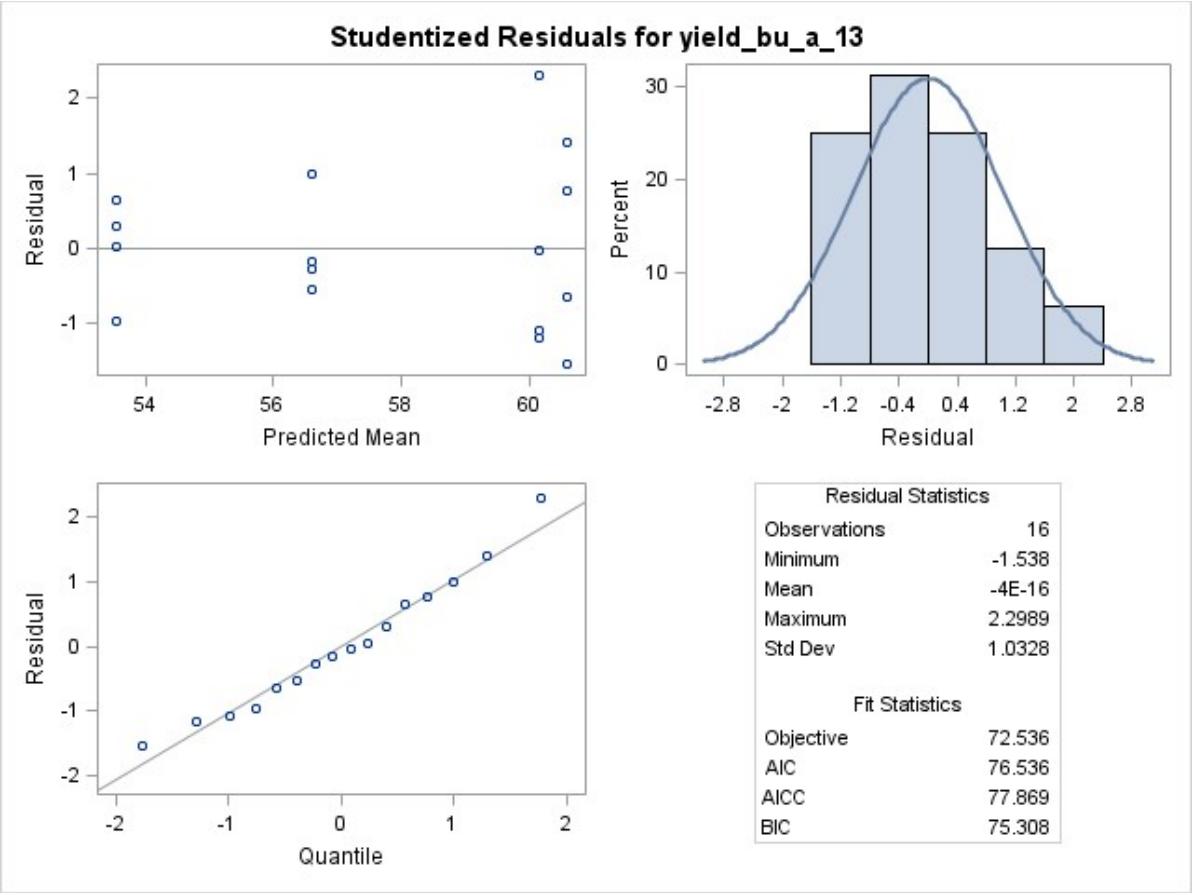
Fit Statistics	
-2 Res Log Likelihood	72.5
AIC (Smaller is Better)	76.5
AICC (Smaller is Better)	77.9
BIC (Smaller is Better)	75.3

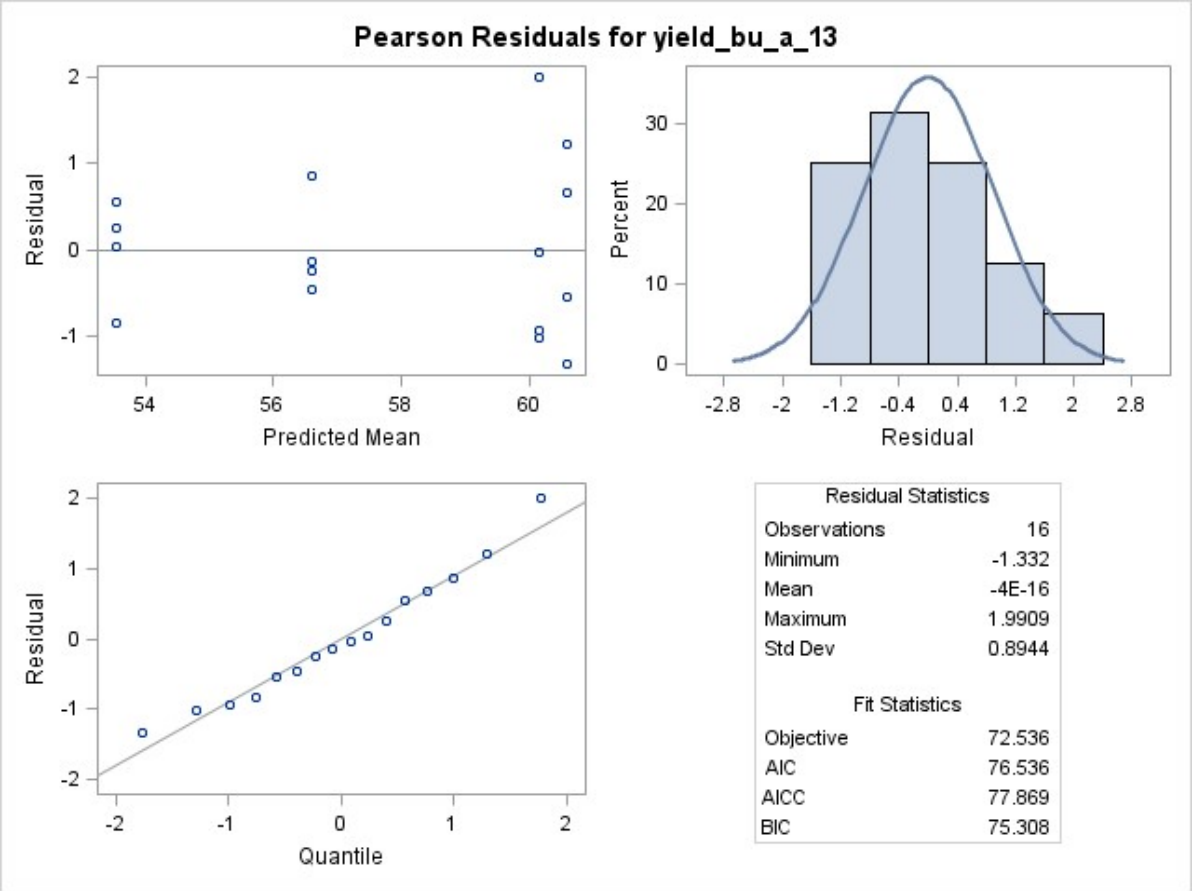
Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
variety	3	9	4.19	0.0410

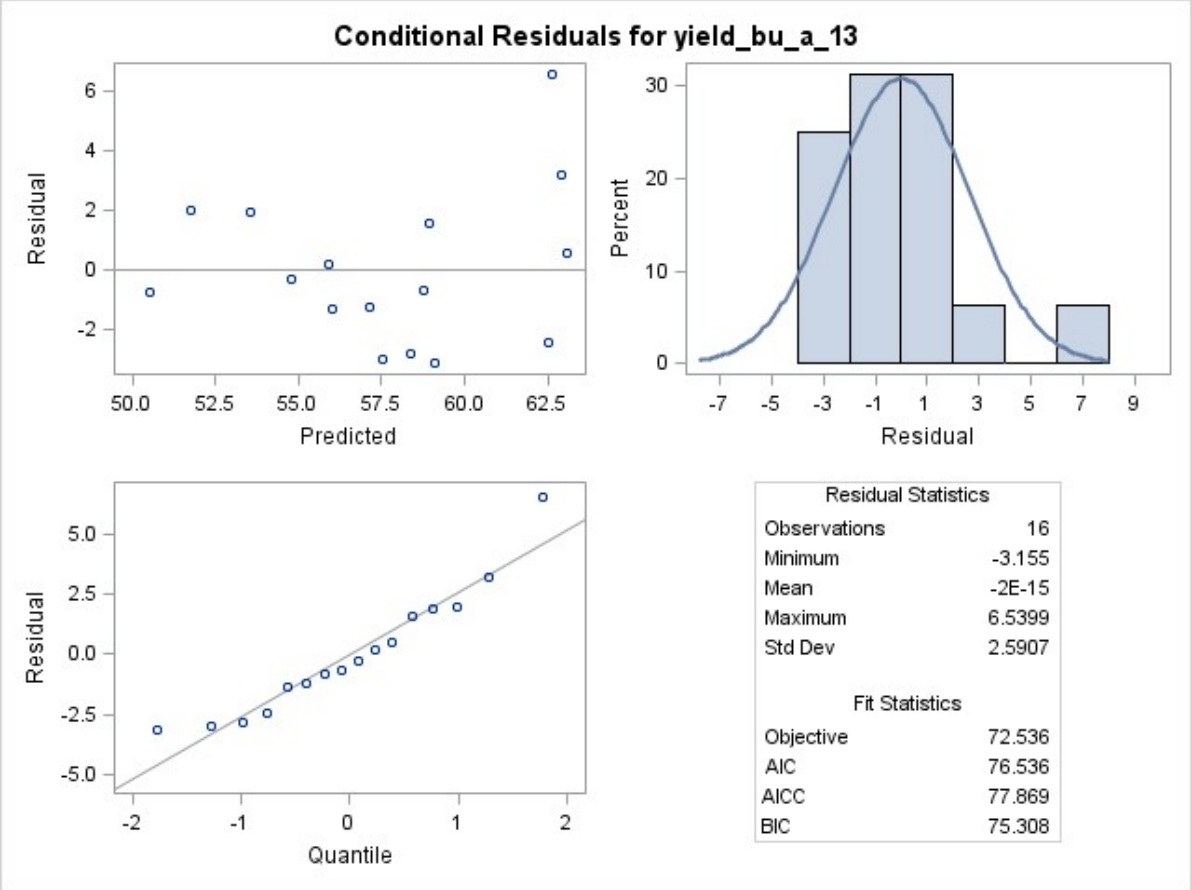
Least Squares Means						
Effect	variety	Estimate	Standard Error	DF	t Value	Pr > |t|
variety	AV45V8E	53.5375	2.2703	6.95	23.58	<.0001
variety	AV49V9E	60.5875	2.2703	6.95	26.69	<.0001
variety	USG7480ET	60.1600	2.2703	6.95	26.50	<.0001
variety	USG7491ETS	56.6050	2.2703	6.95	24.93	<.0001

Differences of Least Squares Means							
Effect	variety	_variety	Estimate	Standard Error	DF	t Value	Pr > |t|
variety	AV45V8E	AV49V9E	-7.0500	2.2881	9	-3.08	0.0131
variety	AV45V8E	USG7480ET	-6.6225	2.2881	9	-2.89	0.0178
variety	AV45V8E	USG7491ETS	-3.0675	2.2881	9	-1.34	0.2129
variety	AV49V9E	USG7480ET	0.4275	2.2881	9	0.19	0.8559
variety	AV49V9E	USG7491ETS	3.9825	2.2881	9	1.74	0.1158
variety	USG7480ET	USG7491ETS	3.5550	2.2881	9	1.55	0.1547



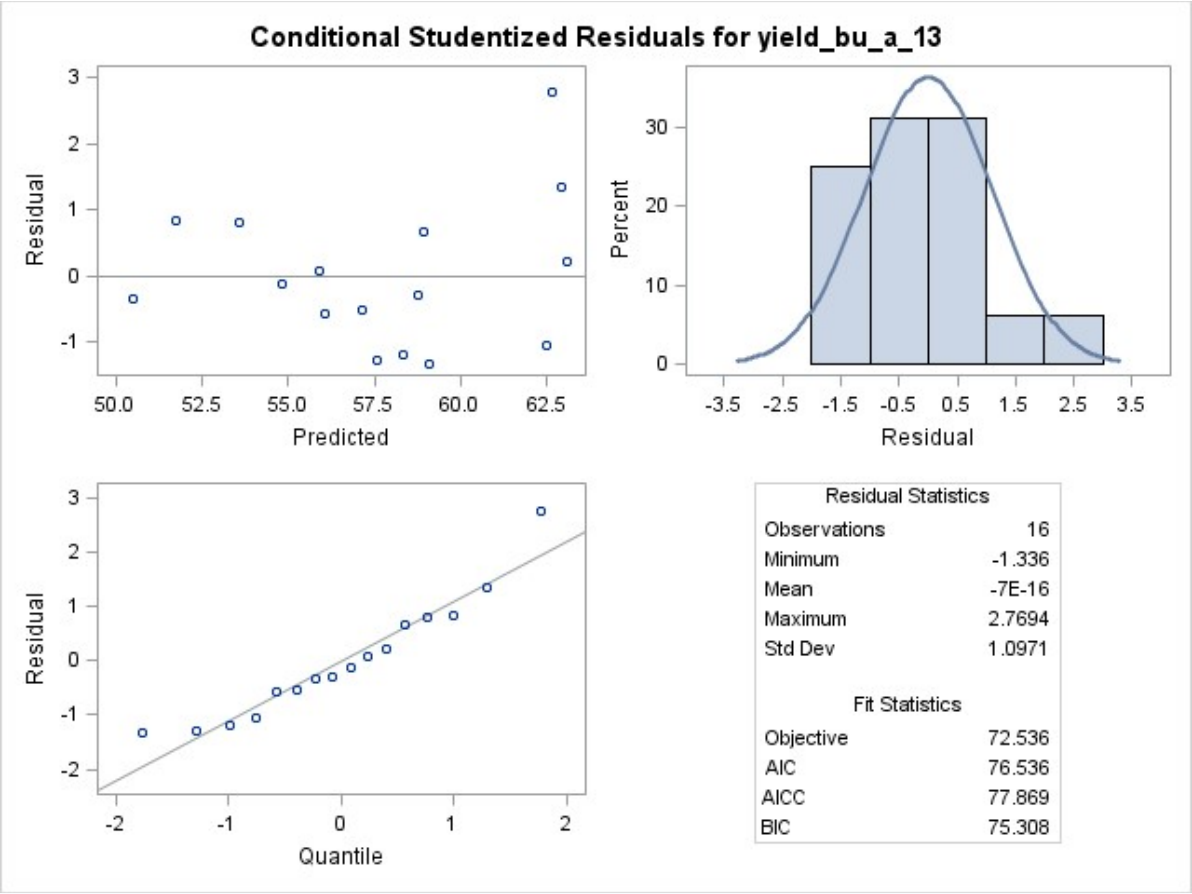

Studentized Residuals for yield_bu_a_13
Residual
Predicted Mean
Percent
Residual
Residual
Quantile
Residual Statistics
Observations 16
Minimum -1.538
Mean -4E-16
Maximum 2.2989
Std Dev 1.0328
Fit Statistics
Objective 72.536
AIC 76.536
AICC 77.869
BIC 75.308

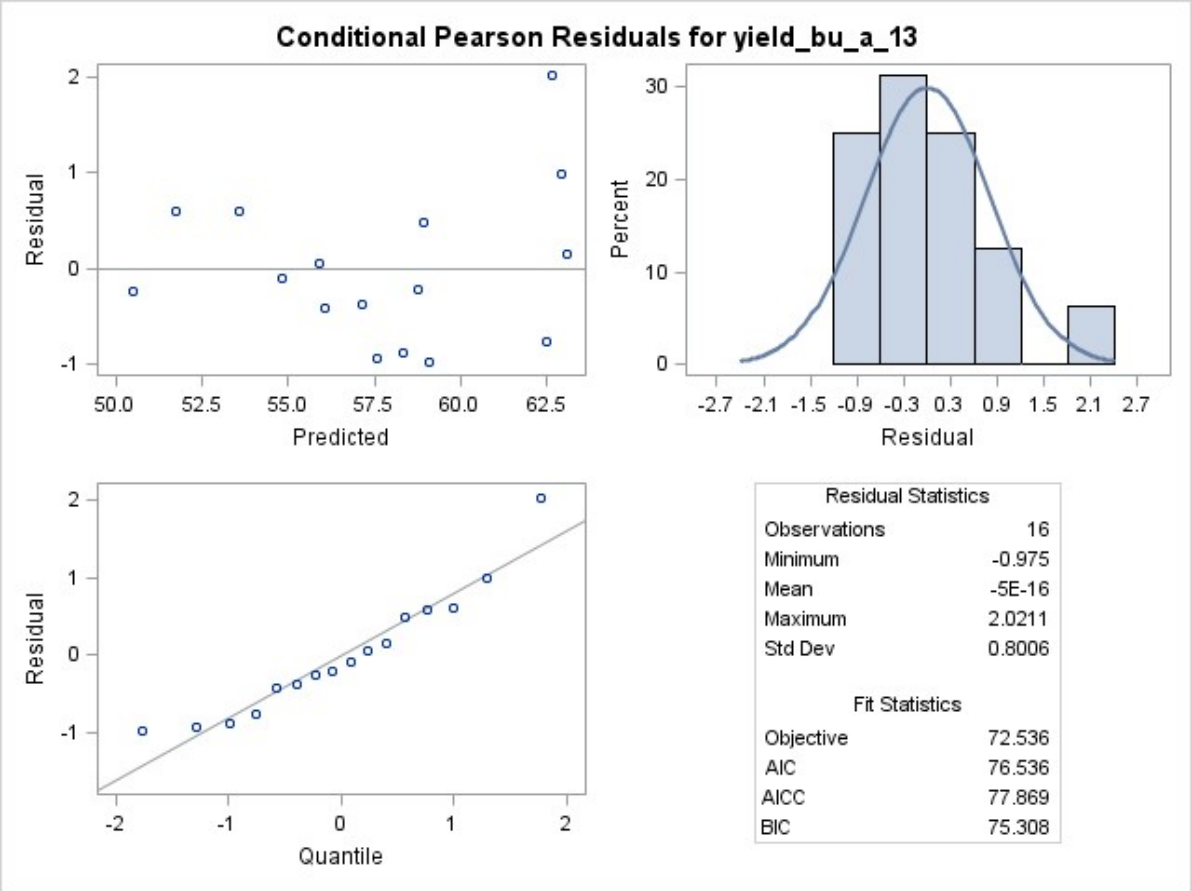

Pearson Residuals for yield_bu_a_13
Residual
Predicted Mean
Percent
Residual
Residual
Quantile
Residual Statistics
Observations 16
Minimum -1.332
Mean -4E-16
Maximum 1.9909
Std Dev 0.8944
Fit Statistics
Objective 72.536
AIC 76.536
AICC 77.869
BIC 75.308



Residual Statistics	
Observations	16
Minimum	-3.155
Mean	-2E-15
Maximum	6.5399
Std Dev	2.5907

Fit Statistics	
Objective	72.536
AIC	76.536
AICC	77.869
BIC	75.308


Conditional Studentized Residuals for yield_bu_a_13
Residual
Predicted
Percent
Residual
Residual
Quantile
Residual Statistics
Observations 16
Minimum -1.336
Mean -7E-16
Maximum 2.7694
Std Dev 1.0971
Fit Statistics
Objective 72.536
AIC 76.536
AICC 77.869
BIC 75.308


Conditional Pearson Residuals for yield_bu_a_13
Residual
Predicted
Percent
Residual
Residual
Quantile
Residual Statistics
Observations 16
Minimum -0.975
Mean -5E-16
Maximum 2.0211
Std Dev 0.8006
Fit Statistics
Objective 72.536
AIC 76.536
AICC 77.869
BIC 75.308

lsd, root mse, cv

Effect=variety Method=LSD(P<0.05) Set=1

Obs	variety	Estimate	Standard Error	Letter Group
1	AV49V9E	60.5875	2.2703	A
2	USG7480ET	60.1600	2.2703	A
3	USG7491ETS	56.6050	2.2703	AB
4	AV45V8E	53.5375	2.2703	B

lsd, root mse, cv

Obs	variety	rep	yield_bu_a_13	Pred	StdErrPred	DF	Alpha	Lower	Upper	Resid	StudentResid	PearsonResid
1	USG7491ETS	1	55.95	59.1051	2.21224	10.6581	0.05	54.2168	63.9933	-3.15506	-1.33606	-0.97504
2	AV49V9E	3	54.54	57.5548	2.21224	10.6581	0.05	52.6666	62.4431	-3.01484	-1.27668	-0.93171
3	USG7480ET	2	55.53	58.3515	2.21224	10.6581	0.05	53.4633	63.2398	-2.82153	-1.19482	-0.87197
4	USG7480ET	4	60.02	62.5011	2.21224	10.6581	0.05	57.6128	67.3893	-2.48107	-1.05065	-0.76675
5	AV45V8E	1	54.71	56.0376	2.21224	10.6581	0.05	51.1493	60.9258	-1.32756	-0.56217	-0.41027
6	USG7480ET	3	55.89	57.1273	2.21224	10.6581	0.05	52.2391	62.0156	-1.23734	-0.52397	-0.38239
7	AV45V8E	3	49.71	50.5048	2.21224	10.6581	0.05	45.6166	55.3931	-0.79484	-0.33659	-0.24564
8	AV49V9E	2	58.10	58.7790	2.21224	10.6581	0.05	53.8908	63.6673	-0.67903	-0.28755	-0.20985
9	USG7491ETS	2	54.48	54.7965	2.21224	10.6581	0.05	49.9083	59.6848	-0.31653	-0.13404	-0.09782
10	AV45V8E	4	56.05	55.8786	2.21224	10.6581	0.05	50.9903	60.7668	0.17143	0.07259	0.05298
11	AV49V9E	1	63.61	63.0876	2.21224	10.6581	0.05	58.1993	67.9758	0.52244	0.22124	0.16146
12	USG7491ETS	4	60.50	58.9461	2.21224	10.6581	0.05	54.0578	63.8343	1.55393	0.65803	0.48023
13	USG7491ETS	3	55.49	53.5723	2.21224	10.6581	0.05	48.6841	58.4606	1.91766	0.81206	0.59263
14	AV45V8E	2	53.68	51.7290	2.21224	10.6581	0.05	46.8408	56.6173	1.95097	0.82617	0.60293
15	AV49V9E	4	66.10	62.9286	2.21224	10.6581	0.05	58.0403	67.8168	3.17143	1.34299	0.98010
16	USG7480ET	1	69.20	62.6601	2.21224	10.6581	0.05	57.7718	67.5483	6.53994	2.76944	2.02111