

The SAS System

Obs	variety	rep	yield_bu_a_13
1	DG48E28	1	44.70
2	AG43X8	1	53.21
3	USG7487XTS	1	50.44
4	AG48X9	1	50.61
5	DG48E28	2	40.97
6	AG43X8	2	41.25
7	USG7487XTS	2	50.04
8	AG48X9	2	50.09
9	DG48E28	3	47.80
10	AG43X8	3	57.36
11	USG7487XTS	3	57.28
12	AG48X9	3	55.25
13	DG48E28	4	58.97
14	AG43X8	4	59.55
15	USG7487XTS	4	60.61
16	AG48X9	4	55.45

lsd, root mse, cv**The GLM Procedure**

Class Level Information		
Class	Levels	Values
rep	4	1 2 3 4
variety	4	AG43X8 AG48X9 DG48E28 USG7487XTS

Number of Observations Read	16
Number of Observations Used	16

lsd, root mse, cv

The GLM Procedure

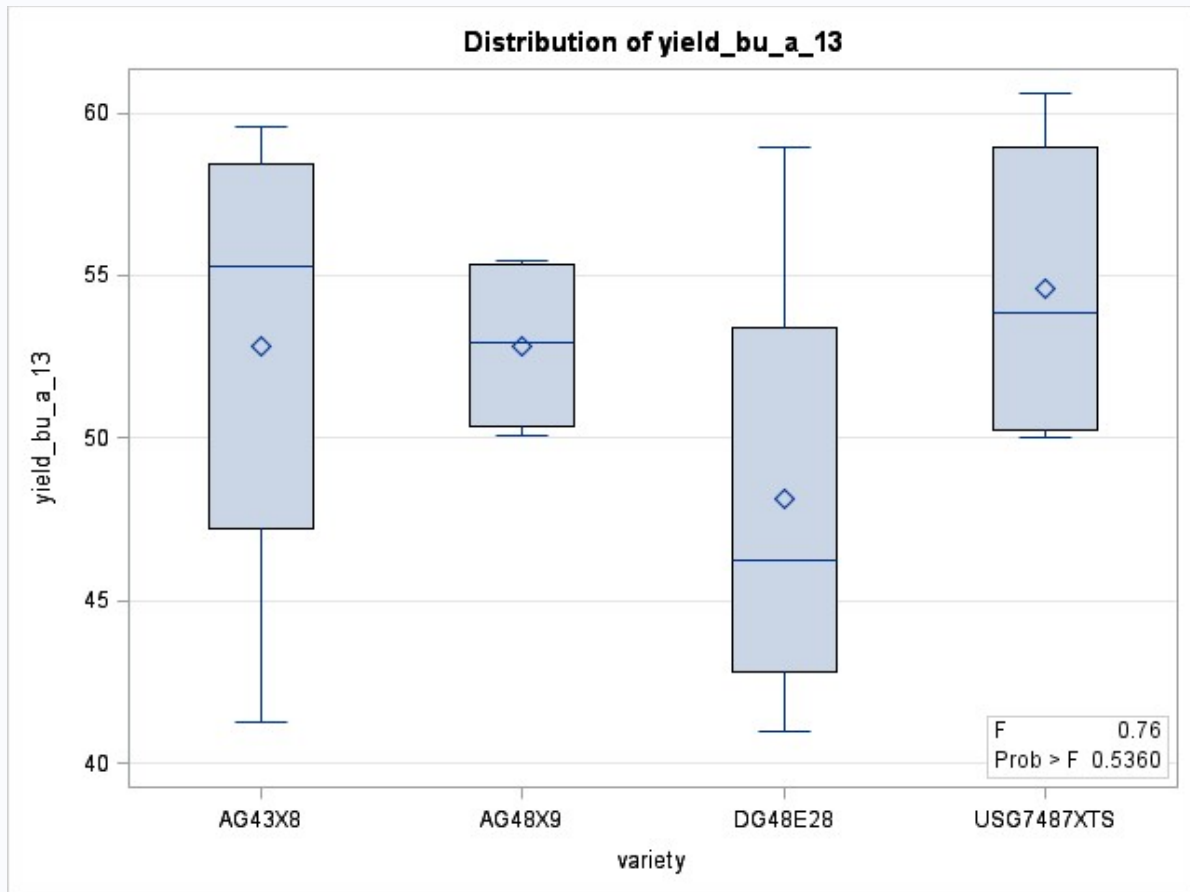
Dependent Variable: yield_bu_a_13

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	92.9858250	30.9952750	0.76	0.5360
Error	12	487.1195500	40.5932958		
Corrected Total	15	580.1053750			

R-Square	Coeff Var	Root MSE	yield_bu_a_13 Mean
0.160291	12.22925	6.371287	52.09875

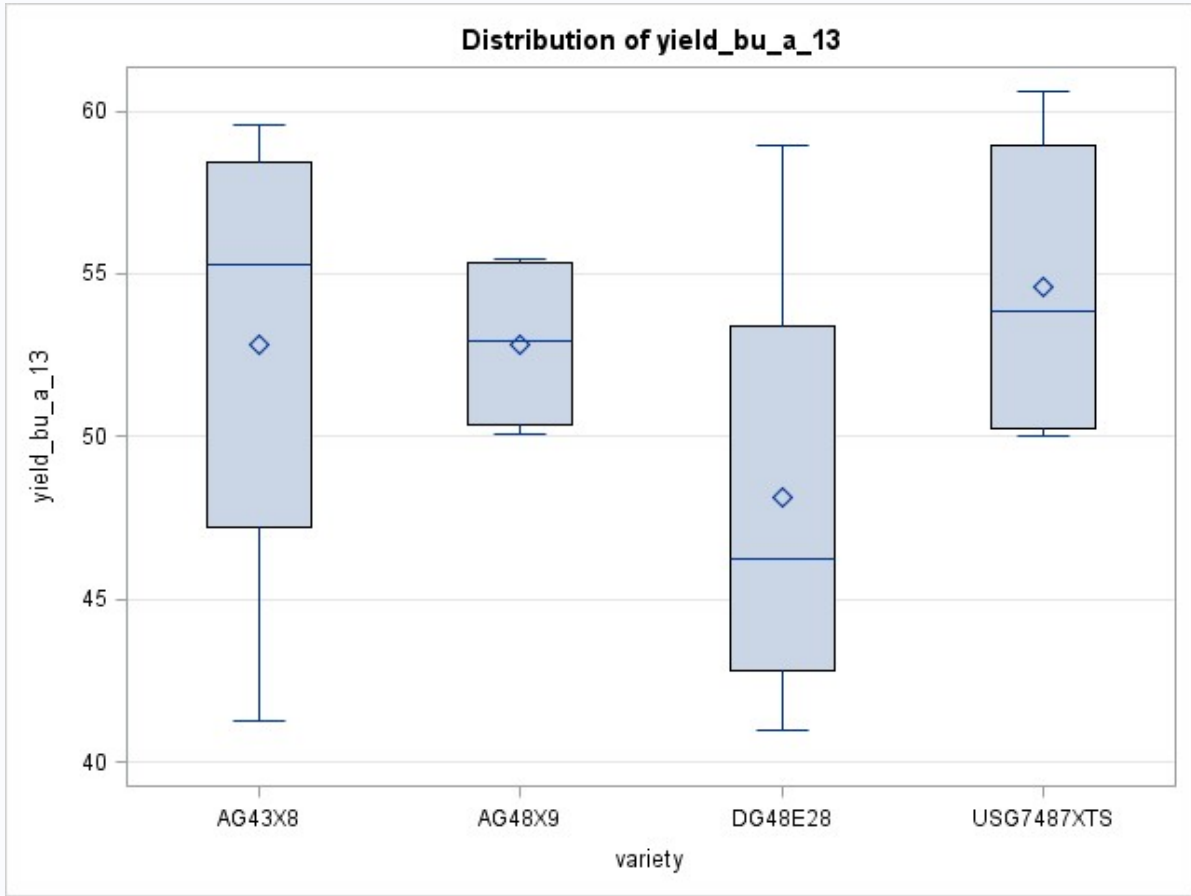
Source	DF	Type I SS	Mean Square	F Value	Pr > F
variety	3	92.98582500	30.99527500	0.76	0.5360

Source	DF	Type III SS	Mean Square	F Value	Pr > F
variety	3	92.98582500	30.99527500	0.76	0.5360



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	40.5933
Critical Value of t	1.78229
Least Significant Difference	8.0295

Means with the same letter are not significantly different.			
t Grouping	Mean	N	variety
A	54.593	4	USG7487XTS
A			
A	52.850	4	AG48X9
A			
A	52.843	4	AG43X8
A			
A	48.110	4	DG48E28

lsm, 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	AG43X8 AG48X9 DG48E28 USG7487XTS

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	84.04293735	
1	1	76.03566224	0.00000000

Convergence criteria met.

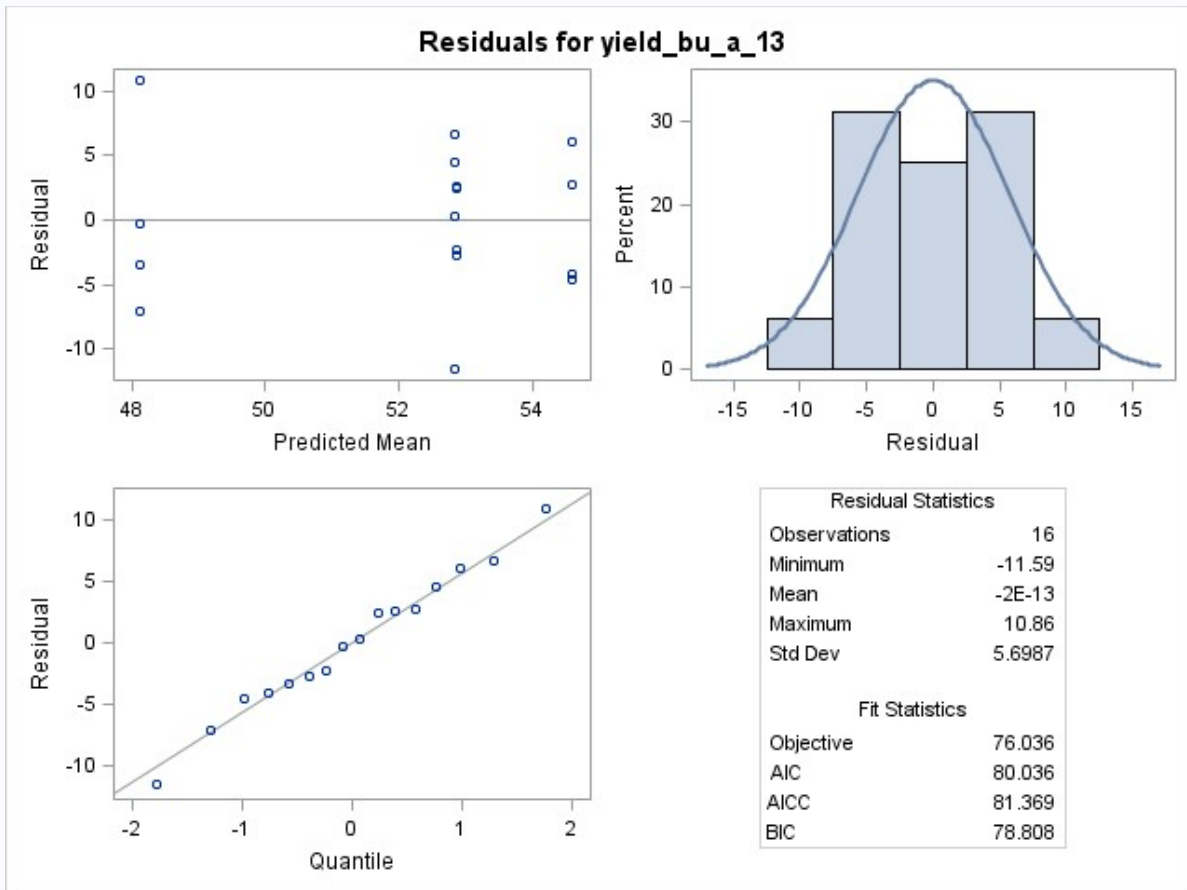
Covariance Parameter Estimates	
Cov Parm	Estimate
rep	29.2304
Residual	11.3629

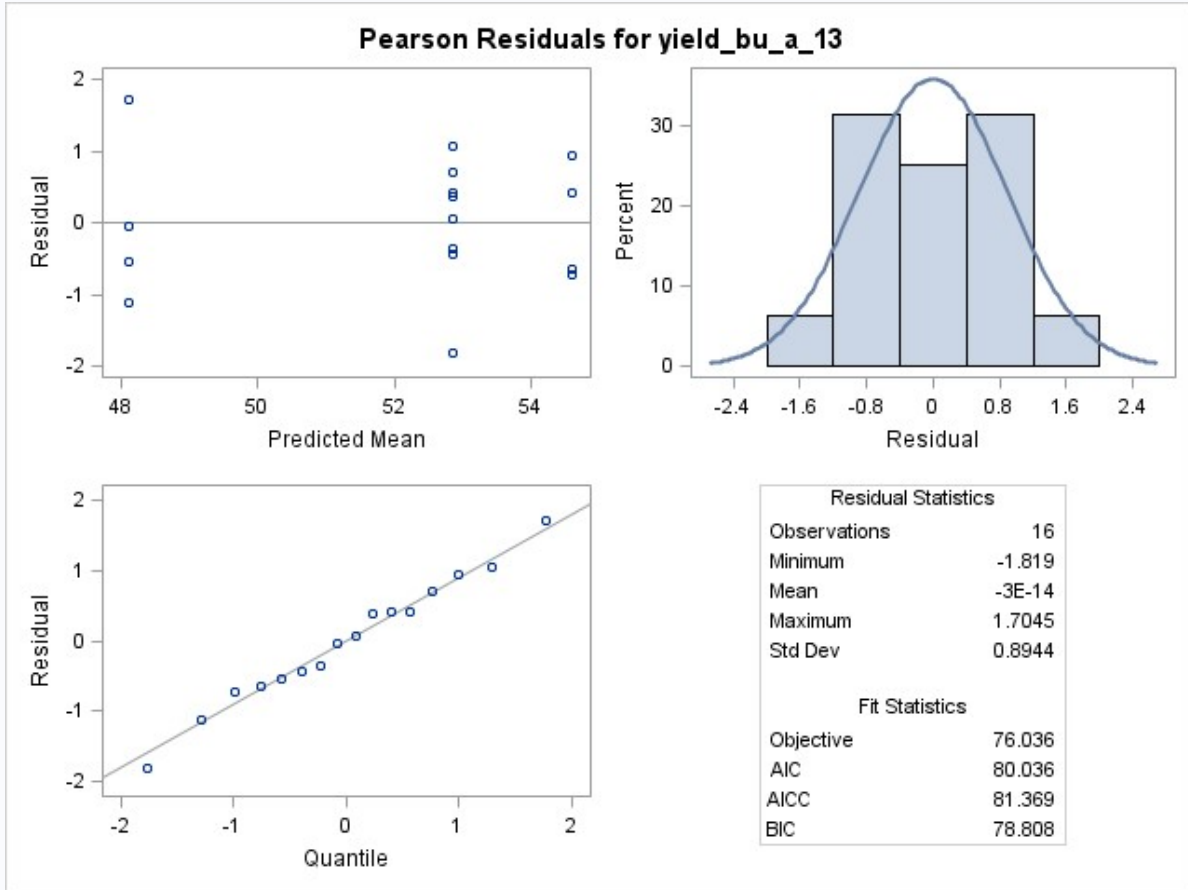
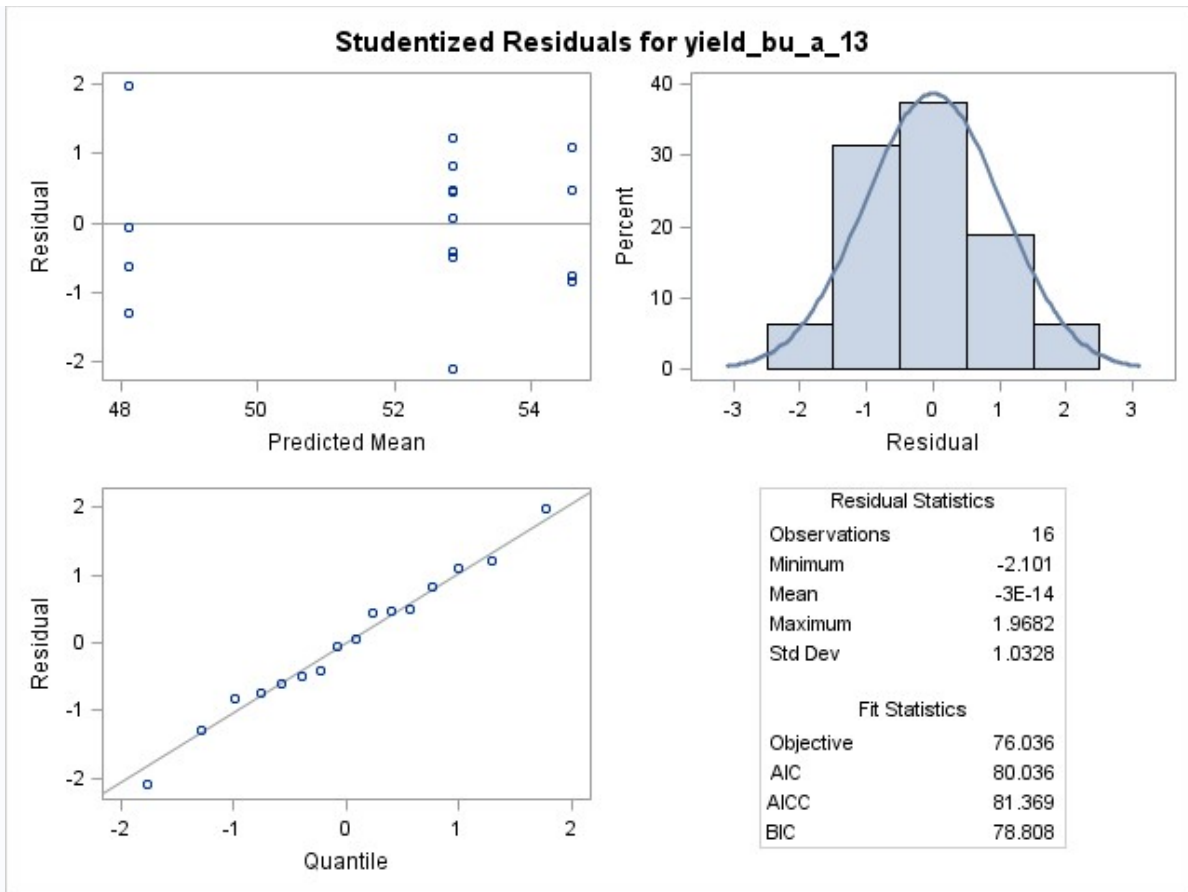
Fit Statistics	
-2 Res Log Likelihood	76.0
AIC (Smaller is Better)	80.0
AICC (Smaller is Better)	81.4
BIC (Smaller is Better)	78.8

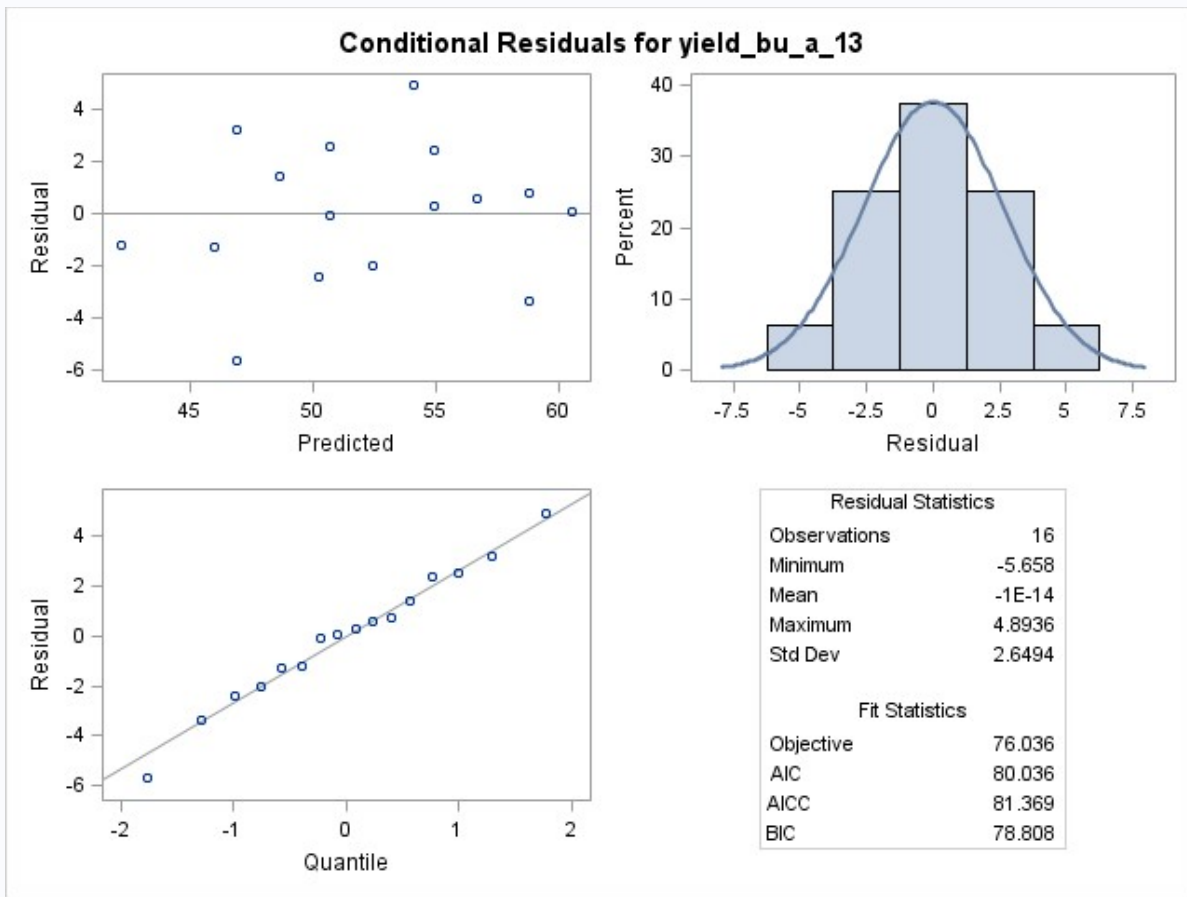
Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
variety	3	9	2.73	0.1063

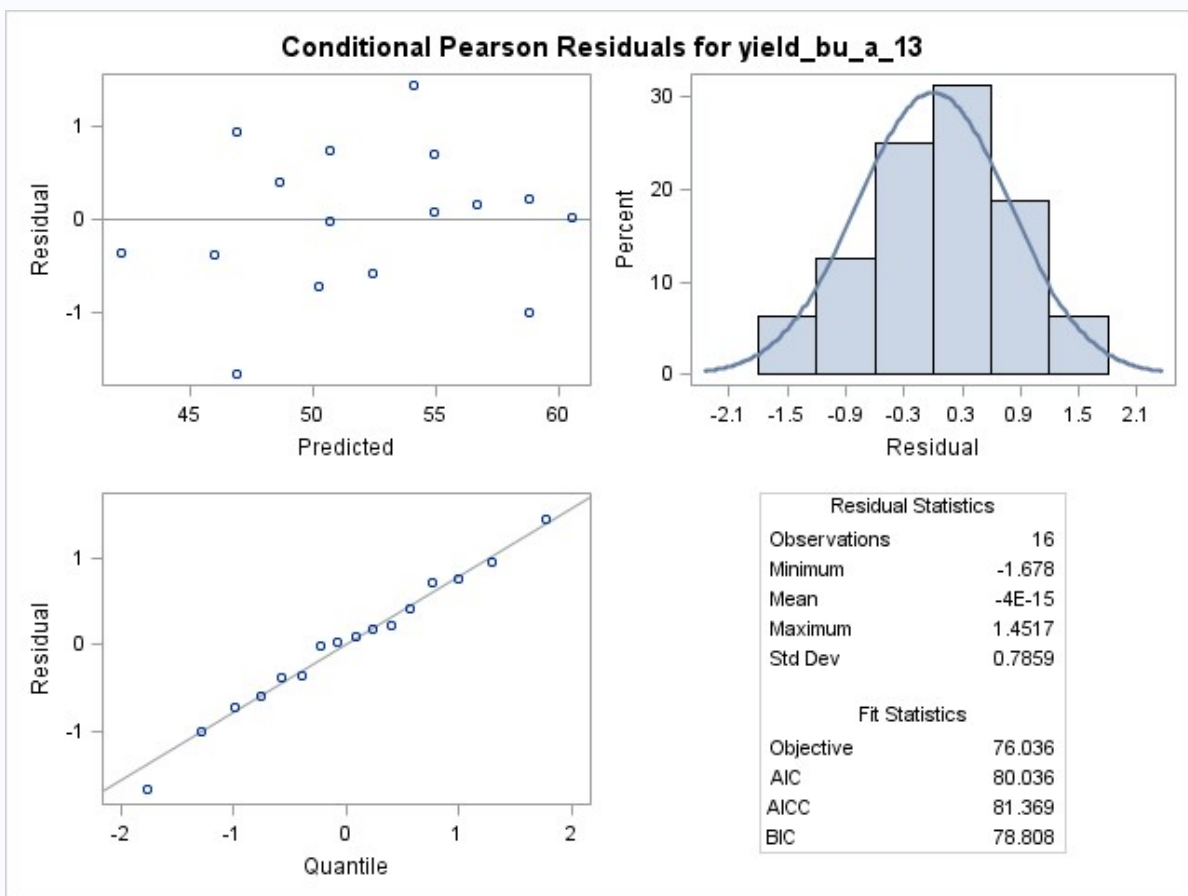
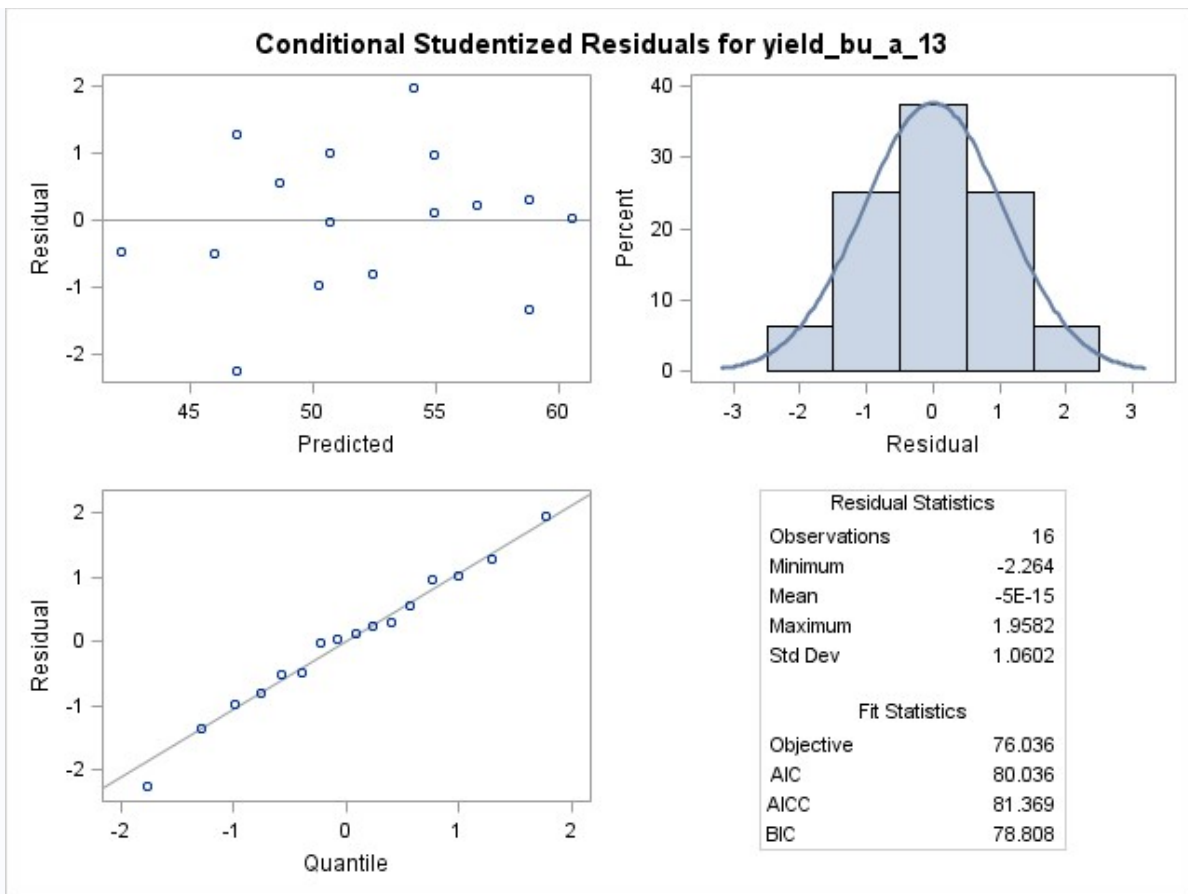
Least Squares Means						
Effect	variety	Estimate	Standard Error	DF	t Value	Pr > t
variety	AG43X8	52.8425	3.1856	4.7	16.59	<.0001
variety	AG48X9	52.8500	3.1856	4.7	16.59	<.0001
variety	DG48E28	48.1100	3.1856	4.7	15.10	<.0001
variety	USG7487XTS	54.5925	3.1856	4.7	17.14	<.0001

Differences of Least Squares Means							
Effect	variety	_variety	Estimate	Standard Error	DF	t Value	Pr > t
variety	AG43X8	AG48X9	-0.00750	2.3836	9	-0.00	0.9976
variety	AG43X8	DG48E28	4.7325	2.3836	9	1.99	0.0784
variety	AG43X8	USG7487XTS	-1.7500	2.3836	9	-0.73	0.4815
variety	AG48X9	DG48E28	4.7400	2.3836	9	1.99	0.0780
variety	AG48X9	USG7487XTS	-1.7425	2.3836	9	-0.73	0.4834
variety	DG48E28	USG7487XTS	-6.4825	2.3836	9	-2.72	0.0236









lsd, root mse, cv

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

Obs	variety	Estimate	Standard Error	Letter Group
1	USG7487XTS	54.5925	3.1856	A
2	AG48X9	52.8500	3.1856	AB
3	AG43X8	52.8425	3.1856	AB
4	DG48E28	48.1100	3.1856	B

lsd, root mse, cv

Obs	variety	rep	yield_bu_a_13	Pred	StdErrPred	DF	Alpha	Lower	Upper	Resid	StudentResid	PearsonResid
1	AG43X8	2	41.25	46.9080	2.26231	9.70549	0.05	41.8464	51.9696	-5.65799	-2.26413	-1.67848
2	AG48X9	4	55.45	58.8164	2.26231	9.70549	0.05	53.7548	63.8780	-3.36641	-1.34712	-0.99867
3	DG48E28	3	47.80	50.2279	2.26231	9.70549	0.05	45.1664	55.2895	-2.42792	-0.97157	-0.72026
4	USG7487XTS	1	50.44	52.4427	2.26231	9.70549	0.05	47.3811	57.5042	-2.00268	-0.80140	-0.59411
5	DG48E28	1	44.70	45.9602	2.26231	9.70549	0.05	40.8986	51.0217	-1.26018	-0.50428	-0.37384
6	DG48E28	2	40.97	42.1755	2.26231	9.70549	0.05	37.1139	47.2371	-1.20549	-0.48239	-0.35762
7	AG48X9	1	50.61	50.7002	2.26231	9.70549	0.05	45.6386	55.7617	-0.09018	-0.03609	-0.02675
8	USG7487XTS	4	60.61	60.5589	2.26231	9.70549	0.05	55.4973	65.6205	0.05109	0.02045	0.01516
9	AG48X9	3	55.25	54.9679	2.26231	9.70549	0.05	49.9064	60.0295	0.28208	0.11288	0.08368
10	USG7487XTS	3	57.28	56.7104	2.26231	9.70549	0.05	51.6489	61.7720	0.56958	0.22793	0.16897
11	AG43X8	4	59.55	58.8089	2.26231	9.70549	0.05	53.7473	63.8705	0.74109	0.29656	0.21985
12	USG7487XTS	2	50.04	48.6580	2.26231	9.70549	0.05	43.5964	53.7196	1.38201	0.55303	0.40998
13	AG43X8	3	57.36	54.9604	2.26231	9.70549	0.05	49.8989	60.0220	2.39958	0.96023	0.71185
14	AG43X8	1	53.21	50.6927	2.26231	9.70549	0.05	45.6311	55.7542	2.51732	1.00734	0.74678
15	AG48X9	2	50.09	46.9155	2.26231	9.70549	0.05	41.8539	51.9771	3.17451	1.27032	0.94174
16	DG48E28	4	58.97	54.0764	2.26231	9.70549	0.05	49.0148	59.1380	4.89359	1.95824	1.45172