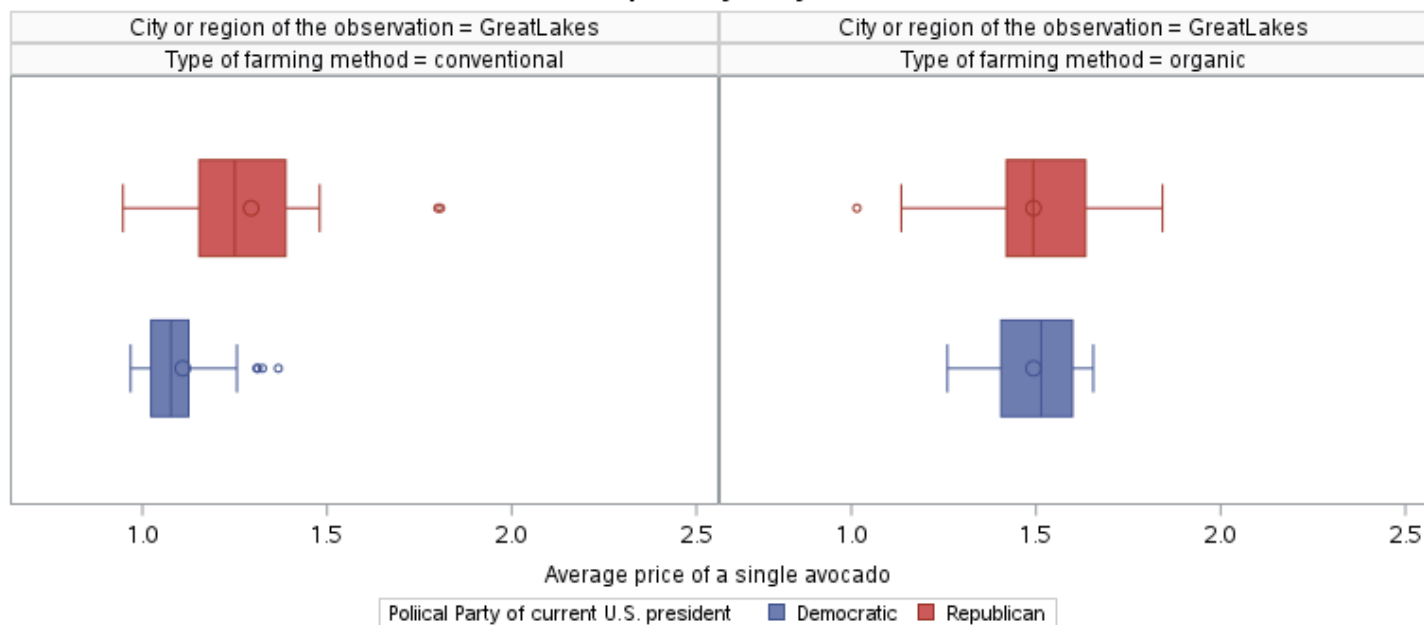
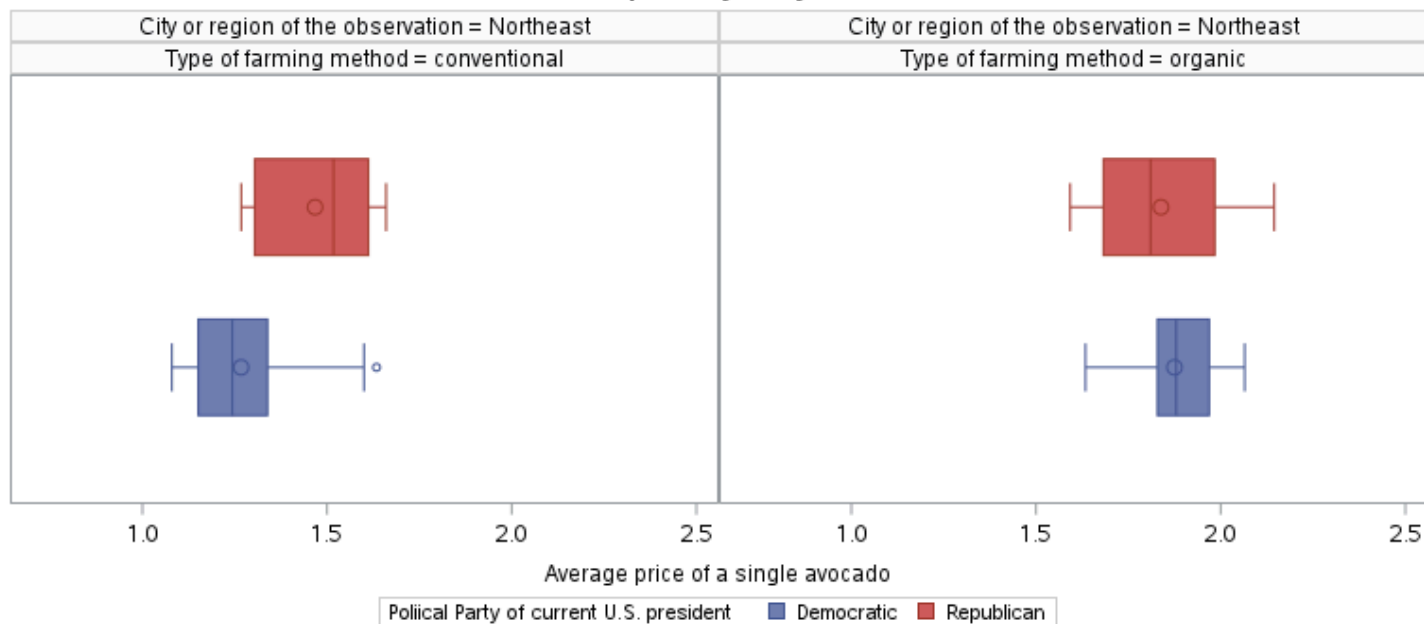


Exploratory analysis



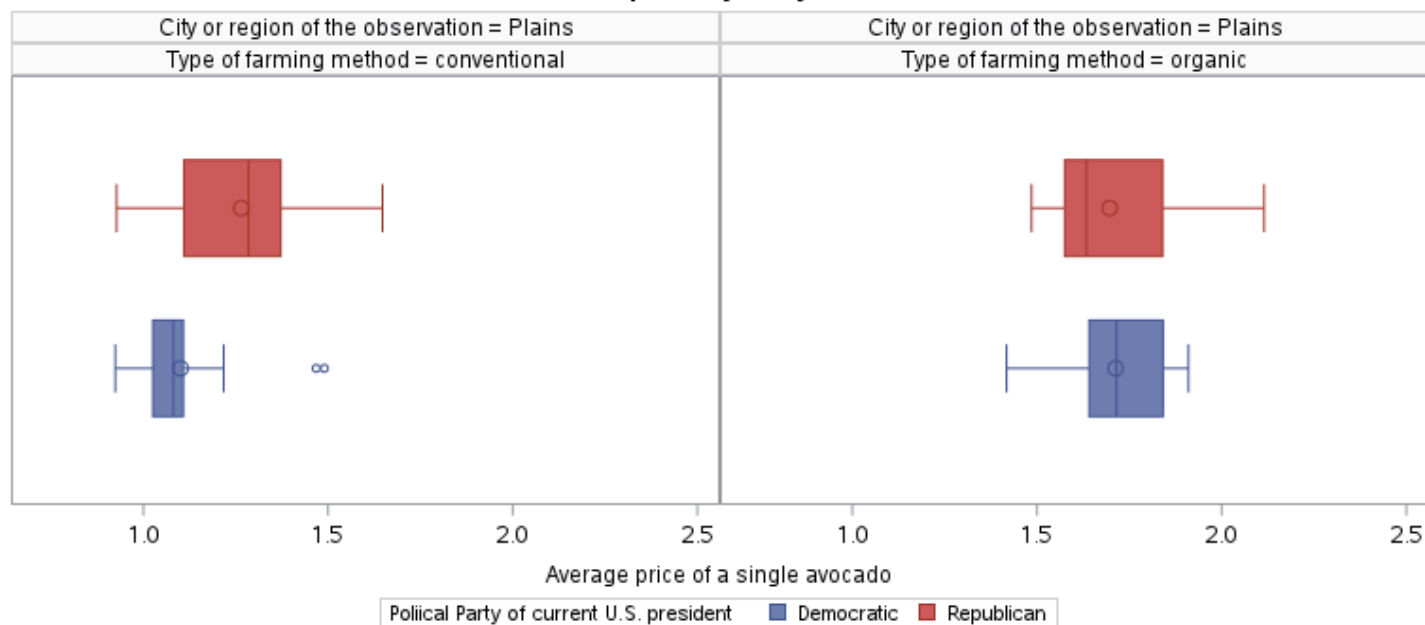
Analysis script run on 30APR25 at 17:09

Exploratory analysis



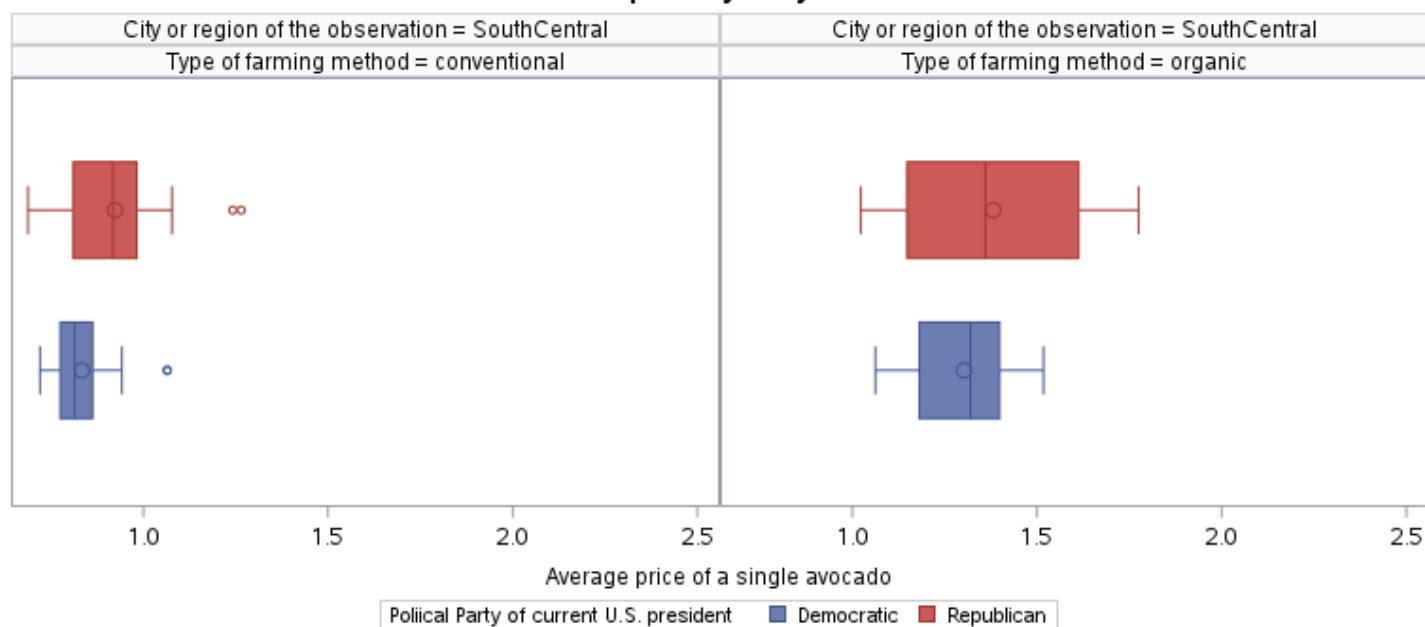
Analysis script run on 30APR25 at 17:09

Exploratory analysis



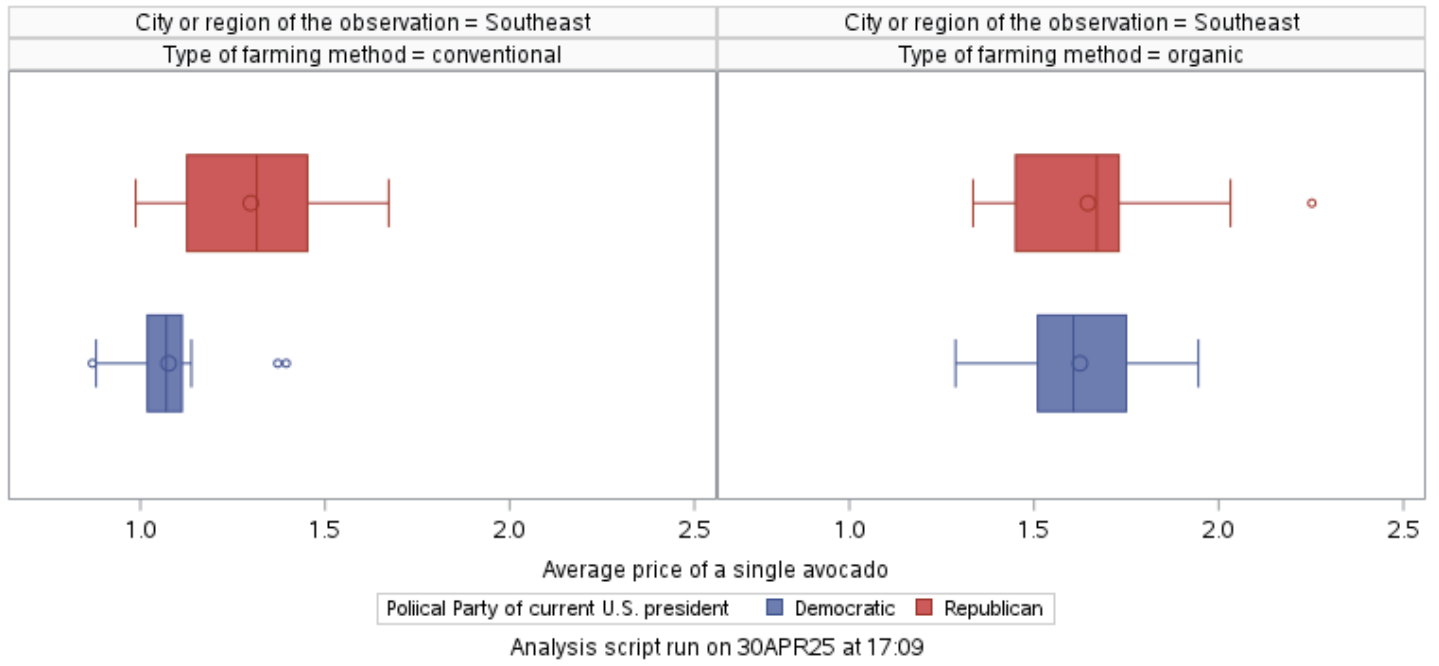
Analysis script run on 30APR25 at 17:09

Exploratory analysis

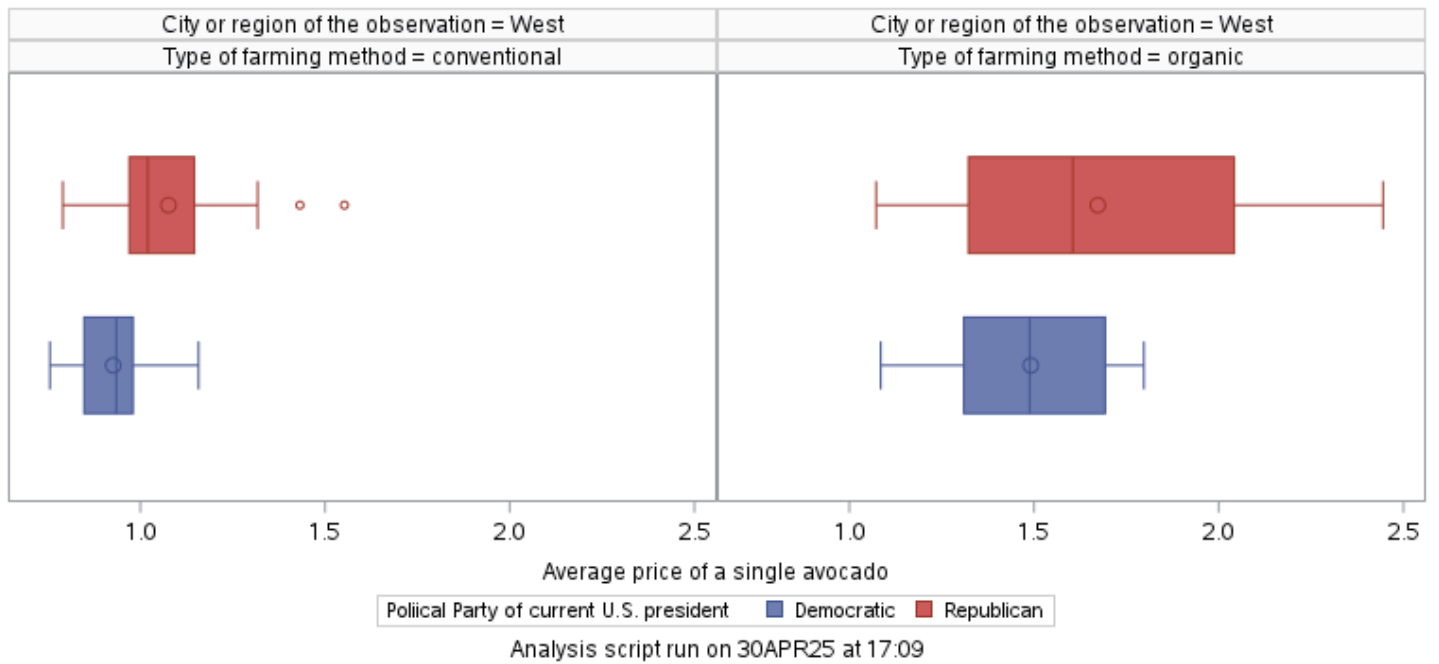


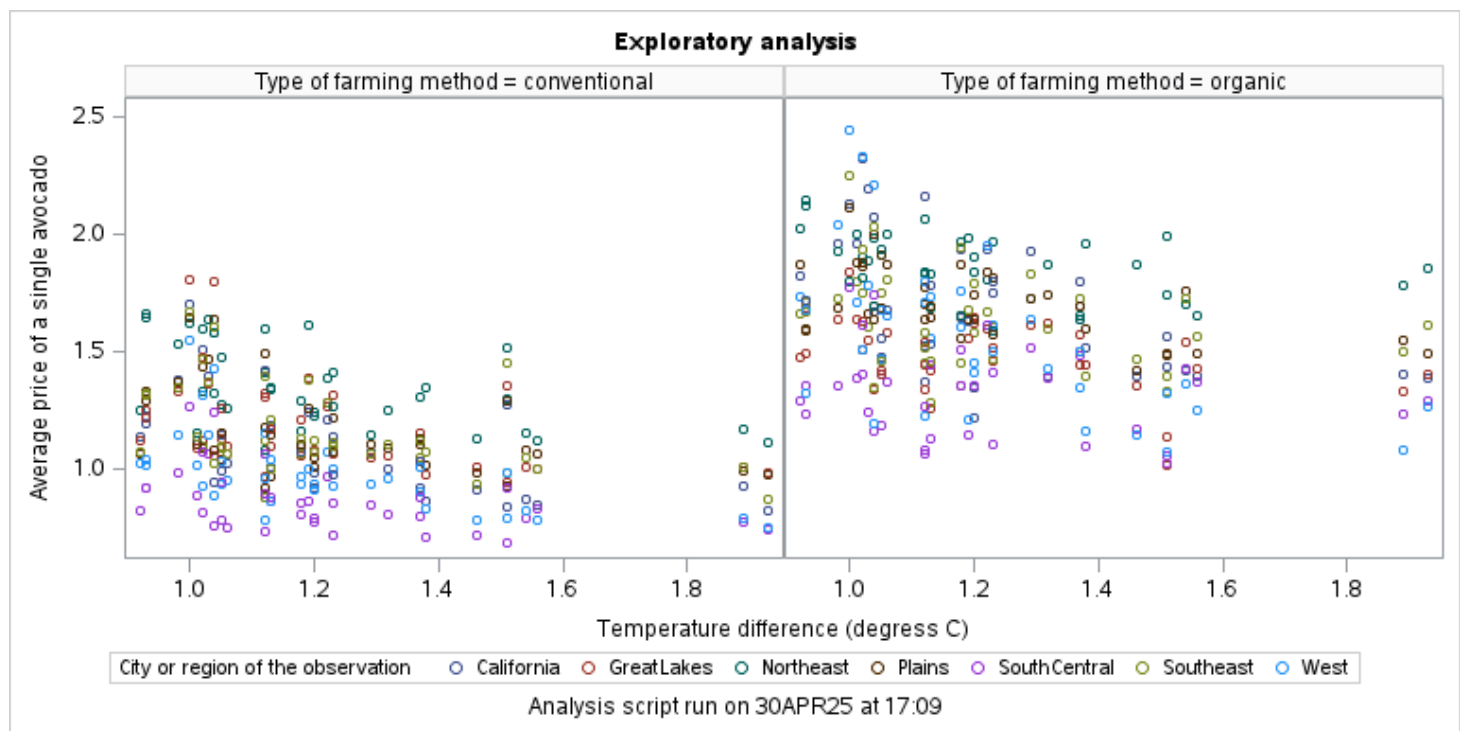
Analysis script run on 30APR25 at 17:09

Exploratory analysis



Exploratory analysis





Exploratory analysis

The UNIVARIATE Procedure
Variable: avgprice (Average price of a single avocado)
type = conventional

Moments			
N	273	Sum Weights	273
Mean	1.1153956	Sum Observations	304.503
Std Deviation	0.22888502	Variance	0.05238835
Skewness	0.64842948	Kurtosis	0.10512793
Uncorrected SS	353.89094	Corrected SS	14.2496318
Coeff Variation	20.5205237	Std Error Mean	0.01385275

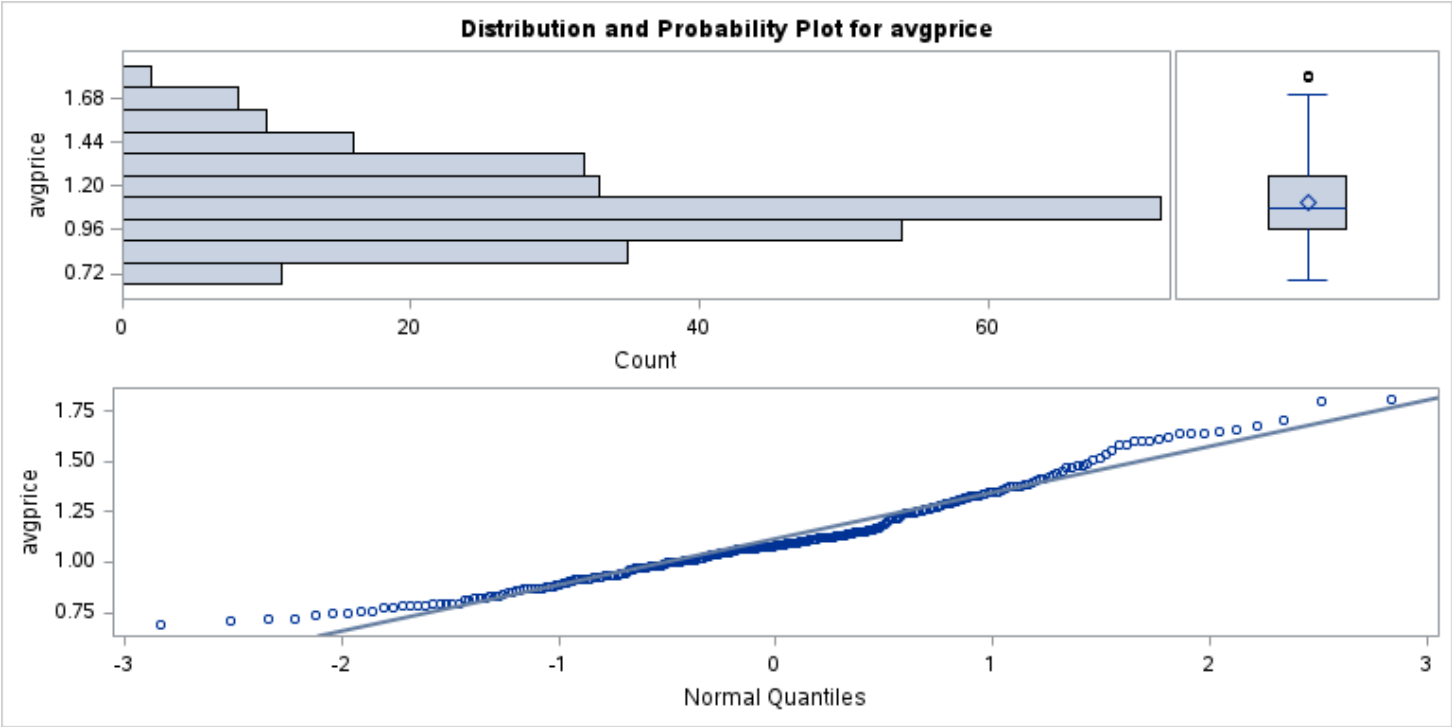
Basic Statistical Measures			
Location		Variability	
Mean	1.115396	Std Deviation	0.22889
Median	1.080000	Variance	0.05239
Mode	1.065000	Range	1.12000
		Interquartile Range	0.29800

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	80.51798	Pr > t	<.0001
Sign	M	136.5	Pr >= M	<.0001
Signed Rank	S	18700.5	Pr >= S	<.0001

Quantiles (Definition 5)	
Level	Quantile
100% Max	1.8075
99%	1.7050
95%	1.5975
90%	1.4320

Quantiles (Definition 5)	
Level	Quantile
75% Q3	1.2580
50% Median	1.0800
25% Q1	0.9600
10%	0.8340
5%	0.7860
1%	0.7200
0% Min	0.6875

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0.6875	180	1.6600	206
0.7120	173	1.6725	230
0.7200	110	1.7050	225
0.7225	264	1.8000	233
0.7360	117	1.8075	226



Analysis script run on 30APR25 at 17:09

Exploratory analysis

The UNIVARIATE Procedure
Variable: avgprice (Average price of a single avocado)
type = organic

Moments			
N	273	Sum Weights	273
Mean	1.61021612	Sum Observations	439.589
Std Deviation	0.26444607	Variance	0.06993172
Skewness	0.20152887	Kurtosis	0.00292548
Uncorrected SS	726.854721	Corrected SS	19.0214282
Coeff Variation	16.4230169	Std Error Mean	0.016005

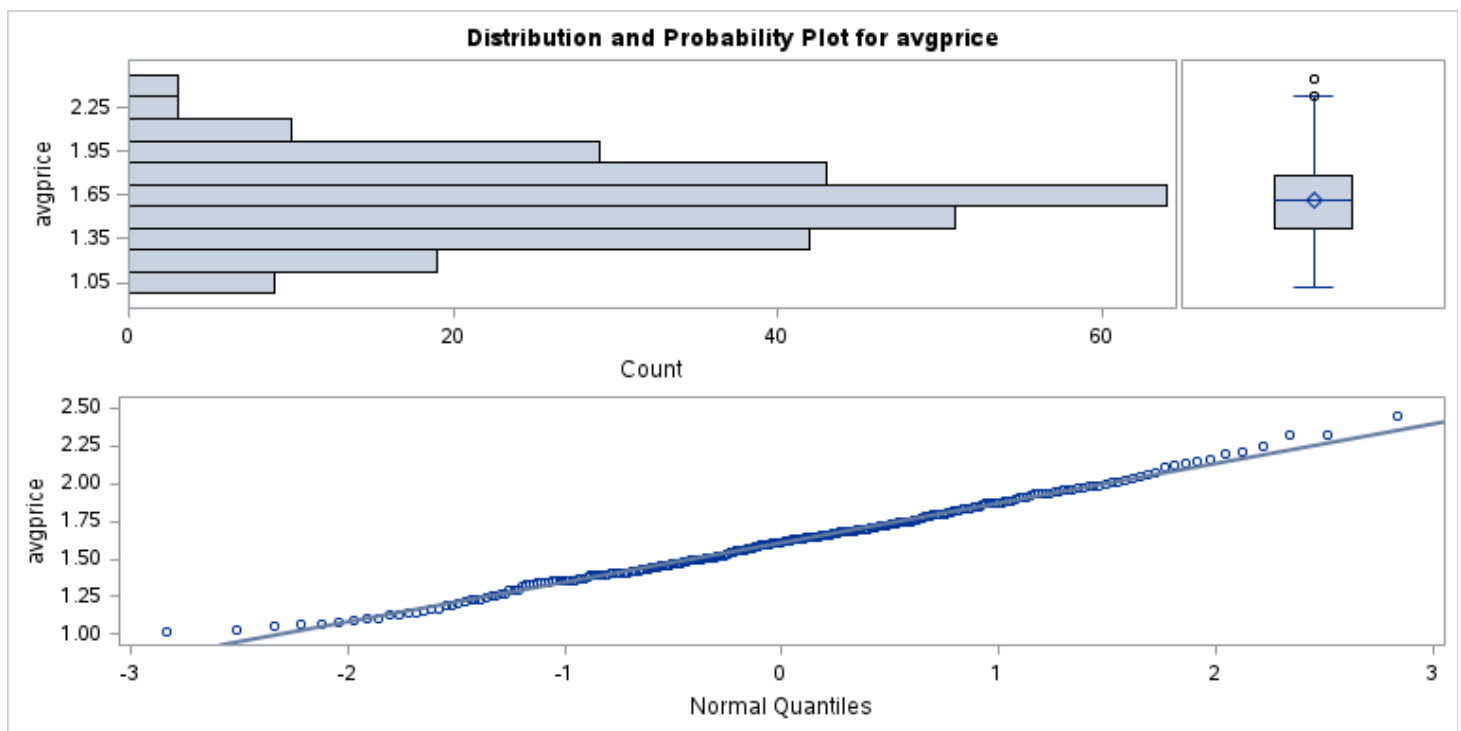
Basic Statistical Measures			
Location		Variability	
Mean	1.610216	Std Deviation	0.26445
Median	1.612500	Variance	0.06993
Mode	1.612500	Range	1.43000
		Interquartile Range	0.36200

Note: The mode displayed is the smallest of 4 modes with a count of 3.

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	100.607	Pr > t	<.0001
Sign	M	136.5	Pr >= M	<.0001
Signed Rank	S	18700.5	Pr >= S	<.0001

Quantiles (Definition 5)	
Level	Quantile
100% Max	2.4450
99%	2.3250
95%	2.0420
90%	1.9500
75% Q3	1.7820
50% Median	1.6125
25% Q1	1.4200
10%	1.2700
5%	1.1600
1%	1.0575
0% Min	1.0150

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
1.0150	450	2.2120	511
1.0225	460	2.2525	503
1.0575	453	2.3250	491
1.0625	411	2.3275	497
1.0725	462	2.4450	504



Analysis script run on 30APR25 at 17:09

Exploratory analysis

The CORR Procedure

Type of farming method=conventional

2 Variables: temp avgprice

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
temp	273	1.21692	0.23826	332.22000	0.92000	1.93000	Temperature difference (degress C)
avgprice	273	1.11540	0.22889	304.50300	0.68750	1.80750	Average price of a single avocado

Pearson Correlation Coefficients, N = 273 Prob > r under H0: Rho=0		
	temp	avgprice
temp Temperature difference (degress C)	1.00000	-0.38429 <.0001
avgprice Average price of a single avocado	-0.38429 <.0001	1.00000

Analysis script run on 30APR25 at 17:09

Exploratory analysis

The CORR Procedure

Type of farming method=organic

2 Variables: temp avgprice

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
temp	273	1.21692	0.23826	332.22000	0.92000	1.93000	Temperature difference (degress C)

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
avgprice	273	1.61022	0.26445	439.58900	1.01500	2.44500	Average price of a single avocado

Pearson Correlation Coefficients, N = 273 Prob > r under H0: Rho=0		
	temp	avgprice
temp Temperature difference (degress C)	1.00000	-0.34282 <.0001
avgprice Average price of a single avocado	-0.34282 <.0001	1.00000

Analysis script run on 30APR25 at 17:09

Exploratory analysis

The MEANS Procedure

Type of farming method=conventional

Analysis Variable : avgprice Average price of a single avocado							
Month Number	N Obs	N	Mean	Std Dev	Minimum	Maximum	
1	28	28	1.0253214	0.1668468	0.7120000	1.3500000	
2	28	28	0.9597321	0.1619190	0.6875000	1.3025000	
3	28	28	1.0844643	0.1944606	0.7775000	1.5175000	
4	21	21	1.0810000	0.2257563	0.7200000	1.6120000	
5	21	21	1.0558810	0.2197432	0.7360000	1.6425000	
6	21	21	1.0977381	0.2070838	0.7500000	1.6600000	
7	21	21	1.1762619	0.1810638	0.8225000	1.5320000	
8	21	21	1.2081190	0.2102268	0.8880000	1.5975000	
9	21	21	1.2673810	0.2942039	0.8600000	1.8075000	
10	21	21	1.3124286	0.2682060	0.8500000	1.8000000	
11	21	21	1.1844762	0.2094698	0.7980000	1.6000000	
12	21	21	1.0241667	0.1528962	0.7575000	1.3250000	

Type of farming method=organic

Analysis Variable : avgprice Average price of a single avocado							
Month Number	N Obs	N	Mean	Std Dev	Minimum	Maximum	
1	28	28	1.5222500	0.2165267	1.0980000	1.9580000	
2	28	28	1.4775893	0.2030833	1.0150000	1.8550000	
3	28	28	1.4718036	0.2351162	1.0225000	1.9900000	
4	21	21	1.5297381	0.2526026	1.1450000	1.9840000	
5	21	21	1.5638333	0.2611818	1.0860000	2.1450000	
6	21	21	1.6059524	0.2530248	1.1300000	2.1250000	
7	21	21	1.6740476	0.2438772	1.1900000	2.0420000	
8	21	21	1.7607619	0.2871615	1.0625000	2.3275000	
9	21	21	1.8277381	0.2874521	1.1100000	2.4450000	
10	21	21	1.7788095	0.2364214	1.2420000	2.2120000	
11	21	21	1.6892619	0.2189341	1.2700000	2.1600000	
12	21	21	1.5404762	0.2059256	1.1600000	1.9875000	

Analysis script run on 30APR25 at 17:09

Exploratory analysis

The MEANS Procedure

Type of farming method=conventional

Analysis Variable : avgprice Average price of a single avocado						
Year	N Obs	N	Mean	Std Dev	Minimum	Maximum
2015	84	84	1.0320655	0.1291011	0.7500000	1.3350000
2016	84	84	1.0669345	0.2172635	0.7200000	1.6340000
2017	84	84	1.2555298	0.2687032	0.6875000	1.8075000
2018	21	21	1.0820238	0.1584547	0.7225000	1.3500000

Type of farming method=organic

Analysis Variable : avgprice Average price of a single avocado						
Year	N Obs	N	Mean	Std Dev	Minimum	Maximum
2015	84	84	1.6509226	0.2009664	1.2200000	2.0275000
2016	84	84	1.5232976	0.2588929	1.0625000	2.1960000
2017	84	84	1.6703512	0.3217001	1.0150000	2.4450000
2018	21	21	1.5545238	0.1366945	1.3525000	1.8000000

Analysis script run on 30APR25 at 17:09

Exploratory analysis

The MEANS Procedure

Type of farming method=conventional

Analysis Variable : avgprice Average price of a single avocado						
City or region of the observation	N Obs	N	Mean	Std Dev	Minimum	Maximum
California	39	39	1.1050769	0.2130309	0.8250000	1.7050000
GreatLakes	39	39	1.1806282	0.2003116	0.9475000	1.8075000
Northeast	39	39	1.3442821	0.1775740	1.0800000	1.6600000
Plains	39	39	1.1639615	0.1826189	0.9240000	1.6475000
SouthCentral	39	39	0.8679103	0.1325447	0.6875000	1.2650000
Southeast	39	39	1.1620128	0.1870763	0.8700000	1.6725000
West	39	39	0.9838974	0.1689162	0.7550000	1.5525000

Type of farming method=organic

Analysis Variable : avgprice Average price of a single avocado						
City or region of the observation	N Obs	N	Mean	Std Dev	Minimum	Maximum
California	39	39	1.6847821	0.2718256	1.2200000	2.3250000
GreatLakes	39	39	1.4931667	0.1586735	1.0150000	1.8425000
Northeast	39	39	1.8608333	0.1397678	1.5925000	2.1450000
Plains	39	39	1.7066282	0.1540389	1.4175000	2.1150000
SouthCentral	39	39	1.3325513	0.1840713	1.0225000	1.7750000
Southeast	39	39	1.6325897	0.2027917	1.2875000	2.2525000
West	39	39	1.5609615	0.3276098	1.0725000	2.4450000

Analysis script run on 30APR25 at 17:09

Exploratory analysis

The MEANS Procedure

Type of farming method=conventional

Analysis Variable : avgprice Average price of a single avocado						
Poliical Party of current U.S. president	N Obs	N	Mean	Std Dev	Minimum	Maximum
Democratic	168	168	1.0495000	0.1790246	0.7200000	1.6340000
Republican	105	105	1.2208286	0.2594489	0.6875000	1.8075000

Type of farming method=organic

Analysis Variable : avgprice Average price of a single avocado						
Poliical Party of current U.S. president	N Obs	N	Mean	Std Dev	Minimum	Maximum
Democratic	168	168	1.5871101	0.2397526	1.0625000	2.1960000
Republican	105	105	1.6471857	0.2972445	1.0150000	2.4450000

Analysis script run on 30APR25 at 17:09

Regression Model fits

The SURVEYSELECT Procedure

Selection Method	Simple Random Sampling
------------------	------------------------

Input Data Set	DAT
Random Number Seed	333
Sampling Rate	0.8
Sample Size	437
Selection Probability	0.800366
Sampling Weight	0
Output Data Set	DAT_SELECT

Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

Class Level Information		
Class	Levels	Values
type	2	organic conventional

Number of Observations Read	437
Number of Observations Used	437

Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

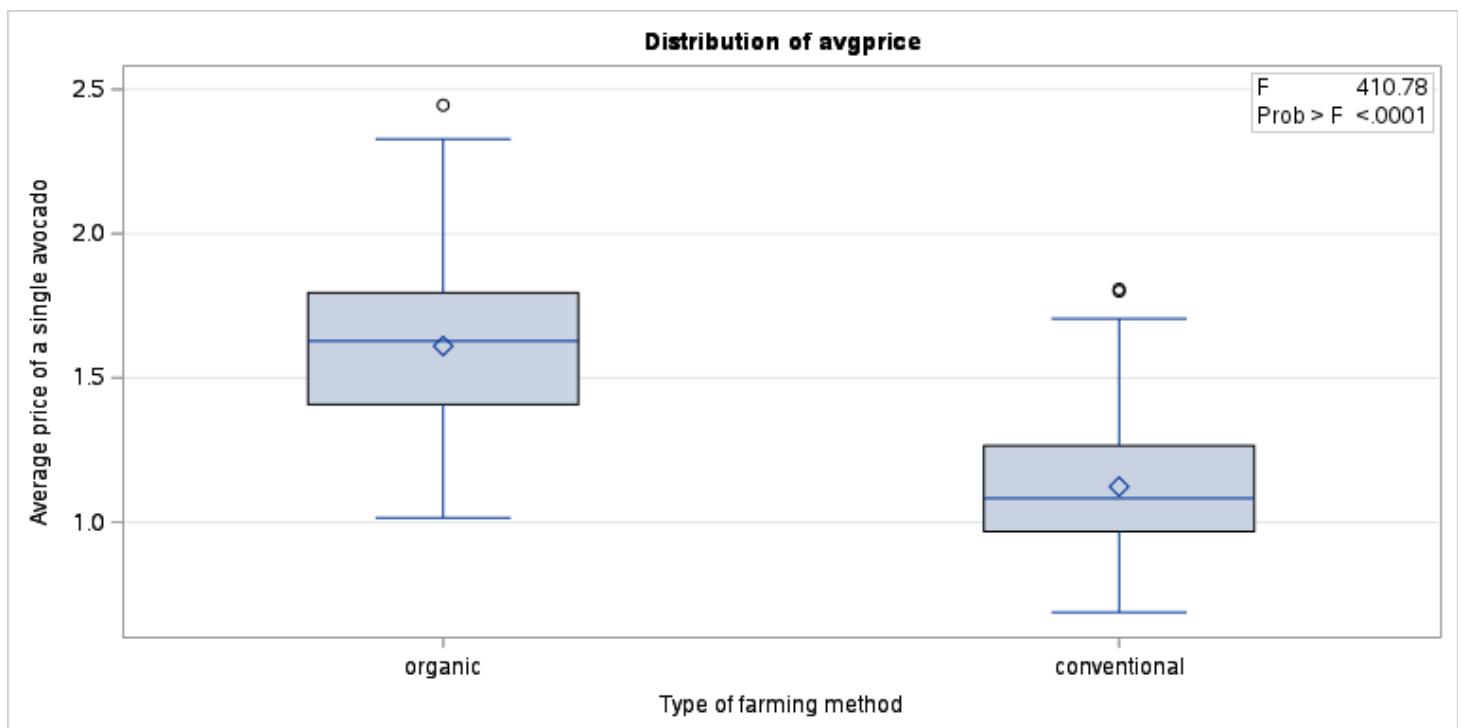
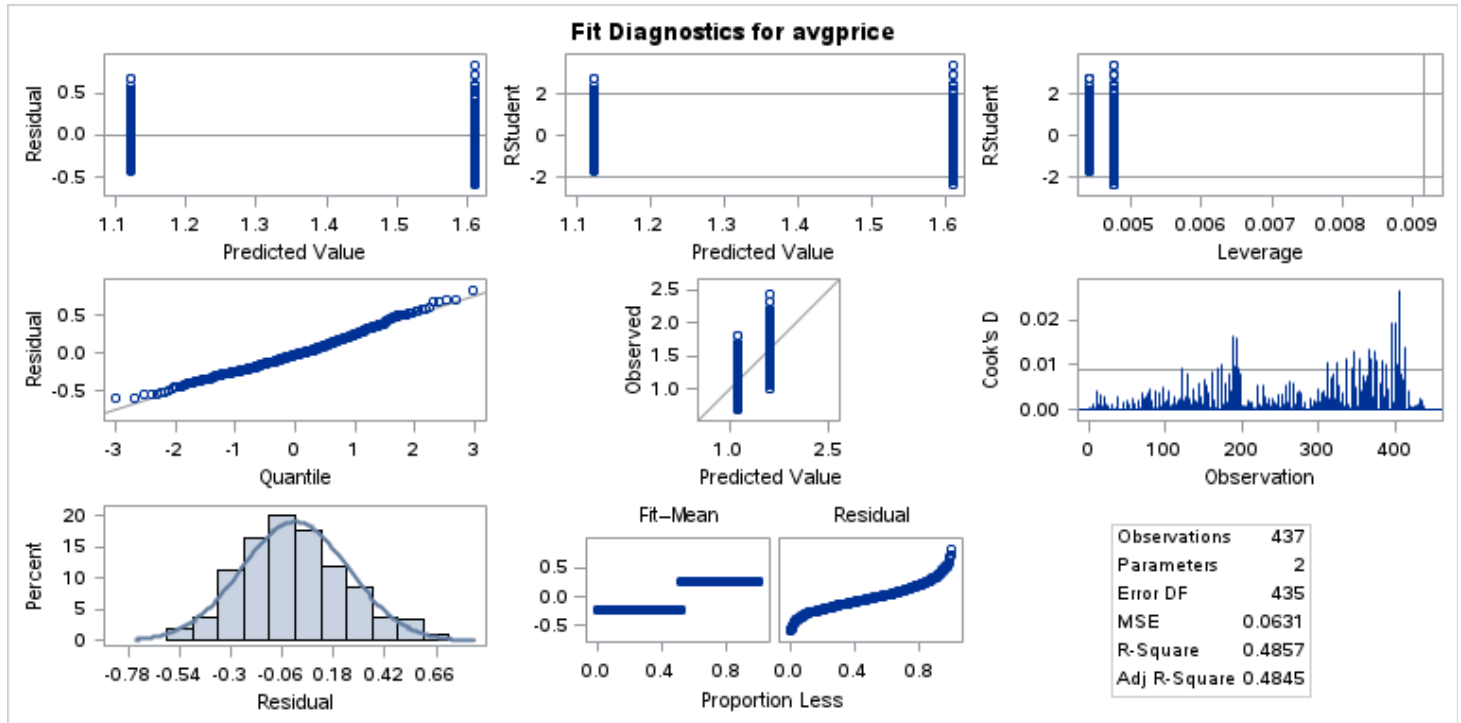
Dependent Variable: avgprice Average price of a single avocado

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	25.91085330	25.91085330	410.78	<.0001
Error	435	27.43887152	0.06307787		
Corrected Total	436	53.34972481			

R-Square	Coeff Var	Root MSE	avgprice Mean
0.485679	18.50456	0.251153	1.357249

Source	DF	Type I SS	Mean Square	F Value	Pr > F
type	1	25.91085330	25.91085330	410.78	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
type	1	25.91085330	25.91085330	410.78	<.0001



Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

Class Level Information		
Class	Levels	Values
type	2	organic conventional

Number of Observations Read	437
Number of Observations Used	437

Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

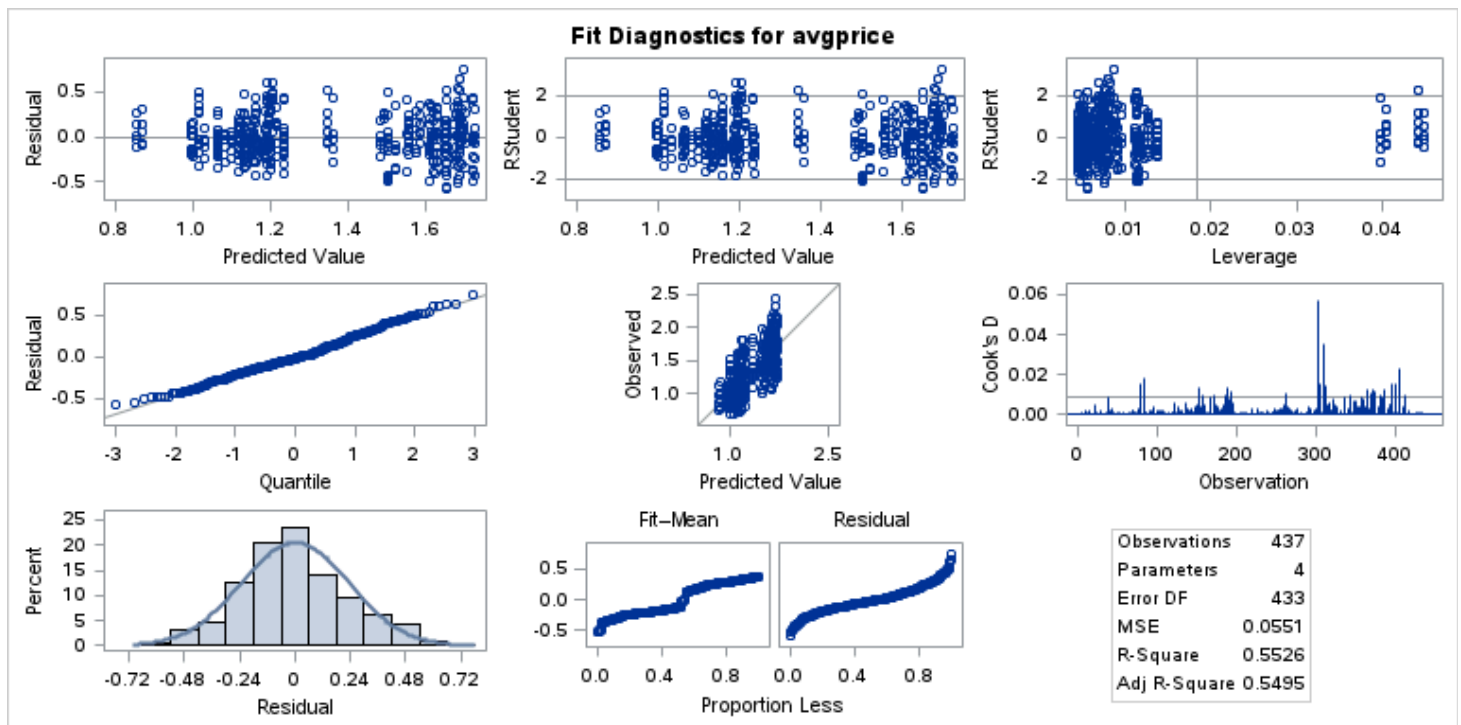
Dependent Variable: avgprice Average price of a single avocado

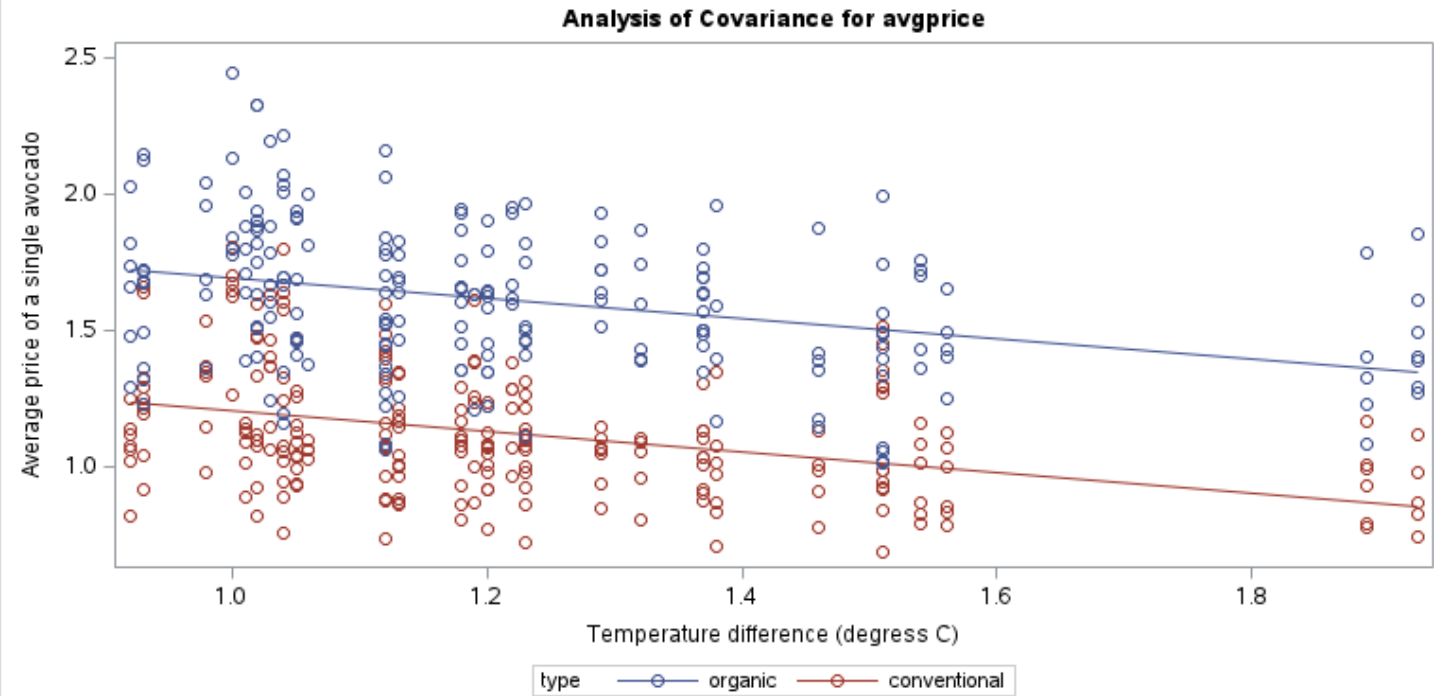
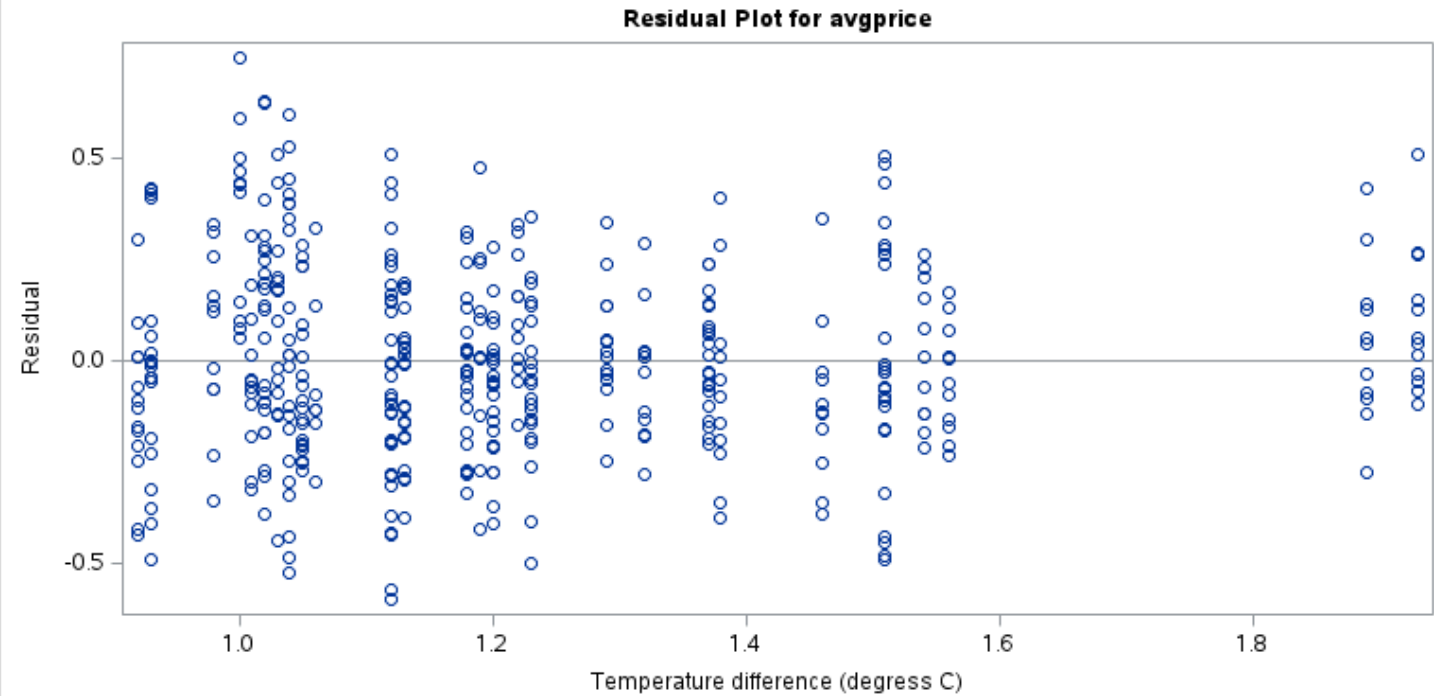
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	29.47994638	9.82664879	178.26	<.0001
Error	433	23.86977843	0.05512651		
Corrected Total	436	53.34972481			

R-Square	Coeff Var	Root MSE	avgprice Mean
0.552579	17.29898	0.234790	1.357249

Source	DF	Type I SS	Mean Square	F Value	Pr > F
type	1	25.91085330	25.91085330	470.03	<.0001
temp	1	3.56909308	3.56909308	64.74	<.0001
temp*type	1	0.00000001	0.00000001	0.00	0.9997

Source	DF	Type III SS	Mean Square	F Value	Pr > F
type	1	0.97576842	0.97576842	17.70	<.0001
temp	1	3.56905632	3.56905632	64.74	<.0001
temp*type	1	0.00000001	0.00000001	0.00	0.9997





Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

Class Level Information		
Class	Levels	Values
type	2	organic conventional
region	7	California GreatLakes Northeast Plains SouthCentral Southeast West

Number of Observations Read 437

Regression Model fits

The GLM Procedure

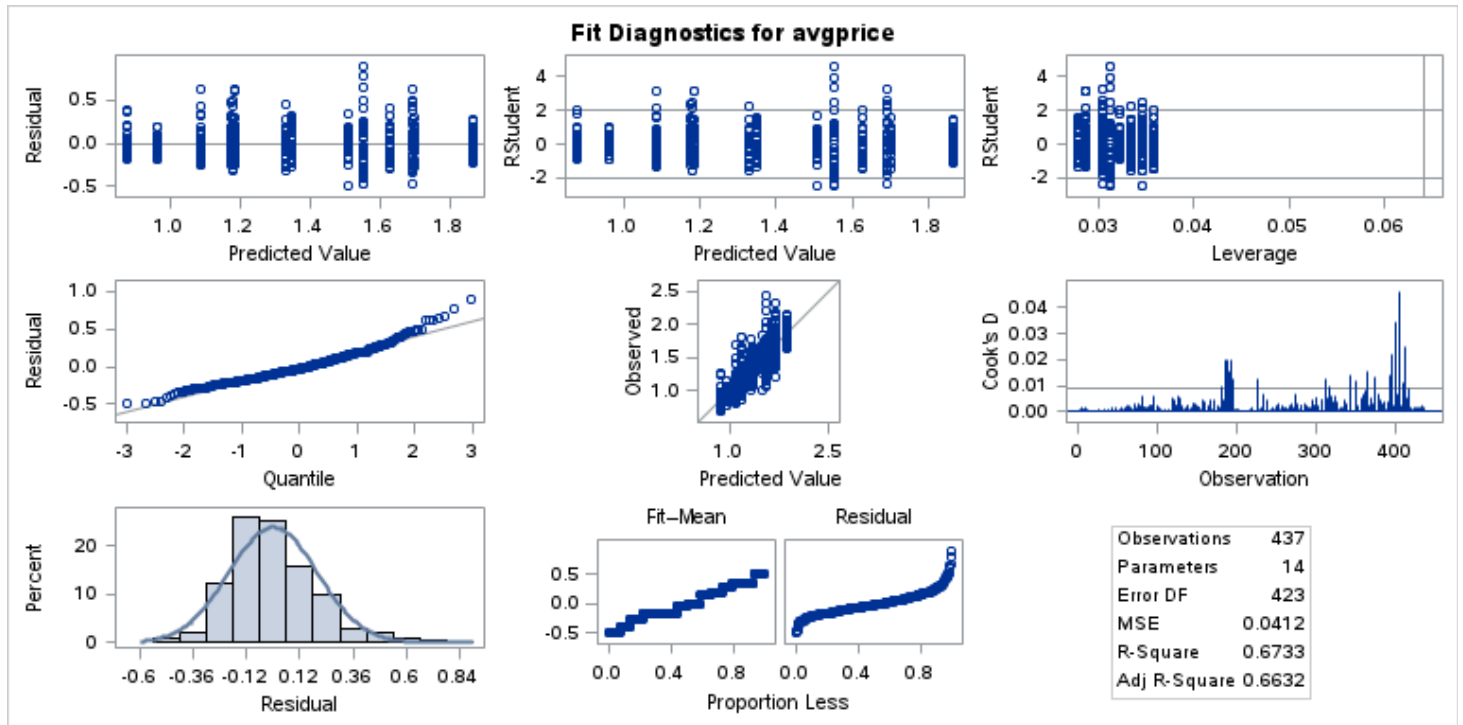
Dependent Variable: avgprice Average price of a single avocado

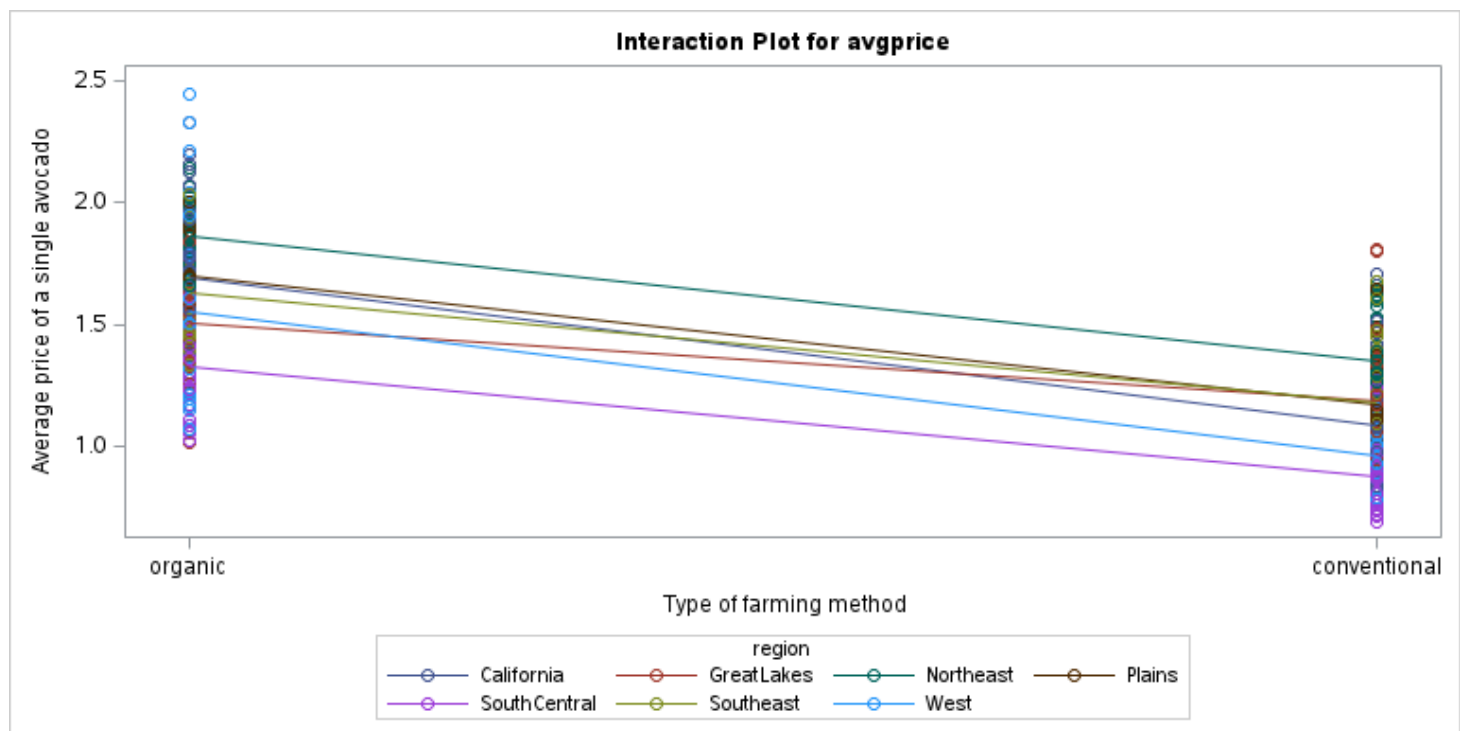
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	13	35.91986833	2.76306679	67.06	<.0001
Error	423	17.42985648	0.04120533		
Corrected Total	436	53.34972481			

R-Square	Coeff Var	Root MSE	avgprice Mean
0.673291	14.95606	0.202991	1.357249

Source	DF	Type I SS	Mean Square	F Value	Pr > F
type	1	25.91085330	25.91085330	628.82	<.0001
region	6	9.11042309	1.51840385	36.85	<.0001
type*region	6	0.89859194	0.14976532	3.63	0.0016

Source	DF	Type III SS	Mean Square	F Value	Pr > F
type	1	26.58613837	26.58613837	645.21	<.0001
region	6	9.19354370	1.53225728	37.19	<.0001
type*region	6	0.89859194	0.14976532	3.63	0.0016





Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

Class Level Information		
Class	Levels	Values
type	2	organic conventional
pres_party	2	Democratic Republican

Number of Observations Read	437
Number of Observations Used	437

Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

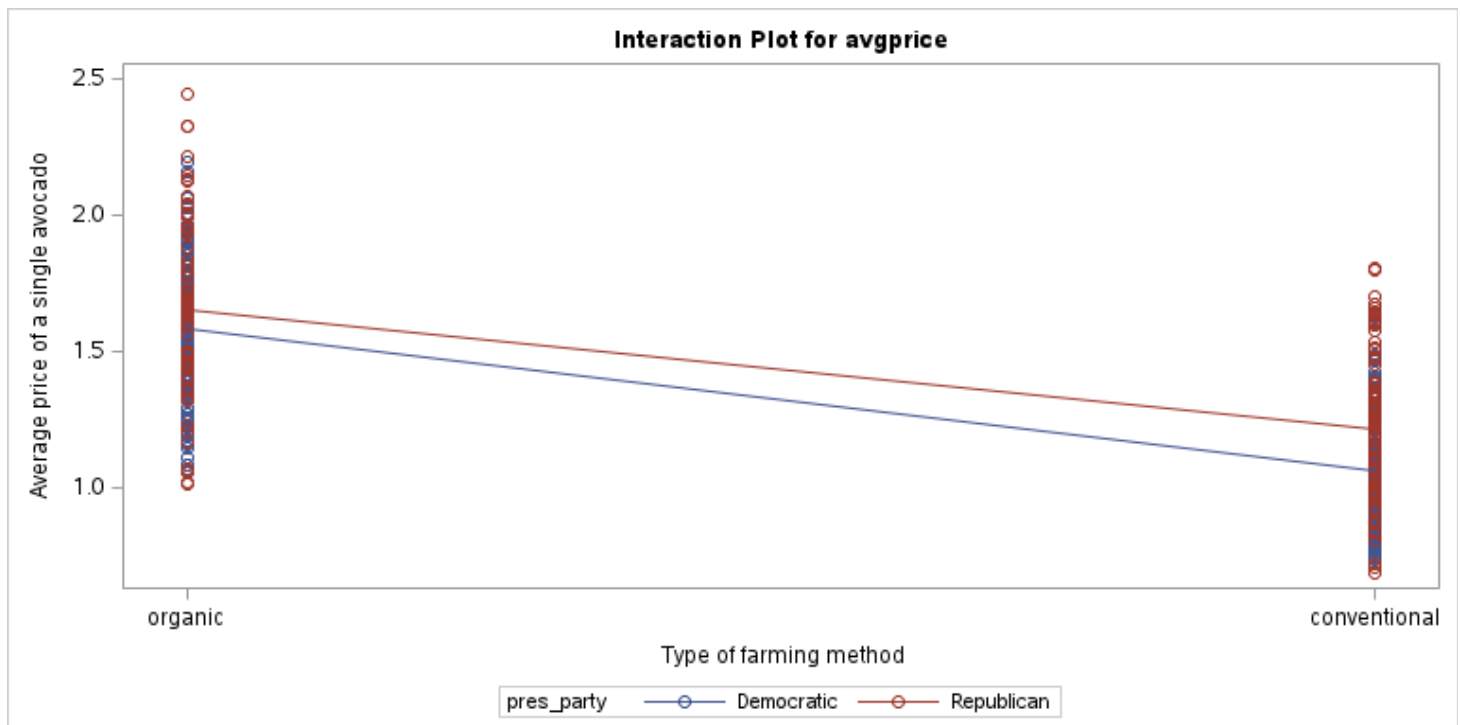
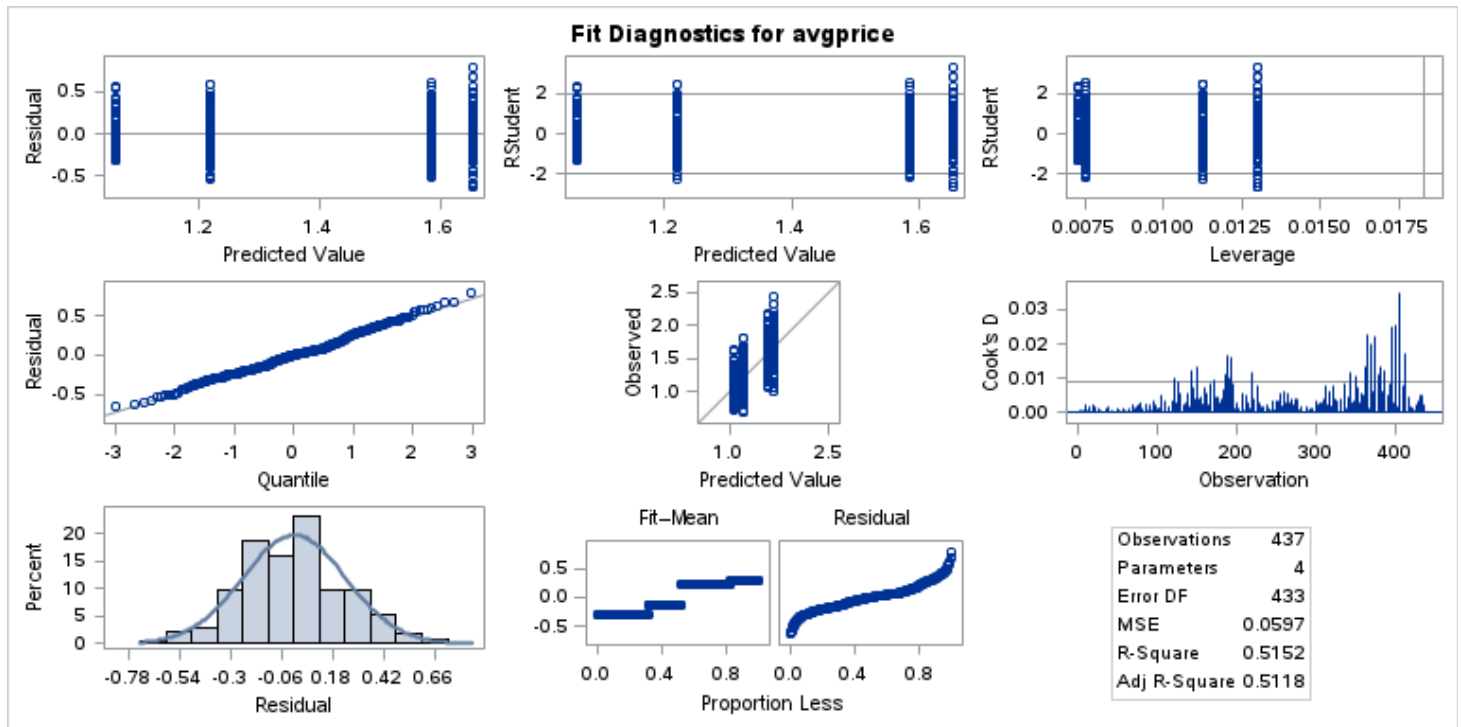
Dependent Variable: avgprice Average price of a single avocado

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	27.48449737	9.16149912	153.37	<.0001
Error	433	25.86522744	0.05973494		
Corrected Total	436	53.34972481			

R-Square	Coeff Var	Root MSE	avgprice Mean
0.515176	18.00755	0.244407	1.357249

Source	DF	Type I SS	Mean Square	F Value	Pr > F
type	1	25.91085330	25.91085330	433.76	<.0001
pres_party	1	1.37290203	1.37290203	22.98	<.0001
type*pres_party	1	0.20074205	0.20074205	3.36	0.0675

Source	DF	Type III SS	Mean Square	F Value	Pr > F
type	1	23.59608154	23.59608154	395.01	<.0001
pres_party	1	1.31532587	1.31532587	22.02	<.0001
type*pres_party	1	0.20074205	0.20074205	3.36	0.0675



Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

Class Level Information		
Class	Levels	Values
type	2	organic conventional
year	4	2015 2016 2017 2018

Number of Observations Read	437
Number of Observations Used	437

Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

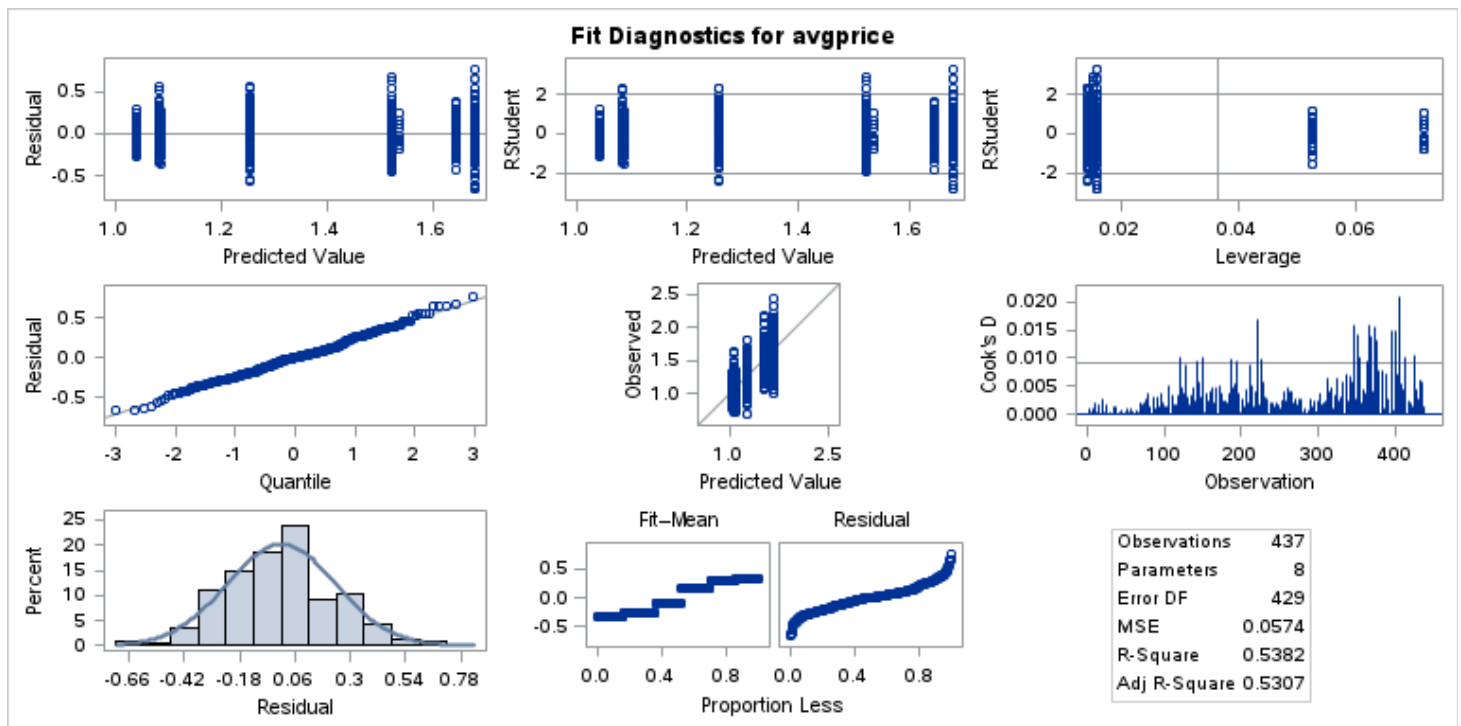
Dependent Variable: avgprice Average price of a single avocado

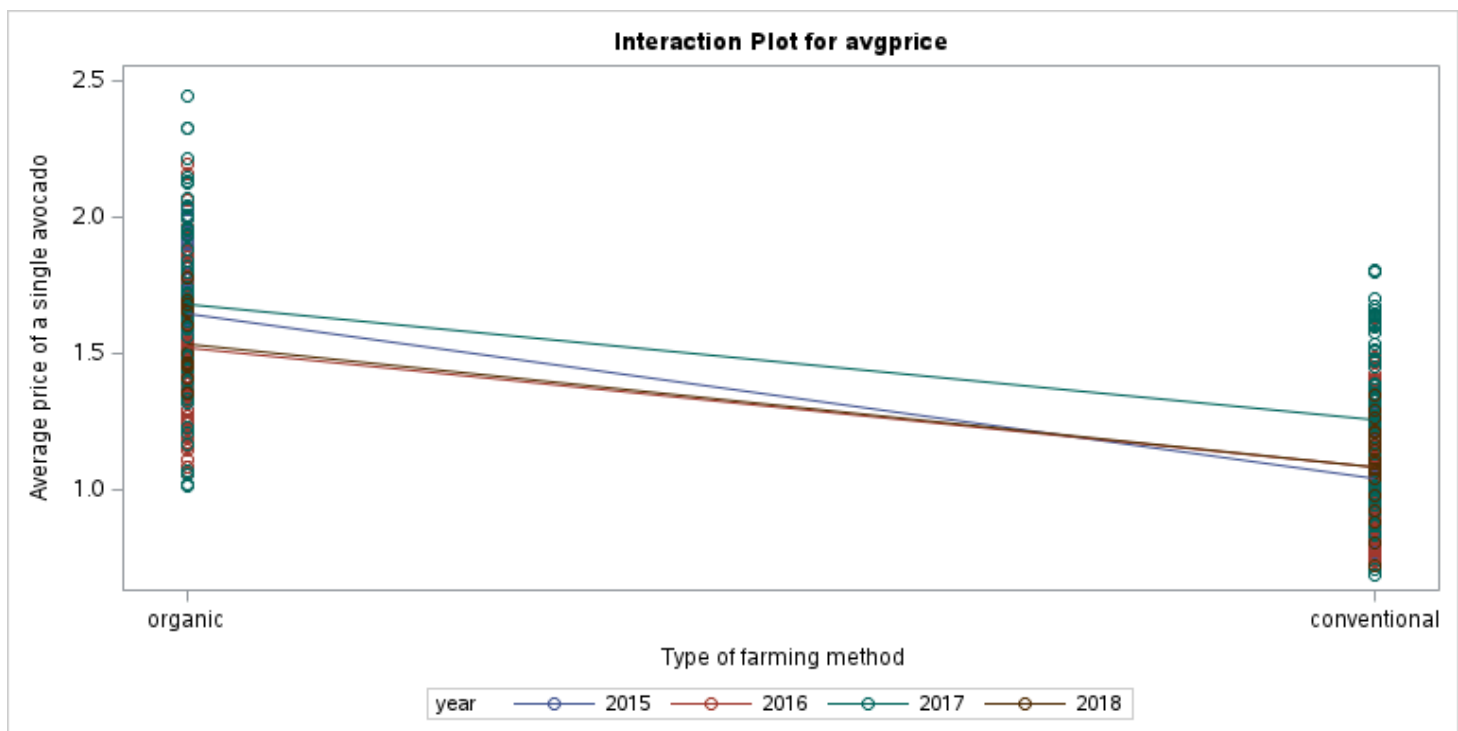
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	7	28.71281652	4.10183093	71.42	<.0001
Error	429	24.63690829	0.05742869		
Corrected Total	436	53.34972481			

R-Square	Coeff Var	Root MSE	avgprice Mean
0.538200	17.65651	0.239643	1.357249

Source	DF	Type I SS	Mean Square	F Value	Pr > F
type	1	25.91085330	25.91085330	451.18	<.0001
year	3	2.10824451	0.70274817	12.24	<.0001
type*year	3	0.69371872	0.23123957	4.03	0.0076

Source	DF	Type III SS	Mean Square	F Value	Pr > F
type	1	17.30994222	17.30994222	301.42	<.0001
year	3	2.07025319	0.69008440	12.02	<.0001
type*year	3	0.69371872	0.23123957	4.03	0.0076





Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

Class Level Information		
Class	Levels	Values
type	2	organic conventional
month_num	12	1 2 3 4 5 6 7 8 9 10 11 12

Number of Observations Read	437
Number of Observations Used	437

Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

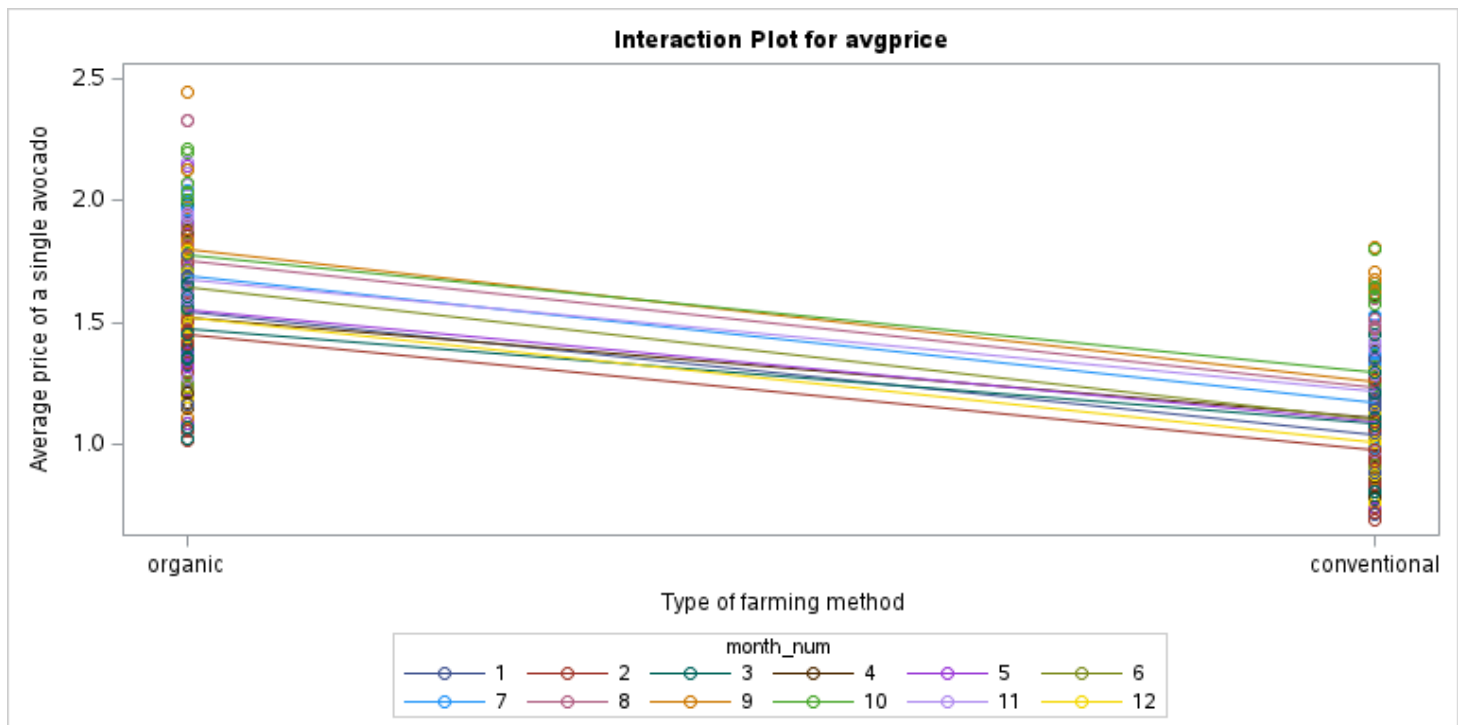
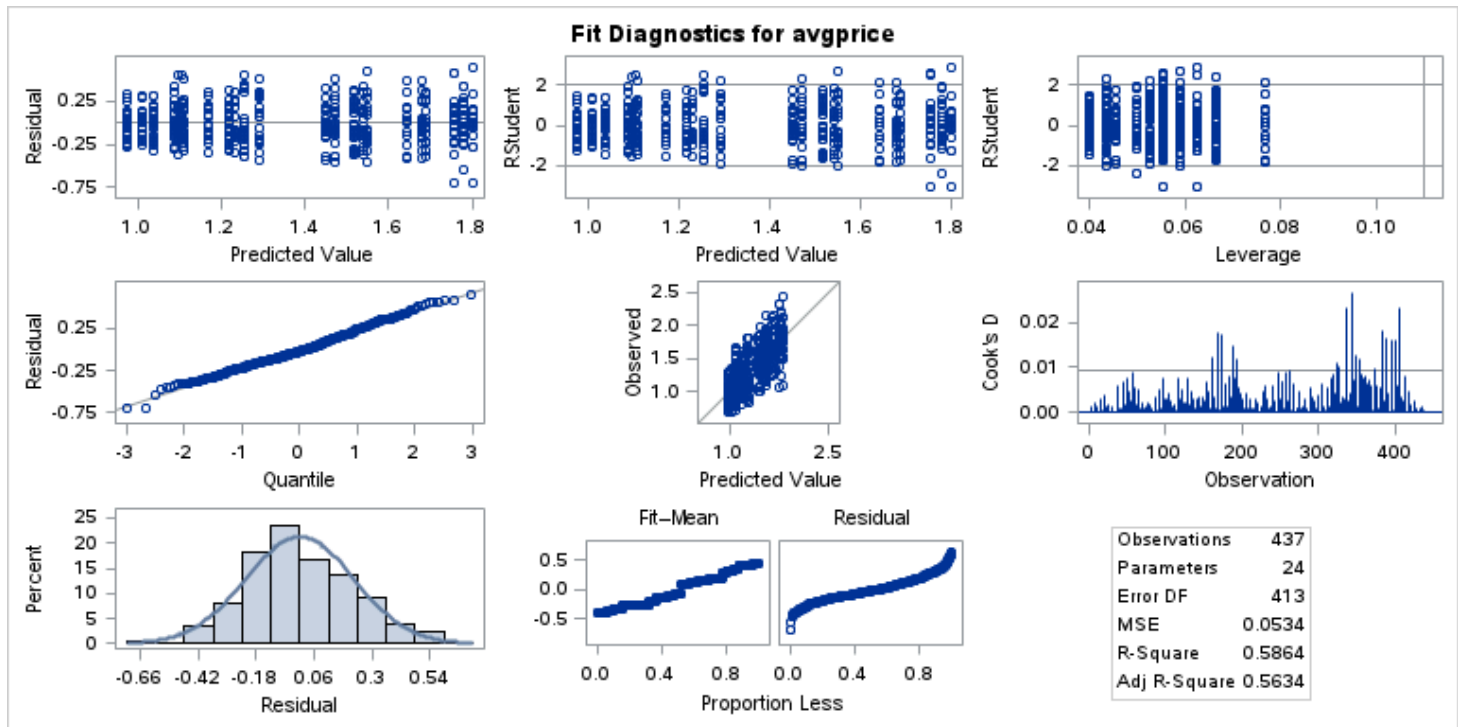
Dependent Variable: avgprice Average price of a single avocado

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	23	31.28692820	1.36030123	25.46	<.0001
Error	413	22.06279661	0.05342082		
Corrected Total	436	53.34972481			

R-Square	Coeff Var	Root MSE	avgprice Mean
0.586450	17.02925	0.231129	1.357249

Source	DF	Type I SS	Mean Square	F Value	Pr > F
type	1	25.91085330	25.91085330	485.03	<.0001
month_num	11	5.12107164	0.46555197	8.71	<.0001
type*month_num	11	0.25500327	0.02318212	0.43	0.9406

Source	DF	Type III SS	Mean Square	F Value	Pr > F
type	1	24.90078200	24.90078200	466.13	<.0001
month_num	11	5.10825395	0.46438672	8.69	<.0001
type*month_num	11	0.25500327	0.02318212	0.43	0.9406



Analysis script run on 30APR25 at 17:09

Regression Model fits

Covariate	RMSE	R_Square
Type only	0.25115	0.48568
Temperature	0.23479	0.55258

Covariate	RMSE	R_Square
Region	0.20299	0.67329
Presidential Party	0.24441	0.51518
Year	0.23964	0.53820
Month	0.23113	0.58645

Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

Class Level Information		
Class	Levels	Values
pres_party	2	Democratic Republican
type	2	organic conventional
region	7	California GreatLakes Northeast Plains SouthCentral Southeast West
month_num	12	1 2 3 4 5 6 7 8 9 10 11 12
year	4	2015 2016 2017 2018

Number of Observations Read	437
Number of Observations Used	437

Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

Dependent Variable: avgprice Average price of a single avocado

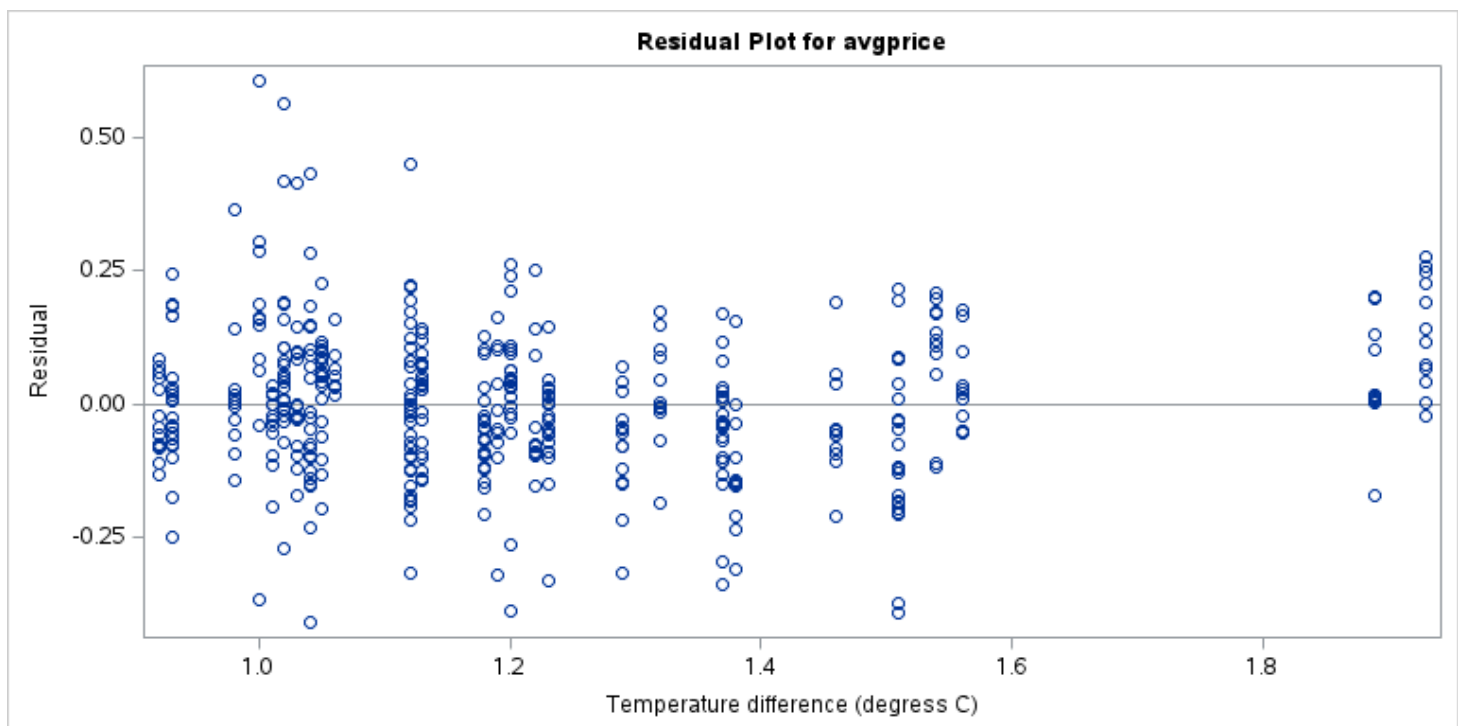
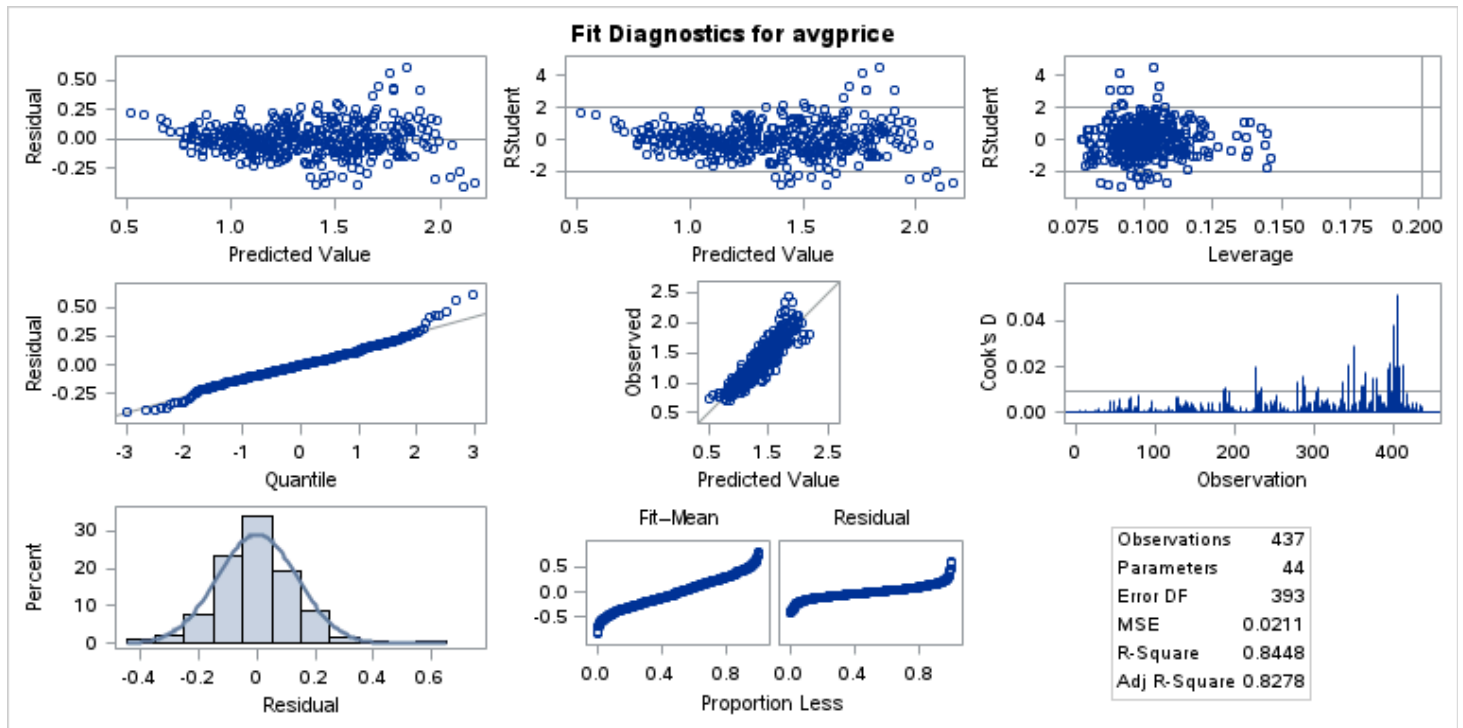
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	43	45.07133248	1.04817052	49.76	<.0001
Error	393	8.27839234	0.02106461		
Corrected Total	436	53.34972481			

R-Square	Coeff Var	Root MSE	avgprice Mean
0.844828	10.69343	0.145137	1.357249

Source	DF	Type I SS	Mean Square	F Value	Pr > F
type	1	25.91085330	25.91085330	1230.07	<.0001
temp	1	3.56909308	3.56909308	169.44	<.0001
region	6	9.05641491	1.50940249	71.66	<.0001
pres_party	1	0.92090880	0.92090880	43.72	<.0001
month_num	11	3.40277730	0.30934339	14.69	<.0001
year	2	0.17308480	0.08654240	4.11	0.0171
temp*type	1	0.00003645	0.00003645	0.00	0.9668
type*region	6	0.87831123	0.14638520	6.95	<.0001
pres_party*type	1	0.26129890	0.26129890	12.40	0.0005
type*month_num	11	0.26316297	0.02392391	1.14	0.3316
type*year	2	0.63539074	0.31769537	15.08	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
type	1	0.06390351	0.06390351	3.03	0.0823
temp	1	0.54031582	0.54031582	25.65	<.0001
region	6	9.36865735	1.56144289	74.13	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
pres_party	0	0.00000000	.	.	.
month_num	11	2.95782269	0.26889297	12.77	<.0001
year	2	0.13316257	0.06658129	3.16	0.0435
temp*type	1	0.14645661	0.14645661	6.95	0.0087
type*region	6	0.90516301	0.15086050	7.16	<.0001
pres_party*type	0	0.00000000	.	.	.
type*month_num	11	0.42056526	0.03823321	1.82	0.0497
type*year	2	0.63539074	0.31769537	15.08	<.0001



Regression Model fits

The GLM Procedure

Class Level Information		
Class	Levels	Values
type	2	organic conventional
region	7	California GreatLakes Northeast Plains SouthCentral Southeast West
pres_party	2	Democratic Republican
month_num	12	1 2 3 4 5 6 7 8 9 10 11 12
year	4	2015 2016 2017 2018

Number of Observations Read	437
Number of Observations Used	437

Analysis script run on 30APR25 at 17:09

Regression Model fits

The GLM Procedure

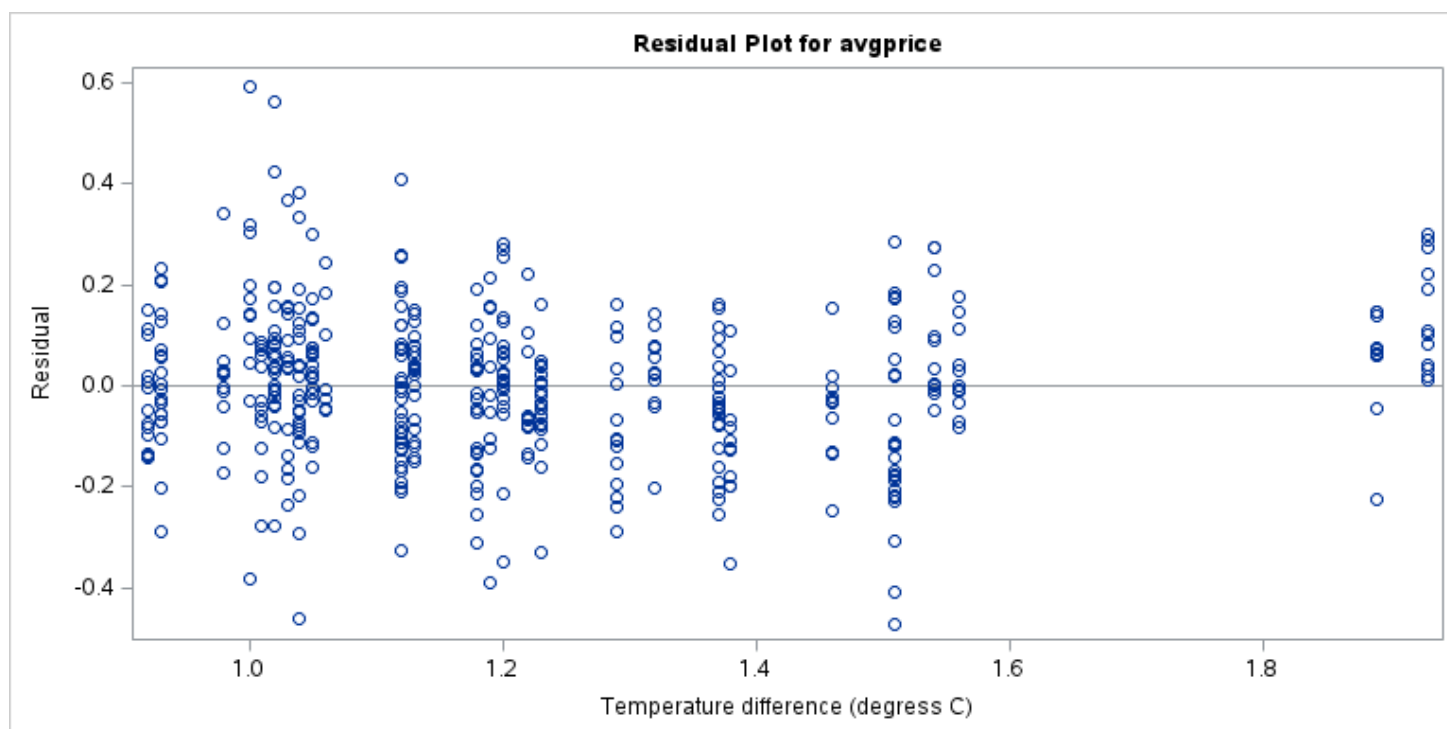
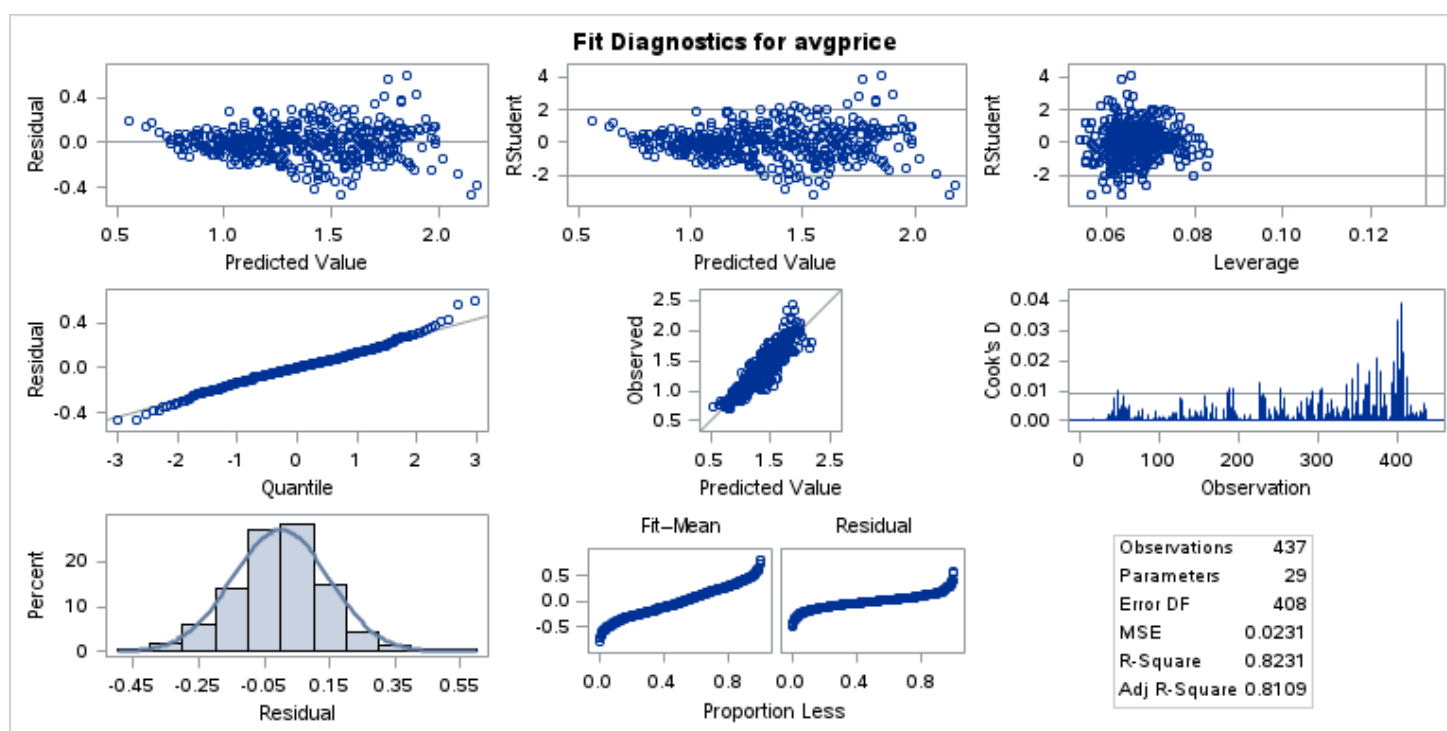
Dependent Variable: avgprice Average price of a single avocado

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	28	43.91097722	1.56824919	67.79	<.0001
Error	408	9.43874759	0.02313419		
Corrected Total	436	53.34972481			

R-Square	Coeff Var	Root MSE	avgprice Mean
0.823078	11.20643	0.152099	1.357249

Source	DF	Type I SS	Mean Square	F Value	Pr > F
type	1	25.91085330	25.91085330	1120.02	<.0001
temp	1	3.56909308	3.56909308	154.28	<.0001
region	6	9.05641491	1.50940249	65.25	<.0001
pres_party	1	0.92090880	0.92090880	39.81	<.0001
month_num	11	3.40277730	0.30934339	13.37	<.0001
year	2	0.17308480	0.08654240	3.74	0.0246
type*region	6	0.87784503	0.14630751	6.32	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
type	1	26.29306510	26.29306510	1136.55	<.0001
temp	1	0.55255806	0.55255806	23.88	<.0001
region	6	9.32828146	1.55471358	67.20	<.0001
pres_party	0	0.00000000	.	.	.
month_num	11	2.99511952	0.27228359	11.77	<.0001
year	2	0.15353780	0.07676890	3.32	0.0372
type*region	6	0.87784503	0.14630751	6.32	<.0001



Analysis script run on 30APR25 at 17:09

Model Evaluation

The PLM Procedure

Store Information	
Item Store	WORK.FINAL_MODEL
Data Set Created From	WORK.DAT_TRAIN
Created By	PROC GLM
Date Created	30APR25:17:46:01
Response Variable	avgprice

Store Information	
Class Variables	type region pres_party month_num year
Model Effects	Intercept type temp region pres_party month_num year type*region

Analysis script run on 30APR25 at 17:09

RMSE and R-squared on Test Data

Obs	rmse	rsq
1	0.13313	0.85448

Analysis script run on 30APR25 at 17:09

