Data processing
Avocado Data

Obs	year	month	month_num	Date	region	type	avgprice	totvol	totsm	totlg	totxl	totbags	totbags_sm	totbags_lg	totbags_xl
1	2015	January	1	2015-01-01	California	conventional	0.98	22303066.76	10895054.82	8689709.00	513202.87	2205100.07	2029057.20	163067.25	12975.62
2	2015	January	1	2015-01-01	California	organic	1.22	617366.07	435293.77	138519.52	4.40	43548.38	43548.38	0.00	0.00
3	2015	January	1	2015-01-01	GreatLakes	conventional	1.08	12385337.78	1676132.87	7177685.76	1163707.56	2367811.59	1929525.20	405222.99	33063.40
4	2015	January	1	2015-01-01	GreatLakes	organic	1.65	237230.17	15547.27	176495.97	0.00	45186.93	29679.81	15507.12	0.00
5	2015	January	1	2015-01-01	Northeast	conventional	1.24	13120598.90	412549.10	9159344.17	29635.09	3519070.54	3154231.48	364839.06	0.00
6	2015	January	1	2015-01-01	Northeast	organic	1.90	174022.86	12068.61	72897.36	235.63	88821.26	86624.72	2196.54	0.00
7	2015	January	1	2015-01-01	Plains	conventional	1.05	6272419.64	3573054.45	1854161.55	49013.72	796189.92	787432.24	4398.95	4358.73
8	2015	January	1	2015-01-01	Plains	organic	1.74	131685.65	20583.41	58693.89	92.32	52316.03	46548.06	5767.97	0.00
9	2015	January	1	2015-01-01	SouthCentral	conventional	0.79	21018878.53	11763269.93	6553201.53	377158.80	2325248.27	1949172.85	375985.93	89.49
10	2015	January	1	2015-01-01	SouthCentral	organic	1.35	231027.80	119032.08	32319.31	0.00	79676.41	78888.95	787.46	0.00

Data processing script run on 01MAY25 at 17:21

Data processing
Temperature Data

Obs	year	month	temp
1	2015	January	1.20
2	2015	February	1.20
3	2015	March	1.32
4	2015	April	1.02
5	2015	May	1.05
6	2015	June	1.06
7	2015	July	0.92
8	2015	August	1.01
9	2015	September	1.18
10	2015	October	1.29

Data processing script run on 01MAY25 at 17:21

Data processing
President Data

Obs	year	president	pres_party
1	2015	Barack Obama	Democratic
2	2016	Barack Obama	Democratic
3	2017	Donald Trump	Republican
4	2018	Donald Trump	Republican

Data processing script run on 01MAY25 at 17:21

Print data

Obs	year	month	month_num	Date	region	type	avgprice	totvol	totsm	totlg	totxl	totbags	totbags_sm	totbags_lg	totbags_xl	temp	president	pres_pa
1	2015	January	1	2015-01-01	California	conventional	0.98	22303066.76	10895054.82	8689709.00	513202.87	2205100.07	2029057.20	163067.25	12975.62	1.2	Barack Obama	Democra
2	2015	January	1	2015-01-01	California	organic	1.22	617366.07	435293.77	138519.52	4.40	43548.38	43548.38	0.00	0.00	1.2	Barack Obama	Democra
3	2015	January	1	2015-01-01	GreatLakes	conventional	1.08	12385337.78	1676132.87	7177685.76	1163707.56	2367811.59	1929525.20	405222.99	33063.40	1.2	Barack Obama	Democra
4	2015	January	1	2015-01-01	GreatLakes	organic	1.65	237230.17	15547.27	176495.97	0.00	45186.93	29679.81	15507.12	0.00	1.2	Barack Obama	Democra
5	2015	January	1	2015-01-01	Northeast	conventional	1.24	13120598.90	412549.10	9159344.17	29635.09	3519070.54	3154231.48	364839.06	0.00	1.2	Barack Obama	Democra
6	2015	January	1	2015-01-01	Northeast	organic	1.90	174022.86	12068.61	72897.36	235.63	88821.26	86624.72	2196.54	0.00	1.2	Barack Obama	Democra
7	2015	January	1	2015-01-01	Plains	conventional	1.05	6272419.64	3573054.45	1854161.55	49013.72	796189.92	787432.24	4398.95	4358.73	1.2	Barack Obama	Democra
8	2015	January	1	2015-01-01	Plains	organic	1.74	131685.65	20583.41	58693.89	92.32	52316.03	46548.06	5767.97	0.00	1.2	Barack Obama	Democra
9	2015	January	1	2015-01-01	SouthCentral	conventional	0.79	21018878.53	11763269.93	6553201.53	377158.80	2325248.27	1949172.85	375985.93	89.49	1.2	Barack Obama	Democra
10	2015	January	1	2015-01-01	SouthCentral	organic	1.35	231027.80	119032.08	32319.31	0.00	79676.41	78888.95	787.46	0.00	1.2	Barack Obama	Democra

Data processing script run on 01MAY25 at 17:21

Print data

The FREQ Procedure

Year				
year	Frequency	Percent	Cumulative Frequency	Cumulative Percent
2015	168	30.77	168	30.77
2016	168	30.77	336	61.54
2017	168	30.77	504	92.31

Year				
year	Frequency	Percent	Cumulative Frequency	Cumulative Percent
2018	42	7.69	546	100.00

Month Name				
month	Frequency	Percent	Cumulative Frequency	Cumulative Percent
April	42	7.69	42	7.69
August	42	7.69	84	15.38
December	42	7.69	126	23.08
February	56	10.26	182	33.33
January	56	10.26	238	43.59
July	42	7.69	280	51.28
June	42	7.69	322	58.97
March	56	10.26	378	69.23
May	42	7.69	420	76.92
November	42	7.69	462	84.62
October	42	7.69	504	92.31
September	42	7.69	546	100.00

City or region of the observation				
region	Frequency	Percent	Cumulative Frequency	Cumulative Percent
California	78	14.29	78	14.29
GreatLakes	78	14.29	156	28.57
Northeast	78	14.29	234	42.86
Plains	78	14.29	312	57.14
SouthCentral	78	14.29	390	71.43
Southeast	78	14.29	468	85.71
West	78	14.29	546	100.00

Type of farming method				
type	Frequency	Percent	Cumulative Frequency	Cumulative Percent
conventional	273	50.00	273	50.00
organic	273	50.00	546	100.00

Poliical Party of current U.S. president				
pres_party	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Democratic	336	61.54	336	61.54
Republican	210	38.46	546	100.00

Data processing script run on 01MAY25 at 17:21

Print data

The CONTENTS Procedure

Data Set Name	MYLIB.DAT	Observations	546
Member Type	DATA	Variables	18
Engine	V9	Indexes	0
Created	05/01/2025 13:24:23	Observation Length	192
Last Modified	05/01/2025 13:24:23	Deleted Observations	0
Protection		Compressed	NO
Data Set Type		Sorted	NO
Label			
Data Representation	SOLARIS_X86_64, LINUX_X86_64, ALPHA_TRU64, LINUX_IA64		
Encoding	utf-8 Unicode (UTF-8)		

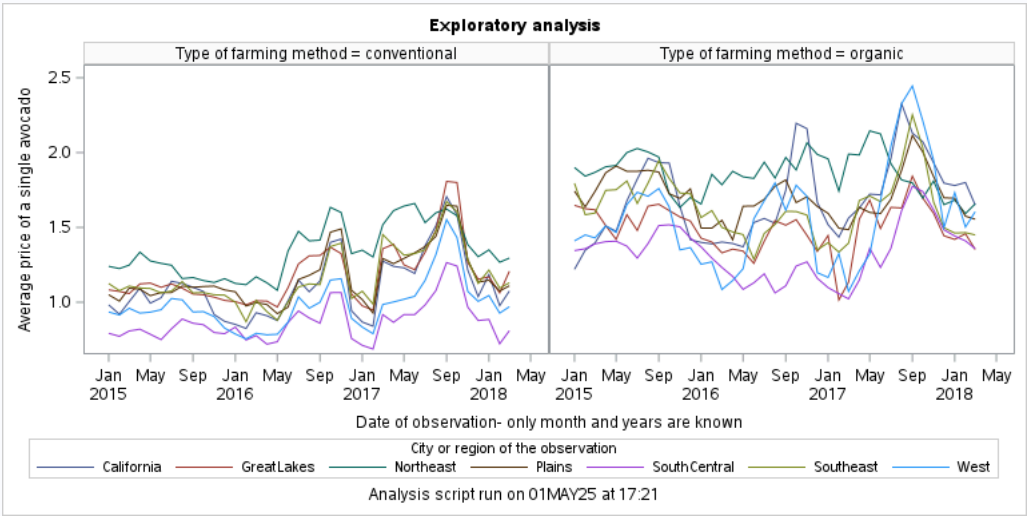
Engine/Host Dependent Information	
Data Set Page Size	131072
Number of Data Set Pages	1
First Data Page	1
Max Obs per Page	682
Obs in First Data Page	546
Number of Data Set Repairs	0
Filename	/home/u63984496/BIOS7400/final-project/dat.sas7bdat
Release Created	9.0401M7
Host Created	Linux
Inode Number	19517364689
Access Permission	rw-r--r--
Owner Name	u63984496
File Size	256KB

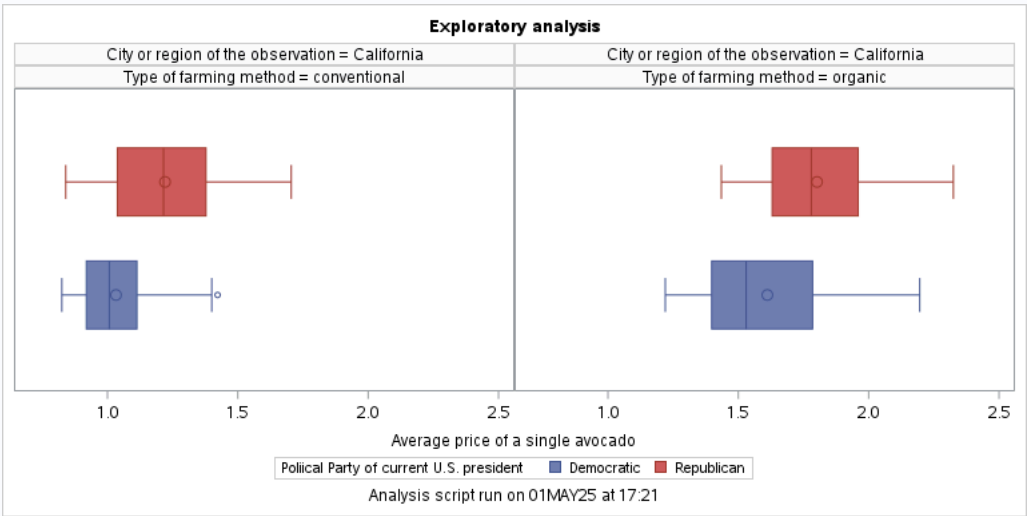
Engine/Host Dependent Information	
File Size (bytes)	262144

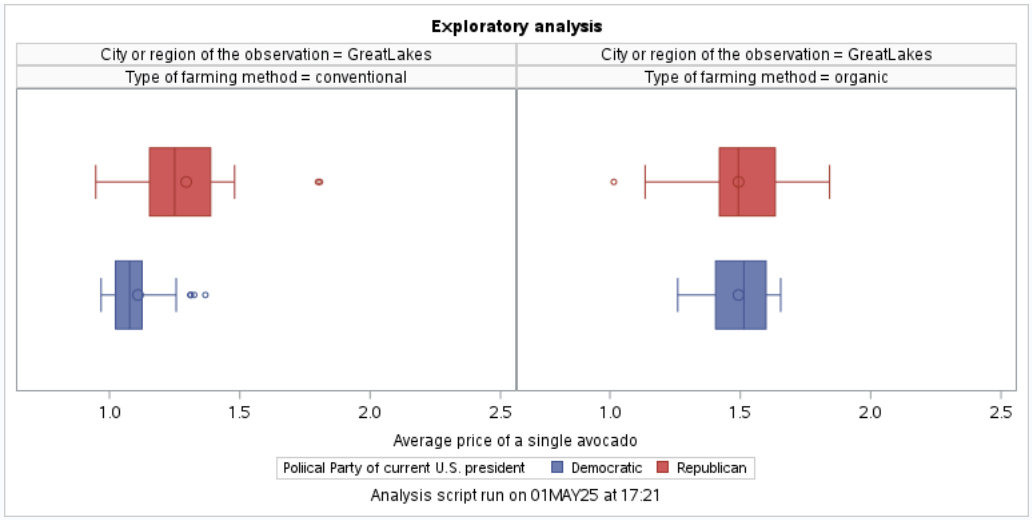
Alphabetic List of Variables and Attributes

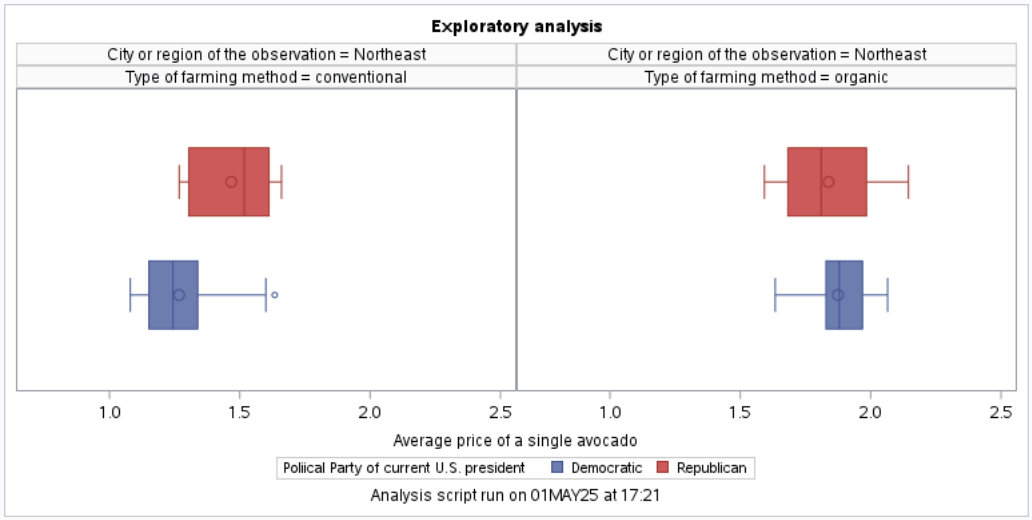
#	Variable	Type	Len	Format	Informat	Label
4	Date	Num	8	YYMMDD10.	YYMMDD10.	Date of observation- only month and years are known
7	avgprice	Num	8	8.2		Average price of a single avocado
2	month	Char	9			Month Name
3	month_num	Num	8			Month Number
18	pres_party	Char	25			Poliical Party of current U.S. president
17	president	Char	20			Name of current U.S. president
5	region	Char	19	$19.	$19.	City or region of the observation
16	temp	Num	8			Temperature difference (degress C)
12	totbags	Num	8			Total number of bags sold
14	totbags_lg	Num	8			Total number of PLU 4225 (large) bags sold
13	totbags_sm	Num	8			Total number of PLU 4046 (small) bags sold
15	totbags_xl	Num	8			Total number of PLU 4770 (xlarge) bags sold
10	totlg	Num	8			Total number of avocados with PLU 4225 (large) sold
9	totsm	Num	8			Total number of avocados with PLU 4046 (small) sold
8	totvol	Num	8			Total Number of avocados sold
11	totxl	Num	8			Total number of avocados with PLU 4770 (xlarge) sold
6	type	Char	12	$12.	$12.	Type of farming method
1	year	Num	8	BEST12.	BEST32.	Year

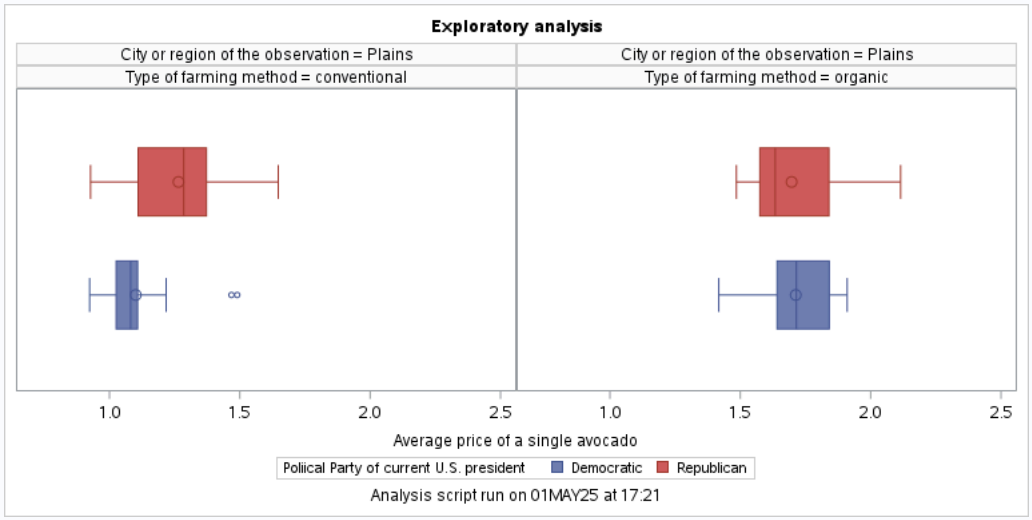
Data processing script run on 01MAY25 at 17:21

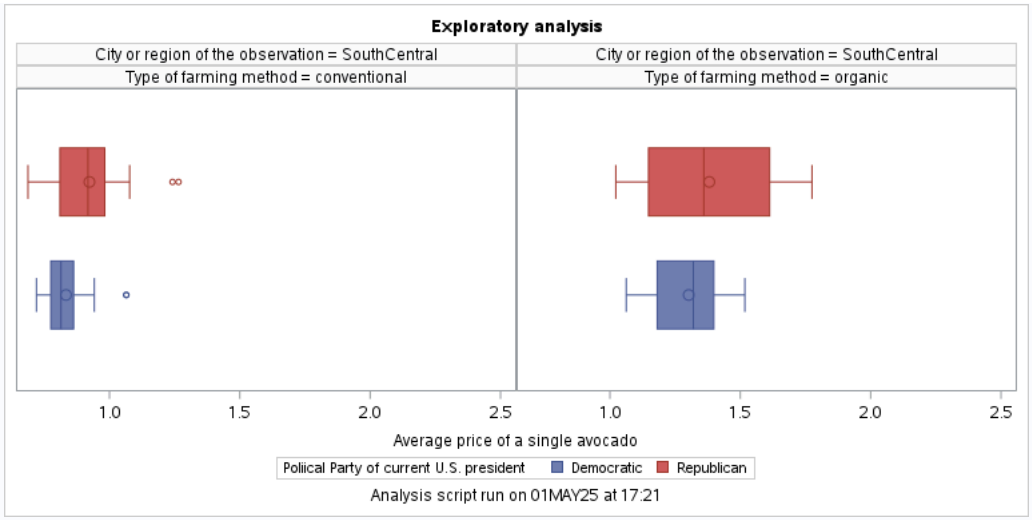


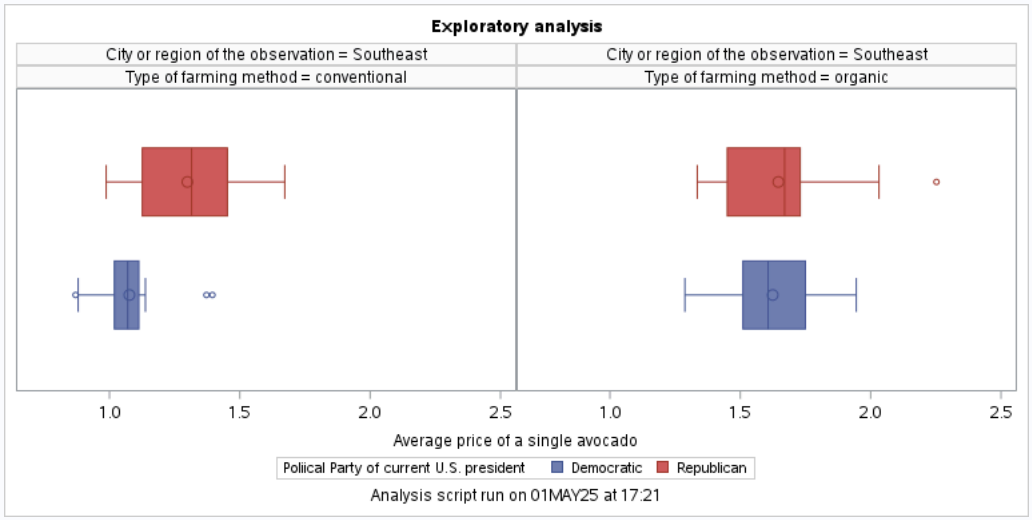


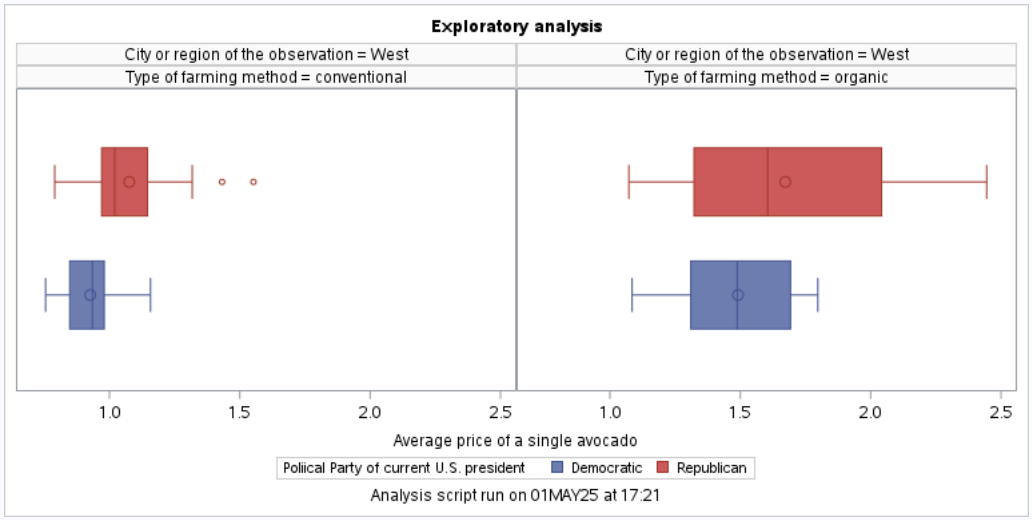

Exploratory analysis
City or region of the observation = GreatLakes
Type of farming method = conventional
City or region of the observation = GreatLakes
Type of farming method = organic
1.0
1.5
2.0
2.5
1.0
1.5
2.0
2.5
Average price of a single avocado
Poliical Party of current U.S. president
Democratic
Republican
Analysis script run on 01MAY25 at 17:21

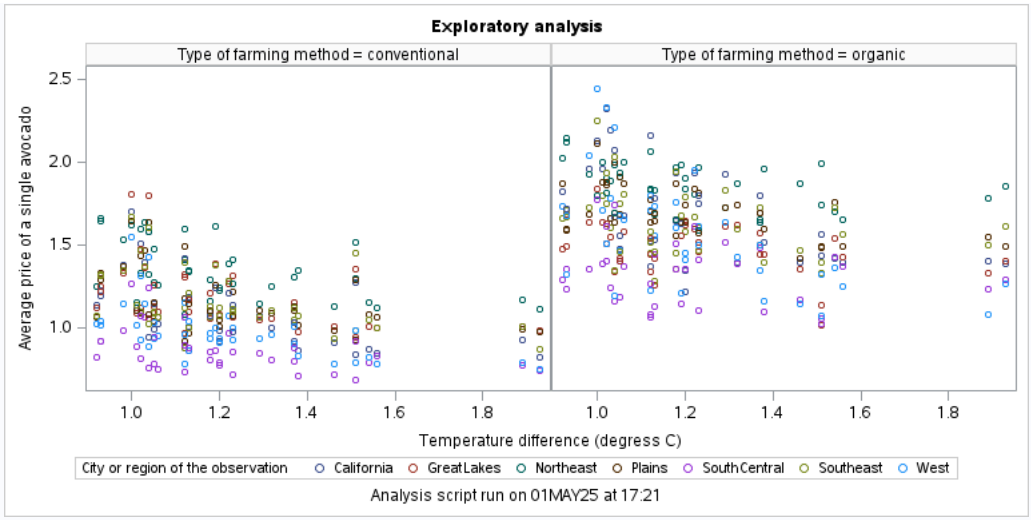

Exploratory analysis
City or region of the observation = Northeast
Type of farming method = conventional
City or region of the observation = Northeast
Type of farming method = organic
1.0
1.5
2.0
2.5
1.0
1.5
2.0
2.5
Average price of a single avocado
Poliical Party of current U.S. president
Democratic
Republican
Analysis script run on 01MAY25 at 17:21


Exploratory analysis
City or region of the observation = Plains
Type of farming method = conventional
City or region of the observation = Plains
Type of farming method = organic
1.0
1.5
2.0
2.5
1.0
1.5
2.0
2.5
Average price of a single avocado
Poliical Party of current U.S. president
Democratic
Republican
Analysis script run on 01MAY25 at 17:21


Exploratory analysis
City or region of the observation = SouthCentral
Type of farming method = conventional
City or region of the observation = SouthCentral
Type of farming method = organic
1.0
1.5
2.0
2.5
Average price of a single avocado
Poliical Party of current U.S. president
Democratic
Republican
Analysis script run on 01MAY25 at 17:21


Exploratory analysis
City or region of the observation = Southeast
Type of farming method = conventional
City or region of the observation = Southeast
Type of farming method = organic
1.0
1.5
2.0
2.5
Average price of a single avocado
Poliical Party of current U.S. president
Democratic
Republican
Analysis script run on 01MAY25 at 17:21


Exploratory analysis
City or region of the observation = West
Type of farming method = conventional
City or region of the observation = West
Type of farming method = organic
1.0
1.5
2.0
2.5
Average price of a single avocado
Poliical Party of current U.S. president
Democratic
Republican
Analysis script run on 01MAY25 at 17:21



Exploratory analysis

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

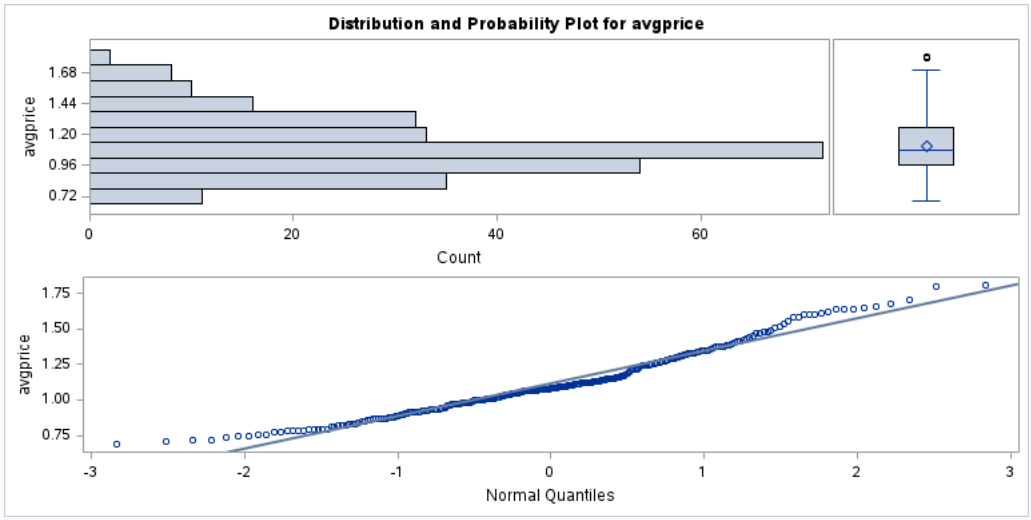
Moments			
N	273	Sum Weights	273
Mean	1.1153956	Sum Observations	304.503
Std Deviation	0.22888502	Variance	0.05238835
Skewness	0.64842948	Kurtosis	0.10512793
Uncorrected SS	353.89094	Corrected SS	14.2496318
Coeff Variation	20.5205237	Std Error Mean	0.01385275

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
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 01MAY25 at 17:21

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

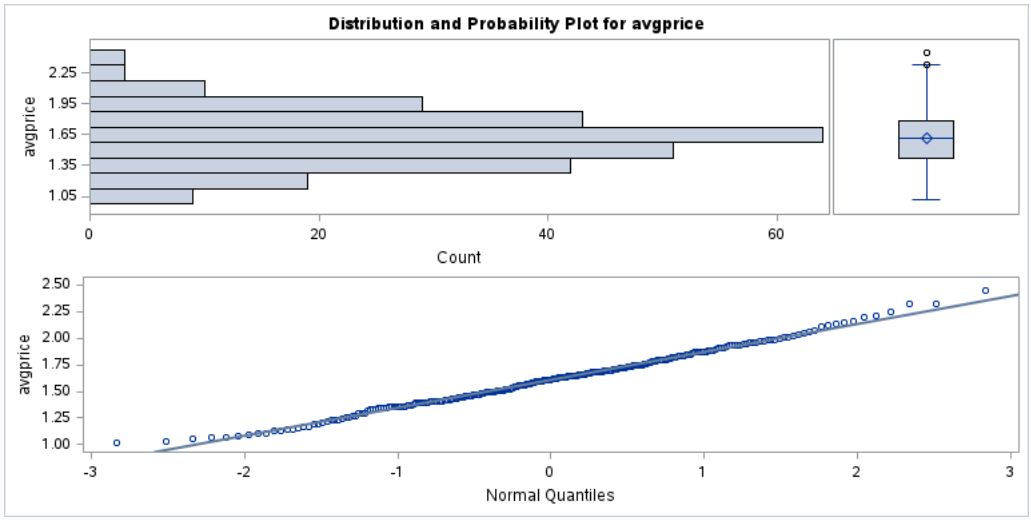
Basic Statistical Measures			
Location		Variability	
Mean	1.610216	Std Deviation	0.26445
Median	1.612500	Variance	0.06993
Mode	1.612500	Range	1.43000
		Interquartile Range	0.36200

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 01MAY25 at 17:21

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 01MAY25 at 17:21

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)
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 01MAY25 at 17:21

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

Analysis Variable : avgprice Average price of a single avocado						
Month Number	N Obs	N	Mean	Std Dev	Minimum	Maximum
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 01MAY25 at 17:21

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 01MAY25 at 17:21

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

Analysis Variable : avgprice Average price of a single avocado						
City or region of the observation	N Obs	N	Mean	Std Dev	Minimum	Maximum
West	39	39	1.5609615	0.3276098	1.0725000	2.4450000

Analysis script run on 01MAY25 at 17:21

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 01MAY25 at 17:21

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 01MAY25 at 17:21

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 01MAY25 at 17:21

Regression Model fits

The GLM Procedure

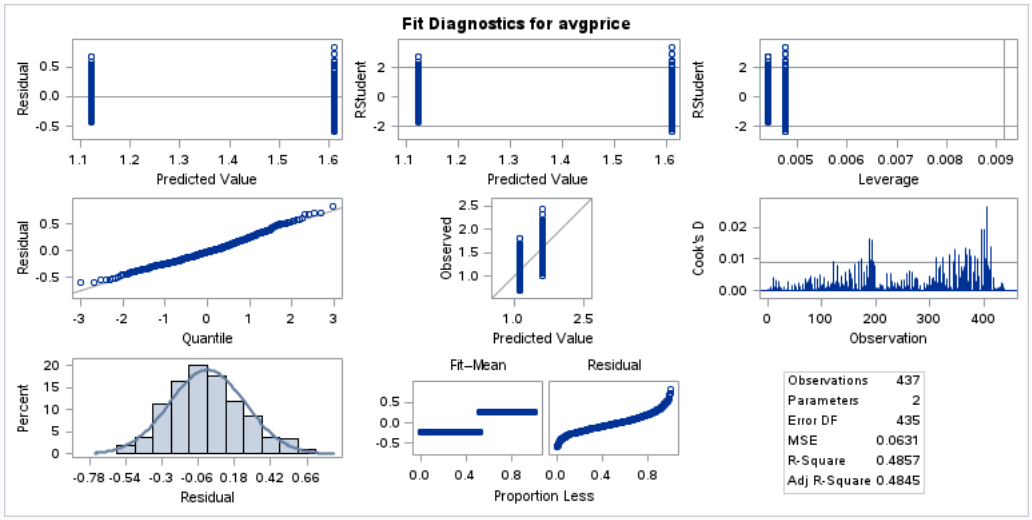
Dependent Variable: avgprice Average price of a single avocado

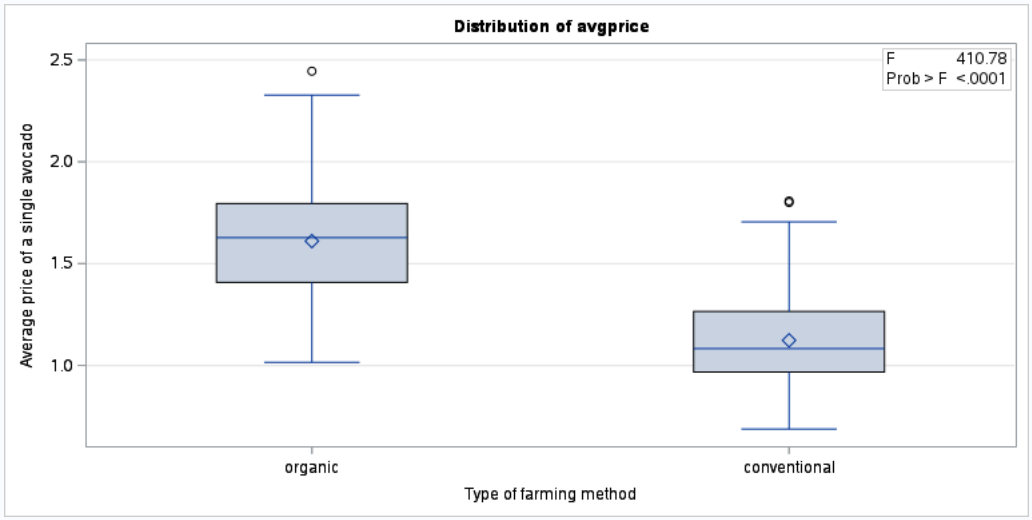
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	25.91085330	25.91085330	410.78	<.0001
Error	435	27.43887152	0.06307787		
Corrected Total	436	53.34972481			

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 01MAY25 at 17:21

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 01MAY25 at 17:21

Regression Model fits

The GLM Procedure

Dependent Variable: avgprice Average price of a single avocado

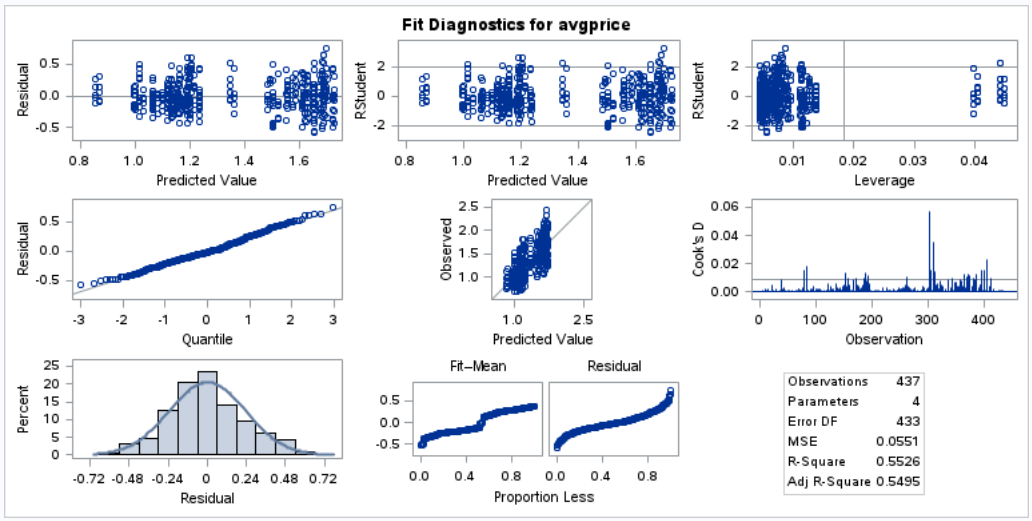
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	29.47994638	9.82664879	178.26	<.0001
Error	433	23.86977843	0.05512651		
Corrected Total	436	53.34972481			

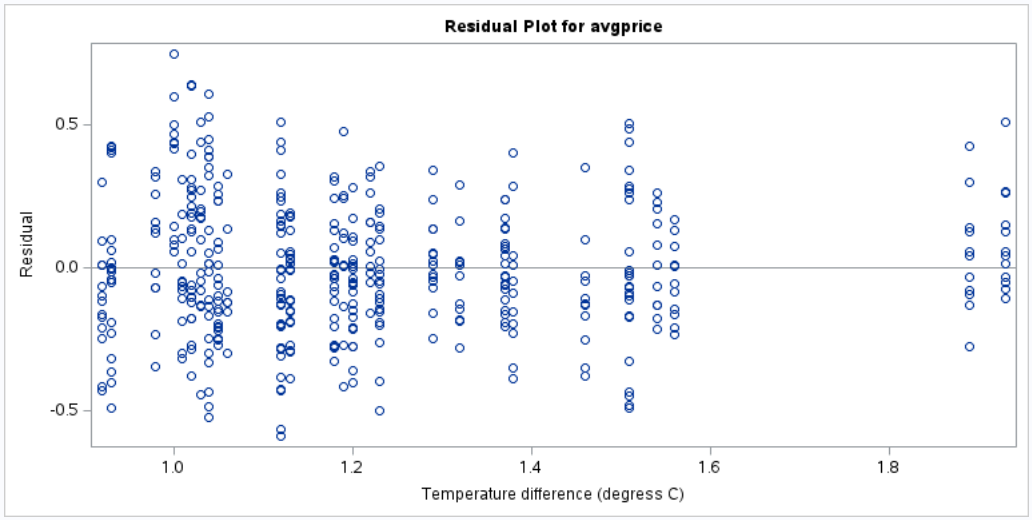
R-Square	Coeff Var	Root MSE	avgprice Mean
0.552579	17.29898	0.234790	1.357249

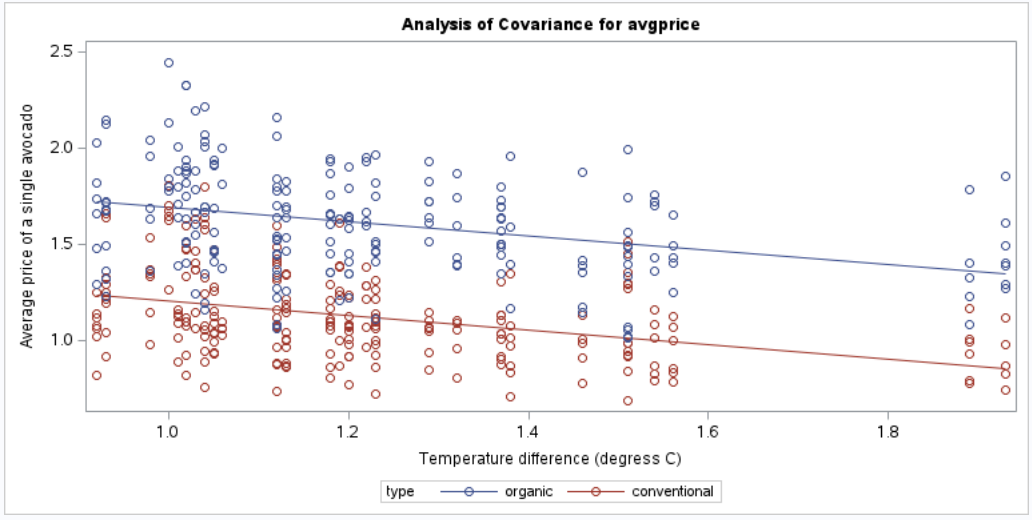
Source	DF	Type I SS	Mean Square	F Value	Pr > F
type	1	25.91085330	25.91085330	470.03	<.0001
temp	1	3.56909308	3.56909308	64.74	<.0001
temp*type	1	0.00000001	0.00000001	0.00	0.9997

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

Source	DF	Type III SS	Mean Square	F Value	Pr > F
temp*type	1	0.00000001	0.00000001	0.00	0.9997







Analysis script run on 01MAY25 at 17:21

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
Number of Observations Used	437

Analysis script run on 01MAY25 at 17:21

Regression Model fits

The GLM Procedure

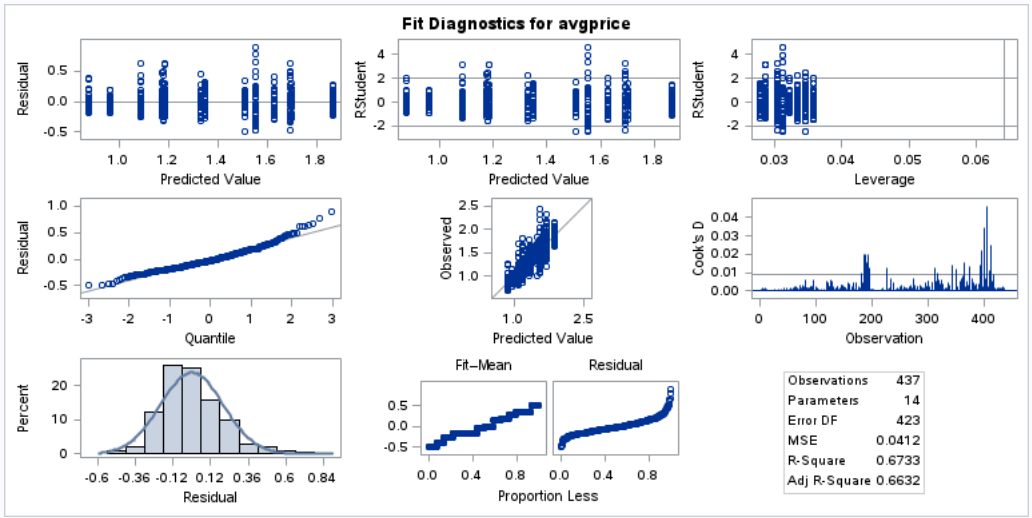
Dependent Variable: avgprice Average price of a single avocado

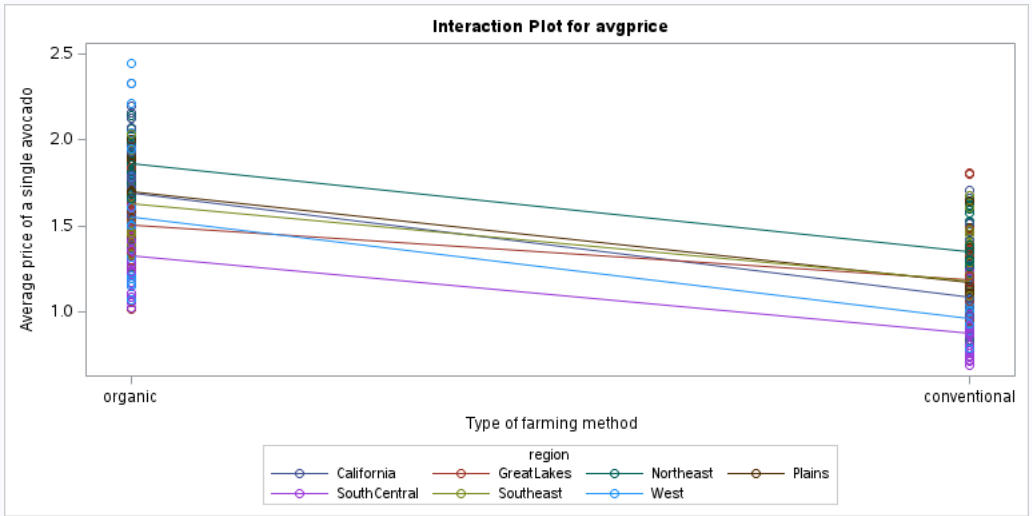
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	13	35.91986833	2.76306679	67.06	<.0001
Error	423	17.42985648	0.04120533		
Corrected Total	436	53.34972481			

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 01MAY25 at 17:21

Regression Model fits

The GLM Procedure

Class Level Information		
Class	Levels	Values

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 01MAY25 at 17:21

Regression Model fits

The GLM Procedure

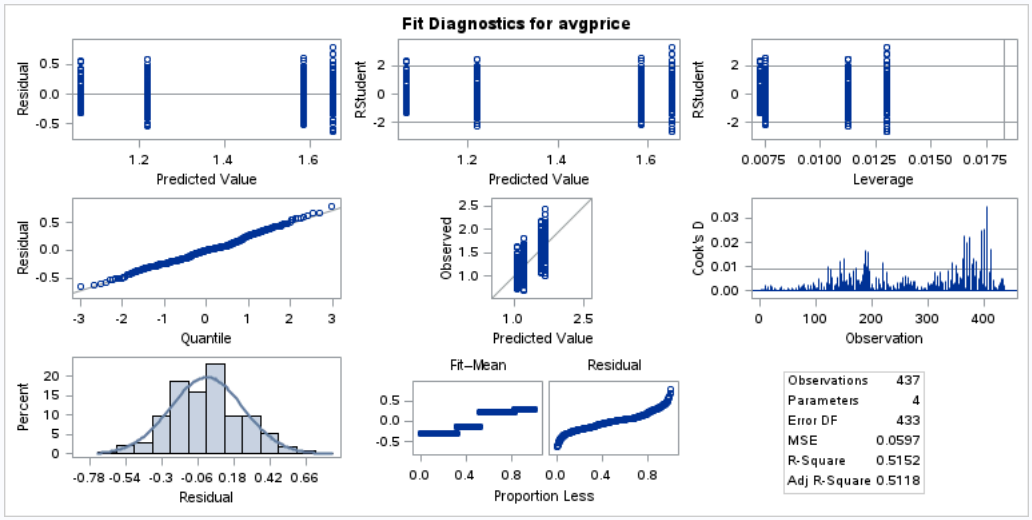
Dependent Variable: avgprice Average price of a single avocado

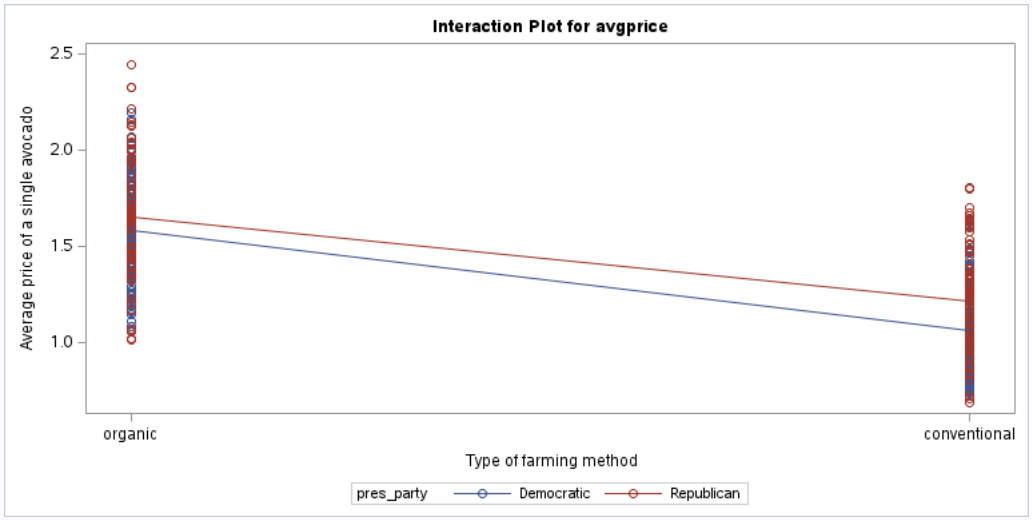
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	27.48449737	9.16149912	153.37	<.0001
Error	433	25.86522744	0.05973494		
Corrected Total	436	53.34972481			

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 01MAY25 at 17:21

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 01MAY25 at 17:21

Regression Model fits

The GLM Procedure

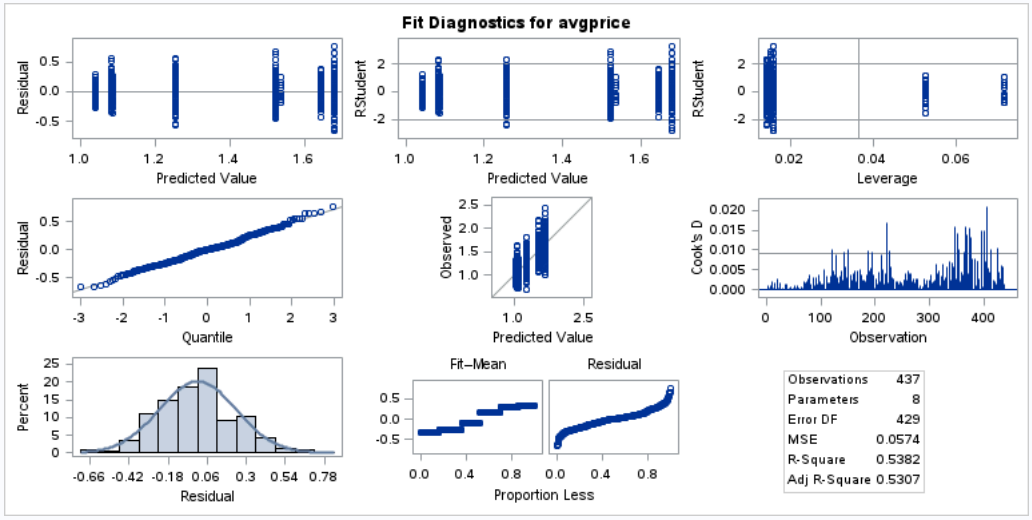
Dependent Variable: avgprice Average price of a single avocado

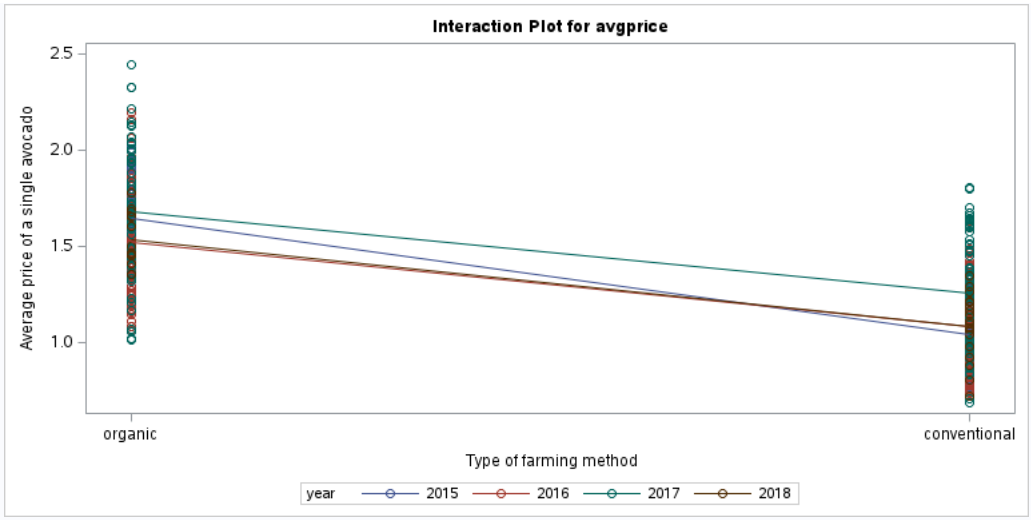
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	7	28.71281652	4.10183093	71.42	<.0001
Error	429	24.63690829	0.05742869		
Corrected Total	436	53.34972481			

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 01MAY25 at 17:21

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 01MAY25 at 17:21

Regression Model fits

The GLM Procedure

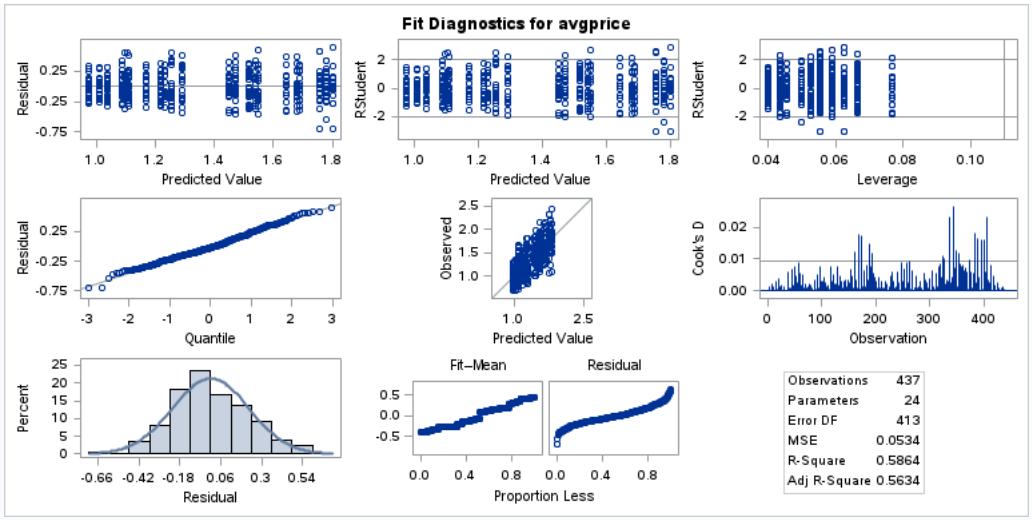
Dependent Variable: avgprice Average price of a single avocado

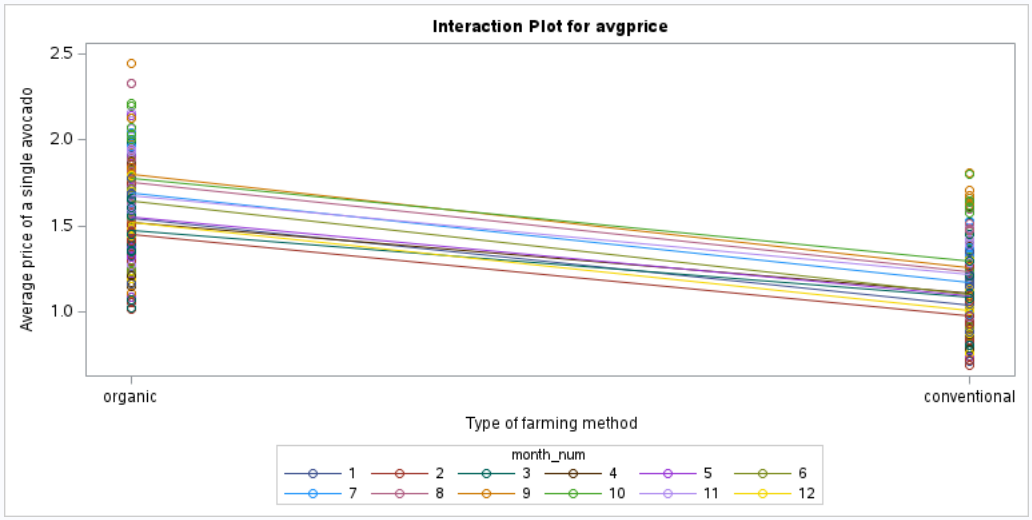
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	23	31.28692820	1.36030123	25.46	<.0001
Error	413	22.06279661	0.05342082		
Corrected Total	436	53.34972481			

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 01MAY25 at 17:21

Regression Model fits

Covariate	RMSE	R_Square
Type only	0.25115	0.48568
Temperature	0.23479	0.55258
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 01MAY25 at 17:21

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 01MAY25 at 17:21

Regression Model fits

The GLM Procedure

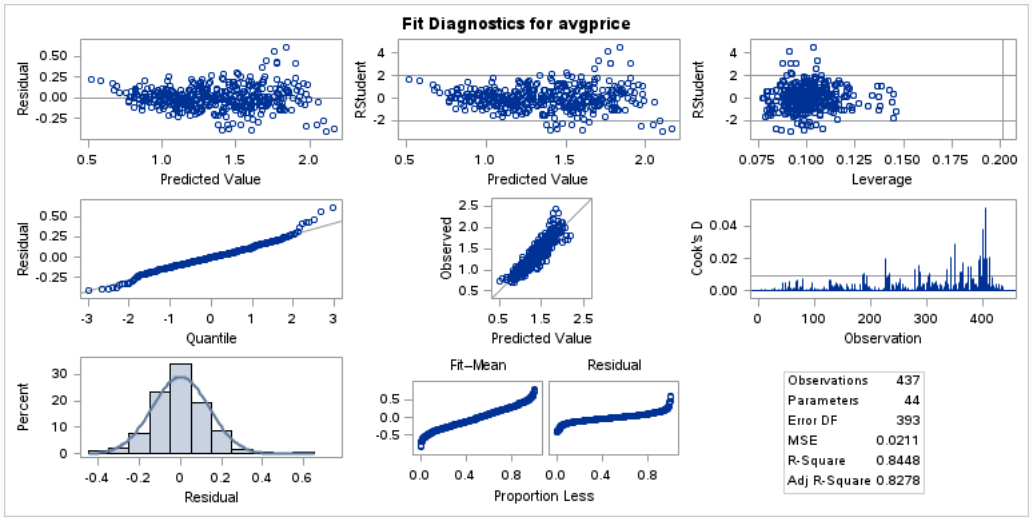
Dependent Variable: avgprice Average price of a single avocado

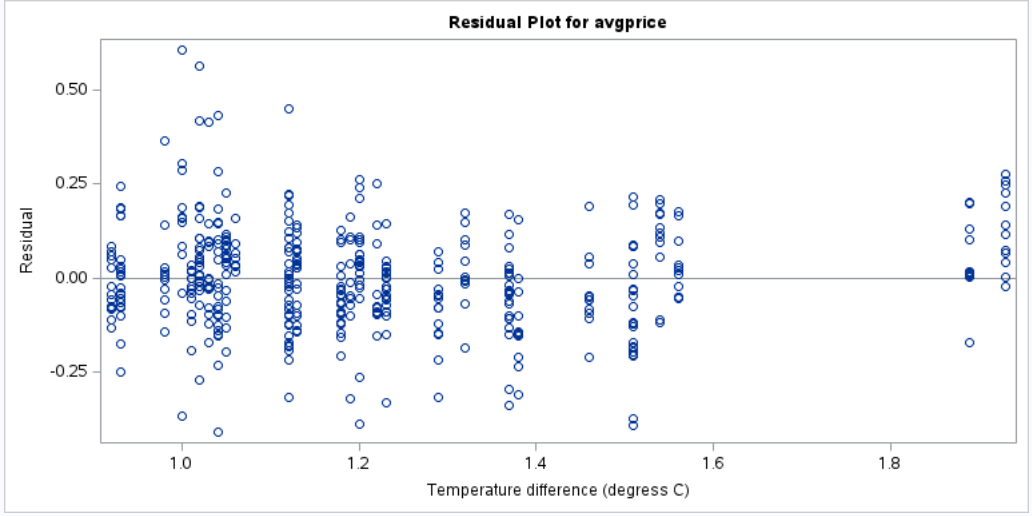
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	43	45.07133248	1.04817052	49.76	<.0001
Error	393	8.27839234	0.02106461		
Corrected Total	436	53.34972481			

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
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





Analysis script run on 01MAY25 at 17:21

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 01MAY25 at 17:21

Regression Model fits

The GLM Procedure

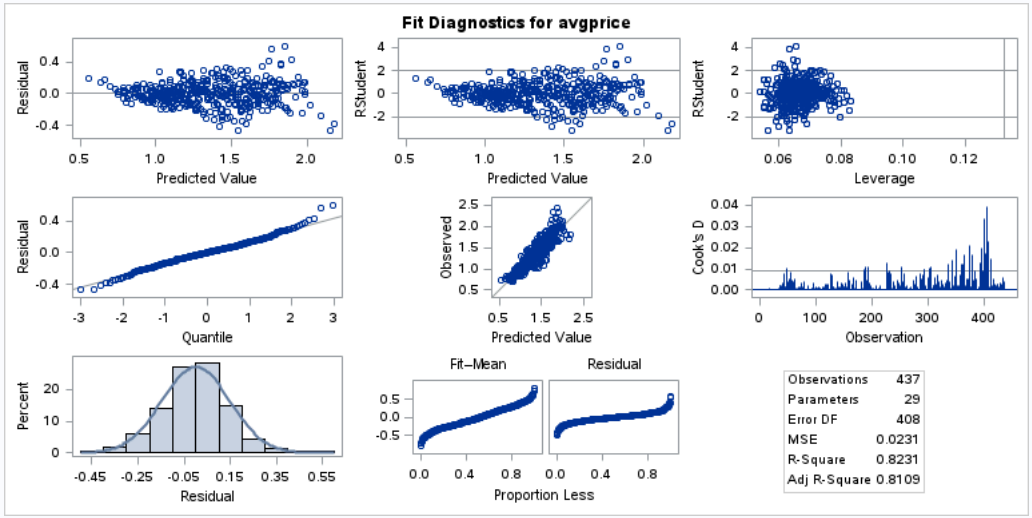
Dependent Variable: avgprice Average price of a single avocado

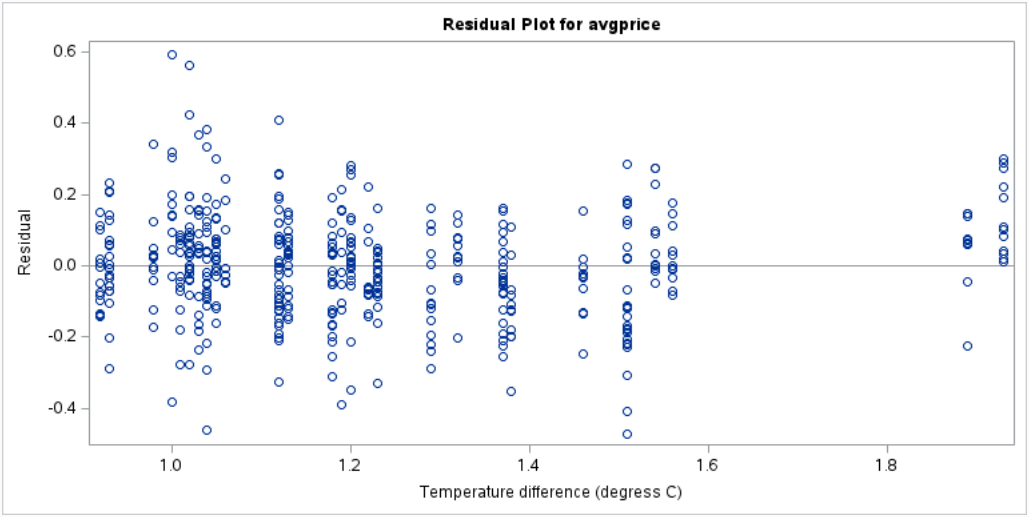
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	28	43.91097722	1.56824919	67.79	<.0001
Error	408	9.43874759	0.02313419		
Corrected Total	436	53.34972481			

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 01MAY25 at 17:21

Model Evaluation

The PLM Procedure

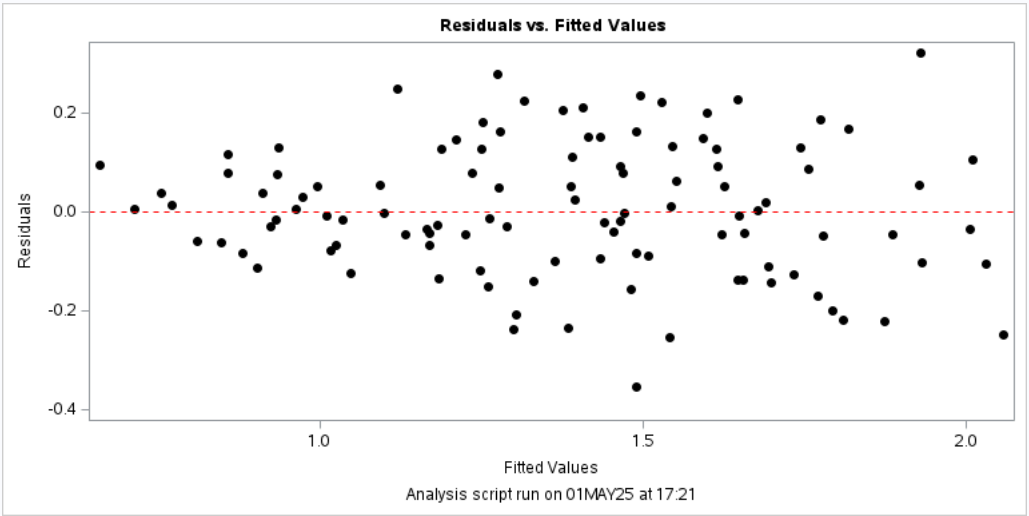
Store Information	
Item Store	WORK.FINAL_MODEL
Data Set Created From	WORK.DAT_TRAIN
Created By	PROC GLM
Date Created	01MAY25:17:24:30
Response Variable	avgprice
Class Variables	type region pres_party month_num year
Model Effects	Intercept type temp region pres_party month_num year type*region

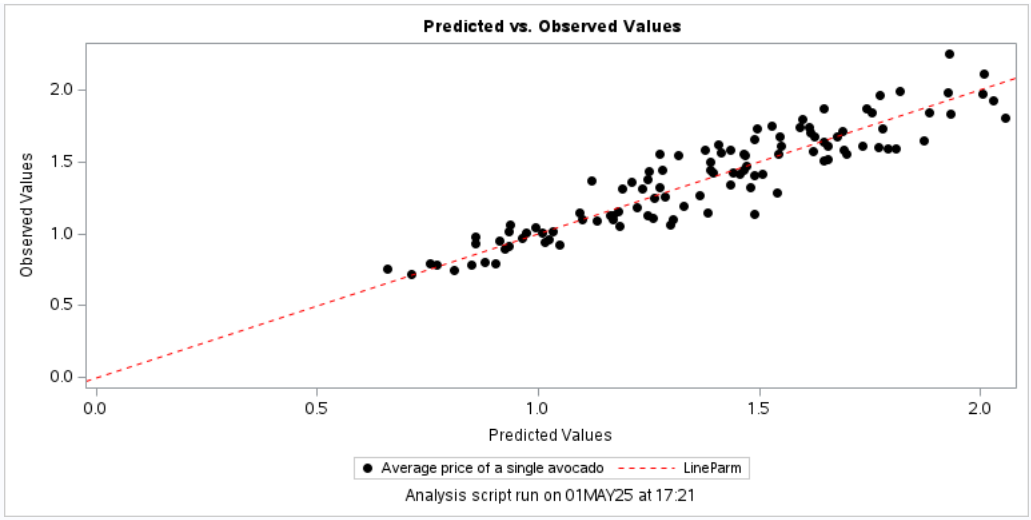
Analysis script run on 01MAY25 at 17:21

RMSE and R-squared on Test Data

Obs	rmse	rsq
1	0.13313	0.85448

Analysis script run on 01MAY25 at 17:21




Predicted vs. Observed Values
Observed Values
2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
1.5
2.0
Predicted Values
Average price of a single avocado
LineParm
Analysis script run on 01MAY25 at 17:21