



AVOCADO PRICE PREDICTION

Presented by Yitong Sun and Lin Liu

Agenda

- Exploratory Data Analysis
- Machine Learning Analysis
- Real Prediction

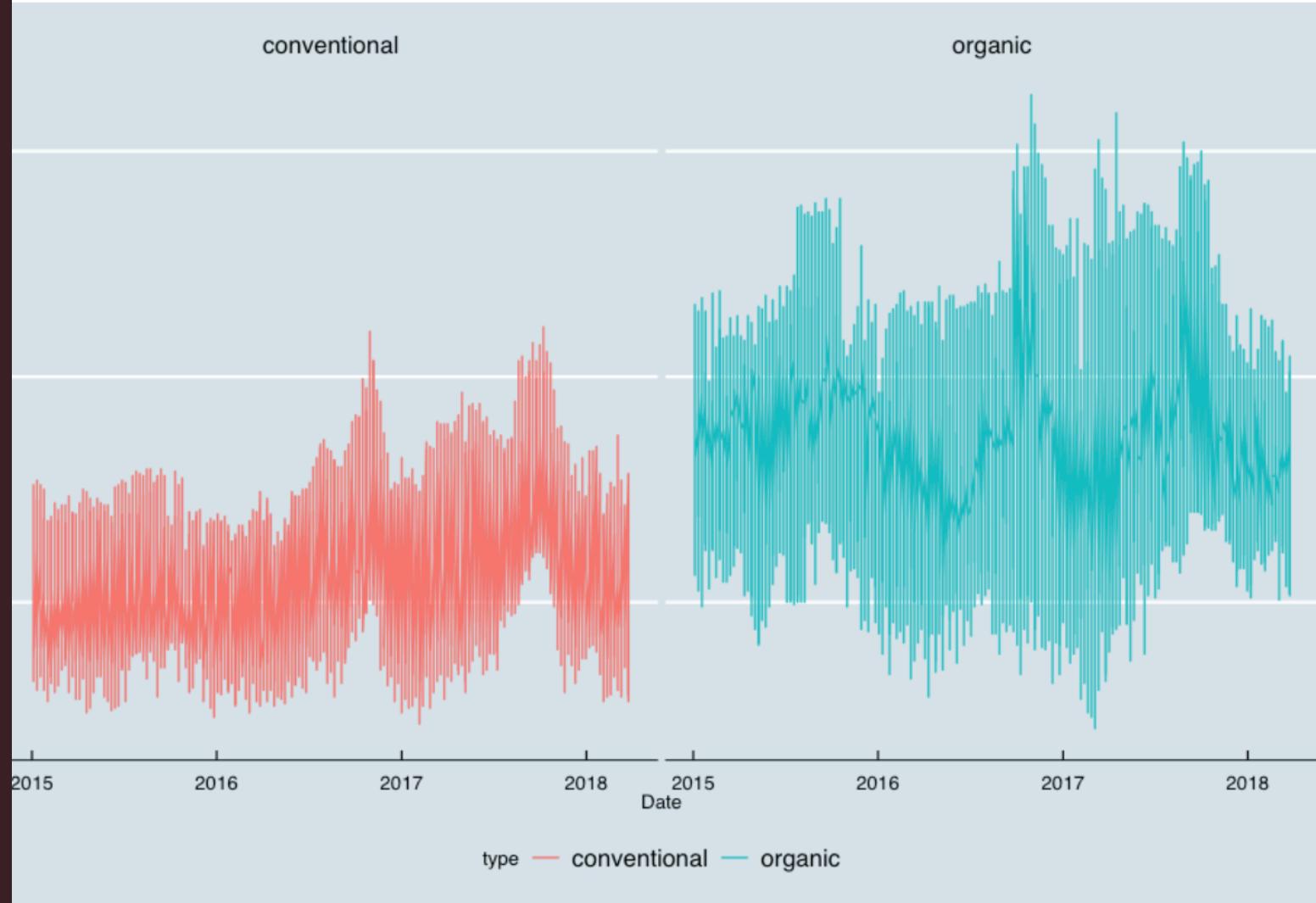


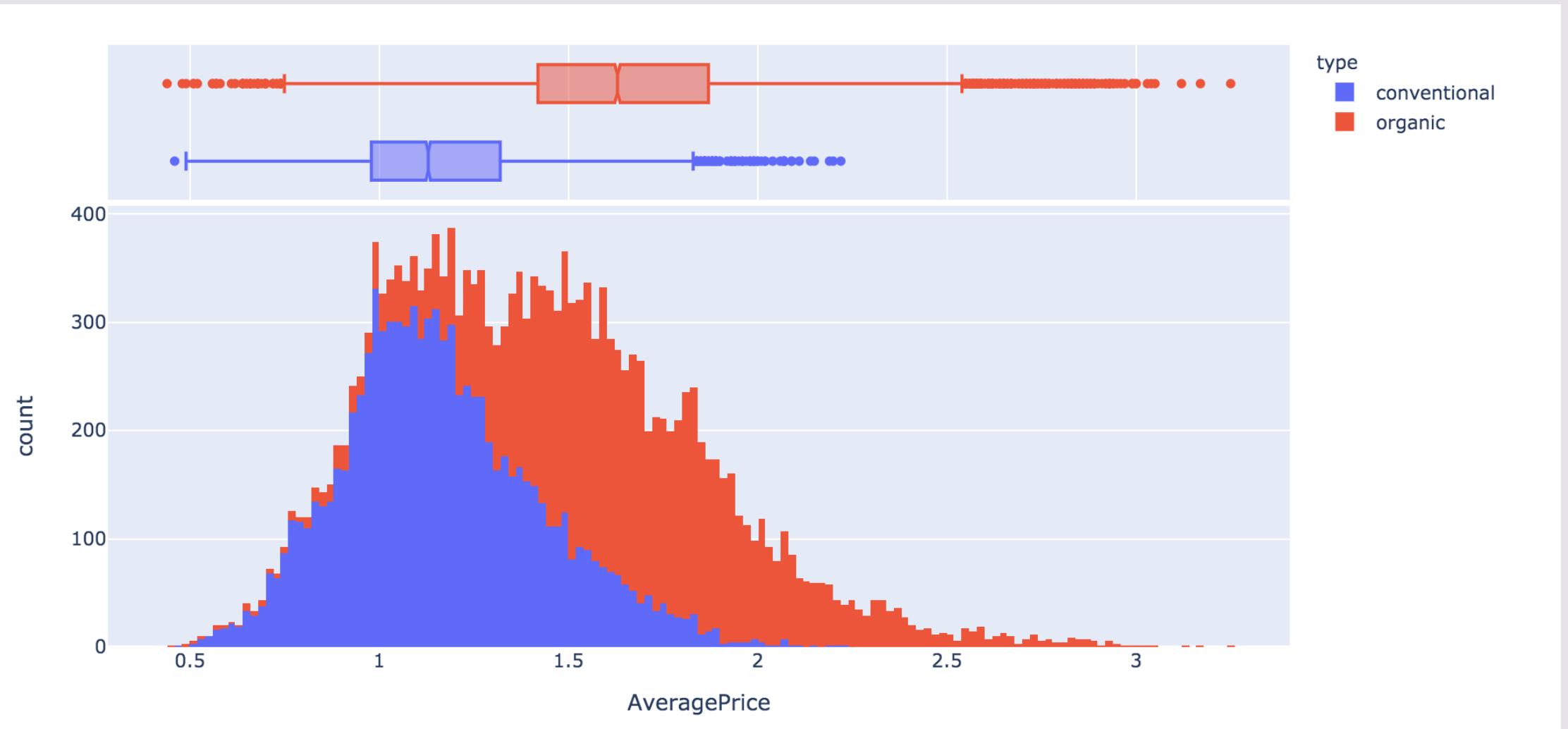
Data Overview

Unnamed: 0	Date	AveragePrice	Total Volume	4046	4225	4770	Total Bags	Small Bags	Large Bags	XLarge Bags	type	year	region
0	0	2015-12-27	1.33	64236.62	1036.74	54454.85	48.16	8696.87	8603.62	93.25	0.0	conventional	2015
1	1	2015-12-20	1.35	54876.98	674.28	44638.81	58.33	9505.56	9408.07	97.49	0.0	conventional	2015
2	2	2015-12-13	0.93	118220.22	794.70	109149.67	130.50	8145.35	8042.21	103.14	0.0	conventional	2015
3	3	2015-12-06	1.08	78992.15	1132.00	71976.41	72.58	5811.16	5677.40	133.76	0.0	conventional	2015
4	4	2015-11-29	1.28	51039.60	941.48	43838.39	75.78	6183.95	5986.26	197.69	0.0	conventional	2015

Conventional & Organic Avocado

Conventional avocados cost on average \$1.16 across all regions while organic avocados cost \$1.65 on average.





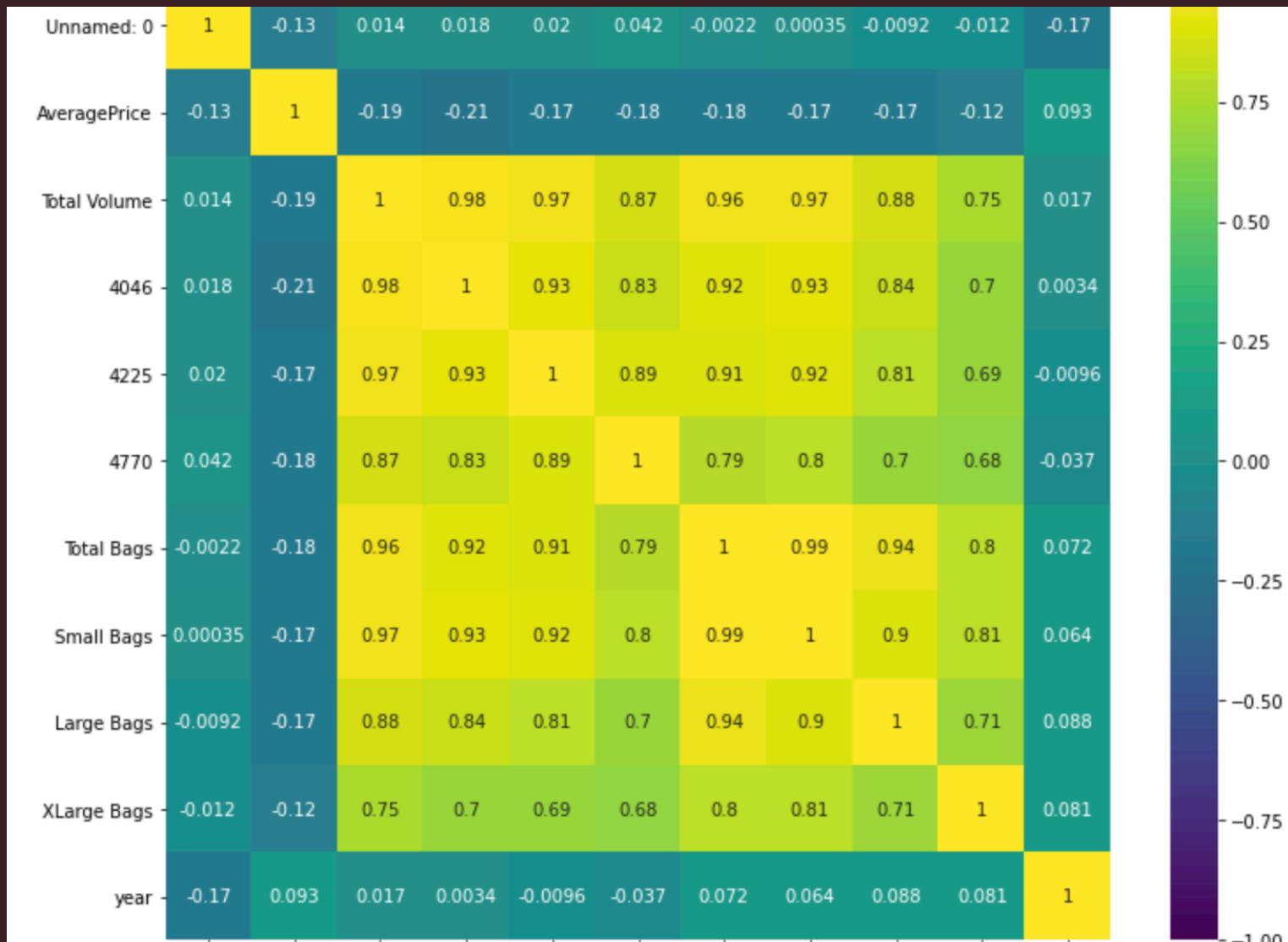
Heatmap



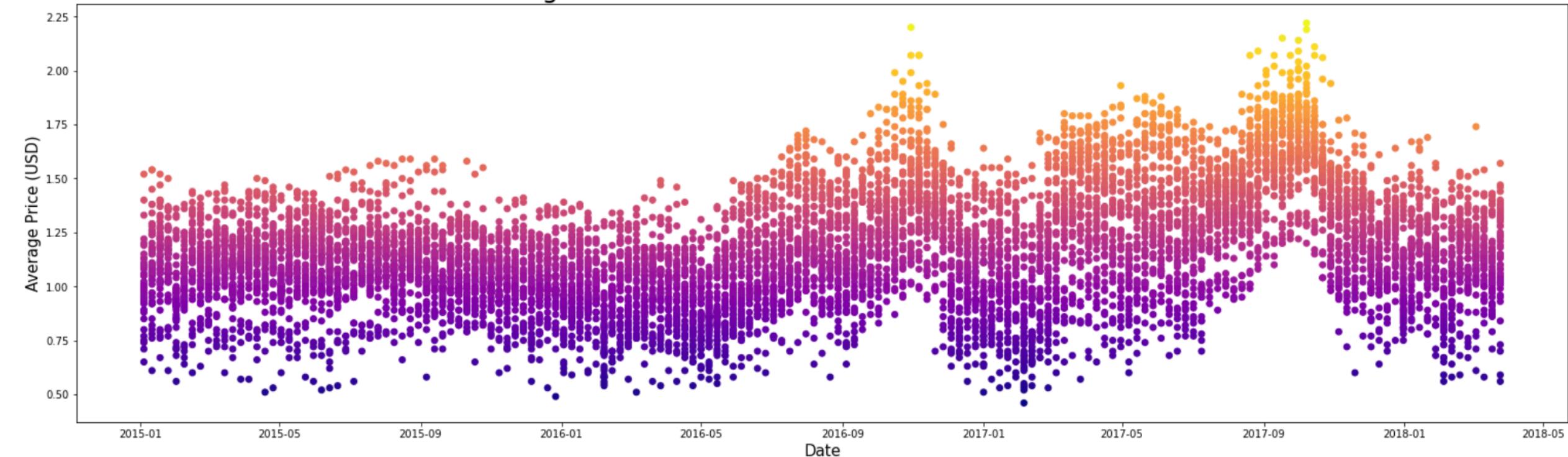
Collinearity Issue –
PLU Code and Bag



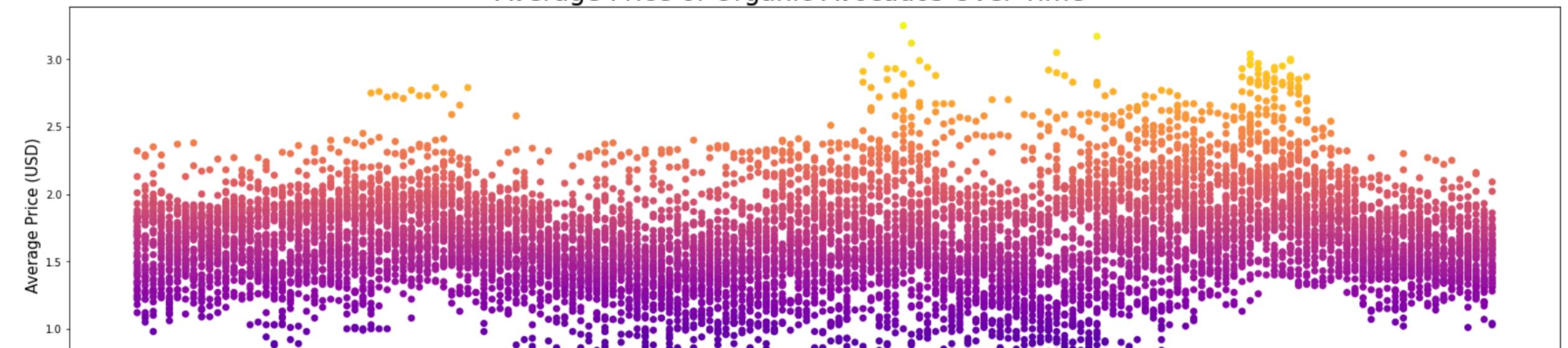
Price is strongly
correlated to the
avocado type



Average Price of Conventional Avocados Over Time



Average Price of Organic Avocados Over Time



Machine Learning



LINEAR REGRESSION



RANDOM FOREST



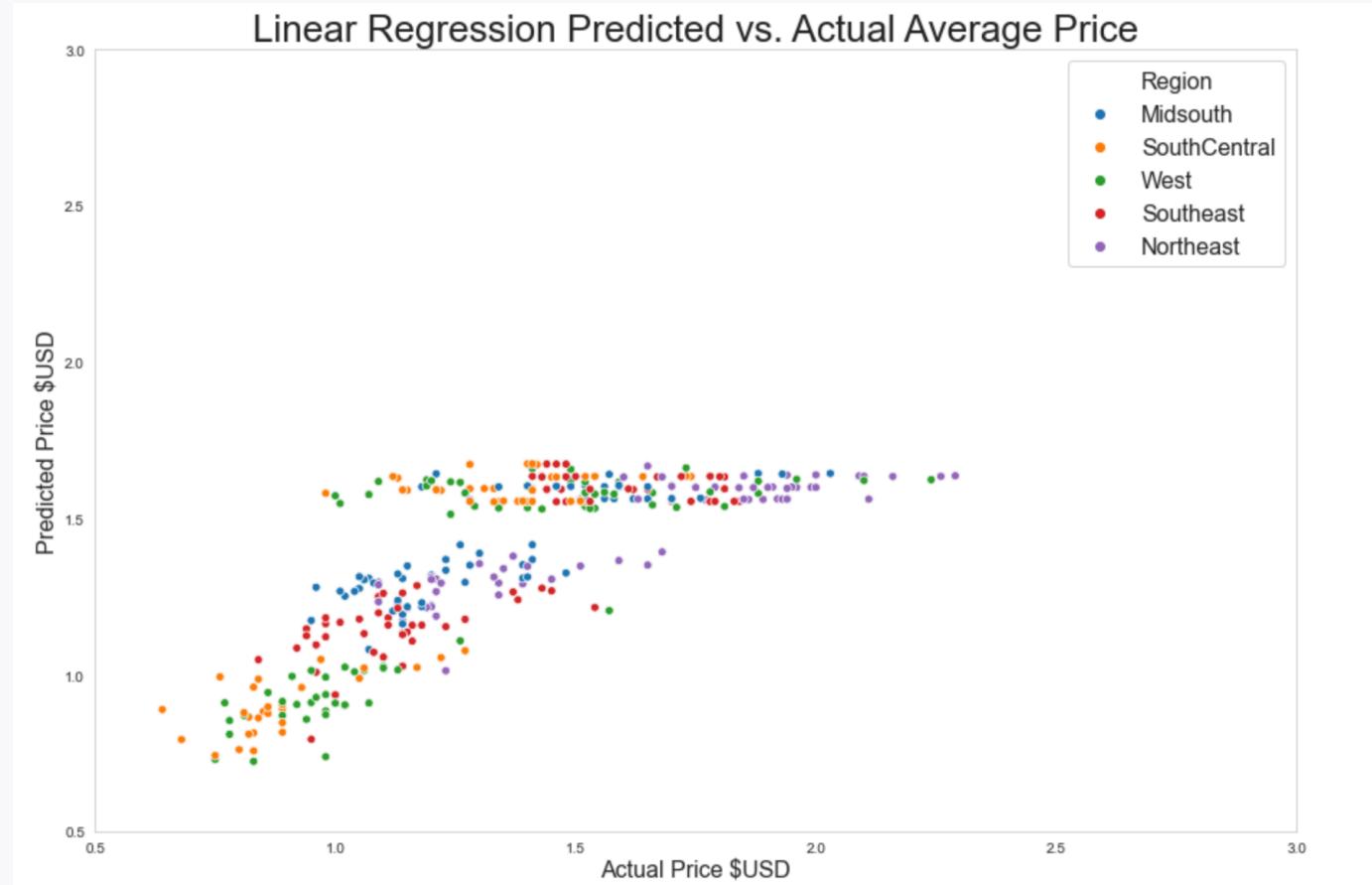
K-NEAREST NEIGHBOR

Linear Regression



train data accuracy : 40.5%

test data accuracy : 41.1%

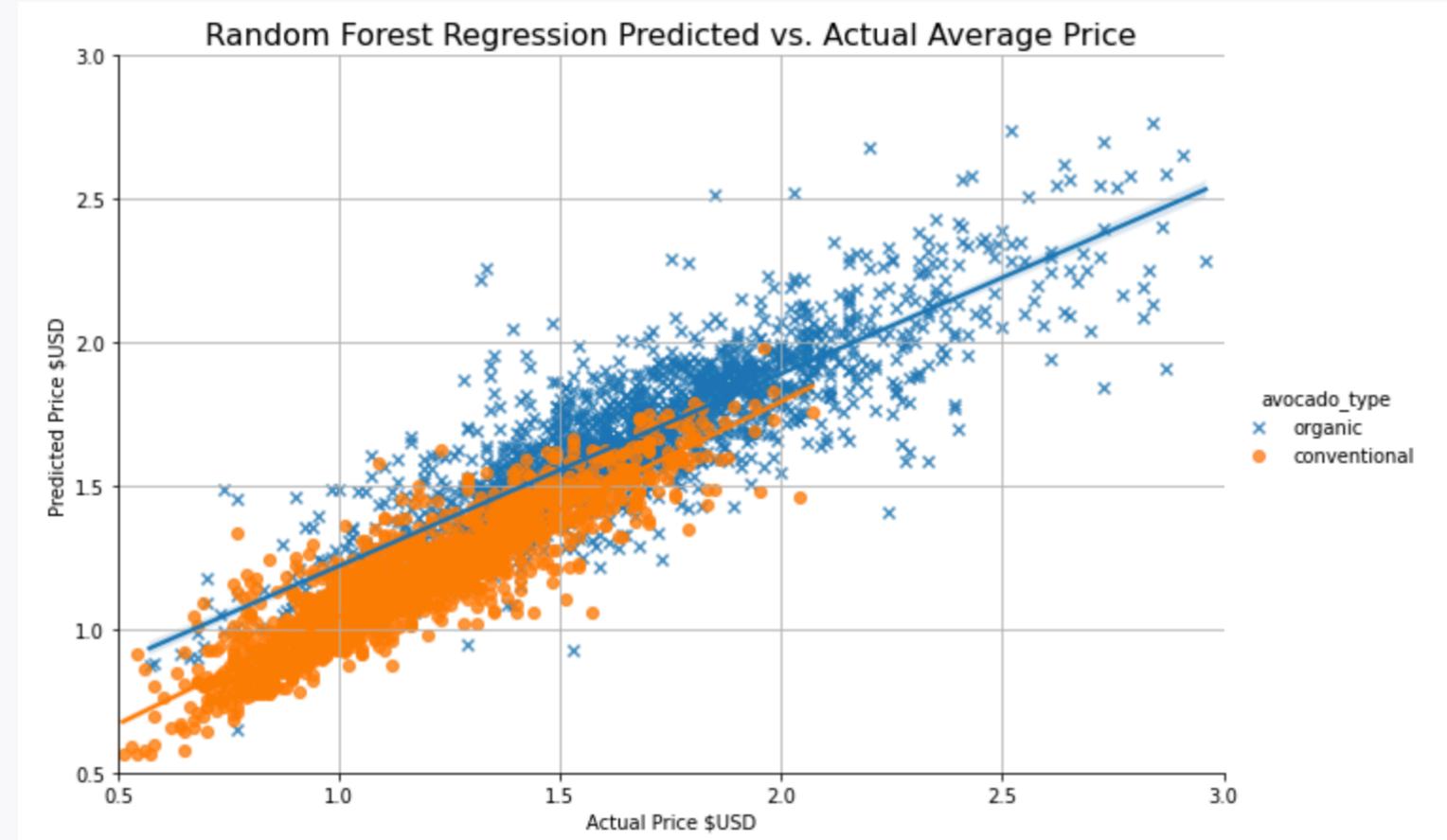


Random Forest



train data accuracy : 97.9%

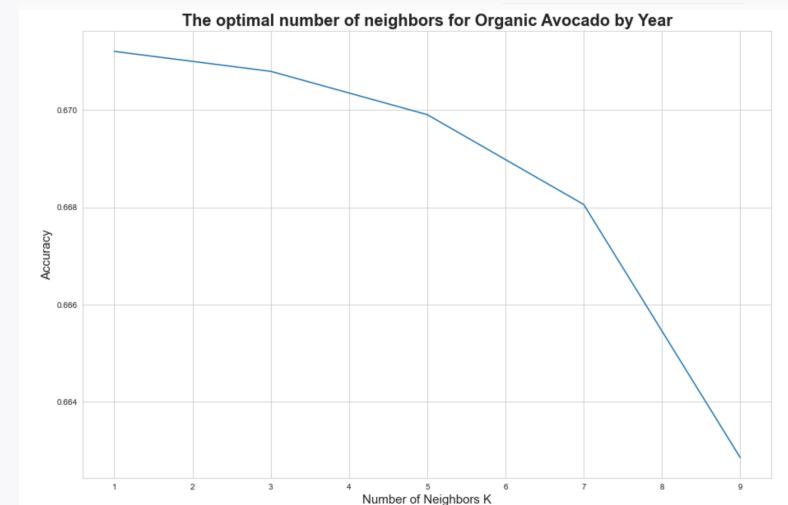
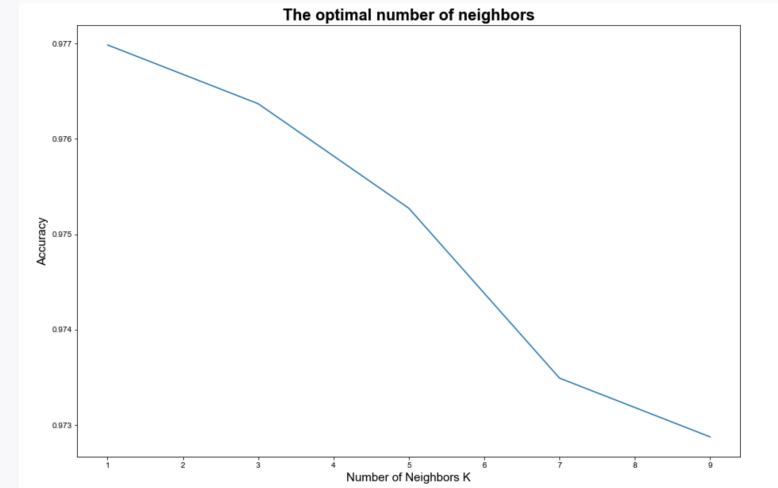
test data accuracy : 84.6%



K-NEAREST NEIGHBOR

Accuracy of our model is equal to 67.97%

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[[960 105 45 7]
 [233 702 176 21]
 [126 255 750 44]
 [ 8 34 115 69]]
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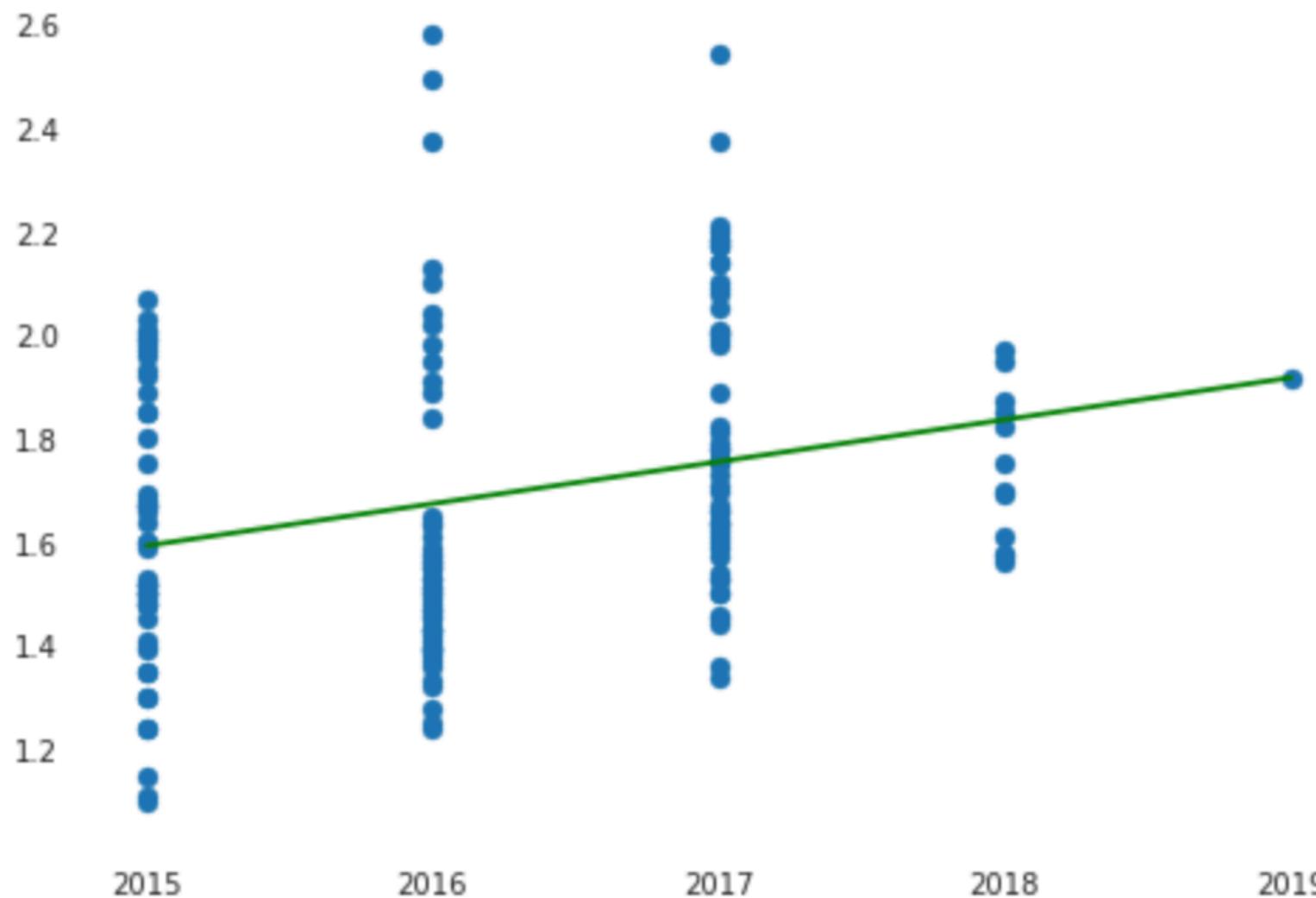




REAL
PREDICTION

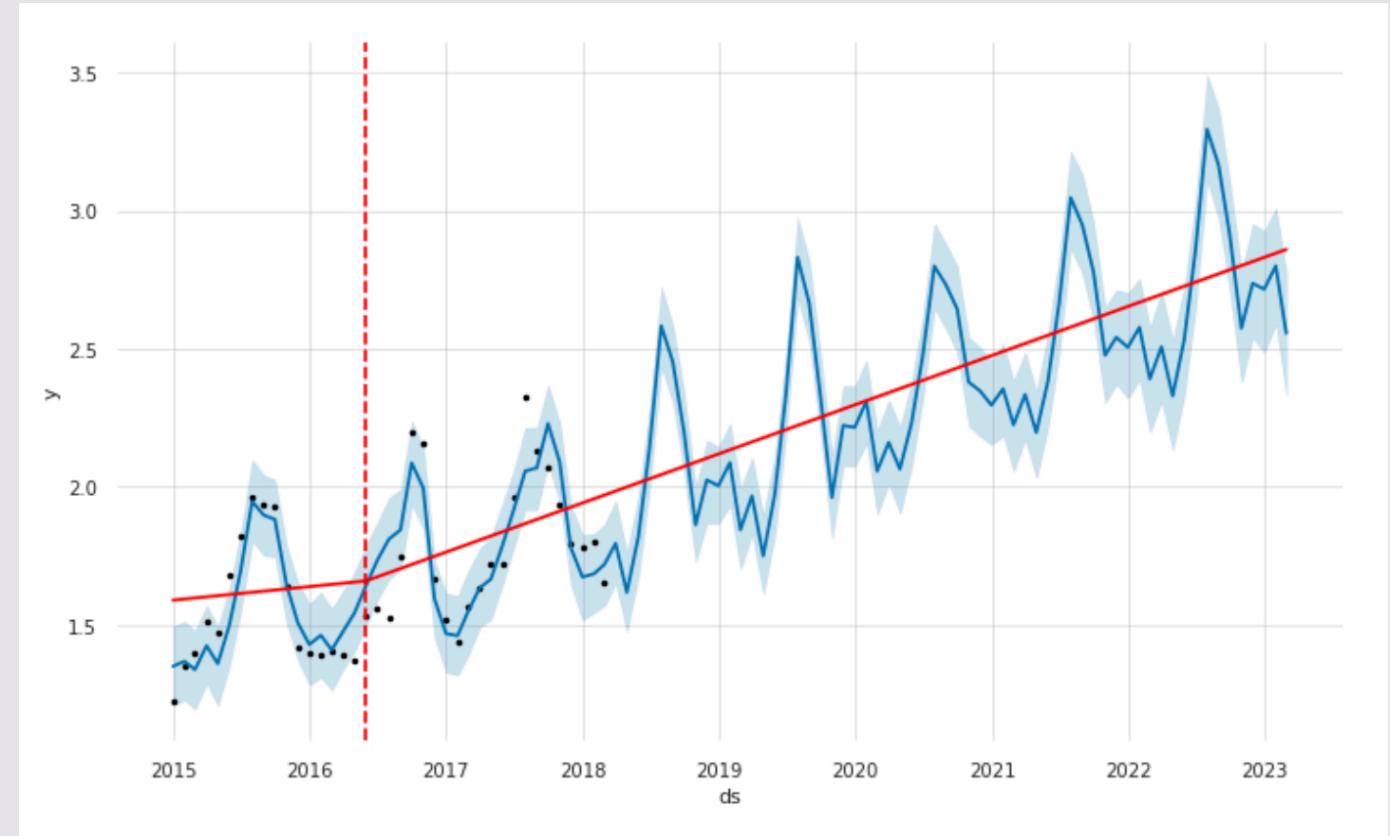
LINEAR MODEL VIA SCIPY

Predicted avocado price in California in 2019 is:
1.916347 USD

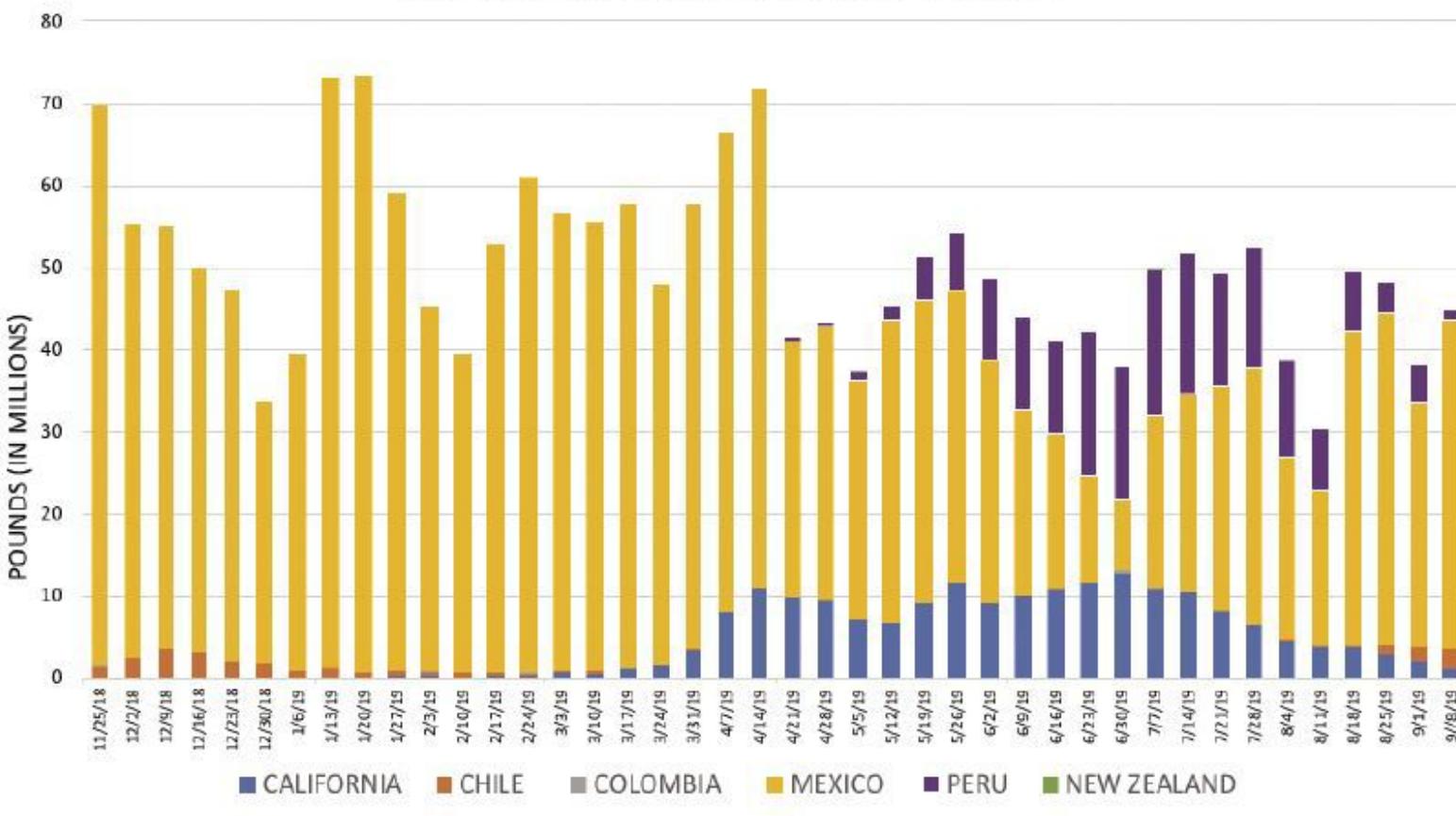


FB Prophet

Prophet is used in many applications across Facebook for producing reliable forecasts for planning and goal setting. We've found it to perform better than any other approach in most cases.

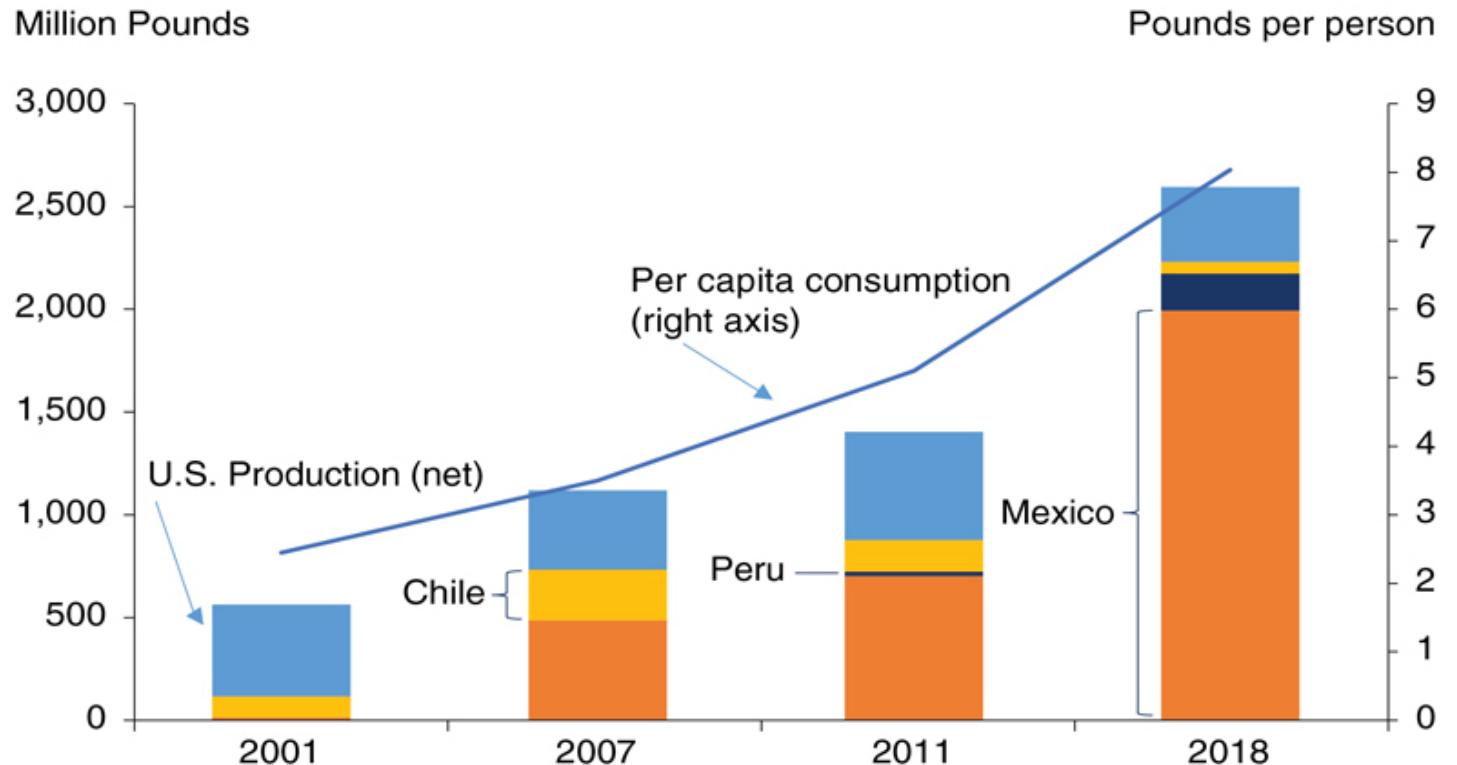


HASS IMPORTS & CALIF. HARVEST VOLUMES



REAL-LIFE
AVOCADO PRICE
CHANGE FROM
2019 – 2020

U.S. avocado production (net), imports and consumption, 2001-2018



Notes: The bars give the sources of supply of avocados that are satisfying growing U.S. consumer demand: U.S. production and major foreign suppliers. U.S. production (net) is output minus exports, that is, U.S. production domestically consumed. The bars are in calendar years.

Source: USDA, Economic Research Service, Fruit and Tree Nut Data, and Trade Data Monitor.

IN THE LONG
RUN...

THANK YOU!

