**The Avocado Project**

Conclusions & Observations

General Hypotheses:

H0: There is no difference in the various aspects of avocados studied throughout the year, despite factors.

HA: There IS a difference in various aspects of avocados studied throughout the year according to several factors.

Questions Reviewed:

1. Who exports the most avocados to the US?

* Chi squared value of 21,403,475,432.32 exceeds the critical value of 9.49 AND the p-value is 0.0, so we can assume that the results are statistically significant.
* We expected a difference between exporters to the US, but we did not expect SUCH a significant dominance by Mexico, 79.4% of total volume for 1/012017-7/14/2020!
* A screenshot of a cell phone

  Description automatically generatedA close up of text on a white background

  Description automatically generatedWe thought the US exported to other countries, but it is very minimal. Our original question covering this had to be dropped based on research.

1. Does the month of year affect avocado sales or prices?

* To find seasonal sales information, dates, total volume sold, and the average price of the avocados were needed. This information showed that time of year could affect volume sold, but more research needed to be made for other factors including: supply and demand, weather, and holidays.
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  Description automatically generatedWhen the individual years were analyzed compared to sales, a conclusion could not be made for the month with the highest sales or the month with the lowest avocado prices.

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1. What is the popularity of avocados within the United states sold by region?

* Hass avocado board identified 54 top market regions within the United States, the data provided included all sizes and bulk distributions.
* Data indicates Total consumption of avocado for the United States:
  + Total lbs. sold to market 24,960,842,913
  + Small Avocado 8,068,993,745
  + Large Avocado 7,926,564,441
  + X-Large Avocado 605,441,644
  + Total Bulk bags 8,357,394,158
* A close up of a measure

  Description automatically generatedAfter reviewing the avocado.csv dataset, we found a large discrepancy with the total lbs. listed, it did not reflect the actual for the product count provided in the data, this was due to certain avocado types sold not being listed in the dataset.

1. Can the type of avocado offered affect sales?

A close up of a measure

Description automatically generatedThe United states prefers the small avocados.

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1. How do the prices of conventional avocados compare to organic?

* As the box plot analysis showed, Organic avocados cost roughly 34% more than Conventional.
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  Description automatically generatedAfter cleaning, compiling, and organizing the relevant datasets we can see that Organic Avocados are consistently more expensive than Conventional Avocados.

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1. How do the units sold compare between conventional and organic avocados?

* When looking over their average volume sold, we see that in 2019 Organic Avocados roughly sold 72,000-units, Conventional Avocados sold around 2,000,000-units. Taking these two averages, Conventional Avocados sold roughly 186% more than organic.
* Conventional Avocados have a higher average volume sold than Organic, These results pose an inverse relationship between cost and units sold ultimately suggesting that the lower cost leads to higher sales.

![A close up of a fruit

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