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Final Project: Analysis of Pesticide Usage and Climate Change Impacts on U.S. Honey Production

The goal of my project was to analyze the effect pesticide usage and seasonal temperature in the United States have on a hive's productivity. I have learned from my project that I need to return to data exploration/data wrangling steps of the data analysis process. Unfortunately, the variables I chose failed to capture the negative relationship between pesticide usage and climate change on hive productivity. An assumption I made in my analysis is that rising temperature from climate change would directly impact the health of a hive. However, it is possible that temperature does not have a direct effect on a hive and may indirectly impact it through other abiotic and biotic factors. Additionally, the dataset I used to capture the relationship between honeybees and its potential threats may be have been too broad as United States is a large country with many different microclimates. During my analysis, I did see there was a regional effect on the other variables. Therefore, I think my next step would be to focus on a specific region of the United States to study honey production. I would also have to alter the months I acquired temperature data from to represent the different stages in the beehive's lifecycle. For example, when the weather starts to get warmer post winter, this triggers the bees to start leaving their nest for food source exploration. The month this event occurs may be different depending how north or south you are in the United States.

Something I need to work on is learning how to analyze data that is heavily skewed such as my pesticide usage variable. I felt like I could not trust analyzing it and the relationship it has with honey yield per colony because of its heavy skewness. I would also love to perform a time

series analysis to looking at how my different variables changed over the 20 year period from 1995 to 2015 and beyond.