

STRAWBERRY_REPORT BY GROUP 8

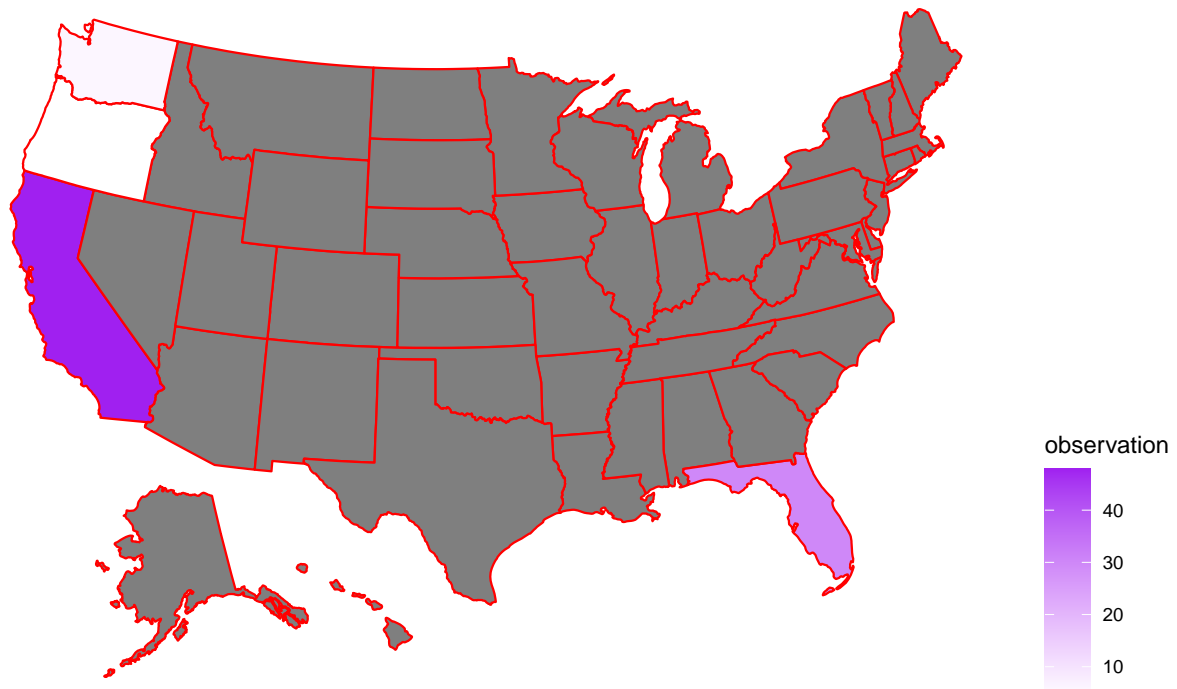
Group 8

11/1/2021

Introduction

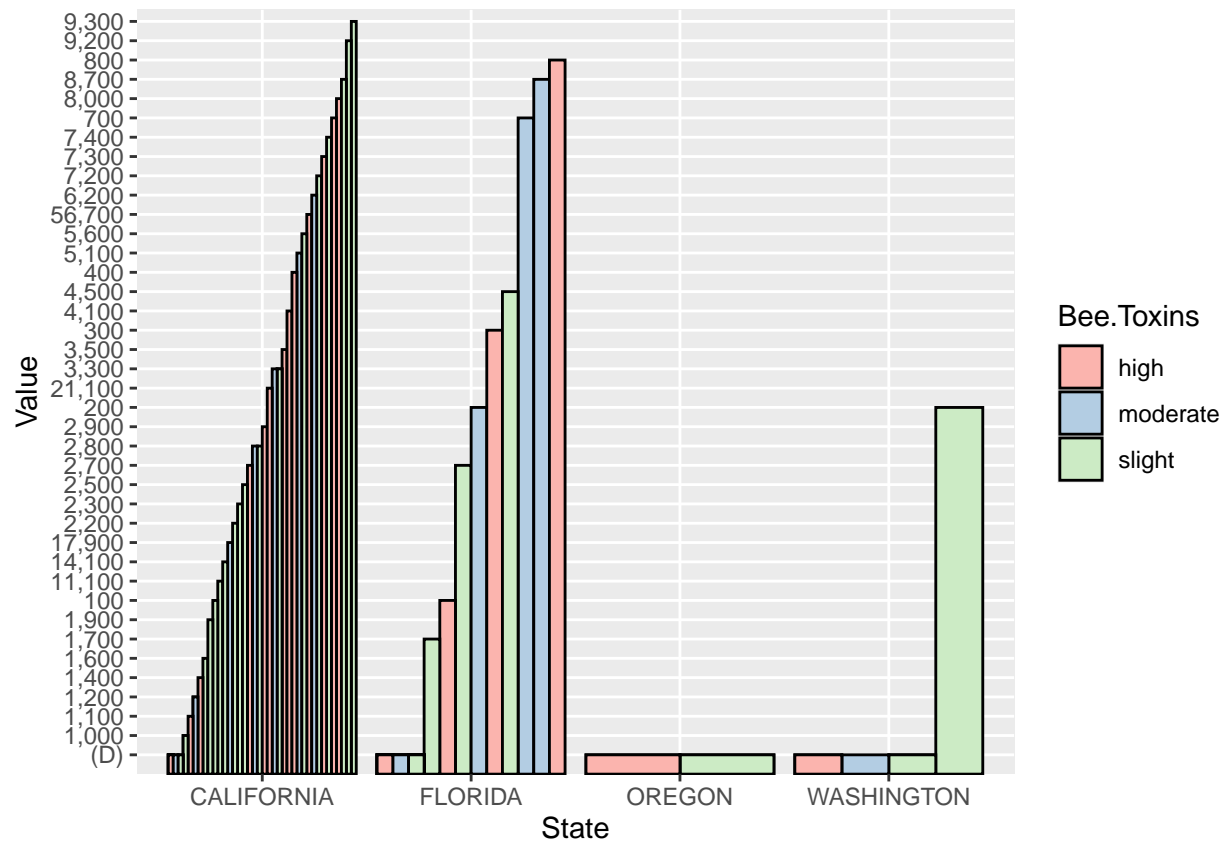
After wrangling the data, we have the values from only 4 states, which are California, Florida, Oregon and Washington. We then filtered the whole dataset by measuring in pounds. By counting the observations grouped by state, we have a map plot, which shows that in California, there are more observations. The topic we want to explore is the bee toxin levels in strawberry chemicals, specifically in California.

Map of Distribution of Data



Exploratory data analysis

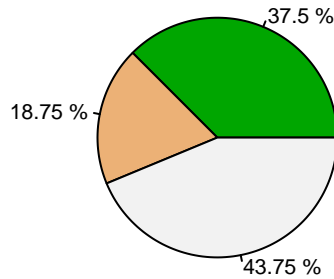
First, we created a barplot grouped by states, showing the value of bee toxin levels, with years combined. We can see that we have most data observations in California.



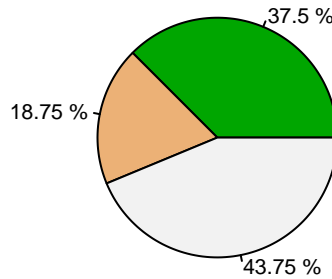
Pie Plots

The pie plots show in different years and states the percentage of chemicals with different levels of bee toxins. These show the variance of bee toxin.

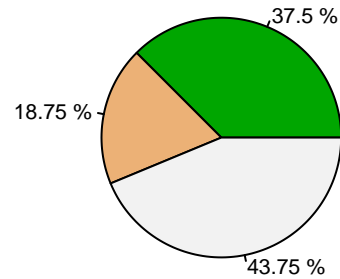
2016_CALIFORNIA



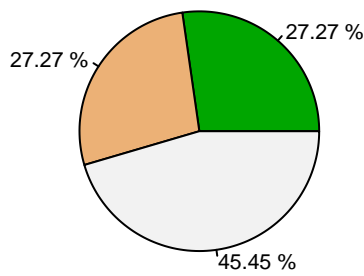
2018_CALIFORNIA



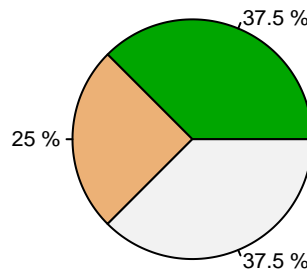
2019_CALIFORNIA



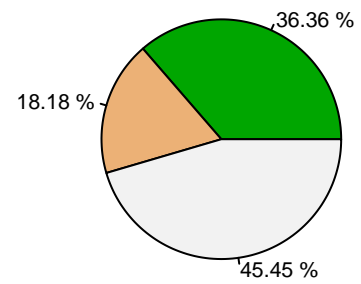
2016_FLORIDA



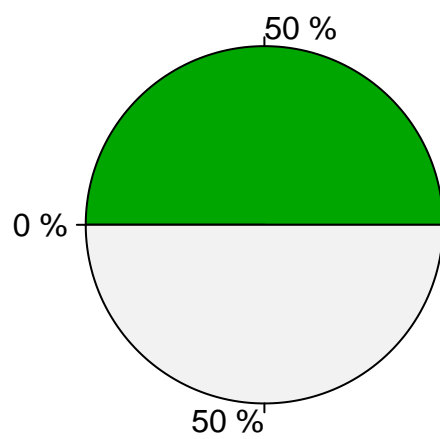
2018_FLORIDA



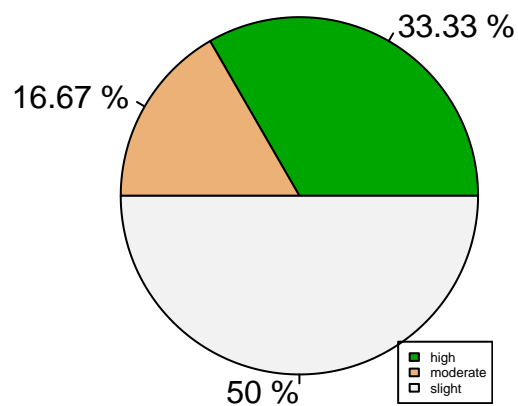
2019_FLORIDA



2016_OREGON

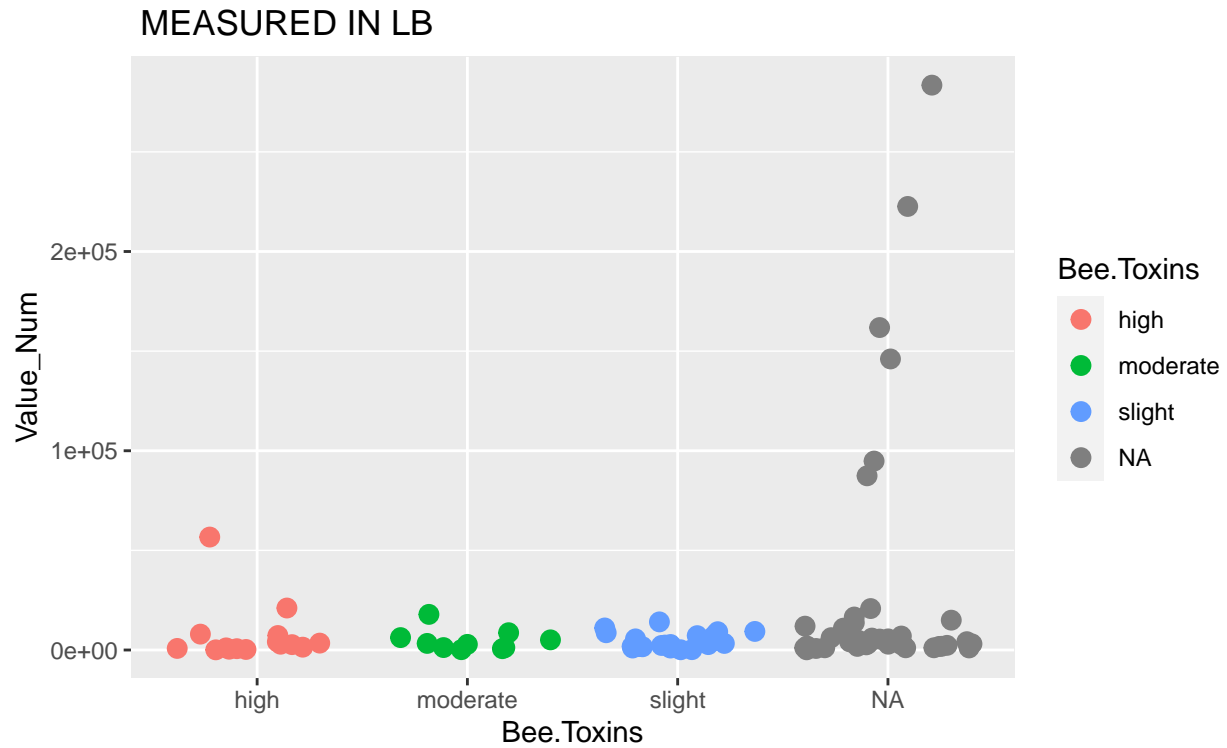


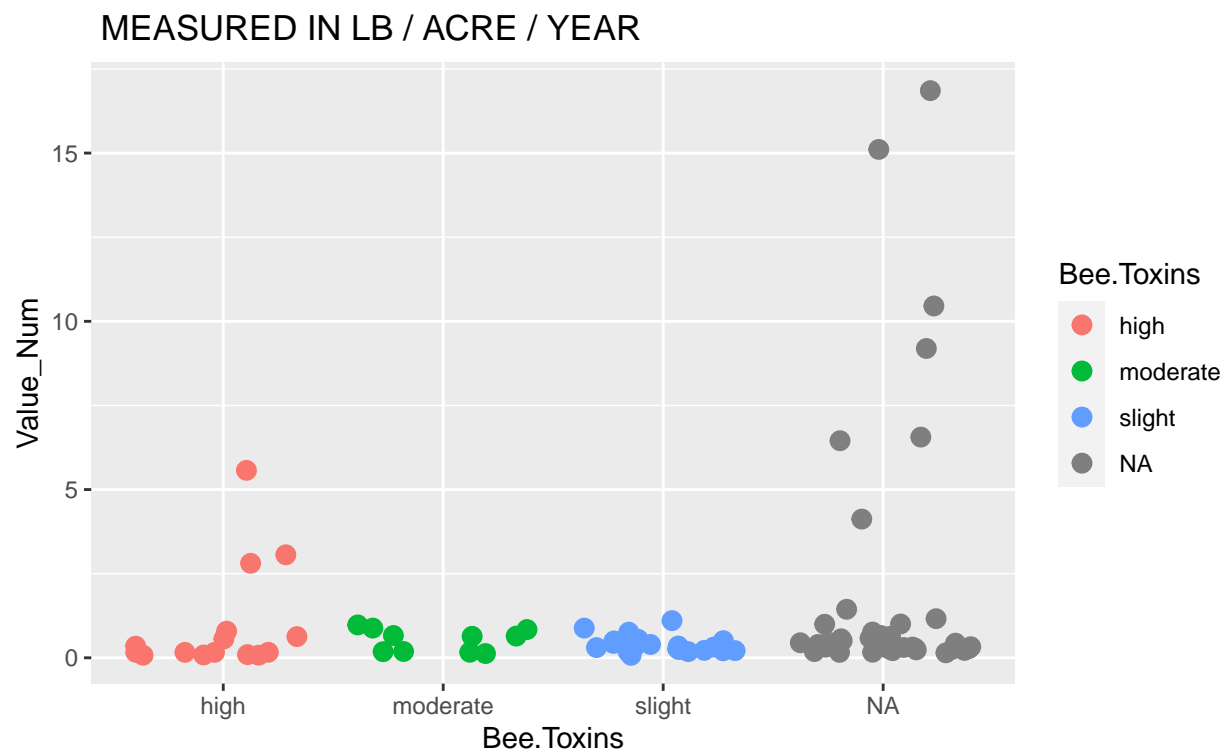
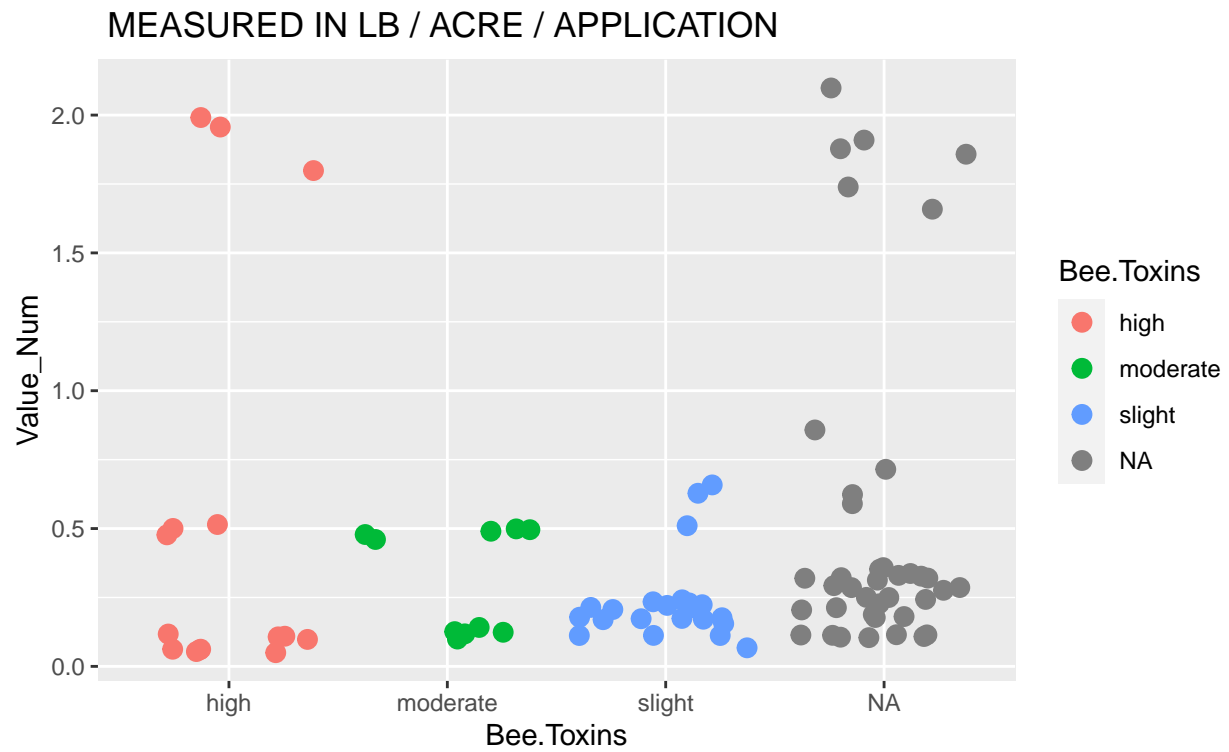
2016_WASHINGTON

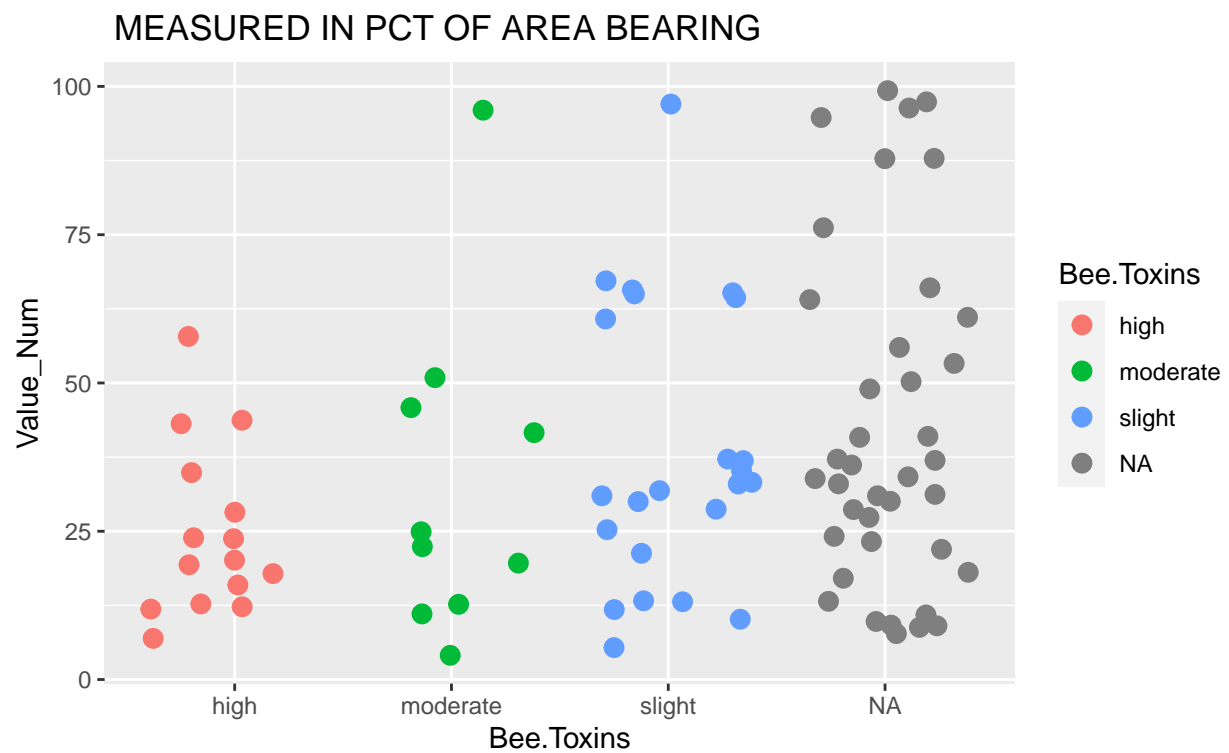
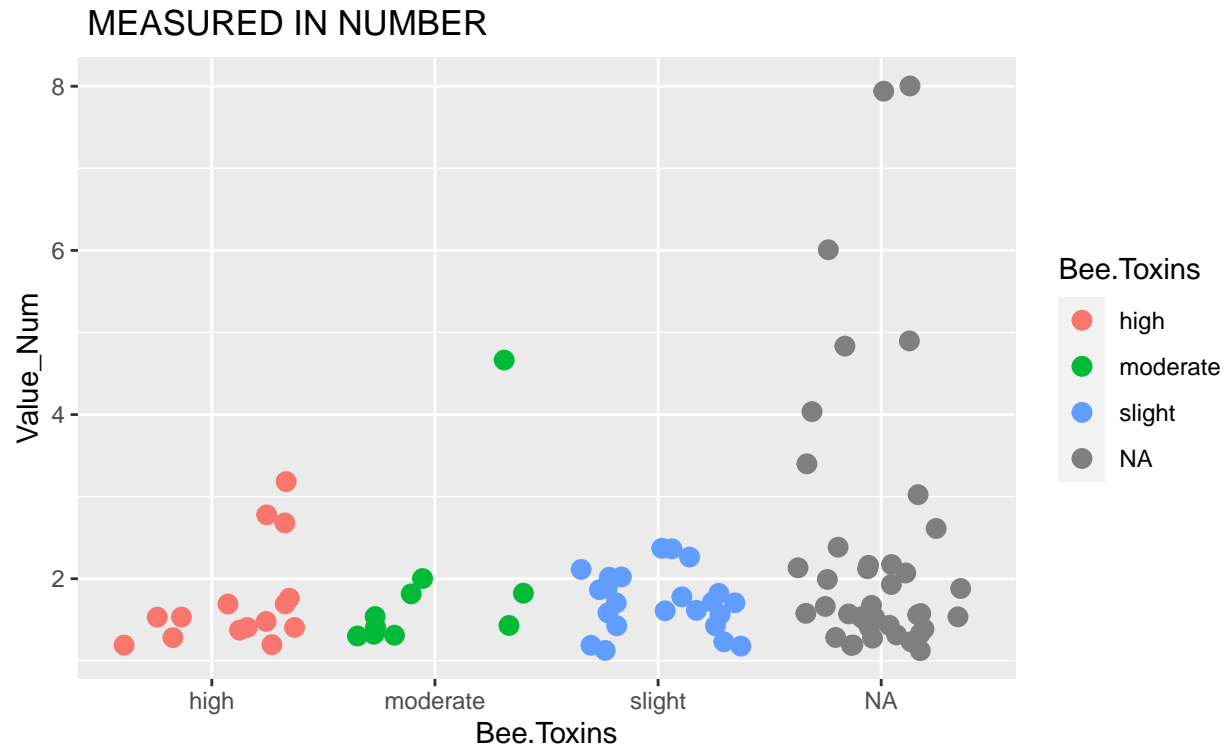


Scatter Plots

First, we have 5 scatter plots that show the splits among the measurement groups, which are measured in LB, measured in LB/ACRE/APPLICATION, measured in LB/ACRE/YEAR, measured in NUMBER and measured in PCT OF AREA BEARING. After we decided to focus on the measured in LB and bee toxins, we have 4 scatter plots that stratify state against bee toxin level.



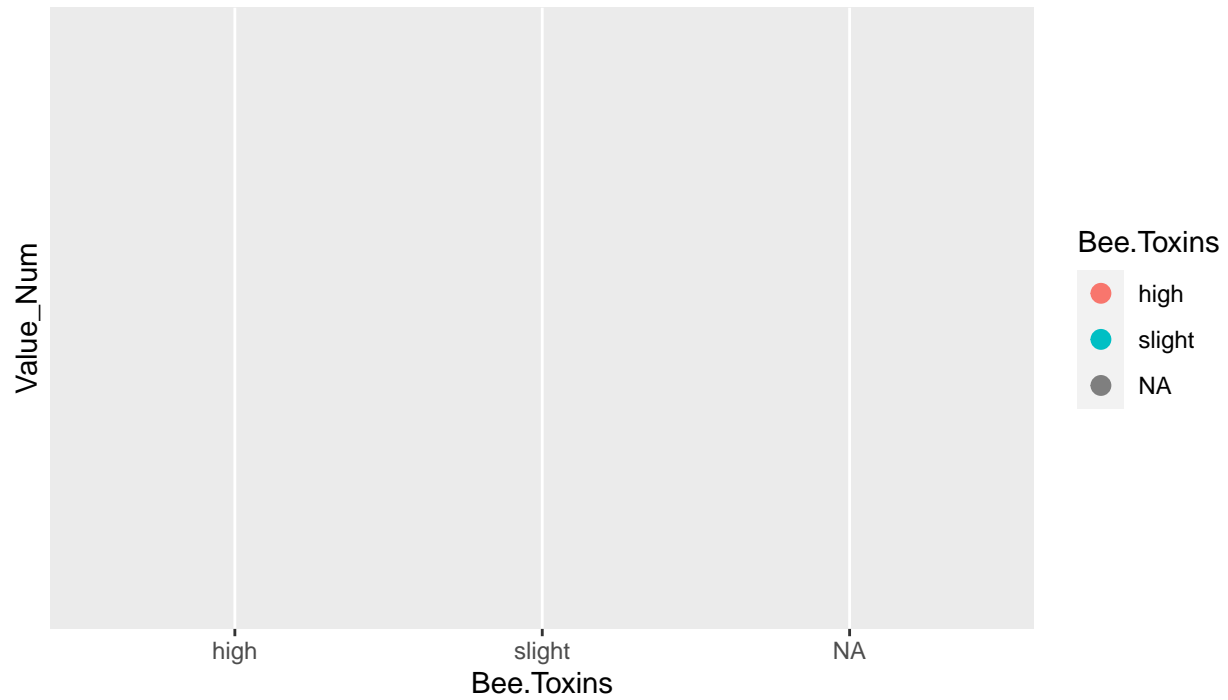




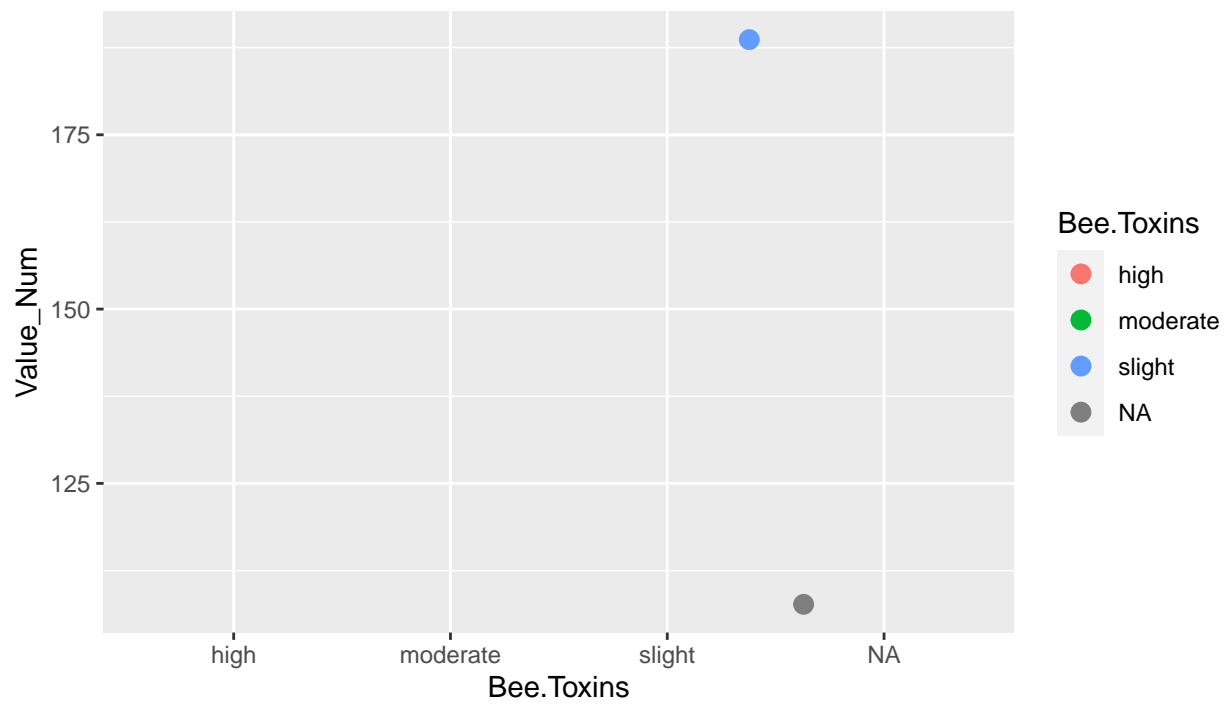
Scatter plot showing the relationship between Bee.Toxins (X-axis) and Value_Num (Y-axis). The X-axis categories are high, moderate, slight, and NA. The Y-axis ranges from 0 to 150,000. Data points are colored by Bee.Toxins: high (red), moderate (green), slight (blue), and NA (grey). Most points are near zero, except for a cluster of NA points at the far right with values up to 160,000.

Bee.Toxins	Value_Num
high	0
high	0
moderate	0
moderate	0
moderate	10000
slight	5000
slight	2000
slight	2000
NA	10000
NA	145000
NA	160000
NA	85000
NA	10000
NA	5000

OREGON



WASHINGTON



Bee Safe Program

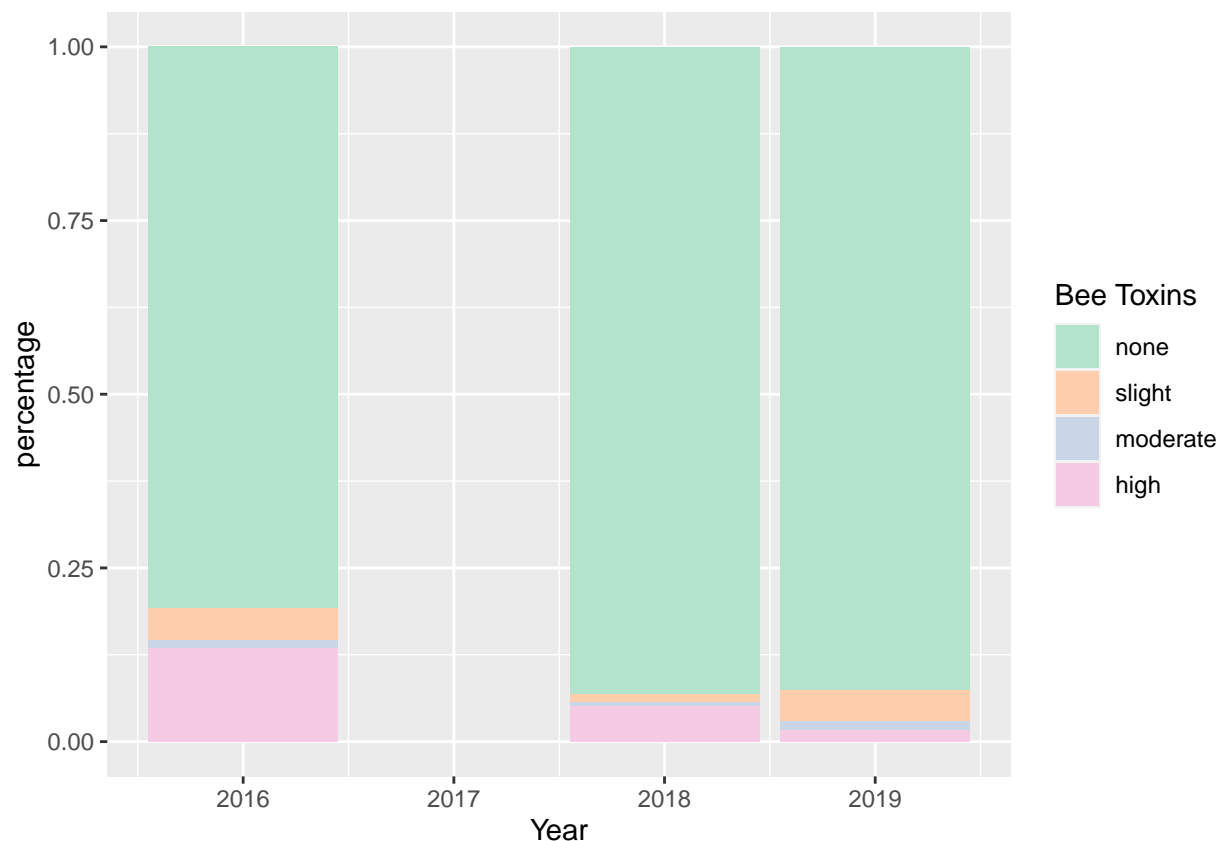
In the mean time, we found an article about the California State law named Bee safe program, which related to bees and pesticides. <https://lao.ca.gov/Publications/Report/3793>

This State law requires that beginning in 2018-2019, any person intending to apply any pesticide labeled “toxic to bees” to a blossoming plant must ask the local CAC, or designee, whether there are registered beekeepers with colonies located within a one-mile radius of the application site. The CAC provides the pesticide applicator with the contact information of registered beekeepers who wish to be notified in the affected areas.

We would like to know that whether the State Law made the strawberry farmers think that there is a lot of work to worry and they decided to use less toxic pesticides, or in some other way.

Stacked Barplot

The stacked barplot shows percentage of use in terms of bee toxins based on the level over all 3 years.



Conclusion

Since we focused on the Bee Safe Program in California, based on the purple bar, we can see that the percentage of the pesticide's usage which included high bee toxins is decreasing. Therefore, we can roughly draw a conclusion that the Bee Safe Program is indeed effective. In the future, we should analyze more related data sets and give a more accurate conclusion.