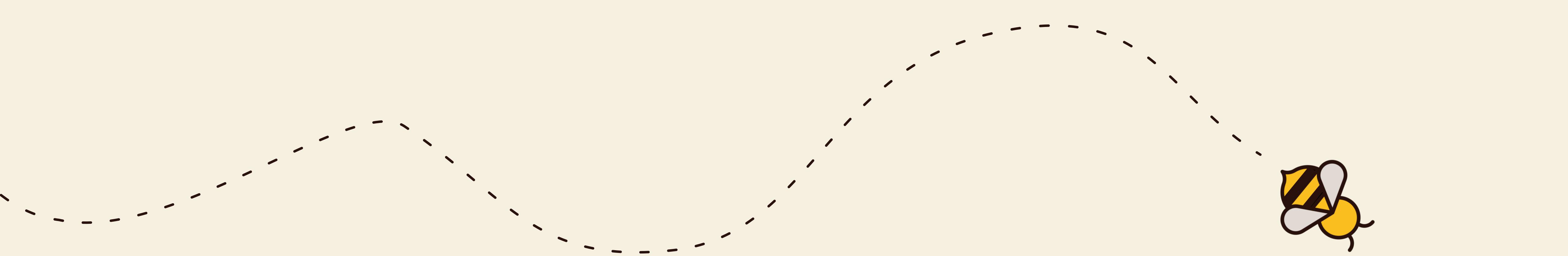




SAVE THE BEES





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TABLEAU

[https://public.tableau.com/app/profile/matteo.alghisi/viz/
SavetheBees_17064666620100/FinalDashboard?publish=yes](https://public.tableau.com/app/profile/matteo.alghisi/viz/SavetheBees_17064666620100/FinalDashboard?publish=yes)

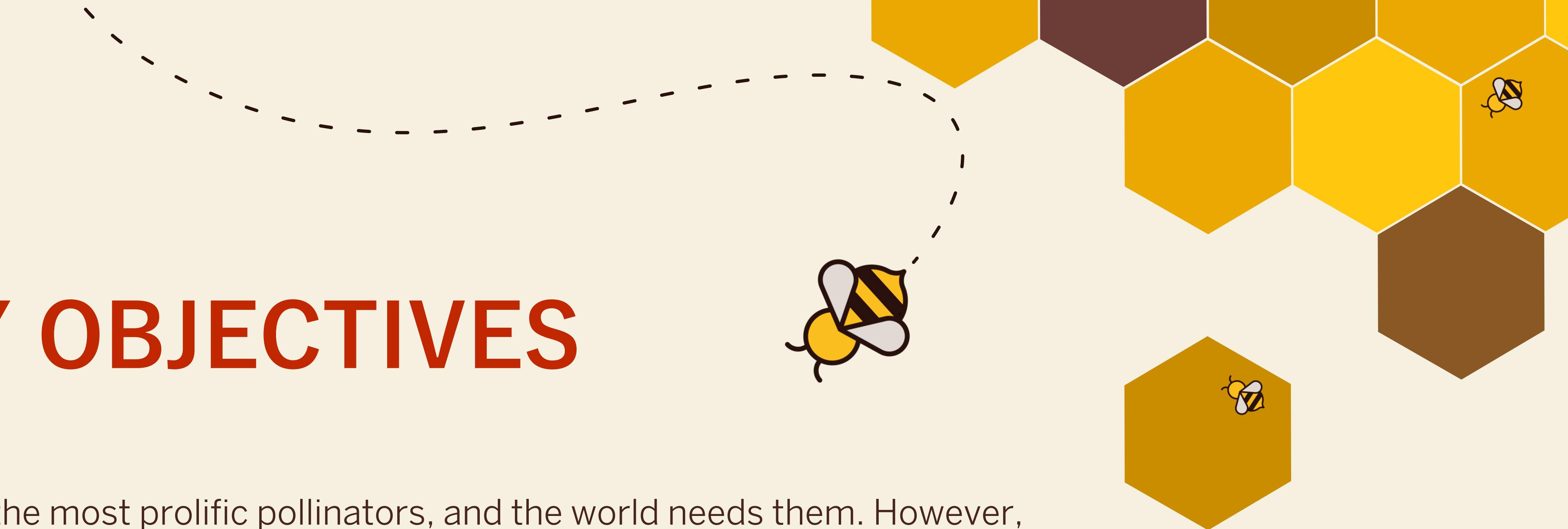


STUDY OBJECTIVES

Bees are some of the most prolific pollinators, and the world needs them. However, people often say that many causes such as climate change, parasites, and diseases are all contributing to the loss of international honey bee populations. In this project we want to find out which is the actual **health status trend** of honey bee populations in the United States in order to discover if they are decreasing in number.

Therefore our research question is:

"What is the health status trend of honey bee populations in the US in the most recent year, and which are the potential threats that could endanger them?"



THE DATASET

We selected a dataset that focuses on the population of honey bees in the **United States** spanning the **years 2015 to 2022**. Sourced from the United States Department of Agriculture (USDA), the dataset was curated by the owner and subsequently published on **Kaggle**.

The dataset comprises of 17 columns and 1453 rows, with no missing values. The key columns we considered for our research were:

- **num_colonies**: number of honey bee colonies;
- **lost_colonies**: number of colonies lost during a quarter, and his percentage (percent_lost);
- various factors contributing to colony loss: **varroa_mites**, **other_pests_and_parasites**, **diseases**, **pesticides**, and **other causes**;
- **renovated_colonies + added_colonies**: colonies that were ‘requeened’ or received new bees.

Additionally, it includes variables related to **geographical features**.



PRE PROCESSING

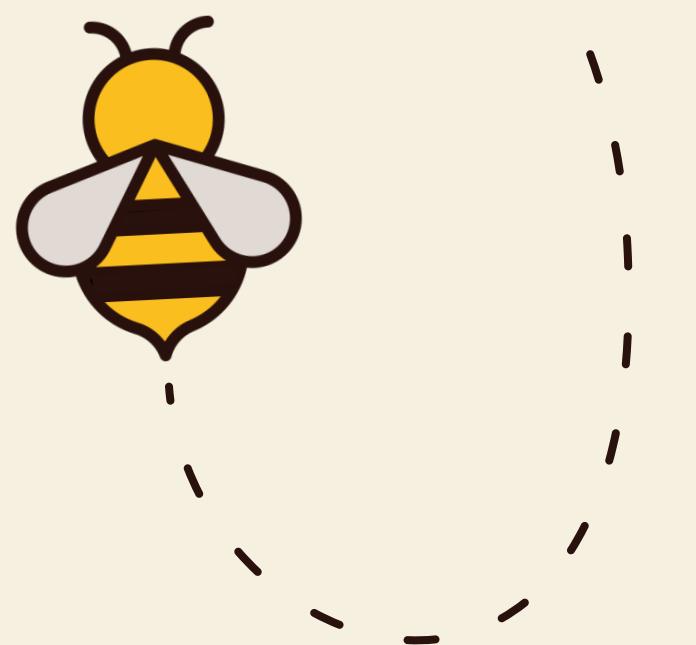
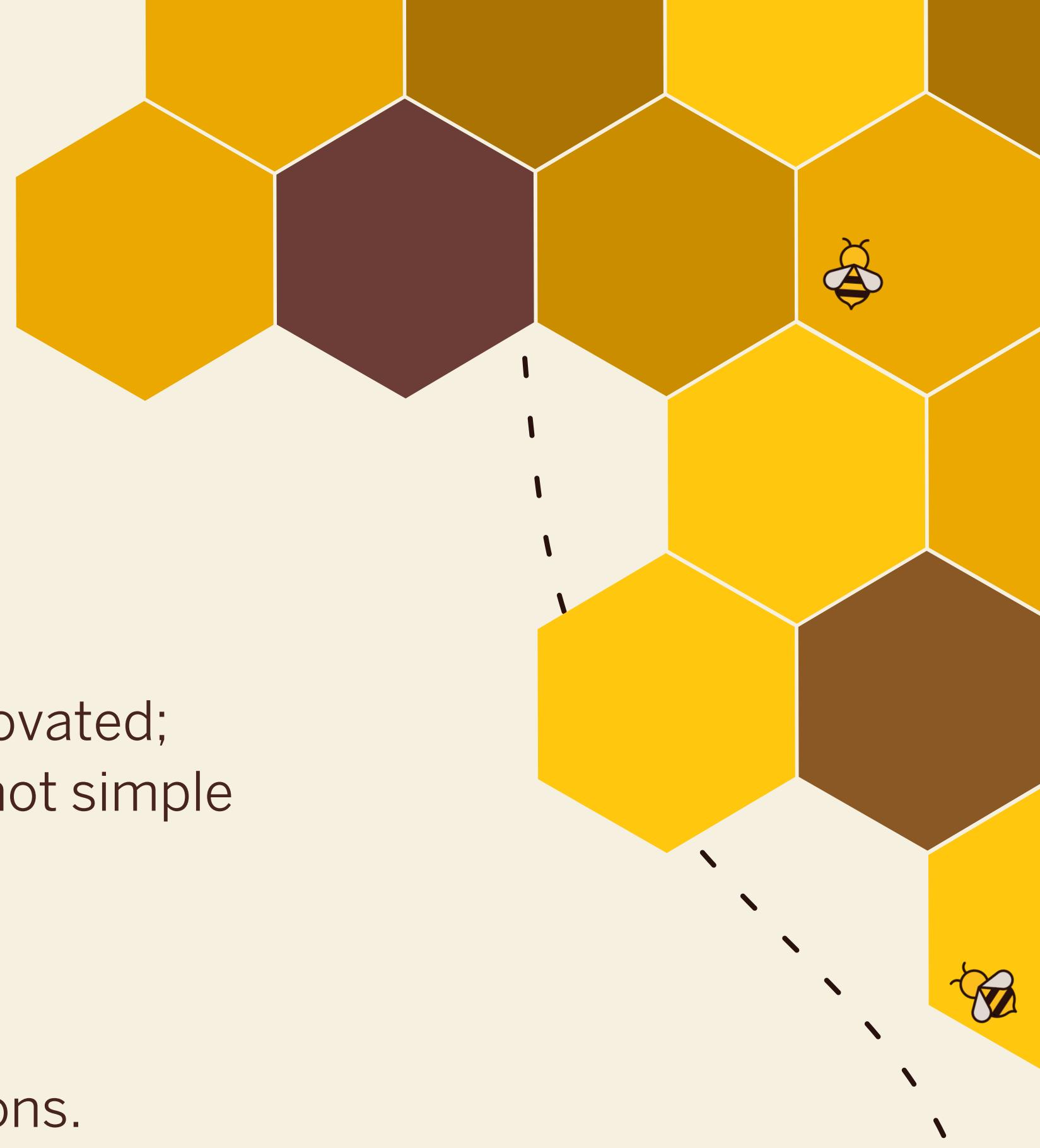
To create our visualizations, it wasn't necessary to transform the existing data. However, we used Tableau's calculated field to create **new columns**, including:

- **Added+Renovated colonies**: sum of columns of the colonies added and renovated;
- **Quarter_Date**: values indicating the beginning of a quarter in date type and not simple number format;
- **Year_stringa**: value of the year converted in string;

We inserted a specific file named 'HexStates.shp' to create the **map** with hexagons.

We also added **new parameters and new tables** to create functional buttons and alternatively display the data:

- chart type map and show date (for number of colonies and lost colonies);
- chart type bubble and show bubble (for each cause of lost colonies);
- Foglio1 (chart type bubble chart) and Foglio1 (chart type map).



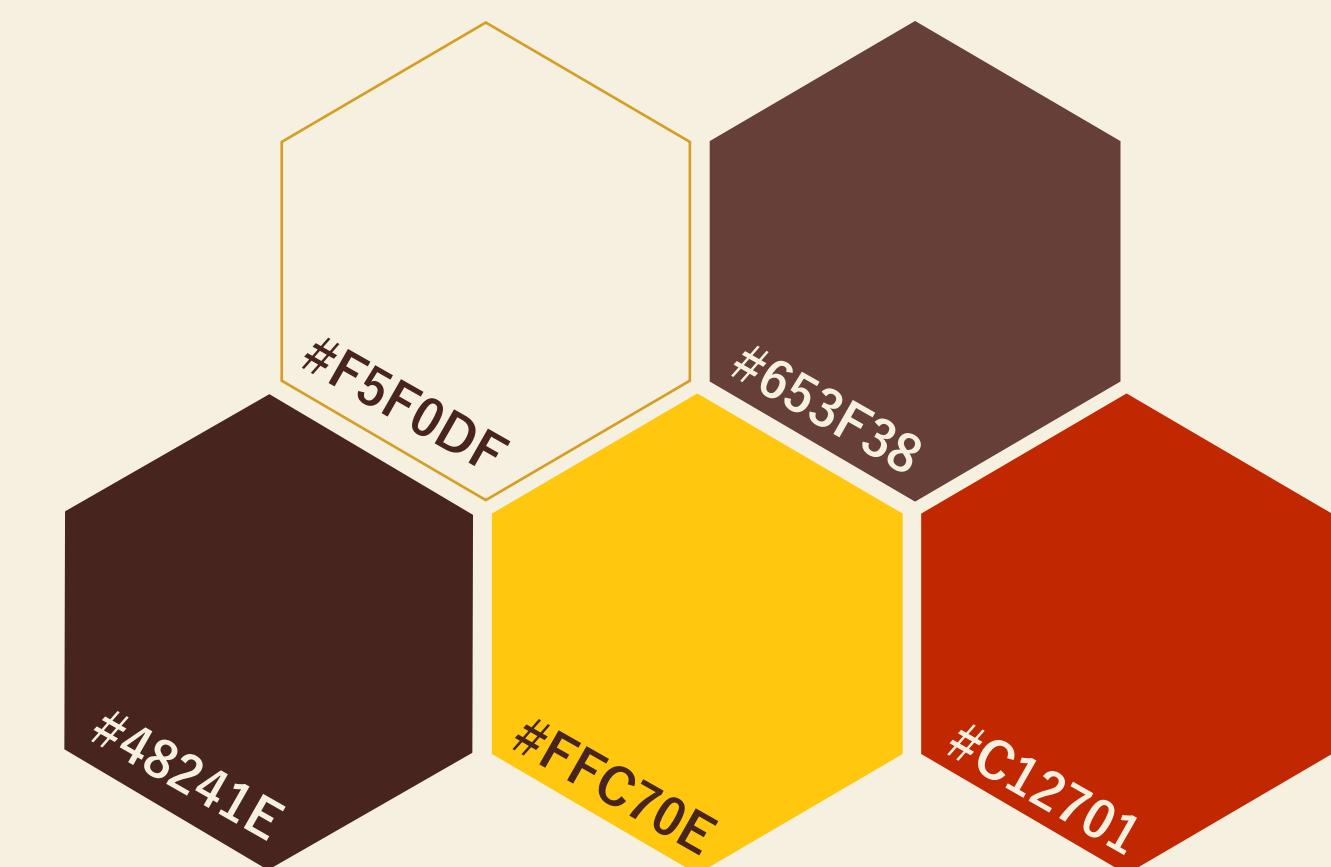
MOODBOARD

To design our dashboard, we took **inspiration** from the following Tableau works:

- [Antarcticas Flowering Paradox](#)
- [US citizens not speaking English at home](#)
- [Robert De Niro Filmography at 35](#)

The selected **font** styles are **Yu Gothic** for titles and subtitles, and **Benton Sans Book** and **Benton Sans SemiDemi** for text in visualizations.

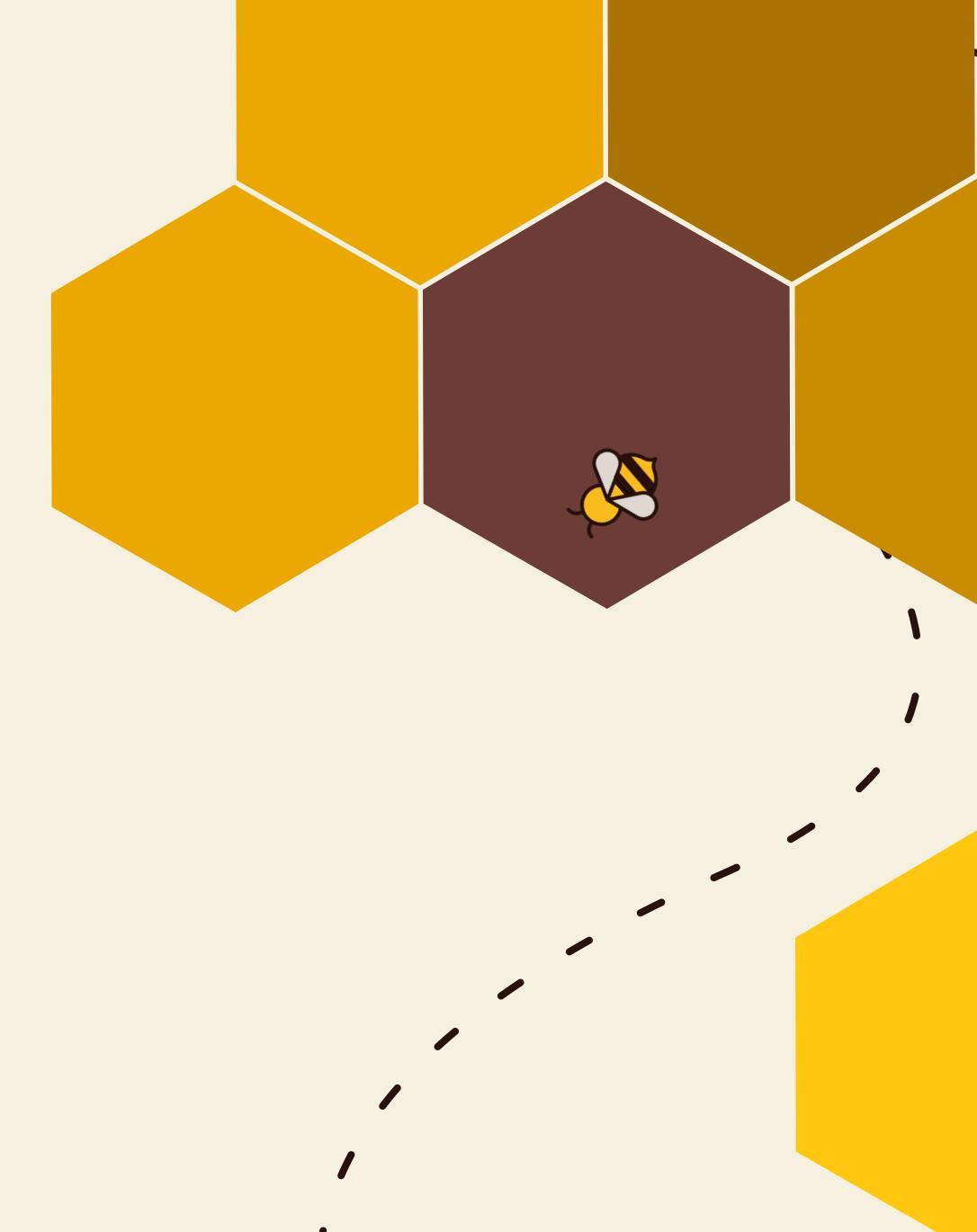
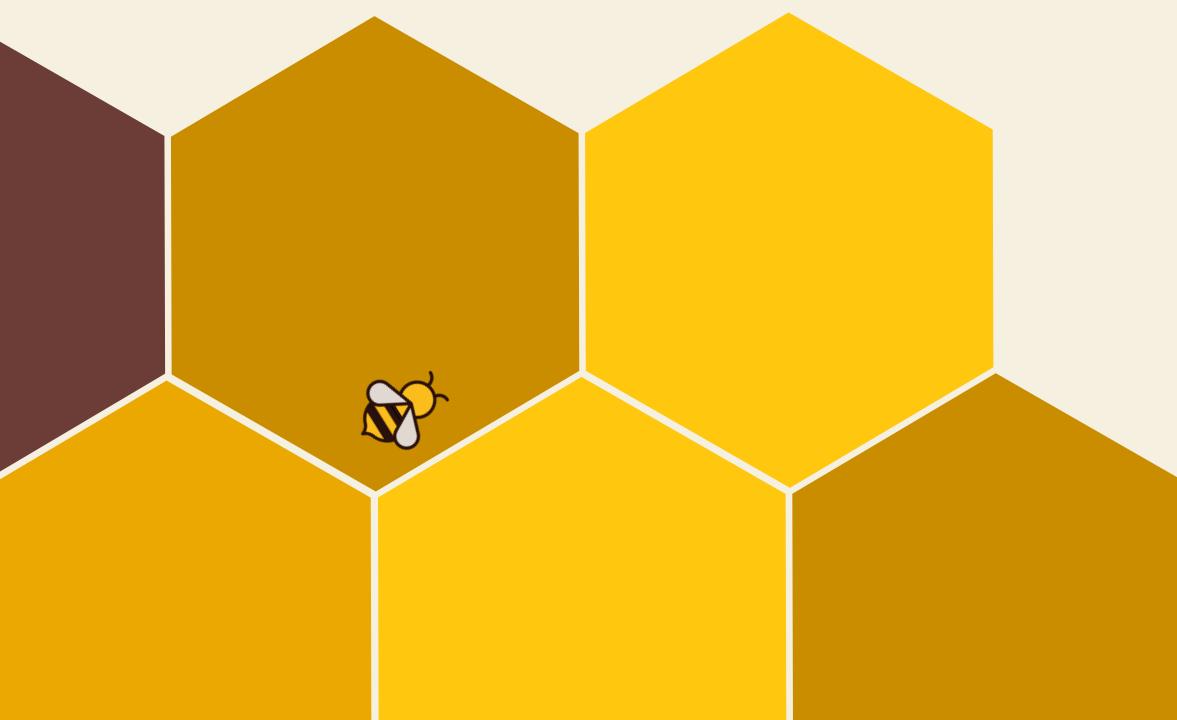
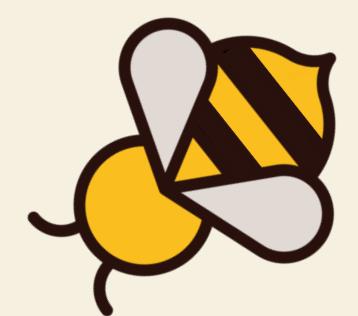
The following image shows the **color palette** we chose:



PROJECT PROCESS

During the initial phases of the project, we have come up with different graphs for each topic, believing them to be fitting and accurate. However, in the following stages, we realized that some graphs were not suitable or correct regarding the data considered. So, we have decided to **discard** them.

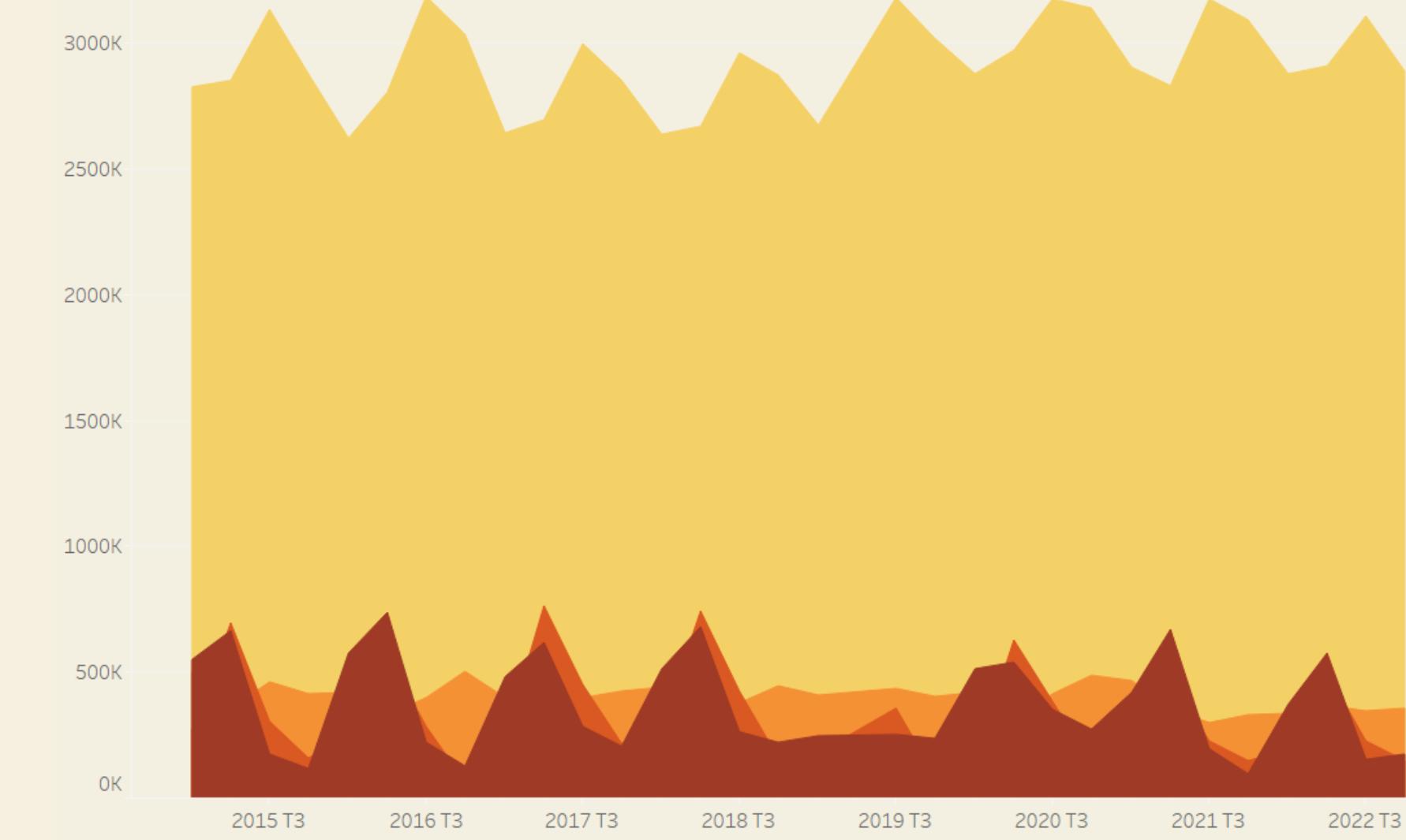
In the upcoming slides, the discarded graphs are shown along with the alternative solutions we found and then incorporated into our dashboard.



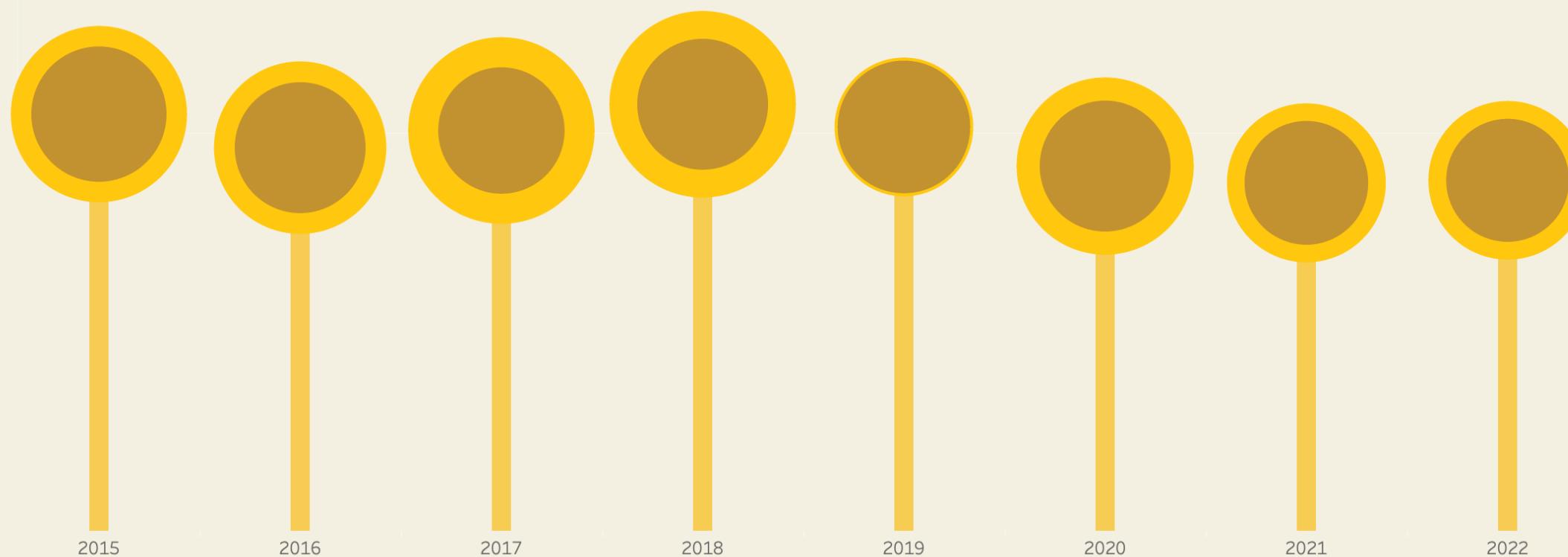
PROJECT PROCESS

This **area graph** was intended to illustrate the total amount of colonies compared to lost, added and renovated colonies. However, by utilizing the cumulative sum to represent different categories, **we observed that the areas** representing added, lost and renovated colonies **were overlapping**. As a result, the data were not clearly visible and interpretable.

Additionally, we have noticed that displaying the difference between the total number of colonies and the other three categories in the same graph was unnecessary.

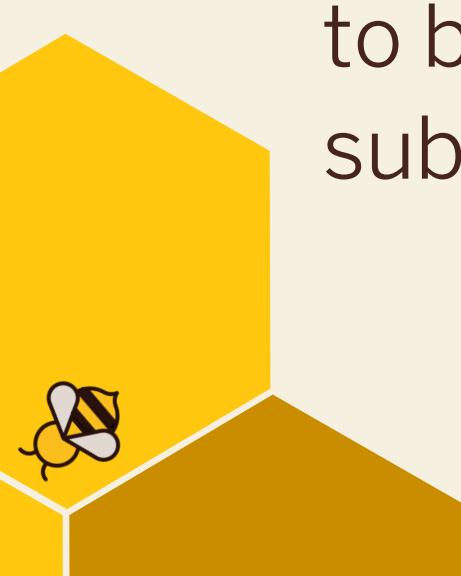
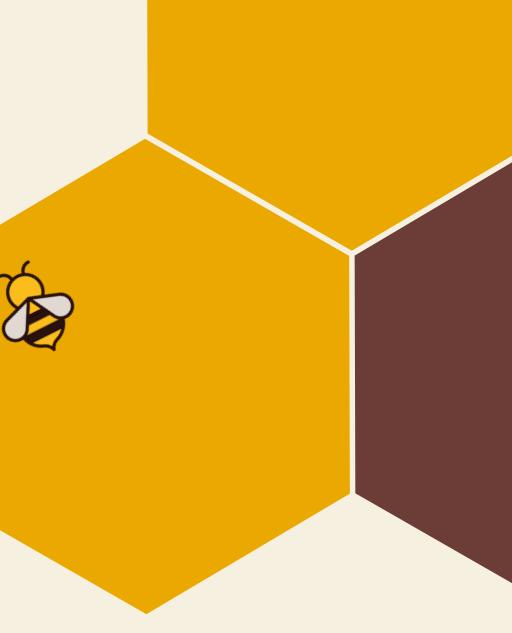


PROJECT PROCESS



Furthermore, we reconsidered our approach as the graphs appeared to resemble fire, which wasn't the intended message. Consequently, we opted to **refine our color palette** to better align with our data presentation in the graphs, substituting reds and oranges with shades of brown.

Therefore, we opted to create a **dedicated graph** resembling **flowers** that illustrates the variance between the lost colonies and the combined total of added and renovated colonies. We wanted to emphasize that humans have the capacity to counteract the decline in honey bee populations.



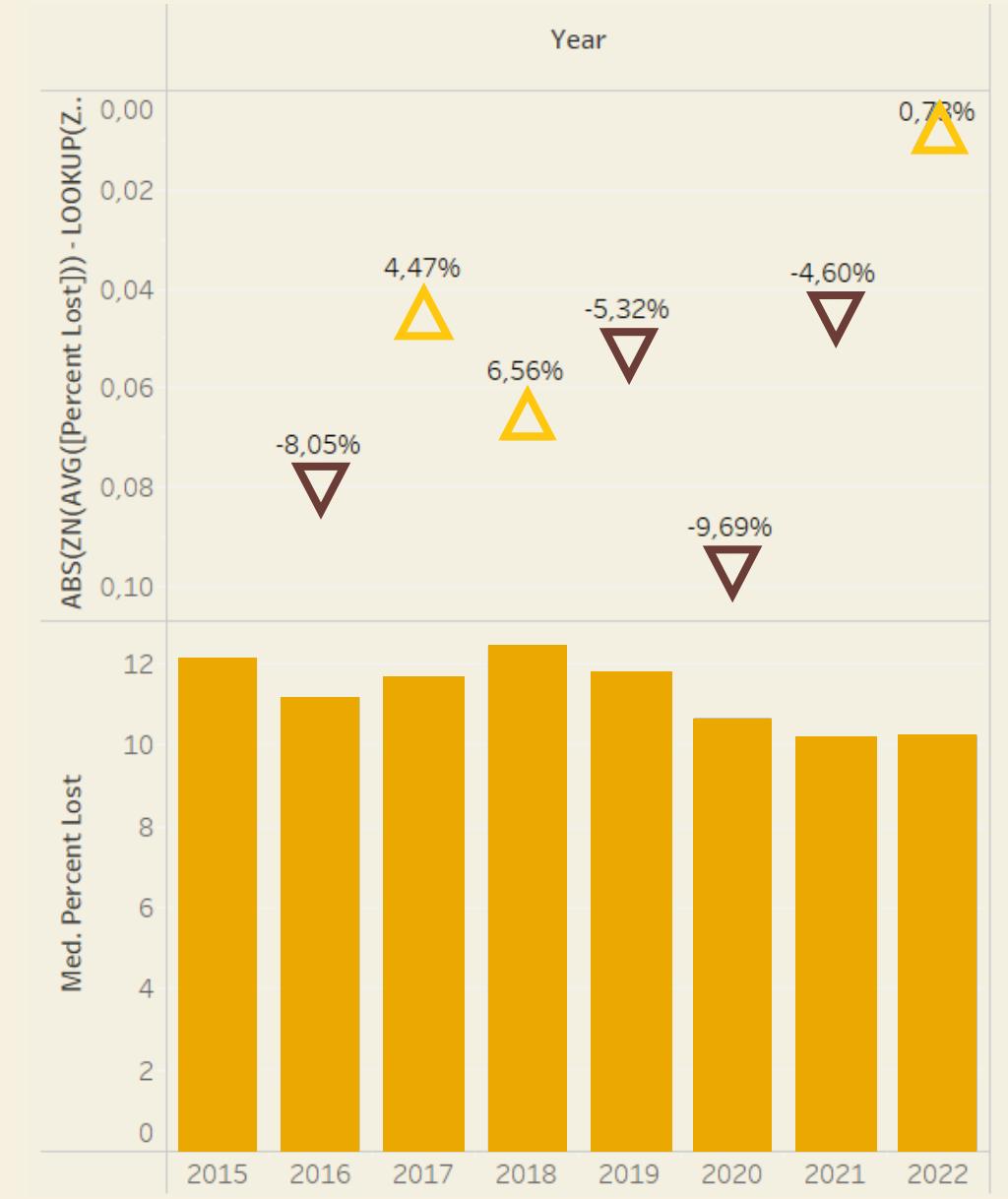
PROJECT PROCESS



The chart on the right depicts **colony losses from year to year** and is divided into two sections:

- The first one is defined by **triangles** and illustrates the average percentage change in colony losses compared to the previous year.
- The second section is a **bar chart** illustrating the overall average loss of bee colonies in the United States over the years.

However, it was challenging to interpret, particularly due to the arrangement of the triangles not being on the same axis. It was not perceived as a cohesive single graph but rather as divided with different meanings.



Therefore, we have opted to replace it with a **simple line chart** (left) to convey more effectively that over the analyzed time frame, colony losses decreased.

SITOGRAPHY

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