1.How has honey production yield changed from 1998 to 2021?

```python
import pandas as pd
import matplotlib.pyplot as plt
df = pd.read_csv("/content/honeyproduction 1998-2021.csv")
df['year'] = pd.to_datetime(df['year'])
plt.plot(df['year'], df['yieldpercol'])
plt.xlabel('Year')
plt.ylabel('Honey Yield')
plt.title('Honey Production Yield from 1998 to 2021')
plt.show()
```
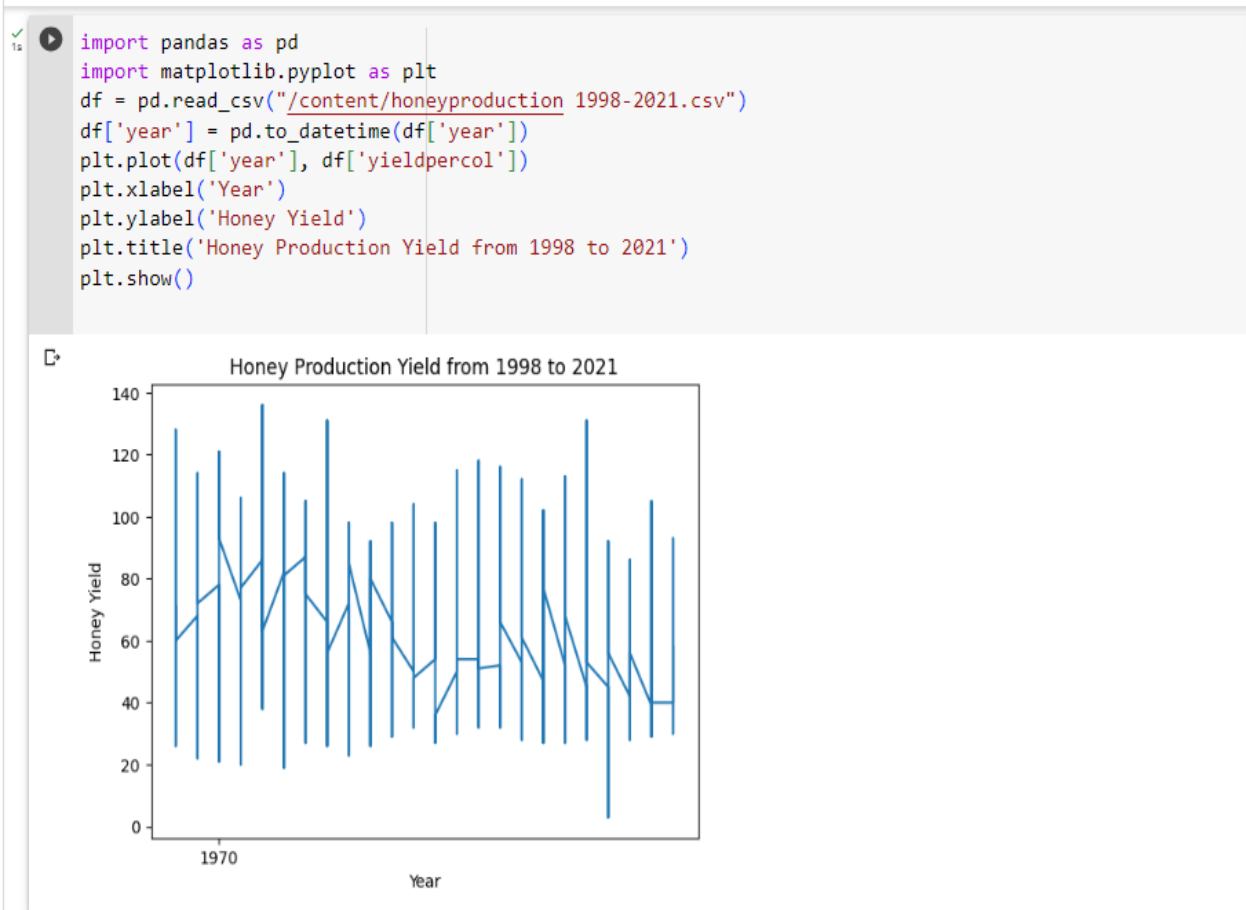

2.Over time, what are the major production trends across the states?

```
import pandas as pd
import matplotlib.pyplot as plt
#the CSV file
honey_df = pd.read_csv("/content/honeyproduction 1998-2021.csv")
# Calculate the total honey production by state aur year
state_year_df = honey_df.groupby(["State", "year"])["totalprod"].sum().reset_index()
state_year_pivot = state_year_df.pivot(index="year", columns="State", values="totalprod")
# Plot the trends in honey production across the states over time state_year_pivot.plot(figsize=(12, 8))
plt.xlabel("Year")
plt.ylabel("Honey Production (lbs)")
plt.title("Trends in Honey Production by State (1998-2021)")
plt.show()
```


Trends in Honey Production by State (1998-2021)
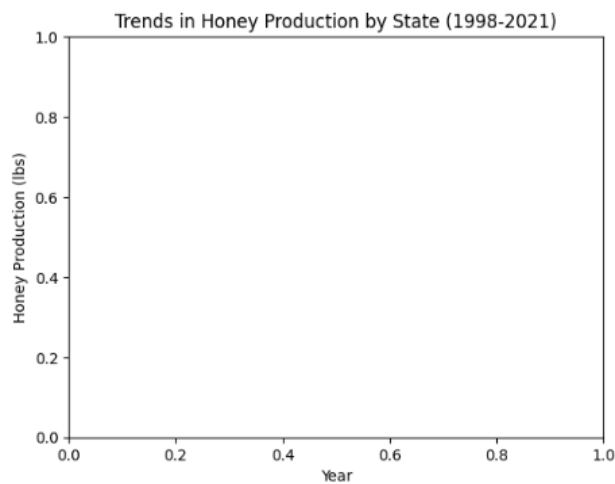
3.Does the data show any trend sin term soft he number of honey producing colonies and yield per colony before 2006 , which was when concern over Colony Collapse Disorder spread nation wide?

```
import pandas as pd
import matplotlib.pyplot as plt
honey_data = pd.read_csv("/content/honeyproduction 1998-2021.csv")
pre_2006_data = honey_data[honey_data['year'] < 2006]
avg_numcol = pre_2006_data.groupby('year')['numcol'].mean()
avg_yieldpercol = pre_2006_data.groupby('year')['yieldpercol'].mean()
plt.plot(avg_numcol.index, avg_numcol.values, label='Number of numcol')
plt.plot(avg_yieldpercol.index, avg_yieldpercol.values, label='yieldpercol per numcol')
plt.xlabel('year')
plt.ylabel('Average')
plt.title('Trends in Honey Production before 2006')
plt.legend()
plt.show()
```
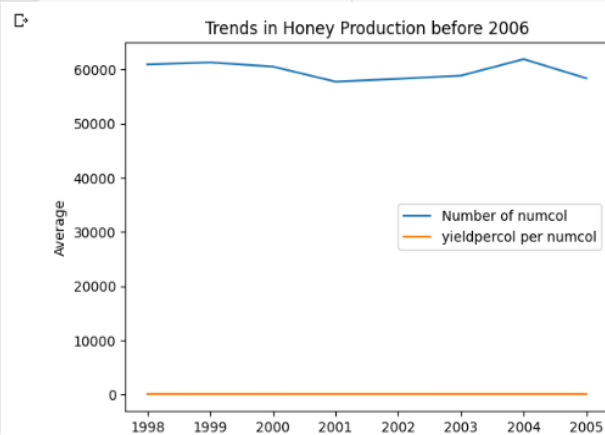

4.Are there any patterns that can be observed between total honey production and value of production every year?

```
import pandas as pd
import matplotlib.pyplot as plt
# My data from the CSV file
data = pd.read_csv("/content/honeyproduction 1998-2021.csv")
data['year'] = pd.to_datetime(data['year'], format='%Y')
fig, ax = plt.subplots(figsize=(10, 5))
ax.plot(data['year'], data['totalprod'], label='Total Honey Production')
ax.plot(data['year'], data['prodvalue'], label='Value of Production')
ax.set_xlabel('year')
ax.set_ylabel('Amount (in millions of pounds or dollars)')
ax.set_title('Total Honey Production and Value of Production (1998- 2021)')
ax.legend()
plt.show()
```
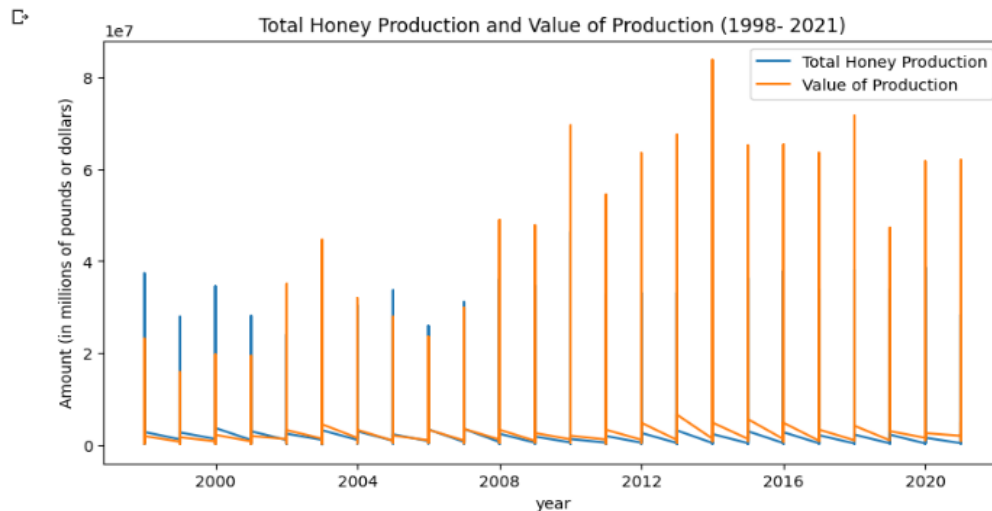

5.How has the value of production, which in some sense could be tied to demand, changed every year?

```
import pandas as pd
import matplotlib.pyplot as plt
# Load the dataset into a pandas DataFrame
df = pd.read_csv('/content/honeyproduction 1998-2021.csv')
# Convert the 'year' column to datetime format
df['year'] = pd.to_datetime(df['year'], format='%Y')
# Calculate the total honey production value for each year
df['total_value'] = df['numcol'] * df['yieldpercol'] * df['priceperlb']
# Plot the total honey production value over time
plt.plot(df['year'], df['total_value'])
plt.title('Total Honey Production Value (1998-2021)')
plt.xlabel('Year')
plt.ylabel('Value (USD)')
plt.show()
```
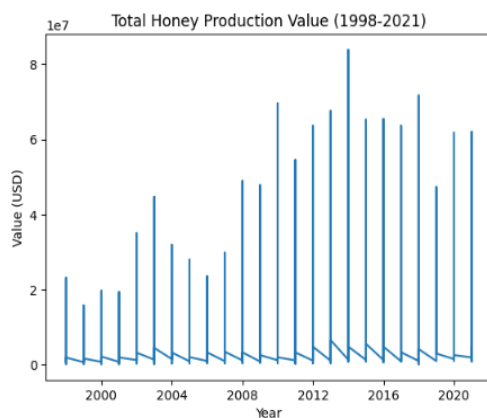
6. Constructs the related plots using Seaborn and Matplot apply customization and derive insights from the visualization.

```python
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
# Load the dataset into a pandas DataFrame
df = pd.read_csv('/content/honeyproduction 1998-2021.csv')
#Convert the 'year' column to datetime format
df['year'] = pd.to_datetime(df['year'], format='%Y')
# Calculate the total honey production value for each year
df['total_value'] = df['numcol'] * df['yieldpercol'] * df['priceperlb']
# Create a line plot of honey production value over time
plt.figure(figsize=(12,6))
sns.lineplot(data=df, x='year', y='total_value')
plt.title('Total Honey Production Value (1998-2021)')
plt.xlabel('Year')
plt.xlabel('Year')
plt.ylabel('Value (USD)')
plt.xticks(rotation=45)
plt.show()
# Create a scatter plot of honey production value vs. yield per colony
plt.figure(figsize=(8,8))
sns.scatterplot(data=df, x='yieldpercol', y='total_value', hue='year', legend='full')
plt.title('Honey Production Value vs. Yield per Colony (1998- 2021)')
plt.xlabel('Yield per Colony (lbs)')
plt.ylabel('Value (USD)')
plt.show()
```


Total Honey Production Value (1998-2021)

Honey Production Value vs. Yield per Colony (1998- 2021)