

# honeyproduction

March 15, 2022

First 5 rows of data:

	state	numcol	yieldpercol	totalprod	stocks	priceperlb	\
0	AL	16000.0	71	1136000.0	159000.0	0.72	
1	AZ	55000.0	60	3300000.0	1485000.0	0.64	
2	AR	53000.0	65	3445000.0	1688000.0	0.59	
3	CA	450000.0	83	37350000.0	12326000.0	0.62	
4	CO	27000.0	72	1944000.0	1594000.0	0.70	

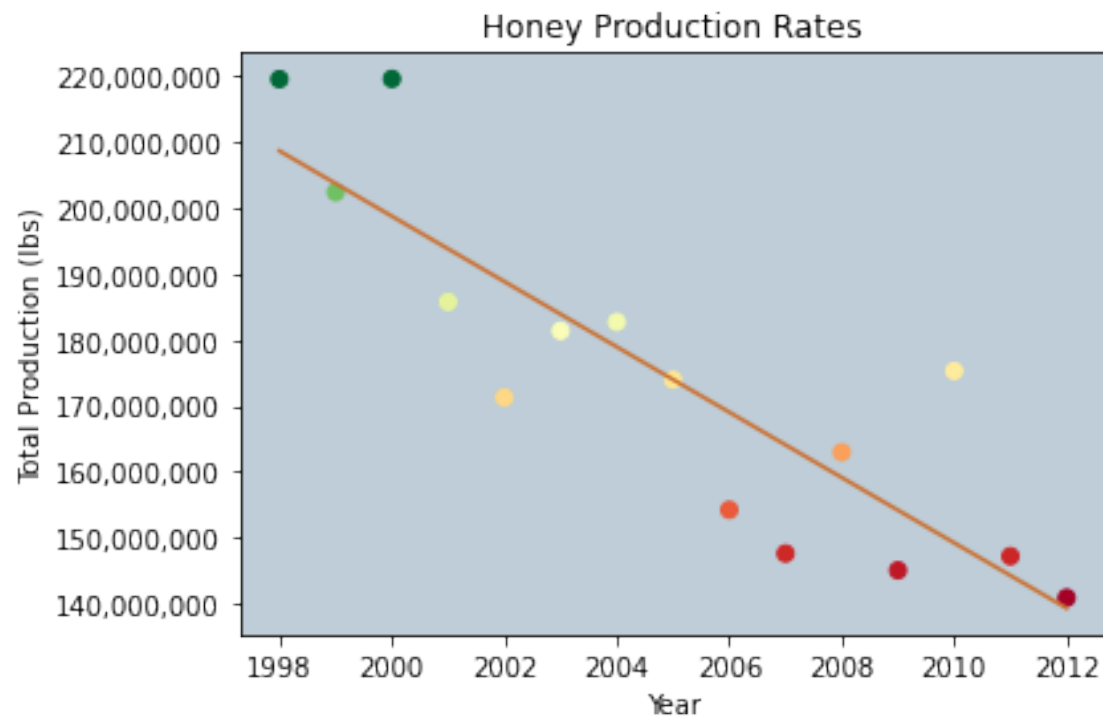
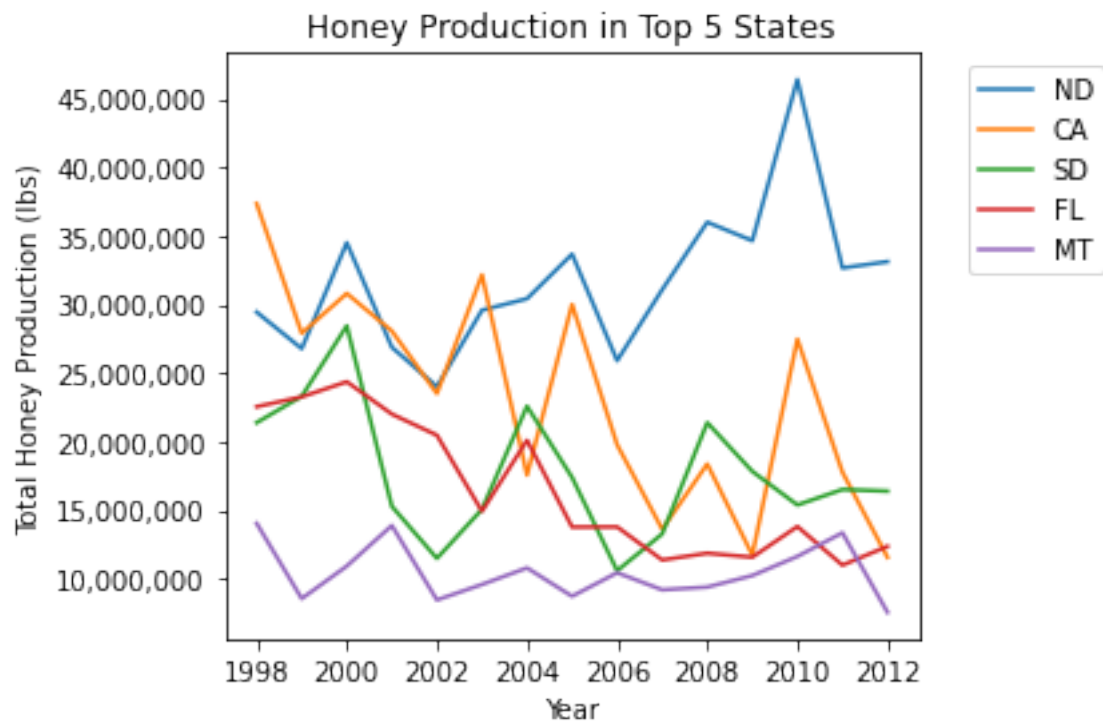
	prodvalue	year
0	818000.0	1998
1	2112000.0	1998
2	2033000.0	1998
3	23157000.0	1998
4	1361000.0	1998

Descriptive stats of columns:

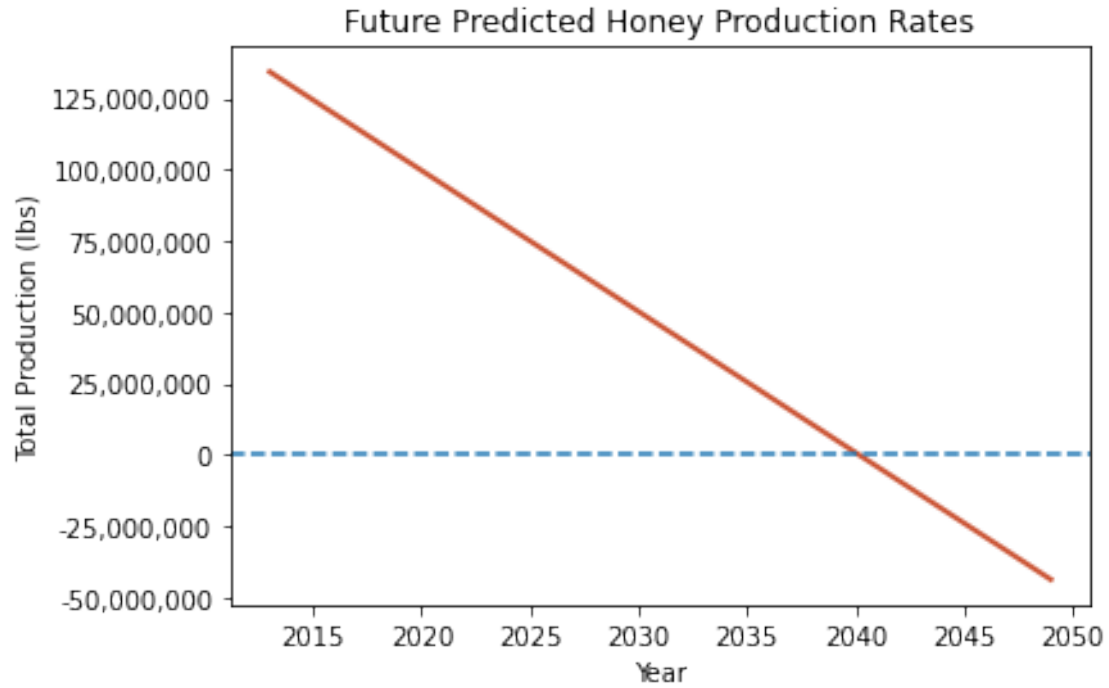
	numcol	yieldpercol	totalprod	stocks	priceperlb	\
count	626.000000	626.000000	6.260000e+02	6.260000e+02	626.000000	
mean	60284.345048	62.009585	4.169086e+06	1.318859e+06	1.409569	
std	91077.087231	19.458754	6.883847e+06	2.272964e+06	0.638599	
min	2000.000000	19.000000	8.400000e+04	8.000000e+03	0.490000	
25%	9000.000000	48.000000	4.750000e+05	1.430000e+05	0.932500	
50%	26000.000000	60.000000	1.533000e+06	4.395000e+05	1.360000	
75%	63750.000000	74.000000	4.175250e+06	1.489500e+06	1.680000	
max	510000.000000	136.000000	4.641000e+07	1.380000e+07	4.150000	

	prodvalue	year
count	6.260000e+02	626.000000
mean	4.715741e+06	2004.864217
std	7.976110e+06	4.317306
min	1.620000e+05	1998.000000
25%	7.592500e+05	2001.000000
50%	1.841500e+06	2005.000000
75%	4.703250e+06	2009.000000
max	6.961500e+07	2012.000000

['ND', 'CA', 'SD', 'FL', 'MT']



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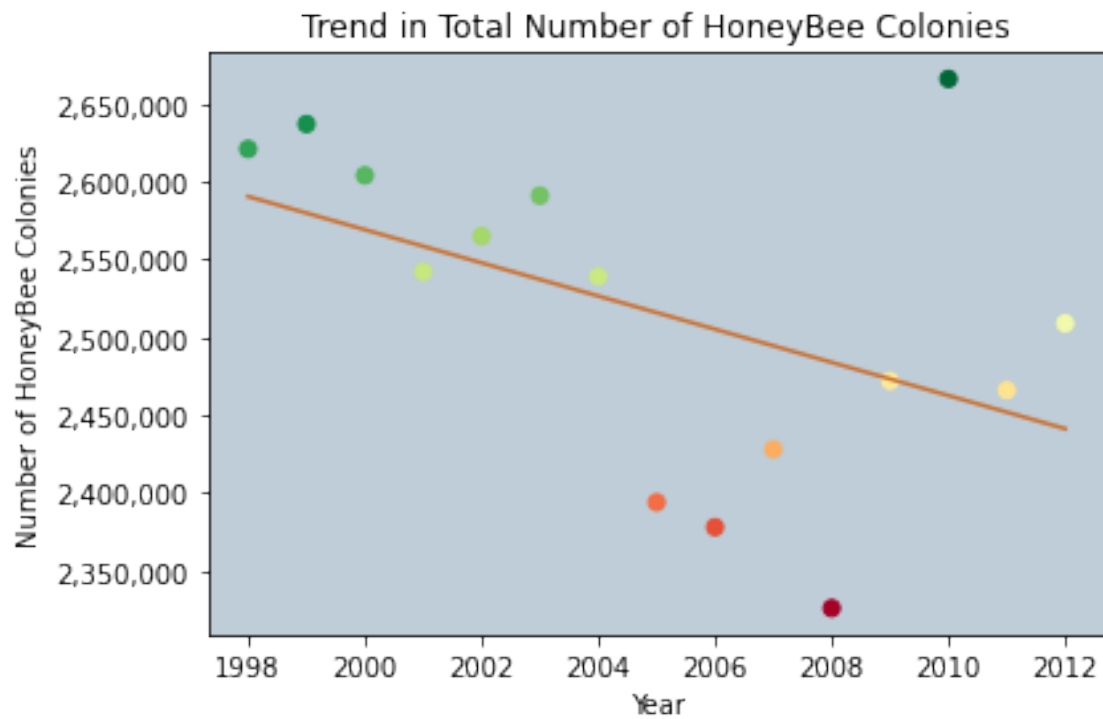


The predicted honey production in 2023 is 84869809.5 pounds.

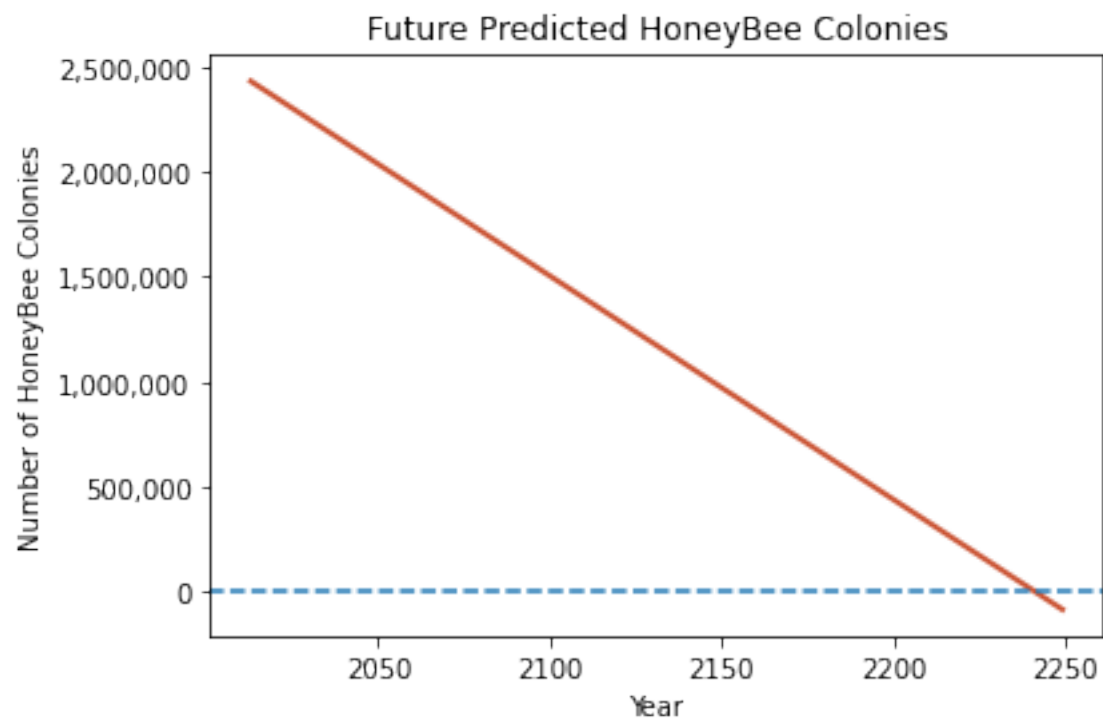
The predicted honey production in 2035 is 25456438.1 pounds.

This model predicts that honey production will reach 0 in the year 2040 if this trend continues.

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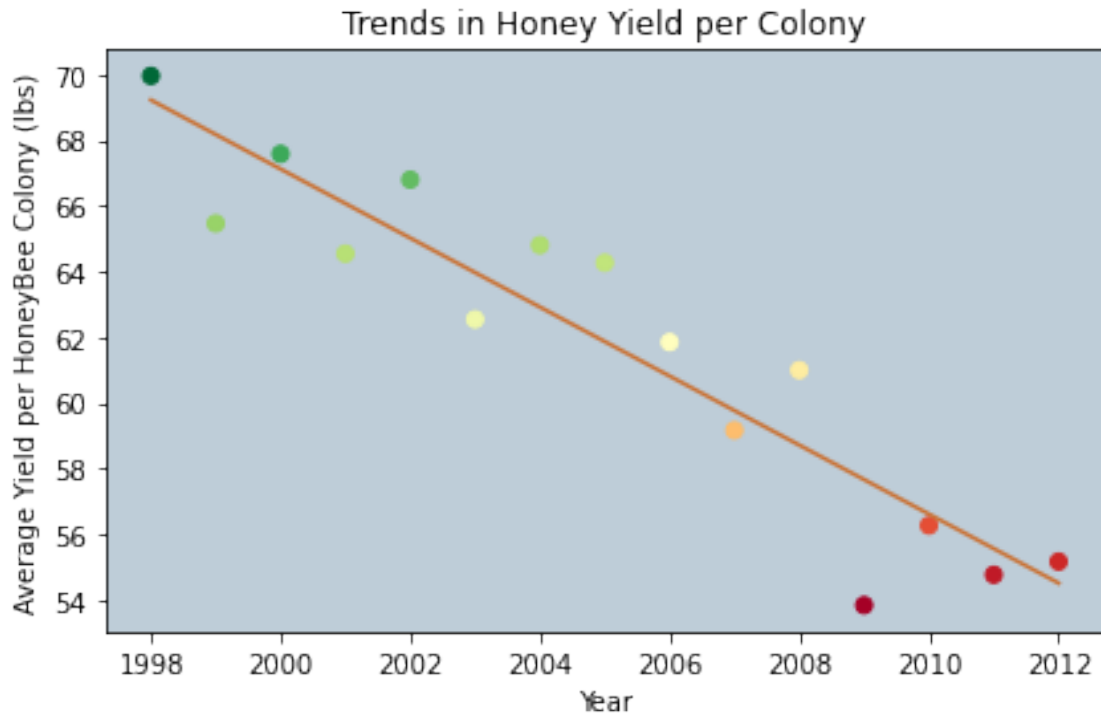


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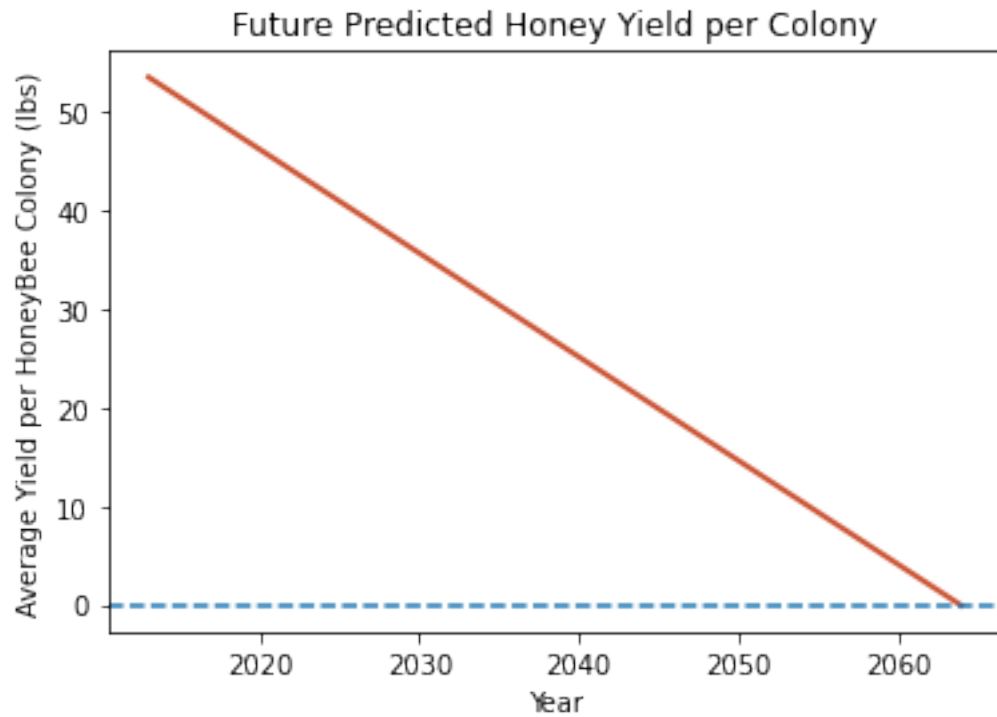


The predicted number of HoneyBee colonies in 2023 is 2324038.1 colonies.  
The predicted number of HoneyBee colonies in 2050 is 2036295.2 colonies.  
The predicted number of HoneyBee colonies in 2100 is 1503438.1 colonies.  
The predicted number of HoneyBee colonies in 2200 is 437723.8 colonies.  
This model predicts that the number of colonies will reach 0 in the year 2241 if this trend continues.

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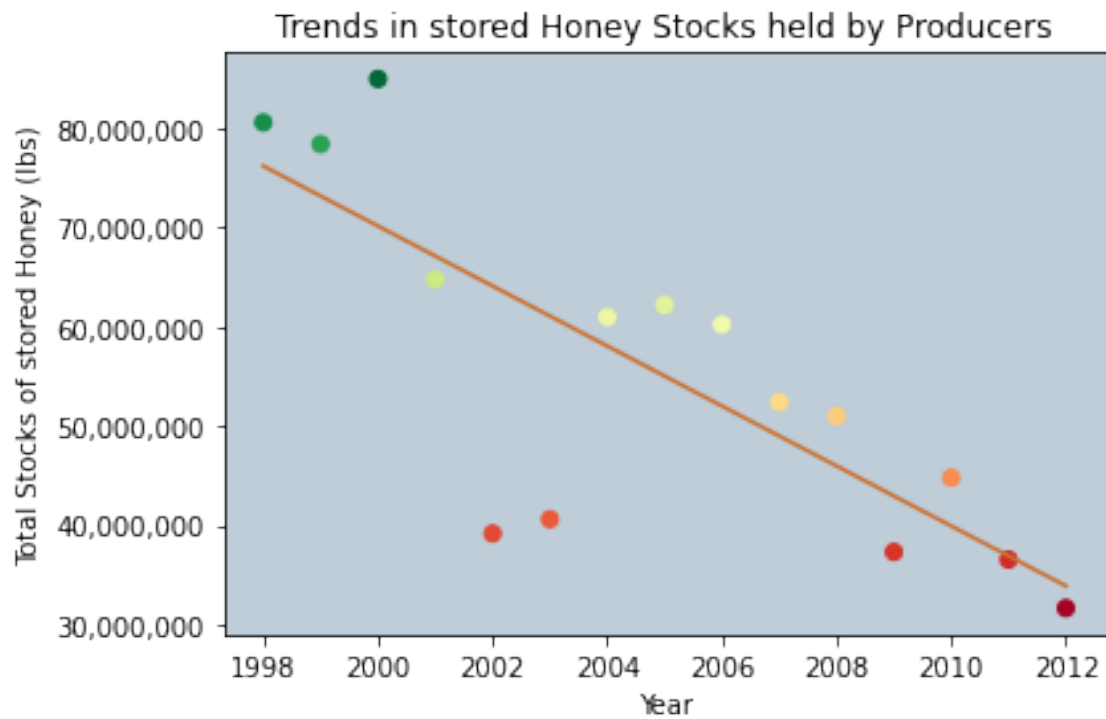
The predicted yield per colony in 2023 is 43. pounds.

The predicted yield per colony in 2050 is 14.6 pounds.

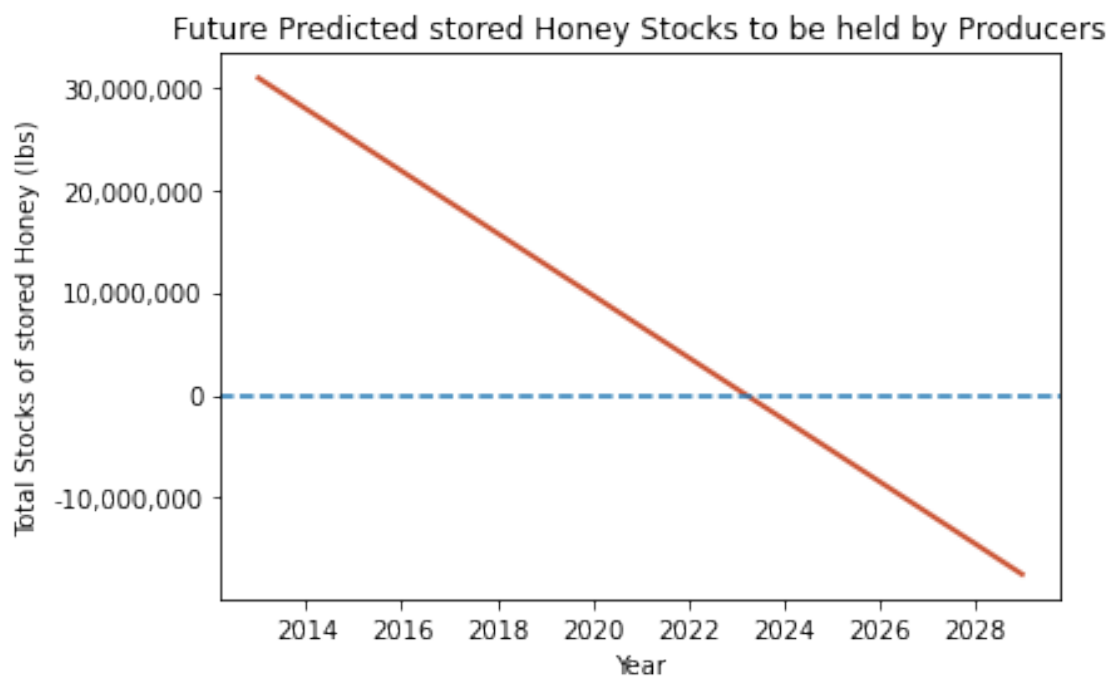
The predicted yield per colony in 2060 is 4.1 pounds.

This model predicts that the average yield per honeybee colony will reach 0 in the year 2063 if this trend continues.

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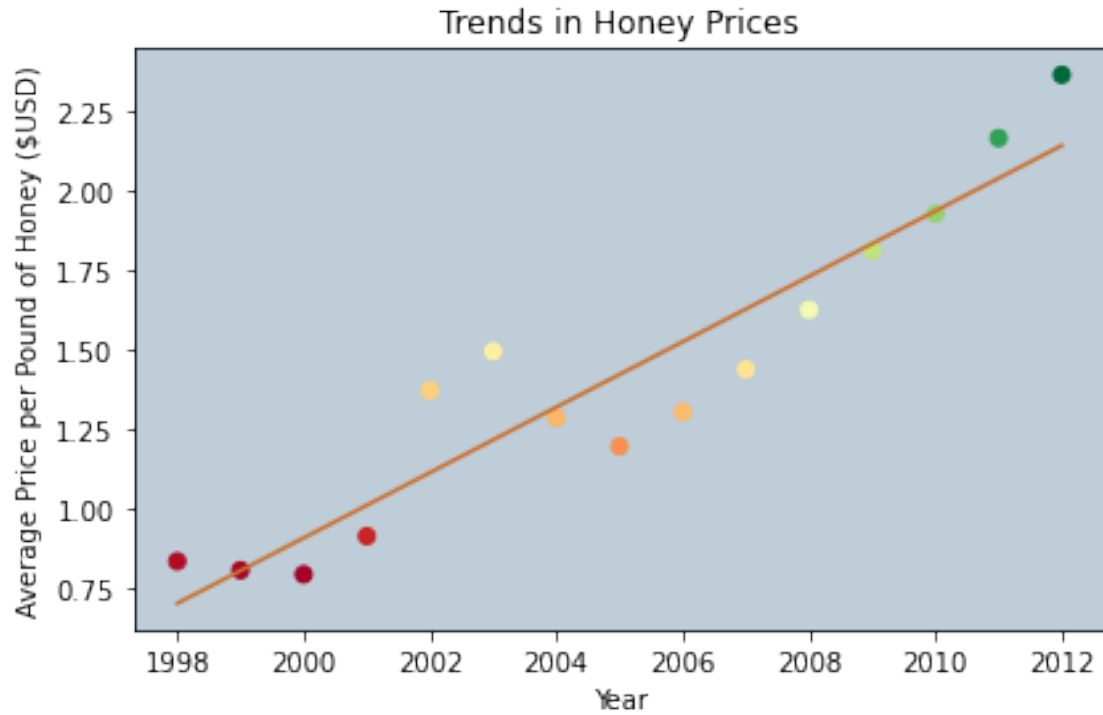


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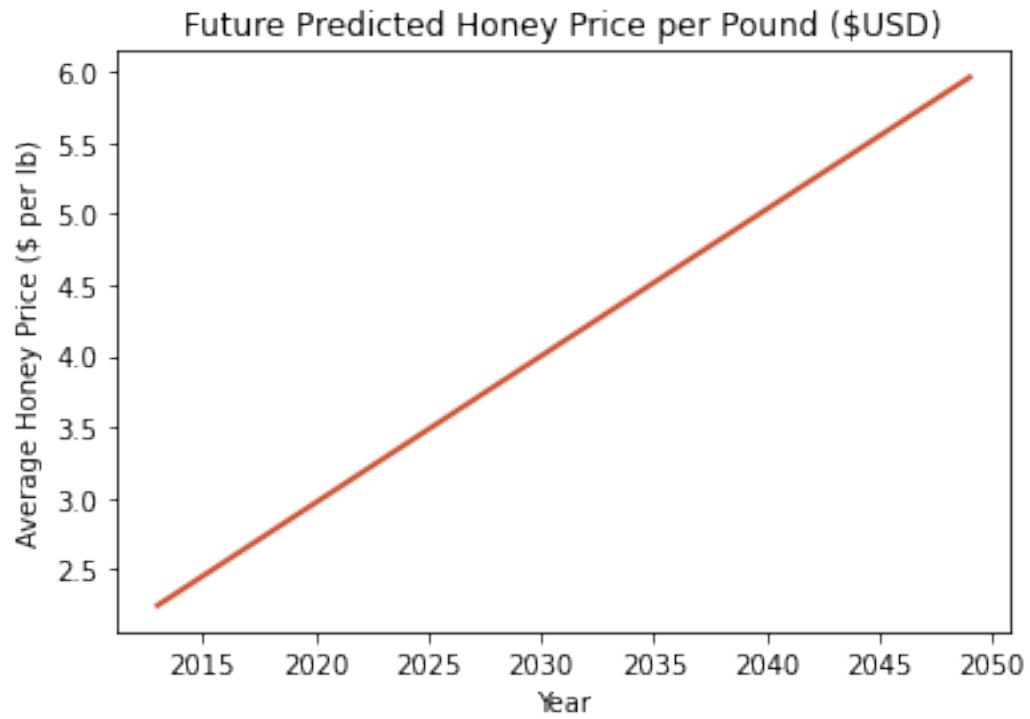
The predicted total honey stored by producers in 2023 is 677764.3 pounds.  
This model predicts that the total honey stored by producers will reach 0 in the year 2023 if this trend continues.

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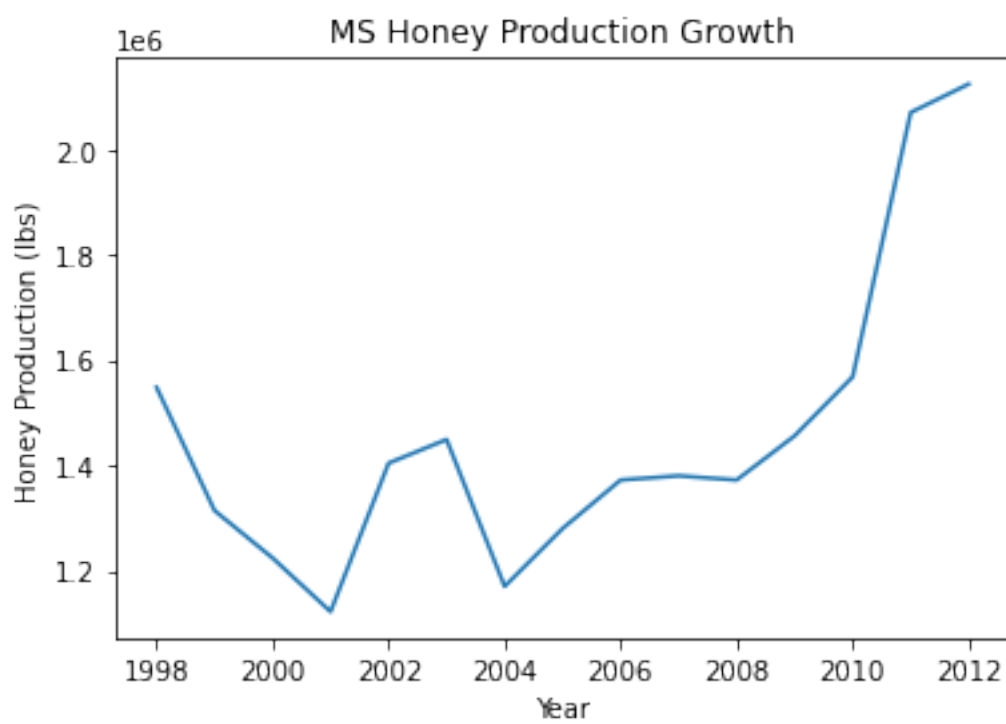
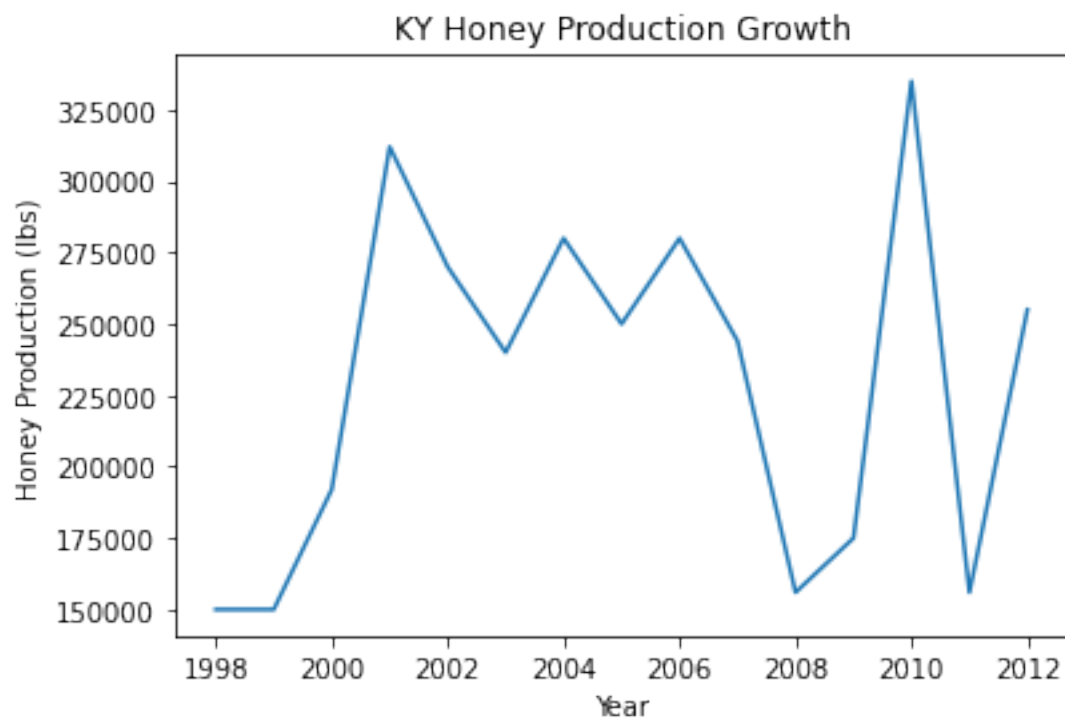


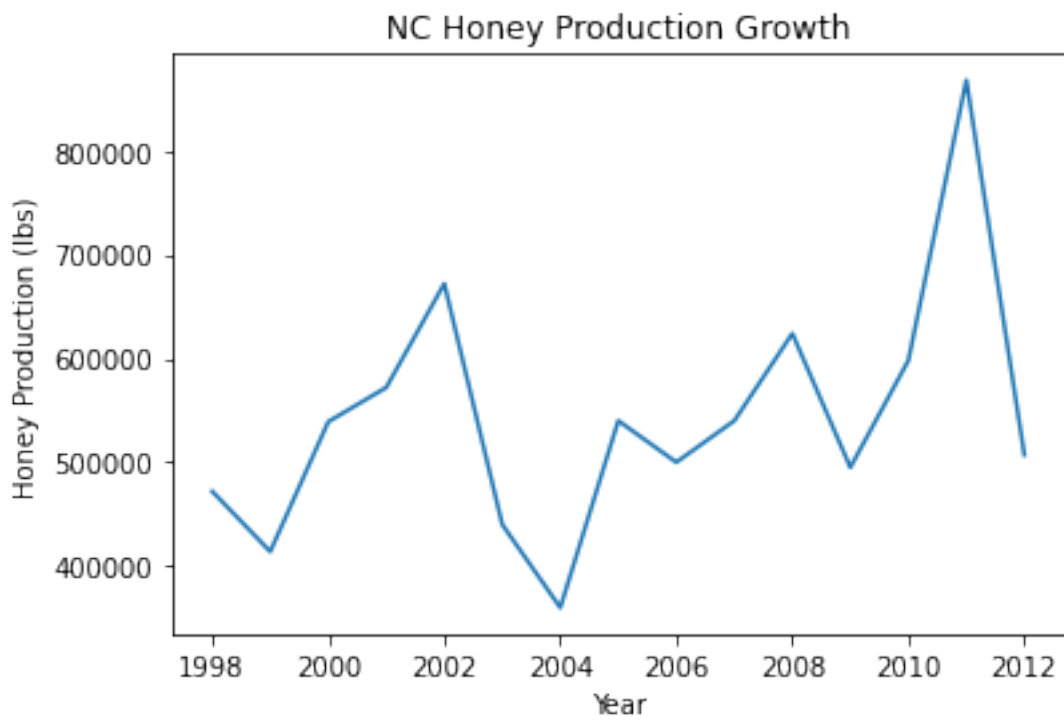
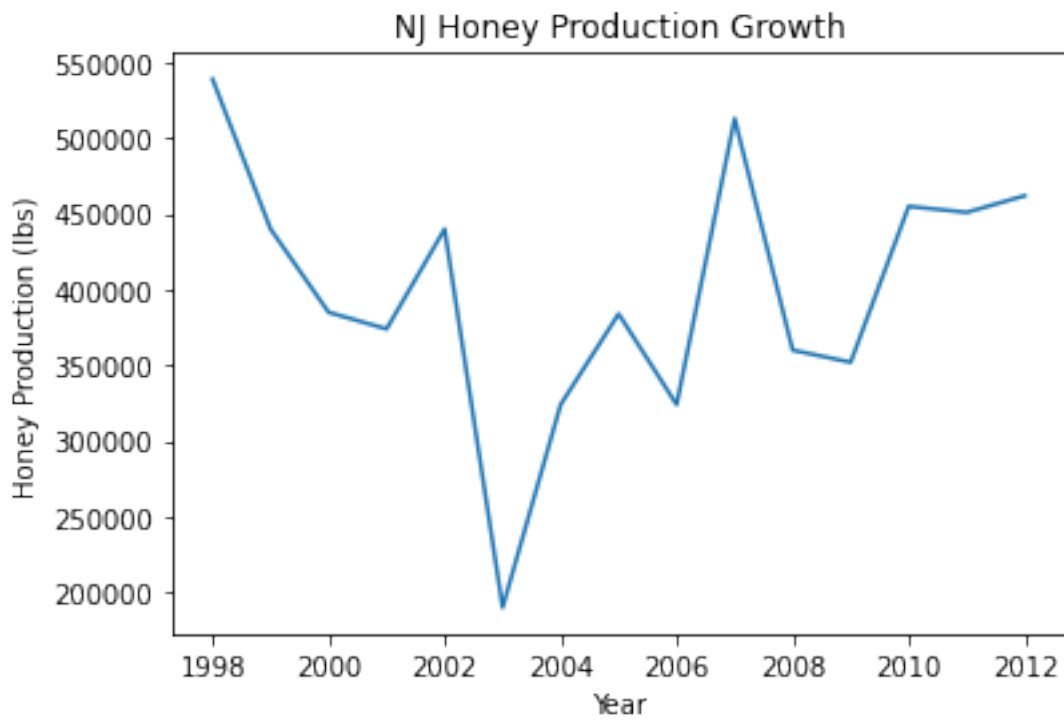


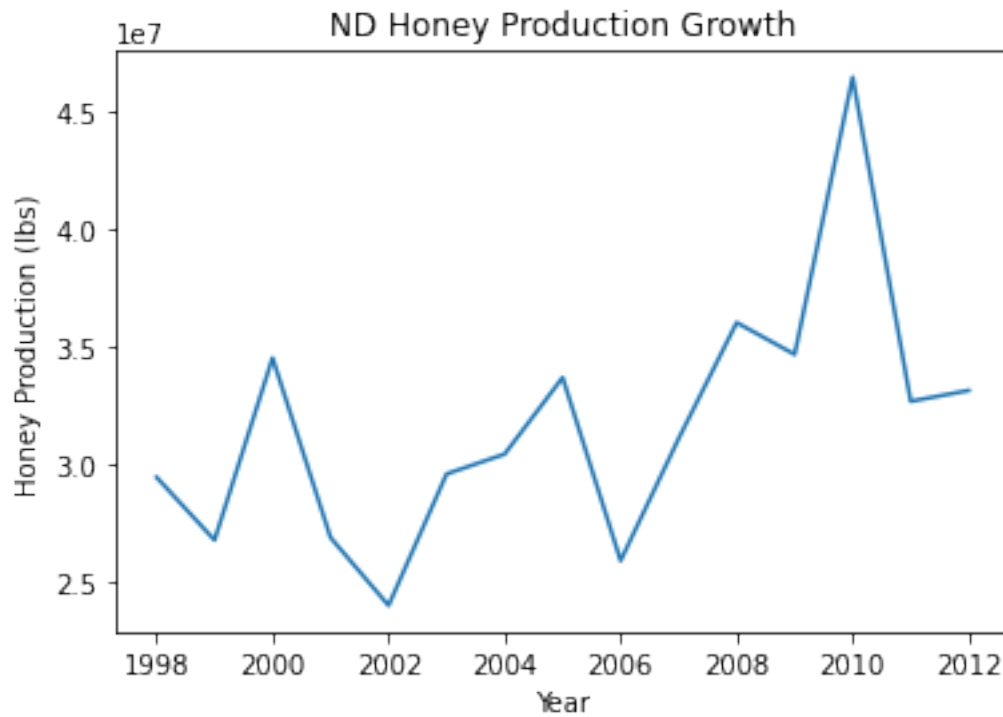
The predicted average price for honey in 2022 is \$3.18 per pound.

```
array([3.18])
```

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5 States with the best growth in Honey Production (average increase in lbs per year):

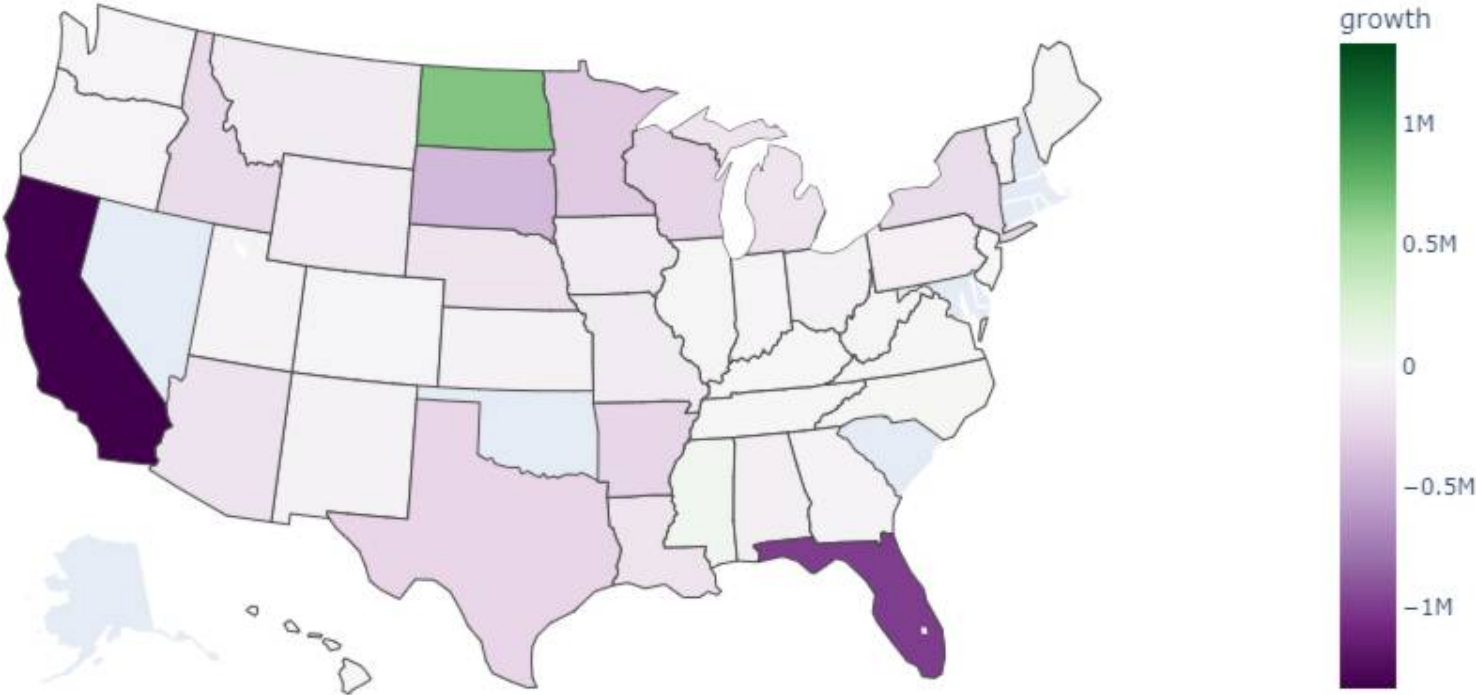
	state	growth
26	ND	664928.571429
18	MS	41400.000000
25	NC	11257.142857
13	KY	2157.142857
22	NJ	696.428571

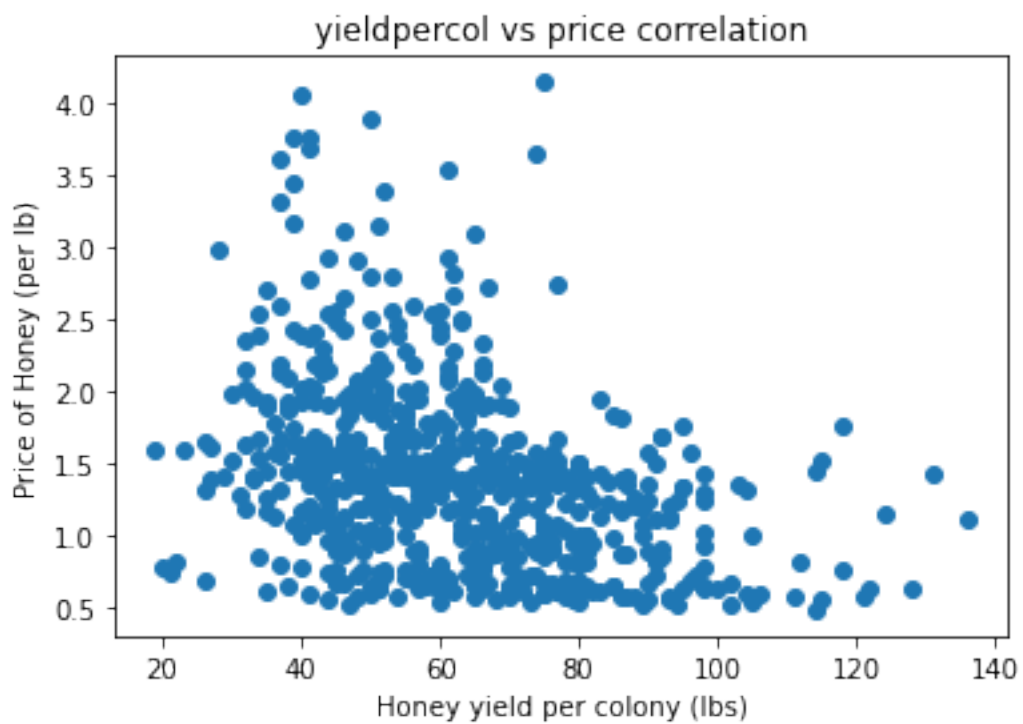
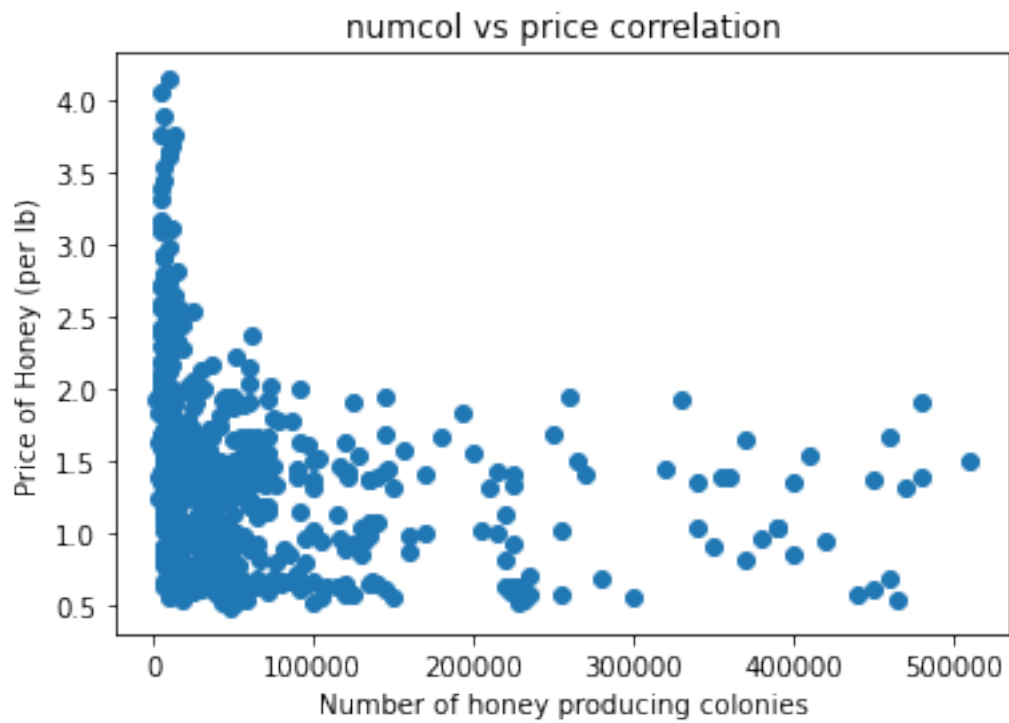
5 States with the worst decline in Honey Production (average decrease in lbs per year):

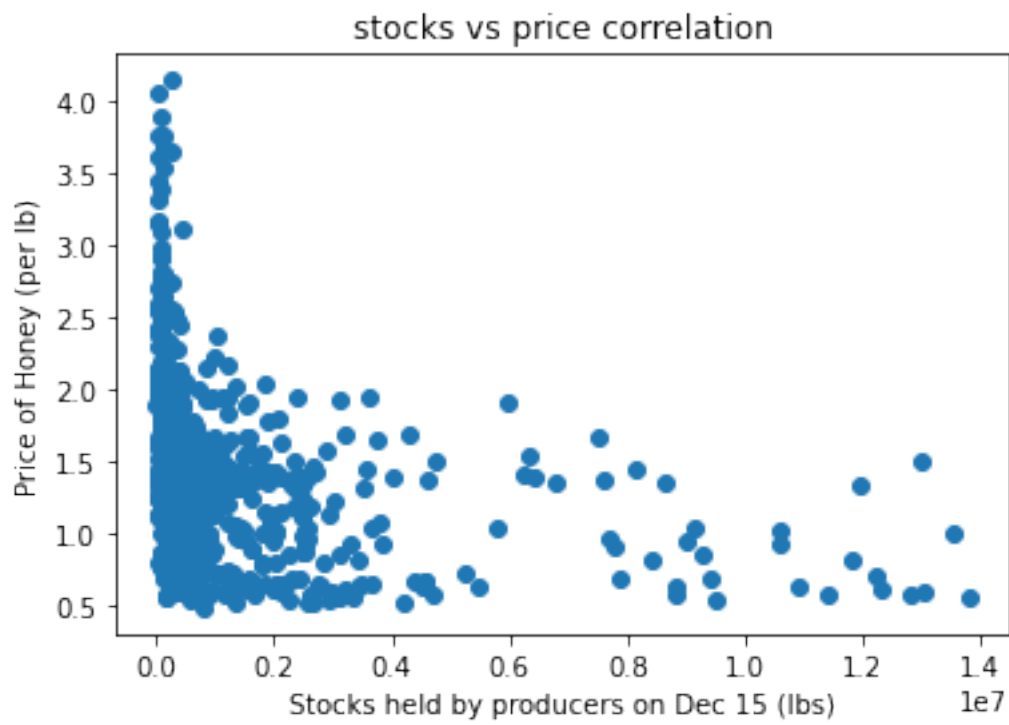
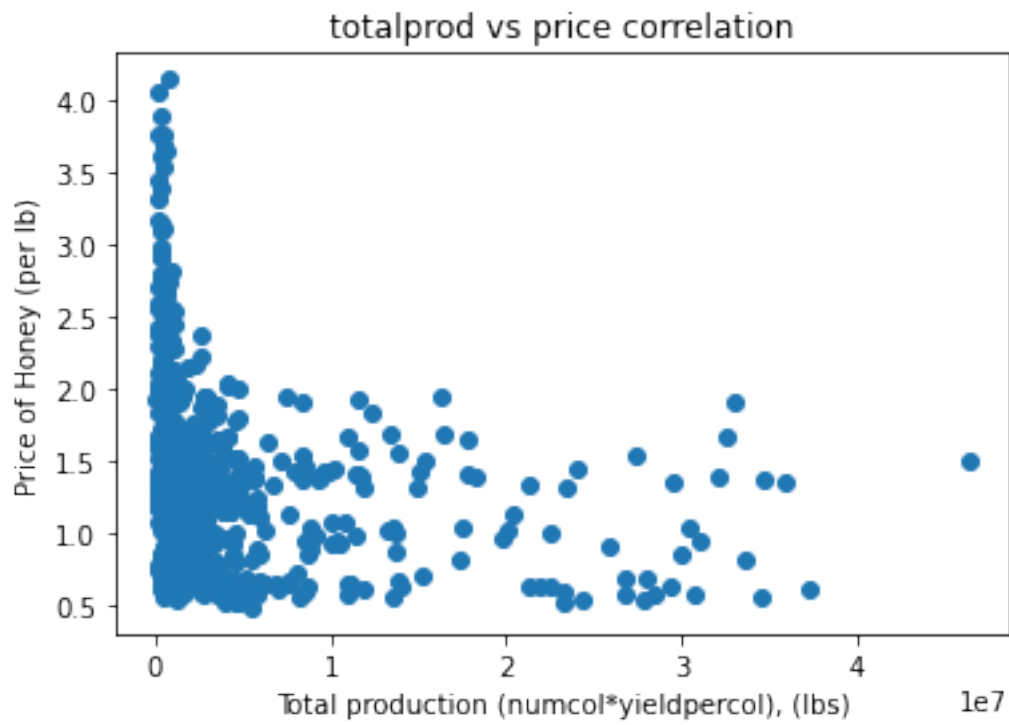
	state	growth
38	WI	-2.618464e+05
17	MN	-3.167679e+05
30	SD	-4.170214e+05
5	FL	-9.956500e+05
3	CA	-1.335000e+06

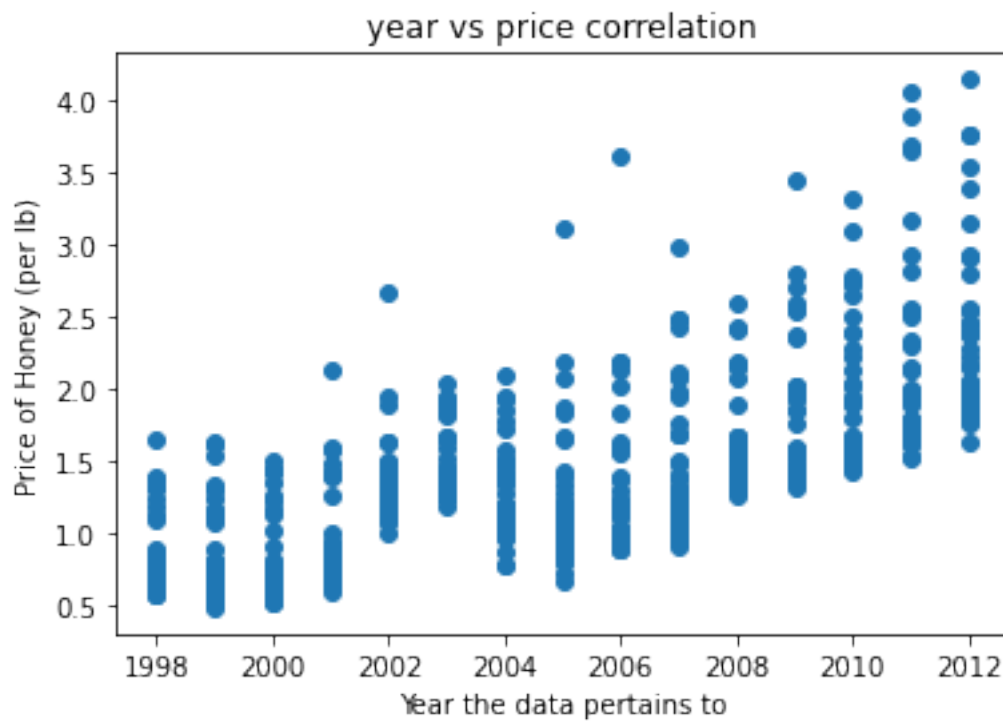
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Honey Production Growth by State









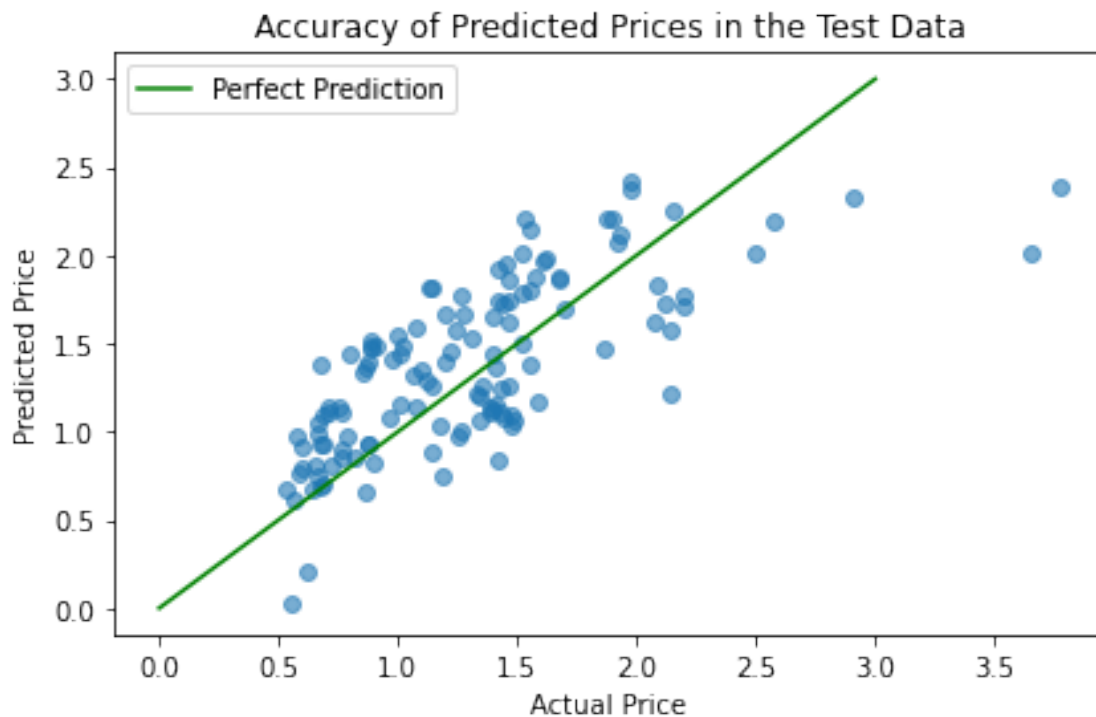
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Residual analysis score of training set: 0.5861246775118103

Residual analysis score of test set: 0.4874857146913584

Moderate correlation





Feature coefficients:

```
['numcol', 'yieldspercol', 'totalprod', 'stocks', 'year']
[[-2.27091223 -0.9417937  2.40278332 -0.43243004  1.38380343]]
```

Correlation Coefficients with Honey Price:

```
numcol      -0.232701
yieldspercol -0.358646
totalprod   -0.264499
stocks      -0.305867
priceperlb   1.000000
prodvalue   -0.089567
year         0.693984
Name: priceperlb, dtype: float64
```

The predicted price per pound for honey in 2023 is \$3.33