North American Pollinator Partnership Forage, Roadsides & Nutrition Task Force

# NATIONAL BEEKEEPER SURVEY OF THE FORAGING NEEDS OF BEE COLONIES

The North American Pollinator Partnership Campaign, NAPPC, is a collaborative body of more than 160 diverse partners, including respected scientists, researchers, conservationists, government officials and dedicated volunteers.

The Forage, Nutrition & Roadsides Task Force is a working group of NAPPC partners tasked with supporting the development of increased acres of bee forage in key regions, working to increase access to existing potential forage for beekeepers and developing guidelines for regional seed mixes that can be used by Departments/Ministries of Transportation to effectively promote key pollinators along roadsides.

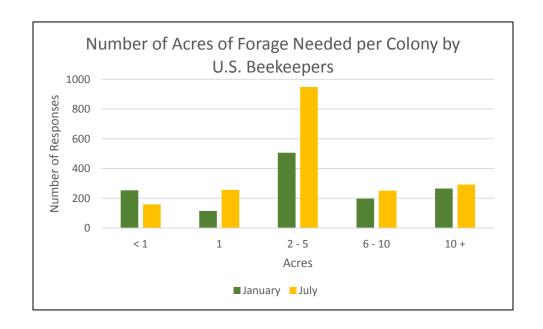
To better understand the amount of forage land needed for managed bee colonies in non-pollination settings, the Forage, Nutrition & Roadsides Task Force conducted a survey of U.S. beekeepers between October 2015 and February 2016. Beekeepers are highly knowledgeable about forage needs in their specific locations, as they are intimately familiar with the health of their colonies, the success of breeding, the amount of excess honey produced and whether supplemental feeding is required at the location. The survey asked beekeepers to consider forage needs at a specific location rather than the beekeeper's general view of forage needs in order to obtain the most accurate information possible. The survey also asked about forage needs during winter and summer (January and July) to reflect differences in available forage.

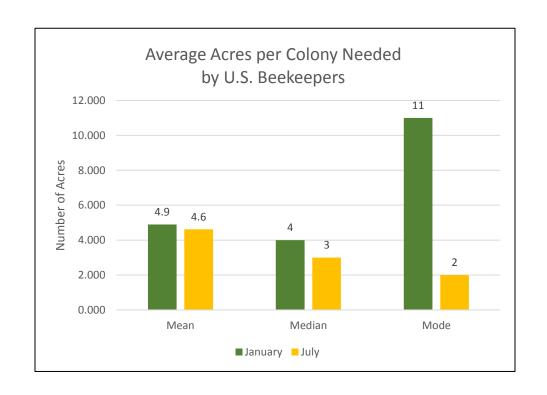
2,250 beekeepers from 30+ states responded to the survey. Most beekeepers responded that they need 2-5 acres of forage land per colony at their southernmost yard in both winter and summer. In every state, the vast majority of beekeepers responded that they need at least 1 acre of forage per colony, with 100% of beekeepers so responding in some states. Nationally, 92% of beekeepers responded that they need at least 1 acre of forage per colony in summer.

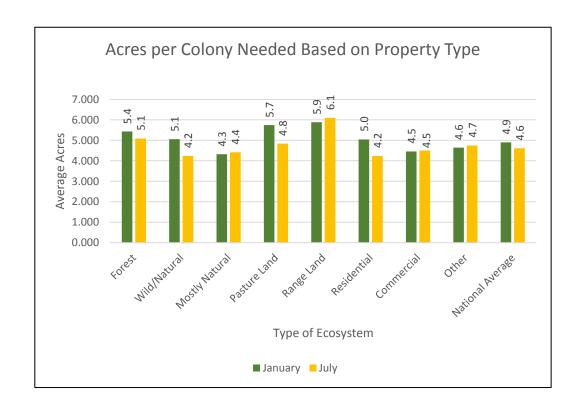
The beekeepers were asked about the types of ecosystems upon which their managed colonies were foraging. The types of habitats were diverse, ranging from forest land to pasture land to commercial and residential properties. Additionally, there was a wide diversity in the plants used as the primary foraging source. Despite the diversity in habitats and primary forage sources, however, the average number of acres needed fell within the range of 4.2 to 6.1 acres per colony. Bees can apparently survive in many diverse habitats so long as they have sufficient foraging resources to do so.

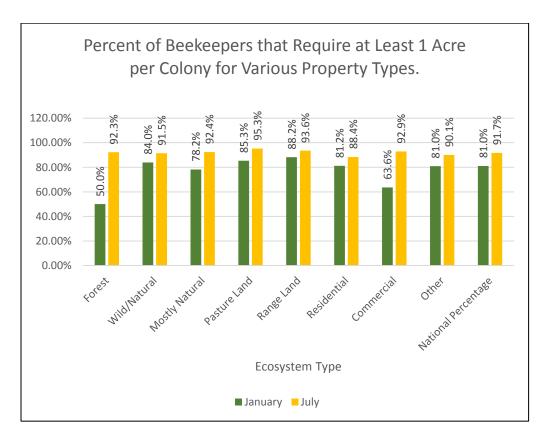
The national and state by state results are below. The survey questions are shown at the end.

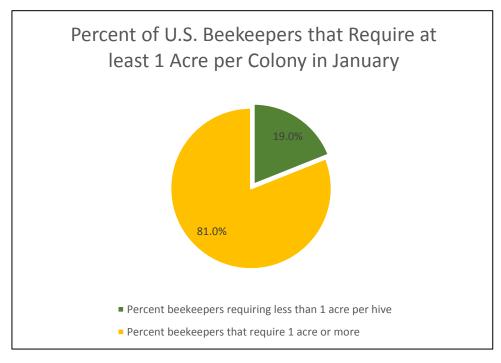
### **National Survey Results**

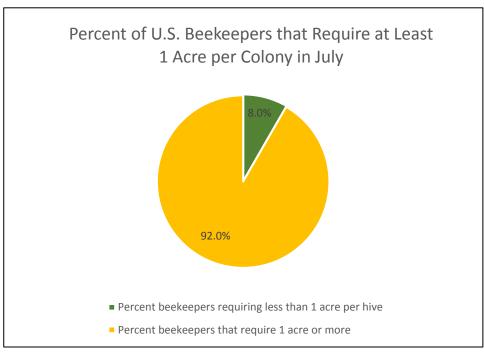






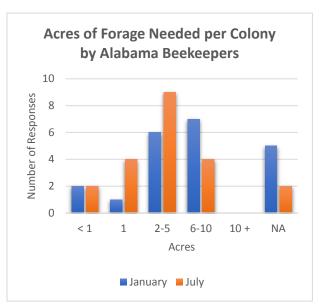


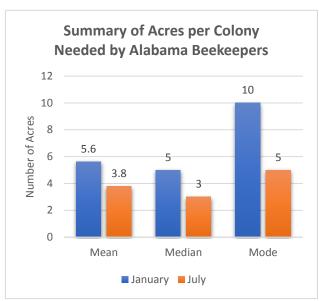


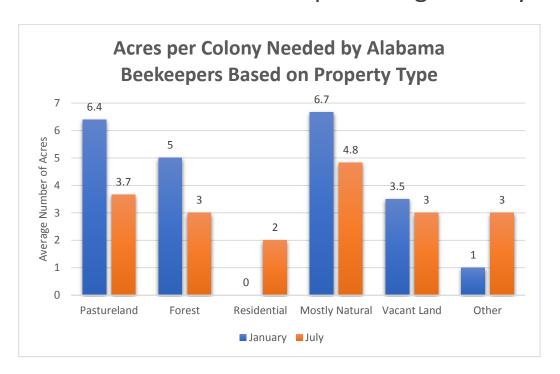


# Alabama

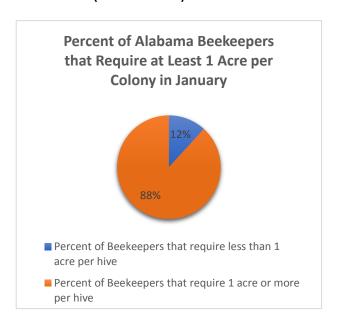
In Alabama, a total of 21 beekeepers responded to the survey.

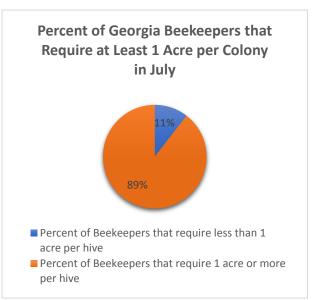


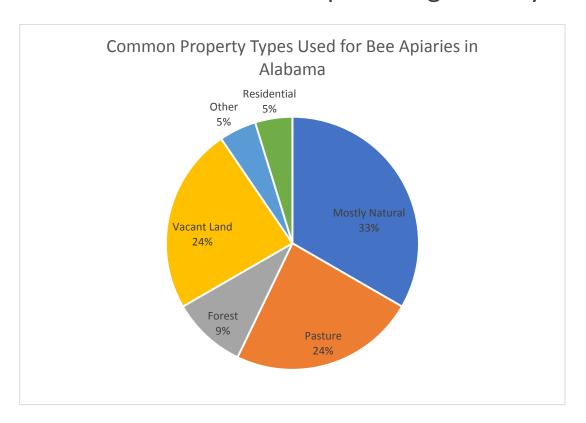




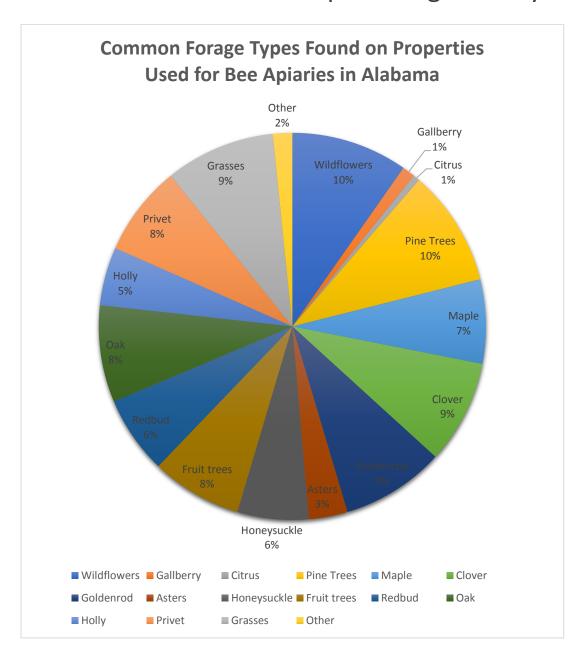
#### Alabama (continued)





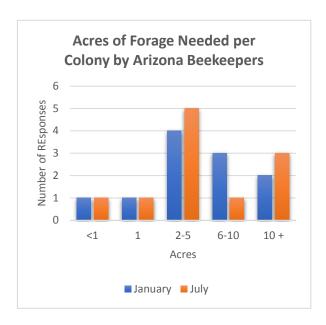


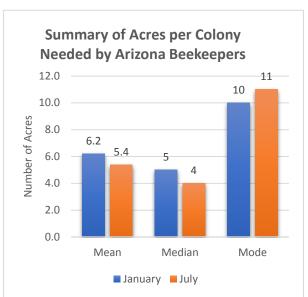
Alabama (continued)

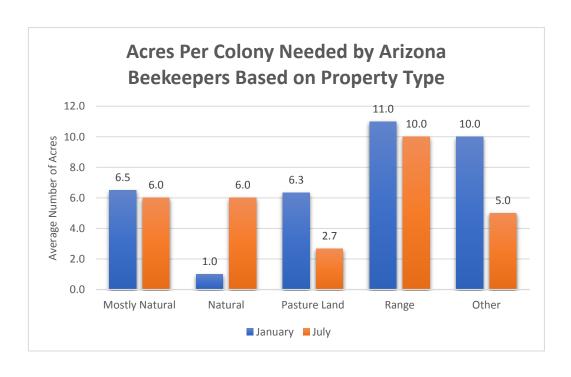


### Arizona

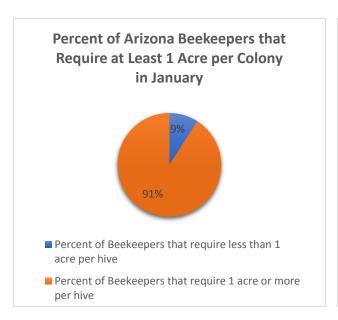
In Arizona, a total of 11 beekeepers responded to the survey.

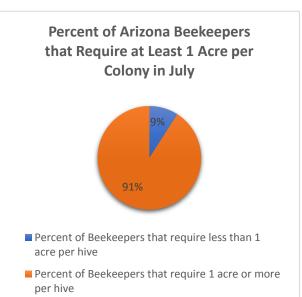


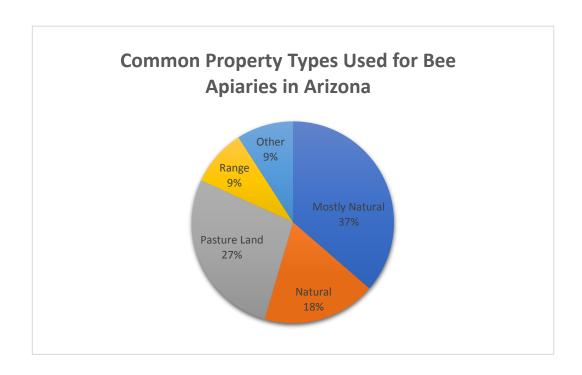




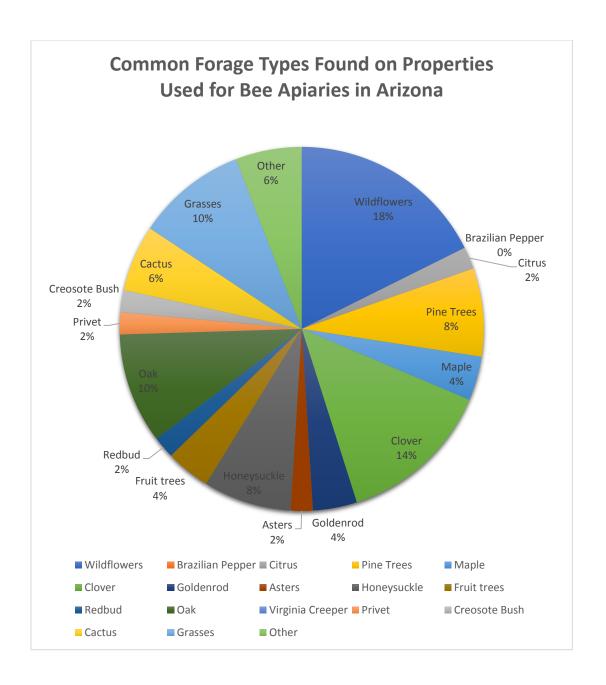
### Arizona (continued)





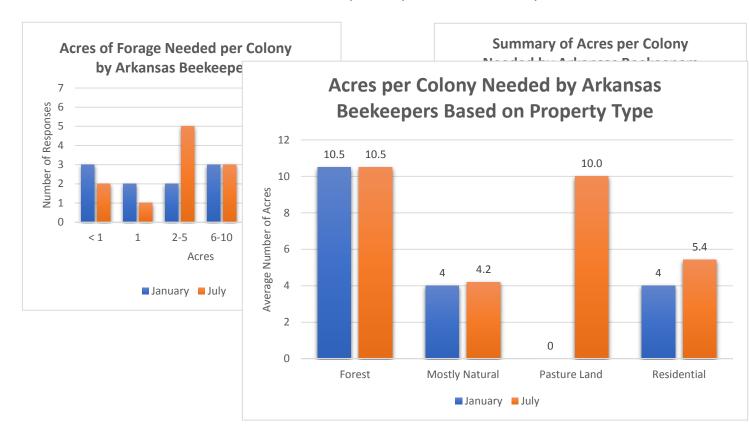


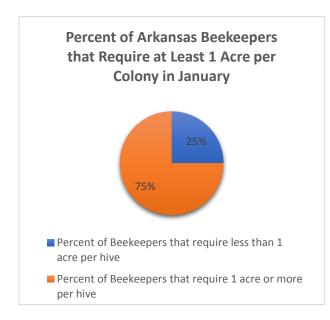
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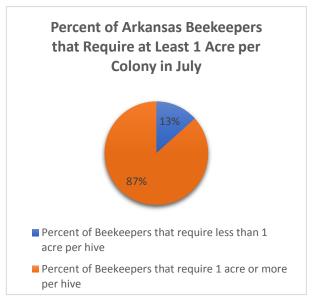


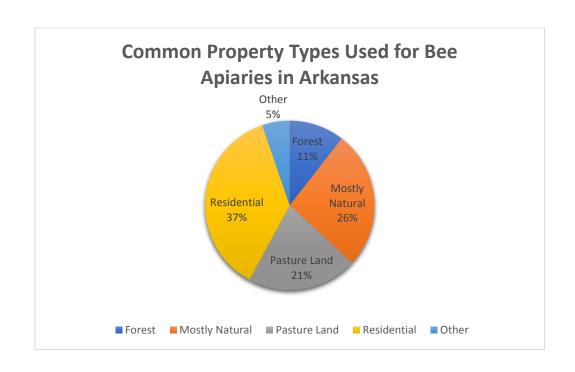
### **Arkansas**

In Arkansas, a total of 19 beekeepers responded to the survey.

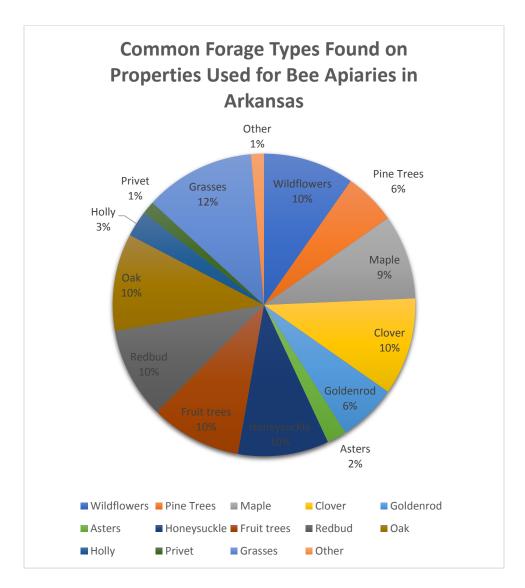






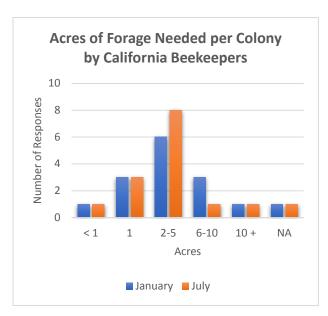


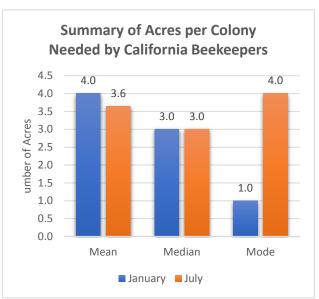
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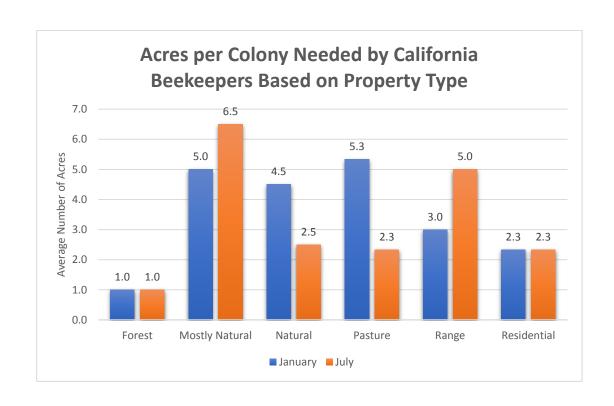


### California

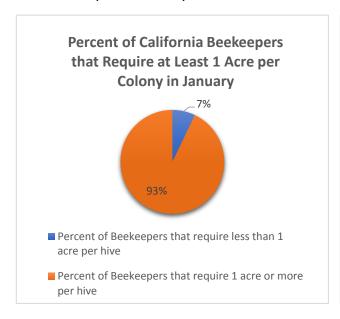
In California, a total of 15 beekeepers responded to the survey.

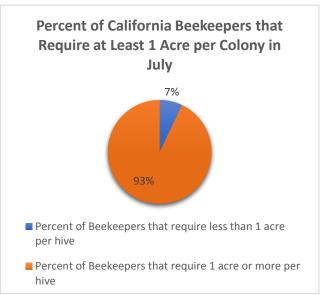


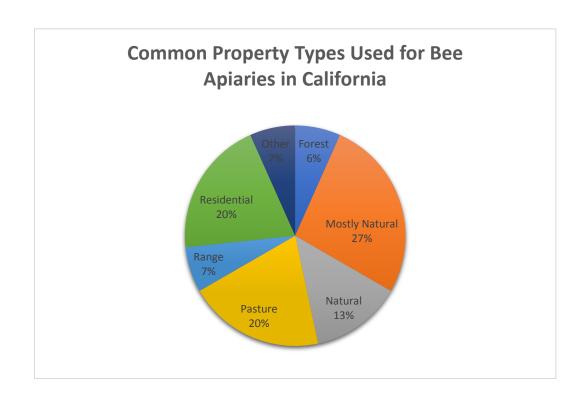




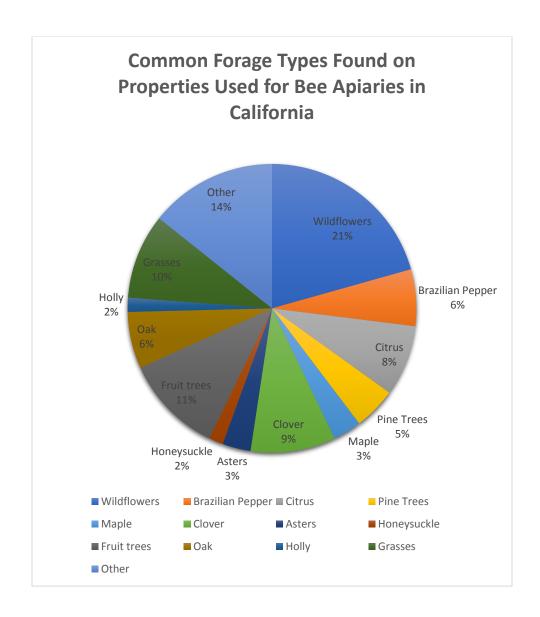
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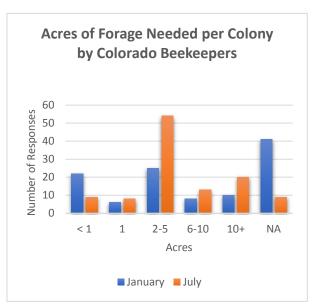


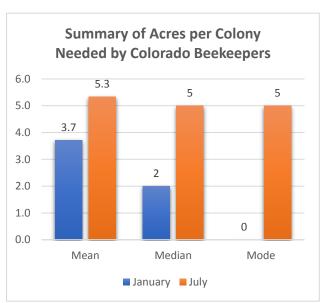
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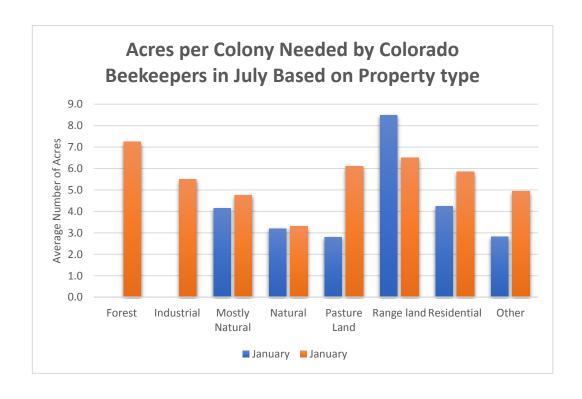


### Colorado

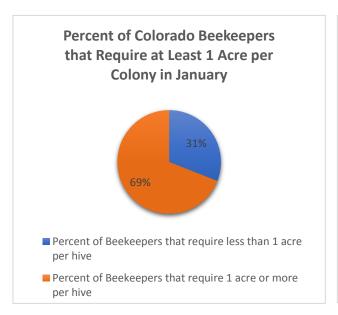
In Colorado, a total of 117 beekeepers responded to the survey.

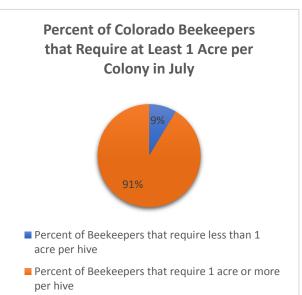


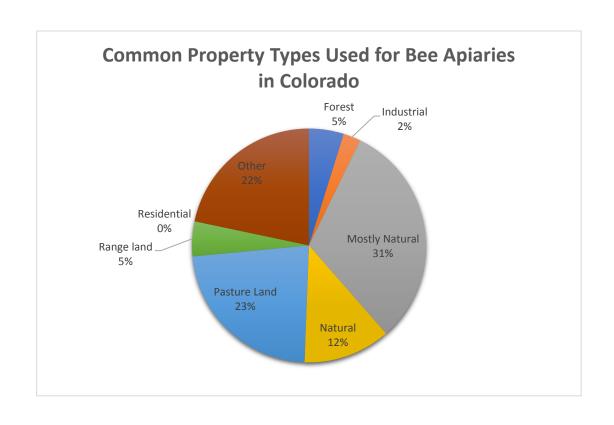




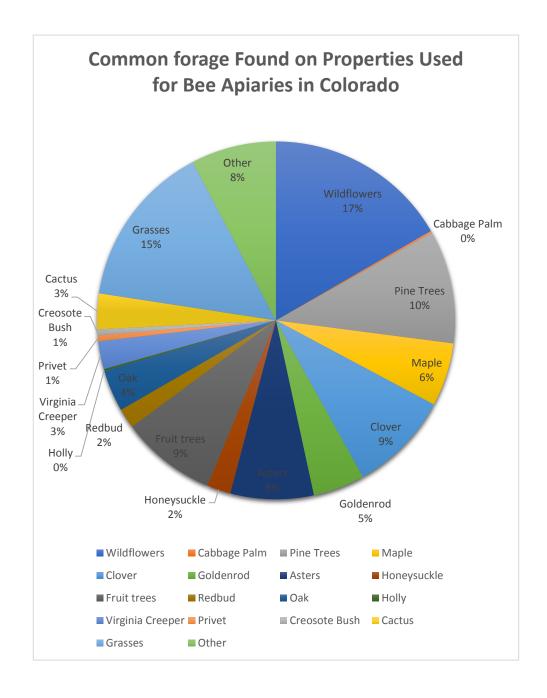
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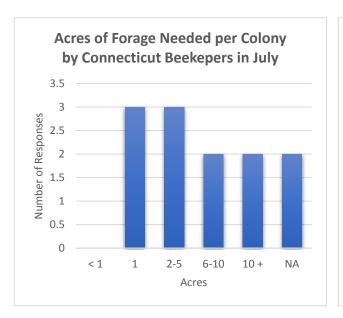


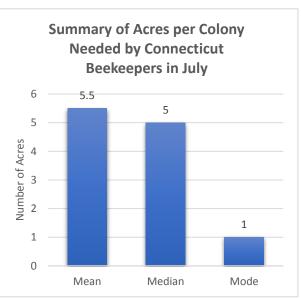
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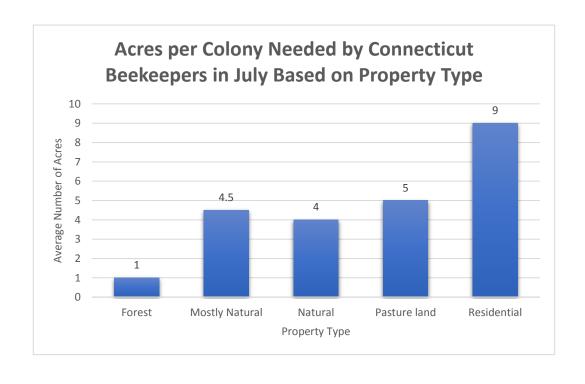


### Connecticut

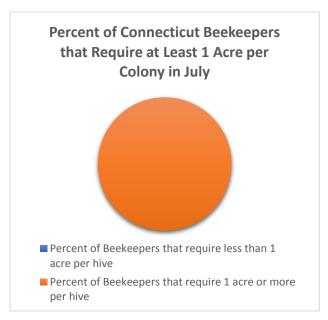
In Connecticut, a total of 12 beekeepers responded to the survey. No data was available for January because bees are typically not active in cold weather.

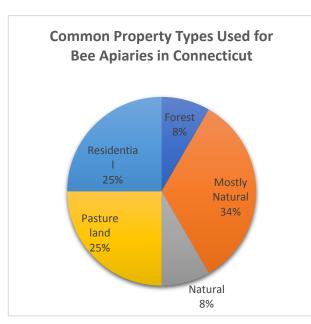


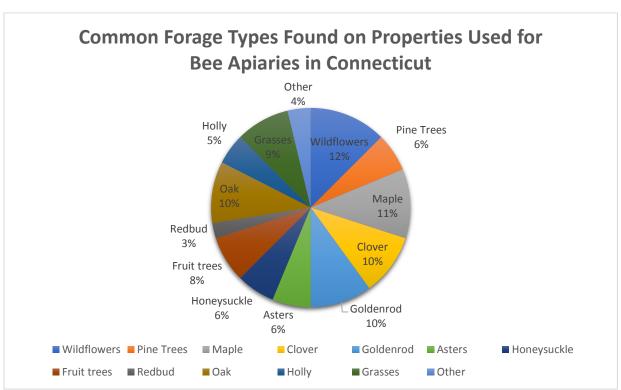




#### Connecticut (continued)





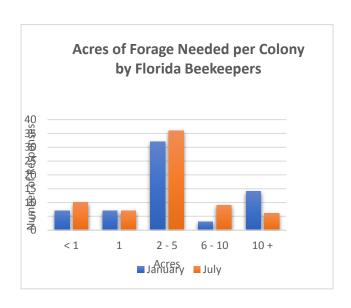


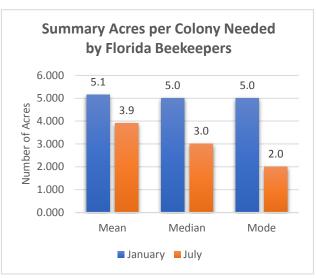
### Delaware

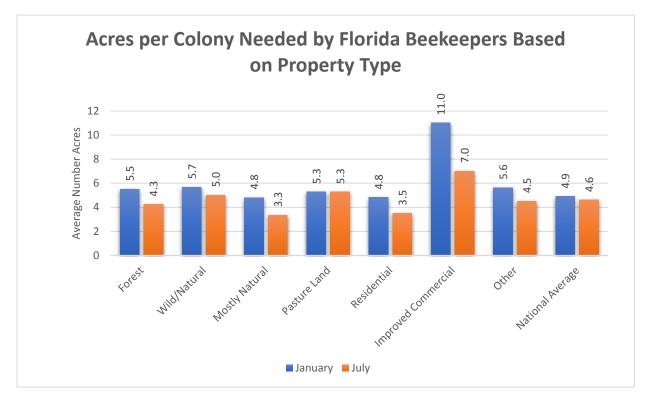
No Data was available for Delaware.

### Florida

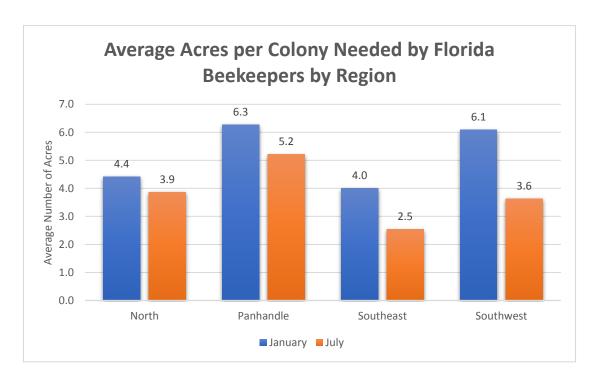
In Florida, a total of 73 beekeepers responded to the survey.



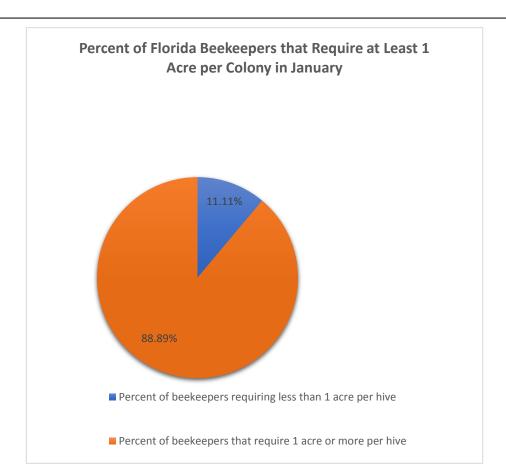


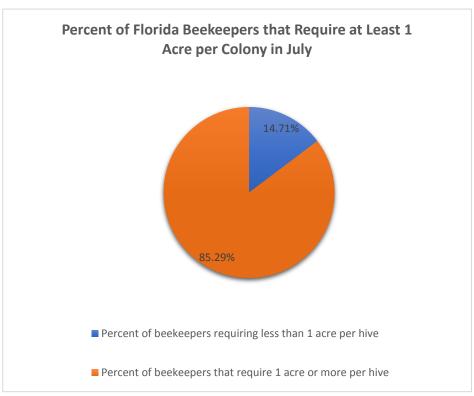


#### Florida (Continued)

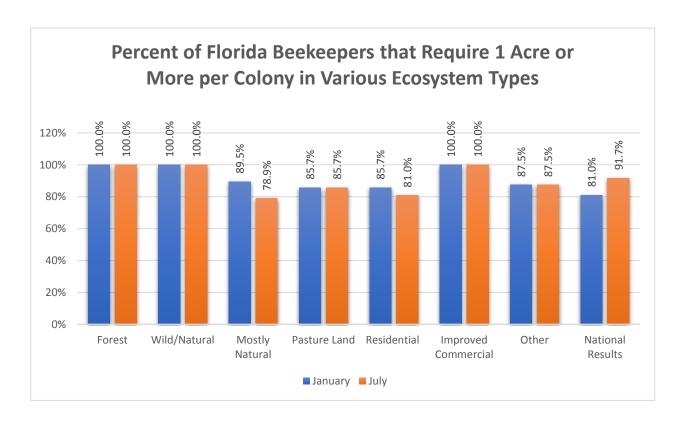


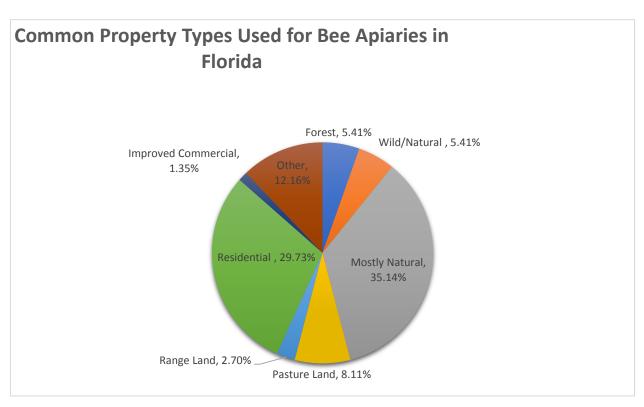
The regions were divided by county as follows: North: Alachua, Bradford, Clay, Marion, Nassau, Putnam, Seminole, St. John, Union; Panhandle: Bay, Calhoun, Escambia, Gadsden, Gulf, Jackson, Jefferson, Leon, Okaloosa, Santa Rosa, Wakulla, Walton, Washington; Southeast: Brevard, Broward, Martin, Orange, Osceola, Palm Beach, St. Lucie; and Southwest: Collier, Lee.



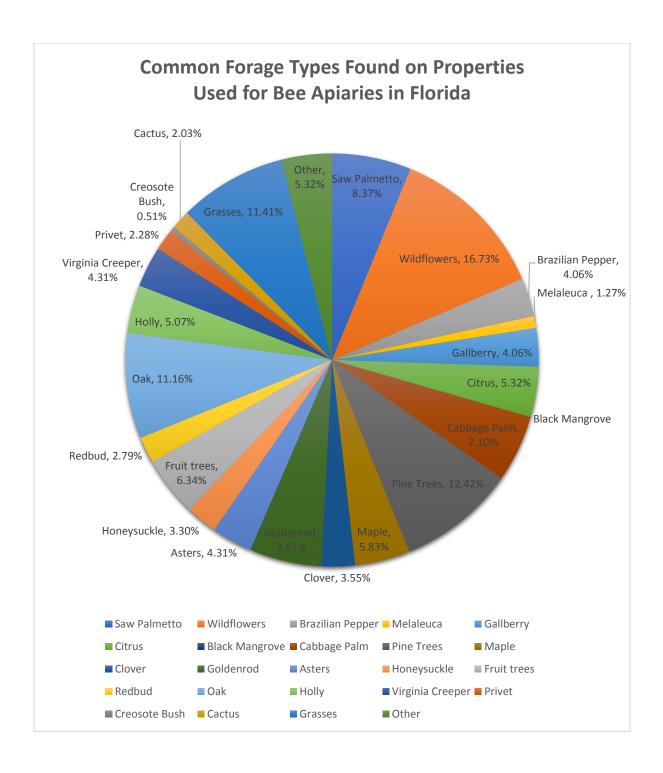


Florida (Continued)



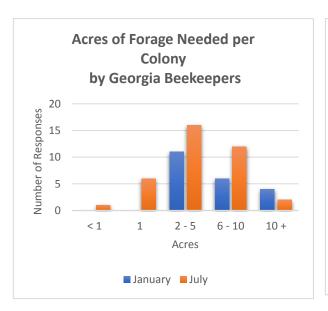


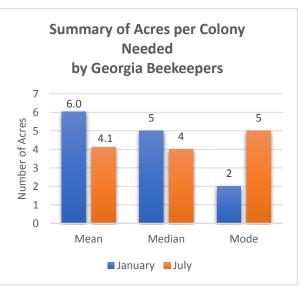
### Florida (Continued)

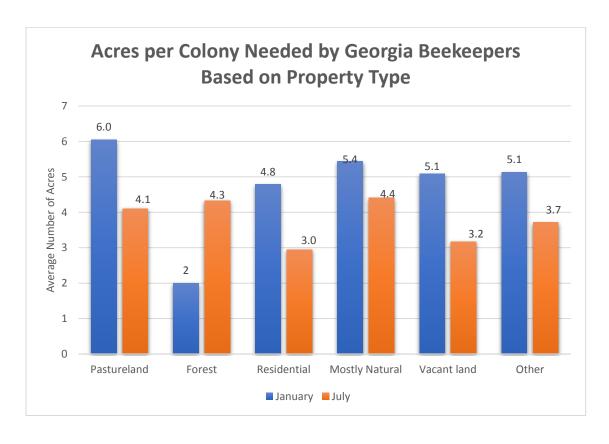


# Georgia

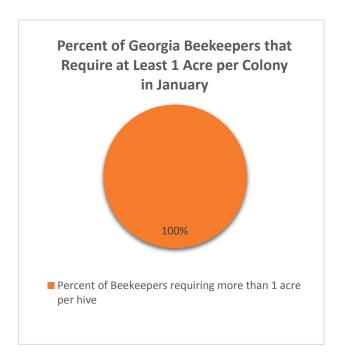
In Georgia, a total of 30 beekeepers responded to the survey.

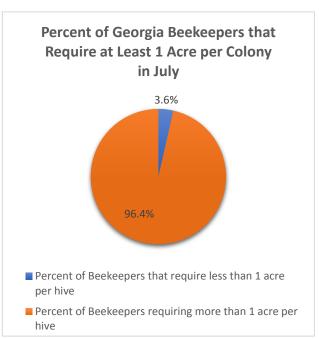


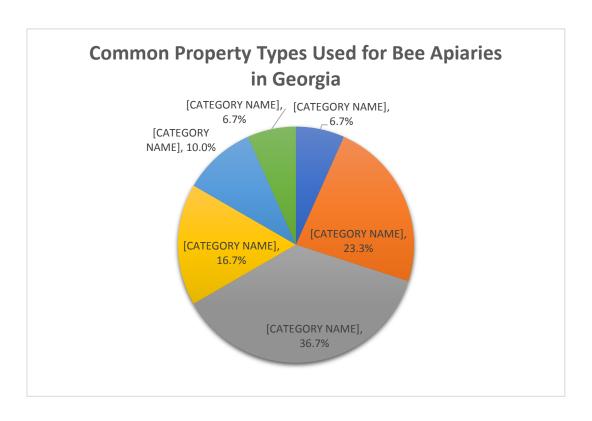




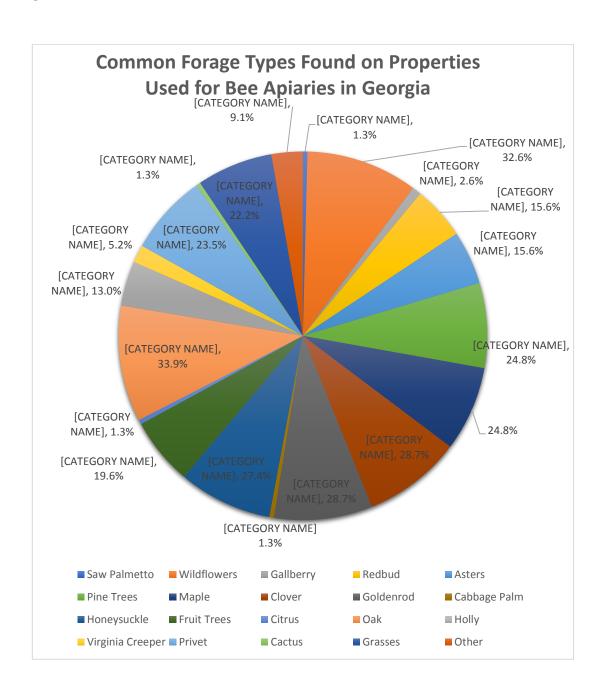
#### Georgia (continued)







#### Georgia (continued)

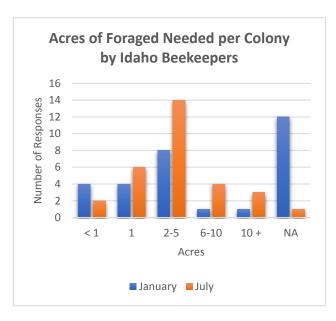


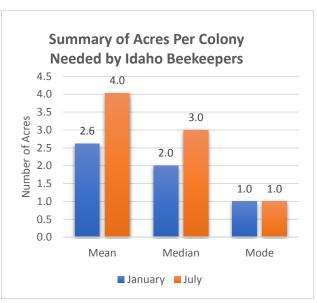
### Hawaii

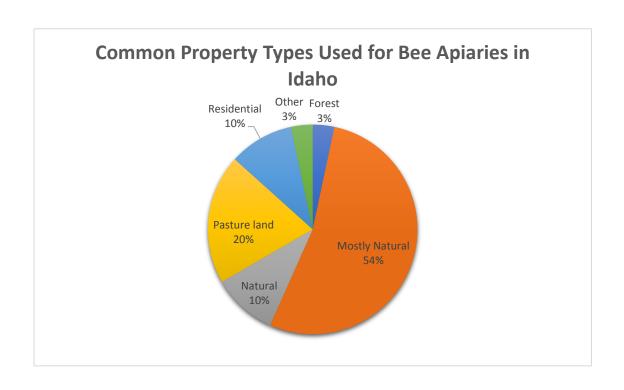
No Data was available for Hawaii.

### Idaho

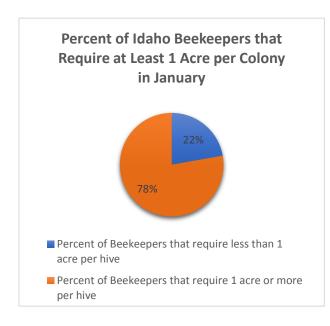
In Idaho, a total of 30 beekeepers responded to the survey.

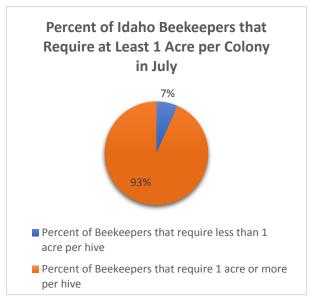


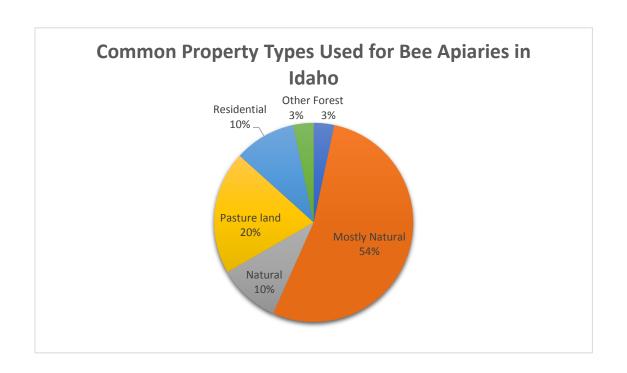




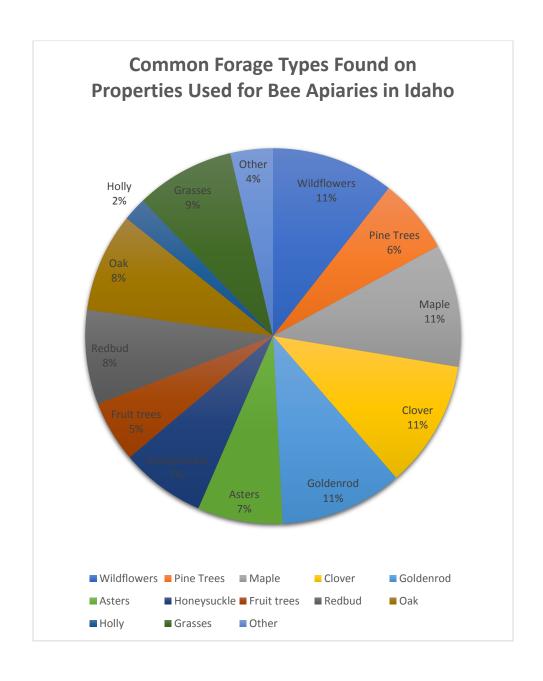
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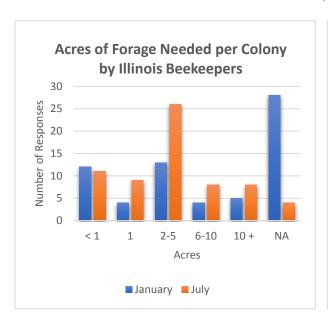


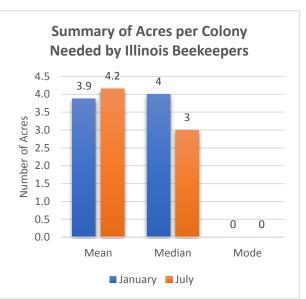
Idaho (continued)

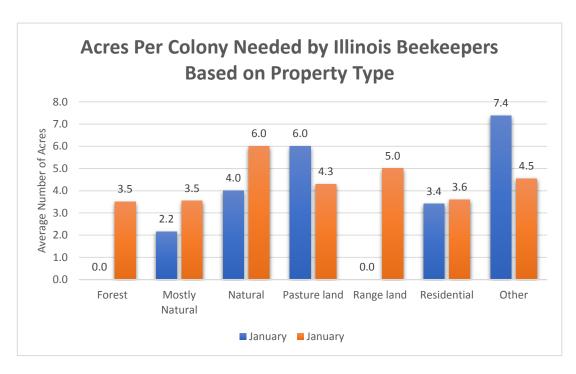


## Illinois

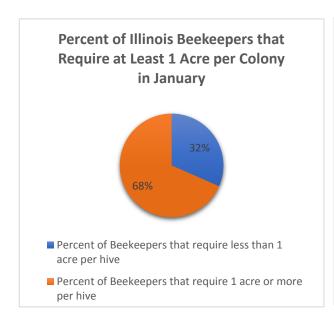
In Illinois, a total of 72 beekeepers responded to the survey.

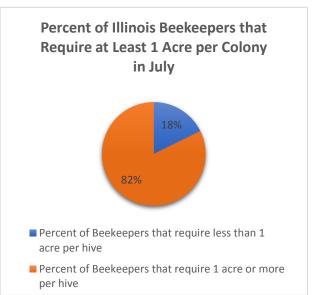


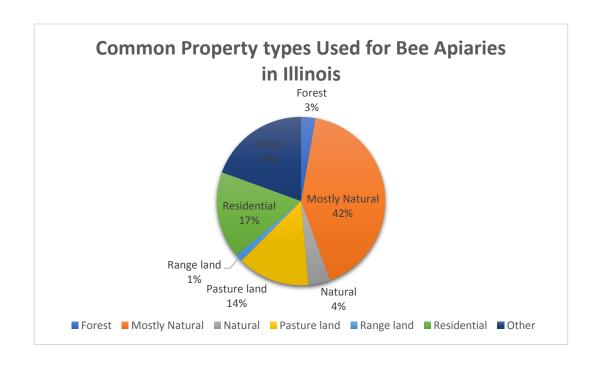




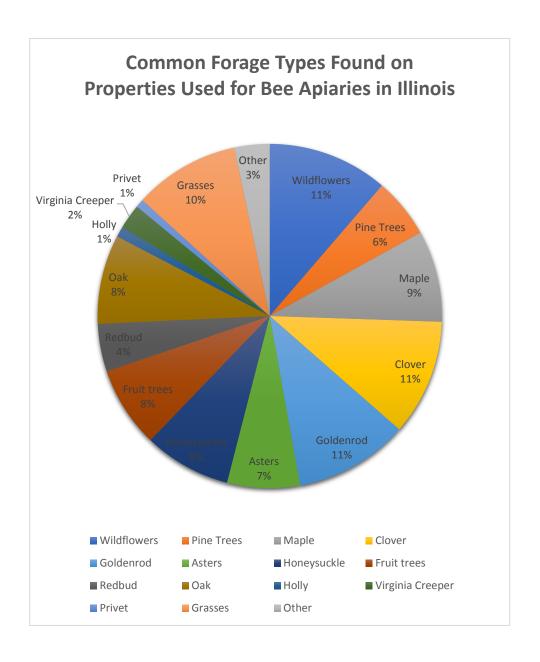
### Illinois (continued)





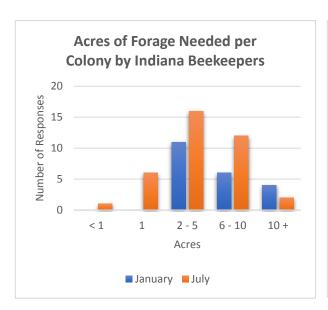


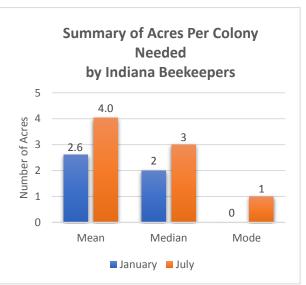
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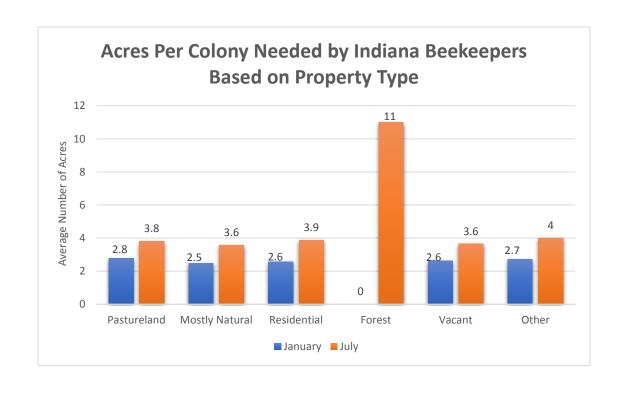


## Indiana

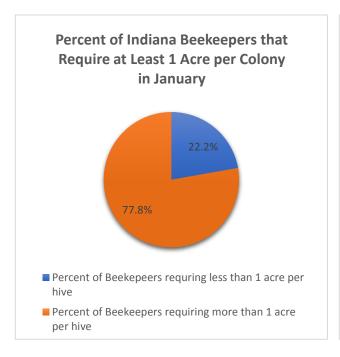
In Indiana, a total of 31 beekeepers responded to the survey.

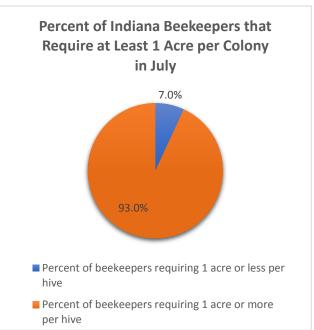


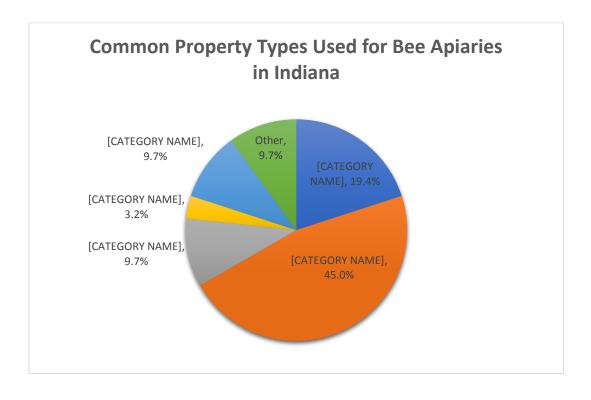




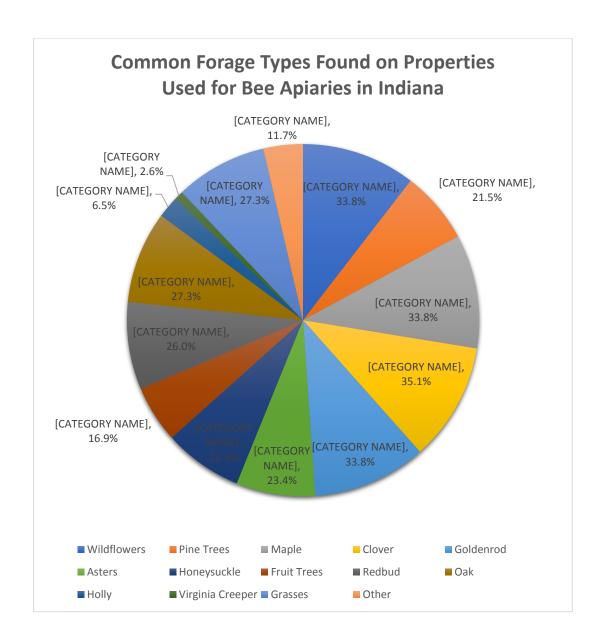
### Indiana (continued)





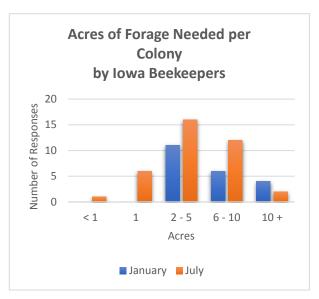


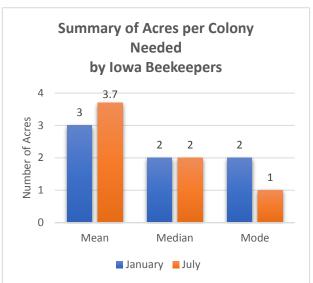
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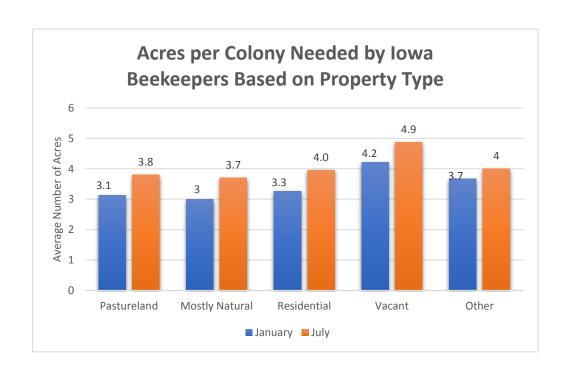


### Iowa

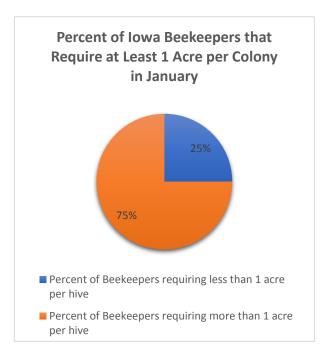
In Iowa, a total of 30 beekeepers responded to the survey.

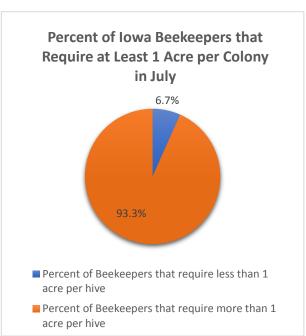


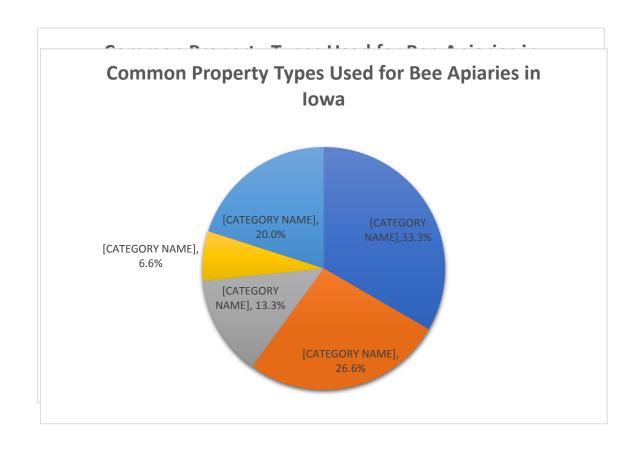


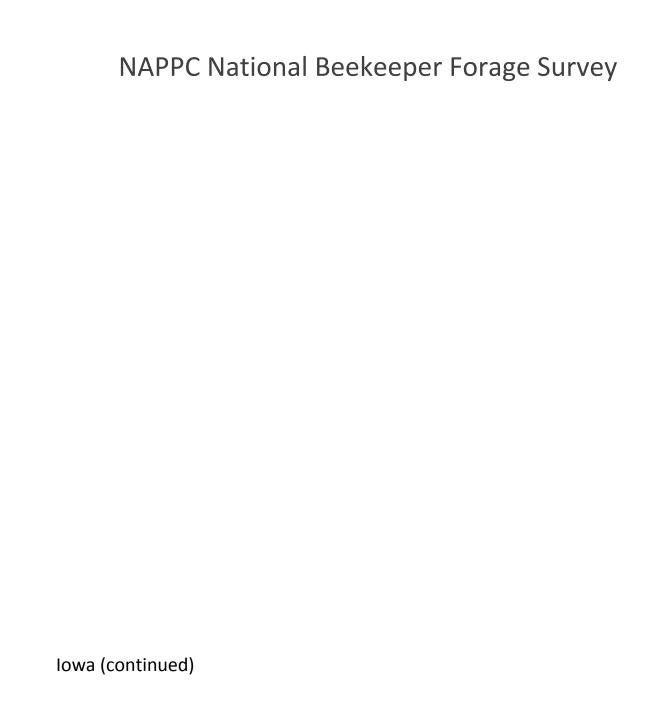


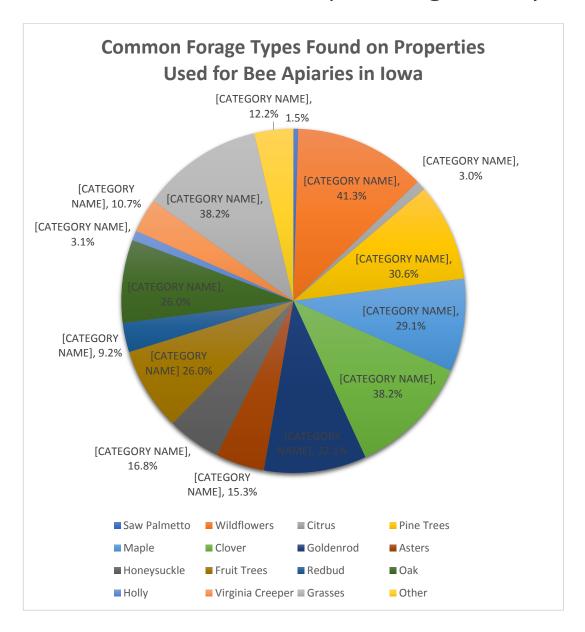
### Iowa (continued)









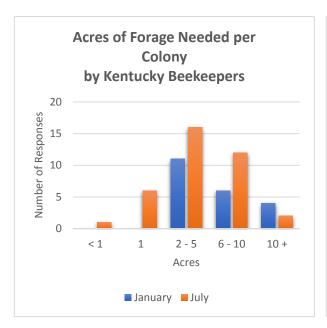


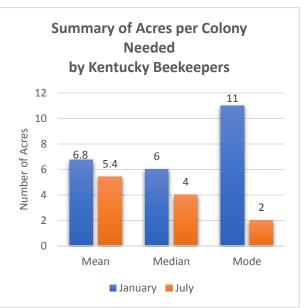
### Kansas

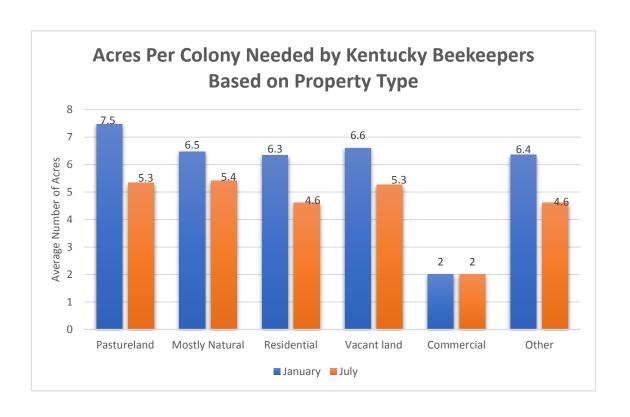
No Data was available for Kansas.

# Kentucky

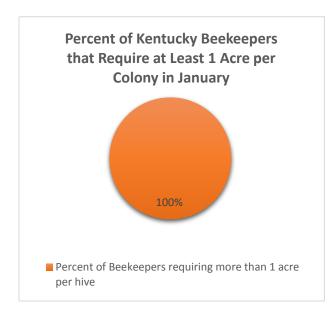
In Kentucky, a total of 37 beekeepers responded to the survey.

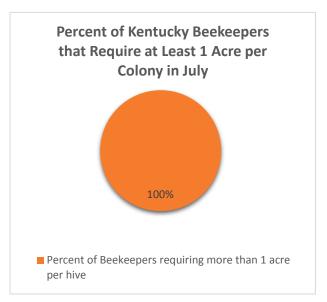


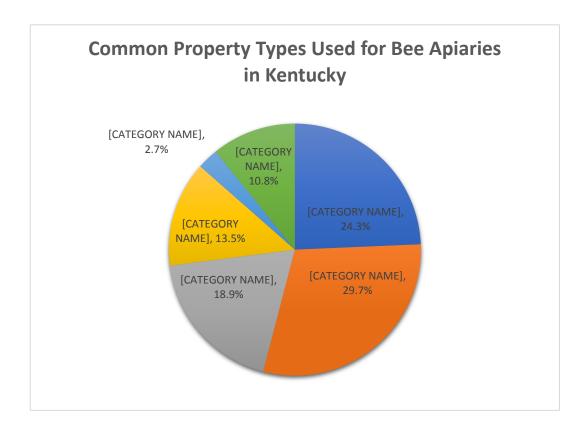




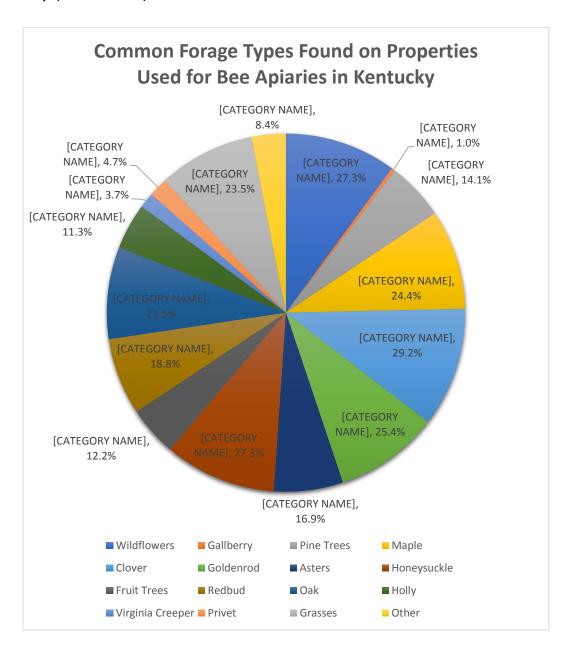
Kentucky (continued)





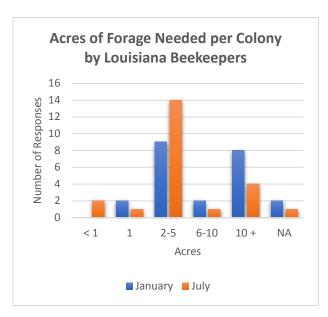


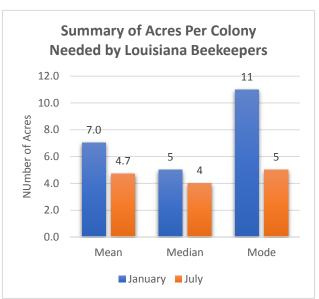
### Kentucky (continued)

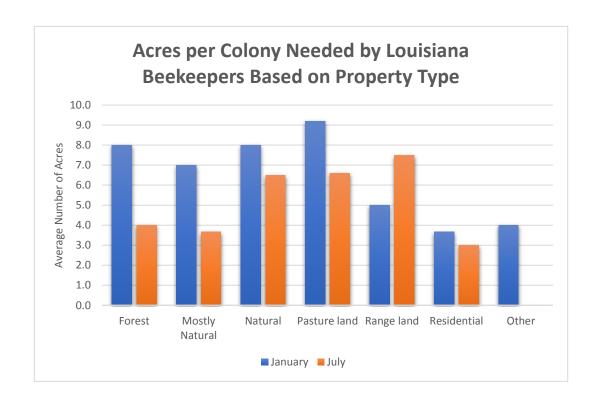


## Louisiana

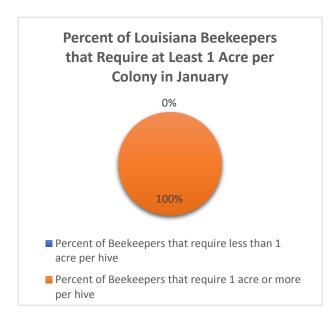
In Louisiana, a total of 23 beekeepers responded to the survey.

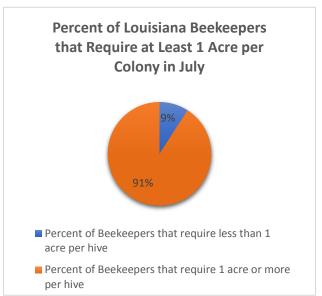


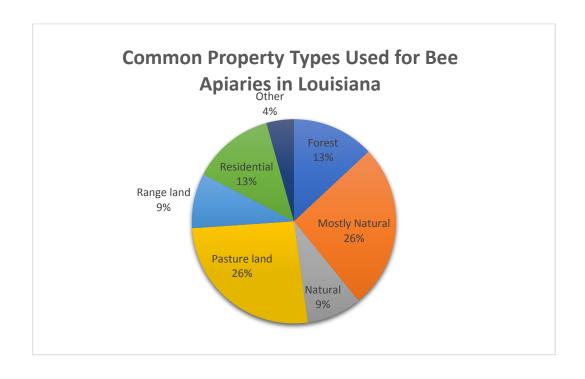




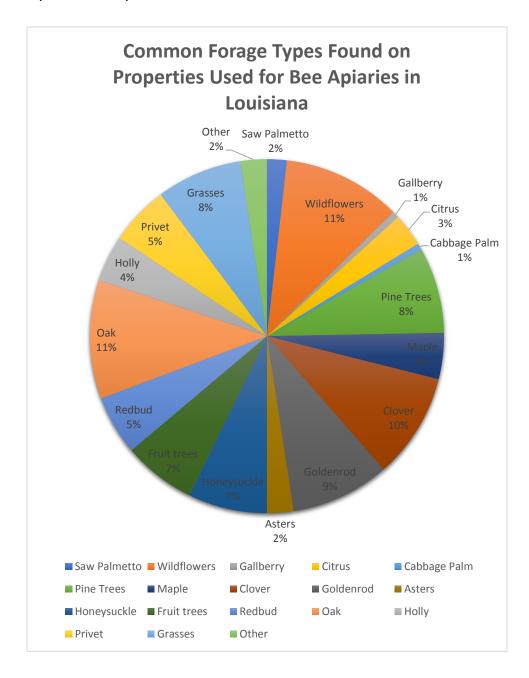
### Louisiana (continued)





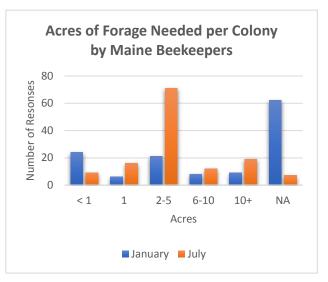


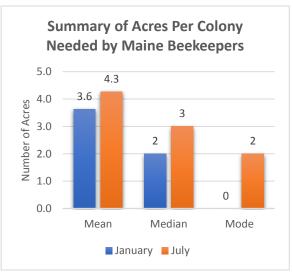
### Louisiana (continued)

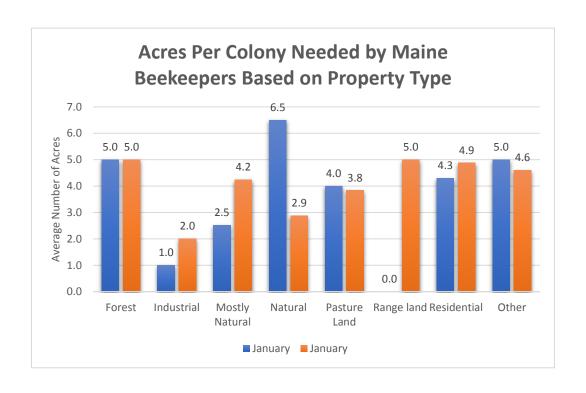


## Maine

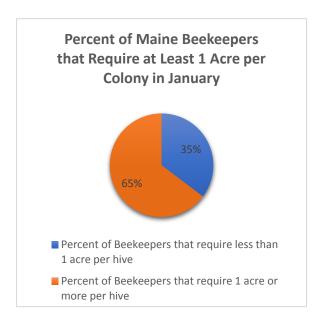
In Maine, a total of 138 beekeepers responded to the survey.

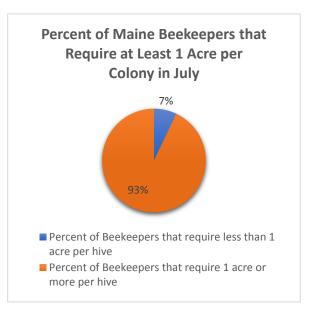


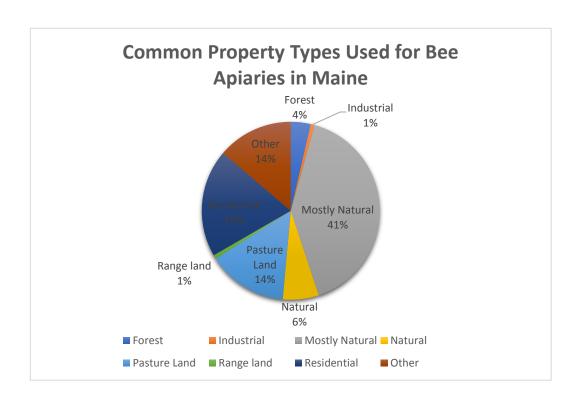




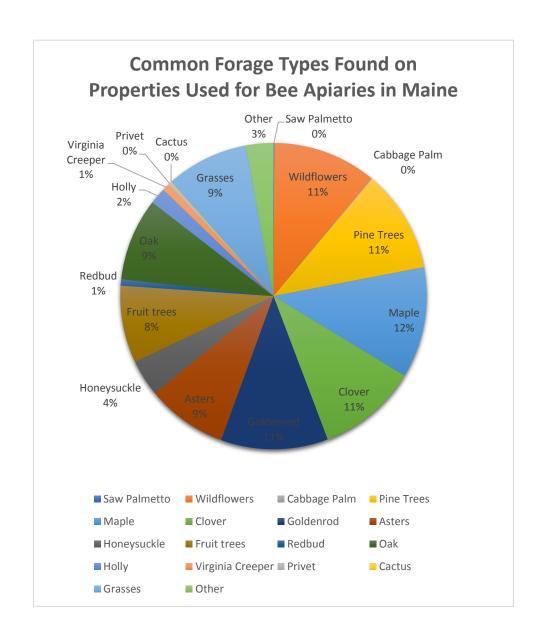
### Maine (continued)





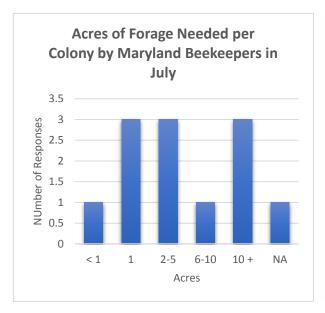


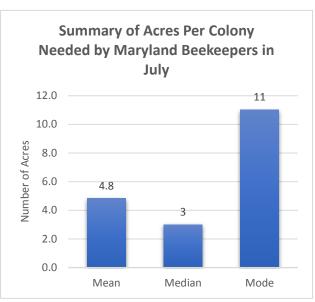
### Maine (continued)

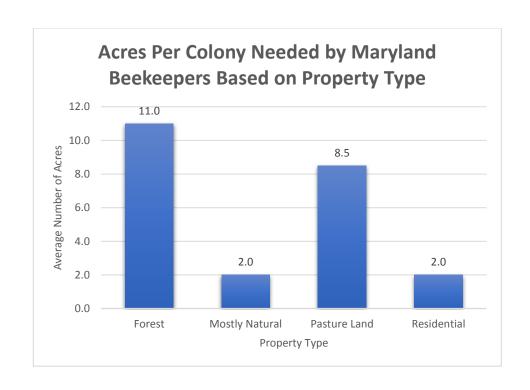


## Maryland

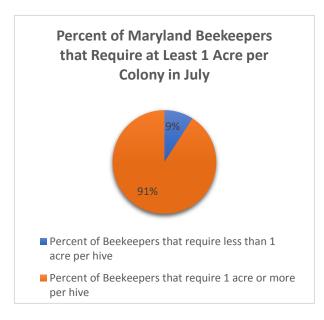
In Maryland, a total of 13 beekeepers responded to the survey. No data was available for January because bees are typically not active in cold weather.

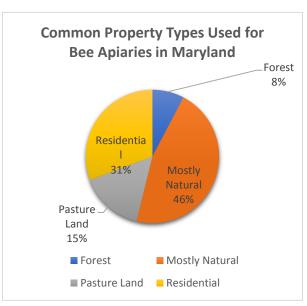


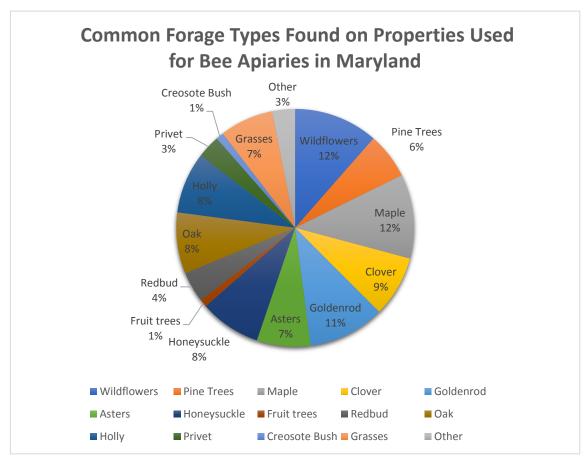




#### Maryland (continued)

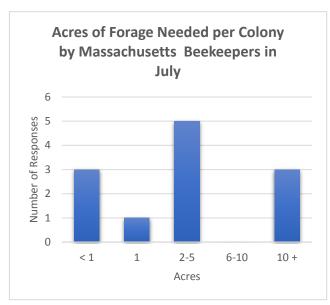


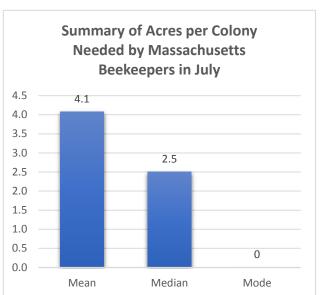


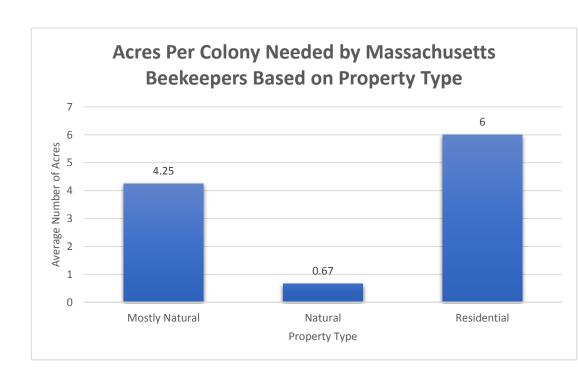


### Massachusetts

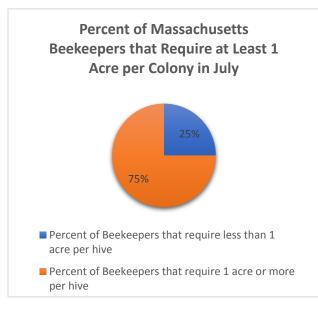
In Massachusetts, a total of 12 beekeepers responded to the survey. No data was available for January because bees are typically not active in cold weather.

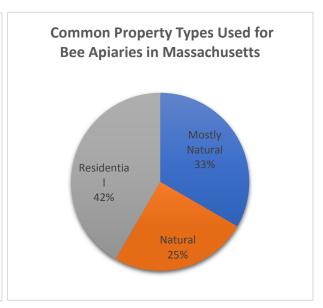


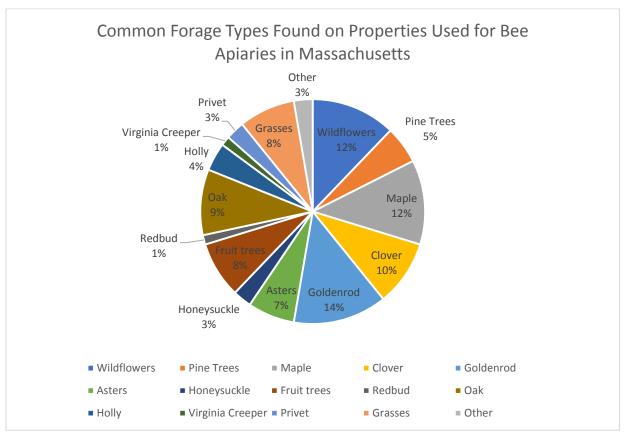




### Massachusetts (continued)

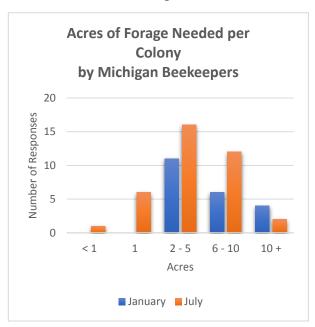


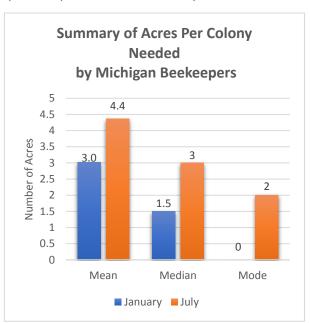


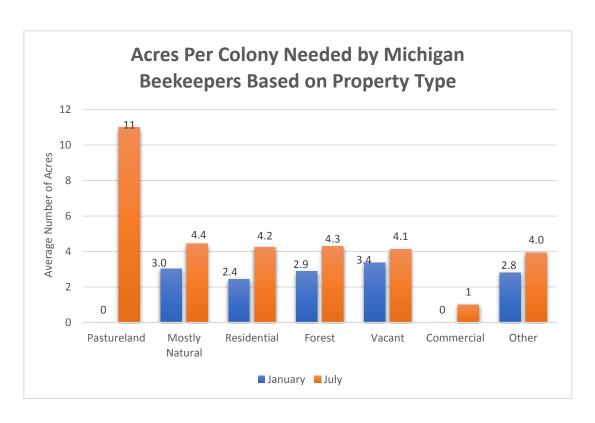


## Michigan

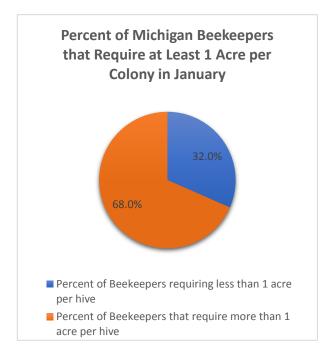
In Michigan, a total of 60 beekeepers responded to the survey.

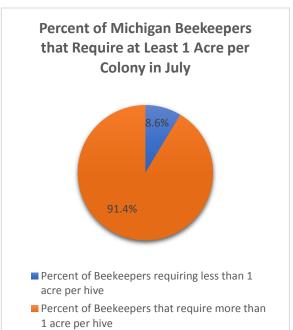


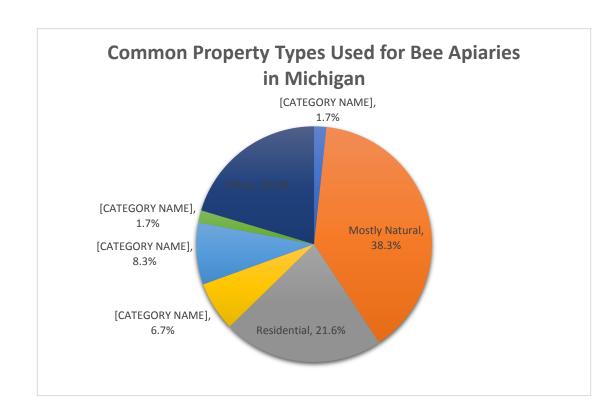




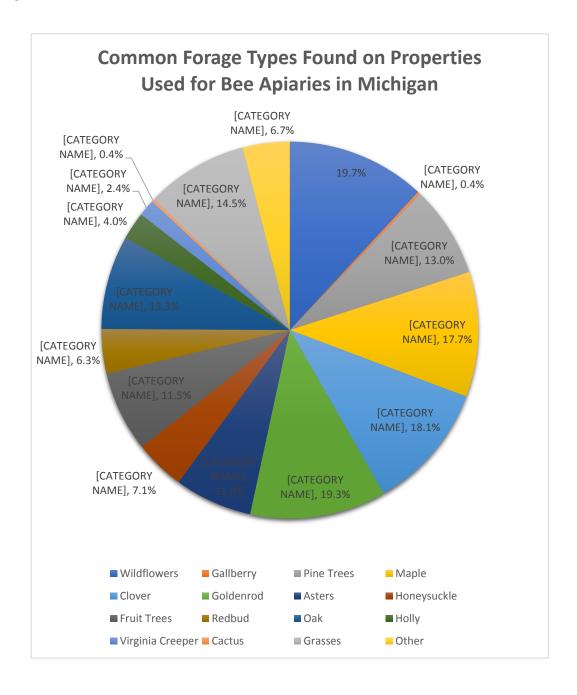
### Michigan (continued)





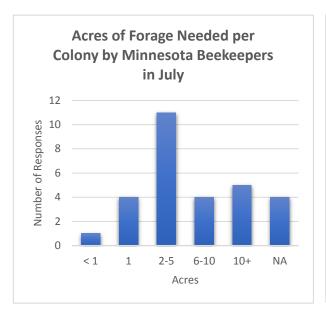


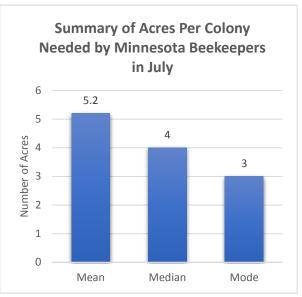
#### Michigan (continued)

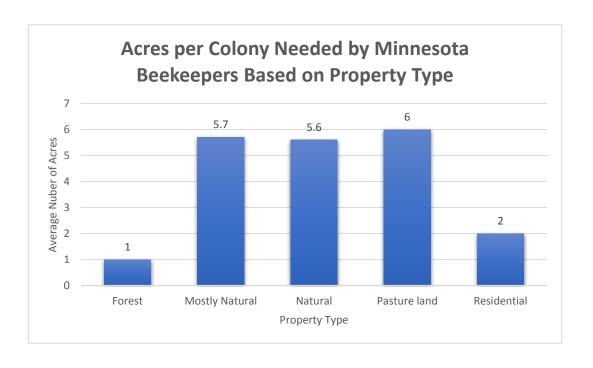


## Minnesota

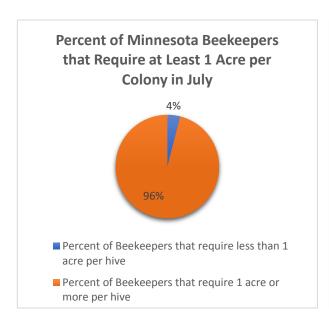
In Minnesota, a total of 29 beekeepers responded to the survey. No data was available for January because bees are typically not active in cold weather.

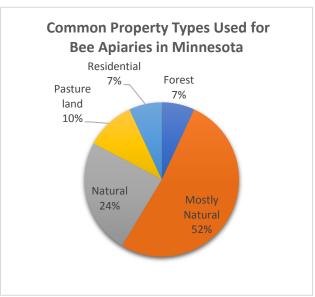


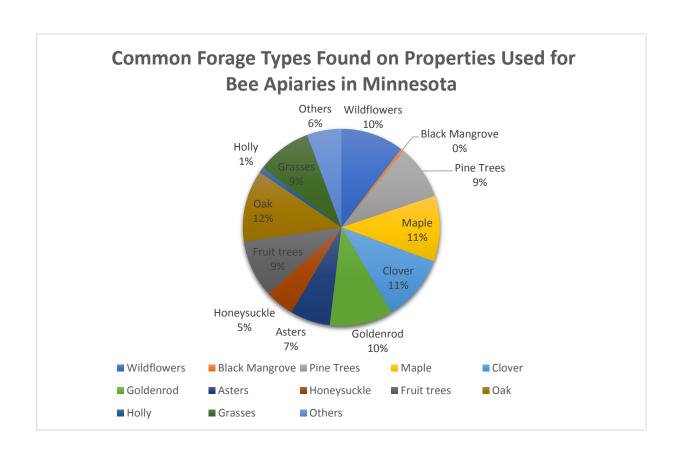




#### Minnesota (continued)





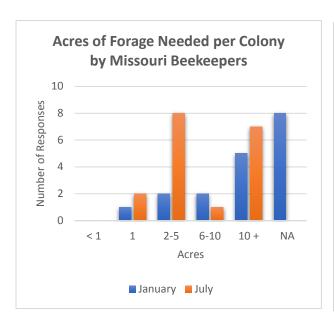


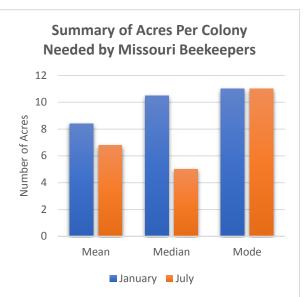
# Mississippi

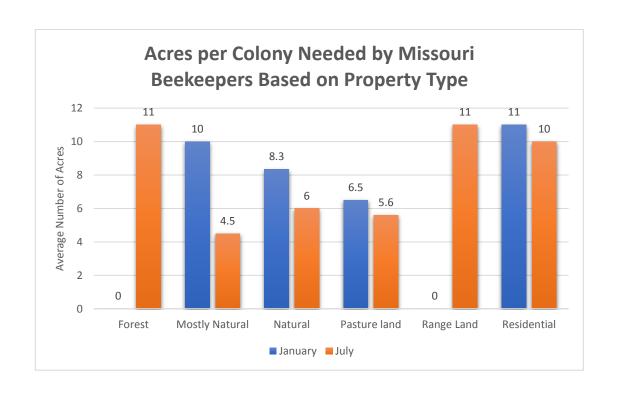
No Data was available for Mississippi.

## Missouri

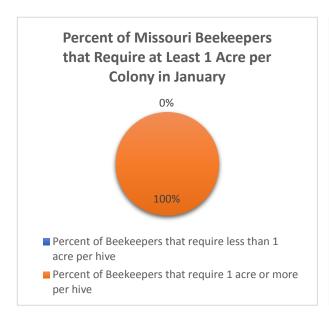
In Montana, a total of 18 beekeepers responded to the survey.

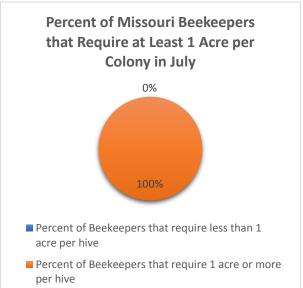


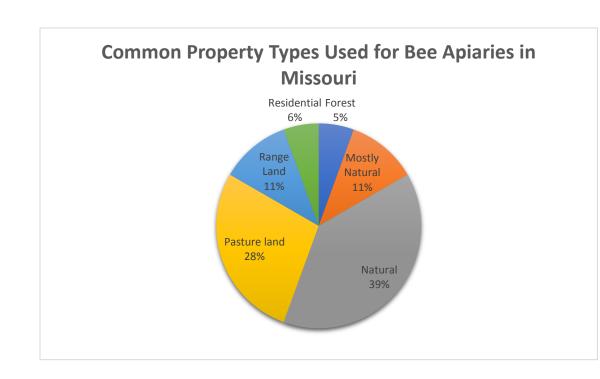




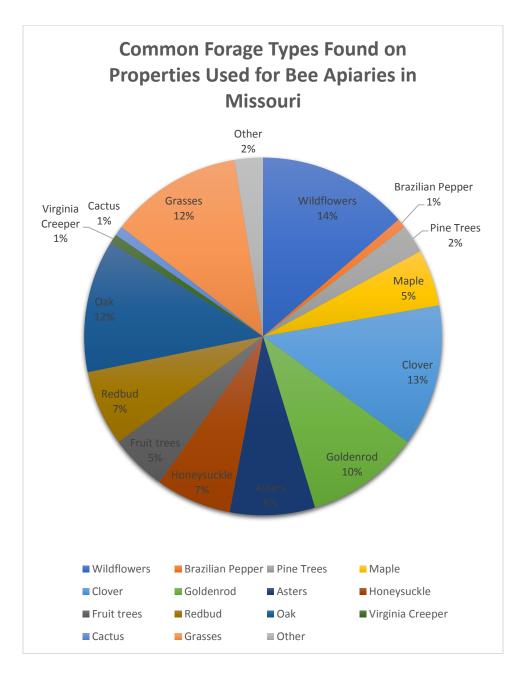
### Missouri (continued)







### Missouri (continued)



## Montana

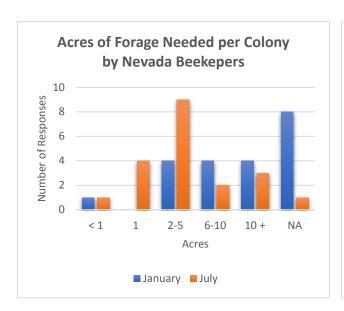
No Data was available for Montana.

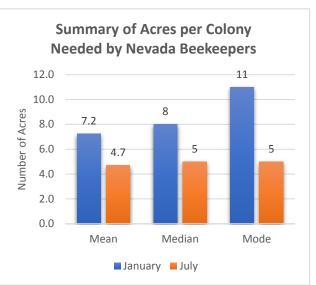
## Nebraska

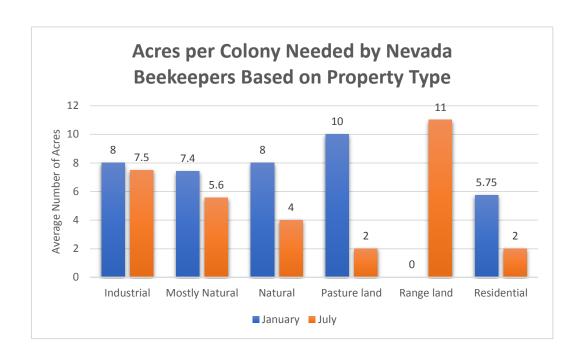
No Data was available for Nebraska

### Nevada

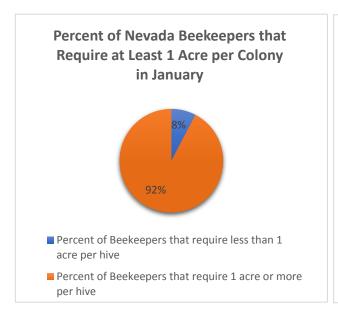
In Nevada, a total of 20 beekeepers responded to the survey.

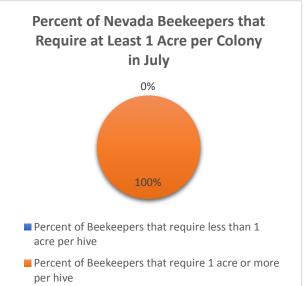


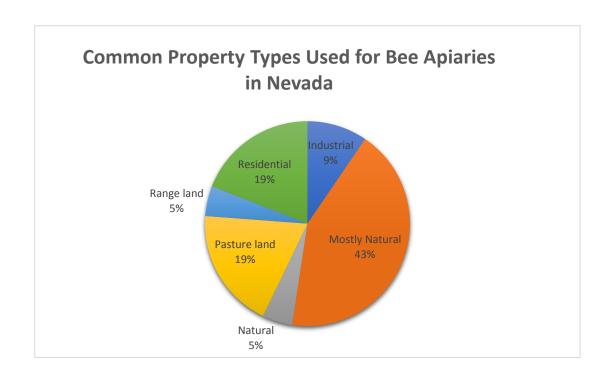




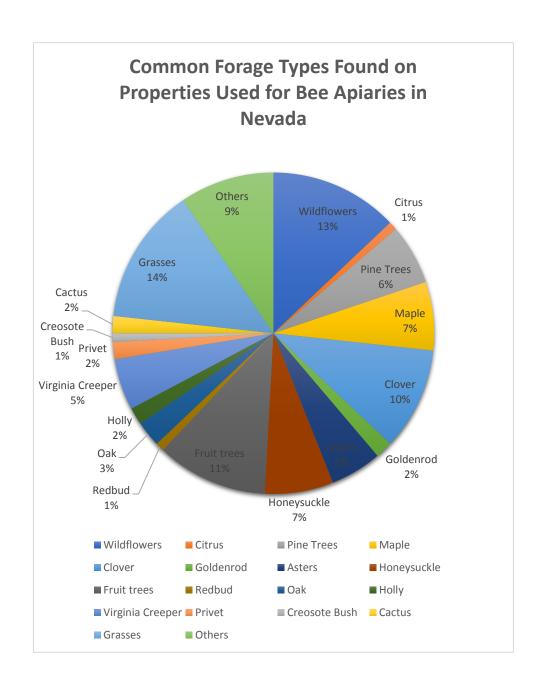
### Nevada (continued)





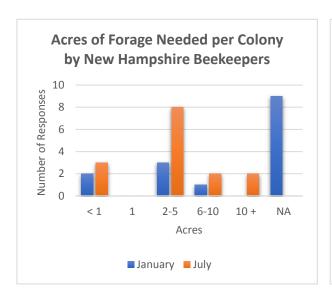


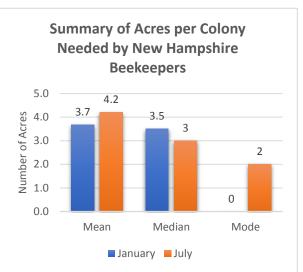
### Nevada (continued)

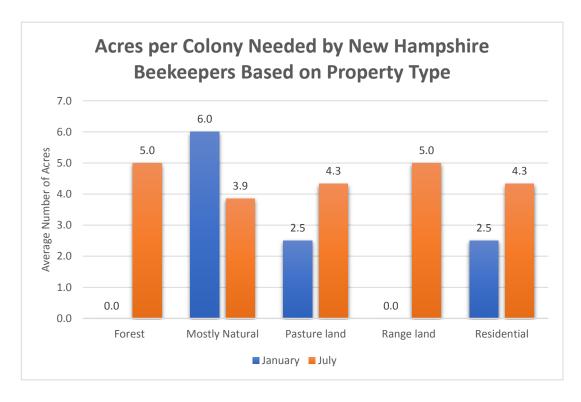


## **New Hampshire**

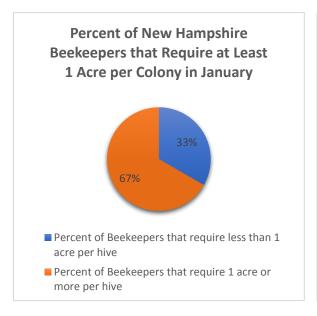
In New Hampshire, a total of 15 beekeepers responded to the survey.

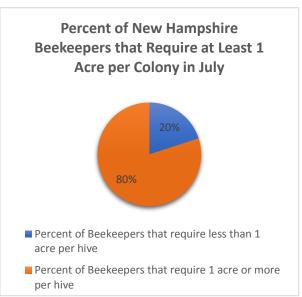


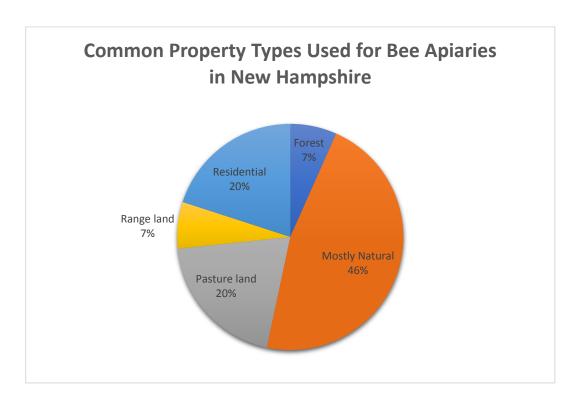




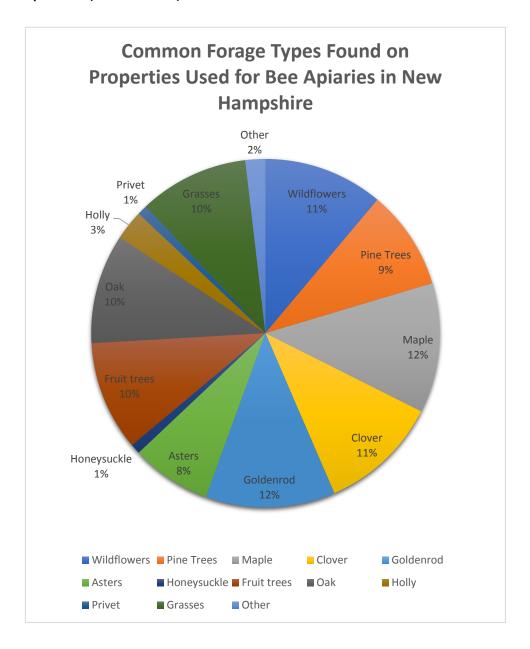
#### New Hampshire (continued)







New Hampshire (continued)

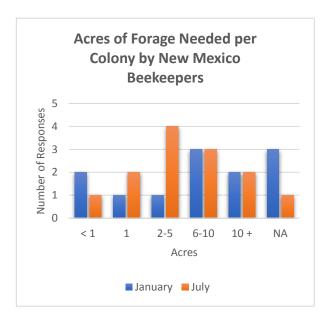


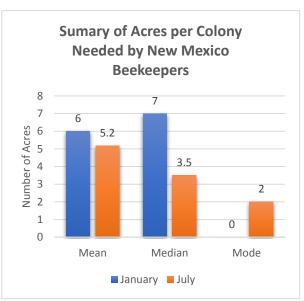
## New Jersey

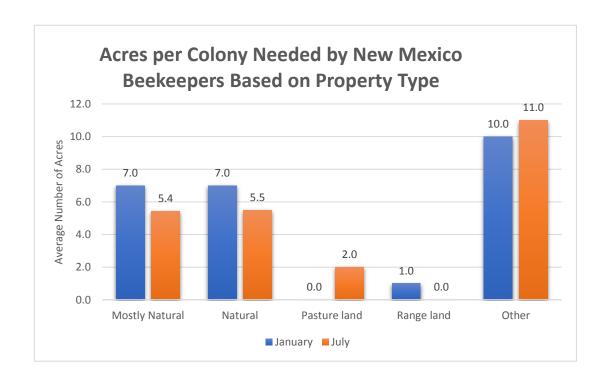
Not enough data was available for New Jersey.

### **New Mexico**

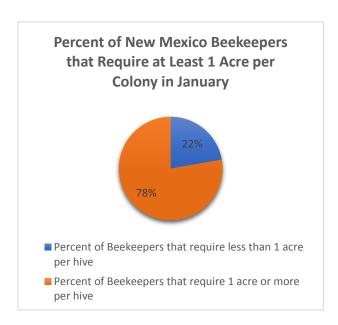
In New Mexico, a total of 13 beekeepers responded to the survey.

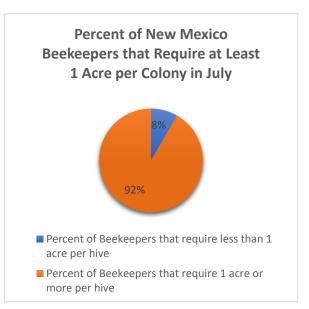


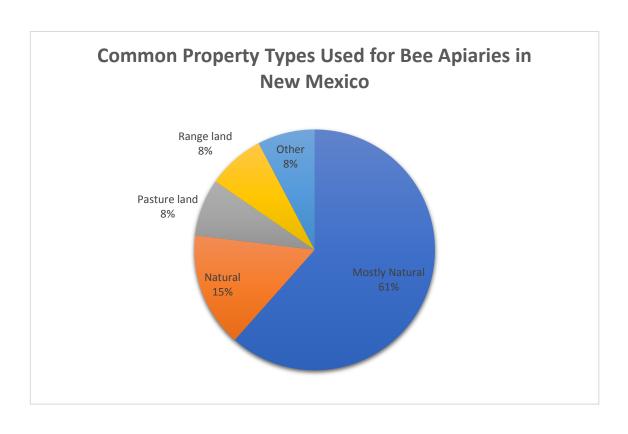




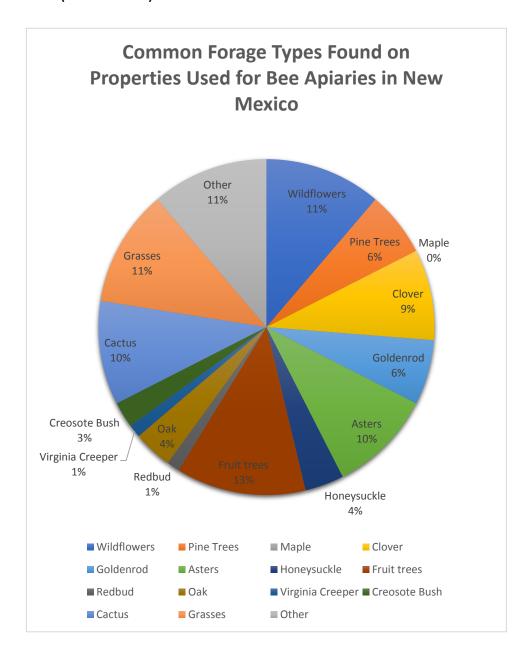
#### New Mexico (continued)





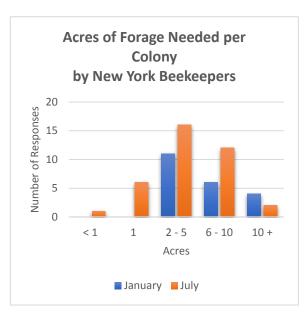


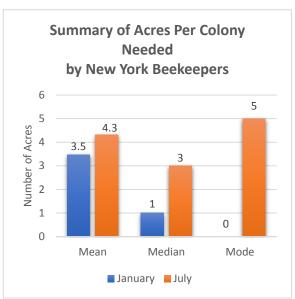
### New Mexico (continued)

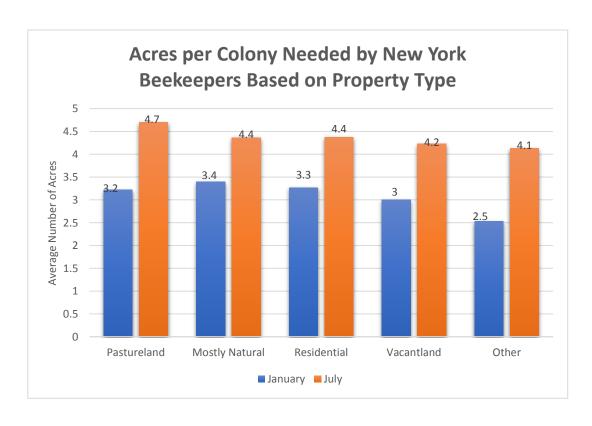


## **New York**

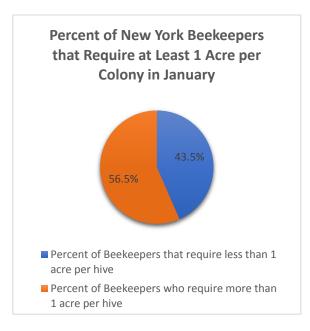
In New York, a total of 49 beekeepers responded to the survey.

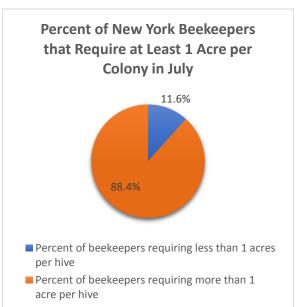


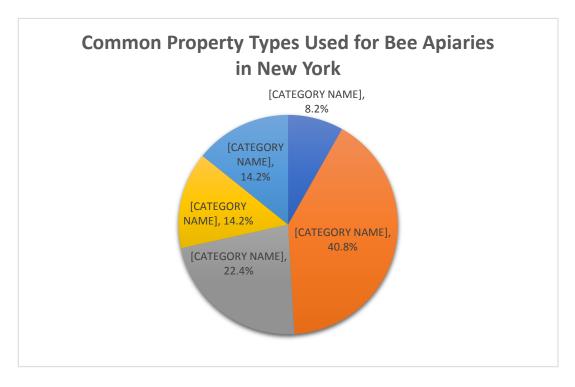




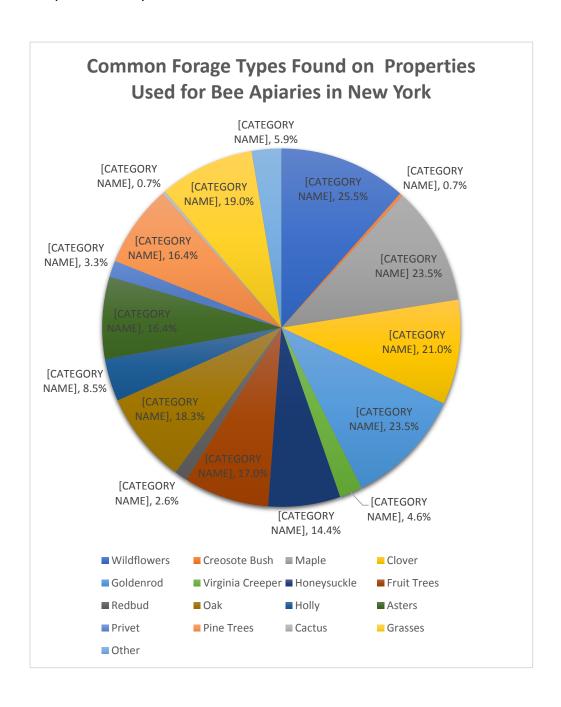
#### New York (continued)





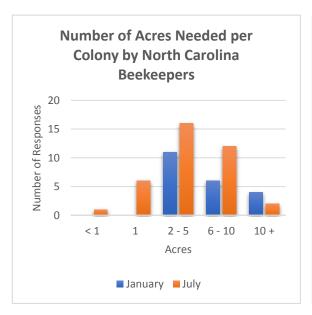


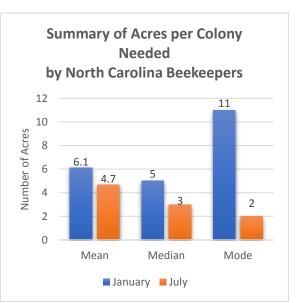
### New York (continued)

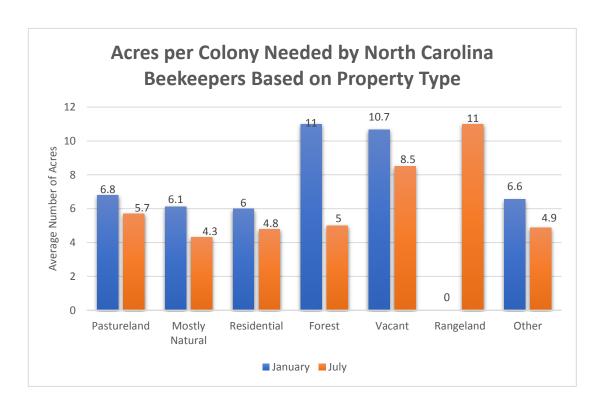


## North Carolina

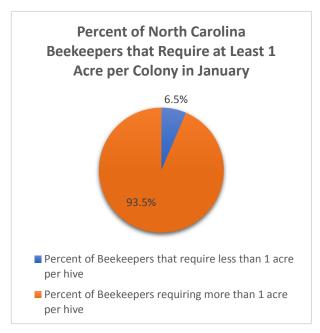
In North Carolina, a total of 35 beekeepers responded to the survey.

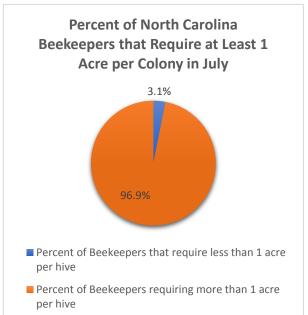


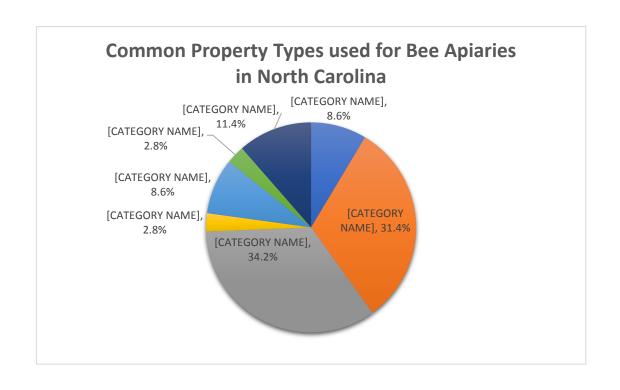




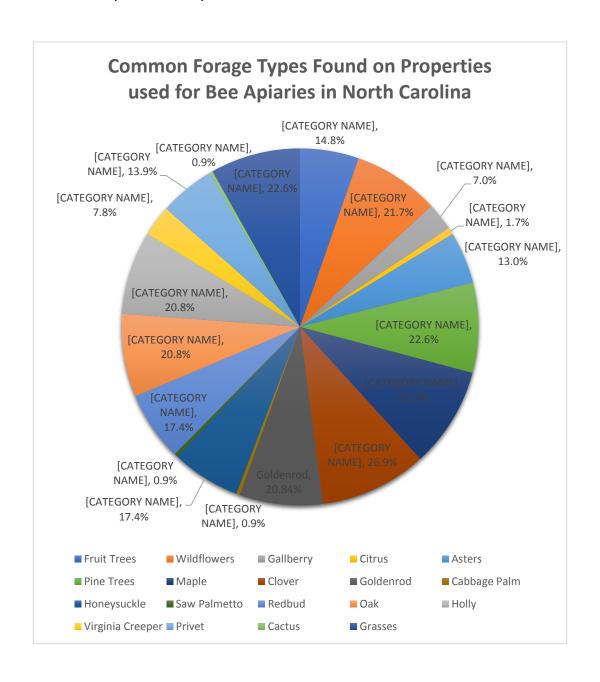
#### North Carolina (continued)







### North Carolina (continued)

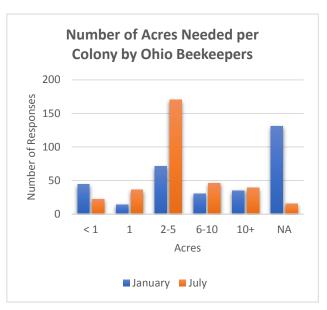


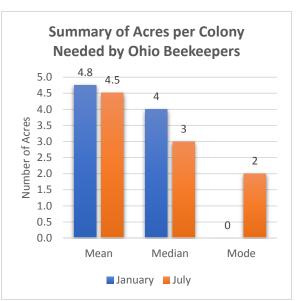
## North Dakota

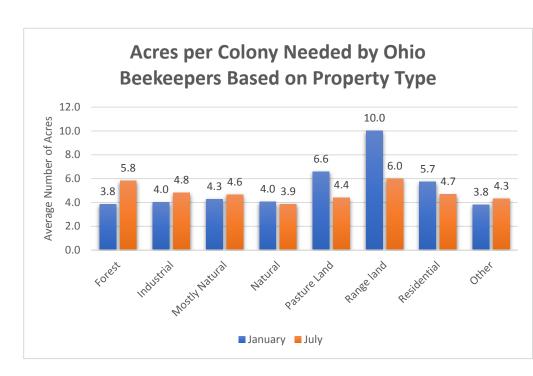
No Data

## Ohio

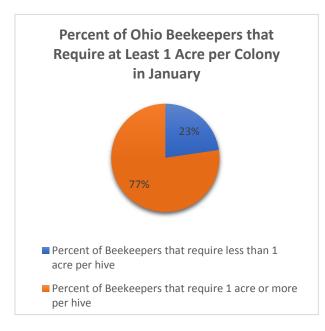
In Ohio, a total of 328 beekeepers responded to the survey.

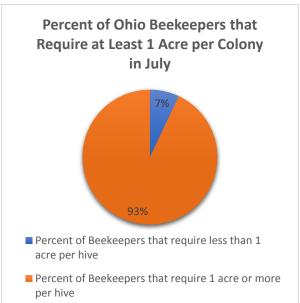


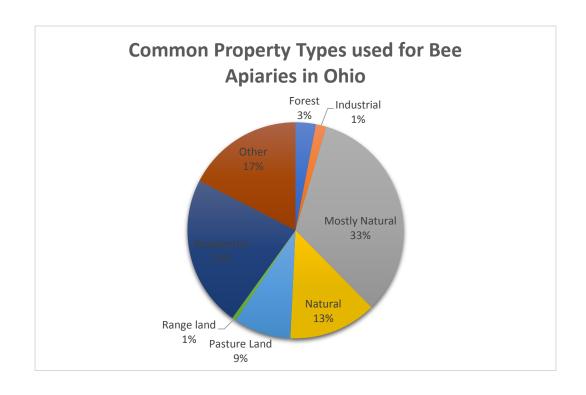




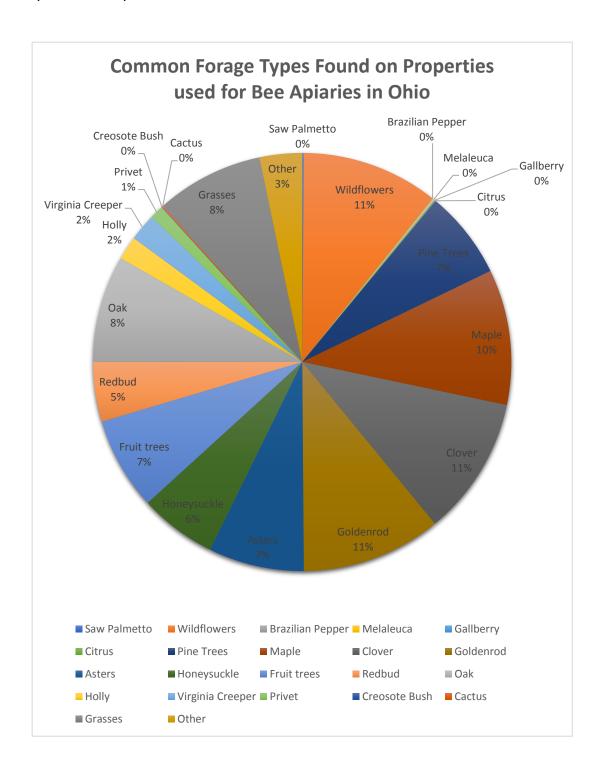
### Ohio (continued)







#### Ohio (continued)

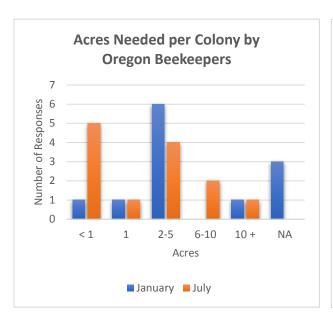


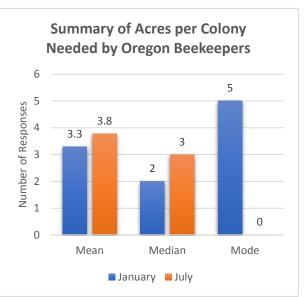
## Oklahoma

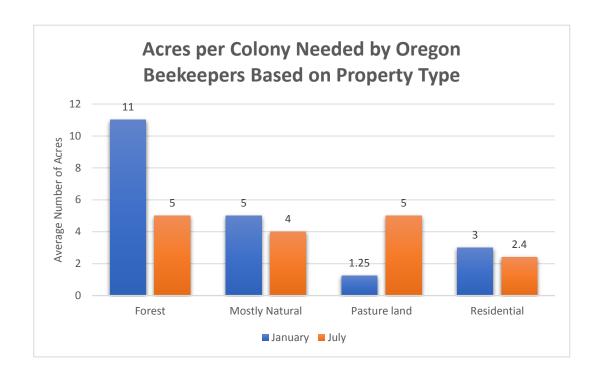
Not enough data was available for Oklahoma

## Oregon

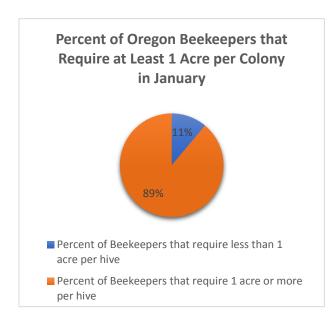
In Oregon, a total of 13 beekeepers responded to the survey.

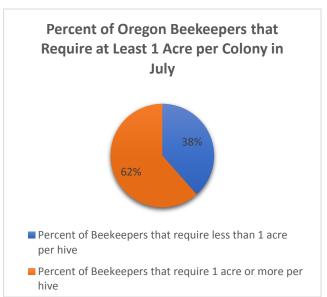


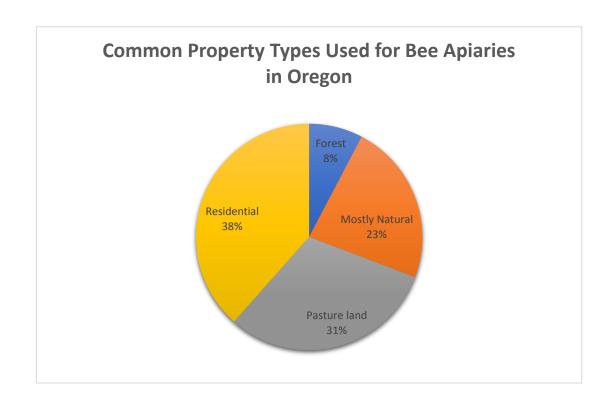




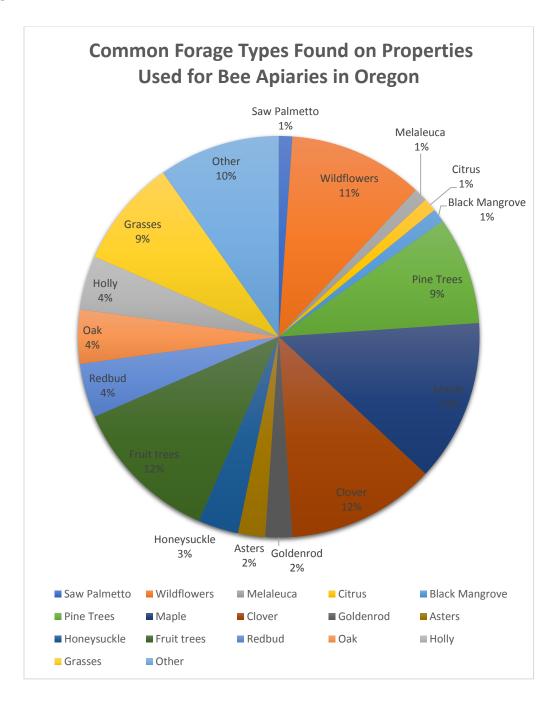
#### Oregon (continued)





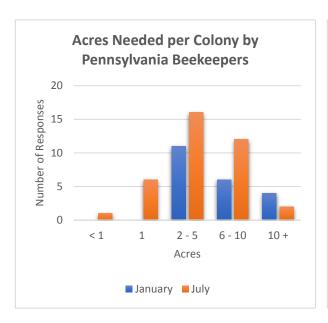


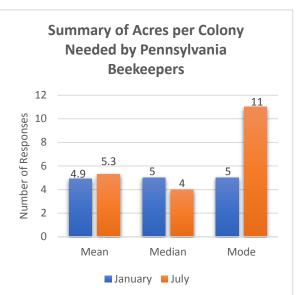
### Oregon (continued)

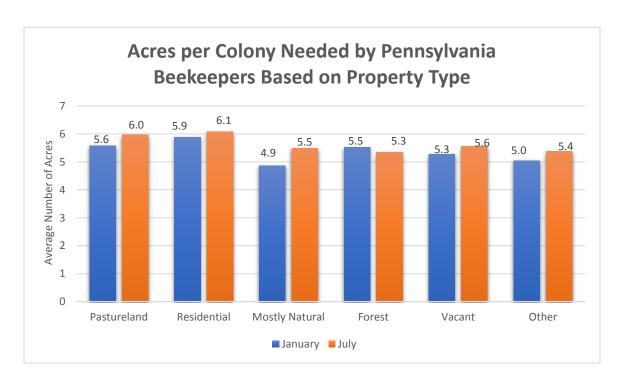


# Pennsylvania

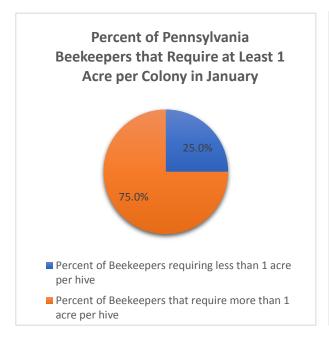
In Pennsylvania, a total of 42 beekeepers responded to the survey.

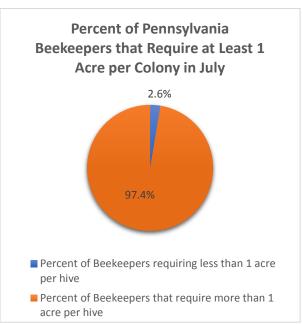


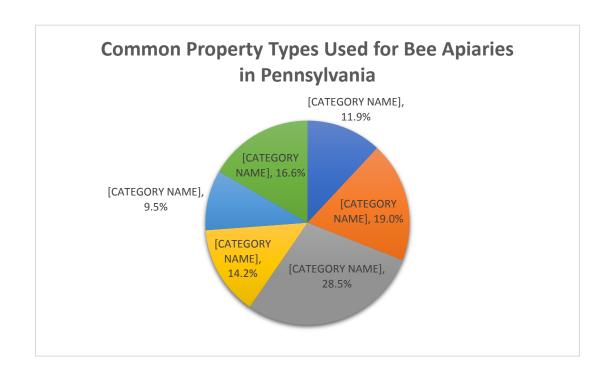




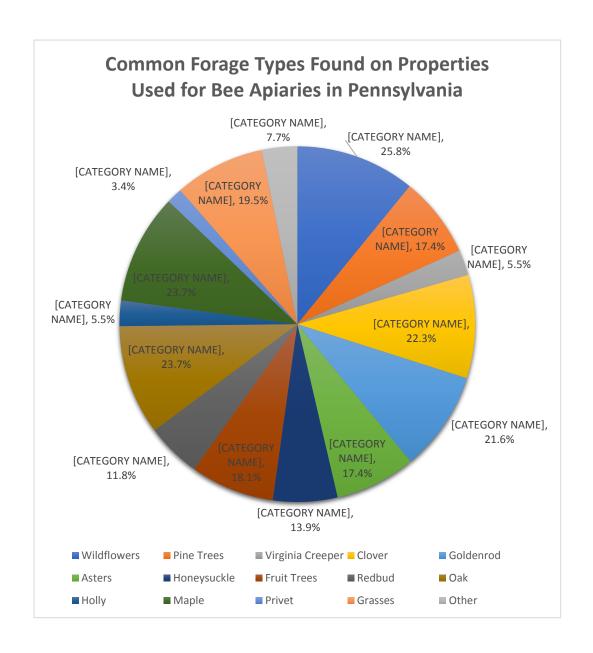
#### Pennsylvania (continued)







### Pennsylvania (continued)

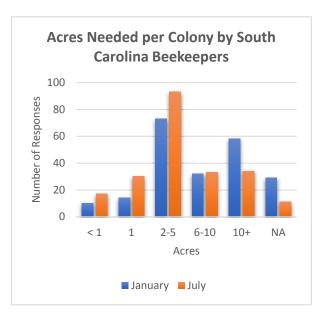


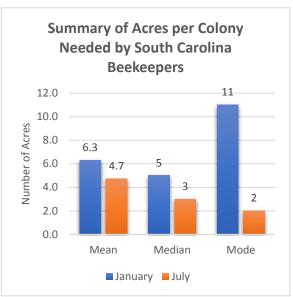
## Rhode Island

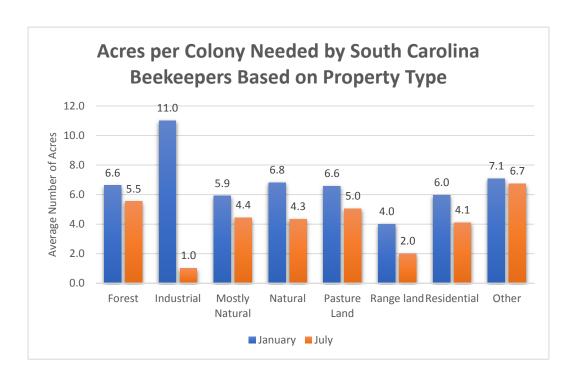
Not enough data was available for Rhode Island.

## South Carolina

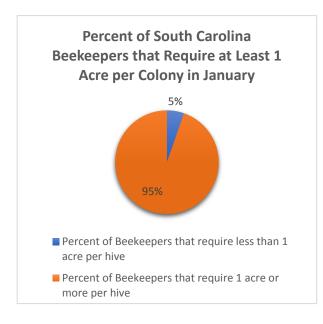
In South Carolina, a total of 229 beekeepers responded to the survey.

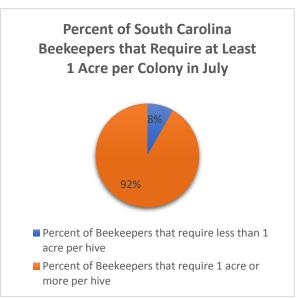


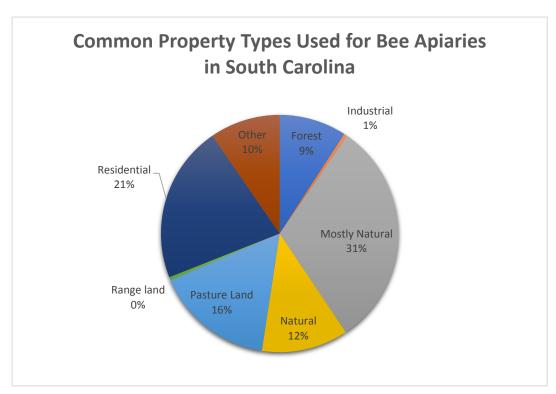




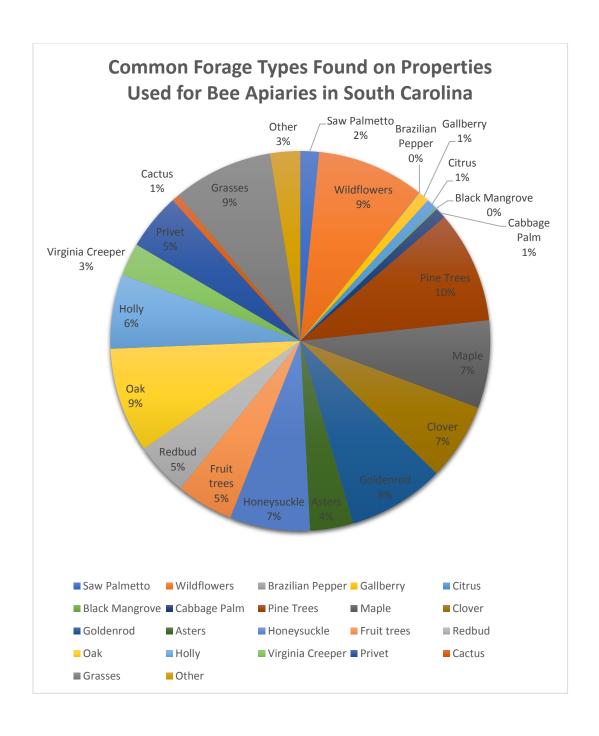
### South Carolina (continued)







South Carolina (continued)

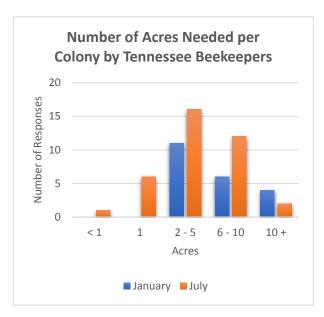


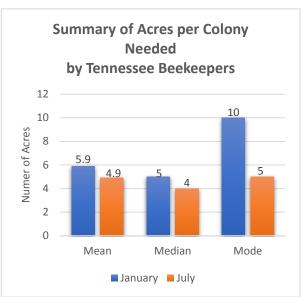
## South Dakota

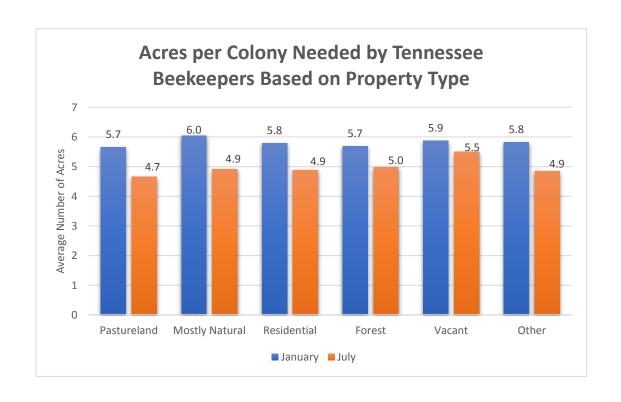
No Data was available for South Dakota.

### Tennessee

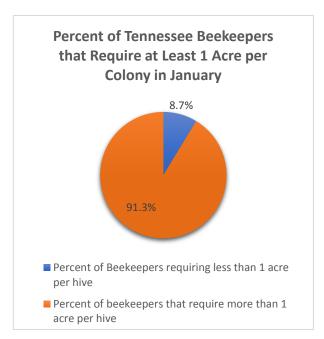
In Tennessee, a total of 59 beekeepers responded to the survey.

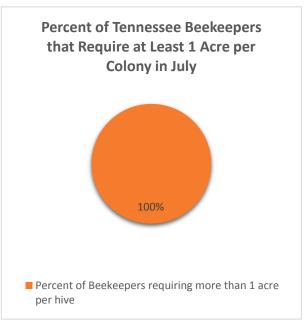


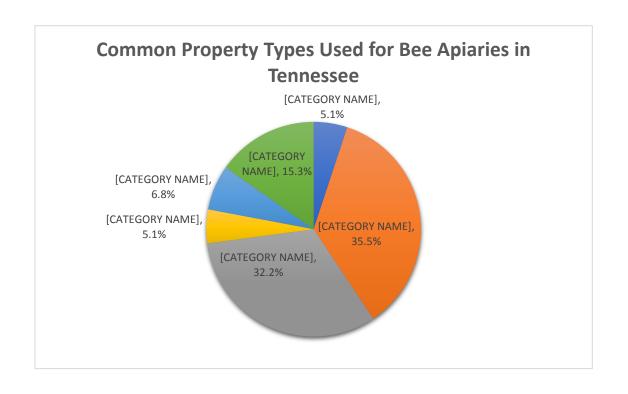




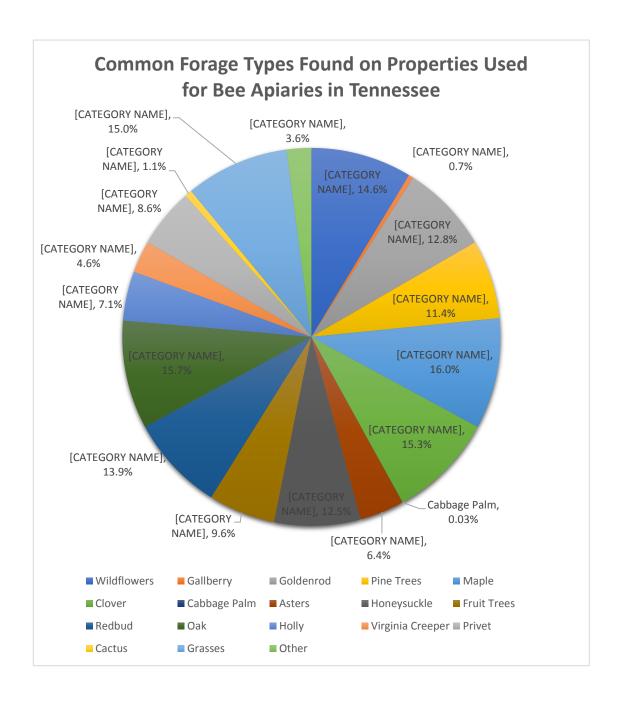
### Tennessee (continued)





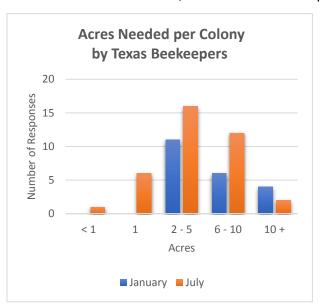


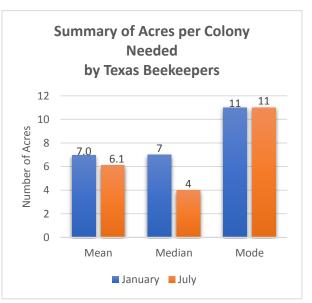
### Tennessee (continued)

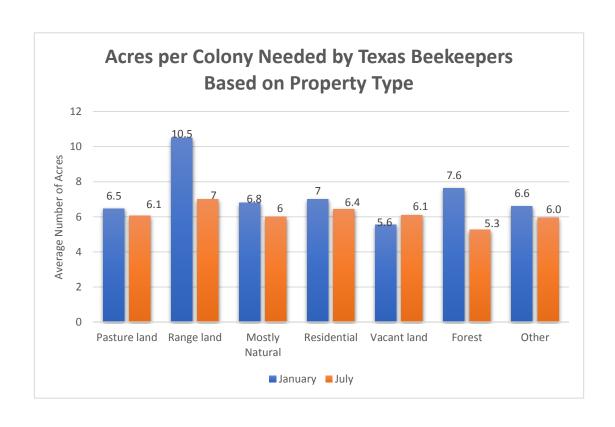


Texas

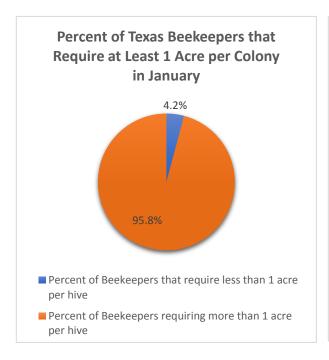
In Texas, a total of 30 beekeepers responded to the survey.

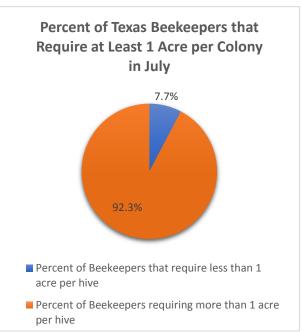


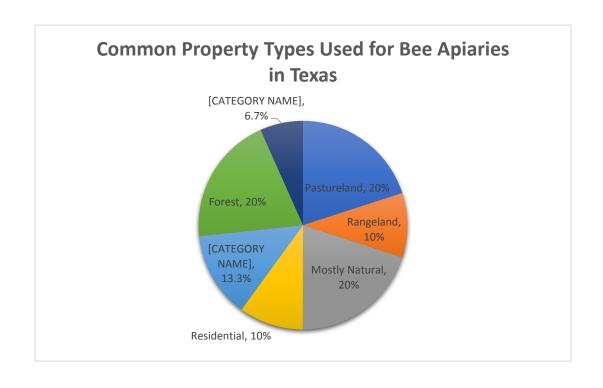




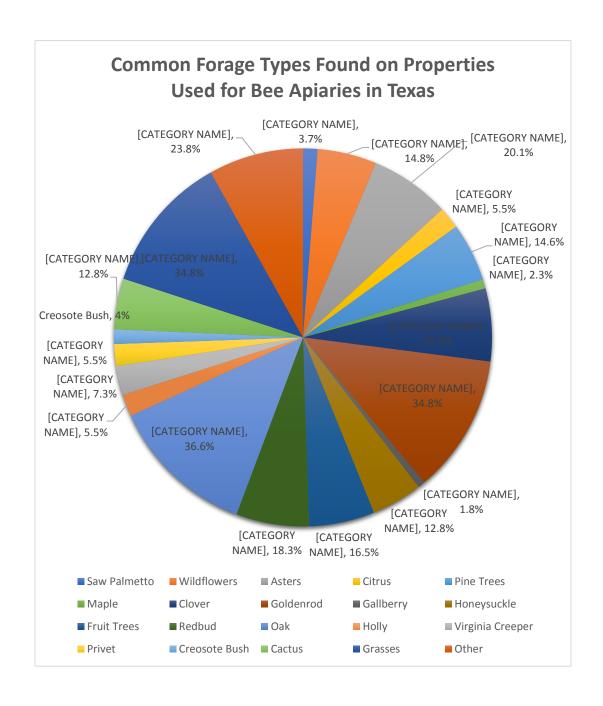
### Texas (continued)





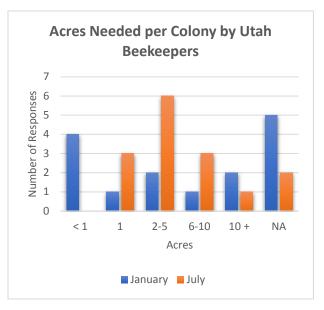


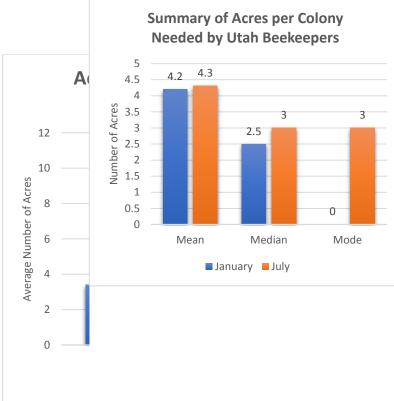
#### Texas (continued)



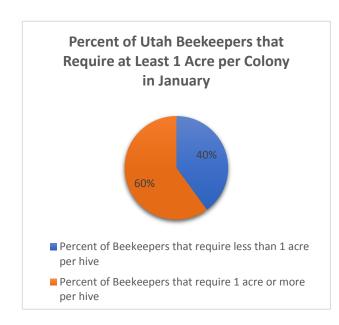
#### Utah

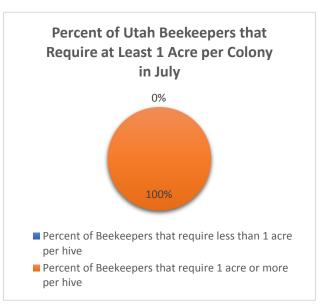
In Utah, a total of 15 beekeepers responded to the survey.

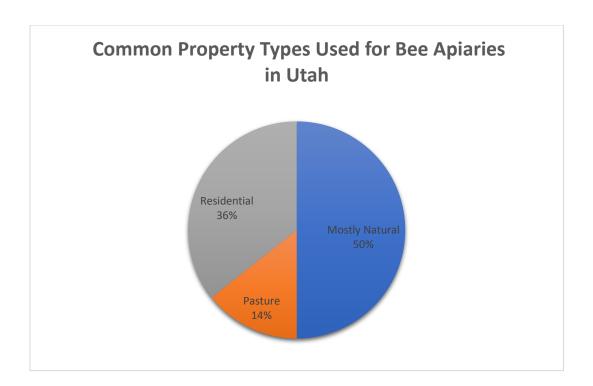




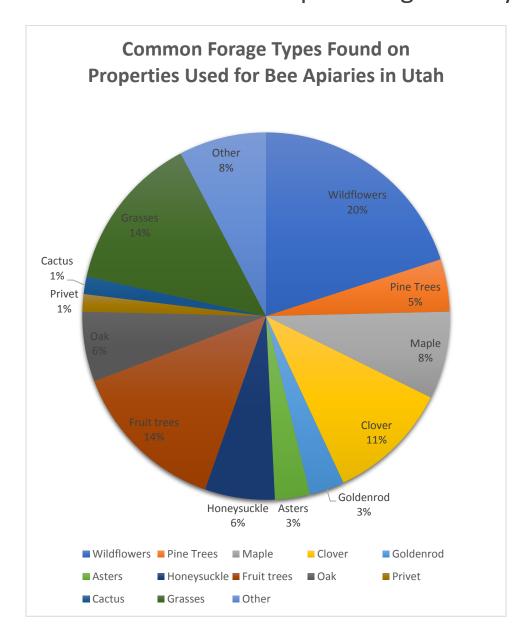
#### Utah (continued)





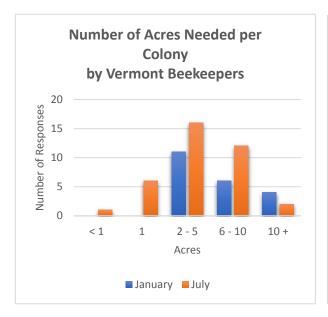


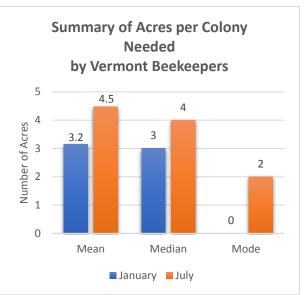
Utah (continued)

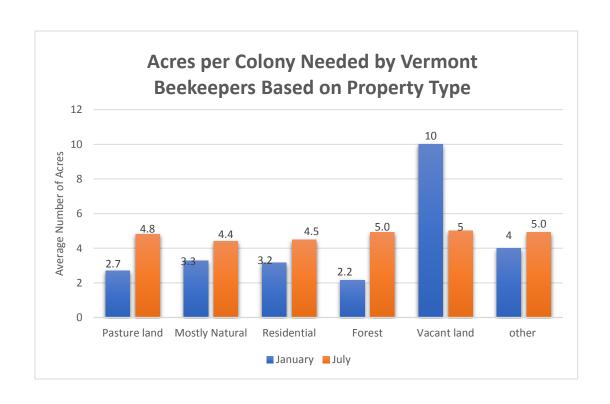


#### Vermont

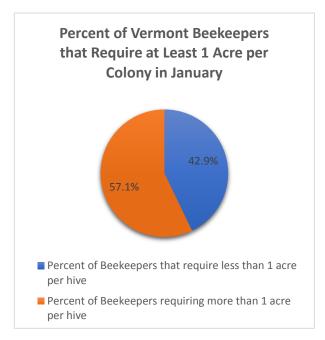
In Vermont, a total of 30 beekeepers responded to the survey.

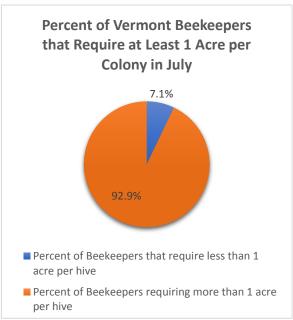


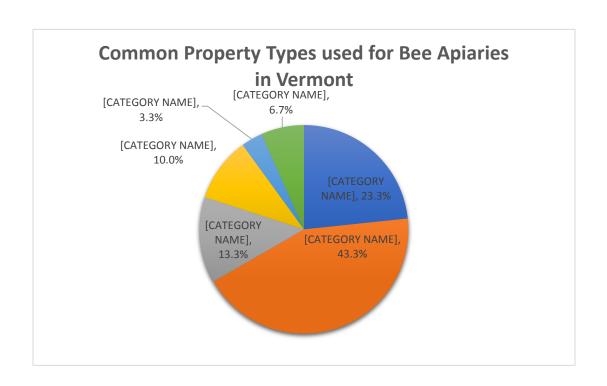




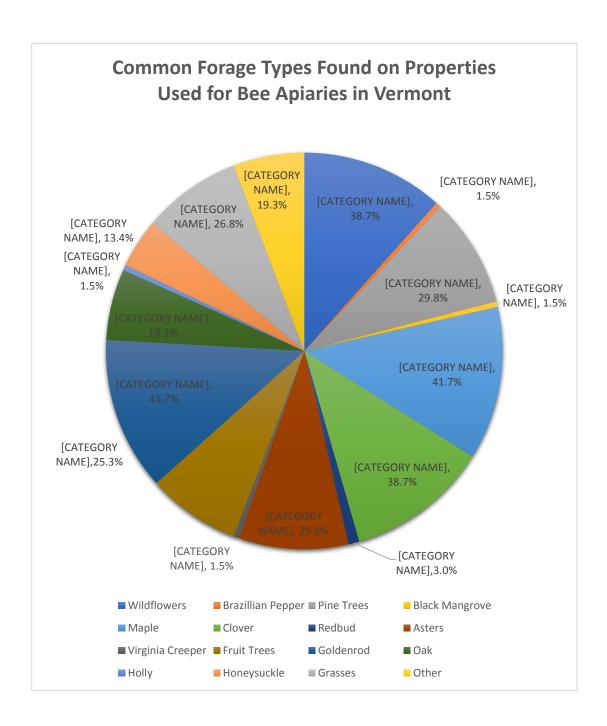
Vermont (continued)



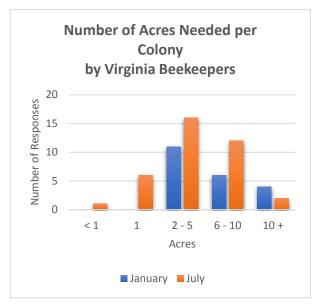


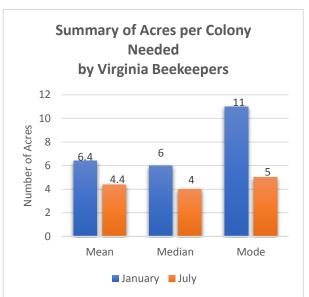


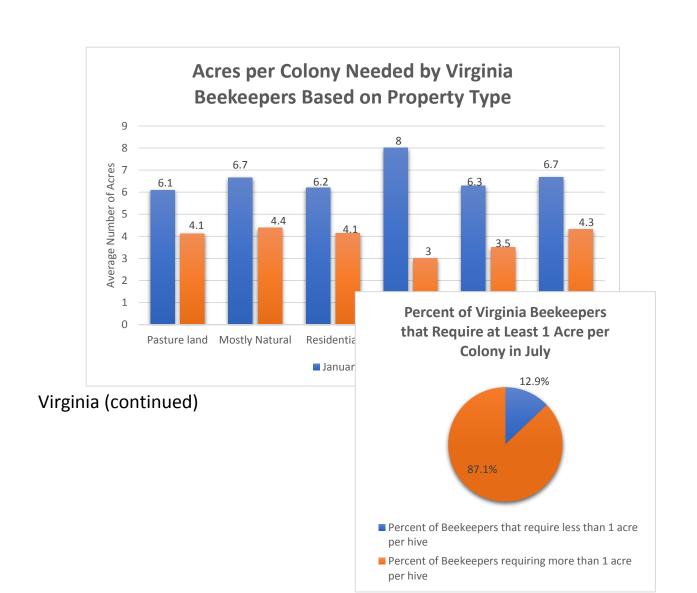
Vermont (continued)

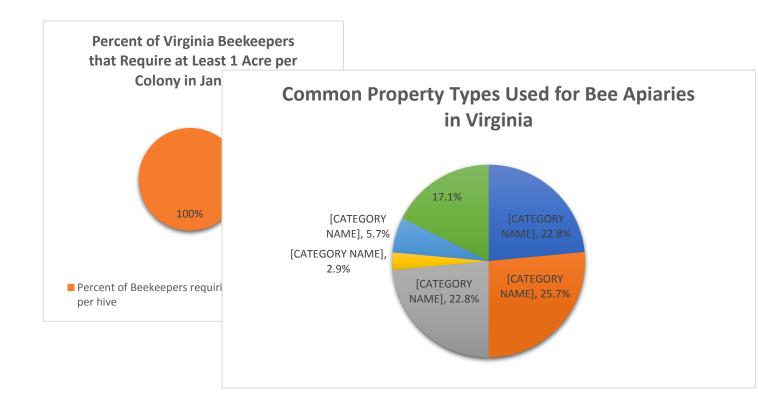


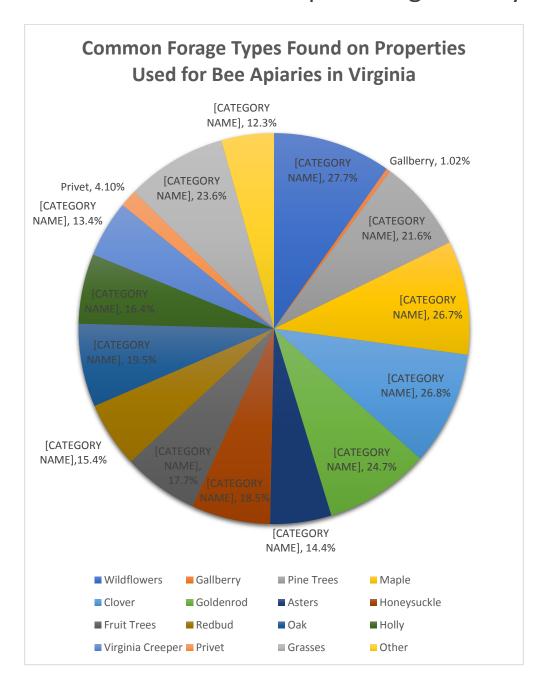
In Virginia, a total of 30 beekeepers responded to the survey.





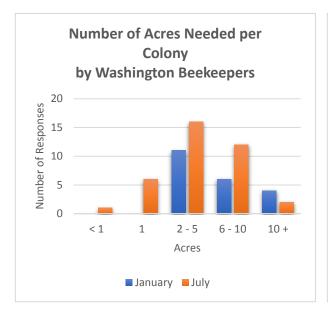


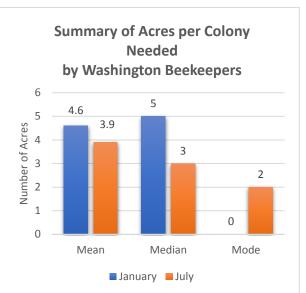


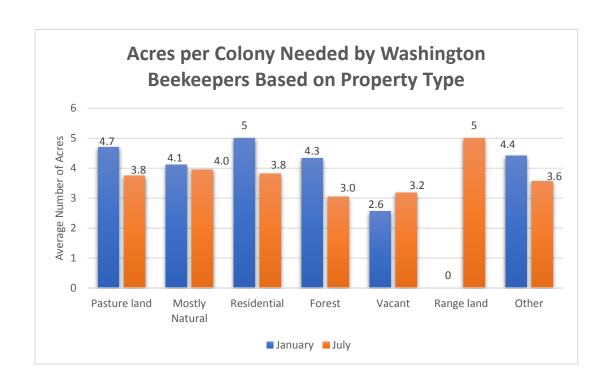


### Washington

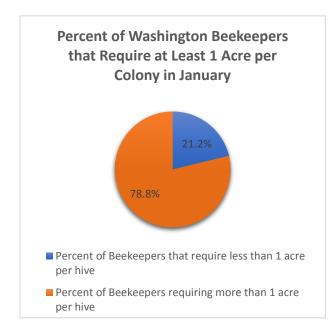
In Washington, a total of 46 beekeepers responded to the survey.

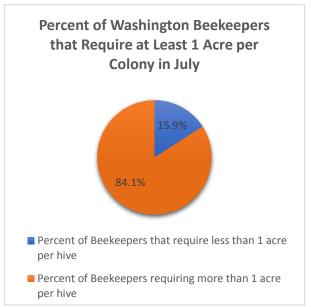


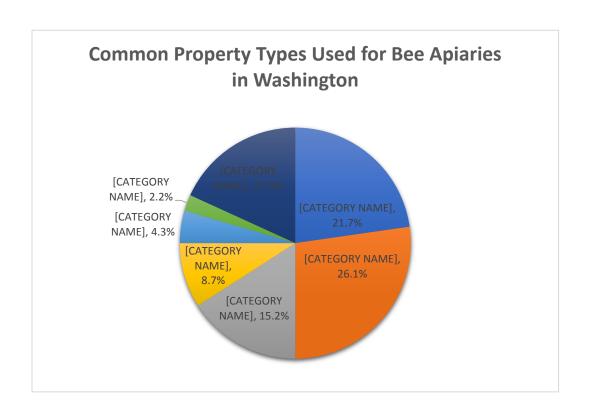


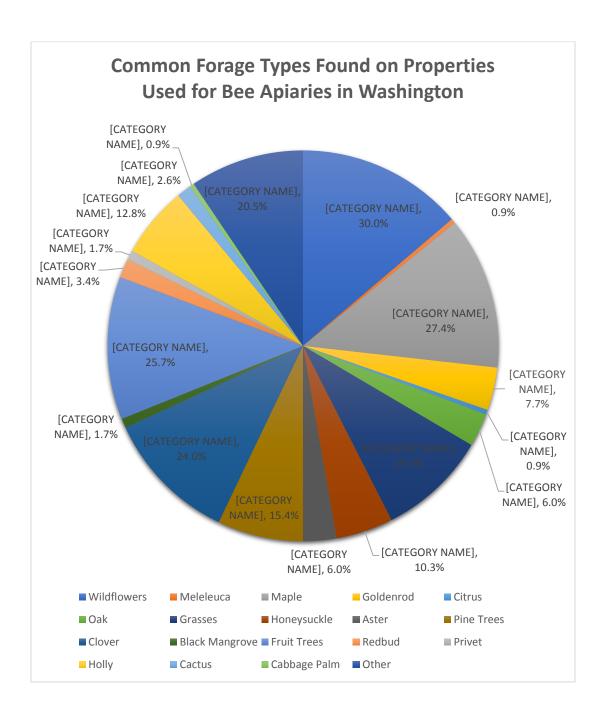


Washington (continued)

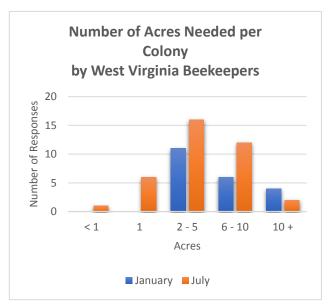


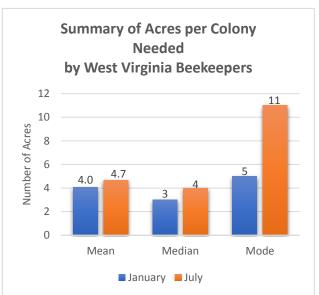


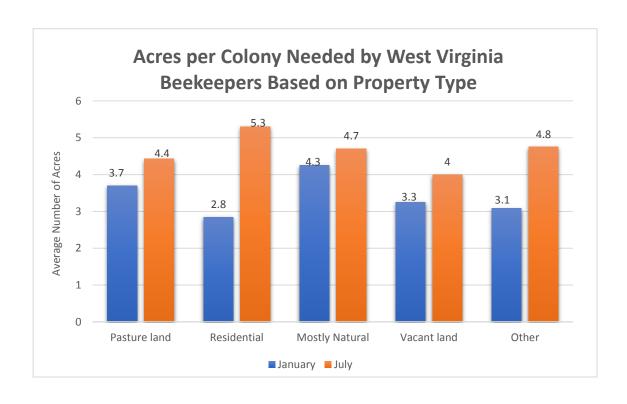




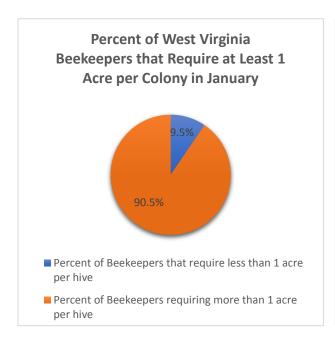
In West Virginia, a total of 32 beekeepers responded to the survey.

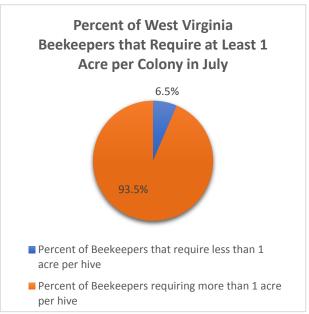


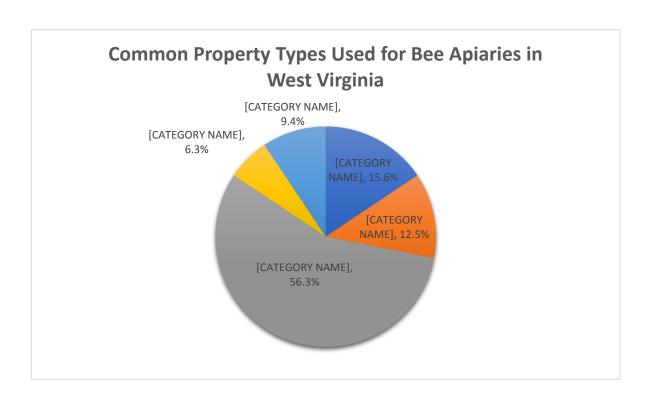




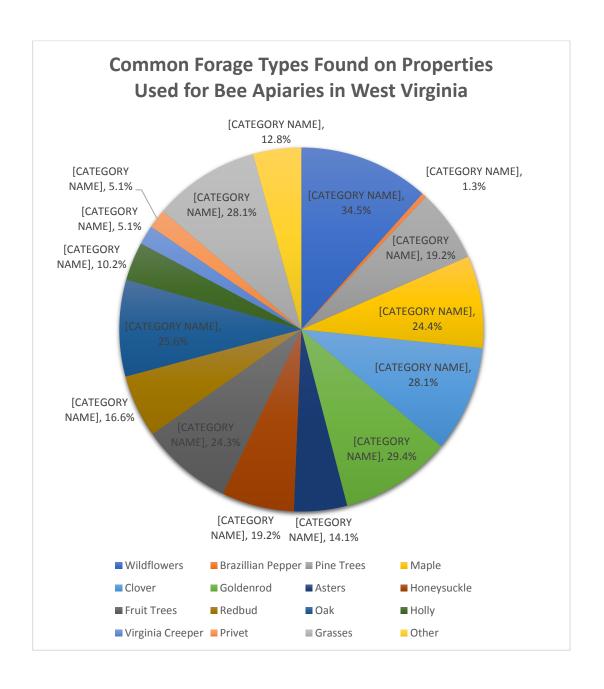
#### West Virginia (continued)





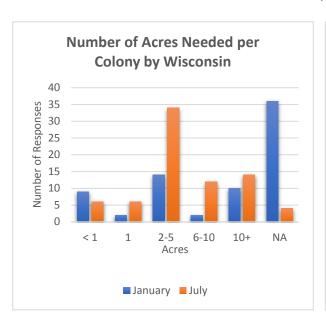


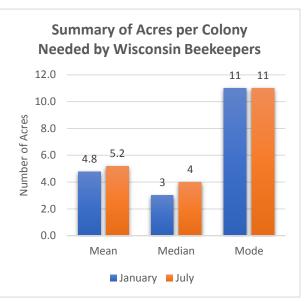
West Virginia (continued)

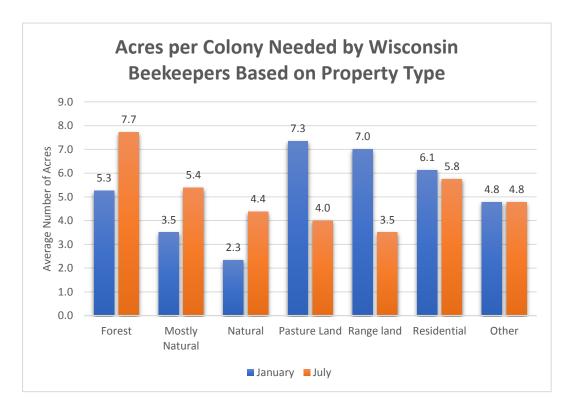


#### Wisconsin

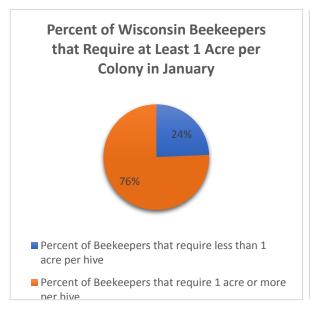
In Wisconsin, a total of 80 beekeepers responded to the survey.

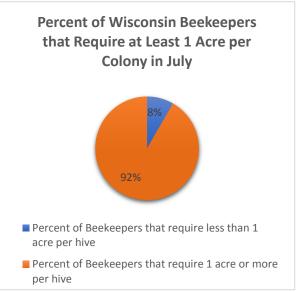


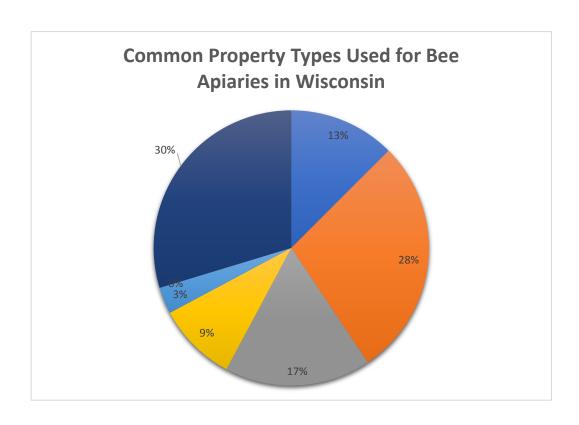




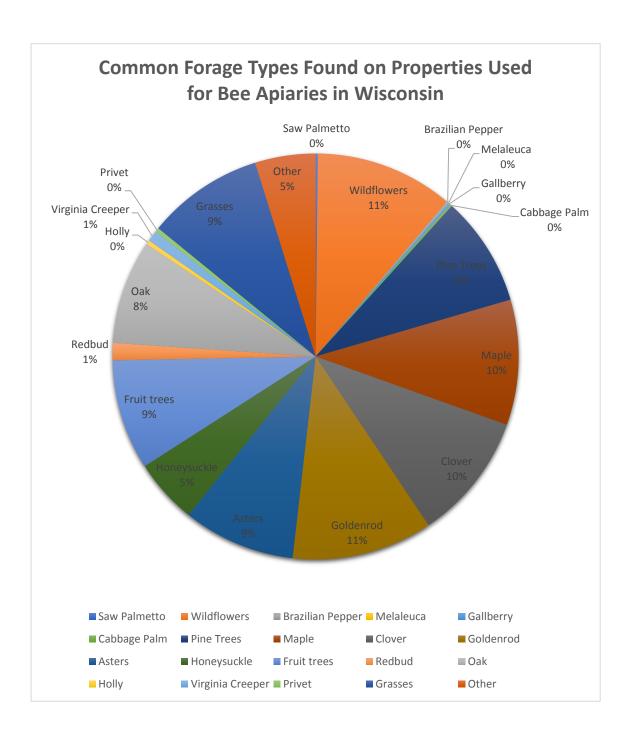
#### Wisconsin (continued)







#### Wisconsin (continued)



## Wyoming

No Data was available for Wyoming

# **Survey Questions**

1.	Are any of your bee yards located on land not used for crops?Yes
	No
2.	If yes, in what county and state is your southernmost such bee yard?  County State
3.	How would you describe this property?  Vacant land in its natural state  Pasture Land  Range Land  Forest  Residential with typical lawn/shrubs  Residential but mostly natural  Improved commercial or industrial  Other (please specify)
4.	Considering the forage on this land, how many acres do you feel are necessary to feed one colony of bees during the month of January, without supplemental feeding? Pleas only consider hives on natural forage (not pollinating crops)  Less than 1  1  2  3  4  5  6  7  8  9  10  More than 10  N/A
	Comments

5.	Considering the forage on this land, how many acres do you feel are necessary to feed one colony of bees during the month of <u>July</u> , without supplemental feeding? Please
	only consider hives on natural forage (not pollinating crops)
	Less than 1
	$\frac{1}{2}$
	2
	3 4
	5
	6
	7
	8
	9
	10
	More than 10
	N/A
	Community
	Comments
6	What types of forage are predominant on this property? Check all that apply.
о.	what types of forage are predominant on this property: Check an that apply.
	Maple
	Clover
	Goldenrod
	Asters
	Honeysuckle
	Saw Palmetto
	Wildflowers
	Brazilian Pepper
	Melaleuca
	Gallberry
	Citrus
	Black Mangrove
	Cabbage Palm
	Fruit trees
	Redbud
	Oak
	Holly
	Virginia Creeper
	Privet
	Pine trees
	<del></del>
	Creosote Bush

	Cactus Grasses
	If other plants are dominant, please list below.
7.	How many colonies do you currently own?  Less than 100  Between 101 and 1,000
	More than 1,000
8.	If you would like the results of this survey please provide your email below.

The North American Pollinator Partnership Campaign is a growing, collaborative body of more than 160 diverse partners, including respected scientists, researchers, conservationists, government officials and dedicated volunteers. For more information, please visit: http://www.pollinator.org/nappc.