Research Proposal

Honey bees play a vital role in sustaining various ecosystems on the planet, and they pollinate nearly three quarters of the plants that produce 90% of the world's food.

It is a well-known fact that honey bee colonies are in strong decline throughout the world. In 2006 honey bees were listed among the endangered species. Mitigation measures applied by beekeepers, as well as the increase in hobby beekeeping and urban farming upgraded the status from endangered to vulnerable. Still, the bees are facing significant challenges leading to colonies loss every year.

There have been many theories on the bee colonies loss, while the researchers have identified 2 main phenomena: the colony collapse disorder and colony dead-out.

Colony collapse occurs when the worker bees are lost, leaving behind the queen, the nursing bees caring for the brood and plenty of food in the hive. Without the worker bees, such a crippled colony cannot further survive.

Colony dead-out occurs when an entire bee colony has died, most often due to parasites, pathogens, pesticides or poor nutrition.

Data: The dataset is sourced from https://quickstats.nass.usda.gov .

The search criteria is:
Program: Survey
Sector: Animal & Products
Group: Specialty
Commodity: Honey
Category: Loss, colony collapse disorder
Loss, Deadout
Data Items:
HONEY, BEE COLONIES - LOSS, COLONY COLLAPSE DISORDER, MEASURED IN COLONIES
HONEY, BEE COLONIES - LOSS, DEADOUT, MEASURED IN COLONIES

Domain: Total
Geographical level: State
Year: 2020 & 2019

Research: for this analysis the goal is to identify if any of the two phenomena is more prone to cause the honey bee colonies loss.

Hypothesis:
H0: There is no significant difference between the loss of honey bee colonies by colony collapse disorder and the loss due to dead-out phenomenon.

Ha: There is a significant difference between the loss of honey bee colonies by colony collapse disorder and the loss due to dead-out phenomenon.

Audience: Commercial beekeepers, bee hobbyists and biologists. The analysis will help define measures to mitigate the honey bee colonies loss and restore the bee population to sustainable levels.