

Investigating Heating Pads as a Means of Combating EMBRY-RIDDLE Varroa Mite Infestation of Honey Bee Hives Clark Howard, Natalie Rose, Curtis Schaff, Gwendolyn Wentworth Aeronautical University. **Experimental Setup** Background

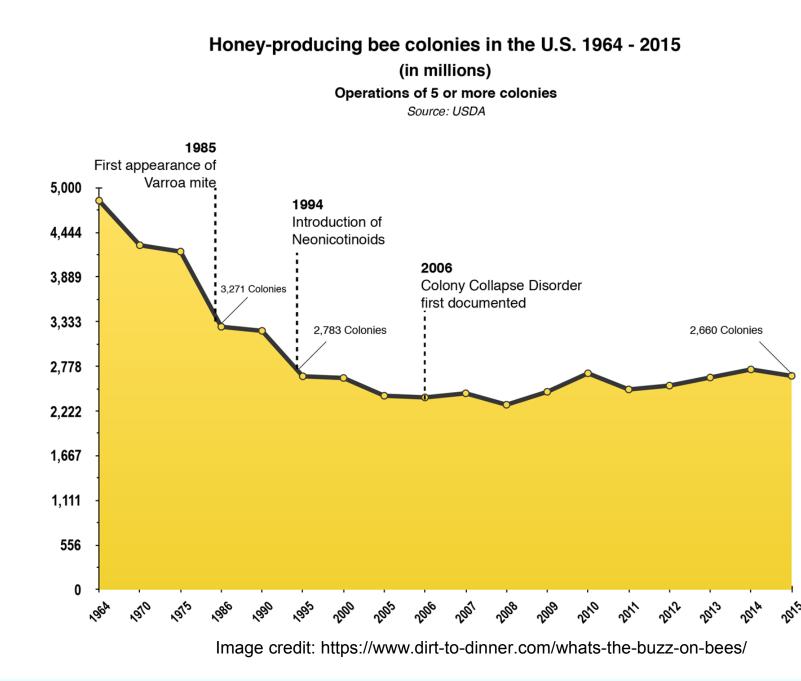
What's a Varroa mite?

- A tiny parasite that feeds off honey bees' fat.
- Enough mites in a beehive can lead to the collapse of the colony



Why does it matter?

- Varroa mites one of the leading causes of Colony Collapse Disorder (CCD)(2018)
- CCD causes an average of 30% of all attempted hives to collapse (2018)
- Roughly 30% of our diet directly or indirectly benefits from honey bees as pollinators (2018)

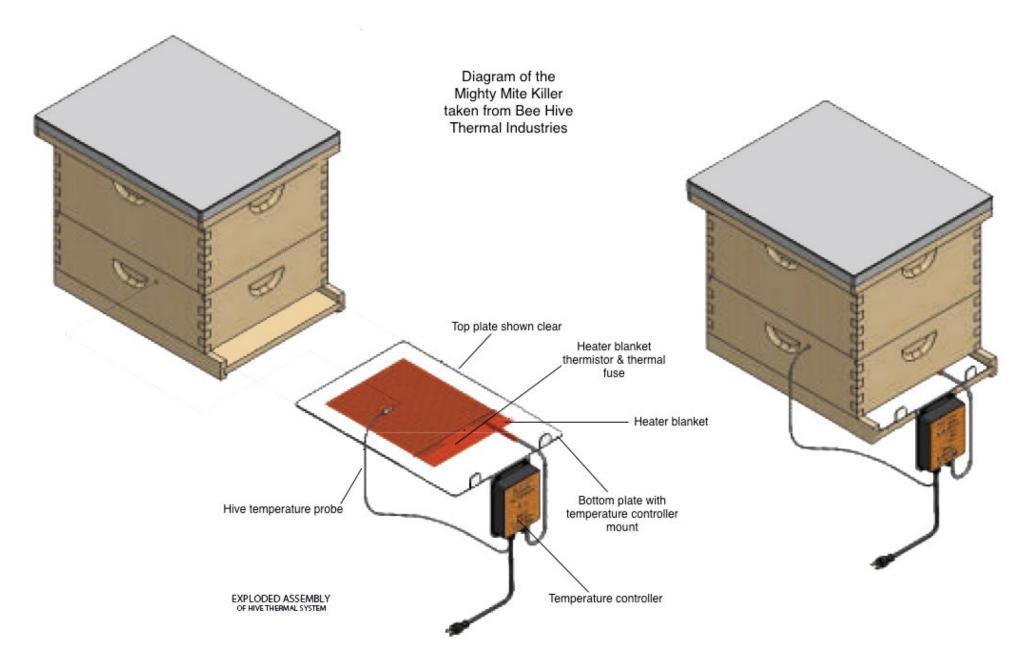


Fahrenheit for 2.5 hrs (Industries)

below what honey bees can

How it works

- Repeat heating cycle 3 times a year (Industries)



Preliminary Results

Initial testing conducted by members of the Volusia County Beekeeping Association indicates that the heating pads are:

- Safe for bees
- More effective than other methods at killing Varroa mites
- Faster-acting than other methods

Bibliography

(2018, August 6). ARS Honey Bee Health and Colony Collapse Disorder. Retrieved from www.ars.usda.gov/oc/br/ccd/index/#public

Industries, Beehive Thermal . *How It Works*. Retrieved from www.beehivethermalindustries.com/how-it-works

(2017, April 5). What's the Buzz on Bees. Retrieved from https://www.dirt-to-dinner.com/whats-the-buzz-on-bees/

• Heating pad heats up the inside of the beehive to exactly 106 degrees

• This temperature is slightly above what varroa mites can survive and just

• The varroa mites die and fall to the bottom board of the hive

mage Credit: Bee Hive Thermal Industries