Monitoring Apis mellifera Linneaus for Winter Survival, Year 3

Mayjoy, Priya (School: Lamar High School)

This project is about bee life and how we can help them survive all year round. I have been studying bees and expanding this project every year for the past 3 years. I have done several different tests. I have used a device called the FLIR every year, and the last two years I have done a mite wash. This year my hypothesis was that if I successfully use red light therapy consistently throughout the summer then I will see a decrease in mites prior to winterizing the hives in October. I did three different tests that were used to get as much information as possible. Last year mites had a 12.5% infestation when tested in October 2024. After using red light therapy, from May-September 2025, I repeated the mite wash in October of 2025 and got a percent of 1.35%. This shows an improvement in overall hive health. Red light therapy helped improve the survival rate from previous years. Altogether it decreased mite infestation by 11.15% and a new found improvement was the population of the hive grew. The second test involved monitoring the bees' heat signatures using the FLIR device. The size of the cluster showed consistent patterns over the last 3 years. My project shows that you can monitor bees throughout the winter and use red light therapy to help with mites.

Awards Won: