

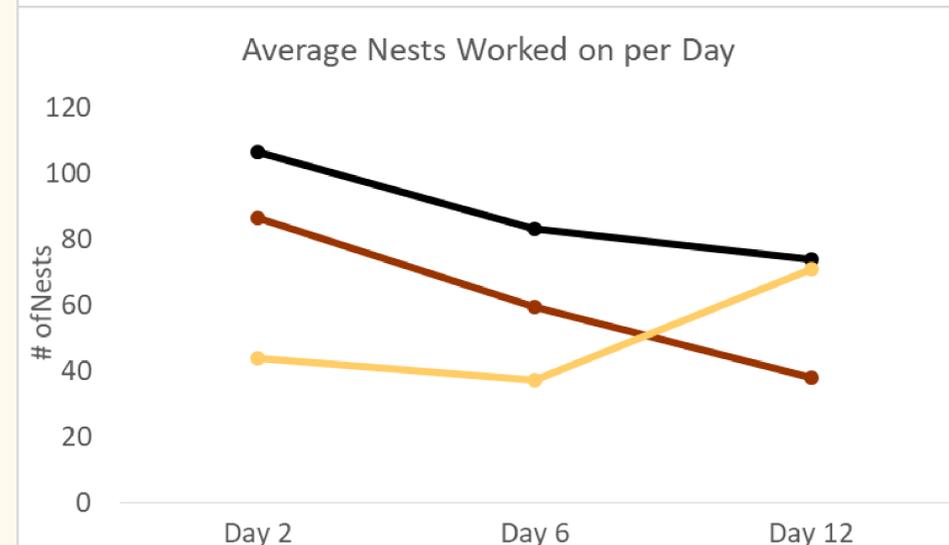
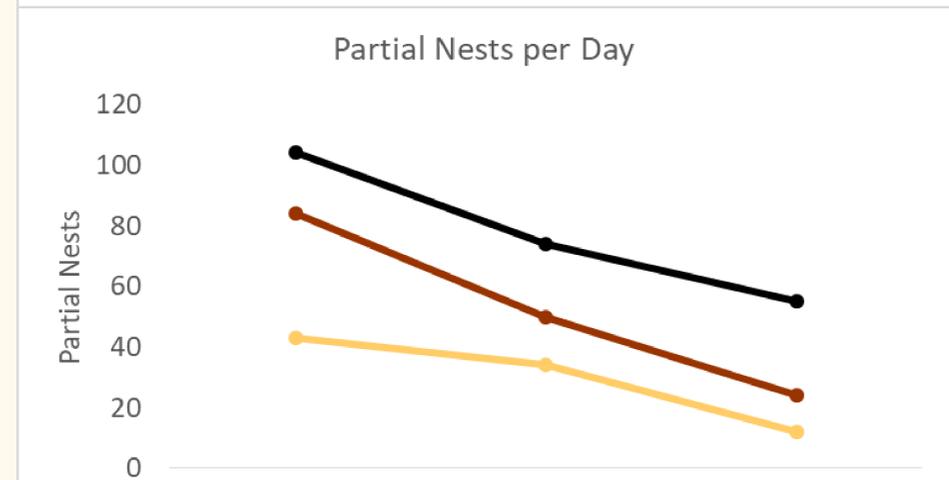
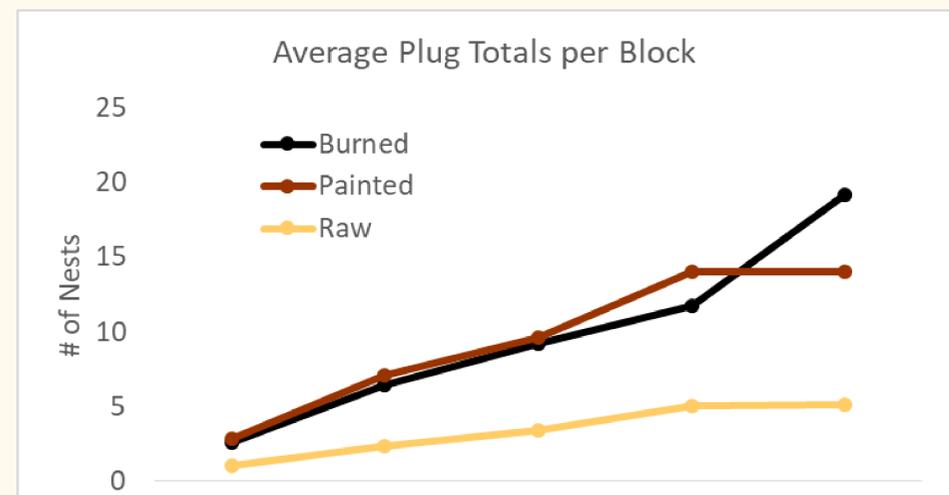
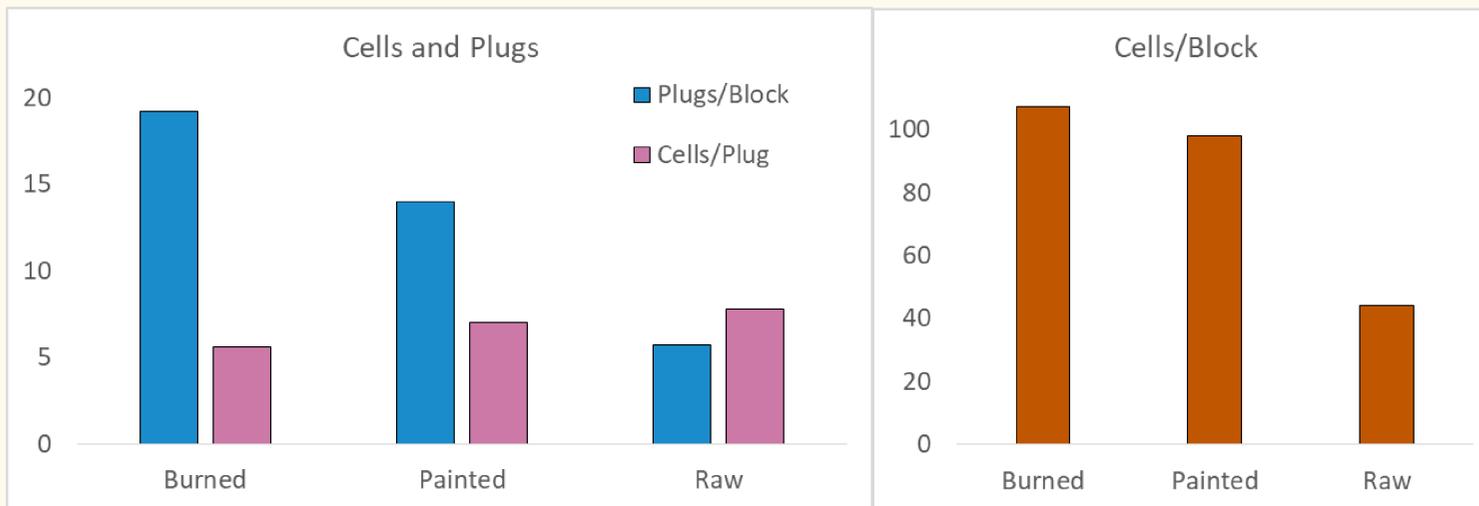
Introduction

The Blue Orchard Bee, *Osmia lignaria*, is a bee native to North America and is commercially used to pollinate fruit and nut orchards. *O. lignaria* nests in wooden cavities with mud walls between the cells of the nest. Orchards provide some form of nesting materials for the bees to nest in (cardboard tubes, wooden blocks). The wooden blocks are often painted black or charred in order to improve nesting of *O. lignaria*.



Results

We found that *O. lignaria* nesting increased in burned blocks. However, we noticed that there was a strong similarity of interest between the burned and the painted blocks in the beginning. We believe this is due to the amount of pheromones produced by *O. lignaria* when nesting closely together. In the end there were more nests in burned blocks and more nesting occurring in raw blocks as options became sparse.



Objectives

We wanted to figure out if *O. lignaria* preferred blocks that were burned or blocks that were painted. If they preferred the burned it may be because of the smell of the char that remained on the wood. If they preferred the painted it may be a visual component of more black coverage on the block.



Methods

We took 60 wooden blocks and divided them into 3 categories: raw (unaltered), burned, and spray painted. We then took these Zollingers Fruit & Tree Farm apple orchard and alternated them every 3rd tree with 2 blocks per tree. We also used a lure developed by Pitts-Singer. We released 800 females and 1000 males at the orchard on May 20th and waited a few days for them to get settled. We made a few observations at 7 am during the following weeks to count mud plugs and presence of females in the nest. We brought the blocks back in June 23rd after the larvae were stable enough to move. I then processed the blocks by counting the amount of cells in each block.

Recommendations

We recommend orchardists use charred blocks to improve the chances and yield of nesting. We noticed there could be some level of preference involved in the density of the spray paint coverage on the surface of the block. There could be further experimentation of different densities of paint on the nesting blocks to see what level *O. lignaria* prefers.