PP-024 [Bee Health]
The Impact of Emotions on Honeybee Health

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The study of emotions in animals, particularly honeybees, is a contentious yet significant area of research. Given that animals cannot verbally express their feelings, we must assess their emotions through physiological, cognitive, and behavioral indicators. Emotions can profoundly affect both human and animal health; negative feelings are linked to poor decision-making and adverse health outcomes, while positive emotions are associated with improved immune responses. Research shows that individuals experiencing positive emotions tend to enjoy better health, as these emotions enhance immune function, whereas negative emotions can weaken it, especially following stress. However, the connection between emotions and health in invertebrates, such as honeybees, remains underexplored. In my research, I aimed to determine whether emotions affect honeybee health through two experiments: (1) examining how emotions influence disease prevention and (2) exploring how emotions impact disease progression in previously infected bees. In first experiment, I exposed bees from seven colonies to various odors (alarm pheromone, geraniol, and a control) to assess their emotional responses. After one week, I infected the bees with Nosema sp. spores. Each colony contained twelve cages—six designated for longevity testing and six for measuring Nosema infection levels. In the second experiment, previously infected bees were exposed to the same odors, again utilizing twelve cages per colony for longevity and infection assessments. The results revealed that bees exposed to geraniol lived longer and exhibited lower infection rates compared to those exposed to alarm pheromone and the control group. Conversely, bees exposed to alarm pheromone had the shortest lifespan and highest infection levels. These findings support the hypothesis that honeybee health is influenced by their emotional states, highlighting a crucial link between emotions and health in these essential pollinators. This research could significantly impact beekeeping practices by encouraging beekeepers to create environments that promote positive emotional states in bees, potentially enhancing their health and productivity.