

PP-176 [Bee Health]

Assessing the Impact of Total Dissolved Solids (TDS) in Water on Honey Bee Health in Northeast Louisiana, USA

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Sammy's Southern Honey

INTRODUCTION: Honey bee health is crucial for ecosystem services and food production. However, bee colonies face various threats, including poor water quality. This study investigates the impact of Total Dissolved Solids (TDS) in water on honey bee health in Northeast Louisiana, USA, a region known to have compromised water quality due to agricultural runoff, industrial activities, and natural geological processes. Similar water quality issues are likely prevalent in other parts of the world, particularly in areas with intensive agricultural practices or limited water treatment infrastructure.

METHODS: We conducted a 12-month study on 20 bee colonies in Northeast Louisiana, exposing them to different TDS levels (15, 160, 300, 600 ppm). Colonies were managed according to standard beekeeping practices. We monitored colony strength, brood development, honey production, and varroa mite infestation levels. Water samples were collected monthly and analyzed for TDS and pH levels.

RESULTS: Our results show significant correlations between TDS levels and bee health metrics. Colonies exposed to higher TDS levels exhibited reduced brood development and honey production, as well as increased varroa mite infestation levels. We also found associations between TDS levels and bee mortality rates.

CONCLUSION: This study highlights the importance of monitoring TDS levels in water sources for bee colonies in Northeast Louisiana. Our findings suggest that exposure to high TDS levels can have detrimental effects on honey bee health, including impacts on brood development, honey production, and varroa mite infestation levels. These results have important implications for beekeepers and policymakers seeking to mitigate the impacts of poor water quality on honey bee health.