

Smoke and Bees

by Dewey Caron

We think the smoke is a stressor that shows as reduced foraging and slower motion in bees. The reduced flight is orientation issue. Recall that bees orient to polarized light. They have short term memory to "remember" where they were foraging and how to get back to home and although this persists only a couple of days (but long enough to continue to forage during cloudy mornings or light rainy days). With this heavy smoke covering the sun bees are not able to orient and since it has gone on so long (the high winds before the smoke inhibited flight as well) their memory of where the flowers were is probably gone by now. They could fly in high wind (low to the ground) or in heavy smoke but they might not exactly find their way back home if they went very far. So being very "smart" they elect to sit at home and consume their stores (early winter break?)

How much the particulate matter in our air might affect them is unknown. They have tiny hairs that cover their spiracles to filter out "things" in air but they will not keep out the tiny particles. But that is not real issue as they have lots of openings and the oxygen-carbon dioxide exchange (they lack lungs) occurs directly at cellular level - (as it does in humans but we get the oxygen to those cells via red blood cells). We have only a pair of lungs to get that oxygen into the red blood cells while bees have part of the tracheal system (tracheoles) pass by every living cell for the exchange.

It is best not to inspect or do another mite treatment with heavy smoke - you are just compounding stressors. Feeding is good (heavy syrup) - do with as little disturbance as possible. But if there was food out there (and there was precious little of it pre-wind storm) they certainly are not getting any of it. We will likely have a "tough" winter for our bees. Stores are very limited and this is not going to help at all. FEED FEED FEED!

Past OSBA president Harry Vanderpool and Mike Rodia in Salem both have noticed an increase of foragers at water sources with the heavy smoke, even more than what they observed when it was very hot early this summer. Ensuring there is water close to bees would be a good practice until our skies clear.

Dewey Caron Sept 14, 2020