

Fact Sheet

HONEY BEES



DATE: September 2020

LOCATION: Texas



The objective of this study was to assess the acute contact toxicity potential of PureCrop1, Powered by PureCrop NanoTech, to adult worker honey bees (*Apis mellifera*) per the Environmental Protection Agency Office of Chemical Safety and Pollution Prevention Guideline 850.3020. The results concluded that **PureCrop1 is non-toxic to honey bees**, even at three times the recommended use amount.

Trial Conditions

In this study, adult worker honey bees were exposed to PureCrop1 by direct topical application at the nominal dose of 25 µg (.025mL) a.i. (active ingredient)/bee. Deionized water with Polysorbate 80 was used as the vehicle for all groups. A single dose of the PureCrop1 solution was administered to 100 bees. Another group of 100 bees was dosed with the vehicle only, serving as the vehicle control. A third group of 100 bees served as the untreated control. Three additional groups of 100 bees were dosed with the toxic standard, Dimethoate, at 0.01 µg/bee, 0.1 µg/bee, or 1.0 µg/bee and served as positive controls.

Procedure

Approximately 0.833 mL of PureCrop1 was placed in a 10 mL container and mixed with the vehicle to make a 12.5 µg a.i./µL solution. A single dose of PureCrop1 solution, the vehicle, or the positive control was applied to each bee's thorax via a micro-applicator. All bees were dosed topically on the dorsal side of their thorax with 2 µL of the appropriate solution. ***Note that the dosage of PureCrop1 is 3x higher than the recommended usage amount.** This was done to comply with EPA testing guidelines.

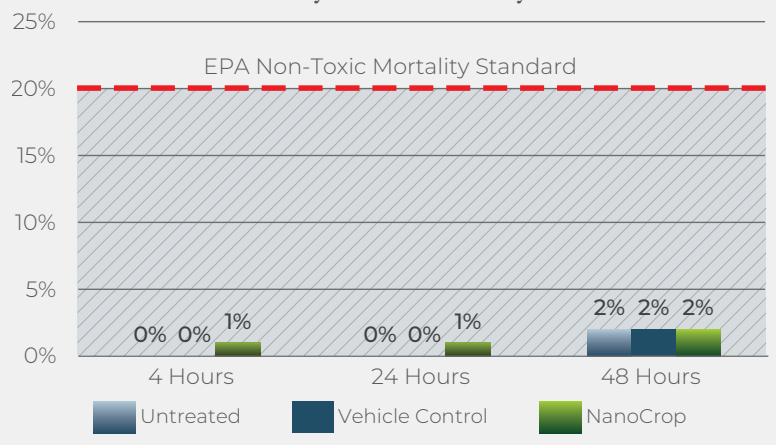
Conclusions

For a valid test, no more than 20% of the bees in either the untreated or the vehicle control group could be dead at the end of the test. All bees were observed at approximately 4, 24, and 48 hours after dosage for mortality and clinical signs of toxicity, particularly signs of intoxication (ataxia, lethargy, hypersensitivity, etc.). Results were evaluated by comparing mortality between the treated and untreated control groups.

"Since mortality in the test substance group did not exceed the mortality in the untreated and vehicle control groups and control mortality was less than 20%, the LD₅₀ for the test substance, **PureCrop1 is considered to be greater than the nominal dose of 25 µg a.i./bee and was non-toxic when administered by contact to adult honey bees.**"

- Cole Younger, PhD
Study Director, Entomologist
STILLMEADOW, Inc.

Honeybee % Mortality



Scan the QR Code to read more about this study!

See these results in **YOUR** fields
Call our team today! +1.707.972.5650