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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON D.C., 20460



Office of Chemical Safety  
and Pollution Prevention

PC Code: 044309  
DP Number: 383634

MEMORANDUM

**SUBJECT:** Reclassification of MRID 46907801 Data Package 336888 for  
Clothianidin, PC Code 044309

**TO:** Kable Davis, Risk Manager Reviewer  
Venus Eagle, Risk Manager, RM 01  
Insecticide Branch  
Registration Division (7505P)

**FROM:** Joseph DeCant, Ecologist  
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*Joseph P. DeCant 11-2-10*

**THRU:** Mah Shamim, Branch Chief  
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*Mah Shamim 11/2/10*

In 2007, the EFED reviewed the study entitled, "An Investigation of the Potential Long-Term Impact of Clothianidin Seed Treated Canola on Honey Bees, *Apis mellifera* L." (MRID 46907801), and classified it as Acceptable and as satisfying the guideline 850.3040 field study for pollinators. Recently, the EFED has reviewed this study again in light of additional field studies that highlight challenges in field study design, and in response to concerns raised by beekeepers. Based on the new review, several deficiencies were identified that lead to the reclassification of this study as Invalid rather than Acceptable.

Control and treated plots were each 1 hectare in size and paired, so that 4 sites were established with a control plot paired with a treated plot. These plots were separated by a minimum of 250 m. The study author states, "Of 23 back-up control nectar samples, 2 (field E1C, July 7; field W3C, July 7) had detectable clothianidin residues, at a maximum of 0.922 ppb, suggesting that workers in control colonies may have foraged on clothianidin-treated canola. This may have occurred because the separation between some pairs of control and treated fields was insufficient or because the forage in some control fields was of lower quality..." The inverse may also have occurred. That is, bees placed on treated fields likely foraged on the control fields, which would have reduced the level of exposure to clothianidin residues due to a lack of separation between sites. Bees have been shown to forage up to 6 km (Visscher and Seeley, 1982) or even twice that

in some instances when no competing forage is present (Ratnieks, 2000). The distance of 250 m is inadequate for this separation. The inadequacy is evident given contamination in some of the nectar samples taken from control hives.

Furthermore, the study authors state that, “Approximately 5 g of pollen was analyzed under a light microscope, which confirmed that bees foraged on canola, while the remainder...”. This type of identification simply identifies that canola was present in the pollen samples, but does not quantify the proportion of canola pollen present in the sample. This type of pollen evaluation does not characterize the foraging of the bees. The bees in the treated fields could have foraged disproportionately on other uncontaminated sources relative to bees in the control fields. Furthermore, the study authors simply state that to their knowledge, no other forage was present with a radius of 1 km from the edge of the fields. However, given the ability of bees to forage long distances, this lack of data leaves uncertainty in the exposure and suggests that this study did not provide the worst case exposure scenario necessary for use in characterizing risk.

An addendum (MRID 46907802) was submitted later that presented the results of the overwintering part of the study, which revealed no effects on the hives exposed to clothianidin. However, this addendum does not present any results that would change the outcome of the reclassification of the study. The issue of exposure may confound the results presented in the primary study as well as the addendum.

**Table 1. Ecological data requirements for clothianidin.**

| MRID   | Guideline | Study Classification <sup>1</sup> | Remarks  |
|--|-----------|-----------------------------------|--|
| 469078-01<br>469078-02<br>(addendum)   | 850.3040  | Invalid                           | This study and associated addendum assessed the toxicity of clothianidin to pollinators using whole hive parameters under field conditions. The study does not satisfy the 850.3040 guideline. |
| <sup>1</sup> OPPIN Classifications:<br>Acceptable/Guideline; Acceptable/Non-Guideline; Cited; Confirmatory; Decision Deferred; Extraneous submission; In Review; No Decision; Partially Acceptable; Supplemental; Unacceptable/Guideline; Unacceptable/Non-Guideline; Upgradeable. |           |                                   |  |