



A monitoring study, confirming the safe use of Steward (a.s. indoxacarb) for honey bees in flowering apple



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Introduction

In December 2002, STEWARD 30WDG® was registered in the Netherlands for the control of caterpillars in apple and pear. The honey bee safety was based on first and higher tier studies. In 2003 bee mortality, possibly caused by intoxication during foraging in flowering apple, was recorded in the south of the Netherlands. Among other pesticides, Steward was applied in the orchards. An investigation did not show a link between the Steward application and the honey bee incidents. In 2004, for stewardship reasons, DuPont commissioned PPO Bijen / Applied Plant Research, Bee Unit to conduct a honey bee monitoring study during apple flowering in April and May 2004. The study was focussed on acute lethal effects on honey bees in flowering orchards where Steward was applied according to GAP and local practice by farmers.

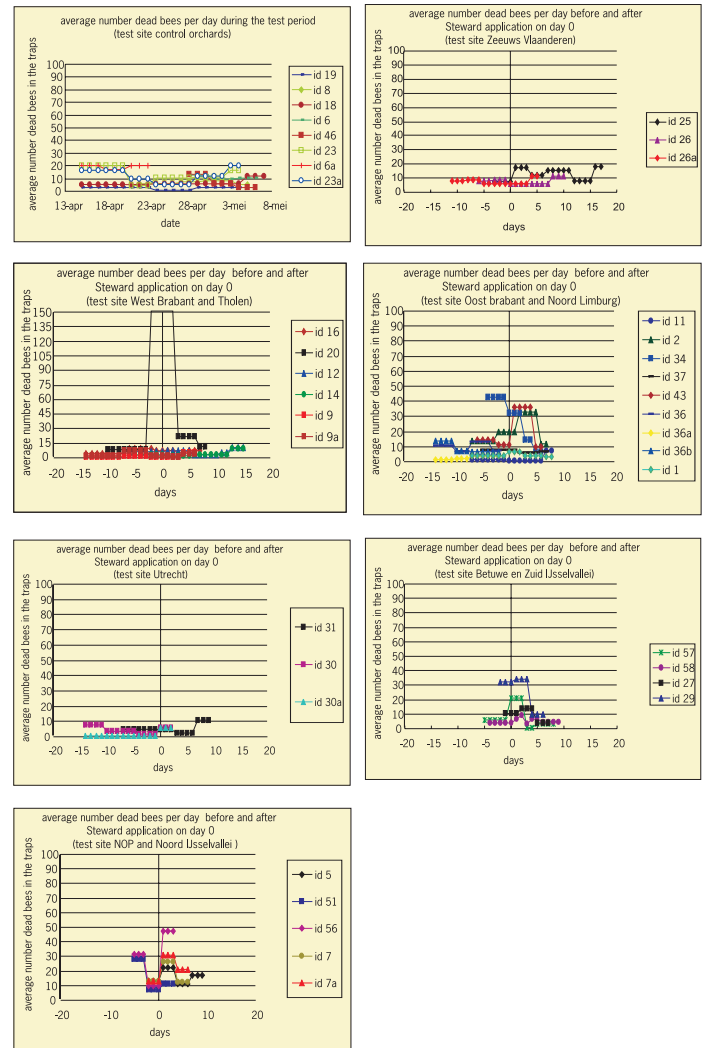


Materials and Methods

In 39 isolated orchards in representative regions in the Netherlands, two test colonies of Applied Plant Research per orchard were added to the colonies the farmers deployed for pollination purposes. In 30 orchards Steward was applied. The 9 other orchards were control orchards. The test colonies were queen right, covered at least 10 simplex frames and had brood in all stages of development. A Münster dead bee trap was attached to each test colony to collect dead honey bees. The dead bee traps were emptied 2 till 3 times a week pre and post Steward application. Beside Steward, regular pesticides and nutrient applications based on professional practice were conducted by the fruit growers. The climate conditions, temperature, humidity and leaf wetness periods were obtained from fruit extension service data.



Results



Conclusion

The monitoring study proved that the application of STEWARD 30WDG® in apple at 170 to 260 g/ha during flowering, according to GAP and local practice did not cause acute honey bee mortality. The average mortality during apple flowering was ≤ 20 bees / colony / day. One application of a mixture of Steward + Captan + Ethrel + Exact + Regalis (colony 56) may have caused an increase of acute bee mortality but is unlikely to be of biological relevance. Application of Steward mixed with Berelex (giberellin) or ATS or Captan or Ureum did not cause acute mortality of honey bees.