

## Pesticidal Toxicity to Honey Bees

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**ARTICLE ID: 40**

### **Introduction**

In India 50million hectare area is under entomophilous crops, cross pollinated by abiotic and biotic agents. Among them 90% pollination is carried out by insects 85% which comprise the bees. Thousands of bees travel nearly around 10km to collect the nectar to satisfy their carbohydrate needs of the colony. But they are not getting the desirable food sources and it is contaminated with the harmful pesticides and insecticides. Advanced agricultural technology has helped to destroy the agriculture indirectly i.e the insect pollinators are killed by pesticidal usage in crop plants .Integrated farming in India as not showing expected results most farmers apply large number of pesticides at regular intervals in most cases they are non-selective and honey bees are susceptible to many pesticides

### **How Bees are Exposed to Pesticidal Hazards**

Most of the crops need cross pollination at the same time they are infested by pest even during flowering causing losses. The pesticidal application to crop plants eliminate the large number of pollinators. Our aim should be to access how crop pests can be kept under control without killing insect pollinators

### **Cotton**

It is the most dangerous crop for bees. Cotton requires 15-20 insecticidal sprays at regular intervals are recommended to control various pests. Foraging bees are killed by these sprays. In cotton flowering continues for 2 months insecticidal applications at shorter intervals can kill more bees than replaced

### **Brassica and Vegetable Seed Crops**

In these crops the flowering is greatly extended upto 1to 2 months. These insecticidal applications during flowering periods but all these crops are foraged by bee which are very useful pollinators.

**Sunflower**

It is gaining more importance in India. Bees increase the production by contributing pollination. But the bee mortality was observed insecticidal sprays to control the aphids and caterpillars.

**Sesame**

It is self-pollinated crop but natural cross pollination is also occur to some extent. Honey bees will attract towards the flowers and insecticidal sprays are done to control white flies, hoppers, aphids. This can also harm to the honey bees.

**Cucurbits**

These are generally affected by fruit flies, beetles and others to control these pesticidal sprays are given. Honey bees can also visit these crops.

**Fruit Crops**

Bees help to pollinate in crops like apple, citrus, litchi, strawberry etc. many pesticides are given to the fruit crops to control various pests. So bees can also effect by this.

**Conclusion**

Almost all the insecticides/pesticides in use for the management of insect pests are also hazardous to bees but most pesticides used for the management of bee diseases and non-insect pets are noy hazardous. This subjects the bees to extensive hazards of chemical poisoning. But certain points can be kept in mind for reducing these hazards. Application of pesticide should be avoided when the crop is in bloom. In most cases, it can be possible to control the pest before the start of flowering and next treatment can be postponed till the end of flowering period is staggered and pesticidal treatments may become essential. Location of bees, pesticide formulation, Selection of pesticides, Timing and method of application, Dosage of pesticide, these are some of the points to be noticed to reduce the pesticidal poisoning to bees.

**References**

- Battacharya, p., Samuel, R.C., Ghosh, M.R., Dasgupta,S.K.and Roy,A.1982. Sunflower seed yield as influenced by pollination and insect pests. Proc.10<sup>th</sup> int. Sunflower conf. Sulfers paradise: 132-34.
- Ramakrishna,C.C., Rajmohan, N. and Subramanian, T.R.1974. Effect of insecticidal sprays on the pollinators of the sunflower. Madras Agriculture Journal 61 (6) :175-77.



Singh, M. T., Sharma, P. L. and Dhaliwal, H.S.1974. Toxicity of insecticides to honeybee workers, *Apis cerana indica*. *Pesticides* 8(12): 28 -29.

Rahaman, Atuar. (2017), Dr Aruna T. Kumar, Dr Sudhir Pradhan, *Apiculture in india*, Toxicity to honey bees (16) : 193-206 ssss

