

# Pesticides and Bees

Eng. Mahmoud Abu Shweimeh



# Why we protect honey bees from pesticides

- ◆ Bees play a vital role in subsistence level farming.
- ◆ Many crops require bee pollination to produce good yield seed or fruits.
- ◆ Bees are major pollinators of many crops & greatly increase their yield and quality.
- ◆ Pest control safe for bees is vital also if beekeeping is to be maintained.

# Pest can be controlled by:

- ◆ Chemicals known as pesticides
- ◆ Non chemical physical control
- ◆ Combination of both

## Disadvantage of pesticides

- ◆ Kill many more bees
- ◆ Much more expensive
- ◆ In time they may lose their effectiveness  
pest become resistant

# Use of pesticides

- ✦ A pesticides is a poisonous chemical used to control pest or to prevent them multiplying.
- ✦ Various type of pesticide
  - ✦ **Insecticide** → **control insects**
  - ✦ **Acaricides** → **control mites**
  - ✦ **Herbicides** → **control weeds**
  - ✦ **Fungicides** → **control fungi**
- ✦ An insecticides is more likely to harm bees than fungicides or herbicides
- ✦ Some pesticides are more harmful than others to bees
- ✦ Dust are more harmful than granules

# Use a pesticides on a crop .... In flowers

- ◆ Try to select a pesticide & dosage that will kill the pest & not kill bees
- ◆ If this NOT possible:
  1. Use the pesticide in the formation least harmful to bees
  2. Apply the pesticide when bees are not visiting the crop
  3. Warn local beekeepers before applying the pesticide

# Precautions for farmers & applicators

1. Apply pesticides only when needed
2. Use the recommended pesticide of the lowest effective rate
3. Use the pesticide least hazardous to bees
4. Use sprays or granules instead of dusts
5. Use ground equipment instead of aerial application to apply pesticide near bee live
6. Apply pesticides in late afternoon or at night
7. Avoid drift of pesticides onto plant that are attractive to bees
8. Notify beekeepers several days before applying any pesticide

# Precautions for beekeepers

1. place colonies where they will be away from fields that are routinely treated with hazardous pesticides
2. Identify your apiary
3. Be familiar with pesticides commonly used in your area
4. Relocate colonies that are exposed repeatedly to hazardous pesticides

# Bee kill Estimation

0 – 100 deed bees /day

Normal die-off

200-400 deed bees /day

Low kill

500-900 deed bees /day

Moderate kill

1000 or more deed bees /day

High kill

# Importance of the honey bee in Jordan

- ◆ Estimated 1000 beekeepers in Jordan
- ◆ Managing:
  1. 35000-40000 colonies producing
  2. 120-180 tones/ year of honey produced

# How beekeepers can protect their bees?

- ◆ Measures the beekeepers should take
- ◆ To protect the bees from the harm full effects of pesticides you must either
  1. Close up the hive. So that the bees can not fly out. OR
  2. Move the hives temporary to any site at least 5 Km from the sprayed areas.

# Close hive left on crop fields

- ◆ Close up hive at night
- ◆ Close entrance with material which allows ventilation
- ◆ Prevent hives over heating
- ◆ Co not close the hives for more than 24 h
- ◆ Keep hives in the shade
- ◆ provide extra space in the hive
- ◆ Provide effective ventilation
- ◆ Check that dead bees aren't blocking the entrance
- ◆ Drape a wet cloth over the hive & keep the cloth wet
- ◆ Provide water inside the hive

# Moves hives away from crops

- ✦ Close hives (at night) before moving crops
- ✦ Before moving the hives ensure that they are well ventilation
  - Provide extra space in the hive
  - Close entrance with material witch allows ventilation
  - Replace the hive cover
  - Move hives of night
  - Secure hives before moving them
  - Move hives to anew site ate least 5 Km away from their old site
  - At the new site, replace the hive cover & crop the hive entrance
  - Move hives back to the old site only after the pesticide in no longer toxic to bees

# How to determine weather pesticide have killed bees

- ◆ Dead bees at the hive entrance
- ◆ Any death are soon removed by ants
- ◆ Unusual bee behavior:
  1. Bees appear irritable, restless
  2. Bees appear unable to walk
  3. Bees appear spinning on their backs
- ◆ Have sample analyzed
- ◆ Taking samples:
  1. Samples of bees
  2. Samples of plant
  3. Samples of suspected pesticide (if available)