

5- Black Cutworm

Agrotis ipsilon (Lepidoptera: Noctuidae)

Distribution:

Almost cosmopolitan, from northern Europe, Canada, Japan, down to New Zealand, S. Africa, and S. America.

Host Plants:

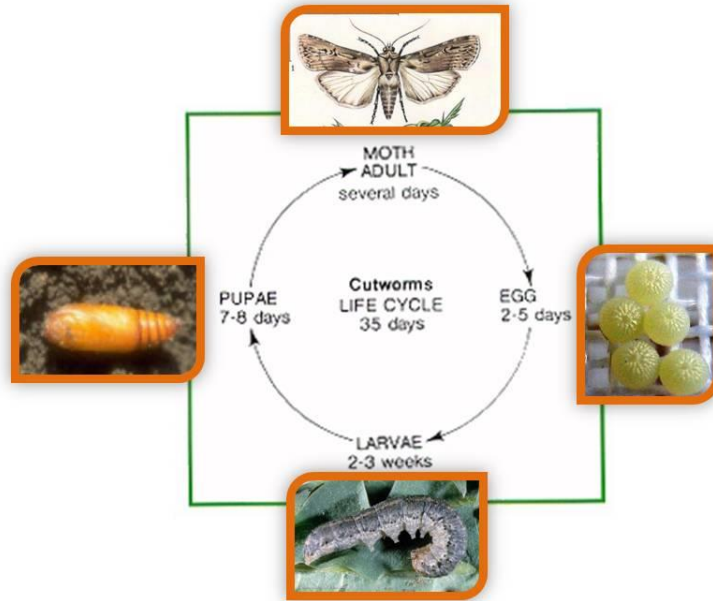
A polyphagous cutworm attacking the seedlings of most crops, in particular cotton, rice, potato, tobacco and cereals.

Economic importance

The larva causing damage to the plant by their chewing mouthparts, the first two instars feed on the foliage of the plant, the third instar becoming non-gregarious, in fact often cannibalistic, and adopting cutworm habits

Life Cycle:

The **eggs** hatch in 2–9 days. Each female may lay as many as 1800 eggs. The **mature caterpillar** development takes 28–34 days. In temperate countries some larvae overwinter as such, and pupate in the late spring. **The first two instars feed on the foliage of the plant, the third instar becoming non-gregarious, in fact often cannibalistic,** and adopting cutworm habits. **Pupation** takes 10–30 days, according to temperature. The life-cycle from egg to adult takes 32 days at 30°C, 41 days at 26°C, and 67 days at 20°C.



Black Cutworm, *Agrotis ipsilon* (Hfn.) (Lepidoptera: Noctuidae)

Control Methods:

Damage from these cutworms often can be avoided by not planting corn on land which was grassy or weedy the previous summer. Other important components in cutworm control are rapid seedling growth, scouting, and properly applied insecticides. Treatment should begin when 5 percent or more of the optimum stand of seedlings has been cut. All fields should be examined before the corn is 8 cm tall.

6- Cotton Whitefly

***Bemisia tabaci* (Homoptera: Aleyrodidae)**

Bemisia tabaci is highly mobile and has a wide host range, allowing it to rapidly spread to new areas. This mobility contributes to its status as a major pest in many regions around the world.

Distribution:

Cosmopolitan occurring as far north as Europe and Japan.

Host Plants:

(Main) Cotton, tomato, tobacco and potato. (Alternative) Many wild and cultivated plants.

The Economic Importance

Crop Damage: *Bemisia tabaci* feeds on a wide range of host plants, including many important agricultural crops such as cotton, tomatoes, cucumbers, and peppers. The feeding activities of whiteflies can cause direct damage by reducing plant vigor, stunting growth, and causing leaf yellowing (silverleafing) and curling.

Virus Transmission: *Bemisia tabaci* is a vector for several plant viruses, including those causing diseases like tomato yellow leaf curl virus and cassava mosaic virus. These diseases can lead to significant yield losses and reduce the quality of affected crops.

Honeydew Production: Like other whiteflies, *Bemisia tabaci* excretes honeydew, a sticky substance that can promote the growth of

sooty mold. Sooty mold can reduce photosynthesis and further weaken plants, impacting crop quality and marketability.

Life Cycle:

Eggs hatch after about seven days. When the **nymphs** hatch they only move a very short distance before settling down again and starting to feed. The total nymphal period lasts 2–4 weeks according to temperature. The female may lay 100–160 or more eggs.



Control Methods:

1. **Cultural Control:** Implementing cultural practices that reduce whitefly populations can be effective. This includes removing infested plants, reducing weed hosts, and using reflective mulches to deter whiteflies.
2. **Biological Control:** Introducing natural enemies of whiteflies, such as parasitic wasps (e.g., *Eretmocerus eremicus*) and predatory

insects (e.g., ladybugs, lacewings), can help control populations. These natural enemies can be purchased and released in affected areas.

3. **Chemical Control:** Insecticides can be used to control whiteflies, but they should be used judiciously to avoid resistance development and minimize harm to beneficial insects. It's important to rotate between different classes of insecticides with different modes of action to reduce the risk of resistance.
4. **Yellow Sticky Traps:** Yellow sticky traps can be used to monitor and reduce adult whitefly populations. The traps attract whiteflies.
5. **Plant Resistance:** Using whitefly-resistant plant varieties can help reduce the impact of *Bemisia tabaci*. Some plants have natural resistance to whiteflies, which can be bred into crop varieties.
6. **Sterile Insect Technique:** In some cases, the sterile insect technique can be used to control whitefly populations. This involves releasing sterile male whiteflies to mate with wild females, reducing the overall reproductive rate.
7. **Physical Barriers:** Using physical barriers such as floating row covers can help prevent whiteflies from reaching plants and laying eggs.

7- Cotton or Melon Aphid

Aphis gossypii Glover (Homoptera: Aphididae)

Distribution:

Completely cosmopolitan, absent only from the colder parts of Asia and Canada.

Host Plants:

(Main) Cotton. (Alternative) Cucurbitaceae, many legumes and polyphagous.

The Economic Importance

Crop Damage: *Aphis gossypii* feeds by piercing plant tissues and sucking out sap. This feeding can cause direct damage to plants, leading to reduced growth, stunted development, and decreased yields. In severe infestations, plants may become distorted or even die.

Virus Transmission: *Aphis gossypii* is a vector for several plant viruses, including those causing diseases like cucumber mosaic virus and watermelon mosaic virus. These viruses can cause significant yield losses and reduce the quality of affected crops.

Honeydew Production: Like other aphids, *Aphis gossypii* excretes honeydew, a sticky substance that can promote the growth of sooty mold. Sooty mold can reduce photosynthesis and further weaken plants, impacting crop quality and marketability.

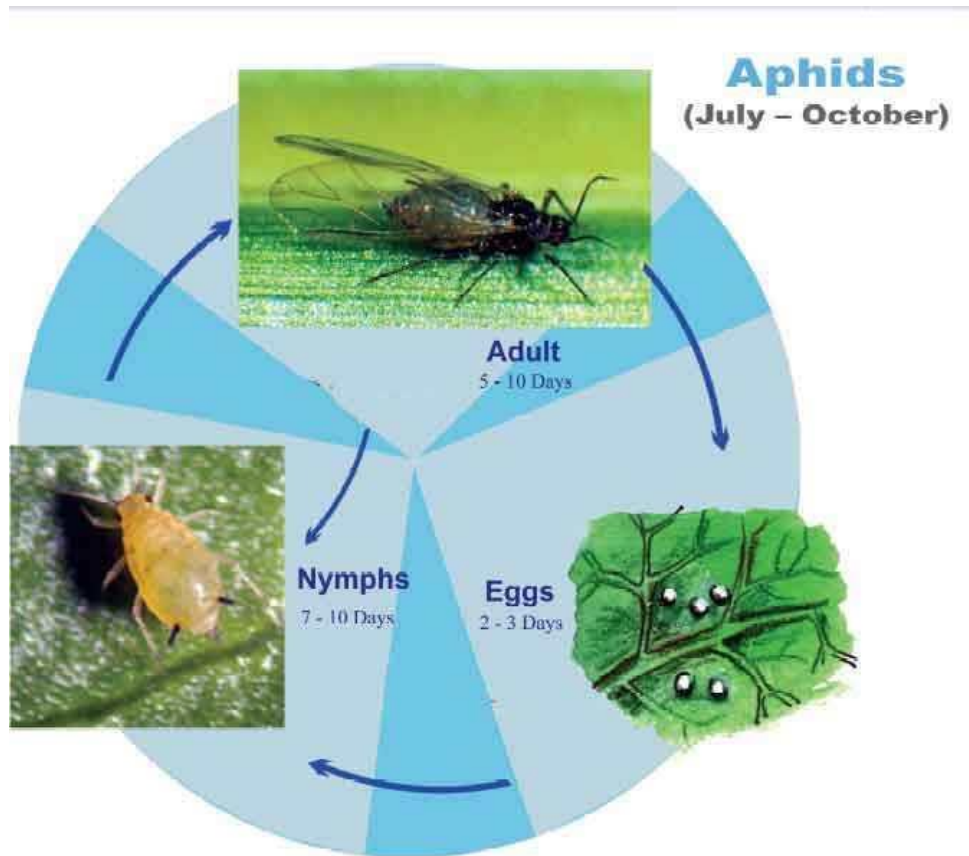
Rapid Reproduction: *Aphis gossypii* has a high reproductive rate, with females capable of producing numerous offspring without mating (Parthenogenesis is a form of asexual reproduction in which an organism can produce offspring without fertilization by a male. In parthenogenesis. This form of reproduction is relatively common in some insect species, including aphids). This rapid reproduction can lead to population explosions (outbreak) under favorable conditions, causing widespread damage to crops.

Wide Host Range: *Aphis gossypii* has a broad host range, including many important agricultural crops such as cotton, melons, cucumbers,

and peppers. Its ability to feed on a variety of plants makes it a significant threat to multiple crop species.

Life Cycle:

They mate and females deposit yellow eggs: **eggs** are the only overwintering form under cold conditions. Female nymphs hatch from eggs in the spring on the primary hosts. They may feed, mature, and reproduce parthenogenetically on this host all summer, or they may produce winged females that disperse to secondary hosts and form new colonies. The dispersants typically select new growth to feed upon, and may produce both winged (alate) and wingless (apterous) female offspring. Under high density conditions, deterioration of the host plant, or upon arrival of autumn, production of winged forms predominates. During periods stressful to the host plant, small yellow or white forms of the aphid are also produced. Late in the season, winged females apparently seek primary hosts, and eventually both males and egg-laying (oviparous) females are produced. Under warm conditions, a generation can be completed parthenogenetically in about seven days.



Control Methods:

Control measures are not usually required on most crops. If chemical control is required then generally sprays of insecticide.

Biological Control: Introducing natural enemies of aphids, such as ladybugs (ladybird beetles), lacewings, and parasitic wasps, can help control populations. These natural enemies feed on aphids or their eggs, reducing their numbers.

8- Cotton Jassids (Leafhoppers)

***Empoasca lybica* (Homoptera: Cicadellidae (= Jassidae))**

Empoasca lybica, commonly known as the Mediterranean or cotton leafhopper, is an economically important pest insect in many agricultural regions, particularly in the Mediterranean area

Distribution:

E. fascialis is recorded from 24 countries in tropical Africa. *E. lybica* is found in Spain, Israel, Saudi Arabia, Egypt, Ethiopia, Africa, Sudan, Tunisia.

The Economic Importance

Crop Damage: *Empoasca lybica* feeds on the sap of plants, including many important agricultural crops such as cotton, citrus, beans, and vegetables. The feeding activities of leafhoppers can cause direct damage to plants, leading to reduced growth, leaf yellowing, and in severe cases, leaf drop.

Vector of Plant Diseases: *Empoasca lybica* is a vector for several plant pathogens, including those causing diseases, these diseases can lead to significant yield losses and reduce the quality of affected crops.

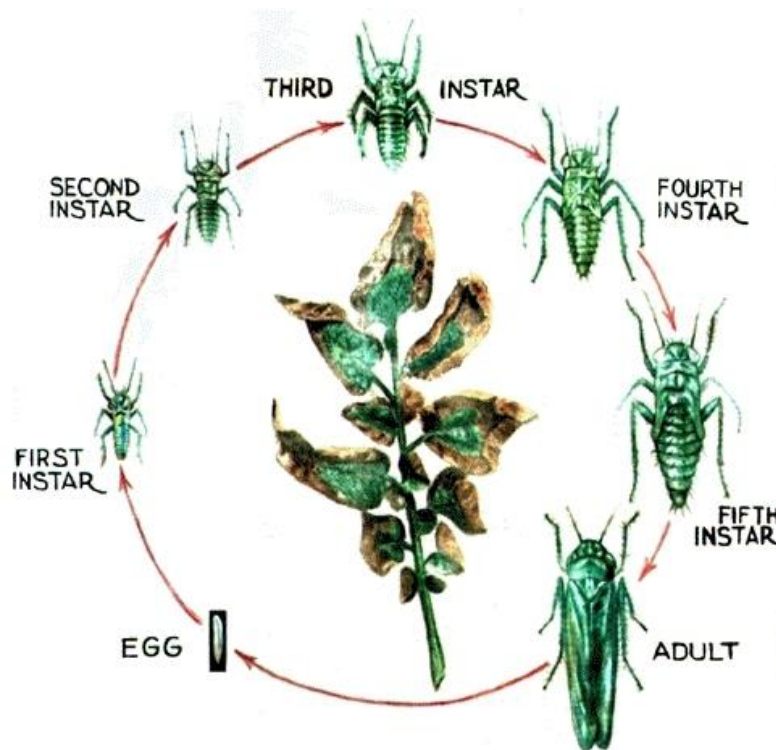
Honeydew Production: Like other leafhoppers, *Empoasca lybica* excretes honeydew, a sticky substance that can promote the growth of sooty mold. Sooty mold can reduce photosynthesis and further weaken plants, impacting crop quality and marketability.

Host Plants:

(Main) Cotton. (Alternative) Various legumes, wild Malvaceae, groundnut, and many other crops.

Life Cycle:

The eggs hatching occurs after about 6–10 days. There are **five nymphal instars**. Nymphs are found on the underside of large leaves during the daytime. The nymphal period lasts 14–18 days. Adult females may live 2–3 weeks or longer, and lay about 60 eggs.



Control Methods:

Cotton varieties with suitably hairy leaves are resistant to jassid attack. If control measures are required then the recommendations are to spray with insecticide.