

## **Cotton Facts: Insects (ICAC, 2003)**

### **Sucking Insects: Identification, Biology and Nature of Damage**

#### *Amrasca devastans (Jassid)*

- *Amrasca devastans*, previously known as *Amrasca biguttula* or *Empoasca devastans*, is called Indian cotton jassid or potato leaf hopper. *Amrasca devastans* is more common than other types of jassids. *Jacobiasca lybica* and *Jacobiasca facialis* occur in Africa.
- *Amrasca devastans* eggs embedded in the midrib or larger veins on either side of the leaf or petioles hatch in about 5-10 days depending on temperature.
- Nymphs are pale yellowish green in color and pass through five stages that last about 14 days. During this period, their length increases from 0.5 mm to 2.5 mm., and they are confined to the undersurface of the leaf during day time.
- Adults are about 2.5 mm long and greenish in color. They easily fly when the plant is shaken. Both, adults and nymphs, feed on small veins on the underside of the cotton leaf. Jassids inject a toxin into cotton leaves that impairs photosynthesis and causes leaf edges to curl downward in young leaves. This interferes with translocation in the phloem and leaves to the edges. Leaves first turn pale green, then yellow and finally red. Jassid prefers smooth leaf varieties, and in severe attacks plant growth is stunted. Nymphs cause more damage than adults. The total life cycle of the pest is 3-4 weeks.
- Biological control does not control jassid effectively. Leaf hairiness provides a strong control and has been effectively used by breeders in many countries. Longer and dense leaf hairs limit oviposition (egg laying).

#### *Aphis gossypii (Aphid)*

- Aphid *Aphis gossypii*, also called cotton or melon aphid, belongs to Homoptera and has a cosmopolitan distribution. Another aphid species of the same importance on cotton is *Acyrtosiphon gossypii*.
- *Aphis gossypii* is polyphagous (eating a variety of food) and varies in color from dirty green or grayish green to dark green and sometimes even blackish brown. Cotton is a favorite host but aphids commonly occur on many other plants like okra, cucurbits, and leguminous crops.
- The immature or nymphal stage looks like the adult stage and the only difference is smaller size during the immature stage. Greenish winged females reach a cotton field and establish their colonies. The females are 1.5-2.0 mm long with red eyes and black spines at the posterior end. Females give birth to yellow nymphs that become globular wingless females with prominent siphunculi. These nymphs continue to breed without mating and laying eggs (parthenogenesis).
- Aphids are always found on the undersurface of cotton leaves and reproduce rapidly. One female can produce about 80 young females parthenogenetically, which can mature within 8-10 days. Under optimum conditions, about 50 generations can occur each season, one each 5-7 days.
- Aphids can damage cotton in two ways: heavy attacks can interfere with transpiration and photosynthesis, and they can spoil lint quality by discoloration and honeydew secretion. In addition to the effects as a sucking pest on cotton, aphids also serve as a vector for transmission of diseases and stickiness. Generally, aphids attach to younger leaves, which in the case of a heavy attack may form cup shaped structures downward. Aphids are rarely found on squares and flowers and do not induce shedding.
- Natural biological control through parasitoids and predators exist in most countries. The best cultural control is to avoid planting alternate hosts near cotton. Chemical control is very effective, and this pest is often controlled when other sucking pests are also treated with insecticides.