stripes extend along the dorsal side and one yellow light stripe is situated under the spiracles on the lateral side. The ventral parts of the larvae are pale. They are rather aggressive, occasionally carnivorous and may even cannibalise each other. If disturbed, they fall from the plant and curl up on the ground.

THE PUPAE develop inside a silken cocoon over 10 to 15 days in soil at a depth of 410 centimetres (1.63.9 in), or in cotton bolls or maize ears.

THE ADULT moth body length varies between 12 millimetres (0.47 in) and 20 millimetres (0.79 in) with a wingspan of 3040 millimetres (1.21.6 in). The forewings are yellowish to orange in females and greenish-gray in males, with a slightly darker transversal band in the distal third. The external transversal and submarginal lines and the reniform spot are diffused. The hind wings are a pale yellow with a narrow brown band at the external edge and a dark round spot in the middle. It takes about 30days from egg to adulthood.

Economic importance: The greatest damage is caused to cotton, tomatoes, maize, chick peas,sorghum,millet,wheat/barley,alfalfa, soy beans, okra, garden eggs, sorrel/roselle, pepper, sunflower and tobacco. The economic threshold of harmfulness in central Asia is three to five larvae per hundred plants of long-staple cotton and eight to 12 larvae per hundred plants on medium-staple cotton. In cotton crops, blooms that have been attacked may open prematurely and stay fruitless. When the bolls are damaged, some will fall off and others will fail to produce lint or produce lint of an inferior quality. Secondary infections by fungi and bacteria are common and may lead to rotting of fruits. Injury to the growing tips of plants may disturb their development, maturity may be delayed and the fruits may be dropped.

Host plants: *H.armigera*is a highly polyphagous species. The most important crop hosts are tomato, cotton, pigeon pea, chickpea, sorghum and cowpea. Other hosts include groundnut, okra, peas, field beans, cowpea, soybeans, lucerne, *Phaseolus* spp., other Leguminosae, tobacco, potatoes, maize, flax,*Dianthus*, *Rosa*, *Pelargonium*, *Chrysanthemum*, *Lavandulaangustifolia*, a number of fruit trees, forest trees and a range of vegetable crops. In Russia and adjacent countries, the larvae populate more than 120 plant species, favouring *Solanum*, *Datura*, *Hyoscyamus*, *Atriplex*and *Amaranthus*genera.
H. armigeraH. Armigera



Plate 1a -c: *H. armigera* on sorghum, known as sorghum headworm

Plate 2 : *H. armigera* on pearlmillet, known as millet headworm

Plate 3 : *H. armigera* on wheat, known as wheat earworm



Plate 4a-c: *H. armigera* on maize cobs, known as maize ear worm/silkworm

Plate 5a-e: *H. armigera* on tomato fruits, known as tomato fruit worm

Plate 6a-b: *H. armigera* on pepper, known as pepper fruitworm

Plate 7a-b: *H. armigera* on cotton bolls, known as red cotton bollworm /African bollworm

Plate 8a -b: *H. armigera* on green beans pods, known as pod/budworm

Plate 9: *H. armigera* egg, larva, pupa & adult stages on okra fruit/fingers, known as okra fruitworm

Plate 10a -c: *H. armigera* on pigeon pea pods, known as pod/budworm

Plate 11 : *H. armigera* on sunflower, known as oil seed worm

Plate 12a-b: *H. armigera* on safflower capsules, known as oil seed worm

Plate 13 : *H. armigera* on Tobacco, known as tabacco fruit/leave worm

Plate 14: *H. armigera* on redgram pods, known as pod/budwormfruit/lea

Plate 15a-b: *H. armigera* on chickpea, known as chickpea podworm

BENEFICIAL IMPORTANCE OF *H. armigera*

The adult moth is a pollinator of flowers/ornamental and crop plants, while the larvae can be a pest on same plants or other crop plants after laying its eggs and hatched to larval stage which is the most destructive stage.

Plate 15a-c: *H. armigera* on as pollinator of flowers on different crop/ornamental plants

DAMAGE CAUSED BY *H. armigera* ON IT'S HOST PLANTS

Damage on **cereals** it infests the inflorescences of the productive parts (panicles and Cobs) from flowering to maturity causing premature flower drop which results to abortion of flowers and the larvae feeds on the developing grains and the faeces in addition causes qualitative damage with combination of puncturing the seeds which eventually makes the grain unfit for human consumption and devaluing the market prize as shown in Plates 1-4. Similar damage is caused on tomatoes and peppers, which makes the fruits unattractive and unfit for human consumptionand open entries for secondary infections by bacteria and fungi, Plates 5&6. On**cotton** crops, blooms that have been attacked may open prematurely and stay fruitless. When the bolls are damaged, some will fall off and others will fail to produce lint or produce lint of an inferior quality. Secondary infections by fungi and bacteria are common and may lead to rotting of fruits. Injury to the growing tips of plants may disturb their development, maturity may be delayed and the fruits may be dropped (Plate 7).

The African bollworm feeds on leaves, flowers and pods of **okra**. The main damage occurs on flowers and pods. Attack on flowers results in flower abortion. The caterpillar usually bore clean, circular holes in pods, causing extensive damage and promoting decay from secondary infection by diseases (Plate 9).Similarly on **pulses and oil seeds**, the flower and buds and pods are bored by the larvae, which eventually leads to premature shedding of flowers and pod drop. The pulses also becomes unfit for human consumption (Plates 8, 10, 11, 14 &15).*H. armigera* attack it's host plants fruiting bodies, which opens up wounds for secondary infections by pathogenic organisms causing severe disease damage on most Malvaceas family most especially **sorrel/roselle and kenaf;**Salaneceous crops such as **garden eggs** etc.

MANAGEMENT AND CONTROL MEASURES

At the early rains, H. armigera move to sprouting ratoon cotton, weeds, thrash and debris and survive also Okra, roselle, Kenaf, maize, sorghumetc which usually matures earlier than cotton one of its major host plant. They will feed on them, multiply until cotton bolls starts forming then they will migrate to cotton. Therefore, management and control of *H. armigera*could be divided into three sub-topics: cultural, insecticidal, biological and integrating any of the three has been successful especially in Americas and developed countries in Agriculture.

a).Cultural measures include:
i).Regular weeding to remove

Page 10