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Smoke moth Ephestia elutella (Hübner, 1796) (Lepidoptera: Phycitidae).

Carlos Henrique Marchiori[1]

1 Instituto Federal Goiano

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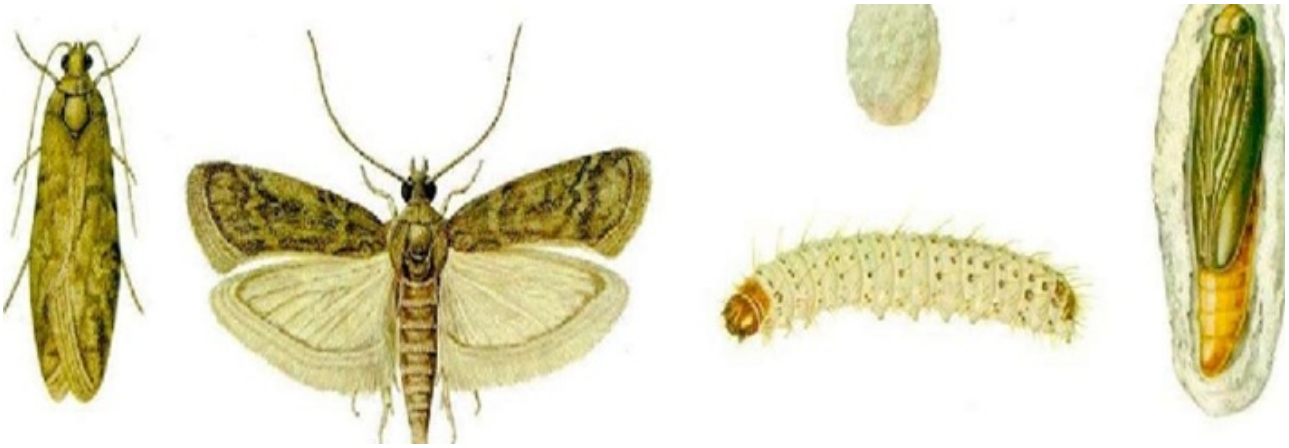
Co-authors: Marco Vinícios de Oliveira Santana[2] and Klebert de Paula Malheiros[3].

[2-3]Instituto Marco Santana, Goiânia, Goiás, Brazil.

Affected Crops: Cocoa, corn, Infests stored cocoa beans, tobacco leaves, dried fruits, nuts, cereals, and their products. It is associated with another species *Anagasta kuehniella* (Zeller, 1879) (Lepidoptera: Pyralidae). It is considered an important pest of stored cocoa. Very common in tropical and temperate climates. It is a pest of great importance as it damages flour, ground cereals, cocoa. Its life cycle is 50 or 90 days under ideal temperature conditions (Figure 1) [1-5].

Figure 1. Egg, pupa larva and adults *Ephestia*



elutella (Hübner, 1796) (Lepidoptera: Phycitidae). Source: https://www.sorhocam.com/tag.asp?sid=7171&ephestia-elutella-hubn-nedir.html.

The female lays 200 to 300 eggs on or near the almonds. The incubation period is approximately 4 to 12 days. Caterpillars reach up to 15 mm in length. After hatching, they attack the almonds, where they find easy penetration. Inside they weave a silky tube, where they remain until their development is complete. Caterpillars that do not find this easy penetration end up dying because they are unable to pierce the almond shell. The larval stage lasts about 32 days [5-7].

After the larval period ends, the larvae emerge from the almonds and form pupae in dark places. They leave a trail of silken threads that form a tangle on the walls of heavily infested warehouses. The pupa period lasts about 7 days. Adults

are grayish and have a wingspan of 20 mm. They have three white transverse striations on the forewings, one at the apex and two others dividing the wing into three parts, with the central one standing out as it is lighter. Longevity is approximately 15 days. They attack many cereals and their products, damaging quality, and quantity. The greatest damage is caused to cocoa beans and palm trees [8-10] (Figure 2).

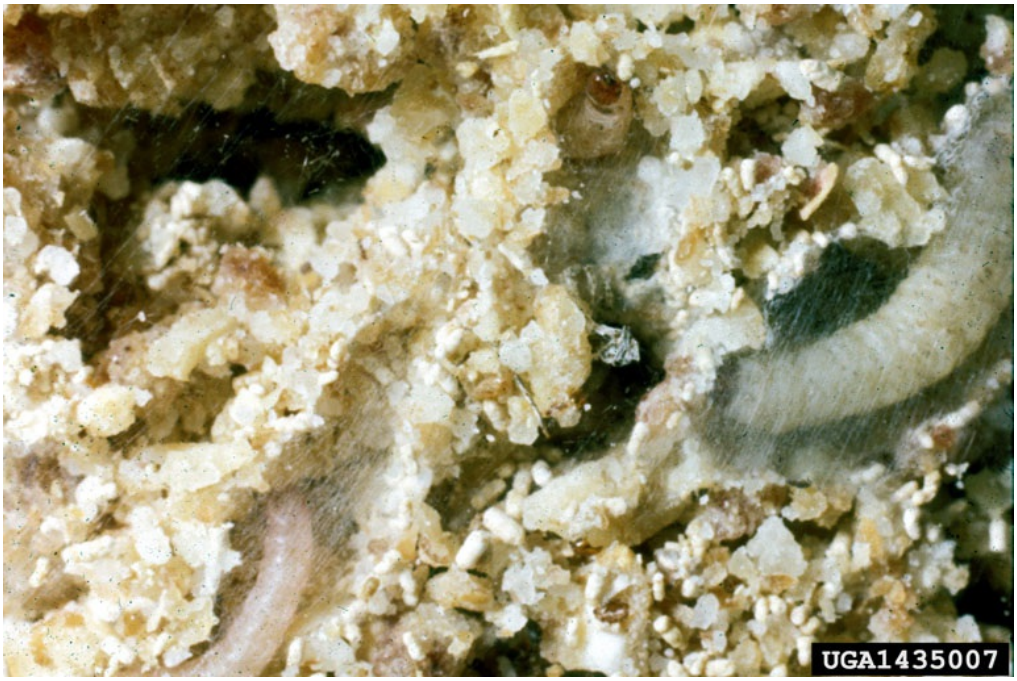


Figure 2. Tobacco moth *Ephestia elutella* (Hübner, 1796) (Lepidoptera larva. Source: Clemson University - USDA Cooperative Extension Slide Series.

Currently, the Ministry of Agriculture, Livestock and Supply has two pesticides registered to control this pest in tobacco cultivation, aluminum, or magnesium phosphide (Phosphine), classified as extremely toxic and highly dangerous to the environment, and the biological control agent *Habrobacon hebetor* (Hymenoptera: Braconidae) which is a phytosanitary product with approved use for organic agriculture. This wasp is widely studied due to its great potential as a biological control agent for pests in stored products [[8-10].

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