

The diamondback moth *Plutella xylostella* (Linnaeus, 1758) (Lepidoptera: Plutellidae)

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Potential competing interests: No potential competing interests to declare.

Affected Crops: Lettuce, alfalfa, cotton, peanuts, rice, potatoes, beetroot, broccoli, sugarcane, canola, chicory, coconut, kale, chinese cabbage, brussels sprouts, cauliflower, tobacco, cassava, passion fruit, corn, turnip, pastures, radish, cabbage, rubber tree implanted forest, Soybeans, all crops with occurrence of the biological target, Wheat (Figure 1) [1-2].



Figure 1. *Plutella xylostella* (Linnaeus, 1758) (Lepidoptera: Plutellidae). Source:

https://pt.wikipedia.org/wiki/Plutella_xylostella.

The moth is a small moth that is making the production of cabbage and other brachiaria (formerly known as crucifers) unviable. An important factor that increases this damage is the variety of plants that this moth can attack. The eggs of the cruciferous moth are oval and are generally found isolated on the upper or lower part of the leaves. After hatching, the larvae have four stages and are dark green in color when they feed on cruciferous leaves. To pupate, the larvae build a cocoon (Figure 2) [2-3].

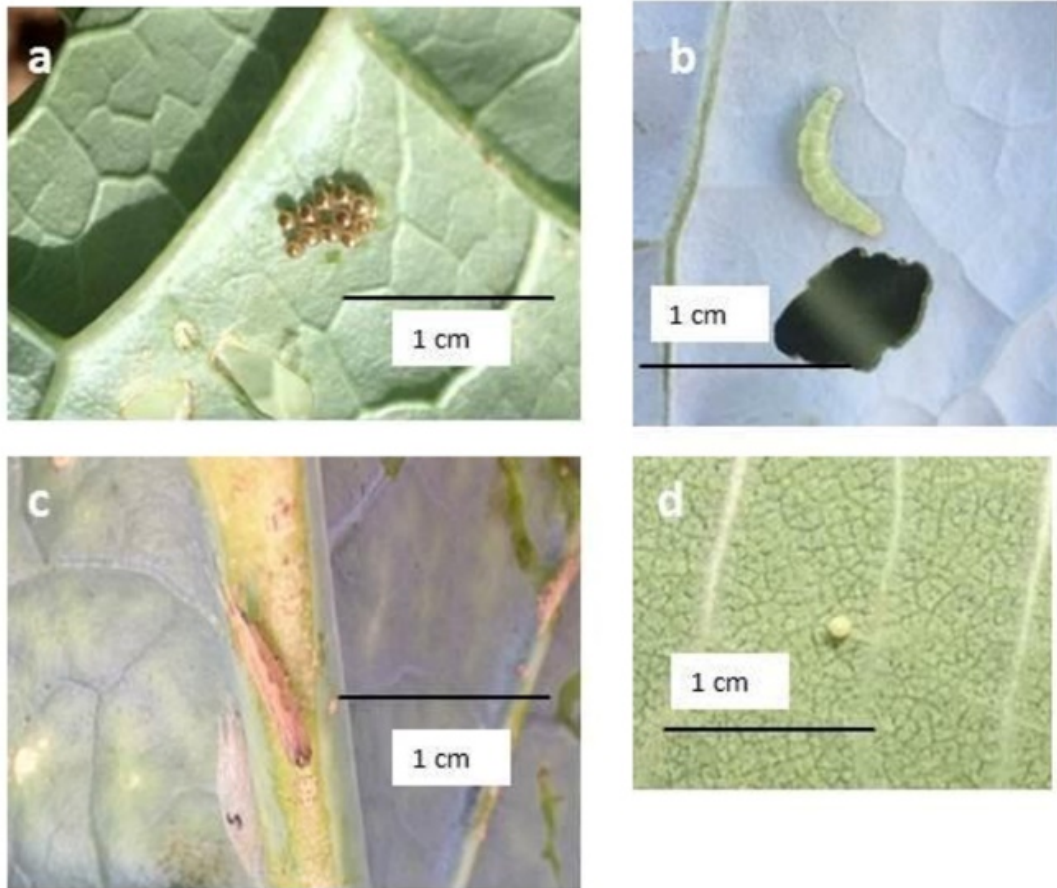


Figure 2. a. Window created in leaf by 2nd instar DBM larva b. 4th instar DBM larva feeding on a broccoli leaf c. Adult DBM beside its pupal case on an ornamental kale leaf d. DBM egg. Source: Kiera Newman and <https://api.semanticscholar.org/CorpusID:3889097>.

Adults fly at night and hide in the foliage during the day. Females are highly fertile and can lay up to 350 eggs during their life cycle. The period of egg-adult development depends on the environmental temperature: at 35°C the cycle is 12 days. The diamondback moth can occur throughout the year in brassica crops. During the rainy season, population density is low due to the removal of eggs from the leaves and the death of larvae and pupae by drowning. Periods with no rain and temperatures around 22°C favor population growth (Figure 2) [3-4].

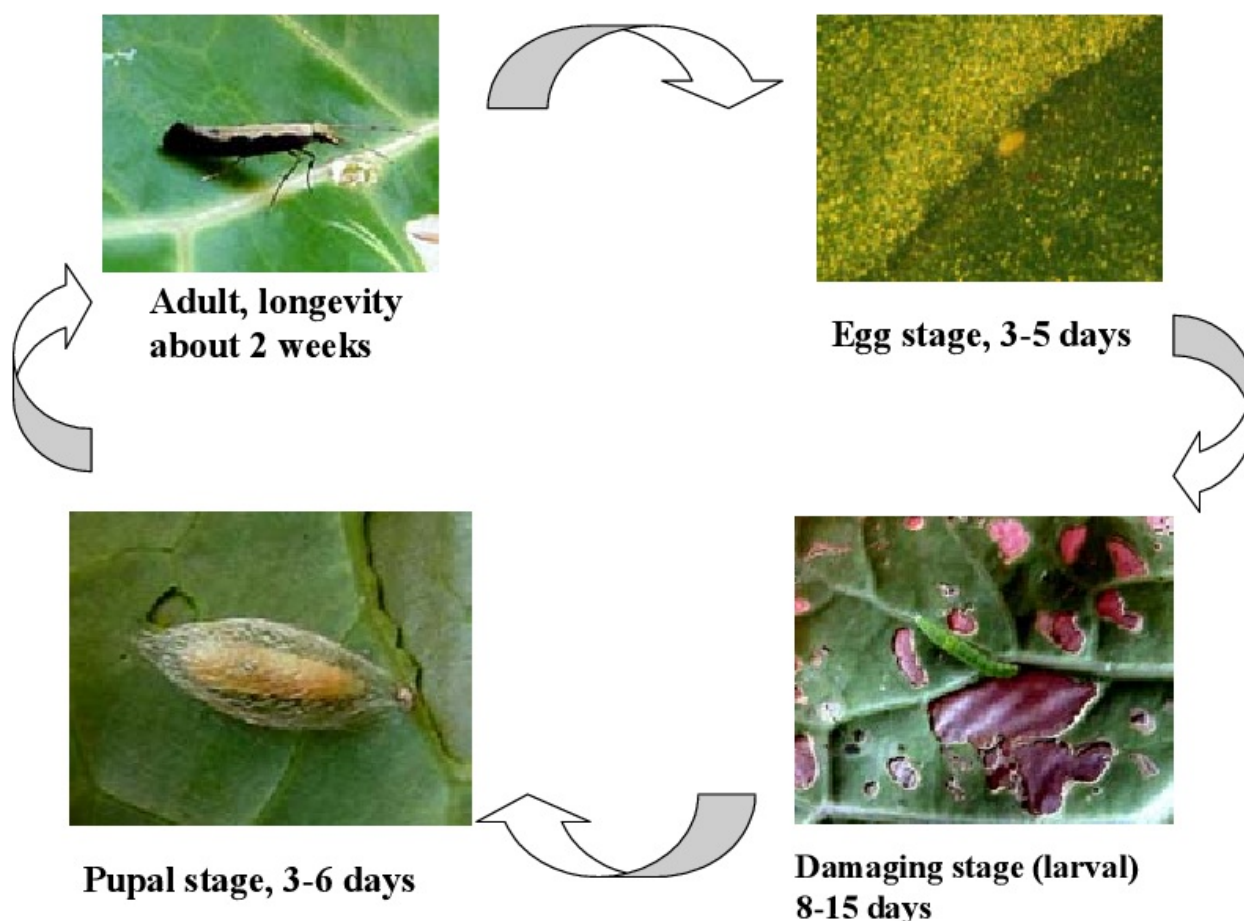


Figure 3. The life cycle of the diamondback moth, *Plutella xylostella* L. Sources: Photo Dr. B. Lohr and Corpus ID: 87566902.

Damage: The larvae, when young, scrape the underside of the leaves. In more advanced stages, the larvae pierce the leaves, making them unfit for consumption. **Mechanical control** - Collect the caterpillars and crush the eggs. **Control:** **Biological control** - Use *Bacillus thuringiensis* and parasitoids *Diadegma* sp (Hymenoptera: Ichneumonidae) and *Apanteles* sp (Hymenoptera: Braconidae) are the most common parasitoids. *Apanteles* sp can be easily identified by the white pupae present in crops. **Chemical control** - Spray with specific insecticides, registered for crops [5-7].

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