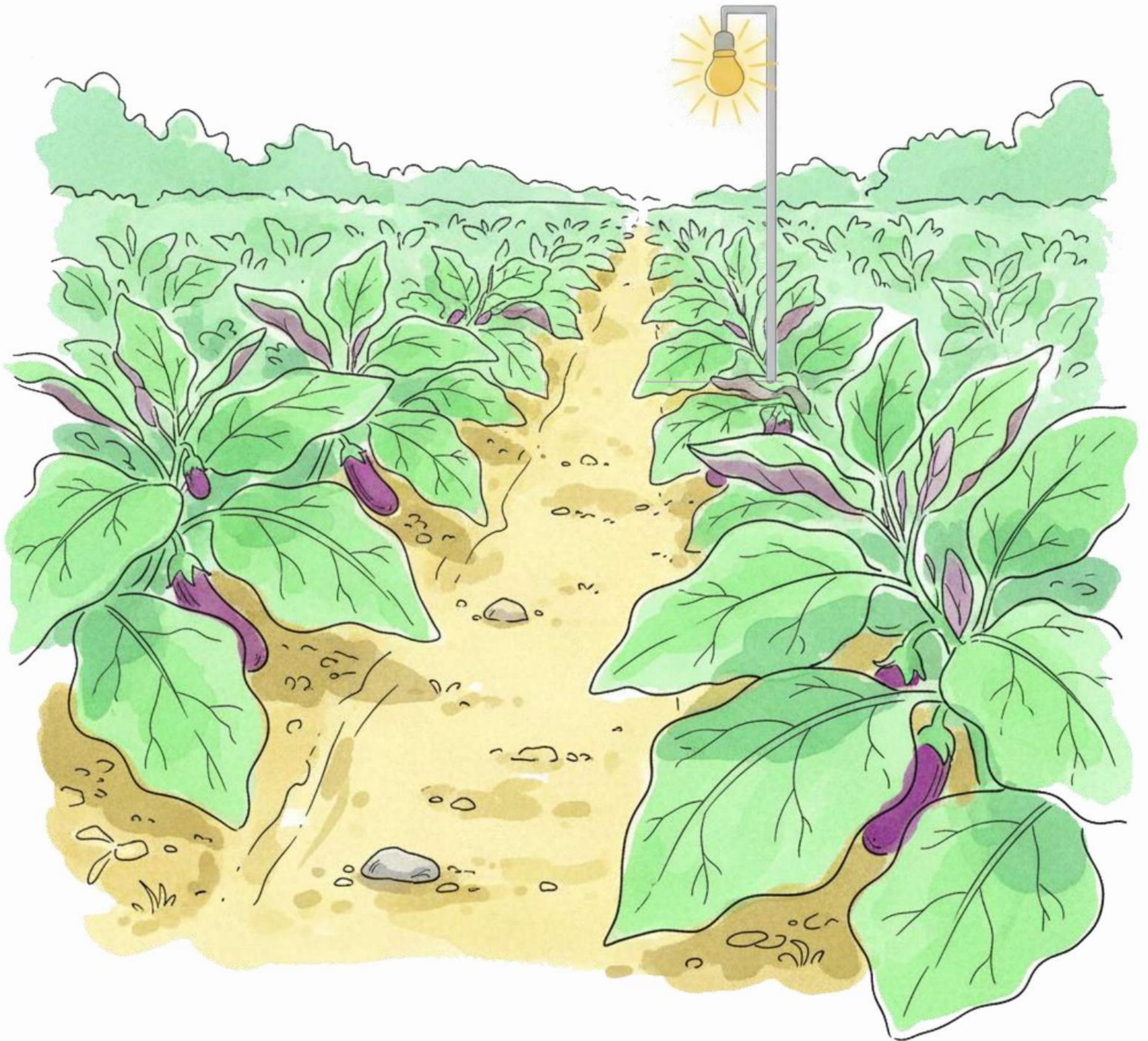


Guide on using special yellow color LED moth repellent bulbs in Brinjal Farming



The Project for Promotion of Safe and Appropriate Use of Pesticides and Fertilizers in Sri Lanka (SAFE)



Introduction:

This manual introduces an eco-friendly pest management strategy using yellow LED moth repellent bulbs to promote the sustainable and productive Brinjal farming.

Brinjal cultivation in Sri Lanka, particularly in the districts such as Matale, Anuradhapura, Monaragala, Kurunegala, Puttalam and Hambanthota, faces severe challenges from shoot and fruit borer infestations.

Due to the higher frequency and severity of the pest damage, significant control efforts have been required, and it is widely known that farmers tend to overuse pesticides to protect their brinjal crop from shoot borer, especially during the onset of flowering.

It has been identified that the blinking yellow LED lights can repel shoot and fruit borer, suppressing their behavior effectively, even in small open-field areas.



Pest Control Technology Using Yellow LED Moth Repellent Bulbs:

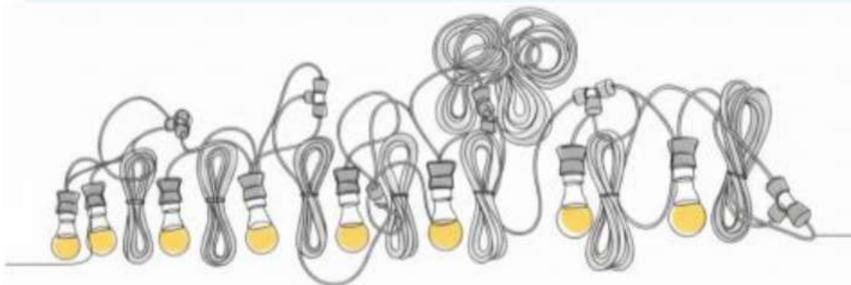
Minimum Illuminance Requirements

Scientific trials have demonstrated that a **minimum illuminance of 277 lux** from yellow LED lights effectively suppresses night moth activity.



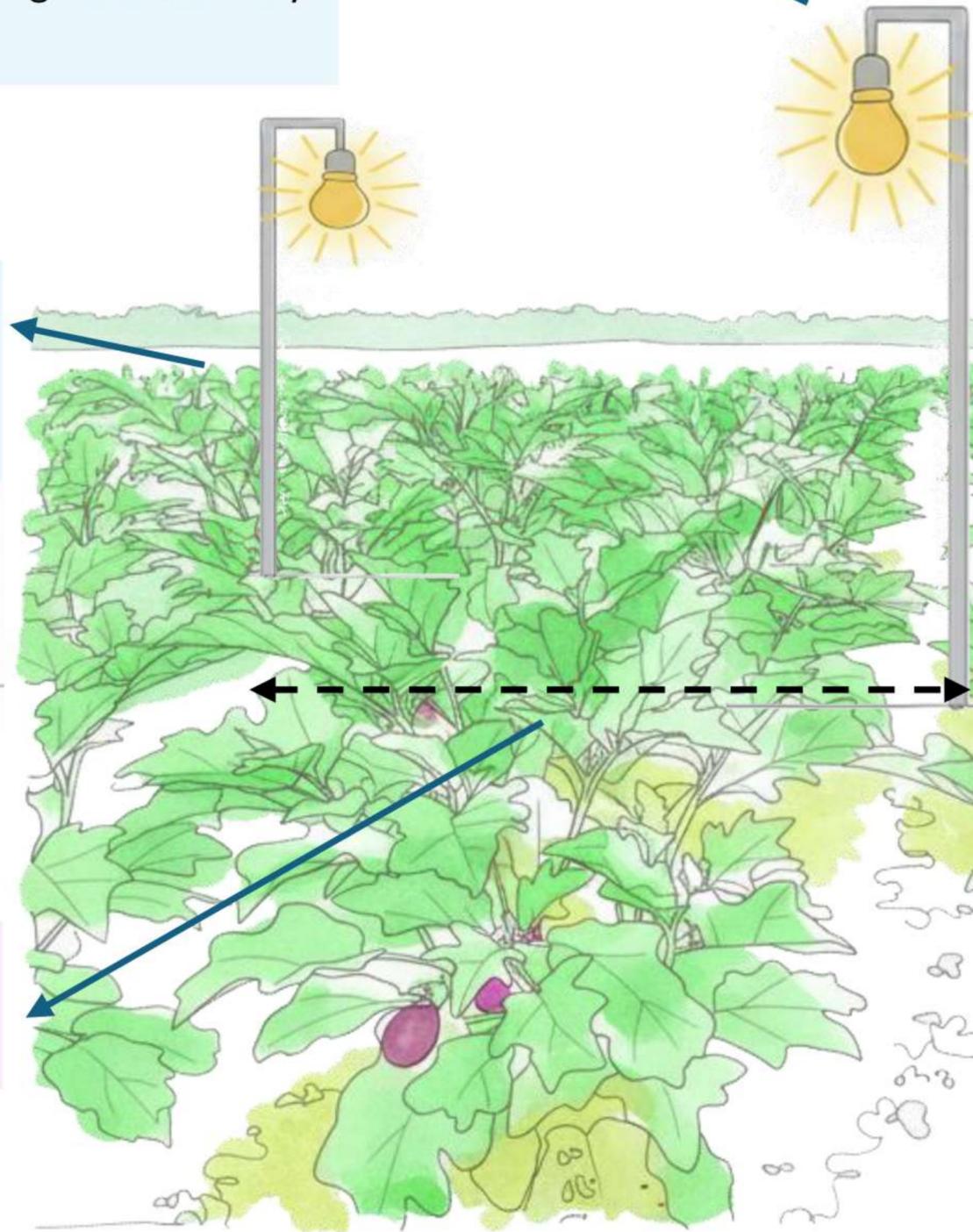
Number of Bulbs

Use **9 bulbs per 1,000 m²** for optimal coverage.



Spacing

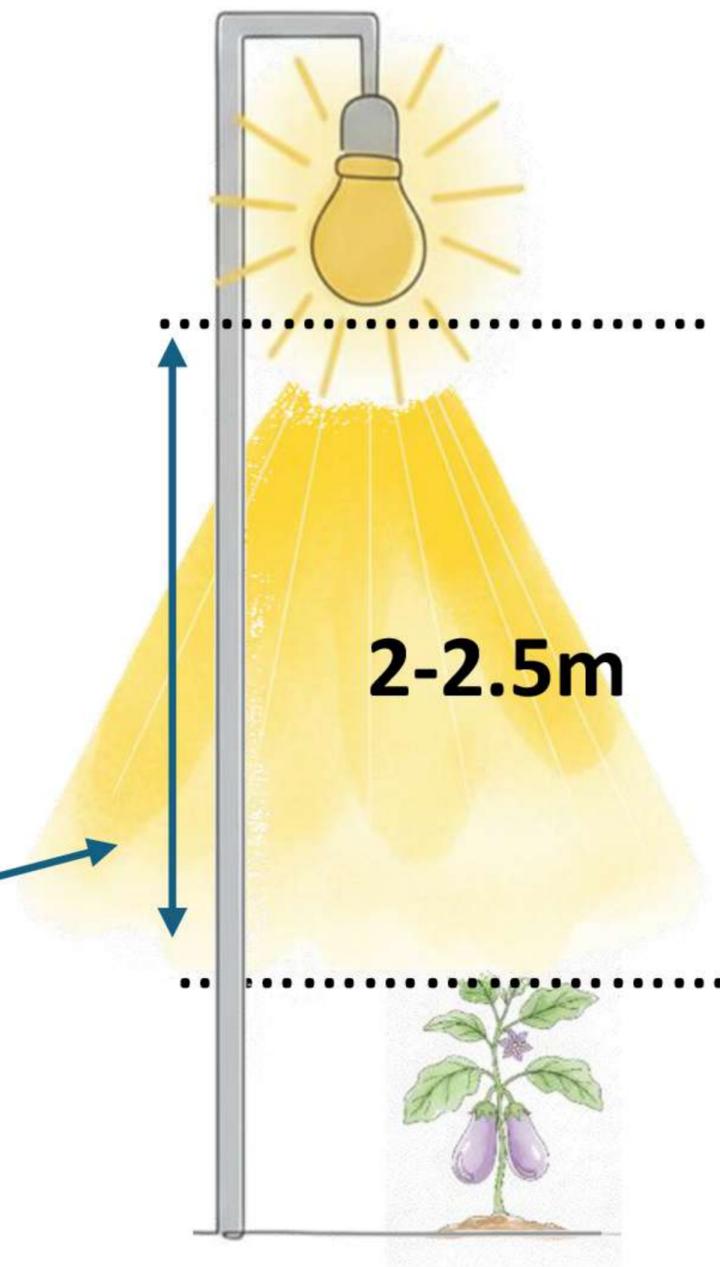
Install the bulbs **7-10 meters apart**.



Supplementary Measures

Surround the field with a 3 meters **height 40-mesh insect-proof** net to enhance the effectiveness of the bulbs and protect against other pests. Yellow bulbs may not achieve their full potential without insect-proof nets, so caution is required.

The initial setup cost of this technology is approximately 1.52 Lakh Rs. per 1,000 m², with a lifespan of 5 years.



Height

Position the bulbs **2-2.5 meters** above the crop canopy.



Activating the system

This particular blinking LED bulb system needs to be activated around 6.30 pm each day and de-activated (switch off) around 6.30 am the next day.

Without any disruptions, the bulb system needs to be continuously operated to get the maximum result.

The appropriate use of pesticides:

In case of severe infestations of shoot & fruit borer, a limited applications of recommended pesticides can be done appropriately.

Demonstration summary:

Field demonstrations across multiple regions validated the efficacy of yellow LED moth repellent bulbs in brinjal cultivation from 2018 to 2023 and also approved by the Technology Releasing committee meeting as DoA recommended technology in 2022.

The trials showed significant reductions in pest-related damage, with crop losses decreasing from 50% to 10% on average.

Additionally, the frequency of chemical pesticide applications was reduced by over 60% to 70% (from 10 sprays to 3-4 sprays per season), contributing to cost savings and environmental benefits.

Points to note when using the manual:

- During the early stages of planting, ensure that the yellow LED bulbs are installed and operational before transplanting the seedlings.
- This timing is critical to prevent early infestations and ensure optimal pest control.

Prepared by the project for the promotion of safe and appropriate use of pesticides and fertilizers in Sri Lanka, implemented by the Department of Agriculture and the Japan International Cooperation Agency (JICA).

November 2025