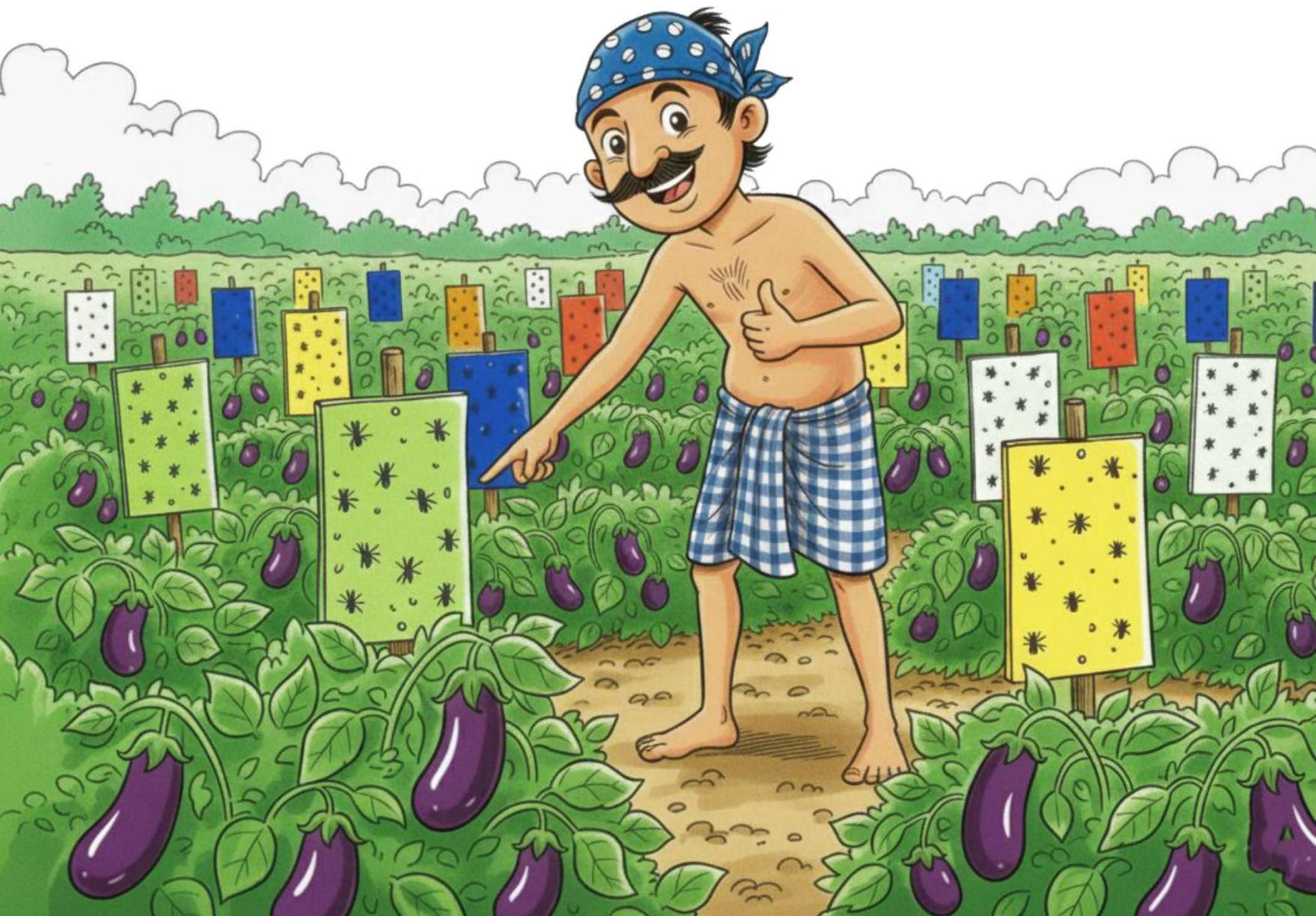




Guide on use of color sticky traps on Brinjal

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



Purpose:

Brinjal is a key vegetable crop in many regions of Sri Lanka. But its production is often threatened by a wide range of insect pests that, if not managed properly, can cause substantial yield losses. In brinjal cultivation, hopper burn is the primary pest issue, apart from shoot and fruit borer.

Integrated Pest Management (IPM) strategies emphasize the importance of timely pest monitoring to minimize the use of chemical pesticides and reduce environmental impacts. Sticky traps are commonly used for monitoring and controlling insects.

Many living things have a preference for specific colors (wavelengths). Among these, the color preference of insects shows a very remarkable tendency. Color sticky traps are a practical application of insect behavior control technology that utilizes this color preference. In the case of brinjal, color sticky traps can attract mainly sucking pests.

This guide introduces how to place and use sticky traps in a farmer's field. This also includes precautions and future issues when introducing color sticky traps in cultivation of brinjal.

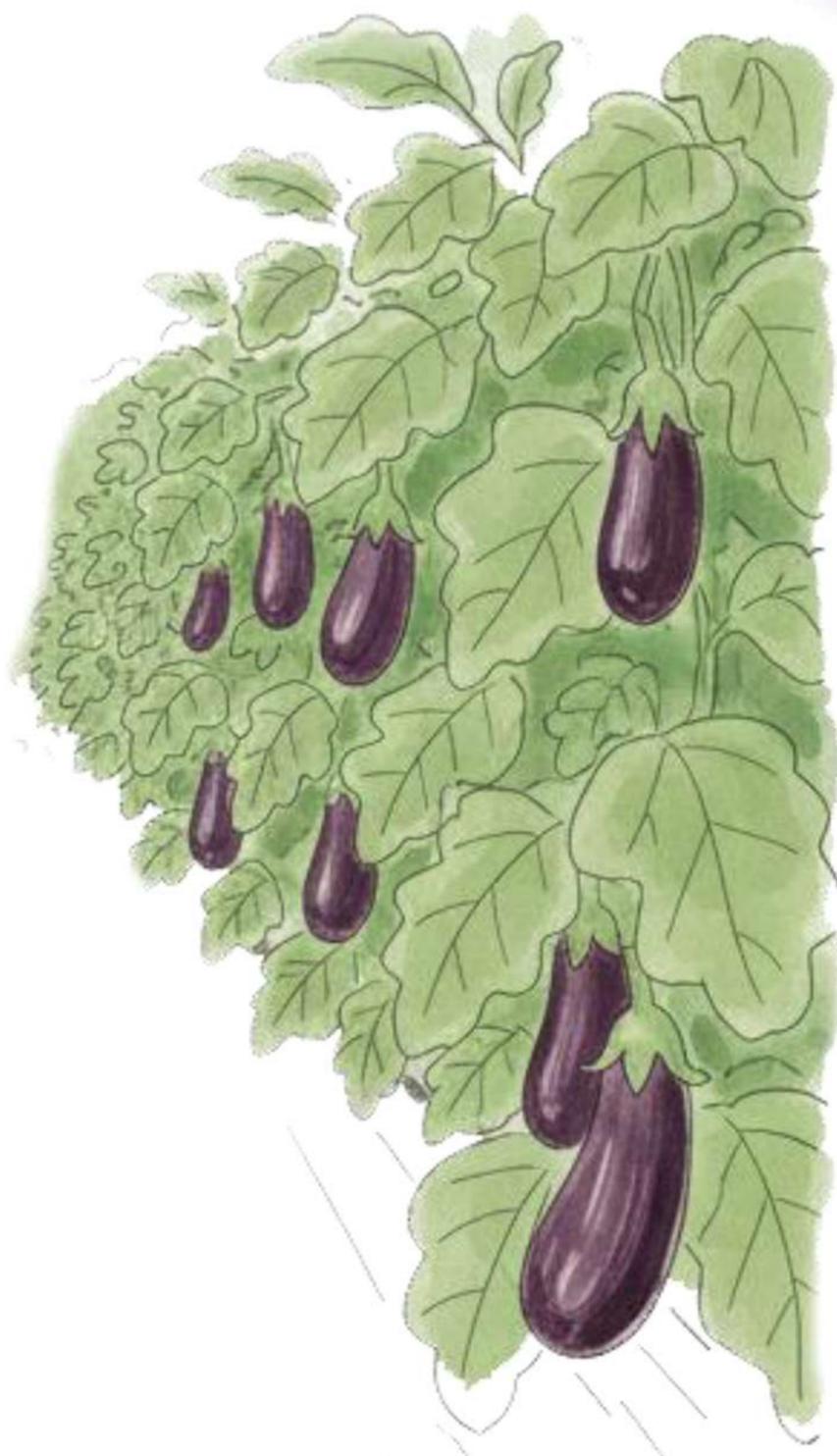


Table 1: Pests of brinjal attracted to different colors

Color	Attracted Pests
Yellow	White flies, Aphids, Leafhoppers, Thrips, Leaf miners
Blue	Thrips
Green	Leafhoppers, Aphids
Red	Leafhoppers, Thrips
White	Thrips, Leafhoppers, Aphids

Note: Insect shown in **bold** based on the result of trial in Matale district in 2024

Pest monitoring & control technology using color sticky traps:

(1) Technology content

Color sticky traps are a physical pest control material that visually attract pests and mechanically capture them and are widely used as a pest control method that meet today's demand for "agricultural crop safety" and "environmental consideration," especially in protected houses.

Usually Color water-proof sheets with color and extremely sticky glue are used to make the trap. The glue is applied on both sides of the sheet. Commercial ones are also available in the market.



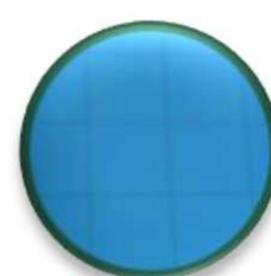
Double - side adhesive



Super strong adhesive



Waterproof



Full sheet adhesive

Figure 1: Four important features of sticky trap

(2) Types of color sticky traps and installation methods

• Color and size

There are mainly 5 colors (yellow, blue, red, green and white) available. Size varies based on necessity. Sometimes, roll type (10 cm width and 100 m length) is also available. Tested ones are 20 cm x 30 cm.

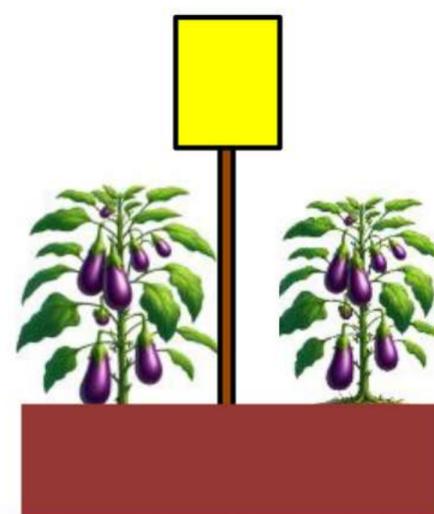


Figure 2: 5 colors of sticky trap (size: 20cm width x 30 cm length)

• Installation method

I. Monitoring of pest outbreaks

After planting, hang about 10 pieces of sticky traps per 1,000 m² about 15 cm above the crop canopy. The height of the crop increases as it grows. Therefore, the length of the stick should be more than 150 cm (Crop height 100 cm +above 15 cm +Sticky trap Length 20 cm +inserted part in soil 15cm). It is necessary to change the installation height accordingly.



Set the sticky traps 15 cm above the brinjals

Figure 3: How to install sticky traps for monitoring purpose

ii. Control purpose in another countries

In Sri Lanka, brinjal is not cultivated in protected houses. In other countries, brinjal is cultivated in polyhouse and sticky traps are used for control purposes. After planting, hang 100 to 400 sticky traps per 1,000 m² approximately 15 cm above the crop canopy. Some chemical pesticides have low insecticidal effects on adult insects, so by using them in combination to capture adult insects by sticky trap, the next generation can be suppressed.



Figure 4: How to install sticky traps for control purpose

(3) Demonstration summary:

During the sticky trap installation period in two locations, insecticides were not applied to control the sucking pests except mites. twenty sheets comprising of 5 colors were installed in approximately 1000 m² area. Followings are the findings from the trial:

- Yellow color sticky traps attracted the highest number of insects including sucking pests of brinjal such as Leafhoppers, White flies, Aphids and Thrips.
- The highest number of thrips were attracted to the blue color traps followed by white and yellow.
- Red color attracts the lower number of pests, and it is not suitable to monitor the pests of brinjal.
- Fruit and shoot borer moths were not attracted to any color tested (Yellow, blue, green, white and red) hence have to follow separate/especially control methods.
- In addition to pests, beneficial insects and neutral insects were attracted to the yellow color.
- Hopper burn is a severe problem in brinjal so that yellow color sticky traps can be used while green or white color traps for early monitoring.
- Early monitoring of the pest is very important to make decisions about pest control. When the pest incidence damage was severe, it was difficult to control the pest and had to do frequent insecticide applications.

(4) Points to note when using sticky traps:

(1) The presence of beneficial insects and neutral insects

During the trial period, the study recorded the presence of beneficial insects and neutral insects (Insects that were neither pests nor natural enemies). Each colored sticky trap was first examined for beneficial insects, such as predators and parasitoids, and then neutral insects were identified and recorded up to their “order” level for unfamiliar insects.

(2) Adjusting of installed height above the crop canopy

When using, it is necessary to adjust the position of sticky traps following the growth of crops. The location of the color sticky trap from the crop should always be kept at 10-30 cm above the crop canopy

(3) How to store and dispose

Install and store them in a place where infants and pets cannot touch them. If dust, dirt, oil, etc. adhere to the adhesive surface, the capture effect will decrease, so be careful when handling them. Store in a cool, dark place avoiding direct sunlight, high temperature and humidity. After use, do not leave them in the garden, etc., and dispose of them appropriately.

Reference: pictures of pests trapped by color sticky traps under trial



White Flies (yellow)



Aphids (yellow)



Leafhoppers (yellow and green)



Thrips (blue and white)

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).

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