Guide for Use of Color Sticky Traps on Cabbage

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

Purpose:

Cabbage is one of the major vegetable crops in Sri Lanka and insect infestations pose a significant challenge to its production. Serious damage is caused by the cabbage caterpillar complex, which includes the larvae of diamondback moth (*Plutella xylostella*), cabbage semi-looper (*Chrysodeixis eriosoma*), cabbage cluster caterpillar (*Crocidolomia pavonana*) and cabbage webworm (*Hellula undalis*). Aphids (*Myzus persicae*) and cutworms (*Agrotis spp.*) also cause damage. Managing the cabbage caterpillar complex is a challenge and prevention and early treatment are essential to suppress pest damage and minimize crop loss.

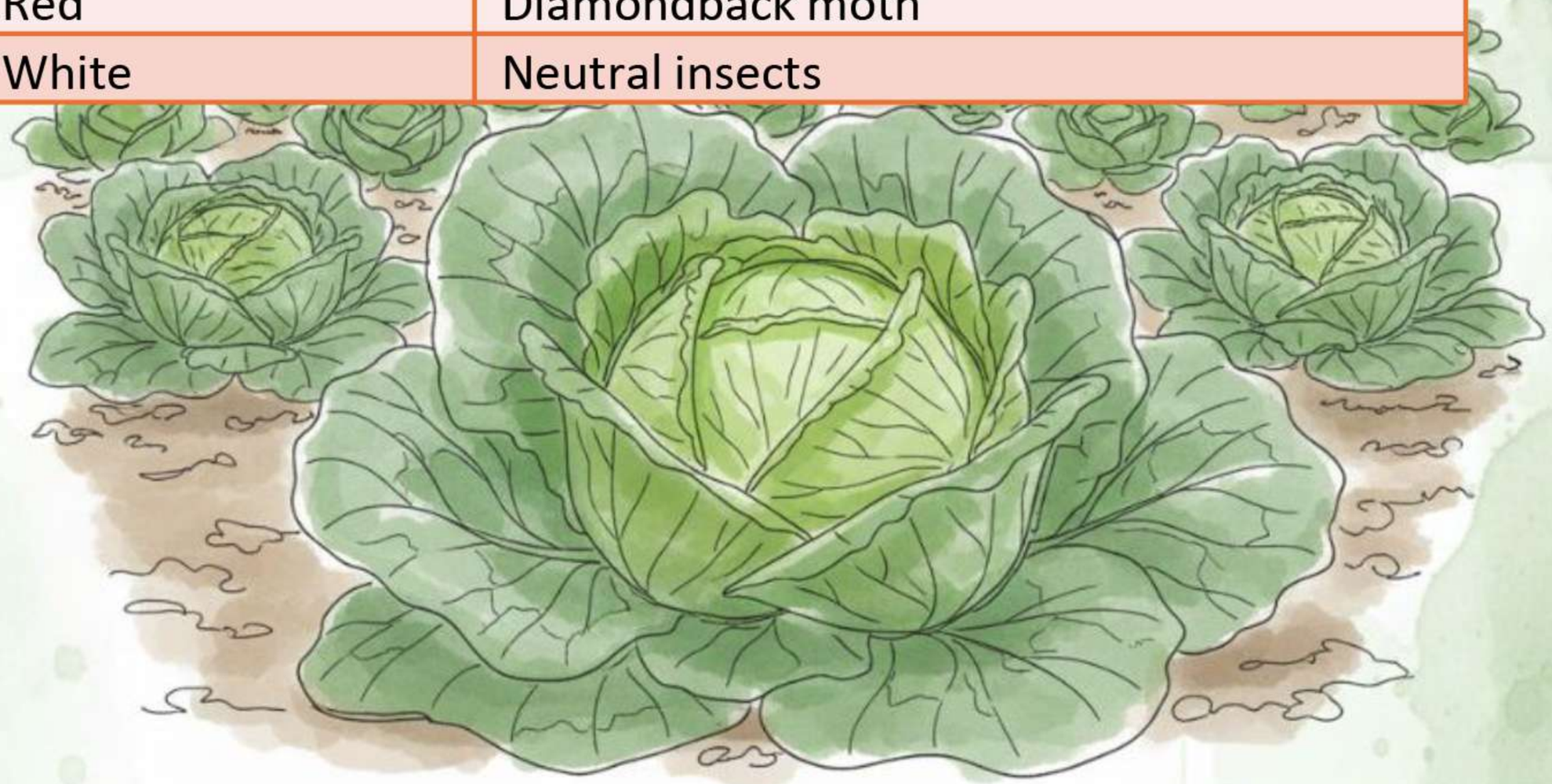
Integrated Pest Management (IPM) strategies emphasize the importance of timely pest monitoring to minimize the use of chemical pesticides and reduce environmental impacts. Sticky traps are commonly used for monitoring and controlling insects.

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.

This guide introduces how to place and use sticky traps in farmer's fields. This also includes precautions and future issues when introducing sticky traps for the cultivation of cabbage.

Table 1: Pests of cabbage attracted to different colours

Color	Attracted Pests
Yellow	Beneficial insects
Blue	Beneficial insects
Green	Diamondback moth
Red	Diamondback moth
White	Neutral insects



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Pest monitoring and control technology using color sticky traps:

(1) Technology content

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

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

Figure 1: Four important features of sticky trap

(2) Types of color sticky traps and installation methods

- **Color and size**

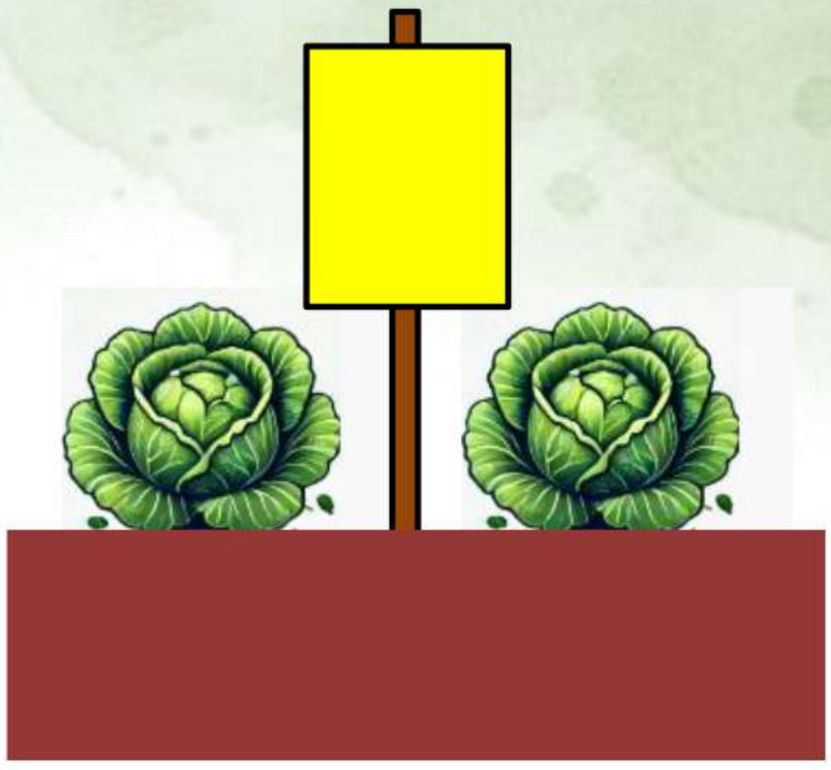
There are mainly 5 colors (yellow, blue, red, green and white) available. According to a study conducted at HORDI, a green sticky trap is the best one. However, its availability was questioned. Therefore, yellow sticky traps are recommended as a second choice. Size varies based on necessity. Sometimes, roll type (10 cm width and 100 m length) is also available. Tested ones are 20 cm x 30 cm in size.

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

- **Installation method**

1. <u>For monitoring purpose in fields</u>

After planting, hang about 10 pieces of sticky traps per 1,000 m2 just above the cabbage canopy. The height of the crop increases as it grows. Therefore, the length of the stick should be more than 75 cm (Crop height 40 cm + Sticky trap length 20 cm + inserted part in soil 15 cm). It is necessary to change the installation height accordingly.



Set the sticky traps at the same height as the cabbages.

Figure 3: How to install sticky traps for monitoring purpose

ii. <u>For control purpose in protected houses</u>

After planting, hang 100 to 400 sticky traps per 1000 m2 just above the cabbage 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:

The trials were conducted at farmer fields at Seetha Eliya and Meepilimana. Followings are the findings from the trials:

- Sticky trap color significantly influences the capture rates of various insect groups.
- Green and red traps are the most effective for controlling diamondback moths.
- Red traps demonstrate greater efficacy in capturing other pest insects.
- White traps attract the highest number of neutral insects.
- Yellow and blue traps are more effective in attracting beneficial insects.

(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). White color traps attracted the highest number of neutral insects. Yellow and Blue traps are more effective in attaching beneficial insects.

(1) 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 color sticky traps from the crop should always be kept at 10-30 cm above the 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

https://plantwiseplusknowledgebank.org/doi/full/10.1079/pwkb.20147800328

Diamondback moth (Green and red)

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