



GUIDELINE ON USE OF TRICHO CARD IN CROP PEST MANAGEMENT

(PROMOTION OF NEED-BASED PLANT PROTECTION)

DEPARTMENT OF AGRICULTURE & FARMERS EMPOWERMENT, ODISHA

INTRODUCTION:

Indiscriminate use of pesticides can lead to one or more effects, such as deterioration of health due to direct or indirect exposure to hazardous chemicals, water, and soil pollution through surface runoff and leaching, and pesticide residues through the food chain. Hence, it is the need of time to incorporate bio-control agents in pest management systems. In this context, *Trichogramma* spp, which is primarily an egg parasite of Lepidoptera, Coleoptera, Diptera, Hemiptera, Hymenoptera, and Neuroptera pest is an effective bio-control agent. Being an egg parasite, the female drills a hole through the chorion and deposits its eggs within the egg of the host. Female parasitizes from one to ten eggs per day or from ten to 190 during her life. Fecundity varies from 20 to 200 eggs per female according to the species, the host, and the longevity of the adult. During the 3rd instar (3 to 4 days after the host egg was parasitized) dark melanin granules are deposited on the inner surface of the egg chorion, causing the host egg to turn black. This is an invaluable diagnostic character for distinguishing them from unparasitized eggs. Larvae then transform to the inactive pupal stage. The adult wasps emerge from the pupae and escape the host egg by chewing a circular hole in the eggshell.

***Trichogramma* species.**

1. : *Trichogramma japonicum*
2. *Trichogramma chilonis*

What is a Tricho Card?

The eggs of *Corcyra cephalonica*, commonly known as rice moths, are obtained and prepared for the tricho-card process. It is mentioned that one-cc (cubic centimeter) eggs are used. Tricho card of 18 X 9 cm contains approximately 18000-20000 parasitized eggs. To stop *Trichogramma* from appearing, store these cards in the refrigerator between 5 and 10 degrees Celsius for 10-15 days. After the cards are exposed to the environment's temperature, the parasitoids come out properly. Tricho-cards have a 2-3 days shelf life. But these remain perfect for a month when stored in a refrigerator.

How to use a Tricho Card?

During each release, trichocards should be cut into 3 pieces and stapled to the lower side of the leaf of the plant during morning or evening hours. It is important to

release the parasites during the cool hours of the day, either in the morning or evening. This helps ensure favorable conditions for the *Trichogramma* wasps. Releasing them in a windward direction can facilitate their dispersal across the field.

Doses of Tricho card on different crops:

Name of the Crop	Pest infestation	Application of nos of Tricho card per Acre	When to Use Tricho card
Paddy	Stem borer, Leaf folder	2 to 3	Applied usually from the 30th day after transplantation. Five to six such releases are made at every 7-10 days intervals till egg masses or moth activity is not seen, whichever is earlier.
Sugarcane	Early Shoot borer, Internal borer, Top borer	3	Usually applied 40-45 days after planting. Five to six such releases are made at every 7-10 days interval.
Cotton	Bollworm	2	Applied 40-45 days after sowing. Usually, 3 to 4 releases are made at 7-day intervals.
Brinjal	Fruit and stem borer	2	Applied after flowering. Usually 5 to 6 releases at 5 to 6 days intervals.
Okra/ Bhendi	Fruit borer	2	Applied after flowering. Usually 5 to 6 releases at 5 to 6 days intervals.
Tomato	Fruit borer	2	Applied 45 days after planting. Usually, 5 to 6 releases are

			made at 7-day intervals.
Cabbage	Diamondback moth	2	Applied 25 days after planting. Usually, 5 to 6 releases are made at 7 day intervals.

SOP for Tricho card:

The programme covers all the blocks of 30 districts. Every year the target will be allotted to the concerned CDAOs by the JDA (PP), BBSR.

Role of CDAOs: CDAOs to distribute the target to the concerned BAOs @ 250 no's of Trico cards per block. The CDAOs are to take periodic reviews and submit the achievement report to the JDA (PP). The block where there is no BAO, the target will be distributed/ allotted to the AAO of the concerned blocks.

Role of AAOs / BAOs: The AAOs / BAOs of the concerned block shall distribute the target to VAW/AOs/ GP wise whichever is suitable.

Beneficiaries: The farmers having the pest incidents in their fields can avail of the Trico card @ Rs. 10/-per card in their respective Block Agriculture office.

The collected amount of Rs.@ 10/-per Tricho card from the farmers should be deposited in the following account number.

Name -Joint Director of Agriculture /Plant Protection)

A/c no:- 11109327637

IFSC Code-SBIN0009025

MICR-751002006

Bank -SBI, Govt. Treasure Branch.

District-wise allotment of the SBCL/BCFSs/BCLs

Sl. No.	Name of SBCL/BCFSs/BCLs	Allotted District to take Tricho cards to the concerned District
1	SBCL, Bhubaneswar	Khordha, puri, Cuttack
2	BCFS, Berhmapur, Ganjam	Ganjam, Gajapati

3	BCFS, Chandpur	Dhenkanal, Angul
4	BCFS, Nayagarh	Nayagarh, Boudh, Kandhamal
5	BCL, Jagatsinghpur	Jagatsinghpur, Kendrapara
6	BCFS, Balasore	Balasore, Bhadrak, Jajpur
7	BCFS, Baripada (Mayurbhanj)	Mayurbhanj, Keonjhar
8	BCFS, Sundargarh	Sundargarh, Jharsuguda, Deogarh
9	BCL, Sambalpur	Baragarh, Bolangir, Sambalpur, Sonepur,
10	BCL, Rayagada	Koraput, Malkanagiri, Rayagada
11	BCL, Bhawanipatna (Kalahandi)	Kalahandi, Nabarangapur, Nuapada

N.B: If any district faces a shortage of Tricho cards, then the concerned district can avail the same from SBCL, Bhubaneswar.

Advantages of using Tricho Cards

- Tricho-cards are considered cheaper compared to other approaches to pest control.
- The application of Tricho-cards in the field is relatively straightforward.
- Records indicate that the use of Tricho-cards can result in an increased sugarcane yield of approximately 4-5 tonnes.
- The cost of pest treatment using Tricho-cards is mentioned to be affordable.
- In addition to the aforementioned benefits, the use of Tricho-cards for pest control helps prevent environmental harm.
- Overall, the advantages of using Tricho-cards encompass cost-effectiveness, ease of field application, increased crop output, affordability of pest treatment, and environmental friendliness.
- No negative impact on populations of beneficial insects (natural enemies and pollinators) as well as humans and livestock's.

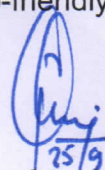
Precaution :

The following precautions must be taken when employing Trichocards:

- When using Tricho-cards, it is important to stack them in a way that the parasitized surface (the surface with the *Trichogramma* wasps) is on the inside of each card.
- It is advisable to include the emergence date on the Tricho-cards. This information can be helpful for users in determining the timing of emergence and monitoring its effectiveness.
- Tricho-cards should be fastened to the inside of the leaf, protecting them from direct sunlight
- The Tricho-cards should be affixed in the morning and just before the emergence of the *Trichogramma* wasps.
- Pesticide is generally not recommended in the field where *Trichogramma* has been released.

Programme outcome:

To save the crop and reduce crop loss due to the occurrence of various pest incidence in different crops like Paddy, Cotton, Maize, Sugarcane, Brinjal, Tomato, Okra, Cabbage and other important crops. So, the benefit of the use of a Tricho card is not limited to reduce the pest infestation but also a sustainable and eco-friendly pest control measure.



Director of Agriculture

& Food Production(O)

