Agricultural Innovation and Entrepreneurship – A Success Story

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GO GREEN
SAVE GREEN

INTRODUCTION

Stored product Pests

- **Internal feeders**
- **External feeders**

6.53 %

- **Storage losses in food grains**

01 Insects 2.5 %

02 Rodents 2.5 %

03 Birds 0.85 %

04 Moisture 0.68 %

CURRENT STATUS

“No Granaries can be filled with grain without insect in country like ours” - because of

- **Field carry over infestation**
- **Cross infestation**

TECHNOLOGIES DEVELOPED

TNAU
PROBE TRAP

TNAU
PITFALL TRAP

TNAU
TWO IN ONE MODEL

TNAU
FLOUR TRAP

TNAU
UV LIGHT TRAP

TNAU
AUTOMATIC INSECT
REMOVAL BIN

TNAU
EGG REMOVAL DEVICE

TNAU
STACK PROBE TRAP

TNAU
STORED GRAIN INSECT
PEST MANAGEMENT KIT

My innovation lead the birth and growth of Four Entrepreneurs in India

1. KSNM MARKETING (2002)

SF No.29/1B, Ona Palayam, Siruvani Water Line Road,

Dheenam Palayam Post, Coimbatore., Tamil Nadu - 641 109, India

Web : www.ksnmmarketing.com, Email : ksnmmarketing@hotmail.com

2. MELWIN ENGINEERING (2011)

18/2, Gandhi Street, Bharathi Nagar, Podanur (PO),

Coimbatore – 641 023. , Tamil Nadu, India.

Email : anitathomascs10@gmail.co

3. M/s. KHUSBOO ENTERPRISES (2014)

AZIZ Complex, Panbazar, Guwahati,

Assam, India

Email : ravi_agarwal8@yahoo.com

4. M/s. Sri Vrintha Traders. (2019)

164/4, Basmathi Complex, Balaji Nagar, Sidhapudur, Coimbatore – 44.

Tamil Nadu, India., Phone : +91 9865464448, +91 422 2243989

Email : srivrinthatraders@gmail.com

Technology 1

First Model 1993
TNAU Stored grain insect trap

Plastic Preliminary Model Trap (Mohan trap)

Awarded a cash of 5000 INR

SURPRISE EVENT - 1

Tamil Nadu Government named this model '**MOHAN TRAP**' through a **Government Order.**

Commercial Launching of TNAU Probe Trap

COMMERCIAL MODEL

2002
A Great Vice – Chancellor
who sowed the seed for "Commercialization" of Trap

Commercial Launching of TNAU Probe Trap by TNAU in 2002

6 inches

12 inches

TNAU PROBE TRAPS

Technologies to detect insect presence at early stage in commodities

TNAU - Probe Trap:

The use of trap is relatively a new method of detecting, trapping insects in stored grains. The basic components of a TNAU probe trap consists of three important parts: A main tube, insect trapping tube and a detachable cone at the bottom. Equispaced perforations of 2 mm diameter are made in the main tube.

NOTE : For whole pulses use 3mm perforation.

Concept: Insects love “AIR” and move towards air. This behaviour of the insect is exploited in this technology.

TNAU PROBE TRAPS

Technologies to detect insect presence at early stage in commodities

6 inches

12 inches

Method of working:

The insect trap has to be kept in the grain like rice, wheat etc., vertically with the white plastic cone downside as shown the figure. The top red cap must be with the level of the grain. Insects will move towards air in the main tube and enter through the hole. Once the insect enters the hole it falls down into the detachable white cone at the bottom. Then there is no way to escape and the insects are trapped forever. The white detachable cone can be unscrewed once in a week and the insects can be destroyed.

Salient Features:

No chemicals; No side effects and No maintenance cost.

TNAU PROBE TRAPS

Technologies to detect insect presence at early stage in commodities

6 inches

12 inches

Currently used by :

Around 4 lakh people in India in states like Tamil Nadu, Kerala, Telangana, Uttar Pradesh and Madhya Pradesh use TNAU insect trap.

You tube link: https://youtu.be/piT0yiGnlyQ

Currently used by :

Around 4 lakh people in India in states like Tamil Nadu, Kerala, Telangana, Uttar Pradesh and Madhya Pradesh use TNAU insect trap.

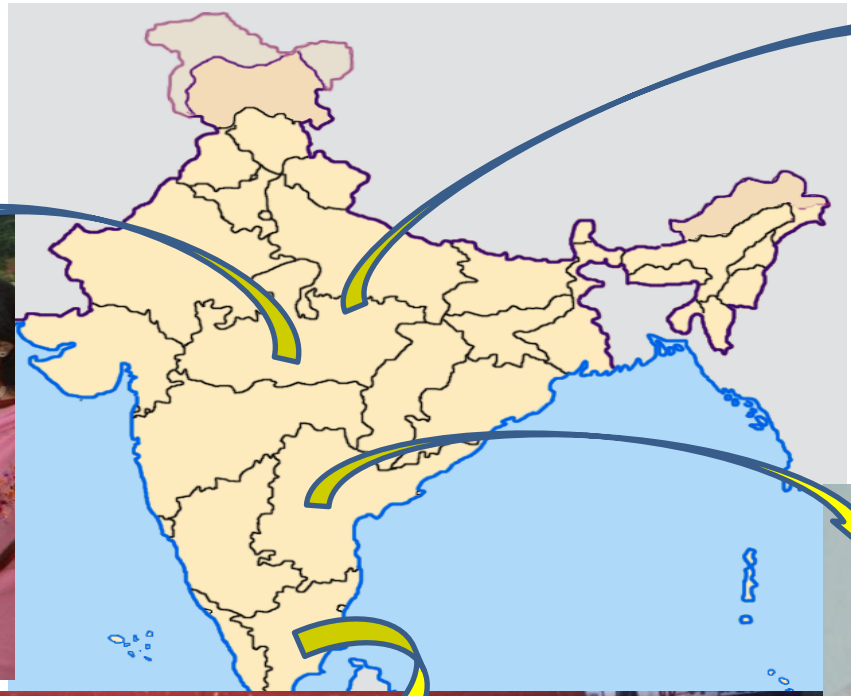
Approximate cost in INR

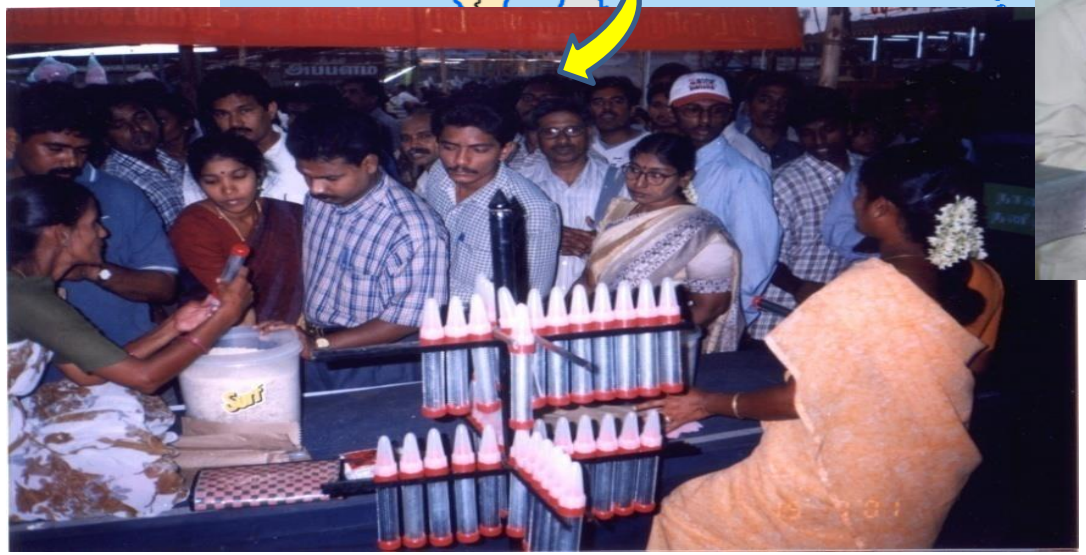
S. NO	PRODUCT	COST	GST
1	TRAP 15 CM	150	18%
2	TRAP 1 FOOT	280	18%

IMPACT ON SOCIETY

- 5 lakh people using the TNAU trap.
- 300 to 400 SAU's/ KVK's using the TNAU Stored product insect management kit for teaching and training.
- Introduction of TNAU Trap in Rwanda, Ethiopia, Nigeria, Turkey, Egypt and France.
- 5000 farmers in the North-eastern zone of India use the insect removal bin for paddy seed storage.
- Kindering the scientific temper of school children which led them to make TNAU Traps in plastic waste water bottles, which got them National and International awards.

PROBE TRAP USERS





500, 000 (0.5million) People are using the trap

Technology 2

TNAU- UV – LIGHT TRAP FOR GRAIN STORAGE GODOWNS

The UV light trap mainly consists of an ultra-violet source (4W/15W germicidal lamp). The lamp produces ultra-violet rays of peak emission around 250 nanometer. The UV light trap can be placed in food grain storage godowns preferably in places around warehouse corners and alley ways, as it has been observed that the insect tends to move towards these places during the evening hours (preferably 19:00hrs to 24:00hrs).

TNAU- UV – LIGHT TRAP FOR GRAIN STORAGE GODOWNS

The light trap attracts stored product insects of paddy like lesser grain borer, *Rhyzopertha dominica, Paddy moth, Sitotroga cerealella* and red flour beetle, *Tribolium castaneum* in large numbers. Normally 2 numbers of UV light trap per 60 x 20 m (L x B) godown with 5 m height is suggested. Also effective for Anobidae family beetles like *Lasioderma serricorne.*

https://youtu.be/f7-PGEUIFMA

For split pulses:

1. *Tribolium sp.*
2. Tenebrionids(meal worms /false fire worms)
3. Warehouse moth(*Ephestia sp.*)
4. Rice moth(*Corcyra cephalonica*)
5. Indian Meal moth (*Plodia sp.*)

For Gingelly:

Pod bug,Elasmolomus sp.

TNAU- UV – LIGHT TRAP FOR GRAIN STORAGE GODOWNS

Need :

Some body has to try in for other stored grain insects pests as well as field crop insect pests

Ideal:

The trap is ideal for use in godowns meant for long term storage of grains, whenever infested stocks arrive in godowns and during post fumigation periods to trap the resistant strains and left over insects to prevent build up of the pest populations. In godowns of frequent transactions the trap can be used for monitoring.

TNAU- UV – LIGHT TRAP FOR GRAIN STORAGE GODOWNS

UTILITY: In India more than 500 UV-LIGHT traps for use in rice, broken pulses and wheat storage.

Besides this, many Private Warehouses in India use this UV-LIGHT trap for various commodities in storage.

Approximate cost in INR

UV LIGHT TRAP with stand	Rs.5600/-	GST 18%

Technology 3

TNAU AUTOMATIC INSECT REMOVAL BIN

Prototype of insect removal bin

Parts of the bin model

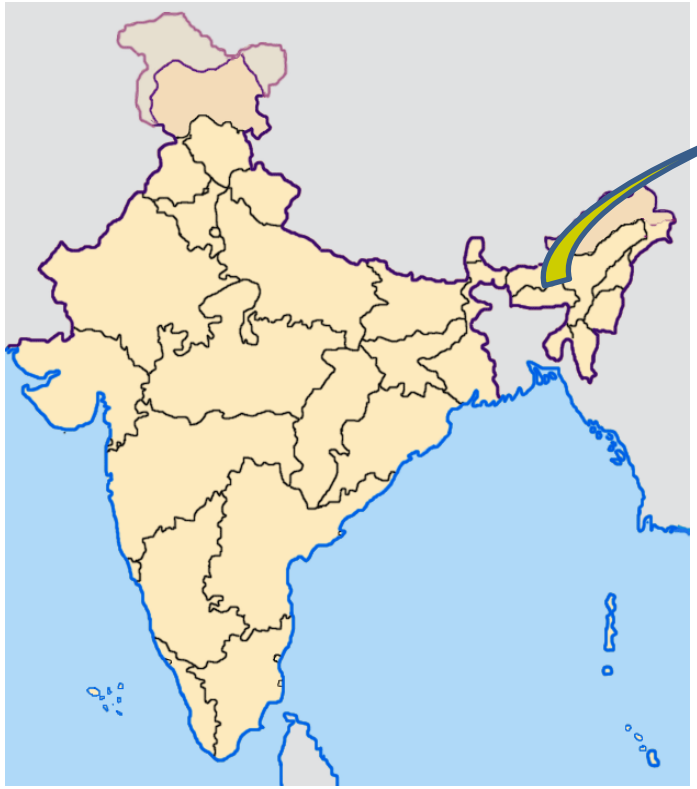
TNAU AUTOMATIC INSECT REMOVAL BIN

25 kg capacity

100 kg capacity

500 kg capacity

TNAU- INSECT REMOVAL BIN USERS



A factory in North-Eastern Zone of India- Manufacturing and marketing the BIN.

Around 5,000 farmers are using the bin for paddy seed storage.

Technology 4

TNAU STORED GRAIN INSECT PEST MANAGEMENT KIT BOX

TNAU- KIT USERS

300 Agricultural colleges and farmers training centers across the country are using the KIT

TNAU-KIT
Technology spread across the country

Technology 5

Youtube link : https://youtu.be/7ZZbpX_aMdQ

2 TON PER HR.

A device to remove insects from stored grains. Indian Patent-198434

Best Method - Simply purchase a TNAU insect remover machine which removes adults, crushes eggs, larvae and pupae present in your commodities

Description

This machine, has the capacity of cleaning efficacy around 1000kg/hr. and 2000kg/hr. (machine operated). This machine can crush the eggs present in the grains, when the grains flow through the machine to a considerable extent so that further insect development can be prevented. Besides eggs this machine also effectively removes the adult weevils/ beetles (both dead and live) present in the grains. Free living larvae of insects are also crushed. The machine works on the principles of impact, smooth brushing, sieving and blowing

SPECIAL FEATURES:

- 100/- chemical free technology
- The device is useful in removing adult insects besides eggs, larvae and pupae of free living insects
- This helps in arresting further build up of insect during storage of grain
- No wastage of grains.
- Shelf life of grains increased
- Highly suitable for Miller's, traders besides exporters.
- Capacity two ton per hour power saver model
- Model - can also be made as per customer's requirement

You Tube link : https://youtu.be/yh6y9R7VjFU

The machine has been commercialized. M/S. Sri Vrintha Traders Coimbatore, Tamil Nadu (9865464448), 0422-2243989, is TNAU authorized manufacturer and supplier.

Many units of various capacities have been sold and being used by the self-help groups and rice traders. This TNAU technology will be a great boon for insect free stored grain revolution especially in Food security Mission projects of many South East Asian Countries.

Ultimate benefit :

Clean - insect free commodities - supply to customer.

Approximate cost in INR

S. NO	PRODUCT	COST	GST
1	1 TON PER HR	1,50,000	18%
2	2 TONS PER HR	2,85,000	18%

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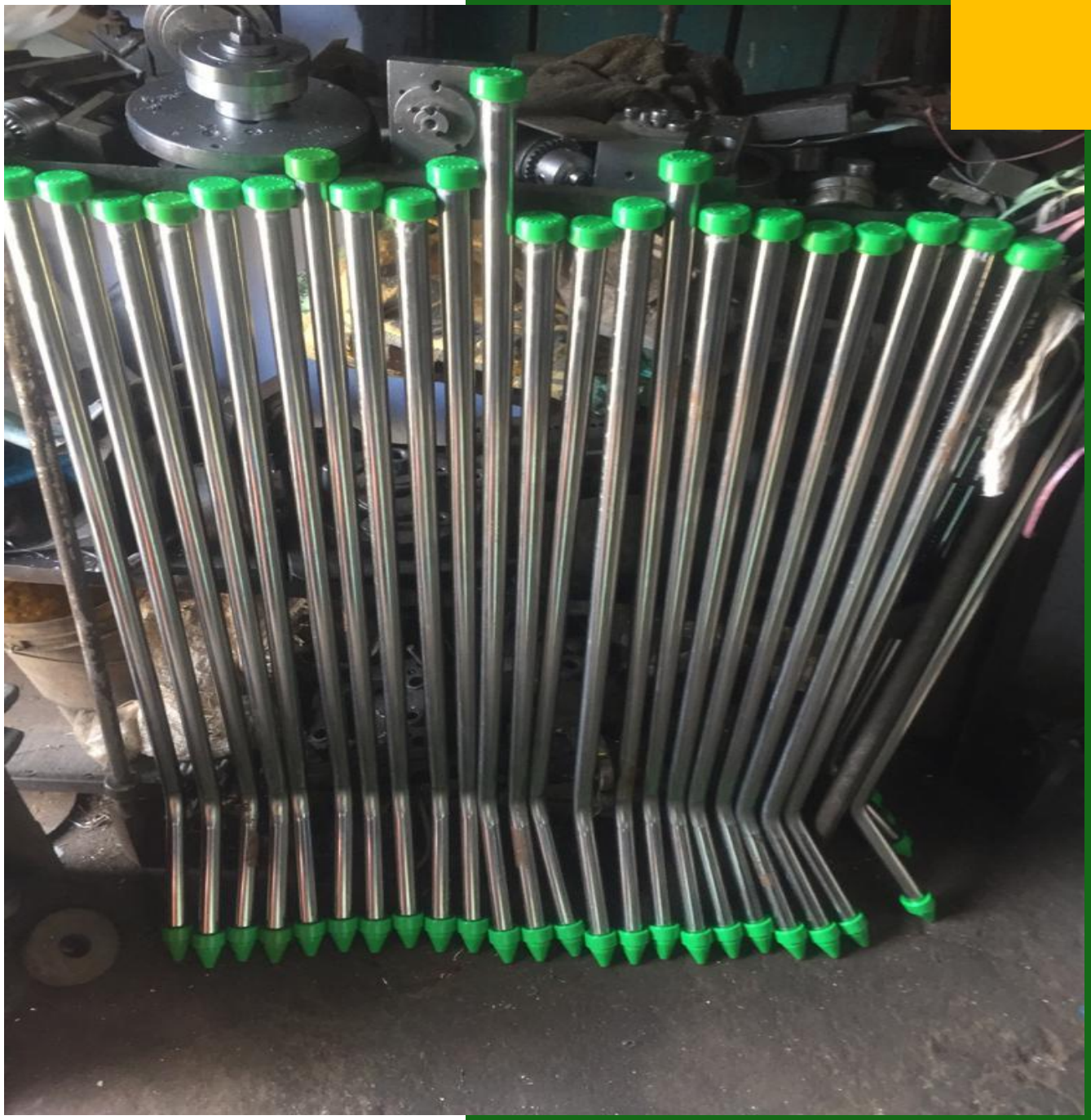


Technology 6

TNAU stack probe trap- INDIAN PATENT 284727

- This trap is a beautiful device which can be inserted in the interspaces between bags in a stack at any layer.
- Insert this stack probe trap in different layers of stack with more concentration -more numbers in the middle layer immediately after fumigation.
- Check the trapping tube for any insect presence. Sometimes you may get Larva of insect also. If there is insect, there is likely resistant insect population in the stack fumigated.

TNAU stack probe trap-INDIAN PATENT 284727

You tube link : https://youtu.be/ZkKno2GN12A

USERS:

More than 500 stack probe traps are being used by many Private Warehouses in India for different commodities in storage.

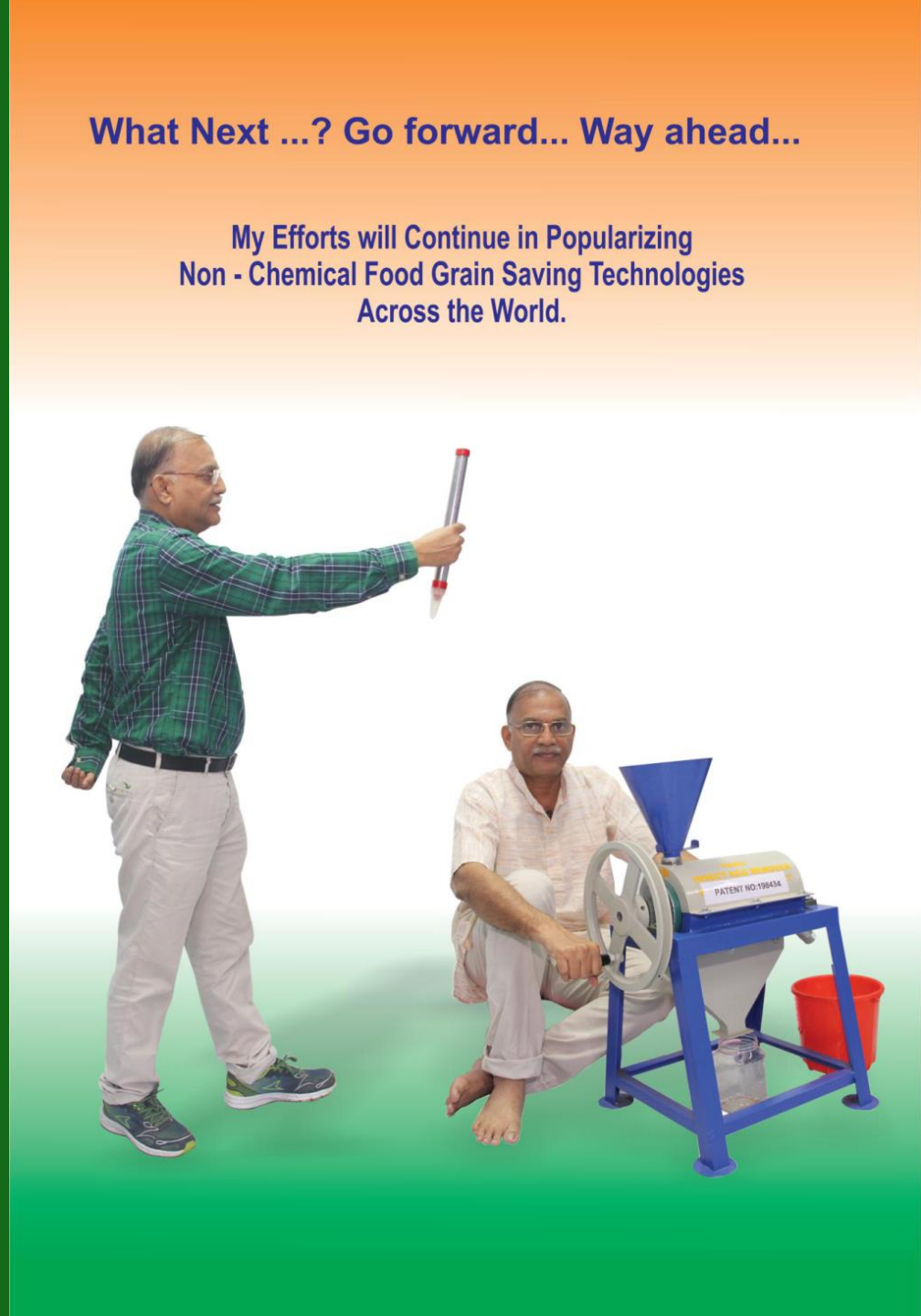
Through stack probe trap many stack holders are able to know the Insect population level in their stacks in warehouse. By this they are able to predict early presence of insects in their food grains stacks and also to validate the effect of fumigation by using it immediately after fumigation in different layers of the fumigated stack.

Approximate cost in INR

S. NO	PRODUCT	COST	GST
1	STACK PROBE TRAP SS MODEL	1100	18%
2	PVC MODEL	800	18%

AWARDS for TNAU-TRAP TECHNOLOGY

My journey continues



Thank you