Cylas formicarius
SWEETPOTATO WEEVIL PHEROMONE TECHNOLOGY:
A MESSIAH FOR WEEVIL MANAGEMENT IN INDIA

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INTRODUCTION

• Sweetpotato is the seventh major food crop. (FAO, 2014)

• Sweetpotato weevil (SPW), *Cylas formicarius* Fab. (Coleoptera: Curculionidae),
  ✓ infests the crop throughout the season
  ✓ 50-75% yield losses.

• Weevil damage makes the tubers unpalatable for human consumption because of toxic terpenoid production.

• Causes serious problem not only in India, but also across the world.
Food and Feed for all 😊
• Reduction in quality tubers (70%)
• Reduced marketable price (50%)
• Increased cost of production and protection.
• Impact on livelihood.
• Sweetpotato Weevil Sex pheromone,
  – (Z)-3-dodecen-1-ol (E) -2-butenoate

• Sex pheromones have been successfully used:
  – to monitor the pest.
  – to manage them by lure and kill method.
**PHEROMONE TRAP**

**Material:** Any local plastic box (cut the opposite faces)

**Size:** > 30 cubic cm.

**Required:** soap solution

**Position of lure:** 5-8 cm above lather

**Installation:** 45 Days after Planting

**Filter out the dead SPWs once a week**

**Dose:** 10 traps /Ha

**Position of trap:** Field level

**Durability:** 90-120 Days

**Number of SPW trapped:** 3500/night

**Temp. range:** upto 48 °C.

**Cost/ Ha:** Rs 400.
The Show Begins . . .
Sweetpotato weevils around the lure
In Barapani (Meghalaya)
For a successful technology, nothing is a constraint.
To make a technology successful, dedication and involvement is a priority.
The Movement is ON !!!
• 2013- Within six months:
  – 5 farmers showed interested.

• 2014 -(upto September):
  – farmers tested the pheromone
  – adopted it in another 150 ha,
  – made it visible and adaptable
    by the farmers.

• 2015-
  – The farmers now are able to
    • monitor the level of the
      population of the pest,
    • manage the pest.
  – estimated this technology to be
    adopted in 500 ha.
HOW FARMERS HAVE BEEN BLESSED WITH THIS TECHNOLOGY ???

![Graph showing yield and selling price comparison between healthy and infested tubers with and without trap.]

Yield (Quintals/acre)

- **Healthy Tubers**
  - Without Trap: 28
  - With Trap: 26

- **Infested Tubers**
  - Without Trap: 50.75
  - With Trap: 3.24

Selling Price (Rs/ crop)

- **Healthy Tubers**
  - Without Trap: 42000
  - With Trap: 111672

- **Infested Tubers**
  - Without Trap: 26000
  - With Trap: 3240
### SOCIAL AND ECONOMIC IMPACT OF TECHNOLOGY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield of quality Tubers</td>
<td>81.3%</td>
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<tr>
<td>Marketable price</td>
<td>69%</td>
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<tr>
<td>Demand in supply market</td>
<td></td>
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<tr>
<td>Income and livelihood</td>
<td></td>
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<td>Exporting tubers</td>
<td></td>
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<tr>
<td>Cost of protection</td>
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<tr>
<td>Cost of production</td>
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**Cost - Benefit Ratio:** 1: 7.3
Farmers, expecting higher incomes, can improve their livelihoods.
It gives ‘a ray of hope’ for better livelihood and to meet national food demand.

Lures and kills 3500 male weevils overnight.
Durability: 90 to 120 days.
Withstands up to 48 °C.
Cost effective.
Easy to operate, requires no special training.
Using plastic/oil box.

Unknown to many farmers.
Poor analysis.

Strengths:
- Lures and kills 3500 male weevils overnight.
- Durability: 90 to 120 days.
- Withstands up to 48 °C.
- Cost effective.
- Easy to operate, requires no special training.
- Using plastic/oil box.

Weaknesses:
- Unknown to many farmers.
- Poor analysis.

Opportunities:
- Farmers, expecting higher incomes, can improve their livelihoods.
- It gives ‘a ray of hope’ for better livelihood and to meet national food demand.

Pesticides
FUTURE PROSPECTS

• Increase in area under pheromone technology application
• Reduction of sweetpotato weevil population in across the world.
• Entrepreneurship possibilities
THANKS to the FARMERS

😊