

# **Eco-friendly methods of pest management**

# Cultural practices

## Alterations / Changes in cultivation Practices

- ✚ Habitat mgt.
- ✚ Tillage
- ✚ Inter cropping
- ✚ Trap cropping
- ✚ Border cropping
- ✚ Banker cropping
- ✚ Eco-feast / scarifice cropping
- ✚ Push-Pull poly cropping
- ✚ Vegetative trap
- ✚ Crop rotation
- ✚ Plant nutrition
- ✚ Water mgt.
- ✚ Sanitation
- ✚ Closed season
- ✚ Mulching

## d) Mulches

- Reduces the insect's ability to find the crop.
- Inert ground covers such as plastics, sawdust, straw and rice husk mulches interfere with visual host-finding or suicidal attraction to the sun-heated mulch.

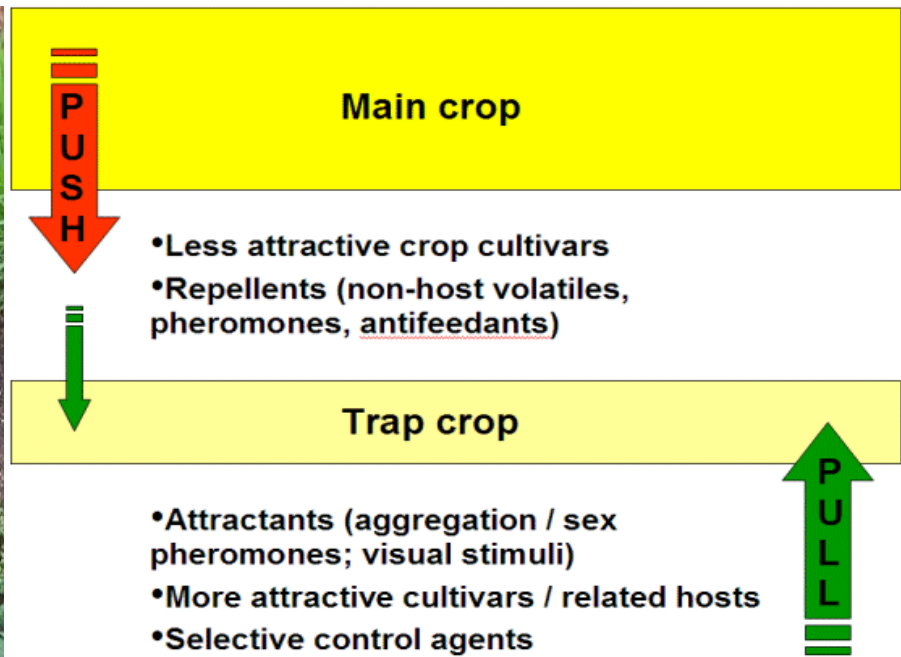


## **e) Push-pull polycropping**

**Combination of behavior-modifying stimuli to manipulate the distribution and abundance of pest or beneficial insects in pest management with the goal of pest reduction on the protected host**

**Pests are simultaneously attracted (pull) using highly apparent and attractive stimuli such as trap crops, where they are concentrated, facilitating their elimination.**

**Developed for subsistence farmers in east Africa. Maize and sorghum are attacked by stem borers, mainly *Chilo partellus* and the parasitic weed, *Striga hermonthica*. Stem borers are repelled from the maize and sorghum by non-hosts such as Greenleaf *Desmodium*, *Desmodium intortum* and molasses grass, *Melinis minutiflora*, which are the intercrops.**



**Intercropping maize with a repellent plant - desmodium, *D. uncinatum* , : *PUSH***

**•Planting an attractive trap plant - Napier grass, *Pennisetum purpureum* as a border crop around this intercrop (as a trap crop) : *PULL***

**•Stemborer females are repelled from the main crop and are simultaneously attracted to the trap crop (*Khan et al.,2000,2001;Cook et al., 2007*).**

**Eco-Friendly**

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# Crop rotation

- **Rotation of host by non host plants**
- **Effective against narrow host range**
- **Cotton – Groundnut, ragi, maize, cowpea, soybean  
(decrease insects pests)**
- **Groundnut – non leguminous crops (suppress leaf miner)**

# Plant Nutrition

- **Organic manure rich in essential nutrients induces tolerance to pest attack.**
- **Slow release of Nitrogen from Organic manure induces antixenosis.**



# Water Management

- **Flooding of fields – suppress cutworms, armyworms and root grubs**
- **Over head irrigation washes out life stages (Groundnut leaf miner eggs, DBM)**
- **Reduces Sugarcane Woolly Aphid**

# Irrigation and Water Management

**Sprinkler irrigation has been found to be effective in suppressing foliage feeding insects like potato tuber moth, *Pthorimaea operculella* and *Plutella xylostella* in cabbage by deterring their mating process, egg laying and causing mortality of their neonatal stages.**



# Sanitation

- **Clean cultivation – age old practice**
- **Removal / destruction – crop residues, volunteer plants, near by host plants**
- **Removal of cotton stalks decreases PBW**
- **Removal of alternate hosts reduces head bug in sorghum**
- **Removal of stalks and stubbles – shoot fly, stem borer in sorghum and paddy**

# Closed season

- **Crop holiday**
- **Break food supply-SWA**
- **Best for monophagous pest**
- **Effective when combined with sanitation**