Biological control of sugarcane borers by Trichogramma chilonis

**Background**
- **Sugar cane area:** 1 million ha
  - **Insect borers** (i. Top borer ii. Stem borer iii. Gurdaspur borer and iv. Root borer)

**Damage:** 20-25%
- **Reduction in Sugar** recovery due to borers damage: 1-2%

**Sugar mills in Pakistan:** 83
- Punjab: 45
- Sindh: 30
- KPK: 08

**Why BIOLOGICAL CONTROL**
- Pesticide Application
  - ✔ Costly plant protection measures
  - ✔ Less effective to target pests
  - ✔ Human health and environment problems

**Issues/challenges**
- Awareness of mill owners and farmers
- Mass rearing labs/infrastructure
- Trained man power for commercial production of insect bio-control agents
- Trained service provider of Technology
- Promotion and marketing

**Implementation Strategy**
- Up scaling of established bio-control laboratories in sugar mills.
- Establishment of bio-control laboratories in partnership with all sugar mills and other agencies of Pakistan
- Capacity building of scientists and technicians
- Technical backstopping and monitoring
- Provision of initial culture of host insect and egg parasitoid by IPMP, DPEP, NARC
- Provide technical assistance in field releases and monitoring

**Benefits**
- Higher sugar recovery due to increased quality sugarcane yield
- Eco-friendly pest management strategy
- Availability of trained manpower for biological control
- Avoid insecticide resistance in pests
- New employment opportunities