White rice stem borer (*Maliarpha separatella* Rag)

Factsheets for Rice Production, East Africa

Biology

- One of the most destructive pest of rice that affects rice plants from seedling to maturity. stages
- The adult moth lay egg batches on the lower side of leaf blades
- On hatching the pest move to the stem and first instar larvae bore into stem and start feeding
- Usually only one single larvae occupy a stem

Damage on rice crop

- Larvae bore into the stem and feed within the rice stem resulting in typical damage called "deadheart" at the vegetative stage and "whitehead" at the reproductive stage.
- The yield loss due to stem borer ranges from 34 to 91%
- Use recommended insecticides when , the economic injury level is 4 and 6 egg batches for early and late infestation respectively.

Fig 1. Moth of stem borer (Rahab Magoti)

Fig 2. Whitehead damage at maturing stage of rice; JLA Catindig and KL Heong

Geographical Distribution

- Found in rain fed lowland and irrigated rice.
- In Kenya it has can be found in (Ahero, Bunyala, Kirinyinga , Kisumu, Kiilifi, and Kwale counties), Tanzania (Morogoro, Kilimanjaro, Arusha, Mbeya, Moshi) and Uganda.(lake Kioga, Buguri, butalenja and lira districts)

Management Strategies

1. Cultural control

- Synchronize planting to escape from stem borer infestation
- Apply calcium silicate at rate of 1000kg/ha to strengthen stem tissues since the eggs are laid near the tip of the leaf blade
- Clip seedlings before transplanting to reduce the carry-over of eggs from seed bed to transplanted field.

Management Strategies.

- Harvest at ground level or plough after harvesting to destroy majority of over wintering larvae
- Keep bases of stems always under water to submerge the eggs
- Plant tolerant cultivars such as BW 196.
- Destroy alternative host plants such as rice ratoon crop, volunteers and wild red rice on the bunds.
- Apply correct amounts of nitrogen in 3 splits – basal, tillering and panicle initiation.
- Rotate with non-grassy crops/weeds because this pest can damage other plants from same family
- Plant using early season varieties (e.g. Hashemi, Domsiah) to avoid 2nd and 3rd generation of stemborers.
- Plough and flood after harvest to reduce the number of overwintering larvae.

2. Biological control

- Spray using different native species of Trichogramma wasps against stemborer eggs (100 trichocards per hactre). Do it when infestation of moths is high.

3. Chemical control:

- Apply insecticides to during larval emergence so that the larvae are killed before entering rice stems
- Spray with Lambda-cyhalothrin 17.5g/L (like Tata Umeme 2.5 EC, Duduthrin 1.75EC, Duduthrin super EC, Kingcode 5% EC, Pentagon 5% EC, Karate)
- Spray deltamethrin 25 g/l (like Decis 2.5 EC, Deraphon GR.

Contact experts: Otipa, M (Otipamj@gmail.com); Kirigua, V; Ngari, B.M; Kega, V; Wasilwa, L . Kimani, J.M; Ochieng, V; Wandera, F; Mugambi, C; Wasike, V; Mutiga, S (BeCA ILRI); Nyongesa. O (IRRI); Zhou, B (IRRI)); Mitchell, T. (OSU); Wang, G. L (OSU); Were, V (TSL); Ouedraogo, I (INERA); Rotich, F (UoEm); Correll, J. C. (UARK) and Talbot, N. J (TSL). ***E-Guide for Rice Production in East Africa (2019)***