

sand, thereby simulating natural emergence conditions more closely.

Findings of these studies will be helpful in enhancing the rearing of the millet head miner in the laboratory and improve its management in the Sahel.

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## References

**Gahukar RT, Guevremont H, Bhatnagar VS, Doumbia YO, Ndoye M and Pierrard G.** 1986. A review of the pest status of the millet spike worm, *Raghuva albipunctella* (De Joannis) (Noctuidae: Lepidoptera) and its management in the Sahel. *Insect Science and its Application* 7:457–463.

**Kadi Kadi HA, Gilstrap FE, Teetes GL, Youm O and Pendleton BB.** 1998. Field evaluation, longevity, and oviposition period of millet head miner (Lepidoptera: Noctuidae) in Niger. *International Sorghum and Millets Newsletter* 39:143–144.

**Nwanze KF and Youm O.** 1995. Panicle insect pests of sorghum and pearl millet: proceedings of an International Consultative Workshop, 4–7 Oct 1993, ICRISAT Sahelian Center, Niamey, Niger. Patancheru 502 324, Andhra Pradesh, India: International Crops Research Institute for the Semi-Arid Tropics. 320 pp.

**Vercambre B.** 1978. *Raghuva* spp. et *Masalia* sp. (Lep.: Noctuidae), chenilles des chandelles du mil en zones sahelienne. *Agronomie Tropicale* 33:62–79.

**Youm O and Owusu EO.** 1998a. Assessment of yield loss due to the millet head miner, *Heliocheilus albipunctella* (Lepidoptera: Noctuidae) using a damage rating scale and regression analysis in Niger. *International Journal of Pest Management* 44(2):119–121.

**Youm O and Owusu EO.** 1998b. Farmers' perceptions of yield losses due to insect pests and methods for assessment in pearl millet. *International Journal of Pest Management* 44(2):123–125.

## Observations on Factors Affecting Attraction and Oviposition Preferences of the Millet Head Miner *Heliocheilus albipunctella* to Pearl Millet Panicles

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## Introduction

The millet head miner *Heliocheilus albipunctella* is a serious insect pest of pearl millet (*Pennisetum glaucum*) in the Sahelian zone of West Africa. Females lay 20–50 batches of about 300–400 eggs on millet heads (Bernardi et al. 1989, Nwanze and Harris 1992). Eggs normally hatch in 3–5 days and the developing larvae feed on floral glumes and flower stems thus causing yield decrease.

Even though millet panicles serve as oviposition sites for the head miner, the mechanisms underlying this choice remain unknown. This article reports on laboratory experiments to investigate factors affecting host plant and head miner oviposition interactions.

## Materials and Methods

**Insects.** Gravid female head miners were obtained from light traps (Robinson traps equipped with photosensitive cells with 125W mercury vapor bulbs) located at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Sahelian Center, Niamey, Niger.

**Panicle stages tests.** The most suitable panicle stage for oviposition by the millet head miner was assessed using five plant growth stages, ie, 30% panicle extension, 50% panicle extension, 100% panicle extension, flowering stage and dough-filling stage. Panicle stages were arranged evenly in paper containers (27 cm height, 25 cm diameter) covered with nylon gauze. Ten adult females were used for a multi-choice test condition in the dark. The number of eggs laid on each panicle stage was counted the following morning. Five millet varieties were used in three replications. Positions of three pearl millet panicles in the cages were randomly assigned for each experiment.