U. of K. J. Agric. Sci. 21(1), 128-133, 2013

A Note on Some Ecological Aspects of the Sorghum Stem Borer in the Nuba Mountains, Sudan

Eisa Y. Adam and Ali E. Ali[1]

Kadugli Agricultural Research Station, South Kordofan State, Sudan

Abstract: This study was designed to collect some information about the sorghum stem borer in the Nuba Mountains, South Kordofan State. It was carried out during 2005/06 and 2006/07 season, to determine the population dynamics and the alternative host plants of the stem borer. Light trap was used for adult trapping, and a survey was carried out for host plants. The number of adults was low at the beginning of the season (June), gradually increased towards the end of the season (October) and the borer disappeared by the end of November. Night activity of the adults was low at 7:00 pm and increased gradually towards 10:00 pm. The highest infestation by stem borer (76%) was recorded on sorghum (*Sorghum bicolor* L.) followed by *Sorghum arundinceum* (adar) (63%), maize, *Zea mays* (50%) and pearl millet (33%).

Key words: Sorghum; stem borer; South Kordofan State; trapping

The invasive stem borer (*Chilo partellus*) is the highly competitive colonizer of *Sorghum bicolor* L. in many areas of Eastern and Southern Africa. It is the most important stem borer causing severe damage on late-planted sorghum, leading to grain loss of 70% (Berger 1981). In the Sudan, *C. partellus* is a widespread pest; it has been found in northern, eastern, southern and western Sudan (Schmutterer 1969). No serious study has been done on stem borer in the Nuba Mountains. Therefore, the present study was designed to collect some information about the stem borer in that area.

The study was conducted in South Kordofan State during the rainy seasons of 2005/06 and 2006/07. It was carried out from June to the end of November each season light traps were set up every two weeks, using kerosene lamps placed beside sheets of cotton cloth (1m²) at an angle of 45°, on the ground to attract the adult moth. The light traps were set up starting at sunset (7:00 pm) for three hours. Adult moths were counted every hour, separately, by removal of the adults using a plastic tube, and the number of adults was recorded/hour.

[1]-Present address: Gezira Research Station, Wad Medani, Sudan

The survey was conducted on the 15th of September 2006, at three sites around Kadugli on which sorghum, maize and pear millet were grown. In each site, three farms were selected. Ten plants from each species were inspected for the presence of the stem borer. The infestation was expressed in percentage infested plants.

The results of light traps showed that the number of stem borer adults was low in the first hour after sunset (7:00 pm) and then increased gradually towards 10:00 pm (Fig. 1). This result disagrees with that of Seshu Reddy (1983) who reported that moth activity is greater between 11:00 pm and 3:00 am and less in the early hours of the night. In both seasons, the number of adults was low in June (the beginning of the season) and increased towards mid-season (August – September). In the first season, a high peak was recorded in mid-September, followed by a decrease at the end of the season in November (Fig. 1). In the second season, four peaks were recorded, the highest of which was in October, which, more or less, agrees with the first season. This indicated the presence of four generations per year. This result agrees with that of Seshu Reddy *et al*. (1990) who reported 3 – 4 generations/ year

The study on the host plants showed that in the three sites around Kadugli sorghum was the most severely infested by the stem borer (76%), followed by adar (63%), maize (50%) and pearl millet (33%) (Fig. 2).

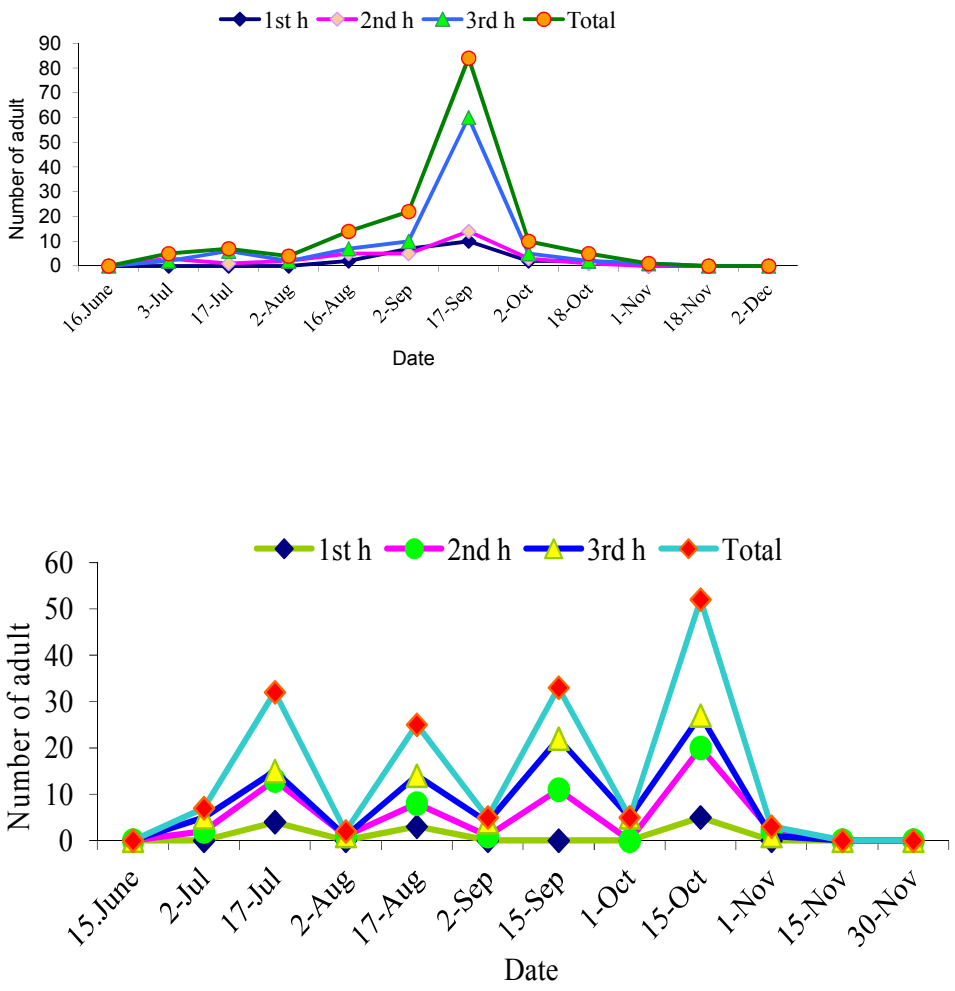

Fig. 1. Seasonal abundance of stem borer based on light trap catches at Nuba Mountains in 2005/06 and 2006/07 seasons

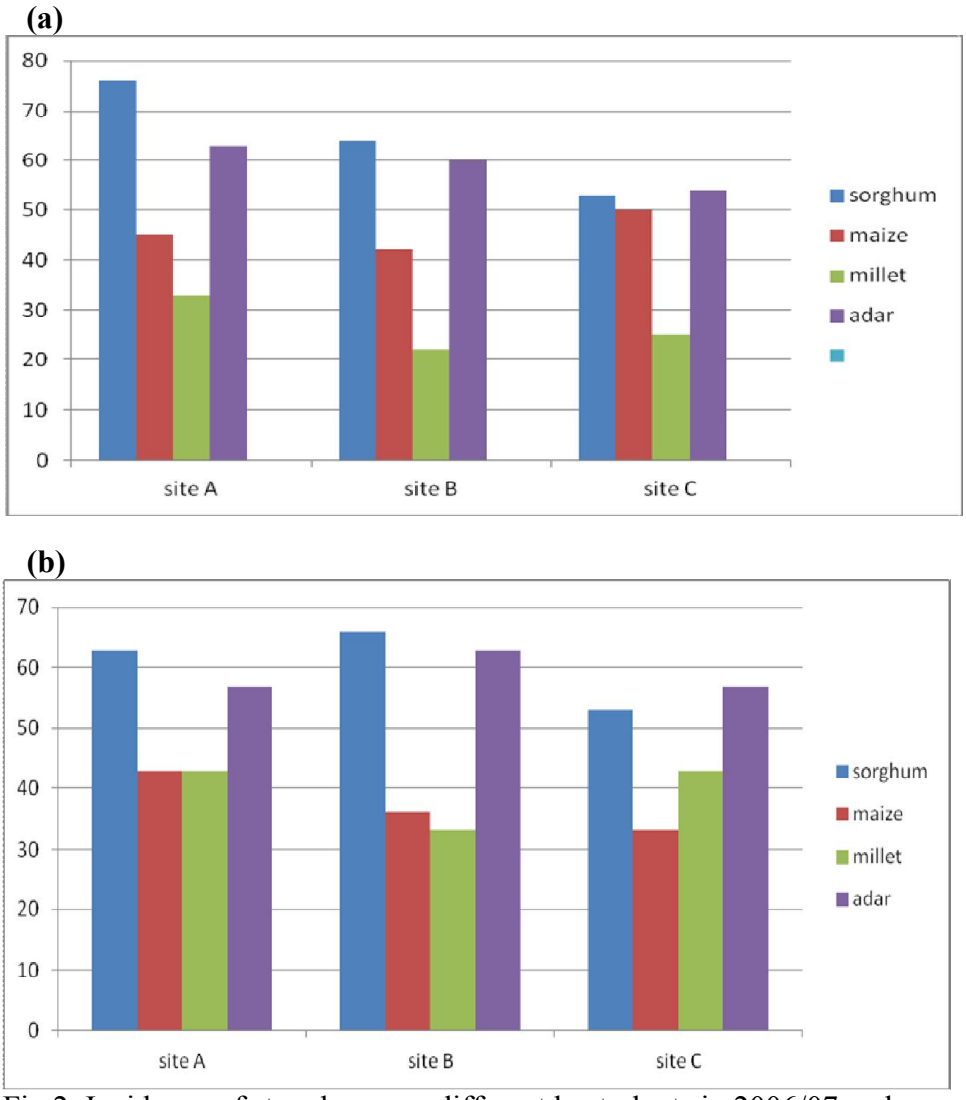

Fig.2. Incidence of stem borer on different host plants in 2006/07 and 2006/07 seasons

REFERENCES

Berger, A. (1981). Biological control of the spotted stem borer, *Chilo partellus* (Swinhoe), in maize by using the bacteria *Bacillus thuringiensis*. Nacional de Investigaaao Agronomica. Proj. UNDP/FAO MOZ/75/009, Maputo, Mozambique.

Schmutterer, H. (1969). *Pests of Crops in Northeast and Central Africa*, pp.155.171. Gustar Fischer Verlag Stuttgart. Portland. U.S.A.

Seshu Reddy, K.V. (1983). Sorghum stems borers in Eastern Africa. *Insect Sci. Appl.* 4, 3 – 10.

Seshu Reddy, K.V; Lubega, M.C. and Sum, O.S. (1990). Population patterns of *Chilo* spp. In sorghum, maize and millet. *Insect Sci. Appl*. 5(11) PP. 550.

.

مجلة جامعة الخرطوم للعلوم الزراعية : المجلد الحادى والعشرين - العدد الاول ، 2013م

بعض الجوانب البيئية لحشرة ثاقبة ساق الذرة بمنطقة جبال النوبة

عيسى يوسف ادم وعلى البدوى على

محطة البحوث الزراعية - كادقلى، ولاية جنوب كردفان – السودان

المستخلص: هدفت هذه الدراسة الى التعرف على بعض المعلومات عن ثاقبة الساق على الذرة الرفيعة بمنطقة جبال النوبة، ولاية جنوب كردفان. أجريت الدراسة خلال المواسم 2006/2005 و2006/ 2007 لمعرفة كثافة ونشاط حشرة ثاقبة الساق. استخدمت المصيدة الضوئية لصيد الحشرات الكاملة أثناء الليل، كما أجريت بعض المسوحات للحشرة لتحديد العوائل. كان عدد الحشرة الكامله قليلا في بداية الموسم (يونيو) وزاد تدريجيا نحو نهاية الموسم (اكتوبر) واختفت الحشرة بنهاية نوفمبر. كما أن نشاط الحشره الليلي كان قليلا في السابعه مساء وزاد تدريجيا نحو العاشره مساء. سجلت أعلى نسبة إصابة بحشرة ثاقبة الساق فى الذرة (76%)، يليها العدار (63%) والذرة الشامية (50%) ثم الدخن (33%).

[1]هيئة البحوث الزراعيه، ود مدني - السودان