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THE DISTRIBUTION, ABUNDANCE AND OVERSEASONING STRATEGY OF THE
LYGAEID SUCKING BUG, *Rhyparochromus Littoralis* DIST. IN THE MAJOR GROWING
AREAS OF GROUNDNUTS IN ADAMAWA STATE, NIGERIA

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Introduction

Groundnut (*Arachis hypogea* L.) is one of the most widely cultivated legume crop after cowpea in Adamawa State, particularly in the Central Senatorial District comprising of seven (7) Local Government Areas (LGAs), namely: Fufore, Girei, Gombi, Hong, Song, Yola North and Yola South (Samaila *et.al.*, 2013b). Because of its wide adaptation to climatic conditions and ability to grow relatively well on poor soils within Adamawa State, it is also produced in Mubi North and South, Michika and Mayo Belwa LGAs in large quantities (Samaila and Malgwi, 2012a; Adebayo, 1996; Gascho and Davis, 1995; Kaleem, 1993). However, infestation of insect pests is a major constraint to optimum production especially during harvest, which requires considerable investigation in order to minimise negative impact on pod yield and quality (Samaila and Malgwi, 2012a; Malgwi and Onu, 2004). Yield loss due to invasion by the groundnut sucking bug (*Rhyparochromus littoralis* Dist. is 50 to 80% (Samaila and Malgwi, 2012a). In the field and also after harvesting and left on the soil for more than 24 hours yield loss could reach upto 80% depending on the number of days up to 30, is on a high side (Samaila and Malgwi, 2012b). All growth stages of this insect caused damage to pods and kernels (Samaila and Malgwi, 2012a; ICRISAT, 2008; Malgwi and Onu, 2004). There is paucity of details on the history of groundnuts left to dry before picking (decorting) on the field, such groundnuts, turns out to have small, shrunken seeds, the testa often turning yellow (Samaila and Malgwi, 2012a). Despite the importance of groundnut to the economy of Nigeria, current information on the pest management constraints is limited especially on the groundnut sucking bug. In order to formulate and transfer effective and sustainable insect pest management strategies in groundnut, documentation of the distribution, abundance and as well as the over seasoning strategies/survival and assessments of farmers response to this new pest of the groundnut sucking bug and its characteristics are therefore necessary and needed, which are the objectives of this study.

Materials and methods

Survey questionnaires were administered to 100 farmers before land preparation, groundnut cultivar, date of planting, timing and harvesting method/practices. It also include socio-economic questions on the sex, level of education, main occupation, when these insects were noticed on the field to store, damage caused on the field by farmers, cropping systems implemented were also documented and analyzed. The survey was conducted on 100 farmer fields during 2012 cropping seasons between the months of late August to December and also January to April, 2013. Sampling was also carried out at harvest between late September to November, 2012 by randomly evaluating four (4) 1m² quadrants per field/10 farmers field in nine LGAs of study areas where groundnuts is a major farming crop. The nine (9) LGAs were: Fufore, Girei, Gombi, Hong, Song, Yola North and Yola South, Mubi south and Mayo belwa. Average insect pest occurrences in farms were calculated using the summed dominance ration (SDR) approach (Dangol, 1991).

$$SDR\% = \frac{\sum F}{\sum F + \sum D} \times 100 \quad (1)$$

Where:

F = Frequency of Occurrence of the insect pest within a field
D = Density of occurrence within a field

The overseasoning strategy was observed after harvest on other harvested crops harvested on farm and those kept around residential areas and food stuff kept in the house which include tuberous perishable products to see if *R. littoralis* is found in the harvested products.

Results and discussion

The results obtained showed that, the peak period of occurrence of *R. littoralis* was in September to December at harvest. From January to June, they were found in the store in tubers and harvested and stored produce that have high moisture content, such as in sweet potato tubers that have been injured as shown in Plate 1. There were other alternate host crops that were harvested and heaped up which the bugs were found sucking sap and some of the crops include maize, sorghum, millet, yam and sweet potato. The highest number of insects were found in Song (9,873.3), Girei (9,576.7) and the least was in Hong (5,107.7) in LGAs. According to 94.3% the farmers said they do not apply control measures, while 5.7% of farmers that applied control measures which gave 67.0% moderate success, but 20.8% wasn't successful. Result showed that *R. littoralis* is a serious and major insect pest of groundnut and are found wherever groundnut are grown in Adamawa state. Harvested groundnuts seeds in its pod left on the field for more than 12 hours remain the major host crop but survive in the store on other semi-perishables fresh tubers.

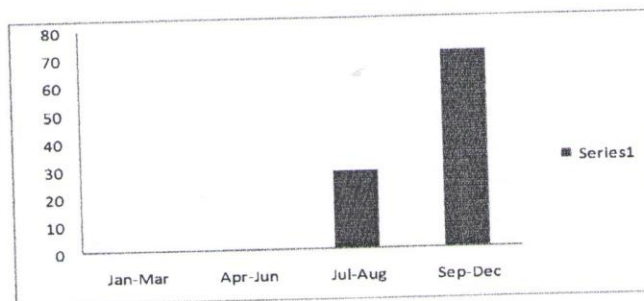


Figure 1. Period of *R. littoralis* Occurrence on Groundnut Field

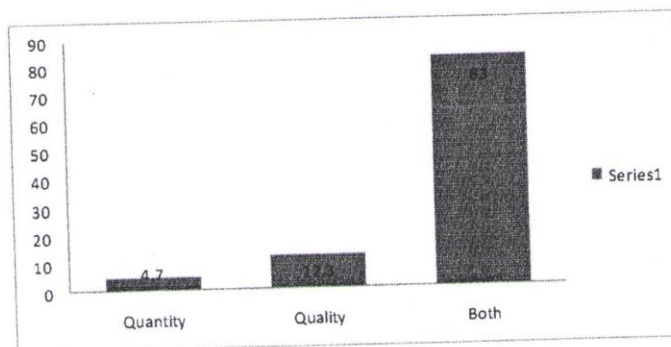


Figure 2. Effect of *R. littoralis* on Quantity and Quality of Groundnut

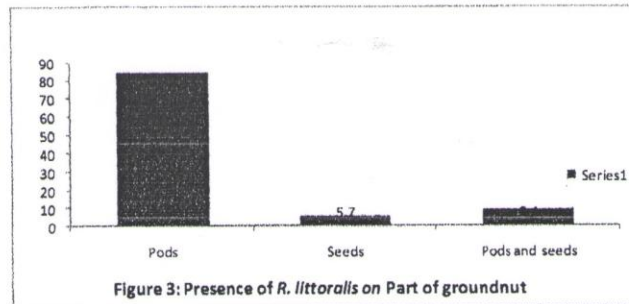


Figure 3: Presence of *R. littoralis* on Part of groundnut

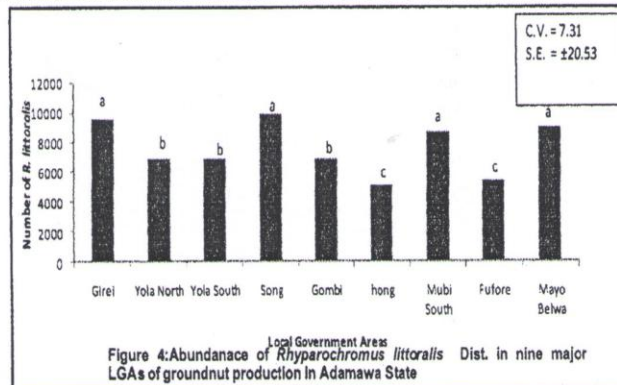


Figure 4: Abundance of *Rhyarochromus littoralis* Dist. in nine major LGAs of groundnut production in Adamawa State

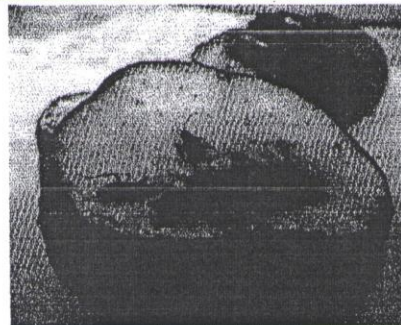
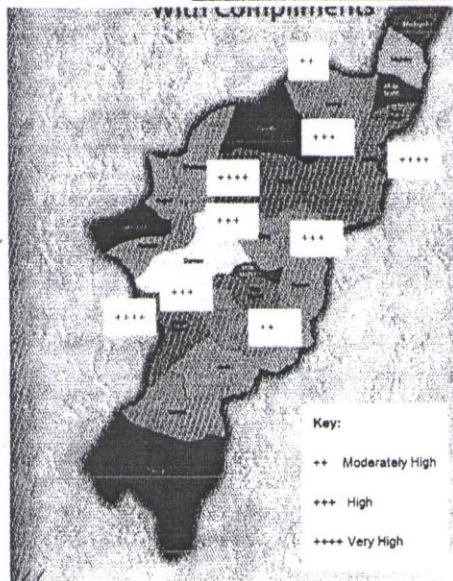


Plate1: A cross section of infested and damaged sweetpotato tuber with *R. littoralis* nymph and adult

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