DETERMINATION OF SELECTED DROUGHT RESISTANT GRASS SPECIES THAT COULD BE USED AS ALTERNATIVE HOSTS OF *Chilo partellus* (SWINHOE) IN KISUMU COUNTY, KENYA

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ABSTRACT

The stem borer (*Chilo partellus* Swinhoe, Lepidoptera: Pyralidae) is an important pest of maize in tropical lowland areas of Africa, seldom found above altitude of 1500 metres above sea level. Yield losses are caused by the borer feeding on plant leaves, grains, tussles and tunneling in stems hence weakening the plant. It is difficult to control *C. partellus* since both larvae and pupae live in stems. Spraying with insecticides only kills eggs and adults. Other methods used to control *C. partellus* include biological methods, host plant resistance and cultural practices. Trap plants could also help to control the pest. Trap plants are crops grown to attract insect pests so as to protect target crops from pest attack. This study is aimed at providing an alternative control measure by use of trap plants to control *C. partellus.* This approach may be used by smallholder farmers in dry areas of Kenya so as to boost their cereal production for subsistence consumption. The field experiments for the study will be conducted at Nyakach District in Kisumu County where ten grass species will be used while controlled green house experiments will be done at Kenya Agricultural Research Institute (KARI), Kisii centre. Green house experiments will help in confirming whether the damages that were observed in the field were due to *C. partellus* attack. The ten grass species that will be selected for both field and greenhouse experiments include *Pennisetum sphacelatum, P. mezianum, P. pedicallum, Hypperhania* spp, *Hyparrrhenia cymbaria, Panicum maximum, Sporobolus pyramidalis, S. consimilis, Chloris gayana* and *Braicharia brizantha*. These grasses were selected for this study because they can withstand drought, enrich the soil with nutrients by controlling soil erosion and can be used as fodder. The grass species will be planted in ten plots each measuring 2 m x 2 m during the dry period. The plots will be arranged in a randomized complete block design. Each grass species will be replicated three times. Data on number of larvae, entry and exit holes on stems, length of stem tunnels, number of "window" holes on leaves, number of eggs on stems and leaves and "dead hearts" will be collected from five grass stools picked randomly from each plot one month after planting in both field and green house experiments. Subsequent data collection will be done after every two weeks for a period of 6 months. Data on foliar damage will be collected using a scale of 1 to 9. Scale value of one will indicate no damage while that of nine will indicate grass damage. The larvae collected from the field and green house will be put in labeled bottles and taken to the laboratory for identification. The data obtained from the field and green house experiments will be subjected to ANOVA or its non-parametric equivalent and analysed using Statistical Analysis System (SAS) 2010. If there will be a significant difference among the treatments, the means will be separated using the Student-Newman-Keuls (SNK) test at a significance level of $p = 0.05$. The findings of this work are envisaged to assist farmers and agricultural officers in coming up with an integrated pest management system for managing *C. partellus* instead of using insecticides.