



Faculty of Agricultural Sciences

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**EVALUATING THE EFFECTS OF INDIGENOUS COWPEA
WEEVIL CALLOSOPRUCHUS RHODESIANUS MANAGEMENT
METHODS ON STORED COWPEA.**

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**THIS DISSERTATION IS SUBMITTED IN PARTIAL FULFILLMENT OF
THE BACHELOR OF AGRICULTURAL SCIENCES SPECIAL HONOURS
IN CROP SOIL SCIENCE DEGREE AT LUPANE STATE UNIVERSITY**

JUNE 2013

ABSTRACT

The insecticidal properties of Combretum imberbe ashes, Carica papaya leaf powder, Eucalyptus leaf powder, Lonchocarpus capassa leaf powder, and pepper powder were evaluated to determine the efficacy and optimize their use in reducing cowpea losses to Callosobruchus rhodesicus. The specific objectives of the study were to: determine the proportion of cowpea weevil damaged seeds from the various indigenous management methods, evaluate cowpea weevil fertility and effect on germinability over a three months period. Two cowpea varieties IT 18 and CBC2 were infested with 10 Callosobruchus rhodesicus adults and then subjected to the different indigenous insect management methods. Hundred uninfested seeds of each variety were placed in muslin bags and replicated three times in a RCBD. The number of oviposited hatched eggs and emergent holes were counted on all the cowpea seeds under each treatment fortnightly from one month after infestation. A top paper germinability test was done to the seeds after three months to assess the level of weevil damage. The results were analysed using Genstat software. There were highly significant differences (P<0.001) between the treatment methods, varieties and counts. Actellic dust a standard control had 67 eggs which was about ten times more effective than the most effective indigenous method, Combretum imberbe method. The control treatment without any protectant had the greatest number of emergent holes 304.2, which, was 186.8 more than Combretum imberbe which was the most effective indigenous method. Pepper was the second best management method having nine times more holes than Combretum imberbe. Eucalyptus leaf powder was the least effective. There was a strong positive (P<0.001) correlation (0.81) between number of eggs and holes in the cowpea seeds for the seven methods evaluated. From the three counts made for all the seven methods evaluated the number of eggs was about 5 times the number of emergence holes. There was highly significant difference (P<0.001) in the method used and variety in terms of percentage germination. Variety IT 18 always had a higher germination percentage irrespective of the method of management used. Overall, the study observed that protecting stored cowpea using plant products at smallholder level is better than leaving them unprotected hence farmers are recommended to use plant products to protect their grain legumes. Future research is recommended to determine exact concentrations of plant materials that will totally protect the grain legumes from damage by insects.