

**TIBASIIMA KAHIGWA THADDEO (2010-M152-20054)**

**Effectiveness of Natural Protectants in Preserving Dry Bean Seeds against Spoilage by the Common Bean Weevil (*Acanthoscelides obtectus*)**

The study was conducted at Tooro Botanical Gardens in Kabarole District to establish the effectiveness of ash of cattle dung (C.D), powder of Mexican marigold (M.M) and a mixture of the ash of cattle dung and powder of Mexican marigold (CM) against the common bean weevil storage pest. The three treatments were each applied to 50gms of well dried bean seed and stored on palates at room temperature in a mud and wattle, iron sheet roofed house. Each treatment was applied at three different levels; for ash of cattle dung; level one (C.D1) was 10gms, level two (C.D2) 7gms, level three (C.D3) 4gms, for powder of Mexican marigold; level one (M.M1) was 5gms, level two (M.M2) 3gms and level three (M.M3) 1gm; and for the mixture of ash of cattle dung and powder of Mexican marigold; level one (M.C1) was 7gms of ash of cattle dung and 3gms of powder of Mexican marigold, level two (M.C2) 5gms of ash of cattle dung and 2gms of powder of Mexican marigold and level three (M.C3) 3gms of ash of cattle dung and 1gm of powder of Mexican marigold. To each bag of beans and treatment including the control (Ctrl0), five live common bean weevils (*Acanthoscelides obtectus*) were added. The treatments were assessed after every one month for; weight loss by the beans, number of live insects found in the beans, number of dead insects found in the beans, number of beans physically damaged by the weevil and; the germination rate of the beans was assessed after three months of storage. Results indicated significant reduction in spoilage of beans by the common bean weevil when treatments were applied ( $P \leq 0.05$ ). Treatment C.D1, CM1 and C.M2 were found to be most effective in protecting beans against damage by the common bean weevil. These produced significantly different effects from all other treatments but were not significantly different from each other. M.M3 was the least in protecting beans against damage by the weevil. C.D1, CM1 and CM2 registered the highest germination rates and were significantly different from all other treatments in this effect. Recommendation: M.M should not be used as a pure treatment, its efficacy caused significant death of bean weevils only in the third month of the study, therefore, for enhanced effect, M.M should always be mixed with C.D. For storage of beans for consumption, selling and planting; C.D1, CM1 and CM2 are the best preservatives of beans against damage by the common bean weevil, under local storage conditions

Key words: Bean, Weevil, Seeds, Protection, Preserve