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Using the Predation as a Biocontrol Agent of Rodent in Grain Storages

Abd El-Aleem S.S. Desoky, *A. Maher Ali, K. H. Abdel-Gawad and *F.A. Abdel-Galil

Plant Protection Department (Zoology), Faculty of Agriculture, Sohag University, Egypt

*Plant Protection Department, Faculty of Agriculture, Assiut University, Egypt

ABSTRACT

Cats (Felis chaus nilotica) as Naturally Occurring Biological Control Agent (NOBCA) were used in grain storages. The percentage of reduction during the presence was recorded as 90.91%, after 6 months the reduction % of the predator was 33.33%.

The decreased in the efficiency of cats in reduction rodent population after six or seven months may be due to the predation prey efficiency of cats. Also, the feeding habits of the cats to prey upon variety of praise and switch their attention for one to other prey species according to the relative abundance. This switching behavior has two important effects, it allows the predator to survive when a particular prey species is low in numbers and it helps to keep it in check.

Keywords: Biocontrol Agents, Rodent, Predation and Grain Storages.

INTRODUCTION

The main objectives of this study aim to develop rodent control with non chemical control and non lethal chemical control methods, may be Bait-shyness, rodent cides resistance and cost effective, but they rarely achieve the rapid knock-down

of a pest population that is possible with properly used chemical rodenticides. However, they can be integrated with chemical control, except perhaps vertebrate predators which may be vulnerable to secondary poisoning from some persistent chemical rodenticides.

(Keshta, 2003). In Egypt, found that cats, snakes and dogs were known to kill and eat rats under most field or godown conditions. Cats can catch a full grown rat, but adult rats were too large and aggressive and often injures the cat when a capture attempt was made. Cats therefore, generally confine their attention to mice and small immature rats. Dogs and snakes can kill rats but not in such effective quantities, as to result in rodent control. For dogs, cats and snakes, like all predators, only catch the rodents that were easily available. Hussain and Ahmad (1990) in Island, reported that in some Island ecosystems, domestic cats maintain rodent populations at low levels. Although, they also often prey upon endangered species. It was believed that, in some ecosystems at least, the beneficial effects of reducing the rodent population could outweigh the damage done to the endemic prey species Fitzgerald (1991).

MATERIALS AND METHODS

This study was carried out in the grain storages at the experimental station of the Faculty of Agriculture, Assiut University. In this study the cats, *Felis chaus nilotica* were used as Naturally Occurring Biological Control Agent (NOBA) to the rodents, Cats released a May, 1st 2005. The rodent population was estimated by the wire box traps before and after releasing the cats in the seed storages.

Reduction percentage = $\frac{\text{Number of rodent species in treatment}}{\text{Number of rodent species in control}} \times 100$.

RESULTS AND DISCUSSION

Data in Figure (1) show the number of rodents before and after release cats (*Felis chaus nilotica*) to control rodents biologically in grain storages. The reduction percentage during the

experimental was recorded (90.91%) in May and fluctuated during period (June 88.89%), (July 85.71%). Results showed the efficiency of cats against the rodents presented in grain storages in early months after the experiment. After four and five months there was a decreased in percentage of reduction (40. %). However, after six and seven months treatment the reduction (33.33%).

In general the release of predator (cats) in grain storages against the rodents and damage in grains storages, in the tested area may be due to of the predators feed on a variety of prey species and switch their attention for one to the other according to relative abundance. This switching behavior has two important effects, it allows the predator to survive when a particular prey species is low in numbers and it helps to keep in check it.

Most publications concerned with Biological control of the common rodents was done by several authors such as, Keshta (2003) in Shark El-Ewainat of Egypt, reported that wild animals were in wild cats *Felis sylvestris*, sand fox *Vulpes ruepelli* and Arab wolf *Vulpes cana*. They encountered all over the year. The wild cat is diurnal. In general the efficiency average of the present predators against the distributed rodents in the tested area were arranged descendingly as follows. *Jaculus* sp 35.3%, *Gerbillus* sp 30.7%, *Meriones* sp 30.2%, *Mus* sp 25.2%. Al-Gendy(2004) in Sharkia governorate of Egypt, surveyed the rodent predators. He found that carnivorous species were cat *Felis silvestris*, weasel *Mustela nivalis* and mongoose *Herpestes ichneumon*, red fox *Vulpes vulpes*, snakes, dog *Canis lupus*. Mechanical, biological and chemical control methods can be used effectively in an Integrated Pest Management Approach (IPMA) for the regulation of the rodents population density (Desoky.2014).

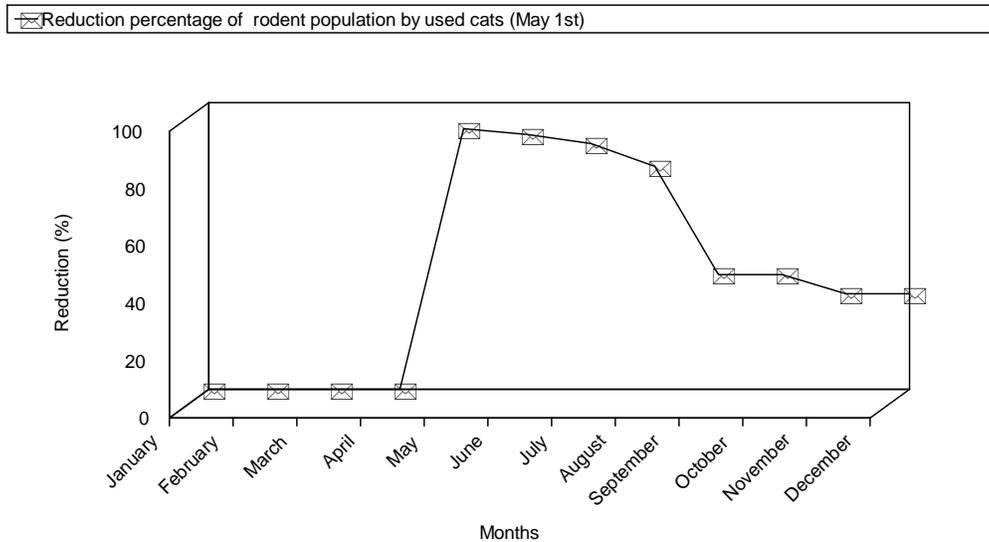


Figure 1. Percentage of reduction in rodent population before and after releasing cats (May 1st) in grain storages at Assiut University from January till December 2005.

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Corresponding author: Dr. Abd El-Aleem S.S. Desoky, Plant Protection Department Zoology, Faculty of Agriculture, Sohag University, Egypt.

Email: abdelaleem2011@yahoo.com