



Rodent Damage in Maize Fields and their Control

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Abstract

Rodents are considered as one of the most important pests in Egypt. They cause great economic loss to farmers (damage the growing crops, stored products, poultry and animals farm); and to food manufactures by damaging the structure and fabric of buildings. Beside, they gnaw through almost any object in their ways to obtain food and shelter. The present work was aimed to identify of Rodent composition and estimates of rodent damage were investigated in maize fields and their control through previous studies.

Keywords: Rodent; Maize; Damage

Introduction

Rodentia is one of the most important mammalian order which has a great numbers of rodent species with their effect on the environment. Directly, through their destructive feeding habits and indirectly by a stable food items for many predators in the food chains. In Egypt changes in the agro-ecosystem, during the last 40 years, have had a great effect on the distribution and abundance of field rodent population [1]. Rodents are implicated in many types of damage, including crop and tree damage, structural property and cable damage, disease transmission [2].

In this paper we present the most important of rodent species damage to maize plants, as well as the most important damage caused by rodents and how they occur, and finally we offer a program of integrated control of rodents in maize fields.

Results and Discussion

Conclusions can be summarized which was reached from previous experiences in the following points:

1. Survey and identification of rats inhabited maize field show that the field rat *A. niloticus* (field rat or Nile grass rat) was only rodent species prevailing in the area and responsible for maize damage [3].
2. The Nile grass rat burrows working near sources of water in the canals, so the rat population at the outer border of more fields and decreased gradually towards the center [4].
3. Rodents are near to the outer border of the field because it's fear of irrigation crop and sinking shelter with water and eliminate them. So be near the outer border for easy chance to escape [4,5].
4. Rodents attack both lodging and standing maize plants and cause damage to stalks and spike of a cereal plant.
5. It was observed that immature animals attack standing plants, whereas both mature and immature animals attack lodging plants.
6. The lodging plants were more exposed to rodent attack as compared with standing ones.
7. The damage caused a great loss in the seed-bearing head or spike of a cereal plant. and grain weight.
8. The damage decreased gradually towards the center of the maize field. The highest damage at the border of the field may be due to the high number of the rats.
9. The damage in maize plants is increasing pre-harvest directly may be due to stop irrigate wheat fields that eliminate the rat burrows, also the arrival of the grain into the process of full maturity preferred for *A. niloticus* [4].
10. The increases of the burrows are naturally accompanied with the increase of rodent population. More research effort is required to measure damage to crops over a range of rodent densities to determine the impact on yield. Researches in the future will require providing a better understanding of rodent population and access to new or improved methods of rodent damage reduction by eliminating Integrated Pest Management Approach for the regulation of the rodent population density [6].
11. Management Strategies for Rodents in maize fields in the following points:
 - The field must always be cleaned of weeds.
 - The differences in species composition of rodents depending on locality, habitat type and preferred food.
 - Close rodent active burrows in the outer border of the field.
 - Enter the field continuously and work on removing weeds and closing burrows, especially in the final stage of maturity after the suspension of irrigation [7].
 - The control of rodents depends upon the locality, neighboring and available food.

- Design of integrated control program for rodents in maize fields [8].

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