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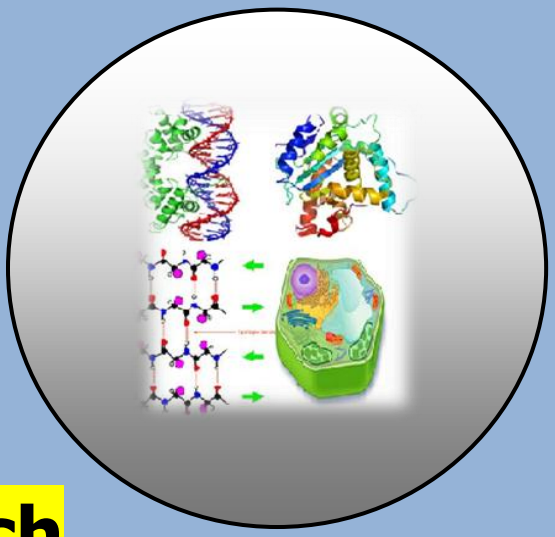

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RESEARCH PAPER

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Handling Destruction of Rodent Active Burrows as Mechanical Control of the Nile Grass Rat, *Arvicanthis niloticus* in Newly Reclaimed Lands

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ABSTRACT

The Nile grass rat, Arvicanthisniloticuswas the dominant species considered in cultivated newly reclaimed lands.The highest reduction of rodent active burrows in control area was recorded in spring (52.21%), while the lowest was (20.63%) in autumn compared with thetreated area by using the handling destroyof rodent active burrows,high reduction of rodent active burrows was recorded in spring (71.43%) the lowest was (49.20%) in autumn, Mechanical control of rodents by using the destruction of rodent active burrows achieved great success in rodent control under field conditions without environmental pollution and not costly.

Keywords: Arvicanthisniloticus ,Environmental Pollution, Handling Destroy and Rodent Active Burrows.

INTRODUCTION

After the 2nd world war, rodents started to be major pest especially in the developing countries including Middle East and petroleum countries. Since, there was tendency as much as possible to avoid the application of chemicals for vector control in a way to minimize environment pollution. El-Eraky *et al.,* (2000).

Rodent caused damage to both fruit trees and field crops in the old and new cultivated lands. In developing countries where the economy depends on agriculture, rodent infestation can pose a serious threat of not only reduced income but also widespread dangerous diseases. Damage range from negligible destruction of growing plants to total crop loss. Abdel-Gawad (2001).

Great effort should be one to develop rodent control programs. Control methods must be not fulfilling the requirement of protecting crops but also in a safe efficient and economic manner. The present study aimed to evaluate the destroying of rodent active burrows as mechanical method for control the rodent in the new cultivated lands.

MATERIAL AND METHODS

This study was carried out in 2 areas about 1 feddans for each, in cultivated newly reclaimed lands. It is located at the Eastern desert (25 km. South East of Assiut city) Assiut Governorateat Egypt during December 2004 till November 2005. It has been planted for short period less than 10 years with vegetables, field crops, orchards. The first area (treatment was destroying of rodent active burrows one time in a week) while, the second area untreated as a control. The rodent population was estimated in each site as active burrows for one year. The reduction of the active burrows was monthly estimated as percent from the initial active burrows.

- First area= treated= Handling destroy of rodent active burrows
- Second area= untreated=close of active burrows only

Number of active burrows

- Population of active burrows% = ——————————————— × 100
  Total burrows examined
- Reduction %= (Number of active burrows / Total burrows examined -100) *100.

RESULTS AND DISCUSSION

Mechanical control have profound effects on rodent population under field conditions, these results are in agreement with data obtained by Maher Ali (1972) in Assiut Governorate of Egypt, reported that in case of large food stores, it is highly advisable to destroy all vegetations (weeds) in order to deter any rodents foraging in the surrounding area from approaching close to the building. Maher Ali and Abdel-Gawad (1982) in Assiut Governorate of Egypt, studied that the application of anticoagulants and zinc phosphide for the control of the Nile grass rat *A.niloticus* (Desm.) was compared with burning of weeds harboring rodents. It was found that anticoagulants are superior to the other two methods; the burning of weeds comes next. El-Eraky *et al.*, (2000) in Assiut Governorate of Egypt, found that mechanical control by laser-land operation has given great success by this method a complete reduction in rodent active burrows was achieved after 10 days as compared with 50.6% in Qunitox rodenticides respectively. Abdel-Gawad (2001) in Assuit Governorate of Egypt, studied that two common rodenticides, super caide0.004% and zinc phosphide 5% and four mechanical viz., laser- land leveling, deep irrigation, destroying burrows and traps were evaluated for their efficacy for rodent control in maize fields. The results showed mechanical control methods achieved great success in rodent control as compared with the chemical control was ranged between 94.2% in the laser treatment method and 74.5% in the trap method with an average of 89.65% and 94.6% in handing destroy method. Al-Gendy (2004) in Sharkia of Egypt, pointed that the active burrows of rodents decreased by crashing in three consecutive days through all period of study except April. Ahmed (2006) in Assiut Governorate of Egypt studied that mechanical control of rodents in broad bean, wheat, maize and sorghum fields by handling destroying of burrows and erased the wasted materials.

It was more effective in controlling rodents than chemical methods. Baghdadi (2006) in Assiut Governorate of Egypt found that the ploughing and brushing woods operation led to complete reduction in rodent numbers during the first five months of ploughing and brushing woods operation comparing with untreated area. Whereas; the number of rodent was increased gradually from May to November. Data in Figure (1) show that the fluctuation in number of rodent active burrows in two newly reclaimed area (first area treated by handling destroy of active burrows, second area untreated). The Nile grass rat, *Arvicanthisniloticus* was the predominant most in this area. In the first area (treated with Handling destroy of rodent active burrows), the increased of reduction to active burrows was recorded in May 79.17% and February (73.66%), while the least reduction was recorded in October 35.71% and June (41.38%). This data was agreement with Metwally *et al*.,(2008a). The increased of reduction active burrows in the second area (untreated) were recorded in June (61.82%) and July (57.25%), while the least density was recorded in November (13.18%). The highest population of rodent active burrows was recorded in autumn, may be due to active burrows increased after harvesting the winter crops, this was also observed after harvesting summer crops, the results with agreement with Metwally *et al*.,(2008b) and Desoky (2013). Note: The rodent population density by using active burrows caused the escaping of rodent from their places and not controls them. Generally speaking, the high reduction of rodent active burrows in the treated area the high reduction of rodent active burrows was recorded in spring 71.43%, the lowest in autumn 49.20%, In untreated area was recorded in spring (52.41%) the lowest in autumn 20.63%.The percentage of reduction in treated area (62.88%), while in untreated area (41.49%).

CONCLUSION

The above mentioned results proved that t mechanical control can be used against roden because they:

1. Inexpensive
2. Non-pollution of the environment with rodenticides
3. Provide buy rodenticide costs
4. Not animal poisoning
5. Reduce the appearance of diseases due to the use of rodenticides
6. Reduce the emergence of resistance to pesticides do in rodents

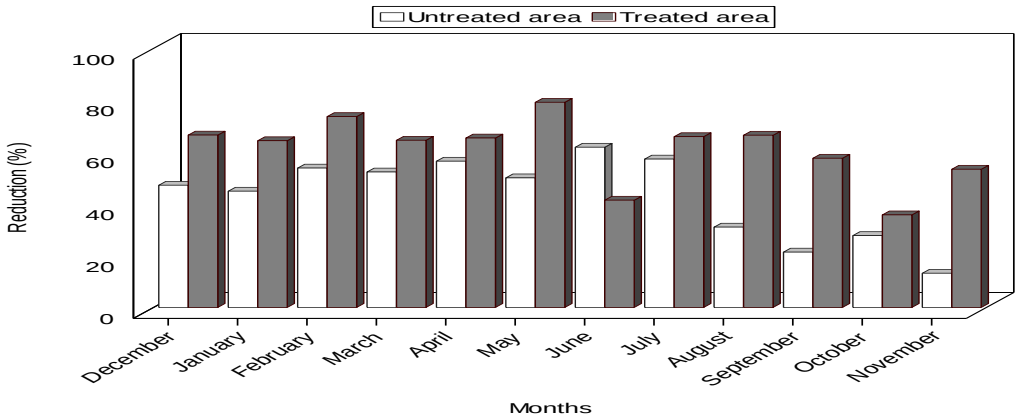

Figure. 1 Percentage of reduction between active burrows of rodent in treated area by handling destroying and untreated area to control of *Arvicanthisniloticus* in newly reclaimed area, Assiut Governorate from December 2004 till November 2005.

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