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Review article

The Effect of weed burning as a Mechanical method in controlling rodents in maize fields

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Abstract

This study was carried out to effect of weed burning as a mechanical method in controlling rodents in maize fields of Al-Dahsa village in Farshout district, Qena Governorate, Egypt, during study period 2018 / 2019. The results showed reduction in food consumer stations by (100, 86.7 and 77.6%) in the 1st, 2nd and 3rd days after treatment. This study can be using the method of weed burning as one of the integrated control program in controlling rodents in maize fields.

Keywords: weed burning, mechanical method, maize fields control methods, food consumption.

INTRODUCTION

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]. 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[3]. 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[4]. The present work was initiated to effect of weed burning as a mechanical method in controlling rodents in maize fields.

MATERIALS AND METHODS

This study was carried out in EL-Dahasa village (located at 76 km. north of Qena Governorate, Egypt) to evaluation control methods weed burning. Ten plastic stations were used for three consecutive nights and supplied with crashed maize daily. Stations were distributed at 10 meters distance on rodents' ways. Every morning daily food intake was estimated by subtracting the spilled and the remaining food in each station from the original quantity. The locations above were treated by weed burning and evaluated this control method by food intake and after treatment through 1st, 2nd and 3rd.days.

RESULTS AND DISCUSSION

Data presented in (Table-1) and (figure-1) showed that, evaluation of control methods of rodents, by food consumption there were reduction in food consumption by (100, 86.7 and 77.6%) in the 1st, 2nd and 3rd days of treatment by weed burning method.

The results similar with

At Assiut Governorate, **Baghdadi**[4] found that, the ploughing and brushing woods operation led to complete reduction inrodent 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.

Also **Bakri-Eman and AL-Gendy**[5] found that, the reduction in food consumption by57, 71 and 64% in the 1st, 3rd and 5th days of treatment respectively by trash burn method, while by flooding method there were 62, 65 and 56% reduction of food consumption in the 1^{st,} 3rd and 5th days of treatment respectively. The reduction of Arvicanthis niloticus

(Desm.) active burrows number by trash burn were 55,55and 64 % of in the 1st ,3rd and 5th days of treatment respectively ,while by flooding method, there were reduction of Arvicanthis niloticus (Desm.) burrows number by 60,60 and76% in the1st ,3rd and 5th day of treatment respectively. But **Desoky**[6] found that mechanical control methods achieved great success in rodent control as compared with chemical control. the percent of reduce in rodent active burrows population by using

mechanical control methods ranged between 93.20% in deep irrigation, 87.20% in handing destroy and 52.60% in trap methods. This method is safe to the environment and higher than for reduce rodent population density.

Desoky[7] mentioned that The Nile grass rat, Arvicanthis niloticus (Desm.) was 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 the treated area by using the handling destroy of 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.

Elrawy[8] proved that the evaluation of control methods of rodents, by food consumption there were reduction in food consumption were (100, 80 and 80%) and (100, 100 and 80%) in the 1st, 2nd and 3rd days of treatment at first and second years respectively by weed burn method, while flooding + weed burn method there were (100,100 and 84%) and (100,100 and 84%) reduction of food consumption in the 1st, 2nd and 3rd days of treatment at first and second years respectively. The evaluation of control methods of rodents, by food consumption there were reduction in food consumption by (100, 71 and 80%) and (100, 100 and 85%) in the 1st, 2nd and 3rd days of treatment at first and second years respectively by deep ploughing method, while flooding method there were (100,100 and 82%) and (100,100 and 84%) reduction of food consumption in the 1st, 2nd and 3rd days of treatment at first and secondyears respectively.

Desoky[3] 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. The control of rodents depends upon the locality, neighboring and available food.

Table-1: Evaluation of control method, (weed burning) of rodents by food consumption at Qena Governorate.

Treatments / days		1st.day		2nd.day		3rd.day		1st.day		2nd.day		3rd.day	
		intake / g.	Reduction %	intake / g.	Reduction %	intake / g.	Reduction %	Number rat / day	Reduction %	Number rat / day	Reduction %	Number rat / day	Reduction %
Weed burning	**Before**	20	100	60	86.7	85	77.6	2	100	5	80	7	71.4
	After	0		8		19		0		1		2	

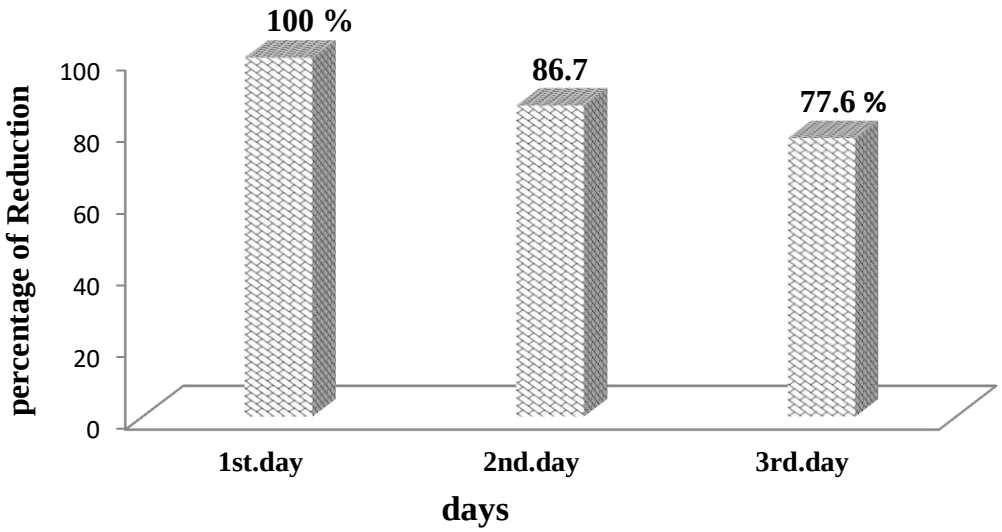

Figure-1: Evaluation of control method, (weed burning) of rodents by food consumption at Qena Governorate.

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