

Burrow/Intensity Fluctuation of Field Rodents in Relation to the Development Stages of Vegetable Crops

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Abstract: Fluctuations in burrow intensity of sympatric field murids in relation to the development stages of four summer vegetable crops, viz., bottle gourd, musk melon, sponge gourd and cucumber were recorded to be minimum at seedling stage (average, 5.50 ± 0.76 to 10.50 ± 1.25 burrows per acre), which increased gradually during vegetative growth and flowering stages and reached its peak (average, 32.75 ± 1.31 to 52.50 ± 2.20 burrows per acre) at the maturity stage. A linear trend in shifting of rodent abode from peripheral areas to inside the crop with the advancement in crop maturity was noticed.

Key words: Rodents, fluctuations, burrow, crop stage, murids.

Rodents have the ability to survive even in adverse conditions by establishing their burrows in different types of niches, forming simple and shallow to deep and complex network of tunnels with variable number of surface openings (Barnett and Prakash, 1975; Bindra and Sagar, 1975). However, the burrowing intensity of rodents fluctuates under the influence of various biotic and abiotic factors (Sood and Dilber, 1977; Kumar and Pasahan, 1993). Therefore, the knowledge of the period of peak rodent activity, indicated by burrow intensity in an area constitutes the prerequisite for an effective management strategy. An attempt has been made to study the burrow intensity fluctuation of rodents in relation to development stages of vegetable crops.

Materials and Methods

Four summer vegetable crops, viz., bottle gourd (*Langenaria siceraria*), musk melon

(*Cucumis melo*), sponge gourd (*Luffa cylindrica*) and cucumber (*Cucumis sativus*) were explored in the farmers' fields in and around Hisar. The study of burrow intensity fluctuation of sympatric field murids was carried out in relation to crop and crop stages. To account for the living burrows, the cultivated fields, water channels and pathways surrounding the crop were surveyed at each of its development stages, viz., seedling, growth, flowering and maturity. Since most of the rodents are nocturnal, the burrows were plugged with the soil in the evening and all freshly opened burrows were counted early in the next morning.

Results and Discussion

Four rodent species, viz., the Indian mole rat, *Bandicota bengalensis*, Indian gerbil, *Tatera indica*, the soft field rat, *Rattus mel-tada* and the Indian field mouse, *Mus*

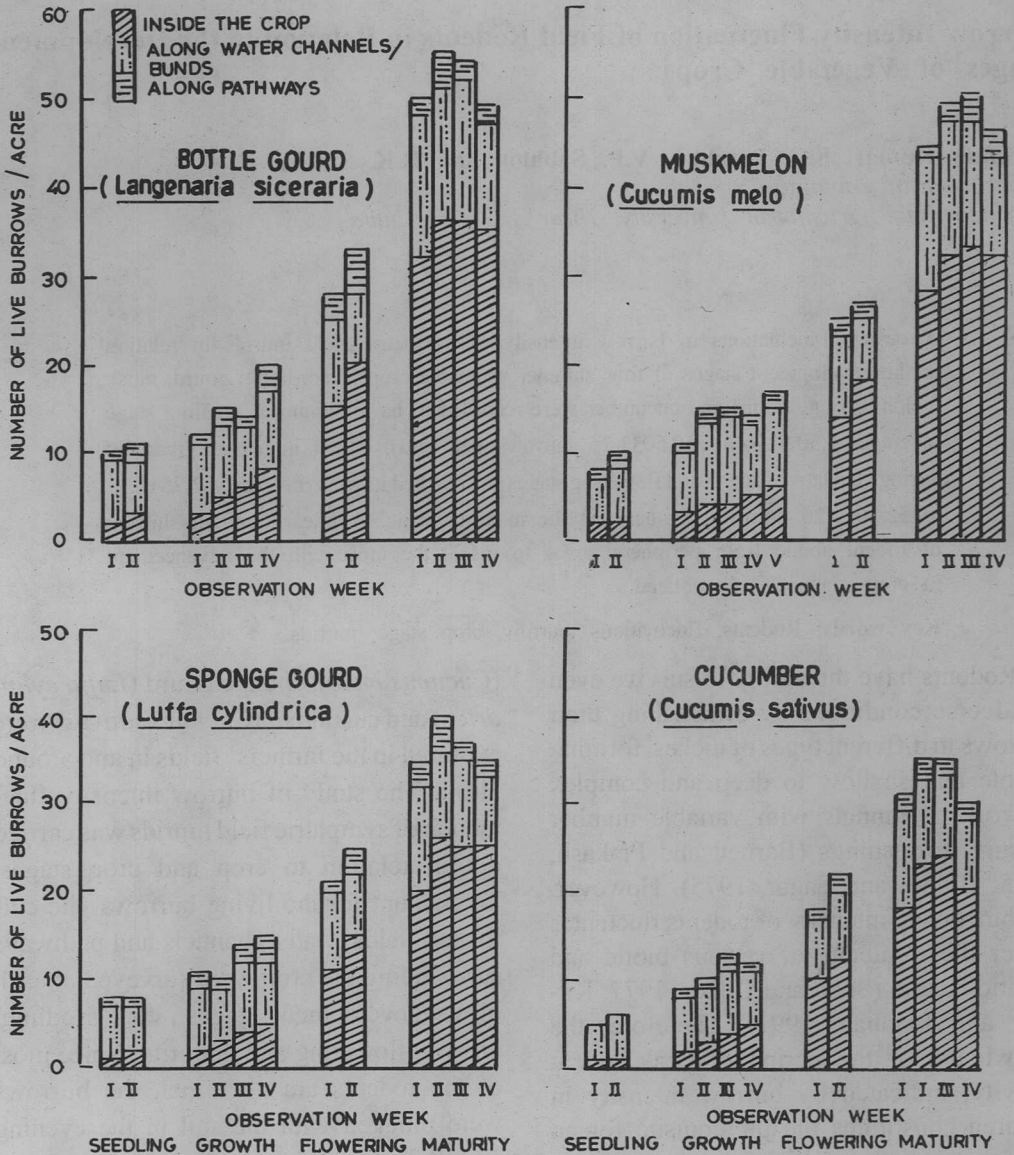


Fig.1. Burrow intensity fluctuation of field rodents in relation to development stages of vegetable crops.

booduga were recorded infesting the vegetable crops. Survey of one acre plot each of bottle gourd, musk melon, sponge gourd and cucumber has revealed the occurrence of an average 10.50 ± 1.25 , 9.00 ± 1.00 ,

8.00 ± 0.57 and 5.50 ± 0.76 rodent burrows, respectively, at the seedling stage (Fig. 1) of these crops. The intensity of burrows increased gradually during vegetative growth and flowering period and enhanced

to 52.00 ± 2.20 , 47.25 ± 1.37 , 36.75 ± 1.18 and 32.75 ± 1.31 burrows, respectively, in these crops at maturity stage. These observations, therefore, indicated a low level of rodent infestation at seedling stage and a comparatively higher degree of infestation at maturity stage (Sood and Dilber, 1977; Chopra and Sood, 1982).

A linear trend of rodent population build up inside the crop field was observed. At seedling stage, majority of burrows were found located along water channels/bunds and permanent pathways, while only a few burrows were observed inside the crop. The number of burrows started increasing inside the crop during vegetative growth. Majority of them were found transferred inside the crop at flowering and maturity stages. Of the total, 52.00, 47.25, 36.75 and 32.75 number of burrows were recorded in bottle gourd, musk melon, sponge gourd and cucumber crops, respectively, at maturity stage, 34.75, 31.25, 24.00 and 21.25 burrows were found concentrated exclusively inside the crop. This, thus, depicted the shifting of rodent abode from peripheral areas to inside the crop with the increased availability of food and shelter (Sood and Dilber, 1977; Chopra and Sood, 1982; Malhi and Sheikher, 1984, 1986; Kumar and Pasahan, 1991). It is, therefore, envisaged to take up the rodent management right from boundaries which is, no doubt, a costly affair in terms of labor and money but

definitely would prove effective and perspective beneficial.

Acknowledgement

The authors are highly thankful to the Indian Council of Agricultural Research, New Delhi, for financial assistance.

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