ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 10, Issue, 10, pp.74064-74066, October, 2018

DOI: https://doi.org/10.24941/ijcr.32570.10.2018

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

STUDY ON THE CONTROL OF BANANA PEST *ODOIPOROUS LONGICOLLIS UNDER* DIFFERENT CONDITIONS BY USING DIFFERENT INSECTICIDES

***[1]Niwas Dubey Azad and [2]Vinod Kumar Singh**

[1]P.G Department of Zoology, Gaya College, Gaya
[2]Head, P.G Department of Zoology, Gaya College, Gaya

ARTICLE INFO

Article History:
Received 10th July, 2018
Received in revised form
30th August, 2018
Accepted 05th September, 2018
Published online 30th October, 2018

Key Words:

Infestation, Insecticide, Banana, Odoiporous longicollis.

ABSTRACT

The commercial yield of banana is mainly affected by *Odoiporous longicollis* and *Cosmopolites sordidus* in Bihar during fruiting season and it is limiting the qualitative and quantitative aspect of banana crop. The two years data on efficacy of different insecticides and pesticides against infestation control of *Odoiporous longicollis* revealed that the soil application of Carbofuran (1kg/ha), Phorate (1kg/ha) and Quinalphos (1kg/ha) and foliar spray of Carbofuran (0.5kg/ha), Phorate (0.5kg/ha), Quinalphos (0.5kg/ha) have been found more effective in respect of damage control of pest infestation on banana crop. The present study indicates that all the said insecticides used as soil and foliar combination aginst the pest *Odoiporous longicollis* were significantly effective and superior to the control in preventing the damage of banana crop. The increased crop yield dozen/hectare was 27910 when using Carbofuran, 23820 when using Phorate and 20365 when using Quinalphos in the year 2016.

Citation: ***Niwas Dubey Azad and Vinod Kumar Singh*****, 2018.** "Study on the control of banana pest Odoiporous longicollis under different conditions by using different insecticides", *International Journal of Current Research*, 10, (10), 74064-74066.

INTRODUCTION

Banana as one of the major fruit crop forming an important item in the diet of millions of people across the world and it is suffering by attack of different insect pests also. Banana Pseudostem borer *odoiporous longicollis* oliver is a very serious pest of banana found all over India as well as banana growing areas of Bihar. Lefory (1906) reported this pest in the stem of plantation stebbing (1916) from Hawai. This serious pest of banana is also reported from Ceylon by Henery in the year 1916. The occurance of this pest in South India and Delhi was reported by Batra (1952), in Hajipur by Roy and Sharma (1952) and sen and Prasad (1953). *O. longicollis* has been identified as the serious banana pest in different areas of Bihar causing average loss of crop and damage of banana plants in 25% to 30%. Some times the pest creates alarming situation causing loss of host plants in the tune of 70% to 80%. As a result of heavy infestation of *O. longicollis* banana plants snap and break down on the point of attack during wind flow. It bores the leaf sheath as resulting plant damaging. The *O. longicollis* infestation interferes with the translocation of nutrient and water to banana plant resulting in retards of growth and development and cow quantity or inferior quality of banana in bunchs.

****Corresponding author:*** **Niwas Dubey Azad**
P.G Department of Zoology, Gaya College, Gaya

MATERIALS AND METHODS

To study on the control of banana pest *Odoiporus Longicollis* under different condition by using different insecticides field trails were laid out in banana field during July 2015 and 2016 in a randomized block design with three insecticides carbofuran Phorate and Quinalphos and four applications of each. The entire experimental plot measured 37.80M×1.80M Irrigation channel between the replications and path between treatments were 0.90M and 0.45M respectively. The space between plant to plant and row to row was 1.80M and the number of plants per sub plot was five. The total number of plants in trail was 120. Harichhal variety of banana was used as test material. The observations regarding this study was based on counting the total number of healthy and damaged plants. Finally the percentage of damaged plants was determined after harvesting the bunch. The number of fruits harvested were computed in terms of dozens per plant and per hectare. The data collected and analysed carefully to ascertain the effect of insecticidal success in reducing the percentage of banana crop damaged by *O. longicollis.*

RESULT AND DISCUSSION

The present study revealed that the percentage of banana crop infestation due to *O. longicollis* is the highest during the monsoon period (46.49%) as compared Post-monsoon

Table 1. Showing relative effect of different insecticides in relation to control of banana pest *O. Longicollis* under different conditions

Serial No.	Insecticide	Application Method	2015			2016		
			% damage	Yield (doz/plant)	Yield (doz/ha)	% damage	Yield (doz/plant)	Yield (doz/ha)
1.	Carbofuran	Soil	30.07	8.24	24112	29.56	8.35	24635
		Soil + Foliar	25.26	8.00	27910	23.86	9.41	28119
2.	Phorate	Soil	38.69	7.52	22920	34.10	7.66	22562
		Soil + Foliar	28.69	7.82	23820	27.10	8.91	24348
3.	Quinal Phos	Soil	37.53	7.35	20365	36.54	7.60	21360
		Soil + Foliar	34.95	7.89	23613	33.10	7.95	23910
4.	Untreated	None	46.49	6.73	18426	46.05	6.70	18596

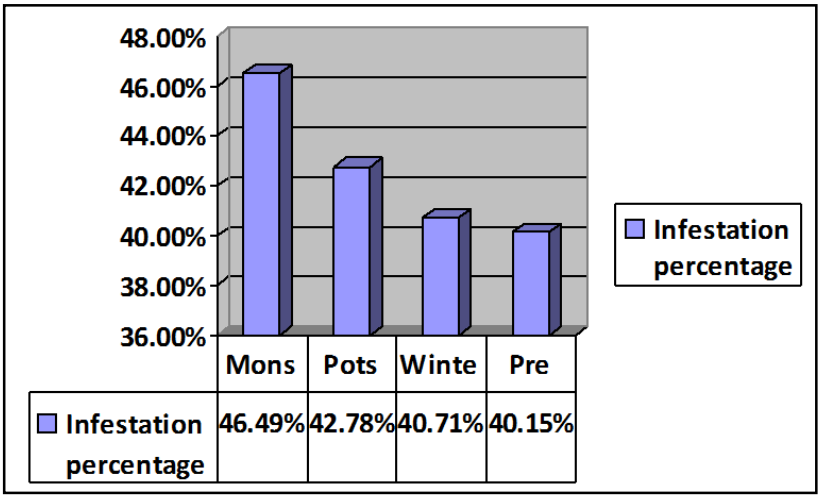

Fig. 1. Histogram showing percentage of banana crop in different season by *O. longicollis*

(42.78%). Winter (40.71%) and pre-monsoon (40.15%) Data in relation with this study mentioned in Table-1 clearly revealed that in the untreated condition infestation was 46.49% average yield dozen/plant was 6.73 dozen and 18426 doz/ha. When the Quinalphos used as a soil application infestation decreased to 37.53% and yield dozen/plant 7.35 and doz/ha 20365 in 2015. When used Phorate as a pesticide infestation decreased to 38.69% and after using Carbofuran as a soil application infestation was 30.07% in 2015. But when used pesticides in combination of soil application with foliar application Carbofuran resulting the most successful pesticide among three of used, resulting highest banana crop yield in doz/plant 8.35 and 24632 doz/ha in 2016.

Conclusion

The present study shows that infestation of *O. longicollis* starts in about 5 months old plants. Plant shows the persence of small pin headed size holes on stem, fibrous extrusions from bases of leaf petioles. Adult *O. longicollis* infestation causes secration of gummy substance from the holes of pseudostem. At the advance stage of infestation, tunneling both in leaf sheath and tree stem resulting rotten of plants with foul odours. Thus the damage of banana plant by *O. longicollis* is very serious in nature causing great loss of banana crop in different banana growing areas of Bihar. In the view of control infestation of banana crop by *O. longicollis* soil application (1kg/ha) with the combination of foliar spray (0.5kg/ha) of Carbofuran have been found more effective in comparison of phorate and Quinal phos out comes of present study may helpful in control the banana infestation by *O. longicolis* and improve economical value of banana cultivated from different area of Bihar.

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