

## A NOTE ON WALNUT BORER, *ZEUZERA COFFEA* (COSSIDAE; LEPIDOPTERA) ON WALNUT TREES (*JUGLANS REGIA*) IN DISTRICT DIR

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### Abstract

Survey was conducted in different valleys of Dir District to record the extent of damage caused by the walnut borer to walnut trees. The pest caused heavy damage in Sultan Khel valley where tree infestation was 90-100% in Sairai and 80-90% in Kotkai villages. Number of dry branches per tree ranged from 5-15 at Sairai and 5-10 at Kotkai. Similarly 60-70% trees at Sromanzo and 30-50% at Navra of Dir and Barawal were infested by the pest with 10-12 dry branches per tree in the former and 5-8 in the latter village. In Ushery valley 20 to 50% infestation of walnut trees was found in Jabar and 10 to 20% each in Almas and Usherai villages. Number of infested branches per tree in these villages ranged from 2-10. In Kadikhel, Karo, Tormong and Nihag valleys tree infestation occurred upto 30% while infested dry branches per tree ranged from 0-10. No pest was found in Khairabad valley.

### Introduction

Walnut (*Juglans regia* Linn.) is grown between 1100 to 3400 m elevation in patches of fairly levelled ground with deep soil in Hazara, Murree, Kaghan, Swat, Parachinar and Azad Kashmir. It is one of the main dry fruits of Pakistan. The wood is of multipurpose uses, like timber wood and manufacturing high quality furniture, agricultural tools, etc. The tree has a tremendous value from ecological view point, for long rotation, deep rooted, considerable height and one of the best tree species for mixed plantation in hilly areas.

Unfortunately such a valuable tree is attacked by a number of insect pests, including some species in Coleoptera, Hemiptera, Homoptera and Lepidoptera. However, among these pests the shoot borer, *Zeuzera coffea* is the most devastating to walnut trees. It is a wide spread pest species in Bangladesh, India,

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Malaya, Pakistan and Sri Lanka with a wide range of host trees (Browne, 1968). In Pakistan another species *Z. multistrigata* was also found attacking walnut trees in Swat (Chaudhry *et al.*, 1966).

The white ornamented with black spots and streaks, female moths lay reddish yellow eggs in lines on shoots and branches, which hatch after about 10 days. The larvae bore into small shoots and branches ultimately reach the main stem causing damage to the tree growth. The larval and pupal period last for 2-4 months and 3-4 weeks, respectively. At higher altitudes life cycle is completed in one year while in low lands it lasts for 4-5 months. Usually there is one generation per year, however 2 generations per year have also been recorded (Beeson, 1941).

### Materials and Methods

In order to find out the extent of infestation caused by *Zeuzera coffeae* to walnut trees, the following villages in the respective valleys were visited during July - December, 1996.

S. No.	Valleys	Villages
1.	Sultan Khel	Sairai, Kotkai
2.	Dir & Barawal	Sromanzo, Navra, Barawal Banda
3.	Ushery	Jabar, Almas, Usherai
4.	Kadi khel	Malanga, Jogha Jai
5.	Karo	Darokai, Batan, Karkabuna, Kumera, Awarai, Pashta
6.	Kare	Bibyor, Amluknar, Kasuna
7.	Tormong	Sair, Shikaulai, Gawanrai
8.	Nihag	Kasuna, Mashmano Banda, Sankore, Sundal
9.	Khairabad	Kasu, Paramar, Wuch

Visual observations were recorded on the trees for borer infestation on the basis of presence of the dry infested branches. Number of dry branches were counted on the infested trees to record the intensity of the damage. In each locality 50 trees were observed in 5 spots by taking 10 trees in each spot.



## Results and Discussion

The insect was recorded from Sultan khel, Dir and Barawal, Khadi khel, Kare, Tormong and Nihag valleys of Dir District. Walnut infestation in these valleys is given in the following Table.

Table 1. Extent of walnut infestation caused by *Zeuzera coffeae* in Dir District

Locality	% trees infested	No. of dry branches per tree
<b>SULTAN KHEL VALLEY</b>		
Sairai	90-100	5-15
Kotkai	80-90	5-10
<b>DIR AND BARAWAL</b>		
Sromanzo	60-70	10-12
Navra	30-50	5-8
Barawal banda	6-10	2-3
<b>USHERY VALLEY</b>		
Jabar	20-50	2-10
Almas	10-20	2-5
Usherai	10-20	2-5
<b>KADI KHEL VALLEY</b>		
Malanga	10-30	3-4
Jogha jai	10-16	2-4
<b>KARO VALLEY</b>		
Darokai	10-30	5-10
Karkabuna	6-20	5-10
Batan	6-16	2-5
Awarai	0-6	2-3
<b>KARE VALLEY</b>		
Bibyor	10-20	2-3
Amluknar	10-16	5-8
Kasuna	0-10	2-4
<b>TORMONG VALLEY</b>		
Sair	10-20	2-5
Shikaulai	0-10	0-5
Gawanrai	0-10	0-2
<b>NIHAG VALLEY</b>		
Mashmano banda	10-16	2-4
Kasuna	0-10	2-3



The Table shows that the pest has caused heavy infestation in Sultan khel valley where tree infestation in Sairai and Kotkai villages was 90-100% and 80-90% respectively. Number of dry branches per tree ranged from 5-15 at Sairai and 5-10 at Kotkai. In Dir and Barawal walnut tree infestation ranged from 60-70% at Sromanzo and 30-50% at Navra with dry branches of 10-12 per tree in the former and 5-8 per tree in the latter place. In Ushery valley 20 to 50% infestation of walnut trees occurred in Jabar and 10 to 20% each in Almas and Usheraï villages. Number of infested branches per tree in these villages ranged from 2-10. In Kadi khel valley 10-30% trees infested at Malanga and 10-15% at Jogha jai with 2-4 dry branches per tree in both localities.

In Darokai, Karkabunj, Butan and Awarai of Karo valley the pest infested, respectively, 10-30%, 6-20%, 6-16% and 0-6% walnut trees. Number of dry branches per tree ranged from 2-10 in these villages. However, no damage was found on walnut trees in villages Kumera and Pashta of the valley. In Kare, Tormong and Nibag valleys overall tree infestation ranged from 0-20% and dry branches per tree from 0-8. However, walnut trees were found free from insect damage throughout Khairabad valley.

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### References

- Beeson, C. F. C. 1941. The ecology and control of the forest insects of India and the neighbouring countries. The Vasant Press, Dehra Dun, pp. 1007.
- Browne, F. G. 1968. Pests and diseases of forest plantation trees. Clarendon Press Oxford. pp. 1330.
- Chaudhry, G. U., M. I. Chaudhry and S. M. Khan. 1966. Survey of insect fauna of forests of Pakistan. Final Technical Report PL-480 Project, PFI, Peshawar, pp. 146.