

## Heavy Attack By Red Hairy Caterpillar (*Amsactamooreia*), (Butler), 1875, As Polyphagous Pest Leads To Malnutrition In Satpuda Ranges Of Nandurbar And Dhule District Of Maharashtra, India.

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**ABSTRACT:-** India been an Agricultural Country, Number of crops were cultivated, at the same time number of pests also attack the crops. Out of these some are monophagous and some are polyphagous like Red hairy caterpillar it is *Amsactamooreia*, A. Albastiga, (1876), Butler. **It is occurring all over the world.** Decrease in the production of agriculture yield leading to Malnutrition in tribal district like Nandurbar and other Dhule district.

**KEY-WORDS:-** Red hairy caterpillar, A. Mooreia, A. Albastiga, (1876) Butler., Malnutrition, Satpuda Ranges, Dhule, Nandurbar district.

### I. INTRODUCTION:-

DISTRIBUTION OF *AMSACTAMOOREIA*, MOOREIA, A. ALBASTRIGA, (1876), Butler IN INDIA:-

In India it occurs in States like Maharashtra, Andhra Pradesh, Tamilnadu, Mysore, Gujarat, Punjab, M.P., U.P. etc.

As India being an agricultural country, 70% or more population live in villages, depends on agriculture. They cultivate a net sown area of 140 million hectares and contribute a share of 30% Gross Net Productivity (GNP) with the adoption of high yielding varieties, using chemical fertilizers pesticides but the pest problems becomes in complex forms. (1) \*Red hairy caterpillar is very serious polyphagous pest of India observed on kharip crops area like Nandurbar and Dhule District as tribal District of Maharashtra in Satpuda Ranges. This is hilly area hence attack is found in such region all over India. It can also be seen that, rain fed area having light soil mostly be attacked regions by this pest. It is under drought conditions, and mostly hilly areas of Dhule and Nandurbar district.

The Black Hairy / Black Wooly Caterpillar, *Amsactamooreia* Cramer (Lepidoptera: Arctidae) is distributed throughout the India,

Burma, Ceylon, China and Java. It is recorded on 29 host plants in India and on 4 in Ceylon.

### Study Areas of Satpuda ranges from Dhule And Nandurbar district. :-

The Satpuda mountain ranges are located in the northern part of Maharashtra state, bordered with Gujarat state on its western side and Madhya Pradesh on its northern side. These chain of mountain is an extension of the species rich Western Ghats and spread in three districts namely Nandurbar, Dhule and Jalgaon. The Satpuda mountain lies approximately between 20°38'-22°30' N and 72°30' E and covers an area of 12143 sq. kms. Though the entire mountainous region is not as high as the other parts of the Western Ghats, at least some of the peaks, such as Boksa, Nandan peak, Asthambadongar etc. reach a height of about 1208-1325m. above M. S. L. The climate of Satpuda mountain is generally dry except in the rainy season. The average precipitation is about 647 mm. where as the mean maximum and minimum temperature of the area are 41°C and 25°C respectively. Satpuda mountain is rich in vegetation due to its geographical location. The sub-humid and sub-arid nature of the region allow many plants from the Indus plain and Western Ghats region to penetrate well into the territory of Satpuda mountain.

Nandurbar district lies in the rivers Narmada and Tapti forms the Northern and Southern boundaries of the study areas which comprises of the major part of Nandurbar district. The area lies between 73° 46' 42" to 74° 22' 33" east longitude and 21° 29' 50" to 21° 43' 53" north latitude.

The pest red hairy caterpillar *Amsactamooreia*, Butler, (1876), A. Albastiga, Butler, both pests are reported in the SATPUDA ranges of Dhule and Nandurbar district of Maharashtra state of India. Their damage was reported on number of plants and crops, vegetables and trees and herbs

and shrubs as a POLYPHAGOUS pest in the field and leads to Malnutrition status of people of both district.

Most of the farmers from hilly areas are generally illiterate tribal and not able to understand the life cycle and also integrated management of this caterpillar. Heavily attack of this pest is increased due and also integrated management of this caterpillar. Heavily attack of this pest is increased due to following reasons.

- 1) Deforestation
- 2) Nocturnal habit of Moth
- 3) High reproductive capacity
- 4) Tufts of hair on larval body
- 5) Poor tribal illiterate farmers.

**HUNGER** 14%, in India till today, **Heights** of Children up to 5 years **Fatness** in 0.8% increase is reported. **Hunger, Heights and Fatness as below;-**

| Year    | Malnutrition | Population |
|---------|--------------|------------|
| 2004-06 | 24.94 crore  | 21.7%      |
| 2017-19 | 18.92 crore  | 14%        |

**Heights in children :- up to 5 years of age 3.47% with Dwarfness.**

| Year | Children   | Percentage |
|------|------------|------------|
| 2012 | 6.2 crore  | 47.8%      |
| 2019 | 4.03 crore | 34.7%      |

**Fatness:- In India, show increase by 0.8% . It is shown in the following table.**

| Year | Adults     | Percentage |
|------|------------|------------|
| 2012 | 2.52 crore | 3.1%       |
| 2016 | 3.43 crore | 3.9%       |

Classification of Amsactamoorie, A. Albastriga, (2)

\* It can be classified as below:-

Scientific Name :- Amsactamoorie, Butler, (1876),

A. albastriga, Butler, (1815) .

Order:- Lepidoptera

Family:- Erebidae, (Leach)--Tufts of hair on larval body,

Sub-family :- Arctidae,

Host – Plants :- Maize, cow-pea, black-gram, sorghum, bajra, ground-nut, and pigeon-pea, cotton and more other plants etc.

Therefore, it is very serious polyphagous pest attack heavily and defoliates kharip crops totally leads scarcity of food grain and pulses which leads to malnutrition in tribal people of Satpuda hilly area ranges Akkalkuwa, Taloda, Shahada, Dhadgaon, Navapur Tahsils of Nandurbar district. And Sakri, Pimpalner, Shirpur, Shindkheda, and Dhule Tahsils of Dhule district. (2)

## II. MATERIALS AND METHODS:-

I have taken surveys from various tahsil locations and gone through field surveys observed Amsactamoorie, Butler, (1876), on different crops as a polyphagous pest like Maize, cow-pea, black-gram, sorghum, bajra, ground-nut, and pigeon-pea,

Why this pest A. moorie, A. albastriga, is very infectious, its life cycle is occurring in different places and in different plants, and it is voracious feeder in caterpillar stages,

Recently, reports from **Government of India, WHO, UNICEF,** and **Indian Development Fund** shows that, in India, from since decades, 6 crore people are escaped from hunger. But, from 4 years 91lac old people are suffering from fattiness problems.

According to reports from, International Agricultural Development Fund, UNICEF, WHO, World Food Security, India has Malnutrition, Height of Children, Fatness improvement. Reports are as follows:- (15 th July 2020) .

cotton and many more plants etc. Reports of Dhule and Nandubar district area observed Amsactamoorie on large scale as infective stage causing more than 10-25% damage in both districts in the Maharashtra state, India. It also reported to be the very voracious feeder on oil crops in various states of India, causing more than 25%-30% damage to crops. (5) \*(6) \*(7) \*(8) \*(9) \*(10) \*

The family Arctiidae and Lymantridae have also been considered subfamily of Noctuidae after Lafontaine & Fibiger (2006). Moreover, comparing with Upper Indo-Gangetic plain ecosystem which represented by 47 species, 36 genera and 13 subfamilies considering Arctiidae and Lymentridae as families of independent status (Hampson, 1892 & 1894). The family Noctuidae has been described in dominance amongst Lepidopteran families by Narayanan (1969), Singh (1977), Anuradha et al. (2002) and Chaturvedi (2007) inflicted heavy damage to different crops, vegetables and fruits, hence a most important group of Lepidopteran families and considered yield barriers in India/ damagers. Approximately 6000 species of insects (Alfred et al. 1998). Crop losses due to insect attack reach an average 45% of the total yield annually (Anon. 2005). In the past, these insects were

monitored by using light traps, pheromone traps etc for the control of Lepidopteran caterpillar stage because of voracious feeding activities on different plants as polyphagous pests.

When we study, the life cycle, and their infective stages and I had my own observation and Results :- It provides proofs of various locations and sources of publication of paper and their news in local newspaper papers. (Nandnagari) of Nandubar district, on Front page. Local edition, KVK, (KRISHIVIGYANKENDRA, KOLDA, DISTRICT NANDURBAR. They prepared a video on the life cycle of Red hairy caterpillar . People from various fields shows very heavy infection of Amsacta moorei, Butler, 1875, in these district in hilly regions of Satpudaranges in the Nandurbar as well as Dhule district (2004-2010), Maharashtra state of India. For this purpose, District Agriculture Officers, through writing and the Audio-video Programmes in their local language for the Tribal people of Satpudaranges are also developed, and people are awareness about Red hairy caterpillar Amsactamoorei, Butler, (1876), A. albastriga Butler, (1876). In Dhule, Collectorate field Campus, heavy infection was reported in Aapla Maharashtra, local Newspaper edition, (2009). In Audio-visual recording Nandubar district of Red hairy Caterpillar film all the types of necessary control measures are experimentally shown how to control the pest, by using Pheromone Traps, Light traps, putting a water / Bottle/ bucket for collection of male and female moths of A. Moorie, A. albastriga, Butler (1876):

### III. DISCUSSION:-

Due to heavy infection in Dicots like Lentils, Moong, Gram, and other plants of oil crops like Ground- nut, Soybean. All the production of the most of the crops are less due to infection of Amsactamoorei, (1876) A. albastriga (1876), Butler. (4)\*.

Report of the Malnutrition of the Dhule district are discussed in this during (2019, September). In Dhule district, 0 to 6 years age totally, 1,75,000 children were checked for Malnutrition, from them report of 351 children are more under weight and seriously malnourished . They are less in weight, age, and height as compared to others in the age groups. (4), \*  
 When we discuss about the A. moorie, (1876) , A. Albastriga, (1876), Butler,

#### \*\*Efforts are made to overcome the Malnutrition conditions of children:-

- 1) Establishment of District Village Children Development Center.
- 2) Children are admitted to the (CDC) , Children Development Center.
- 3) Before, this children are admitted and provided by the essential food supplements.
- 4) Recently, children are admitted at least, 3-month and are supplied with a nutritional supplements of food to children and mother.

The survey conducted by Dhule Village Children Development Center (DVDCs), during the Year, (2019, June-September), 10 Project Center has been following results of Malnutrition status. During January, 2019 -to March, 2019, Dhule district has 3431, under weight children and are fed with food supplements out of these 3410 children were recovered, only 12 remain under fed. Less Malnutrition children are 1323 and are fed with supplements to overcome Malnutrition children There are 2104 playing group/ center which are not coming to school , 6 month to 6 years, age with such children are given home delivery of food supplements. In Dhule district 351 Malnourished children in (2019, 7 August.) Daily Lokmat Newspaper, Hallo Dhule, Panzarakan Parisar page. Lokmat News Network. (14)\* (15)\*.

The survey of Dhule district during year (2019, August) for Malnutrition as follows:- Dhule, Shri-Shirpur, Shin- Shindkheda, Pimpalner.

**Table:-** Malnutrition number of children in various Tahsil of Dhule.

| Project-Name | Child dev. Center | Seriously Malnutrition | Med. mal. |
|--------------|-------------------|------------------------|-----------|
| 1. Dhule-1   | 14                | 19                     | 148       |
| 2. Dhule-2   | 34                | 63                     | 284       |
| 3. Dhule-3   | 11                | 16                     | 165       |
| 4. Shri-1    | 30                | 41                     | 148       |
| 5. Shri-2    | 31                | 41                     | 137       |
| 6. Shin-1    | 22                | 39                     | 83        |
| 7. Shin-2    | 35                | 60                     | 172       |
| 8. Sakri-1   | 14                | 28                     | 21        |
| 9. Dahivel   | 23                | 31                     | 94        |

10.Pimpal-----13-----13-----71-----  
Total-----227-----351-----1323-----.

All these number of Dhule district children are affected due damage of catterpillar leading to Malnutrition in the survey of various Tahsil.

The life cycle of Amsactamoorei, Butler, (1876) consists of 4 stages as follows:--

Life Cycle is shown as schematically:- Eggs----> Larva--->Pupa-->Adult.

1000 Eggs → 3 – 5 days → Larva 5 stages → Moultings →  
Pupa 9 – 10 months period, Adult, then die – 2 – 3 days, before mating gives 1000 Eggs again.

The life cycle shows 4 stages – Egg – Larva – Pupa – Adult.

1) **Egg :-**The eggs are generally laid preferably on grassblades as well on growing crops by female after 6 to 9 hrs. after mating. About 100 to 150 eggs batch in small rows on the undersurfaces of leaves are laid. Single, female in its 3 – 5 days life span if may lay 700 to 2000 eggs. These are minute, cream or bright – yellow in colour. The egg masses look like clusters of poppy seeds especially conspicuous against green foliar background. The egg hatches within 3-4 days.

2) **Larva:-(14)** \*it is a voracious feeder on number of plants and crops a” Devil catterpillar “wearing and tearing of plants and as plants become weaker and stunted in growth and without leaves cause less photosynthesis activities and without it, there is no production/ yield net production/ increase in yield. These are small very minute, comes out form the egg after incubation. The young larvae feed in lusters. The larvae after hatching feeds voraciously, scrapping the leaves for few days. The larvae measures about 5-8 mm in length and posses dense crop of hairs on their body. It show 2 black spot on dorsal side of 1<sup>st</sup> abdominal segment. The feeding ability increases with their egg. The moult 6 times to reach maturity and measures 40-45mm in length. This larval period may lost for 15-20 days depends upon environmental conditions. These catterpillar disperse all over fields and eat the leaves and top shoots of plants and plants become defoliated.

3) **Pupa :-**The full grown catterpillar begin to go down into the soil for pupation at the end of September. Pupa exarate, Light – brown turn black after some period and about 20mma in length and 7-8 mm in width. A timely rain is prerequisite for successful pupation for catterpillars which require loose wet soil burrowing to depth of 15 to 30 mm. Pupa remains 9 to 11 months under the soil when the conditions are unfavorable. They remain in soil upto onset of monsoon of following year.

4) **Adult :-**After the beginning of rainy season the emergence of red hairy catterpillar takes place

from pupa. The adults are medium sized with white wings. The fore – wing are dark with red stripped margin on costal region and 2 black spots on the hind wings. The black and red bands and spots observed on thoracic and abdominal part of the body. The female moth is larger than male. Female is nearly 25mm long with wing expanse of 34mm. This are nocturnal. During day they hide under the leaves of crop. After 1-2 days mating they survive only for 3 – 5 days and die.

It requires a following control measures for the control of A. moorie, Butler, (1876) A. albastriga. (1876), Butler.

#### Control Measures of A. moorie, A. Albastriga, (1876) :-

The different methods of POLYPHAGOUS pest control measures and their management is as follows:-Integrated pest control :- It include, chemical, physical, mechanical, biological methods of control.

It includes all the types of control measures of Red hairy catterpillar, Amsactamoorei, (Butler) and Amsactaalbastriga. It is chemical, physical, mechanical and biological. (7) \*

##### 1) Chemical Control

1. Egg – masses, larvae and pupae should be picked up and destroyed.
2. Spot application or complete coverage of crop with methyl parathion or dichlorovos 0.05% dusting with methyl parathion 20% dust or quinalphos 1.5% dust with 20 – 25kg/hectare.
3. Ploughing – As the pupation takes place in soil for that purpose we should plough the soil very deeply. So pupae can be directly exposed to sunlight desiccation and predation can takes place.
4. Use of Light traps – After shower of monsoon moths of red hairy catterpillar emerge out from pupa in large numbers. These moths are nocturnal but as moths are strongly attracted towards light. A strong light may be placed at proper place in the field supported with wooden stick. Near this a vessel of kerosinized

water for killing moths before mating and egg laying. (13) \*

5. Collection and destruction of egg and larval masses – The collection of egg and larval masses in early stage along with leaf and put in kerosinized water kills the larvae.
6. Trench – digging – countering deep – sided furrow around the field can check the crawling hordes of hair cater pillars effectively.
7. Application of NSKE – Spraying of Neem Seed Kernal Extract makes the larvae unable to feed on crop.
8. Biological control – Spray of Thuricide (Bacillusthuriensis) has also proved effective in killing the caterpillar.

#### IV. CONCLUSION:-

It is reported that A. moorie (Butler) A. Albastriga, ,Butler(1876)is very serious pest of all the crops acting as polyphagous pest having more , 25 to 30% damage to Gram, oil seeds and any more economic plants which gives farmers and people of both district a good amount of money, but due to infection, loss is observed in net production of crops. Caterpillar damage causes Malnutrition conditions of Nandurbar and Dhule district of Maharashtra state, India.

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