FIRST RECORD OF *Spilosoma virginica* (FAB.) IN MAGADH, BIHAR, WITH THE EMPHASIS ON NEW HOST PLANT SELECTION (*Oryza sativa*)

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ABSTRACT:

The occurrence of yellow woolly bear (*Spilosoma virginica* Fabricius) is widely distributed in North America on different vegetable crop till date. Now it is also found in Narhat location; $24^0$46'19"N$85^0$25'45"E, district Nawada, (Bihar) on paddy crop. As it is not yet reported on paddy anywhere, therefore it can be first record reporting the availability of yellow woolly bear in Asian region with the selection of new host plant, which is paddy crop type Arize 6444, Pioneer, Parnawa mansuri in natural farming condition. Keeping in view the socio-economic importance of paddy in India S. virginica shall be the new threat for the poor farmers, along with the *Chilo partellus, scripophaga incertulas, Mocis frugalis, Mythimna loreyi, Melanitis leda, Hesperia comma, Hieroglyphus annulocornis.*

Key words: - Yellow woolly bear, *Spilosoma virginica* (FAB.), *Oryza sativa,* Paddy, Infestation, .

INTRODUCTION:

Yellow woolly bear (*Spilosoma virginica*) are Arctiidae, external feeder characterized as chewing and sucking Lapidoptereans. The common host plant of woolly bear caterpillar includes birch, sunflower, maple, aster, different herbs, grasses, weed and most popular yellow woolly bear feeds on different vegetables which is commercially important. However Stacey et. al. reported Some of the species having unusual feeding behaviour engage in sequestering chemicals for their non-nutritive value. The caterpillars of *Spilosoma virginica* basically suck the plant stem sap, feed upon tender leaves or chew the emerging soft seedlings. They are recorded as feeding on more than 100 species (Tietz et. al., 1972). Whereas newly emerged larvae of its different species, which attack in similar fashion and feeds selectively upon mesophyll after chewing through overlying epidermis; (Robert h. Hagen and Jean Fincher Chabot, 1986).

METHODOLOGY:-

During the course of field observation in relation to the paddy stem borers, we observed a new type of pest available in paddy field, crop type (Arize 6444, Pioneer, Pranava mansuri) located in two different location of Narhat village during Sep-Oct 2018. Specimens were collected and brought to the post department of Zoology; Magadh University Bodhgaya for further studies has to be followed. Collected specimen were sent to the two senior entomologists for further confirmatory identification; Prof. M. Raziuddin (Ex-Dean faculty of science, Ex-HOD Zoology, VBU Hazaribagh and Ex-pro vice-chancellor, Ranchi university, Ranchi), Prof. K. B. Sharma (Ex-Dean faculty of science, M.U Bodhgaya) and literature study supported us in the identification of the collected *S. virginica* insects, photographs were taken using a Samsung j max tablet in GPS enabled mode in the view of piracy.

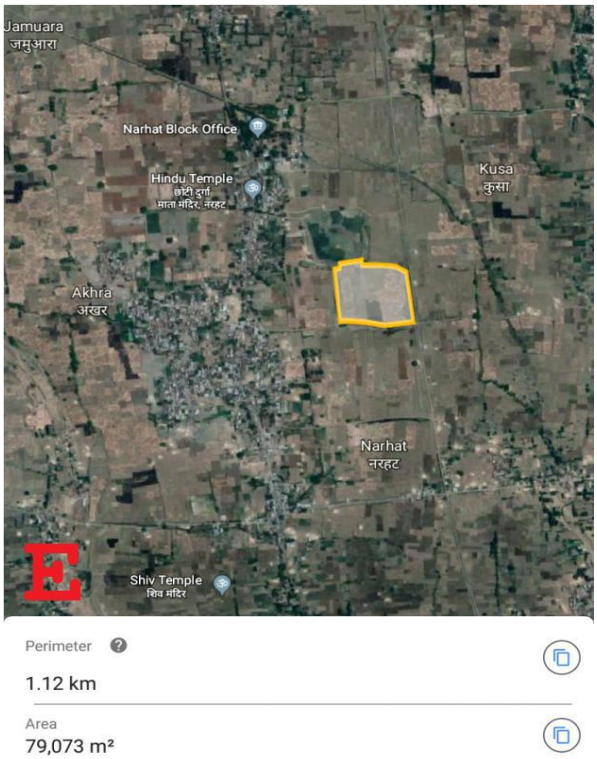
MATERIAL EXAMINED:-

Spilosoma virginica 2nd instar larvae, 4th instar larvae, pupa, moult of larvae, Adult, paddy crop type (Arize6444, Pioneer, Parnawa mansuri), Narhat, Bihar.

MORPHOLOGICAL DIAGNOSIS:-

Larvae are most common in yellow colour. As they mature, they retain their hairy characteristics and develop long, fine, soft hairs with 13 bands of shorter, stout bristles. Fully develop caterpillar measured 46mm in length. The pupa is reddish-brown and measured 13.5mm in length. Pupa case is constructed from the larval hairs, which is held together loosely with silk. The wings are white, but the front wings bear a small black spot near the centre. All caterpillars behave in a similar manner, when they are fall down by human encounters, remained immobile where it fell, usually in curled position about 10-60s. When activity resume, crawled in whichever direction it happened to be facing like bear.

Fig :- (A) showing GPS enabled photograph showing locality of ***Spilosoma virginica*(FAB.)** under Magadh division (Bihar).
Fig :- (B) showing ***Spilosoma virginica*(FAB.)** on the paddy leaf.
Fig :- (C) showing infestation of paddy by **yellow woolly bear** larvae are chewing soft ears of paddy.
Fig:- showing different instars larvae of ***Spilosoma virginica*(FAB.)**



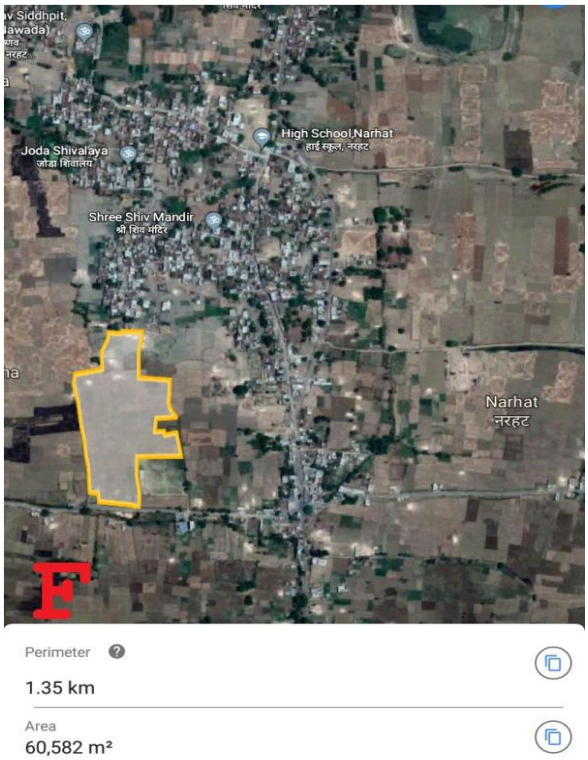


Fig:- (E and F) showing GPS enabled Google Earth land Scape of infested field of paddy.

RESULT AND DISCUSSION:-

Synonyms: - *Diacrisia virginica* (Fabricius).

As we all know it is common in American continent and notorious pest of vegetables. However in India we find the Yellow woolly worm in the month of Sep-Nov on paddy crop which is a new type of host plant selection for their survival in Indian sub-continent. It also observed in irrigated cropland damaging paddy plants. Larvae are chewing soft ears of paddy, feeding on leaves, sucking the sap of soft stems. The mode of damaging effect paddy plants growth, resulting defoliation, seedlings loss, damage of leaves, stem breaking.

DISTRIBUTION RANGE:-

The yellow woolly bear is found through area of paddy cultivating land located in Narhat village. Its distribution encompasses around Narhat- Baniyabigha road (1st plot, area 79073m^2) and Narhat- Manjhvey road (2nd plot, area 60582 m^2).

DAMAGE POTENTIAL:

S. virginica commonly known as body covered in long soft hairs (setae) of variable length, feed on a wide range of vegetable host plant including soybean (Maria.et al., 2018), beet, cabbage, carrot, cauliflower, corn (Bruner et. al., 1891), eggplant, onion, pea, potato, pumpkin, radish, sweet potato and turnip.

CONCLUSION:-

The *Spilosoma virginica* is natively belongs to Virginia. It is a notorious pest of wide range of vegetable as it is not yet anywhere reported which also founds in India. Therefor our conclusion is, it is not only present in Bihar (India) but now a day very notorious pest established themselves on paddy (Arize 6444, Pioneer, Pranava mansuri). It is widely distributed in our region Narhat (Bihar). Our submission is *S. virginica* is now also available in Asian region particularly in India and damaging the new type crop which is new threat, not yet reported as a primary rather secondary host plant for its development. In reference to the multiple generation within a year it can be also a new type of threat for the vegetable cultivaters.

ACKNOWLEDGEMENT:-

Our esteemed thanks to retired Prof. Dr. M. Raziuddin (Ex-Dean faculty of science, Ex-HOD Zoology, VBU Hazaribagh and Ex-pro vice-chancellor, Ranchi university, Ranchi) to make us sure for the identification of *Spilosoma virginica* (Yellow woolly bear). A warm thanks from deep core of heart to retired prof. and Head Dr. K. B. Sharma. (Ex-Dean faculty of science, M.U Bodhgaya) who make sure for the identification of *S. virginica*. We are equally thankful to Prof. Dr. Sunil Kumar Singh (senior prof. of Entomology and HOD zoology, M.U Bodhgaya) who had trusted and given us opportunity to perform the field work and collect the sample material to explore the further studies in the field of entomology. We are thankful to entire team of the P.G. department of Zoology (M.U Bodhgaya), who supported a lot to carry out our field study.

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