Review Form 1.7

Journal Name:	**International Journal of Environment and Climate Change**
Manuscript Number:	**Ms_IJECC_107893**
Title of the Manuscript:	**Study on Biology of Fall Armyworm, Spodoptera frugiperda (J.E. Smith) on Maize, Zea mays L. in Manipur**
Type of the Article	**Original Research Article**

Review Form 1.7

PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments 1. **Is the manuscript important for scientific community?** (Please write few sentences on this manuscript) 2. **Is the title of the article suitable?** (If not please suggest an alternative title) 3. **Is the abstract of the article comprehensive?** 4. **Are subsections and structure of the manuscript appropriate?** 5. **Do you think the manuscript is scientifically correct?** 6. **Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.** **(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)**	**Abstract** **Note:** 1) An abstract is the summary of your research. 2) It must include basic information of the background to the study i.e. what was studied, why, how, when etc. 3) How refers to the research design, materials used to conduct the study, parameters that were measured, tools used for taking measurements, results, recommendations etc. 4) The abstract must not be less than 350 words and all this information must be written in one paragraph. **Keywords** You must write six keywords selected from your abstract and these words must be separated by semi colons. **Introduction** Maize (*Zea Mays*) originated in the Andean region of Central America. After rice and wheat, it is the third most important cereal grain in the world, providing nutrients for people and animals as well as being a major source of raw materials to produce starch, oil, and protein, alcoholic beverages, culinary sweets and more recently, fuel [1]. The USA and China are the major producers of maize with 36% and 25% of the world's total production of maize, respectively. India, with an annual output of 31.65 million MT, is currently ranked sixth among the world's top ten maize producers [11]. Maize production is currently hampered by a number of biotic and abiotic problems (name them). Although there are roughly 141 insect pests that impair the maize crop in varying degrees, just a dozen of them is serious enough to cause significant damage [12, 18]. Specifically, shoot fly, pink stem borer, and maize stalk borer are the insects of national importance. Besides these, *S. frugiperda* is a newly emerging harmful pest to maize crop due to its polyphagous and transboundary behaviour. Fall armyworm (*Spodoptera frugiperda)* is a native pest of America [13]. It has been reported for the first time in 2016 in Africa [10], causing an estimated maize yield loss of US$ 2.5 to 6 million in 2017 [2]. Of late, FAW invaded the Indian subcontinent for the first time during mid 2018 infesting research fields of maize at the University of Agricultural and Horticultural Sciences, Shimoga, Karnataka [19] and spread quickly to many other states [21] including Northeast India which was first reported during late March 2019 in Lunglei district of Mizoram and West Tripura district of Tripura state. In Manipur, it was first detected on 7th May 2019 in Chandanpokpi village of Chandel district and subsequently reported from all the districts of Manipur [9]. Fall armyworm (FAW), a highly polyphagous pest, voraciously feeds on maize and survives on more than 350 crop plants [14]. The early instar larvae feed on the leaves by scraping and skeletonizing the upper epidermis, producing a translucent membrane resulting in papery patches and pinhole symptoms. Late instars cause substantial defoliation and produce a significant amount of faecal pellets in the whorls. (What is the economic importance of this loss of leaves to the maize crop). During the reproductive stage, larvae damage tassels or bore inside the cob and eat away the kernels. (Tell us more about the effects of the damage caused to the tassels and cobs). What are the benefits of the research, who is going to benefit. Therefore, the objective of this study was to present the baseline information on the biology of *S. frugiperda* which is helpful to formulate	

	proper and effective pest management techniques. **Materials and Methods** **Note:** 1) The population to be studied must be clearly stated. 2) What is your sampling unit and sampling method used? 3) Clearly state your research design i.e. experimental groups used and the number of replications etc. 4) Which statistical package did you use to analyse your data (SAS or SPSS) **Results** It is better and even smarter to present your results in tabular or graphical form. Show your results under the "Results" subheading and this must be independent of your "Discussions" subheading. **Discussions** You compare your findings with findings of earlier researchers but try to be argumentative or critical and avoid your discussion to be simply of a narrative of nature.	
Minor REVISION comments **1. Is language/English quality of the article suitable for scholarly communications?**		
Optional/General comments		

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

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