

## Incidence of Pod Borer *Etiella zinckenella* Tr. in Soybean During *rabi*-Summer

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### ABSTRACT

The experiment was carried out at Agricultural Research Station, Bailhongal, Karnataka during *rabi*-summer 2020-21. Incidence of pod borer initiated 50 days after sowing and lasted till harvest. The only pod borer observed was *Etiella zinckenella* while the common soybean pink pod borer *Cydia ptychora* and *Helicoverpa armigera* were absent during *rabi*-summer. The incidence of pod borer was less in early sown (November) crops. The results revealed that peak population was recorded in January first fortnight sown crop (13.00 larvae/MRL) and higher pod damage (44.67%) was recorded in December second fortnight sown crop.

**Keywords** *Etiella zinckenella*, Pod damage, *Rabi*-summer, Soybean.

### INTRODUCTION

Soybean (*Glycine max* (L.) Merrill) is popularly referred as “Golden Bean” or “Miracle crop” and known to be originated in China and far east. It is a major oil seed crop with multiple uses as seed contain 20% Oil and 40% protein (Yadav 2013). Global production of 336.11 million tonnes in an area of 121.69 million hectares was remarked during 2019-20. In India, Karnataka stands fourth rank with an area of 0.34 m ha and 0.34 mt production with the productivity of 1000 kg per hectare during 2018-19 (Anon 2019). Because of its luxuriant growth with green foliage provides an ultimate source of food, space and shelter to insects. The insect pests which attack the crop at flowering and later stages causes huge yield losses. The major post flowering pests are the pod borers. Upadhyaya (1987) observed that except some local black-seeded genotypes all other genotypes were found susceptible to pod borer among 71 soybean genotypes investigated during rainy season at UAS Dharwad. Pod borers like *Cydia ptychora*, *Helicoverpa armigera*, *Maruca testularis* and *Etiella zinckenella* were causing maximum upto 42.70% pod damage in North Karnataka (Madhuri-ma 2015). Among the pod borers, *Cydia ptychora* (Meyrick) (Lepidoptera : Tortricidae) and *Etiella zinckenella* has gained importance as a serious pest of soybean in recent years and restricted to northern Karnataka. Hence, it is important to know the pod borers incidence and damage level during different

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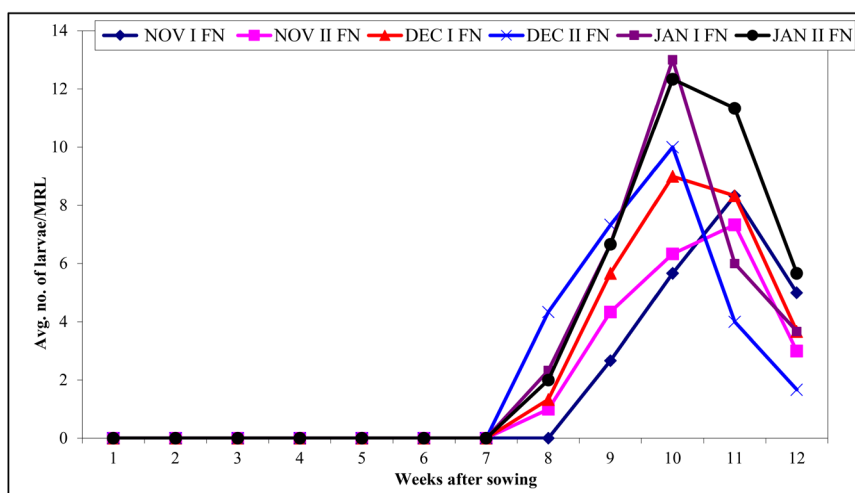


Fig. 1. Incidence of pod borer (*Etiella zinckenella*) in soybean during rabi summer (2020-21).

growing seasons. As most of the studies carried out during *kharif*, this study acts as a bridge of knowledge on pod borer incidence in different growing seasons.

## MATERIALS AND METHODS

The present investigation was carried out during *rabi*-summer 2020-21 at Agricultural Research Station (ARS), Bailhongal, Karnataka, India. Bailhongal is situated in the transitional tract of North Karnataka (Zone 8) at 15°48'47.88" North latitude and 74°51'23.62" East longitudes with an altitude of 699.31 meter above MSL with the annual rainfall of 370-630 mm annually. Soybean variety JS-335 was grown at six different sowing dates started from November first fortnight to January second fortnight at fortnight (FN) interval. The crop of 10 rows at each of 5 m length with 30×10 cm spacing. Number of larvae per meter row length were recorded at three places and per cent pod damage is calculated using 50 pods.

$$\text{Per cent pod damage} = \frac{\text{No. of pods damaged}}{\text{Total no. of pods observed}} \times 100$$

## RESULTS AND DISCUSSION

Pod borer incidence initiated 50 days after sowing from tender pod stage. In the study the only pod

borer appeared was *Etiella zinckenella* while, the common soybean pink pod borer *Cydia ptychora* and *Helicoverpa armigera* were absent during *rabi*-summer. Incidence was observed in last 4-5 weeks starting from 9<sup>th</sup> week after sowing till harvest. The population ranged from 0.00 to 13.00 larvae per MRL. In November first fortnight sown crop peak of population of 8.33 larvae/MRL observed at 4<sup>th</sup> MSW (11 weeks after sowing). The incidence increased in further sown crops with a peak population of 7.33, 9.00 and 10.00 larvae/MRL during November 2<sup>nd</sup>, December 1<sup>st</sup> and 2<sup>nd</sup> fortnight sown crops, respectively. The peak population was observed in January first fortnight sown crop with 13.00 larvae/MRL which was followed by 12.33 larvae/MRL in January second fortnight sown crop (Fig.1). The results were in partial agreement with Dhaka *et al.* (2011) who reported the incidence of *Etiella zinckenella* on vegetable pea and recorded peak incidence in February 1<sup>st</sup> week with 17.67 larvae/10 plants during *rabi* and Kishor *et al.* (2019) who reported incidence of *Etiella zinckenella* was recorded from 7<sup>th</sup> MSW and attained peak at 9<sup>th</sup> MSW on lentil during *rabi* 2017 at Pusa, Samastipur.

Pod damage caused by *Etiella zinckenella* was high up to 44.67% (Dec II FN) in late *rabi*. While the summer crops sown during January first and second fortnight were also infested severely by pod borer with 44.00% and 42.00% pod damage (Fig. 2).

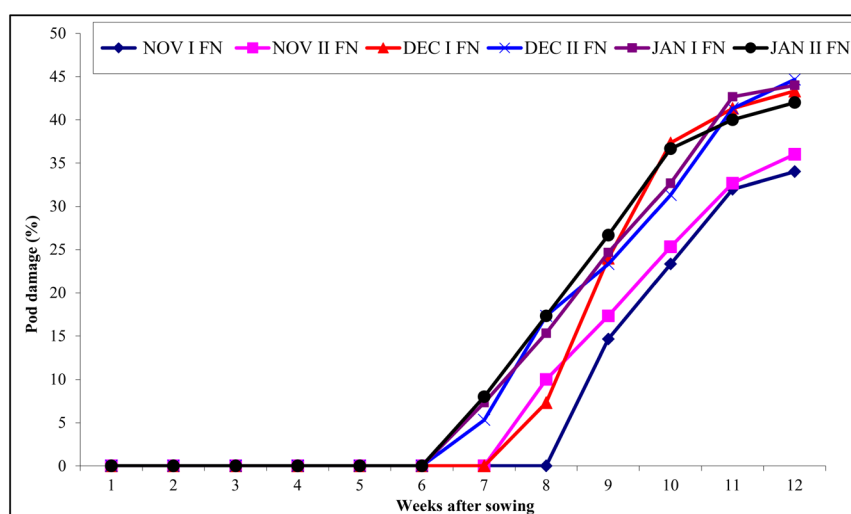


Fig. 2. Pod damage at different stages of soybean crop during *rabi* summer (2020-21).

While, the pod damage was less in early sown crops (November). Due to lack of literature in *rabi*-summer some of the results left undiscussed. But, in *kharif* season pod damage up to 36% (Madhurima 2015) and 52.34% (Anon 2021) caused by *Cydia ptychora* in Dharwad region. Along with *Cydia* the incidence of *Helicoverpa armigera* also recorded during 2021-22 (Anon 2022) while, the incidence of *Etiella zinckenella* during *kharif* season was considered as minor.

The study concluded that Pod borer incidence initiated 50 days after sowing. The only pod borer appeared was *Etiella zinckenella* during *rabi* summer. The pod damage and population both were less in early sown (*rabi* summer/ November and December sown) while it went on increasing trend in further sowings.

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