

New Pest *Duponchelia fovealis* Zeller (Lepidoptera: Pyralidae) in Peanut Field

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Abstract

Duponchelia fovealis Zeller was determined for the first time in the peanut areas although it is a harmful insect generally in greenhouses and on the ornamental plants. Larvae of this injurious insect feed in the pods going inside and consume nearly all pod. It was determined that 32.4 % of the peanut fields in which survey was carried out was infested with the alive larvae of the insect. While the number of larvae was determined to be 11 at most, the damaging rates of the pods were 0.71% at least and 3.48% at most. It was seen that *D. fovealis* began to settle in the peanut areas and this case could cause big problems.

Keywords: Peanut, *Duponchelia fovealis* Zeller, New record, Turkey

INTRODUCTION

Peanut is the most important oily plant in the world. It was cultured nearly in 60 countries and 34.5 million tons production was obtained per a year [1]. In case it provides an important amount of eatable oil source, it acts an important role in human feeding in tropical and subtropical regions [2]. When comparing with the general in the world, it was grown in a very little amount of areas in the East Mediterranean Region. At the same time, while it is a livelihood for many people in this area, it also provides raw material for many managing. That is why, peanut is very important in case small scale managings could continue and it contribute to the economy. A lot of harmful organisms are problem in the peanut fields as well as in the other field crops [3-4].

As a result of feedings of harmful insects on the peanut plants, intensive aflatoxin could occur. Especially Lesser Cornstalk Borer (*Elasmopalpus lignosellus* Zeller (Lepidoptera: Pyralidae) being harmful on the fruit capsule underground acts an important role on occurring aflatoxin [5]. While *D. fovealis* was determined on the *Eustoma grandiflorum* an ornamental plants in Italy [6], it was determined firstly on greenhouse ornamental plants in Holland [7], and Czech Republic [8]. [9] reported it as an harmful insect spreading to wide areas. *D. fovealis* infested in U.S.A. and it was determined at least in 11 Counties in California [10]. *D. fovealis* exists in the Mediterranean Region, Canaries Islands, the Middle East, some regions of Africa, Europe, Canada [11]. and Turkey [12]. Also, it was reported being epidemic in the strawberry areas in Italy [13].

MATERIALS AND METHODS

There is no any report about this harmful insect's being on the groundnut in our country. In the province of Osmaniye where this harmful insect was determined firstly, studies were carried out in September and November, and state of infestation, the ratios of alive larvae and the damage on the fruits were determined. In each field, at five different points, two plants next to each other were examined to count larvae and egg on their vegetative parts. Eggs were sought in the 5 cm depth of the soil nearby place of the root. After that these plants were pulled out by using a spade. All fruits of the plants pulled out were controlled by breaking. In the event that an alive larva was found, that field was considered as infested. Damaging ratio was found by comparing the damaged fruits with the total fruits. Only the fruits in which alive larvae were found were evaluated not to confuse with the damage caused by any other underground harmful organism.

RESULTS AND DISCUSSION

Synonyms: *canuisalis* Milliere, 1868 [14], *canuisalis* Milliere, 1869; *griseata* Butler, 1875; *uniflexalis* Mabille, 1880 [15]. Material Examined: Osmaniye, 05.10.2010, 3♂♂, 3♀♀, 21.10.2010 3♂♂, 2♀♀, Length: (♂) 9.8-11.2 (10.2)mm., wingspan: 15.8-18.2 (17.5)mm; Length: (♀) 7.6-9.0 (8.7)mm., wingspan: 16.1-19.5 (18.2)mm. Description: Male: Vertex, frons, antennae, labial palpus and maxillary palpus are grey and eyes are black. Surface of forewings are black like grey, those



Fig.1. *Duponchelia fovealis* larvae come in making a hole in the pod not matured yet



Fig.2. *Duponchelia fovealis* larvae mostly consume the inside of the pods

of median part are grey. Antemedial and postmedial bands have dirty yellow. Disco-cellular spot has a near square form in black colour. Interneural spots are black. Surface of hindwings are dull grey and darker towards the sides. Head two times wider than its length. Maxillary palpus is very short. Haustellum is well developed. Antennae filiform and long. Labial palpus short, directed obliquely upwards and 1.56 times as long as ocular diameter. Ocelli present. Forewing relatively long and broad, its length 2.36 times longer than its width. Hindwing broad, its length 2 times longer than width.

Studies were conducted in the fields totally 6 main crops and 22 second crops were grown. While only one field was determined as infested at the main crops, the larvae of the harmful insect were found in 8 fields at the second crops. 32.14% of the groundnut fields surveys were carried out was determined to be infested. While the most number of the larvae were determined as 11 in a field, damaging ratios of the fruits were determined as the least 0.71% and the most 3.48%. That existing of *D. fovealis* larvae generally in the field having more plant remnants attracted attention. Larvae were found mostly in the fruits nearer the soil surface. Larvae come in making a hole in the seed pod not matured yet (Figure 1) and mostly consume the inside of the fruits (Figure 2). Larvae or eggs were not encountered at the controls carried out. More than

one larva couldn't found in the fruits. *D. fovealis* generally is harmful on ornamental plants and in greenhouses [6-7-8]. With this study, it was determined that it is also harmful in the groundnut areas. Infestation rates in the fields surveys were carried out were taken into consideration, it was seen that harmful insect began to get established in the groundnut areas in the region. Lesser cornstalk borer (*E. lignosellus* Zeller) an important harmful insect in the groundnut areas in U.S.A. [16], causes economically big damages feeding peg and pod [17], also causes forming Aflatoxin [18-19]. The damage types of both harmful insects are very similar to each other. Feedings of the harmful insects in the fruits under ground will decrease the effect of the used insecticides. Also, existing of the larvae in the fields sowed later was seen to be able to make the problem bigger. In the event that the larvae attack the fruits in the middle or late periods, insecticides used with the sowing will not show the sufficient effect [20]. Likewise Laser corn stalk borer gives more damages and early sowings decrease the its population [21]. *D. fovealis* was found on the begonias in San Diego County's San Marcos Areas in 2004, and it spread out in 14 counties in California and Arizona until 2010 [22].

D. fovealis has a wide host range. It causes damages on the ornamental plants and in greenhouses. In recent years, increases have been seen in damaging and spreading out. With the causing damages on the ornamental plants, it was seen that it could be harmful in groundnut areas. That existing under ground and in the fruits will make the management of it difficult. In the areas the study was carried out, it was seen that it got established in the groundnut areas. In the same way, in case of infesting to the groundnut areas in other countries, it is thought that it could get established in those areas and cause new problems. Necessary precautions must be taken before spreading groundnut areas completely.

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