

REPORT ABOUT THE WHEAT LEAF MINER •

Syringopais temperatella Led. •

INTRODUCTION

The leaf minor *Syringopais temperatella* Led. Has a great significant for wheat and barley in the north of Iraq. Some earliest studies of the biology and ecology of this pest were conducted in Iran and Turkey. There was one generation per year. It attacks the leaves of the plants. Where larvae mine through leaves of wheat and barley Adults usually appeared in the field during the second half of April. Each female laid 29.2 eggs. After hatching the larvae formed cysts in which they aestivated during summer, fall and part of winter as first- instar larvae. They resumed activity at the second half of January. The larvae moulted three times (4 instars) The larval period lasted for 315.46 days. By the first half of April the full-fed larvae entered the soil and constructed cocoons crevices at a depth of about 0.3 – 4 cm. The pupal period averaged 13.96 days. There was one generation per year. •

The results of controlled fields infested every year by wheat leaf miner *Syringopais temperatella* Led. in Al-Hamdania and Tellkief regions and Susceptibility results of Wheat and Barley crops infested by this pest.

All the varieties of wheat and barley were planted in fields with cereals and legumes rotation

The results showed that the Larvae will go out from its dormancy from soil in the planted fields with cereals to attack the weeds or to infested cereals in the neglected bare areas or which planted by legumes and before the growth of cereals in the neighbor areas in 17/1/2007.

Some Barley/Rihan variety were found in the areas determined for legumes cultivation, and was really infested by leaf miner and the Larvae started to make tunnels between leaves epidermis (picture 1) Showed the damage of leaf miner on leaves, then the Larvae transferred to attack wheat variety Abu Ghraib after (33) days from the emergency stage.



شعير رويحان مصاب بمرض عفن الفول السوداني بتاريخ 07/1/17

في قرية شواجدة في الضميمة

17 1 2007

Firstly: ALHamdania Sector:

Wheat Fields:

Materials and Methods

1- An Experiment was done in Twajna village (ALHamdania), used of (granular Diazinon)10% with 2.5 kg/dounm mixed with seed variety Abu Ghraib, in Zero tillage and Chisel treatments after using of Gramaxon for weed control in amount of 1 liter/dounm

Planting was done in 17/1/2007

First raining was in 29/1/2007

Seed emergency in 19/2/2007

in 14/3/2007 (30 plant) were pull out randomized from the two treatments to determined (the percentage of the infested leaves, number of tunnels made by Larvae and the number of alive larvae) for each plant.

Results and Discussion

Table (1): The effect of ploughing methods on the percentage of infested leaves, number of tunnels and alive larvae/plant in wheat variety Abu Gharuib.

Ploughing Methods	Date of sampling	% infested leaves/ plant	Number of tunnels/plant	Number of alive larvae/ plant
Zero tillage	14/3	15.15	1.1	0.3
Chisel	14/3	20.3	1.5	0.9

A: The treatment with Diazinon showed decrease in percentage of the infested leaves, number of tunnels and alive Larvae/Plant in Zero tillage treatment compared with the Chisel.

B: The effect of the insecticide was clearly noticed on alive Larvae inside the tunnels in Zero tillage compared with the Chisel.

Discussion:

Perhaps this different due to the operation which exposed the insecticide in the soil such as: adsorption or absorption by the plant, The adsorption will happened by a large degree in the dry soils compared with moisture soils. The soil moisture degrees lead to change of balance between absorption and adsorption, which cause the trend towards adsorption in the Chisel treatment, and towards absorption by the plant in the Zero tillage treatment as well as the leaching operation by rains happens rapidly and insecticide penetration to the soil depths in the Chisel treatment.

2 – Randomized samples (30 plant) were taken from each treatment (Zero tillage, Chisel and control) from each type of varieties (Om Rabee, Sham/6 and Karuniya)

a test was done to know the susceptibility of different varieties mentioned to the infestation with wheat leaf miner and the impact of the ploughing methods in the infestation by this insects.



Table(2):The effect of varieties and ploughing methods on the percentage of infested leaves , number of tunnels and number of Larvae for each plant.

Varieties	Ploughing methods	% infested leaves/ plant	Mean No. of tunnels/ plant	Mean No. of larvae/ plant
Om Rabee	control	38.54	4.8	1.4
	Chisel	40	4.4	1.9
	Zero tillage	38.54	2.26	1.7
Sham /6	control	36.48	6	1.5
	Chisel	35.94	6.5	3.2
	Zero tillage	23.86	2	0.9
Karuniya	control	75.43	3.5	1.2
	Chisel	46.87	4.4	1.6
	Zero tillage	35.71	3.3	1.7

A: The varieties (Om Rabee, Sham/6 and Karunya) are characterized in the zero tillage treatment, with decreases in the infested leaves percentage and the number of tunnels for each plant compared with the treatments of control and Chisel for the same varieties .

B: Variety of wheat Sham/ 6 characterized with decreases in the percentage of (infested leaves and tunnels and alive Larvae) for each plant in Zero tillage compared with varieties (Um Rabee & Karunya).

C: There was decrease in the number of alive Larvae in the wheat variety Sham/6 in the zero tillage treatment.

The relative number of alive Larvae increased by (1.6) times more in the control treatment and 3.25 times more in the Chisel treatment compared with its similarities in the Zero tillage treatment .

D: The relative number of alive larvae increased by 1.88 times more in the varieties (Om Rabee & Karunya) in the Zero tillage treatment compared with its number in the wheat variety Sham/6 in the same treatment .

Discussion:

The preferences of the wheat leaf miner Larvae for certain variety instead of other, perhaps due to the difference of the variety contain from the neutral materials which effect on the Larvae test or may be to the morphological characteristic of plants which has effect on the Larvae behavior which make it more attractive and acceptable. also the wall thickness of the epidermis increased the plant resistance.

Secondly: Tellkief

1 – Wheat Fields

The First Experiment:

An experiment was done in the fields which for the project test in Tellkief.

* Gramaxon was used for control the weeds in 20/1/2007 in amount of 1 liter/dounm.

* 21/1/2007 granular Diazinon 10% mixed with the seed from two varieties of wheat (Tell affer/3 and Karunya) in the treatment of Zero tillage and in amount of 2.5 kg/dounm.

A number of Randomized samples (30 plants from each variety) were taken in two times, 22/2/2007 and 12/3/2007, to check the percentage of infested leaves, number of tunnels and number of alive larvae) for each plant and variety .

Table (3): The effect of varieties and date of sampling on percentage of infested leaves, number of tunnels and alive Larvae for each plant.

Varieties	Date of sampling	% infested leaves/ plant	No. of tunnels/ plants	No. of larvae/ plants
Tell affer/ 3	22/ 2	38.38	3.1	1
	12/ 3	33	3.4	1.1
Karunyia	22/ 2	30.88	2.5	0.8
	12/ 3	25.39	2	0.2

A: The wheat of **Karunya** variety has showed less (percentage of infested leaves , tunnels and alive Larvae) for each plant whether for the first date of sample taken on 22/2/2007 compared with wheat variety **Tell after /3** and the same in the second date in 12/3 .

B: Wheat leaf miner Larvae was **more preference** infestation wheat variety **Tell after/3** and **less preference** for wheat variety **Karunya**.

C: Granular Diazinon lead to **decrease** alive Larvae specially on the wheat variety **Karunya**. The relative number of alive Larvae was four times more on the same variety in the first date in 22/2 compared with its number in the second date 12/3.

The second Experiment:

Chevalier was added to control weeds in 13/3/2007 ,and in amount of 72 g/dounm mixed with alpha cypermethrin 50% to control leaf miner in amount of 100 ml/ dounm in the experimental unit for the two varieties of wheat (Tell affer/3 & Karunya), which used three methods of ploughing (Chisel, zero tillage & control).

Randomized samples were taken (30 plant) from each experimental unit dated in two time, 16/3/2007 & 25/3/2007. The sample were check to know the percentage of infested leaves, number of tunnels and number of alive larvae) for each plant

Table(4): The effect of varieties, ploughing methods and date of sampling on the percentage of infested leaves, number of tunnels and alive Larvae for each plant.

Varieties	Ploughing methods	Date of sampling	% infested leaves/plant	No. of tunnels/plant	No. of alive larvae/plant
Tell Affer/3	Control	16/3	34.71	4.7	1.3
		25/3	9.30	0.4	0.2
	Chisel	16/3	41.46	4.2	1.8
		25/3	23	1.4	0.3
	Zero tillage	16/3	33	3.4	1.1
		25/3	13	0.2	0.1
Karunyaia	Control	16/3	38.14	4.1	1.1
		25/3	21.11	1.3	0.1
	Chisel	16/3	38.38	4.2	1.8
		25/3	35.08	2.5	0.8
	Zero tillage	16/3	25.39	2	0.2
		25/3	5.8	0.4	zero

It found that the results stated in the table four , decrease in the (infested leaves, number of tunnels and alive Larvae) for each plant due to the use of alpha cypermethrin after twelve days from use compared with finding resulted after three days from use on wheat plants variety **Tell affer/3** , as below :

a: control treatment: The relative numbers of the three studied characters which consist on : infested leaves, tunnels & alive Larvae increased by **(3.73,11.75 & 6.5) times more after three days** from treated of the insecticide compared with its similarities **after twelve days**.

b: Chisel treatment: The relative numbers of the mentioned characters is about **(1.8 , 3 & 6) times more after three days** from treated with its similarities **after twelve days**.

In the case of treated wheat plants variety **Karunyia**, in **Zero tillage** by alpha cypermethrin, it has been found **decrease** in the (infested leaves and the tunnels number) for each plants **after twelve days from treated** compared with its similarities **after three days**.

a: The relative number of each infested leaves and the tunnels was about **(4.37 and 5) times respectively more after three days** from treated compared with its similarities **after twelve days**.

b: Alive Larvae were **absent** in the **Karunyia** variety of wheat plant **after twelve days** from treated with alpha cypermethrin.

2 – Barley Fields:

According to barley ,both Granstar& Locsan were used in amount of 5 g /dounm and 650 ml/dounm ,respectively to protection from weed and alpha cypermethrin to protect from wheat leaf miner in amount of 100 ml/dounm, in 13/3/2007 .

Randomized samples (30 plant) were taken for both variety of barley (jazzera & Rihan) and from each Planting method (Control, Chisel and Zero tillage) dated in 16/3/2007& 25/3/2007.The samples were check to know (The percentage for infested leaves, number of tunnels & Larvae) for each plant .

Table:(5) The effect of varieties, Ploughing methods and date of sampling on the percentage of infested leaves, number of tunnels& alive Larvae) for each plant .

Varieties	Ploughing methods	Date of sampling	% infested leaves/plant	No. of tunnels/plant	No. Of alive larvae/plant
jazzera	Control	16/3	38.15	2.2	2
		25/3	25.16	1.8	0.8
	Chisel	16/3	33.66	3.7	1.6
		25/3	18.40	1.6	0.5
	Zero tillage	16/3	29.9	2.9	0.2
		25/3	15.1	1.4	Zero
Rihan	Control	16/3	40.32	2	1.1
		25/3	28.57	2.1	Zero
	Chisel	16/3	35.08	2.5	0.8
		25/3	24.6	1.2	0.3
	Zero tillage	16/3	38.66	4	0.7
		25/3	30.84	2.8	zero

A: In the case of treated of alpha cypermethrin insecticide on barley plants **Jazzera** variety lead to decrease of alive Larvae after nine days. The relative number of Larvae was (2.5 & 3.2) times more in **Control** and **Chisel**, respectively after three days from treated compared with its number after nine days.

B: we found that, Alive Larvae were absent in barley variety **Rihan** in the case of treatments of **Control & Zero tillage** after nine days from treated with the same insecticide, The relative number of alive Larvae(2.6) times more after three days from treated compared with its number after nine days .

Note:

The insecticide Disez (ULV) was used in amount of 250 ml/dounm in18/5/2007 to control Sunn pest, in all of the experimental unit of wheat.

Thank you for listening

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