J. Agric. Sci. Mansoura Univ., 33 (2): 1499 - 1507, 2008

EFFECT OF SOME AGRICULTURAL PRACTICES ON THE INFESTATION WITH GREATER SUGAR CANE BORER, *Sesamia cretica* LED. IN THE SPRING PLANT CANE AND ITS 1ST RATOON IN UPPER EGYPT

Abazied, A. A.
Sugar Crops Res. Inst., Agric. Res. Center, Ministry of Agric., Egypt

ABSTRACT

The present work was carried out in Mattana Agricultural Research Station, Qena Governorate on sugar cane cultivar, Giza 99/103 during two successive seasons 2005 and 2006 to study the effect of some agricultural practices on the infestation with the greater sugar cane borer, *Sesamia cretica* Led. (Noctuidae : Lepidoptera) in spring plant cane and its 1st ratoon.

The spring plant cane was planted in early March, 2005 at two row spaces (80 cm &100 cm) and three fertilizer treatments were tested in both spring plant cane and its 1st ratoon. The tested fertilizers were nitrogen fertilizer (urea 46% N) with two doses 230 kg /fed. & 310 kg /fed.; potassium fertilizer (48% K_2O) with 50kg/ fed. and without whereas microelements fertilizer (FZM) were applied with 400 gm/fed. (100 gm Fe+100 gm Zen +200 Mg) and without. Randomized Complete Block Design (RCBD) splited one time was used with three replicates and each replicate contain 16 plots (1/200 fed.). The infestation intensity was monitored after 45 days from planting date in spring plant cane and after the same period from harvesting date for the 1st ratoon by taking monthly samples started from mid-April until September in the both seasons.

The obtained results showed that, the infestation with *S. cretica* in both spring plant cane and its 1st ratoon reduced in sugar cane plants which cultivated at wide spaces (100 cm) than those cultivated at narrow spaces (80 cm).

The infestation affected with the dose of nitrogen fertilizer, the high dose of nitrogen fertilizer (310 kg/fed.) increases the infestation more than the recommended dose (230 kg/fed.). Potassium fertilizer reduced the infestation with *S. cretica* in sugar cane fields, because it strength the sugar cane stalks and become more tolerant for the infestation compared with unfertilized plots. Also, adding microelements fertilizer (FZM) decreased the infestation with *S. cretica* in sugar cane fields.

The combined effect of the tested agricultural practices showed that, the infestation reduced to minimum intensity in both spring plant cane and its 1st ratoon in sugar cane plants cultivated at wide spaces (100 cm) and fertilized with the recommended dose of urea fertilizer (230 kg/fed.); adding both potassium sulphate fertilizer (50 kg/fed.) and microelements fertilizer (400 gm/fed.).

So, it prefers to cultivate sugar cane plants at wide spaces and to use the recommended dose of urea fertilizer and both potassium sulphate and microelements fertilizers to reduce the infestation with *S. cretica* to its minimum intensity in sugar cane fields without any insecticide applications.

INTRODUCTION

Sugar cane is the main source for sugar production in Egypt, its cultivated area about 300,000 feddans most of them in Upper Egypt. Sugar cane plants are subject to infestation with many insect pests, it attacked with stem borers, *Sesamia cretica* Led. during early season and *Chilo agamemnon* Bles. during late season; soft scale insect, *Pulvinaria*

tenuivalvata (Newstead) and mealy bug, *Saccharicoccus sacchari* (Cockerell).

. The *S. cretica* moth deposited their eggs on the surface of seedling leaves, newly hatched larvae fed on leaves around seedling top, in addition causing tunnel in the stem. Finally the infestation caused the dead hearts for the infested plants. This species was recorded attacking sugarcane plants in Egypt by Willcocks and Bahgat (1925); Hassanein (1964); Isa (1964); Atreis (1966); El-Sherif (1970) and Mearge *et al.* (1992).

The present work was conducted to study the effect of some agricultural practices on the infestation with the greater sugar cane borer, *S. cretica* in the spring plant cane and its 1st ratoon in Upper Egypt.

MATERIALS AND METHODS

The present work was carried out in Mattana Agricultural Research Station, Qena Governorate on sugar cane cultivar, Giza 99/103 during two successive seasons 2005 and 2006 to study the effect of some agricultural practices on the infestation with the greater sugar cane borer, *S. cretica* (Noctuidae : Lepidoptera) in spring plant cane and its 1st ratoon.

Spring plant cane planted in early March, 2005 and harvested in March, 2006 whereas its 1st ratoon harvested in January, 2007. The plants were cultivated at two row spaces (80 cm &100 cm) and three fertilizer treatments were applied in both spring plant cane and 1st ratoon as follows:

1- Nitrogen fertilizer was applied in the form of urea (46% N) with two doses 230 kg /fed. (recommended dose) and 310 kg /fed. (high dose). The two doses of nitrogen fertilizers were added in three times, the 1st one was applied after one month from planting date and the 2nd one was applied after three months from planting date whereas the last one was applied after four months from planting date, the same method for adding nitrogen fertilizer was carried out in its 1st ratoon.

2- Potassium fertilizer was applied in the form of potassium sulphate (48% K_2O) and applied one time before the last dose of urea fertilizer with the rate of 50kg/fed. and without.

3-Microelements fertilizer (FZM) was applied after hundred days from planting date with 400 gm/fed (100 gm Fe +100 gm Zen +200 Mg) and without, while for its 1st ratoon after hundred days from harvesting date.

All the agricultural practices were carried out for the spring plant cane and its 1st ratoon without using any control measures for any insect pest.

After integration growth (45 days after planting date) 30 hills per each plot were selected at random. The direct examination for the infested plants (dead hearts) was started in mid April, 2005 and counted monthly until September, 2005. Mean number of infested plants (dead hearts-D.h) per 30 hills /each plot were estimated. This work was also conducted in spring 1st ratoon until September, 2006.

The experimental design was Randomized Complete Block Design (RCBD) with three replicates, each replicate contain 16 plots (1/200 for feddan = 21 m^2). Row spaces (Factor A) were distributed in the main plots and the three chemical fertilizers Nitrogen (Factor B), potassium sulphate (Factor C), and FZM (Factor D) were distributed as split plot on factor (A)

Analysis of variance of RCBD was computed in both spring plant cane and its 1st ratoon with Computer Program (MSTATC). Treatment means were compared using L.S.D. at 5% level of probability and the means followed the same letters are insignificant.

RESULTS AND DISCUSSION

The obtained results for the effect of some agricultural practices on the infestation with the greater sugar cane borer, *S. cretica* in the spring plant cane and its 1st ratoon were illustrated in Table (1) and discussed as follows:

I. Individual Effect of each Agricultural Practice

A- Effect of row spaces

Data in Table (1-A) showed that, the infestation with *S. cretica* in spring plant cane reduced at wide spaces (100 cm) than at narrow spaces (80 cm) without significant differences between means. Whereas in its 1st ratoon, statistical analyses showed highly significant differences between means (F value = 49.33) the infestation significantly reduced to 4.58 plants/30 hills at wide spaces (100 cm) compared with 5.28 plants/30 hills at narrow (80 cm) spaces.

Table (1): The effect of four agricultural practices on the infestation with *S. cretica* in spring plant cane and its 1st ratoon cultivated in Mattana Agricultural Research Station (Qena Governorate) during 2005 and 2006 seasons.

A: Row spaces:

Season	Spring plant cane (2005)			1st ratoon (2006)		
Row spaces (cm)	Narrow spaces (80 cm)	Wide spaces (100 cm)	F value	Narrow spaces (80 cm)	Wide spaces (100 cm)	F value & LSD
Mean no. of D.h. /30 hills	6.17	5.46	0.41 —	5.28 (a)	4.58 (b)	49.23** 0.44

B: Nitrogen fertilizer:

Nitrogen fertilizer (Urea 46% N)	230 kg /fed.	310 kg /fed.	F value & LSD	230 kg /fed.	310 kg /fed.	F value & LSD
Mean no. of D.h.. /30 hills	5.13 (b)	6.50 (a)	3.9* 1.30	4.68 (b)	5.18 (a)	10.47** 0.35

C: Potassium fertilizer:

Potassium sulphate fertilizer (48% K_2O)	Without	50kg/ fed.	F value & LSD	Without	50 kg/fed.	F value & LSD
Mean no. of D.h./30 hills	6.52 (a)	5.10 (b)	4.63* 1.47	5.39 (a)	4.47 (b)	25.44** 0.41

D: Microelements fertilizer (FZM):

Microelements fertilizer (FZM)	Without	400 kg/fed. (FZM)	F value & LSD	Without	400 kg/fed. (FZM)	F value & LSD
Mean no. of D.h./30 hills	6.27	5.35	0.082 —	6.20 (a)	3.66 (b)	19.13** 0.05

* Means in the same row not followed by the same letter are significantly different (P< 0.05).

The obtained results showed the infestation with *S. cretica* reduced in sugar cane plants cultivated at wide spaces (100 cm) than those cultivated at narrow spaces (80 cm).

B- Effect of nitrogen fertilizer

Result of statistical analyses (Table 1-B) showed significant differences between means for both spring plant cane and its 1st ratoon (F values were =3.9 & 10.47, respectively). Application the recommended dose of nitrogen fertilizer 230 kg/fed (urea 46% N) in spring plant cane reduced the infestation to 5.13 plants/30 hills compared with 6.5 plants/30 hills with application the high dose of urea fertilizer (310 kg/fed.). In the 1st ratoon, mean infested plants significantly decreased to 4.68 plant/30 hills with application the recommended dose of urea fertilizer (230 kg/fed.) and raised to 5.18 plants/30 hills with application the high dose of urea fertilizer (310 kg/fed.).

The afore-mentioned result revealed that, the infestation with *S. cretica* in sugar cane fields affected significantly with rate of nitrogen fertilizer, the high dose (310 kg/fed.) increases the infestation more than the recommended dose because the high dose encouraged the vegetative growth of the sugar cane plants and become more susceptible for infestation with *S. cretica*.

C - Effect of potassium sulphate fertilizer

Results of statistical analyses (Table 1-C) showed significant differences between means in the infested plants with *S. cretica* in both spring plant cane and its 1st ratoon (F values were 4.63 & 25.44, respectively). Application potassium sulphate fertilizer with rate of 50 kg/fed. reduced the infestation to 5.10 plants/30 hills compared with 6.52 plants/30 hills in the unfertilized plots, while in its 1st ratoon, mean number of infested plants/30 hills affected greatly with application of potassium sulphate fertilizer, the infestation reduced to 4.47 plants/30 hills in the fertilized plots compared with 5.39 plants/30 hills in the unfertilized plots.

The obtained results showed that, potassium sulphate fertilizer is necessary for reducing the infestation with *S. cretica* in sugar cane fields because it strengthen the sugar cane stalks and the plants become more tolerant for the infestation with the greater sugar cane borer.

D- Effect of microelements fertilizer (FZM)

Results of statistical analyses (Table 1-D) showed highly significant differences between means for 1st spring ratoon (F value = 19.13) while results were insignificant in the spring plant cane. Adding microelements fertilizer (FZM) to the 1st ratoon significantly reduced the infestation to 3.66 in the treated plots compared with untreated plots (6.20).Also in spring plant cane the mean of infested hills reduced to 5.35 plants/hills for treated plots and increased to 6.27plants/30 hills without adding microelements without significant differences between both means.

The above-mentioned results revealed that application of microelements fertilizer (FZM) decreased the infestation in sugar cane plants with *S. cretica*.

II- Combined Effect of Agricultural Practices

The combined effects of the tested agricultural practices will be discussed here to investigate the interaction between these tested factors as follows:

I. Combined effect of row spaces and nitrogen fertilizer

Data in Table (2) showed the interaction between row spaces and nitrogen fertilizer on the infestation with *S. cretica* in spring plant cane and its 1st ratoon. Results of statistical analyses showed insignificant differences between means for both spring plant cane and its 1st ratoon. But for spring plant cane cultivated at narrow spaces (80 cm) and fertilized with two doses of urea 46% N (230 & 310 kg/fed.), the infestation decreased from 7.13 to 5.21 infested plants/30 hills; while infestation reduced to 5.04 plants/30 hills in the sugar cane plants cultivated at wide space (100 cm) and fertilized with the recommended dose of urea fertilizer (230 kg/fed.) compared with 5.88 plants/30 hills at the high dose of urea fertilizer (310 kg /fed.). In the 1st ratoon, the interaction between row spaces and nitrogen fertilizer had the same trend but without significant differences between means.

Table (2): The combined effects of row spaces and nitrogen fertilizers on the infestation with *S. cretica* in spring plant cane and its 1st ratoon cultivated in Mattana Agricultural Research Station, Qena Governorate during 2005 and 2006 seasons.

Season	Spring plant cane (2005)					Spring 1st ratoon (2006)				
Row spaces	Narrow spaces (80 cm)		Wide spaces (100 cm)		F value	Narrow spaces (80 cm)		Wide spaces (100 cm)		F value
Urea fertilizer (46% N)	230 kg / fed.	310 kg / fed.	230 kg / fed.	310 kg / fed.		230 kg / fed.	310 kg / fed.	230 kg / fed.	310 kg / fed.	
Mean no. of infested plants /30 hills	5.21	7.13	5.04	5.88	0.60	4.94	5.62	4.42	4.74	1.36

The obtained results revealed that, application the high dose of urea fertilizer (310 kg/fed.) increases the infestation with *S. cretica* in sugar cane fields; it encourages the vegetative growth of sugar cane plants and became susceptible to infestation with the greater sugar cane borer *S. cretica*, whereas plantation sugar cane at wide spaces and application the recommended dose of urea fertilizer (230 kg/fed.) reduced the intensity of infestation.

2. Combined effect of row spaces and potassium sulphate fertilizer

Results of statistical analysis (Table, 3) showed insignificant effect for interaction between row spaces and potassium sulphate fertilizer in spring plant cane on the infestation with *S. cretica*, while the obtained results showed significant effect for its 1st ratoon (F value= 3.97). Adding potassium sulphate fertilizer (48% K_2O) reduced the infestation with *S. cretica* in spring plant cane in both tested spaces, while the mean of infestation increased in the unfertilized plots (6.75 infested plants/30 hills). Also at the wide spaces (100 cm) the fertilized plots decreased to 4.63 plants/30 hills than unfertilized

plots (6.29 plants/30 hills). In the 1st ratoon, the infestation reduced with adding potassium sulphate fertilizer at wide spaces, the mean infestation reduced to 4.30 plants/30 hills compared with 4.85 plants/30 hills for unfertilized plots. At the narrow spaces, adding potassium sulphate reduced the mean infested plants/30 hills to 4.65, while this mean increased to 5.93 for unfertilized plots.

Table (3): The combined effects of row spaces and potassium sulphate fertilizer (48% K2O) on the infestation with *S. cretica* in spring plant cane and its 1st ratoon cultivated in Mattana Agricultural Research Station (Qena Governorate) during 2005 and 2006 seasons.

Season	Spring plant cane (2005)					Spring 1st ratoon (2006)				
Row spaces	Narrow spaces (80 cm)		Wide spaces (100 cm)		F value & LSD	Narrow spaces (80 cm)		Wide spaces (100 cm)		F value & LSD
Potassium sulphate (48% K2O)	50 kg/ fed.	without	50 kg/ fed	without		50 kg/ fed	without	50 kg/ fed	without	
Mean no. of infested plant /30 hills	5.58	6.75	4.63	6.29	0.14 -	4.65 (b)	5.93 (a)	4.30 (b)	4.85 (b)	3.97* 0.57

* Means in the same row not followed by the same letter are significantly different (P< 0.05).

The obtained results revealed that adding potassium sulphate fertilizer (50kg/fed.) to sugar cane plants cultivated at wide space (100 cm) reduced the infestation with *S. cretica*, because it strengthen sugar cane plants in both tested spaces as well as in spring plant cane and its 1st ratoon.

3. Combined effect of row spaces and microelements fertilizer (FZM)

Data in Table (4) showed the interaction effect between row spaces and adding microelements fertilizer (FZM) on the infestation with *S. cretica* in the spring plant cane and its 1st ratoon. Results of statistical analyses showed insignificant differences between means.

In spring plant cane, adding microelements fertilizer (FZM) to sugar cane plots cultivated at wide space (100 cm),reduced mean of infestation compared without adding microelements fertilizer (5.08 and 5.83 infested plants/30 hills, respectively). At narrow space (80 cm) adding microelements to sugar cane plots, also reduced the infestation to 5.63 plants/30 hills compared with 6.71 plants/30 hills without adding microelements fertilizer. In the 1st ratoon the same trend was obtained, adding microelements fertilizer (FZM) to sugar cane plants cultivated at wide and narrow spaces decreased mean infestation with *S. cretica* to 3.61 and 3.72 plants/30 hills for both spaces, respectively.

These results revealed that, adding microelements fertilizer (FZM) to sugar cane plants cultivated at wide spaces reduced the infestation with *S. cretica* in spring plant cane and its 1st ratoon. So, the infestation reduced in both spring plant cane and its 1st ratoon cultivated specially at wide spaces

and fertilized with microelements fertilizer. This may be referring to adding microelements to the plants it become more tolerant for infestation.

Table (4): The combined effects of row spaces and microelements (FZM) fertilizer on the infestation with *Sesamia cretica* in spring plant cane and its 1st ratoon cultivated in Mattana Agricultural Research Station, Qena Governorate during 2005 and 2006 seasons.

Season	Spring plant cane (2005)					Spring 1st ratoon (2006)				
Row spaces	Narrow spaces (80 cm)		Wide spaces (100 cm)		F value	Narrow spaces (80 cm)		Wide spaces (100 cm)		F value
Microelements Fertilizer (FZM)	FZM	Without	FZM	Without		FZM	Without	FZM	Without	
Mean no. of infested plant /30 hills	5.63	6.71	5.08	5.83	0.14	3.72	6.85	3.61	5.54	1.10

DISSCUSSION

The present results showed that, the infestation with *S. cretica* reduced in both spring plant cane and its 1st ratoon cultivated at wide spaces (100 cm) than those cultivated at narrow spaces (80 cm). This result in harmony with those obtained by Isa (1979); Abo-Dooh (1980) and Tohamy (1999).

El-Sherif (1970) and Abo-Dooh (1988) showed that plant cane was more infested (dead hearts) with *S. cretica* than its 1st ratoon cane.

Nitrogen fertilizer plays an important role in vegetative growth; morphological characters and yield of sugar cane (Banger *et al.*, 1992 and Azzazy & Dorgham, 2000). The present results showed that, the infestation with *S. cretica* in sugar cane fields affected greatly with rate of nitrogen fertilizer, the high dose of nitrogen fertilizer (310 kg/fed.) increases the infestation more than the moderate dose (230 kg/fed.) because the high doses encourages the vegetative growth of the sugar cane plants and become more susceptible for the infestation.

Also, potassium fertilizer has important role in physiological process in sugar cane plants such as translocation of sugar and carbohydrates and improving juice quality and recoverable sugar. The obtained results showed that, adding potassium fertilizer found to be necessary for reducing the infestation with *S. cretica* in sugar cane fields because it strength the sugar cane stalks to avoid the infestation with the greater sugar cane borer. These results in agreement with many authors such as Subramanian *et al* . (1994); Nassar (1996) and Azzazy & Dorgham (2000).The present data showed that adding microelements fertilizer decreased the infestation with *S. cretica* in sugar cane fields.

The combined effect of the tested agricultural practices showed that, the infestation reduced to its minimum intensity in both spring plant cane and its 1st ratoon for sugar cane plants cultivated at wide spaces (100 cm) and fertilized with the recommended dose of urea fertilizer (230 kg/fed.); adding both potassium sulphate (50 kg/fed.) and microelements fertilizers than those

plants cultivated at narrow spaces (80 cm) and fertilized with the high dose of nitrogen fertilizer (310 kg/fed.); without adding potassium sulphate fertilizer and microelements fertilizer (FZM). So, it prefers to use the recommended dose of urea fertilizer and added potassium sulphate and microelements fertilizers to reduce the infestation with *S. cretica* in sugar cane fields to its minimum intensity.

AKNOLODEGMENT

This work was sponsored by Academy of Scientific Research & Technology of Egypt throughout Research Project entitled "Integrated Control Management of Insect Pests and Diseases of Sugar Crops". The author wish to express his sincere thanks and deep appreciation for this support.

REFERENCES

Abu-Dooh, A. M. (1980): Varietals resistance of certain sugarcane varieties to infestation by sugarcane borers. M. Sc. Thesis, Fac. Agric., Assiut Univ. Egypt, 101pp.

Abu-Dooh, A. M. (1988): Relationship between sugarcane varieties and their insect pests in Upper Egypt. Ph. D. Thesis , Fac. Agric. , Assiut Univ., Egypt, 130 pp.

Atreis , I. E. (1966):Studies on the insect fauna of sugarcane fields. M. Sc. Thesis, Assiut Univ., Egypt 246pp.

Azzazy, N. B. and E. A. Dorgham (2000): Effect of nitrogen and potassium fertilization on yield and quality of two sugar cane promising varsities. Egypt. J. Agric. Res.78 (2):745-758.

Banger, K. S.; R. S. Sharma and P. O. Rathore (1992): Effect of irrigation, nitrogen and row spacing on growth and yield of sugar cane. Ann. Plant Physiol., 5(1): 91-95.

El-Sherif, H. A. F. (1970): Studies on the biology and control of sugarcane stalk borer, *Sesamia cretica* Led. and *Chilo agamemnon* Bles. in Upper Egypt. M. Sc. Thesis, Fac. Agric., Cairo Univ. Egypt, 383pp.

Hassanein, M. H. (1964): Sugarcane borer control for increasing the yield in Upper Egypt. Proc. Sugarcane Conf., Aswan: 89-94.

Isa, A. I. (1964): The important insects and pests at Aswan Governorate. Proc. *Ibid*: 82-88.

Isa, A. I. (1979): Studies on sugarcane borers in Egypt. Final Report of Project. No. 480, PG-EG-147:4-7.

Mearg, M. F.; A. M. A. Dood and A.M. Abu-Dooh (1992): Effect of weeding on infestation by the sugarcane stem borer, *S. cretica* Led. Ann. Agric. Sc., Moshtohor,30: 591-596.

Nassar, A. M. (1996): Response of cane yield and quality of some sugar cane varieties to potassium fertilization and harvest date. Ph.D. Thesis, Fac. Agric. Agron. Dept. Cairo Univ. Egypt.126 pp.

Subramanian, K. S.; G. Selvakumari; K. V. Selvaraj and K. N. Chinnaswami (1994): Irrigation regimes on utilization of nutrients, yield and quality of sugar cane. Indian J. Agro. and Crop Sci., 167(3): 155-158.

Tohamy, H. T. (1999): Ecological studies on certain sugarcane pests in Middle Egypt. Ph.D. Thesis, Fac. Agric., Assiut Univ. Egypt, 200 pp.

Willcocks, F. C. and S. E. Bahgat (1925): Technique to quantify the effect of *Diatraea saccharalis* (Lepidoptera: Pyralidae) on sugarcane quality. Field Crops Res.,15:341-348.

تأثير بعض المعاملات الزراعية على الاصابة بدودة القصب الكبيرة فى حقول قصب السكر(الغرس الربيعى والخلفة الاولى) فى مصر العليا.

عبد اللطيف عبدالله ابازيد

معهد بحوث المحاصيل السكرية - مركز البحوث الزراعية - وزارة الزراعة

اجريت الدراسة الحالية فى محطة بحوث المطاعنة بمحافظة قنا على قصب السكر صنف جيزة ١٠٣/٩٩ لمدة عامين متتاليين (٢٠٠٥ & ٢٠٠٦) بغرض دراسة تأثير بعض المعاملات الزراعية على الاصابة بدودة القصب الكبيرة فى الغرس الربيعى والخلفة الاولى.

تم زراعة الغرس الربيعى فى اوائل مارس ٢٠٠٥ على مسافتى زراعة ٨٠ سم ، ١٠٠ سم واستخدمت ثلاثة انواع من الاسمدة الكيماوية، التسميد النيتروجينى والذى استخدم بمعدلين ٢٣٠ كجم /فدان & ٣١٠ كجم/فدان والتسميد البوتاسى بمعدل٥٠ كجم/ فدان ومقارنة بدون تسميد ، بالاضافة الى استخدام العناصر الصغرى ٤٠٠جم/فدان (١٠٠ جم حديد + ١٠٠ زنك جم + ٢٠٠ منجنيز جم) ومقارنة بدون اضافة العناصر الصغرى ، وكان تصميم التجربة قطاعات كاملة العشواية منشقة مرة واحدة فى ثلاثة مكررات وكان عدد القطع التجريبية ١٦ فى كل مكررة ومساحة كل قطعة تجريبية ١/٢٠٠ من الفدان ، وقد تم رصد شدة الاصابة بعد حوالى ٤٥ يوم من الزراعة فى الغرس الربيعى وبعد نفس المدة بعد كسر محصول الخلفة الاولى بأخذ عينات دورية شهريا حتى شهر سبتمبر للموسمين وذلك بحساب متوسط عدد النباتات المصابة فى ٣٠ جورة لثلاث مكررات فى كل معاملة.

اتضح من نتائج الدراسة ان زراعة قصب السكر فى تخطيط واسع (١٠٠ سم) كان اقل عرضة للاصابة بدودة القصب الكبيرة من الزراعة فى تخطيط ضيق(٨٠ سم) فى الغرس الربيعى والخلفة الاولى ، اما بالنسبة الى التسميد النيتروجينى وجد ان القطع التجريبية المسمدة بالجرعة الموصى بها (٢٣٠ كجم/فدان) كانت اقل عرضه للاصابة بالحشرة مقارنة بالقطع التجريبية المسمدة بالجرعة ٣١٠ كجم/فدان والمستخدمة من قبل المزارعين . كما اظهرت النتائج ان التسميد البوتاسى قلل من الاصابة بدودة القصب الكبيرة فى القطع التجريبية المسمدة مقارنة بالوحدات التجريبية غيرالمسمدة وبالنسبة الى العناصر الصغرى كانت القطع التجريبية المعاملة اقل عرضه للاصابة من القطع التجريبية غير المعاملة.

وقد اوضحت نتائج التحليل الاحصائى ان التأثير المشترك للمعاملات الزراعية المختبرة على متوسط عدد النباتات المصابة (عدد القلوب الميتة)/٣٠ جورة كان ايجابيا ، حيث وصلت الاصابة بدودة القصب الكبيرة لادنى مستوياتها عند استخدام التخطيط الواسع (١٠٠ سم) واستخدام التسميد النيتروجينى الموصى به (٢٣٠ كجم/فدان) مع استخدام التسميد البوتاسى (٥٠ كجم/فدان) واضافة العناصر الصغرى مقارنة باستخدام التخطيط الضيق (٨٠ سم) واستخدام معدل عالى من التسميد النيتروجنى وعدم استخدام كل من التسميد البوتاسى واضافة العناصر الصغرى.

وبذلك توصى الدراسة باستخدام التخطيط الواسع فى زراعة قصب السكر مع عدم الاسراف فى التسميد النيتروجنى واستخدام كل من التسميد البوتاسى واضافة العناصر الصغرى فى الغرس الربيعى والخلفة الاولى حيث تساعد تلك العمليات الزراعية فى خفض الاصابة بدودة القصب الكبيرة بدون الحاجة الى استخدام مبيدات حشرية فى مكافحتها.