**Journal of Plant Protection and Pathology**

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**Available online at: www. jppp.journals.ekb.eg**

# Biological Studies on *Aphis gossypii* and *Myzus persicae* Infesting Cucumber and Pepper Plants in The Greenhouses

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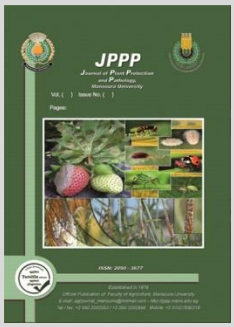


## ABSTRACT

The biology of the cotton aphid, *Aphis gossypii* on Cucumber plants, *Cucumis sativus*, and the green peach aphid, *Myzus persicae* on hot pepper plants, *Capsicum annuum* carried out at late 2018 Winter and early 2018 Summer, under semi-field conditions at a greenhouse in El Kom El Akhdar, Shebin El Kom, Menoufia, Egypt. Also, the accumulative population produced from one viviparous of *A. gossypii* & *M. persicae* female reared at the summer season under controlled conditions was determined. The results showed that the average life cycle of *A. gossypii* in winter was 8.4 days and the life span was 20.8 days, while in summer, the life cycle was 6.8 days, with 13.2 days as life span. The green peach aphid, *M. persicae* show some differences, the average life cycle of *M. persicae* in winter was 7.2 days, with 36 days as life span, 4.2 days, and 21 days in summer. The epidemiology of the two aphid species studied by isolating one viviparous female on a non-infested plant and estimating the number of insects on the plant after one and two weeks. The average number of *A. gossypii* population was 25 individuals after one week, which was higher than that of the green peach, *M. persicae* recording 16.3 individuals. After two weeks, *M. persicae* occupied the first rank producing 518 individuals, compared with 462.3 individuals for that of *A. gossypii*.

***Keywords:*** cotton aphid, green peach aphid, Aphididae, biology, Cucumber, Pepper.

## INTRODUCTION

*Aphis gossypii* (Glover) (Homoptera: Aphididae) considered as a polyphagous, worldwide species, disseminated in tropical, subtropical, and temperate regions Blackman and Eastop (1985), Found on vegetables in the field and greenhouses Leclant and Deguine (1994). *Aphis gossypii* causes two types of damage, the direct damage the adult and the larvae fed on plants, suck plant sab causes plant deformation, and by their extracts -honeydew- or by the viruses it transmitted it causes the indirect damage Chan *et al*. (1991).

Moreover, the green peach aphid, *Myzus persicae*, (Sulzer) (Homoptera: Aphididae), considered also as a polyphagous, infested many host plants related to many different plant families, transmitted viruses to plants Bernays and Chapman (1994); Blackman and Eastop (2000); Meng *et al*. (2014).

The high infestation of these aphids causes plant deformation such as the leave curling, thereby forming pockets and folds that provide shelter to the aphids which protected against insecticide treatments Liu and Chen (2001).

*Aphis gossypii* is an important pest in glasshouse on cucumber crops, studied at 20 ºC, 25 ºC, and 30 ºC in a controlled climate Steenis and E1-Khawass (1994). Developmental periods studied at 10 ºC to 30 ºC, the reproductive rate increased with rising temperature while generation time decreased Kocourek *et al*. (1994). Biological studies on the cotton aphid, *A. gossypii* on Cucumber were conducted at six different temperatures (10, 15, 20, 25, 30 and 35 ºC) Zamani *et al*. (2006). *A. gossypii* has two host races or subspecies that is widely distributed in different plant family Margaritopoulos *et al*. (2006).

*M. persicae* is a major pest of pepper; the developmental periods, survival, and fecundity were studied on reared Aphids on five commercial pepper cultivations La Ross *et al*. (2013).

## MATERIALS AND METHODS

### 1- Biological Studies

For biological studies, *Aphis gossypii* reared on cucumber plants, and *Myzus persicae* on pepper plants under semi-field conditions at a greenhouse in El Kom El Akhdar, Shebin El Kom, Menoufia, Egypt. The winter experiment conducted from 1 February 2018 to 3 March 2018, and the summer from 1 June 2018 to 1 July 2018, the Means of temperature and relative humidity values along experimental periods recorded in (Table 1).

**Table 1. The means of temperature and humidity values along experimental periods**

| Experiment | Temperature ºC | | Relative humidity % | |
|---|---|---|---|---|
| | Mean Max. | Mean Min. | Mean Max. | Mean Min. |
| Winter trail 1 Feb. – 3 Mar. | 24 | 14 | 73 | 26 |
| Summer trail 1 Jun. – 1 Jul. | 35 | 22 | 67 | 21 |

Five apterous adult females of *A. gossypii* and *M. persicae* isolated in cages on infested plants, and the produced aphid larvae separated. After two days, young larvae transferred onto leaves and covered with small

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**DOI: 10.21608/jppp.2020.111728**

isolating cages (Fig. 1). Then, the cages examined daily, after reaching the adult stage, each cage contained one adult female. Collected larvae produced by every single female separated and counted by a fine brush and ocular hand lens. Immature stages period, adult longevity, life cycle, and life span of the cotton and the green peach aphid studied and determined according to Darwish (1983a); Gautam and Verma (1983); Swelam (2012) as:

**1- The Immature stages:** the period from the date of birth of the aphid to the date of the last molt.

**2- The Adult longevity:** the period from the last molt to the death date.

**3- The life cycle:** the period from birth to the day of the first young larva produced.

**4- The life span:** the period from birth to death.

**5- Fecundity:** The number of larvae produced by one female.

**Fig. 1. The cage used to isolate and rear aphid female**

**2- Preparation of microscopic slides:**

The collected specimens of the aphid, *Aphis gossypii* were observed gathered in large numbers on the cucumber leaves, *Cucumis sativus*. The infested plants with aphids collected in the field. Then taken to the laboratory, where aphid stages transferred into 70% ethyl alcohol.

The method presented by Hile Ris Lambers (1951) and explained by Van Emden (1972) and applied with personal modification by Darwish (1982), (1983a), and (1984) used.

**3- Statistical analysis**:

Means and Standard Errors calculated by the Excel program.

Differences tested by analysis of variance (ANOVA). If significant differences detected, multiple comparisons made using an LSD-procedure (c~=0.05).

## RESULTS AND DISCUSSION

**1- Biological aspects of the cotton aphid, *A. gossypii* under greenhouse conditions:**

**- At 2018 winter season:**

Data presented in Table (2) show the duration of developmental stages of the cotton aphid, *A. gossypii* reared under greenhouse conditions in the winter season 2018.

The mean duration of the 1st instar larva was 1.8 ± 0.2 days, the 2nd instar larva was 1.6 ± 0.2 days, the 3rd instar larva 1.4 ± 0.2 days, and the 4th instar larva was 1.8 ± 0.2 days.

The mean duration of the pre-viviposition period was 1.4 ± 0.2 days, while the viviposition period lasted 10.4 ± 1.7 days, and the post-viviposition period was 2.0 ± 0.3 days.

The life cycle lasted 8.4 ± 0.2 days; adult longevity was 13.8 ± 1.6 days, while the life span continued 20.8 ± 1.8 days.

The laid mean number of larvae per female was 58.5 ± 6.6 larvae.

**Table 2. Biological aspects of the cotton aphid, *A. gossypii* under greenhouse conditions in winter**

| Biological aspect | stages | replicates 1st | 2nd | 3rd | 4th | 5th | Mean ±SE |
|---|---|---|---|---|---|---|---|
| | | Duration by day | | | | | |
| Immature stage | 1st larva | 2 | 2 | 2 | 2 | 1 | 1.8±0.2 |
| | 2nd larva | 2 | 2 | 1 | 2 | 1 | 1.6±0.2 |
| | 3rd larva | 1 | 1 | 2 | 2 | 1 | 1.4±0.2 |
| | 4th larva | 1 | 2 | 2 | 2 | 2 | 1.8±0.2 |
| Adult longevity | Pre-viviposition | 2 | 1 | 1 | 1 | 2 | 1.4±0.2 |
| | Viviposition | 8 | 14 | 8 | 15 | 7 | 10.4±1.7 |
| | Post-viviposition | 2 | 2 | 3 | 2 | 1 | 2±0.3 |
| Life cycle | | 8 | 8 | 8 | 9 | 9 | 8.4±0.2 |
| Adult longevity | | 12 | 17 | 12 | 18 | 10 | 13.8±1.6 |
| Life span | | 18 | 24 | 19 | 26 | 17 | 20.8±1.8 |
| Fecundity (indiv./ female) | | 48 | 73 | 55 | 75 | 42 | 58.5±6.6 |

**2- Biological aspects of the cotton aphid, *A. gossypii* under greenhouse conditions:**

**- At 2018 summer season:**

The obtained results in Table (3) listed the duration of developmental stages of the cotton aphid, *A. gossypii* reared under greenhouse conditions in the summer season 2018.

The mean period of the 1st instar larva was 1.4 ± 0.2 days, the 2nd instar larva was 1.2 ± 0.2 days, the 3rd instar larva 1.0 ± 0.3 days, and the 4th instar larva was 0.7 ± 0.1days.

The Pre-viviposition period lasted 0.9 ± 0.1 days as mean values, while the viviposition period was 6.8 ± 1.1 days, and the post-viviposition period was 1.2 ± 0.2 days.

The life cycle remained 5.2 ± 0.5 days; adult longevity was 8.9 ± 1.0 days, while the life span continued 13.2 ± 0.9 days.

The laid mean number of larvae per female was 36.2± 4.5 larvae.

**Table 3. Biological aspects of the cotton aphid, *A. gossypii* under greenhouse conditions in the summer**

| Biological aspect | stages | replicates 1st | 2nd | 3rd | 4th | 5th | Mean ±SE |
|---|---|---|---|---|---|---|---|
| | | Duration by day | | | | | |
| Immature stage | 1st larva | 1 | 1 | 2 | 2 | 1 | 1.4±0.2 |
| | 2nd larva | 1 | 1 | 1 | 2 | 1 | 1.2±0.2 |
| | 3rd larva | 0.5 | 1 | 0.5 | 2 | 1 | 1.0±0.3 |
| | 4th larva | 0.5 | 1 | 0.5 | 0.5 | 1 | 0.7±0.1 |
| Adult | Pre-viviposition | 1 | 1 | 1 | 0.5 | 1 | 0.9±0.1 |
| | Viviposition | 10 | 4 | 8 | 5 | 7 | 6.8±1.1 |
| | Post-viviposition | 1 | 1 | 1 | 2 | 1 | 1.2±0.2 |
| Life cycle | | 4 | 5 | 5 | 7 | 5 | 5.2±0.5 |
| Adult longevity | | 12 | 6 | 10 | 7.5 | 9 | 8.9±1.0 |
| Life span | | 15 | 10 | 14 | 14 | 13 | 13.2±0.9 |
| Fecundity (indiv./ female) | | 45 | 22 | 43 | 29 | 42 | 36.2±4.5 |

**3- Biological aspects of the Green peach aphid, *M. persicae* under greenhouse conditions:**

**- At 2018 winter season**

Data registered in Table (4) include the duration of the developmental stages of the Green peach aphid, *M. persicae* reared under greenhouse conditions in the winter season 2018.

The mean durations of the 1st instar larva, the 2nd instar larva, the 3rd instar larva, and the 4th instar larva were 1.8±0.2 days, 1.4±0.2 days, 1.2±0.2 days, and 1.0±0.0 days, respectively.

The mean of the pre-viviposition period was 1.8±0.2 days, while the viviposition period lasted 27.6±2.3 days, and the post-viviposition period was 1.2±0.2 days.

The life cycle continued 7.2±0.4 days; adult longevity was 30.6±2.4 days, while the life span continued 36.0±2.3 days.

The laid mean number of larvae per female was 39.4±3.1 larvae.

**Table 4. Biological aspects of the Green peach aphid, *M. persicae* under greenhouse conditions in winter**

| Biological aspect | stages | replicates | | | | | Mean ±SE |
|---|---|---|---|---|---|---|---|
| | | 1st | 2nd | 3rd | 4th | 5th | |
| | | Duration by day | | | | | |
| Immature stage | 1st larva | 2 | 2 | 1 | 2 | 2 | 1.8±0.2 |
| | 2nd larva | 1 | 1 | 1 | 2 | 2 | 1.4±0.2 |
| | 3rd larva | 2 | 1 | 1 | 1 | 1 | 1.2±0.2 |
| | 4th larva | 1 | 1 | 1 | 1 | 1 | 1.0±0.0 |
| Adult | Pre-viviposition | 2 | 2 | 2 | 1 | 2 | 1.8±0.2 |
| | Viviposition | 32 | 20 | 33 | 26 | 27 | 27.6±2.3 |
| | Post-viviposition | 1 | 1 | 1 | 1 | 2 | 1.2±0.2 |
| Life cycle | | 8 | 7 | 6 | 7 | 8 | 7.2±0.4 |
| Adult longevity | | 35 | 23 | 36 | 28 | 31 | 30.6±2.4 |
| Life span | | 41 | 28 | 40 | 34 | 37 | 36.0±2.3 |
| Fecundity (indiv./ female) | | 44 | 31 | 47 | 42 | 33 | 39.4±3.1 |

**4- Biological aspects of the Green peach aphid, *M. persicae* under greenhouse conditions:**

**- At 2018 summer season**

Data presented in Table (5) show the duration of developmental stages of the Green peach aphid, *M. persicae* reared under greenhouse conditions in the summer season2018.

The mean duration of the 1st instar larva was 1.0±0.0 days, the 2nd instar larva was 1.0±0.0 days, the 3rd instar larva 0.8±0.1 days, and the 4th instar larva was 0.6±0.1 days.

the pre-viviposition period was 0.8±0.1 days, while the viviposition period was 15.6±0.9 days, and the post-viviposition period was 1.2±0.2 days.

The life cycle of the green peach aphid lasted 4.2±0.2 days; adult longevity was 17.6±0.9 days, while the life span continued in 21.0±1.1 days.

The laid mean number of larvae per female was 21.0±1.1 larvae.

**Table 5. Biological aspects of the Green peach aphid, *M. persicae* under greenhouse conditions in summer**

| Biological aspect | stages | replicates | | | | | Mean ±SE |
|---|---|---|---|---|---|---|---|
| | | 1st | 2nd | 3rd | 4th | 5th | |
| | | Duration by day | | | | | |
| Immature stage | 1st larva | 1 | 1 | 1 | 1 | 1 | 1.0±0.0 |
| | 2nd larva | 1 | 1 | 1 | 1 | 1 | 1.0±0.0 |
| | 3rd larva | 0.5 | 0.5 | 1 | 1 | 1 | 0.8±0.1 |
| | 4th larva | 0.5 | 0.5 | 0.5 | 1 | 0.5 | 0.6±0.1 |
| Adult | Pre-viviposition | 1 | 1 | 0.5 | 1 | 0.5 | 0.8±0.1 |
| | Viviposition | 14 | 14 | 16 | 19 | 15 | 15.6±0.9 |
| | Post-viviposition | 1 | 1 | 1 | 1 | 2 | 1.2±0.2 |
| Life cycle | | 4 | 4 | 4 | 5 | 4 | 4.2±0.2 |
| Adult longevity | | 16 | 16 | 17.5 | 21 | 17.5 | 17.6±0.9 |
| Life span | | 19 | 19 | 21 | 25 | 21 | 21.0±1.1 |
| Fecundity (indiv./ female) | | 16 | 18 | 23 | 27 | 16 | 20±2.16 |

**5- Comparison between the cotton aphid, *A. gossypii*, and the green peach aphid, *M. persicae* reared under greenhouse conditions:**

The obtained results in Table (6) indicated that there were significant differences in the immature stage period between cotton aphid, *A. gossypii*, and the green peach aphid, *M. persicae* reared under greenhouse conditions where it was 5.5 and 4.4 days. Also, there was a significant difference in adult longevity of the two aphid species recording 11.4 and 24.1 days.

Regarding the life cycle, it was also significant differences between the two aphids where it was 6.8 days for *A. gossypii* and 5.7 days for *M. persicae*, furthermore, the life span was only 17.0 days for *A. gossypii*, while it was 28.5 days for *M. persicae* with a significant difference.

**Table 6. Comparison between the cotton aphid, *A. gossypii* and the green peach aphid, *M. persicae* reared under greenhouse conditions**

| Biological aspect | stages | *A. gossypii* | | Mean ±SE | *M. persicae* | | Mean ±SE |
|---|---|---|---|---|---|---|---|
| | | Winter | Summer | | Winter | Summer | |
| | | Duration by day | | | | | |
| Immature stage | 1st larva | 1.8 | 1.4 | 1.6±0.2 | 1.8 | 1.0 | 1.4±0.4 |
| | 2nd larva | 1.6 | 1.2 | 1.4±0.2 | 1.4 | 1.0 | 1.2±0.2 |
| | 3rd larva | 1.4 | 1 | 1.2±0.2 | 1.2 | 0.8 | 1.0±0.2 |
| | 4th larva | 1.8 | 0.7 | 1.3±0.6 | 1.0 | 0.6 | 0.8±0.2 |
| | Total | 6.6 | 4.3 | 5.5 a | 5.4 | 3.4 | 4.4 b |
| Adult | Pre-viviposition | 1.4 | 0.9 | 1.2±0.3 | 1.8 | 0.8 | 1.3±0.5 |
| | Viviposition | 10.4 | 6.8 | 8.6±1.8 | 27.6 | 15.6 | 21.6±6.0 |
| | Post-viviposition | 2.0 | 1.2 | 1.6±0.4 | 1.2 | 1.2 | 1.2±0.0 |
| Adult longevity | | 13.8 | 8.9 | 11.4±2.5 b | 30.6 | 17.6 | 24.1±6.5 a |
| Life cycle | | 8.4 | 5.2 | 6.8±1.6 a | 7.2 | 4.2 | 5.7±1.5 b |
| Life span | | 20.8 | 13.2 | 17.0±3.8 b | 36 | 21.0 | 28.5±7.5 a |
| Fecundity (indiv./ female) | | 58.5 | 36.2 | 47.4±11.2 a | 39.4 | 20.0 | 29.7±9.7 b |

**means in each row followed by the same letter (s) are not significantly different at 5% level**

**6- Accumulative population produced from one viviparous of *A. gossypii* & *M. persicae* female reared at summer season under controlled conditions:**

**- At 2018 summer season**

The results in Table (7) show the average number of individuals produced from one viviparous female reared on cucumber and pepper plants in the summer season Fig. (2), Under controlled conditions.

The obtained results indicated that the mean accumulative individuals for one viviparous female of *A. gossypii* reared on cucumber plants in the summer season, after one week was 25 stages, while it was 16.3 stages for *M. persicae* reared on cucumber plants. Also, after two weeks the accumulative stages reached 462.3 stages for one viviparous female of *A. gossypii* reared on cucumber plants in the summer season, while it was 518.0 stages for that of *M. persicae*.

**Table 7. Average numbers of accumulative individuals for one viviparous female reared at summer season under controlled conditions**

| Replicate number | Mean no. of *A. gossypii* stages (reared on the cucumber) | | Mean no. of *M. persicae* (reared on the pepper) | |
|---|---|---|---|---|
| | One week | Two weeks | One week | Two weeks |
| 1 | 22 | 450 | 16 | 540 |
| 2 | 25 | 475 | 18 | 512 |
| 3 | 28 | 462 | 15 | 502 |
| Mean± S.E. | 25.0 ±1.7 | 462.3±7.2 | 16.3±0.9 | 518.0±11.4 |

The obtained results indicated that the Green peach aphid, *M. persicae* was more reproductive than the cotton aphid, *A. gossypii*.

The above results are in agreement with those of Steenis and E1-Khawass., (1994) who studied the biology of *Aphis gossypii* at glasshouse on cucumber plants, at 20 ºC, 25 ºC, and 30 ºC, and reported that the immature stages ranged from 4.8 days at 20 ºC to 3.2 days at 30 ºC, and added that reproduction period was similar, but the fecundity ranged from 65.9 to 69.8 stages. Moreover, Kocourek *et al*., (1994) found that the immature stages ranged from 6.9 - 90.1 days, life cycle ranged from 5.8 - 113.6 days, for 10 ºC and 30 ºC. As for fecundity, it was 36 – 76 larvae/female at 10 ºC - 30 ºC, and the reproductive rate increased by increasing temperature while generation time decreased. As well as, Zamani *et al.*, (2006) evaluated the biology and fecundity of the cotton aphid, *A. gossypii* on Cucumber at six temperatures (10, 15, 20, 25, 30 and 35 ºC) and found that the immature stages varied from 20.7 days at 10 ºC to 3.81 days at 30 ºC, and added that as temperature increased, the population failed to survive at 35 ºC., and the survival of the immature stages ranged from 55.97% to 93.14% at 10 ºC to 30 ºC. The same authors reported that the average adult longevity ranged from 8.56 to 17.00 days at 30 ºC and 25 ºC. Regarding *M. persicae*, Wyatt and Brown (1977) reported that the pre-reproductive periods, mean of generation periods and longevity of the aphids were prolonged by low temperature, but were less affected by other factors.

Recently, Özgökçe *et al.*, (2018) reported that the smallest development period for *M. persicae* was 6.66 days, the highest fecundity was 62.68 individuals, the reproductive rate was 62.7 larvae/ female, and the shortest life cycle period was 12.45 days, while La Ross *et al.*, (2013) found that the development times of immature stages of *M. persicae* ranged from 6.1 - 11.4 days, the intrinsic rate of increase from 0.281 to 0.174 female/ day, the life cycle ranged from 13.7 - 22.7 days and the reproductive rates were 34.1 - 62.89 larvae/ female.

Moreover, the obtained results are in harmony with those of Elnagar *et al.* (1982) and Darwish (1983a and 1998) who noticed that warm weather shortens the total longevity of aphids as well as the period of the life cycle and the life span.

**Fig. 2. The Viviparous female of *A. gossypii* & *M. persicae***

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## دراسات بيولوجية على حشرة من القطن *Aphis Gossypii* وحشرة من الخوخ الأخضر *Myzus persicae* التي تصيب نباتات الخيار وشجيرات الفلفل في الصوب

**نهال أمية محمد سويلم**

**قسم الحشرات الاقتصادية والحيوان الزراعي ـ كلية الزراعة ـ جامعة المنوفية ـ مصر**

تمت دراسة بيولوجى كل من حشرة من القطن التى تصيب نباتات الخيار وحشرة من الخوخ الأخضر التى تصيب نباتات الفلفل المنزرعة تحت ظروف الصوبة بقرية الكوم الأخضر بمحافظة المنوفية وذلك خلال فصلي الشتاء والصيف، حيث اجريت تجربة الشتاء في فبراير وتجربة الصيف في مايو لسنة 2018، تم تقدير الفترة التي تقضيها الأربع أعمار اليرقية وكذلك فترة حياة الحشرة الكاملة و مدة دورة الحياة وعدد الولادات التي تنتجها خلال فترة حياتها لكلا الحشرتين تحت التجربة. أظهرت النتائج أن متوسط الأطوار الغير كاملة لحشرة من القطن هي 6.6 يوماً شتاءً لتقل بنسبة الثلث تقريباً صيفاً لتصل إلى 4.3 يوماً. وتعيش الحشرة الكاملة 1.4 يوماً قبل أن تضع أول خلفة لها شتاءً وتستمر في وضع الولدات لمدة 10.4 يوماً ثم تتوقف لتظل حية يومين قبل أن تموت بعد 13.8 يوماً وضعت خلالها 58.5 فرد جديد ويقدر متوسط دورة حياة حشرة من القطن شتاءاً 8.4 يوماً والفترة من تاريخ الولادة حتى تاريخ النفوق 20.8 يوماً بينما صيفاً تنسلخ الحشرة الكاملة وتظل لمدة 0.9 يوماً قبل أن تضع أول ولداتها وتستمر في وضع الأفراد الجديدة لمدة 6.8 يوماً وتتوقف لمدة 1.2 يوماً قبل النفوق لتقضي الحشرة الكاملة 8.9 يوماً تضع خلالها 36.2 فرداً جديداً ومتوسط دورة الحياة 5.2 يوماً بينما المدة بين تاريخ الولادة وتاريخ النفوق 13.2 يوماً. أظهرت حشرة من الخوخ الأخضر بعض الاختلافات حيث كان متوسط الأطوار الغير كاملة هي 5.4 يوماً شتاءً لتقل صيفاً لتصل إلى 3.4 يوماً. تعيش الحشرة الكاملة 1.8 يوماً قبل أن تضع أول ولداتها شتاءًا وتستمر في وضع الولدات لمدة 27.6 يوماً ثم تتوقف لتظل حية 1.2 يوماً قبل أن تموت بعد 30.6 يوماً وضعت خلالها 39.4 فرد ويقدر متوسط دورة حياة حشرة من الخوخ الأخضر شتاءاً 7.2 يوماً والفترة من تاريخ الولادة حتى تاريخ النفوق 36 يوماً بينماً صيفاً تنسلخ الحشرة الكاملة وتظل لمدة 0.8 يوماً قبل أن تضع أول ولداتها وتستمر في وضع الأفراد الجديدة لمدة 15.6 يوماً لتقضي الحشرة الكاملة 17.6 يوماً تضع خلالها 20 فرداً ومتوسط دورة الحياة 4.2 يوماً بينما المدة بين تاريخ الولادة وتاريخ النفوق 21 يوماً. كما أجريت دراسة على مدى وبائية الحشرتين وذلك عن طريق عزل حشرة واحدة ولودة على نبات سليم وتقدير عدد الحشرات على النبات بعد أسبوع ثم بعد أسبوعين ، وكان متوسط أعداد من القطن بعد الأسبوع الأول 25 فرداً وهو أعلى من نظيره الخوخ الأخضر الذي سجل 16.3 فرداً لتختلف النتائج بعد أسبوعين ليتفوق من الخوخ الأخضر ويسجل 518 فرداً بينما كان متوسط أعداد من القطن 462.3 فرداً.