Supplementary material S1

The age-stage-specific survival rate (s_{xj}) indicates the probability that a newly laid egg will survive to age x and stage j, and fecundity f_{xj}, which is the number of hatched eggs produced by adult female at age x. The age-specific survival rate (l_x) is a simplified form of s_{xj}.

Therefore, age-specific survival rate (l_x) was then calculated by following the below equation:

$$l_x = \sum_{j=1}^{m} s_{xj}$$

Where m is the number of stages.

Age-specific fecundity (m_x) was calculated as follows:

$$m_x = \frac{\sum_{j=1}^{m} s_{xj} f_{xj}}{\sum_{j=1}^{m} s_{xj}}$$

Net reproductive rate (R_0) is the total number of progeny that a mean female individual can produce throughout the lifetime.

So, R_0 was calculated as follows:

$$R_0 = \sum_{x=0}^{\infty} \sum_{j=1}^{m} s_{xj} f_{xj}$$

The intrinsic rate of increase (r) is the rate of growth of a population as time approaches infinity and population reaches the stable age-stage distribution. The population size will increase at the rate of e^r per unit time.

Thus, r was calculated by following the below equation:

$$\sum_{x=0}^{\infty} e^{-r(x+1)} l_x m_x = 1$$

The finite rate of increase (λ) was then calculated as follows:

$$\lambda = e^r$$

The mean generation time (T) represents the time that a population requires to increase to R_0-fold of its size as time approaches infinity and the population settles down to a stable age-stage distribution.

Therefore, T was calculated according to the following equation:

$$T = \frac{lnR_0}{r}$$

Age-stage specific life expectancy (e_{xy}) is the duration that an individual of age x and stage y is expected to live.

Thus, e_{xy} was calculated by following the below equation given by Chi and Su [73]:

$$e_{xy}\sum_{i=x}^{n}\sum_{j=y}^{m}s_{ij}^{!}$$

Where $s_{ij}^{!}$ is the probability that an individual of age x and stage y will survive to age i and stage j.

Reference:

73. Chi, H.; Su, H.Y. Age-stage, two-sex life tables of *Aphidius gifuensis* (Ashmead) (Hymenoptera: Braconidae) and its host *Myzus persicae* (Sulzer) (Homoptera: Aphididae) with mathematical proof of the relationship between female fecundity and the net reproductive rate. *Environ. Entomol*. **2006**, *35*, 10–21. https://doi.org/10.1603/0046-225X-35.1.10

Table S1: ANOVA of sublethal effect of fluxametamide on *Plutella xylostella* F_0 generation

Source of Variation	DF	Sum Square	Mean Square	Significance
4th instar duration	2	2.033	1.017	**
Pupal duration	2	0.187	0.094	**
Pupation rate	2	4347.022	2173.511	**
Pupal weight	2	5.602	2.801	**
Deformed pupa rate	2	13.109	6.554	**
Adult emergence	2	1120.817	560.408	**
Deformed adult	2	101.614	50.807	**
Adult male longevity	2	36.363	18.182	NS
Adult female longevity	2	27.547	13.774	**
Female ratio	2	103.187	51.596	NS
APOP	2	0.445	0.223	**

** Significance at ≤ 0.01; * Significance at ≤ 0.05; NS: Not significant

Table S2: ANOVA of sublethal effect of fluxametamide on *Plutella xylostella* F_1 treated at F_0 generation

Source of Variation	DF	Sum Square	Mean Square	Significance
Egg duration	2	5.330	2.665	**
1st instar duration	2	0.029	0.015	NS
2nd instar duration	2	0.195	0.097	**
3rd instar duration	2	0.046	0.023	*
4th instar duration	2	1.790	0.895	**
Pupal duration	2	0.098	0.049	NS
Pupation rate	2	4864.278	2432.139	*
Pupal weight	2	6.057	3.029	**
Deformed pupa rate	2	1.596	0.798	**
Adult emergence	2	2120.956	1060.478	**
Deformed adult	2	158.967	79.484	**
Adult male longevity	2	19.290	9.645	*
Adult female longevity	2	11.801	5.901	**
Total male longevity	2	2.156	1.078	**
Total female longevity	2	4.669	2.335	**
Female ratio	2	277.435	138.717	NS

** Significance at ≤ 0.01; * Significance at ≤ 0.05; NS: Not significant