



## Safe Methods of Combating P Omidor Moth in Greenhouse Conditions

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**Abstract:** Protecting the air-in and out-doors of greenhouses from the entrance of butterflies, spiders, birds and other creatures with the help of mats is an effective way to protect against the tomato moth, a serious pest of tomato plants. In the 2nd option, compared to the first option: - the number of butterflies - increased by 94.0%; - the number of fruits affected by moths increased by 87.0%; - the yield from one plant decreased by 68.5%. Compared to the general control, i.e. no mesh and JFT, in the first option, butterfly density decreased by 96.6%; the number of fruits affected by moths decreased by 91.0%; productivity increased by 91.8%.

**Keywords:** Greenhouse, plant, tomato, pest, tomato moth, worm, butterfly, protection, sex pheromone trap, fruit, and productivity.

Lepidoptera family (*Gelechiidae*) The tomato moth (*Tuta absoluta* Meyer) is a fully developed insect, and the presence of gills and specific black spots is one of the most important (identifying) signs to consider for its identification. Such signs include the signs of the development period of the moth from the 1st to the 4th year of life. The butterfly of this insect moves mainly in the evening, and during the day it settles on the back of a plant leaf. The butterfly of the tomato moth is very sensitive, and if the plant is slightly shaken, it quickly flies to the side. In recent years, sexual pheromone (JF) traps have been recommended to be used against tomato moth butterflies in various ways. Sex pheromone traps are used for two purposes. The first is to know when and how much moths have fallen, i.e., if they are used for prediction, the second purpose of practical use of JF is to collect insect butterflies in the field into FTs and perform a protective function by "sterilizing" the population ("samtsovyy vakuum"). is to perform. In this case, due to the "deficit" of male butterflies, female butterflies do not hatch from their eggs. But in order to use FTs for this purpose, it is necessary to follow the following requirements.

1. First, the number of FT planted per hectare should be increased several times (30-40), and it will be necessary to control their sequence daily.
2. Secondly, this event must be held simultaneously in large (wide) areas. The reason is, if this is not done, butterflies may fly from neighboring fields (4-5 km) [1;2].

There is a theoretical justification for such a conclusion. Our greenhouse experiments in 2020-2021 showed these results. Our experiments in Kibray district greenhouses had the following goal: what results can be achieved by "sterilization" of the tomato moth population in different greenhouse conditions (?), 3 options were envisaged.

1. The form and doors of the greenhouse are covered with special kapron mesh; From planting to planting, 5 to 40 tomato moth specialized JFTs per hectare were installed and kept free of male butterflies (1 time every 15 days, a total of 9 SJF capsules were changed) ( see Figure 1 ).



Picture. An experience of "sterilizing" protection against the tomato moth (var. 1):

1.2 - appearance of "farmuga",

3.4 – installation of JF,

5 – Resulting tomatoes

Crop

1. For this reason, only the form and doors of the greenhouse are not protected by kapron mats.
2. Control - therefore, only the form and doors were not protected against butterfly entry, JFT was not used to "sterilize".

The structure of the experiment and the obtained results are presented in the table. The number of butterflies listed in the table is an indicator for a given day (per night) and not its cumulative number.

The following conclusions can be drawn from the obtained evidence.

1. Protecting greenhouses from the entry of butterflies, spiders, birds, and other creatures with the help of mats for the air intake and exit of greenhouses is of great importance in protecting the tomato plant from the tomato moth, a serious pest.

In the 2nd option, where the JFT<sub>r</sub> of the moth was used for "sterilization", but not **protected by a net , compared to the 1st option:**

- the number of butterflies increased by 94.0%;
  - the number of fruits affected by moth worms increased by 87.0%;
  - the yield from one plant was 68.5% less.
3. Compared to the general control, that is, without a net and JFT, in the first option, the butterfly density decreased by 96.6%; the number of fruits affected by moths decreased by 91.0%; productivity increased by 91.8%.

To sum up, it is necessary to emphasize that because of how quickly the tomato moth spreads and spreads, it lives in secret, and the effectiveness of the means of control is usually not sufficient, assuming that the greenhouses are specialized, if the following additional measures are taken, without great difficulties, with little expense, the environment - it is possible to effectively protect the tomato plant from moths without harming the environment.

This serves as the main requirements for protecting tomatoes from moths by the method of "masculinization".

1. Before planting seedlings close to autumn, special agrotechnical and preventive measures should be carried out in greenhouses to ensure that pests do not remain inside.

- Hang a kapron mesh on the forms and doors of the greenhouse to ensure that pest butterflies cannot enter from the outside.
- Planting seedlings cleaned of tomato moth and other companion pests by chemical treatment in the greenhouse.
- During the period of vigor of tomatoes, it is necessary to monitor tomato moth JFT on triangular cardboard handles near the door and in the places where the butterfly has a chance to enter, per hectare.
- It is necessary to change SJFN in handles every 15 days, and 7-8 times during the season. In this case, if the number of butterflies increases excessively, it is advisable to use the SJF with the method of pouring water .

## REFERENCES

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### Results of the study of the effectiveness of the method of "sterilization" using JF in the fight against the tomato moth

*Field experience, Tashkent city, 20 20-2022 .*

No	Options	The number of butterflies attached to each 1 JF in days, pcs								Total number of butterflies, pcs	Damaged fruit fraction, %	Average yield from 1 plant, kg	Difference from control (±)
		33	47	62	76	89	106	116	129				
		16.03	30.03	15.04	29.04	13.05	30.05	10.06	23.06				
1.	Greenhouse form and doors are covered with mesh: 5-30 JFT are placed on 1 hectare	2	7	11	17	33	41	91	112	314	9	3,650	+3,350
2.	<b>Therefore</b> , 5-40 JFTs are placed on 1 hectare, only the greenhouse is not protected by a net.	3	37	92	211	931	1097	1231	1712	5317	69	1,150	+0.850
3.	<b>Control</b> That's why only the greenhouse was not protected, JFT was not installed	14	124	215	741	1420	1830	2024	2900	9268	100	0.3	-