Monitoring the number of trips on open-ground tomatoes

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Abstract. The agroclimatic resources of the Astrakhan region are quite large and represent huge opportunities in the production of heat-loving crops such as vegetables and melons. The region has accumulated a great scientific and production experience in the cultivation of tomatoes as the main vegetable crop rotation crop.

To date, the first task for farmers of the region is to develop new modern agrotechnological techniques to eliminate the spread of thrips on open-ground tomato plants. The object of research was a hybrid of tomato of the domestic selection of the agricultural company Sedek Azhur F1. Materials and methods.

For the first time, for the conditions of light chestnut soils on the land use territory of FSBNU "Caspian Agrarian Scientific Federal Scientific Center of the Russian Academy of Sciences" during 2018-2020. the influence of various insecticides in the fight against tripsmi was studied.

As a result of the analysis, the presented scientific article presents the main results for the study of new modern insecticides in the fight against trypses on open-ground tomato Azhur F1. According to the results of three years of study, the optimal option with the use of the drug Confidor Extra was revealed, which contributes to a significant decrease in the number of phytophages.

The use of these preparations had no phytotoxic effect on open-ground tomato plants. In the version using the insecticide Confidor Extra, there was more purely commercial fruits and a significant increase in the crop relative to control without treatments, as well as a variant where the Fufanon-Nova preparation was used. The increase relative to control in the high-yield version was + 40.8 t/ha or 43.5%.

1 Introduction

Trips is the most serious pest of vegetable crops [4-7; 9-16]. Crop damage depends on many factors: the size of the thrips, the size of its population, the phase of plant development for the period of plant damage, the duration of the period of damage.

To date, about 7,700 species of thrips have been recorded [8]. Trypses have piercing and sucking types of oral parts. As a result, they damage crops either during the absorption of food or by huge ovipositors.

Today, one of the promising areas for the development of a system of protective measures in the fight against trips is the use of new insecticides in modern agricultural technologies.

2 Materials and methods

The research was carried out on the experimental fields of the Federal State Budgetary Scientific Institution «Caspian Agrarian Federal Scientific Center of Russian Academy of Sciences».

As an object of research, open ground tomato of the Sedek agrofarm Azhur F1 was used. The study material was the drugs Confidor Extra and Fufanon Nova.
total, a cultivation 2 was carried out by the cultivator KIC-5.

The day before the landing of the seedlings in the field, machining with Ф-200 + MT3-80 was carried out. Then the drip tapes were laid out. Before laying the field experience, a complex mineral fertilizer azofos (N16P16K16) was introduced at a rate of 400 kg/ha.

The seedling landing rate in open ground is 40.8 thousand units/ha. The landing scheme at double-sided placement is 1.4 x 0.30 m. The landing method is manual (seedlings); irrigation method - drip irrigation system. Care for culture consisted in maintenance of a hybrid of a tomato F1 Openwork in a state, clean from weeds, and regulation of the water mode of the soil. Irrigation of the test site was carried out by drip method.

3 Research Methodology

Phytophages were counted 4 times for vegetation according to the Methodological Guidelines for Registration Tests of Insecticides, Acaricides, Mollusks and Rodenticides in Agriculture [3].

The yield accounting and structure were carried out with 10 registered plants from each plot according to the Manual on the conduct of registration tests of agrochemicals in agriculture [2], as well as the Methodology of the State Variety Testing of Crops [1].

4 Research results and discussion

4.1 Agrochemical characteristics of soil

The soil of the experimental site is a light chestnut subtype solonetzic. The actual content of humus along the horizon is 0-20 cm 0.88%, pHKCL - 7.64.

Content of ammonium N - 5.2 mg/kg, nitrate N - 30 mg/kg, mobile P - 27 mg/kg of soil, exchange K - 260.0 mg/kg of soil.

4.2 Biometric indicators

Biometric measurements carried out during the period of butonization did not reveal any significant differences in the experience options. The average height of tomato plants for the study period 2018-2020, was in the range of 45.3-47.8 cm, the number of lateral shoots was 3.0-4.0 pcs.

The number of brushes 3.0 pcs. Per 1 plant. In the full flowering phase, a similar situation was observed, the average height of the plant was approximately the same 49.2-50.6 cm (within the error). In the fruiting phase, the maximum height of 58.5 cm of plants was fixed on the version with the test preparation V-3. Extra's confidence. The number of lateral shoots and the number of brushes on 1 plant was approximately equal.

4.3 Crop structure elements

Harvest accounting for repetitions was carried out 5 times per vegetation from 10 registered plants of each plot. According to the results of the analysis, the V-3 option stood out.

Extra's confidence. The total number of fruits for five fees was 182.0 pcs., Of these, 173.0 pcs were marketable with a total weight of 31.7 kg, while on other versions turned out to be much less - from 148 to 158 pcs. At the same time, the weight of commercial fruits was 22.0-26.0 kg.

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Molluscocides and Rodenticides in Agriculture," trypes were counted on the seventh day after treatment with drugs. As a result, a reduction in these types of pests on the shoots of Azhur tomato was recorded, both on the version V2 to 5.5 pcs, which amounted to 57.7%, and on the version V3 to 2.3 pcs, which amounted to 82.3%.

After two weeks, for 14 days after treatments, a visual inspection and counting of trypes on tomato plants was carried out similarly.

A slight growth of this pest was noted. Number of phytophages in variant V-2. Fufanon Nova averaged 9.8 units, in version V-3. Confidentiality Extra 6.3 pcs.

| Experience Variant | frequency | Average number of trips per escape, pcs. | Reduction of the number relative to the initial one, adjusted for control after processing according to the days of accounting, % |
|--------------------|-----------|------------------------------------------|----------------------------------------------------------------------------------------------------------------|
|                    | Before processing | After processing by day of accounting | 3 | 7 | 14 | 3 | 7 | 14 |
| V-1. Control - no processing | I | 10 | 13 | 16 | 23 | - | - | - |
|                      | II | 11 | 15 | 14 | 18 | - | - | - |
|                      | III | 11 | 14 | 14 | 18 | - | - | - |
|                      | IV | 12 | 12 | 13 | 26 | - | - | - |
| Average              | 11 | 13,5 | 14,3 | 21,3 | - | - | - |
| V-2. Fufanon Nova | I | 8 | 5 | 5 | 9 | 49,1 | 51,9 | 41,9 |
|                      | II | 12 | 6 | 5 | 11 | 59,3 | 68,0 | 52,7 |
|                      | III | 10 | 7 | 6 | 9 | 43,0 | 53,8 | 53,5 |
|                      | IV | 10 | 6 | 6 | 10 | 51,1 | 53,8 | 48,4 |
| Average              | 10 | 6,0 | 5,5 | 9,8 | 51,1 | 57,7 | 49,4 |
| V-3. Confidence Extra | I | 8 | 2 | 3 | 6 | 79,6 | 71,1 | 61,3 |
|                      | II | 9 | 3 | 2 | 7 | 72,8 | 82,9 | 59,8 |
|                      | III | 12 | 3 | 2 | 7 | 79,6 | 87,2 | 69,9 |
|                      | IV | 9 | 2 | 2 | 5 | 81,9 | 82,9 | 71,3 |
| Average              | 10 | 2,5 | 2,3 | 6,3 | 79,6 | 82,3 | 67,5 |
| NSR 05              | 3,2 | 1,4 | 1,2 | 3,6 |

5 Conclusion

1. The use of the test drug in the control of trypes led to a significant reduction in the pest for escape after treatments. The decrease in numbers relative to the initial one, adjusted for control after processing according to the days of accounting, was: by 3 days - 79.6%, by 7 days - 82.3%, by 14 days - 67.5%.

2. The use of the insecticide Confidor Extra, with a drug consumption rate set by the manufacturer, gave a significant yield increase of + 40.8 t/ha or 43.5% relative to the control option.

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