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THE MAIN PESTS OF RICE AND MEASURES TO COUNTERACT THEM

ОСНОВНЫЕ ВРЕДИТЕЛИ РИСА И МЕРЫ БОРЬБЫ С НИМИ

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Abstract. In this article, described the injuriousness of the following rice pests such as tadpole shrimps (*Apus concriformis* Sh.), larvae of rice weevil (*Hybronomus sunnaticollis* Fst), larvae of coastal flies (*Ephydra macellaria* Egg), thorny wheat thrips (*Haplotrips aculatus* Farb.) and other ones, as well as measures to combat against them.

Аннотация. В статье приведены данные по нескольким рисовых вредителей, таких как креветки головастика (*Apus concriformis* Sh.), личинки рисового долгоносика (*Hybronomus sunnaticollis* Fst), личинки прибрежных мух (*Ephydra macellaria* Egg.), тернистая пшеница thrips (*Haplotrips aculatus* Farb.) и другие. Приводятся эффективные методы борьбы с ними.

Keywords: rice, insects, wreckers, biological efficiency, a preparation, control.

Ключевые слова: рис, насекомые, вредителей, биологическая эффективность, препарат, контроль.

At present, there are cultivated 1,5 million hectares of rice in the World. There are crop yields increase, rising of the cultivation methods and protection measures of crop harvest from the pests and diseases are important issues in meeting the demand for grain requirements in Uzbekistan. According to World scientists data, as a result of the influence of harmful organisms in the World, more than 30-40% of the crop yield is lost. There are 33 species of pests in Uzbekistan which are

frequently damaged rice crops and have a major economic impact on them. These pests belong to 2 classes, 8 genus and 15 families. Pests can cause large damage to the rice plantation throughout the entire growing period. Especially, during the rice germination phase, tadpole shrimps (*Apus concriformis* Sh.) are gnawing the roots of the young growth and sprays sprout on the water surface. As a result, there are observed the young sprouts die, decreasing the plant density which ultimately damages the rice yield. At the end of the tillering phase and in the beginning of tubing phase it was found the harmfulness of thorny wheat thripse (*Hanlotrips aculatus* F.).

Now, for further enhancing of rice production there are still remain actual task the following: clarity of arthropods species' subspecies/varieties which lives in the rice ecosystems, identification of dominant species, dynamics of their development, the level of damage of pests, investigation their economic affect criteria and establishment as well as development of Integrated pest management system.

From the 30th to 90th years of the XX century, on the different soil and climatic conditions of Uzbekistan, many scientists like as; Shagaev (1937-1938), V. S. Chuvakhin (1929), V. Vahitov (1957), M. P. Sborshikova [1], A. A. Shokirov (1998) have been conducted researches on the pests of the rice field and measures of prophylactics of fighting against them.

At that times, rice have been planted by mechanization and the effects of pests in the young growth phase of rice plants were neglected. The inculcated chemicals which were recommended for the rice production were wasting because of the negative effects on the environment and their outdated.

The current global climate changes, expanding grain fields, establishment of farming, dramatic changes in the crop structure and the planting of more than 30 second crops after the main crop brought to the sharp changes of the entomologic situation consequently have led to a drastic increase of pests in rice cropping system.

In the last few years, in the rice field has created favorable conditions for both pests the *Apus concriformis* Sh. and *Hanlotrips aculatus* Farb. at the germination and the other phases of development due to the pre-watering and sowing of the soaked rice seeds.

At present, for the defferent rice growth and development phases the modern integrated pest combating methods (agrotechnical, biological, and chemical) have not been a sufficiently studied and scientifically justified.

The object and subject of the study. The objects of the study are main pests of the rice cropping system, chemical agents and the soil and climatic conditions of Tashkent province. The subjects of the researches are rice growth and development observation methods, pest species learning and classification, their density identification and others.

Research Methods: The research was carried out in accordance with the methodology of general entomologic [1-2] and agrotoxicological [3]. The efficiency of chemicals have been calculated by Abbot formula (1967).

Purpose of the research. Determination of pest species composition living in the rice agrobiocenoze, identification dominant pest species, dynamics of their development, pest damage rate and cost criterion as well as protection systems' improvement against these pests using the modern methods and ways .

Results and discussion

Scientific study have been carried out on experimental farm's field at the Rice Research Institute. In the experiment, both the rice pests physical damage and an economic damage rates were studied by the result of phenological observations in 2017 year on rice pests, which states:

1) tadpole shrimps per 1 m^2 - 22.5;

2) barley miner larvae at two stems -1*;*

3) coastal flies larvae per one stems a - 3,0;
4) coastal flies larvae per 1 m^2 - 12;
5) rice weevil larvae per 1 m^2 - 6.5 pieces.

According to the results of the observation at the rice germination phase there were found significantly damage by larvae of *Apus concriformis* Sh., esters, and *Ephydra macellaria* Egg.

In the study, at the germination period when the new pest management chemicals used against rice pests, to the extent that they die have been observed in 1,3,7 and 14 days after treatment at the experimental site.

The control version did not use any chemicals, but the number of pests in this variant was taken into account. Biological efficiency of the used chemicals, at the 14^{th} days afterwards the treatment have been observed. When used a new chemicals Cyperfos 55% emulsion concentrate (e.c.) with a rate 1 l ha^{-1} a biological efficiency in the *Ephydra macellaria* Egg was 93.3% and *Apus concriformis* – 84,0% (Table). When Karate 96,7% e.c. used with the rate of 0,5 l ha^{-1} in the experiments a biological efficiency of *Ephydra macellaria* Egg was 96,7% but at the *Apus concriformis* Sh. 92,0%. Fufanone 57% e.c used in the standard variant, that showed a biological efficiency in the at the *Apus concriformis* Sh. was 86,7% and in the *Ephydra macellaria* Egg it was 83,1% (Table).

Table.

BIOLOGICAL EFFICIENCY OF CHEMICALS USED AGAINST PESTS IN RICE FIELDS

Variants	*Number of pests, piece per 1 m^{-2}*						*Biological efficiency of the 14^{th} days after the treatment %*				
	Rate of chemical agent , l ha^{-1}	*Hydrel-lia griseola*	*Ephydra macellaria* Egg	*Diptera: Syrphidae*	*Hybronomus sumnaticollis* Fst	*Apus concriformis* Sh.	*Hydrellia griseola*	*Ephydra macellaria* Egg	*Diptera: Syrphidae*	*Hybronomus sumnaticollis* Fst	*Apus concriformis* Sh.
Cyperfos 55 % emulsion concentrate (e.c.)	1.0	0.1	0.2	1.8	1.1	3.6	96.0	93.3	85.0	83.1	84.0
Karate 5% e.c.	0.5	-	0.1	1.6	0.9	1.8	100	96.7	86.7	86.1	92.0
Etalon –fufanon 57% e.c.	1.0	-	0.4	2.1	1.0	3.8	100	86.7	82.5	84.6	83.1
Control	-	2.5	3.0	12	6.5	22.5	-	-	-	-	-

Conclusions

1. There are meet the following pests individuals in the rice germination phase; The number of *Apus concriformis* Sh. per 1 m^2 - 22.5, barley miner larvae at two stems -1, coastal flies larvae per one stems a - 3,0, (*Ephydra macellaria* Egg larvae - 12 and rice weevil beetle - 6.5 pieces.

2. After the treatment of experimental plot, there met the number of tadpole shrimp 1,8 per $1m^2$, larvae of coastal flies 1,6, larvae of coastal flies 0,1, beetle of rice weevil 0,9 but no any barley miner.

3. Biological efficiency at 14th days afterwards the treatment met after the Cyperfos 55% emulsion concentrate with the rate of 1,0 l ha^{-1} on barley miners – 96,0%, larvae of coastal flies – 93,3% and thorny wheat thrips 84,0%.

4. Biological efficiency at 14th days afterwards the treatment met after the Karate 5% emulsion concentrate with the rate of 0,5 l ha^{-1} on barley miners – 100,0%, larvae of coastal flies – 96,7% and thorny wheat thrips 92,0%.

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