

THE EFFECT OF IGNORING THE FORECAST OF DANGEROUS SPECIES DEVELOPMENT *AGROTIS SEGETUM* DEN ET SCHIFF ON A SWEET CORN

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Abstract

Agrotis segetum Den et Schiff species harms every year different agricultural crops from R.Moldova. Chemical preparations used against this species, are applied with great infringements of the recommendation. The forecast of development of this species including other harmful insects, is ignored by agricultural manufacturers, thus this insect has formed immunity to different chemical preparations. It occurs because of absence in the country of corresponding laws conducting and observance the rules of plant protection.

INTRODUCTION

Studying the long-term history of forecast of *Agrotis segetum* Den et Schiff species, to the former USSR we learn that, this wrecker was the most important in XVII-XIX centuries, including the beginning of XX century. Flashes of this wrecker have been registered 5 times between 1900-1928. After that, 47 years the species was in full depression. The next flash was registered in 1955, on grain crops and rye. Favorable for all agriculture, the general depression of the given species, lasted till 1981. After that, depressions took place only in those places where the technology cultivation of agricultural crops had been observed (Oltean and colab., 2002). In places where was hope for successful year, from climatic condition point view, the species caused again serious losses of crop (Pronosticul, 2000-2007, Lazari and colab., 2002; Morar and colab., 1998, Pușcașu, 1999-2000).

Unfortunately, the forecast of occurrence and development of harmful organisms for agricultural crops, is not known often by manufacturers, sometimes just ignored. As a result, unprofessional attitude on agricultural crops, leads to additional capital investment. For this reason, there are harmful insects which strongly damage on different cultures in R. Moldova. Now in 2007, are registered greater losses on sweet corn plants during the early period of crop because of harmful species *A. segetum* Den et Schiff. (Timuș și Croitoru, 2006).

According to long-term supervision it is possible to draw a conclusion that, observance of technology elements is insufficient to full success without the **forecast** of occurrence and damage of harmful insects. Ignoring the long-term forecast, has led to accumulation of biological reserve of the given species, in particular on sweet corn. That is why, in R. Moldova's history one more flash of species *A. segetum* Den et Schiff., on sweet corn is predicted.

MATERIAL AND METHOD

Inspections of species *A. segetum* Den et Schiff., development, has been lead to agricultural crops belonging the State Agrarian University from Moldova. Also supervision and calculations were done on fields with different agricultural crops from republic. From the collected data, the forecast of development of the given species for this and next year has been made. Corresponding data serve for drawing up of the long-term forecast of development of species *A. segetum* Den et Schiff. in R.Moldova.

RESULTS AND DISCUSIONS

In R. Moldova, the sweet corn is grown up stage by stage, for industrial processes maintenance. Longer periods of sweet corn crop, promoted successful development of larvae given species *A. segetum* Den et Schiff. on sweet corn. The proof, in the end of June, 2007, there were weeding just to sow, or plants in 2-3 leaves phase.

Thus, expensive and high quality seeds, and including observance of agricultural technicians elements, but without knowledge of harmful insects complex on the fields, do not provide full success of the given culture. At drawing up of the forecast, it is necessary to consider the following: the predecessor; a fytosanitary condition of field after cleaning last culture; the long-term forecast of harmful insects.

The predecessor. Species *A. segetum* Den et Schiff. develops on plenty of plants: 80 species from 15 families: *Triticum* spp. (*T. durum* Desf., *Avena elator* L.) corn (*Zea mays* var. *ceratina* and *Z. mays* var. *saccharata*); bean annual and long-term (*Pisum* spp., *Soja hispida* Mnch. , *Medicago* spp., *Trifolium* spp.); technical (*Helianthus* spp., *Beta* spp., *Nicotiana* spp., *Gossypium* spp.); vegetable (sprouts of *Lycopersicum* spp. and *Brassica* spp., *Daucus* spp.); cucurbitacies (*Cucurbita* spp.); olive (*Brassica napus* L. var. *oliefera* DC, *Sinapis* spp.); flower (*Dianthus* spp., *Digitalis lanata*), stocks of a grapevine and others.

Fytosanitary condition of field after cleaning last culture. Preferred weeds for the given species are registered: *Convolvulus* spp., *Galium aparine* and *Agropyron repens*, etc.

Females, prefers to postpone eggs on roots of plants, tallen leats located more close to surface, and also on the surface of the ground. Especially prefer plants which are covered strongly with a surface of the ground, and create especial microclimatic conditions - damp. Also plants that are or growing spontaneous should be very rare in the given territory. These conditions, this species finds on late cultures in the spring or in the beginning of summer. These microclimatic preferences are connected with the subsequent occurrence and larvae development. In the beginning, these eat under there are feeding with young leaves, and then after 4th age they negatively react to light and migrate in ground in the daylight. Migration from leaves to ground and back, demands physiological efforts. That is why females prefer to postpone eggs near the surface of the ground. These perfect conditions for development, species *A. segetum* finds on fields with cultures where harvesting is spent early: peas, soya, string bean and others.

The forecast and the signal system of species *A. segetum* Den et Schiff. is made in the spring, summer and autumn. The spring estimation contains:

1. The estimation physiological condition of wintering larvae. For this purpose are analyzed 30-50 larvae, collected from fields where the population of the given species was higher.

2. The estimation of summer imago from wintering generation which takes place in III/04 - I/05. This year, is specified for those years when T^0C and UR %, is normal, and for droughty years additional supervision is necessary.

The summet estimation contains: quantity of generated eggs. Females, caught on light trap, are exposed to a partition, thus is learned and the condition of the given species. Fruitfulness femela, depends on condition feed in larvae phase and vary between 200 and 500 eggs. After that follows eggs from leaves, the vegetative rests and as far as possible, they should be counted from the surface of the ground May, and for droughty years additional supervision is necessary.

For embrion development it is necessary $60-65^0C$, from the 10^0 threshold, and these temperatures come in June-July. For one generation is necessary $590-625^0C$, from a 10^0 threshold. In the spring, the economic threshold of damaging imago, is 1 copy per 3 nights on a light trap, or 5 females/10 days in May.

Night catching imago, is completed with tests in the protected cultures. For this purpose, on 100 m^2 area of plants if 1 imago is stirred up it, means the critical threshold has been reached. At larvs, 20-30 plants are also stirred up and their quantity is counted up. If are found 6 larvs/ m^2 chemical sprayings are necessary.

Autumn estimation. The admissible economic threshold of nocuity of winter crops is 2 larvs/ m^2 . This threshold, is especially recommended for fields after peas or other early cultures and with wide leaves weeds grow. An admissible economic threshold of nocuity for sugar beet is 100 femelas/10 days in the beginning of August.

Harmful generations. The first generation harms to spring cultures, which have the greater height in the autumn. The second generation for these plants is not dangerous as they provide feed for larvs without harming plants. The second generation, harms to winter grain crops and autumn *Brassica napus* L. var. *oliefera* DC. Conclusion, both generations are harmful, but it depends on culture and the zone of distribution. The most important, is that all plants participate in accumulation of biological reserve and distribution of given species *A. segetum* Den et Schiff.

According to the information of Laboratory of fyto sanitary Monitoring of R.Moldova, the forecast of species *A. segetum* Den et Schiff. is: the pest is by present constant on of 30% areas, and for last 2 years, has been registered growth of density on plants - 1,2 individs/ m^2 . In 2006, 87% of larvae wintered, and pupas transformation was also successful. This way, development of the wrecker on technical and vegetable cultures, was up to standard of 2005: 0,8-4,5 individs/ m^2 . However, in autumn 2006 *Brassica napus* L. var. *oliefera* DC. have been registered of the damaged areas 72%.

Average number of 2 individs/ m^2 , was but in other zones this index made 3 individs/ m^2 . Warm and long autumn of 2006, helped larvae development up to V (53,6 %) and VI (32 %) age. According to the given forecast, it may be confirmed the growth of density and nocuity, made by this species on different cultures. The information presented above, confirms the given forecast.

CONCLUSIONS

Ignoring the technological recommendations in cultivation of the given cultures and in particular an assumption of weed vegetation on the released fields after early cultures, poor-quality preparation of ground before crop, ignoring the forecast and the alarm system, leads to formation of the local or general centers of species *A. segetum* Den et Schiff. on different agricultural crops, including on sweet corn.

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