Protection and quarantine of plants. 2014. Issue 60.
UDC: 632.7:631.5:633.854.78(477.61)

S.V. GORNOVSKA, Graduate Assistant
V.P. FEDORENKO, Professor, Doctor in Biology, Academician of National Academy of Agricultural Sciences of Ukraine
National University of Life and Environmental Sciences of Ukraine

PESTS OF SUNFLOWER CROPS IN NORTH STEPPE OF UKRAINE

Established the dominant herbivores species in different phases of plant development. Specifies the species composition of sunflower pests. Established harm herbivores on sunflower crops. Years revealed massive to reproduce dominant species of insects. Since 2012 there is an increase in the number and harmfulness Mordellistena parvulifarmis, Agapanthia dahlia, Margaritia (Pyrausta) sticticallis on sunflower crops in North Steppe of Ukraine.

sunflower, Mordellistensa parvuliformis, Agapanthia dahlia, harm

For Ukraine, the sunflower is a very valuable technical culture. Over the last twenty years the acreage of sunflower has nearly tripled. Over saturation of the field crop rotations in this culture increases the risk of mass colonization of crop pests, which leads to large losses of yield and environmental degradation due to expansion of the volume of pesticide application [1, 2].

According to researchers [1, 2], the species composition and population dynamics of insect — phytophages in different years growing sunflower, phase of development, depending on the region and growing technology change significantly.

Sunflower damage a large group of pests, the majority of which are polyphagous. By the nature of the damage, they are divided into such groups: pests of seedlings of wireworm, fake of wireworm, Lathrus apterus (imago), Psalidium maxillosum, Tanymecus palliates, Gryllus desertus, caterpillars Noctuidae; pests stems — Mordellistena parvulifarmis, Agapanthia dahlia; pests of leaves — Margaritia (Pyrausta) sticticallis, historysome scoops, spider mites, locusts; pests of capitula and seeds — sunflower moth, Dolycoris baccarum, Lygus pratensis, Adelphocoris lineolatus, etc [7].

So, harmful entomofauna sunflower is quite varied, it should be extensively examined to ensure that monitoring and forecasting of development of pests.

The purpose of this study was to clarify the dominant composition of the pests, their population dynamics and damage in agrocenoses of sunflower in North-Eastern Steppe of Ukraine.

Research methodology, materials and research results. Examination of sunflower crops on pest population conducted in 2012—2014 farmer and Educational Scientific and Industrial Agricultural Complex LNAU "Kolos" according to standard techniques.

The results of the study. The main pest of sunflower in the period of mass shoots *Tanymecus palliatus* F. and *Psalidium maxillosum* L.*, Opatrum sabulosum* L.

In 2012—2014 Tanymecus palliatus was inhabited by 14—24% of sunflower fields with an average density of 0,1—0,5 copies/m^2. Beetles were damaged from 5 to 15% of the plants in medium and low degrees. Psalidium maxillosum was inhabited by 2—5% of the area. The average density ranged from 0,3 to 0,6 copies/mİ. Beetles were damaged from 2 to 6% of the plants in a weak degree. The wireworm was inhabited from 18 to 22% of the cultures. The average density of their crops ranged from 0,4 to 0,8 copies/m^2 beetles damaged from 5 to 20% of sunflower plants.

In summer the leaves of sunflower damaged Helicoverpa armigera. The average density of larvae ranged from 0,1 to 2,6 specimens/m^2. Caterpillars damaged 1,0—28,0% of sunflower plants. They rudely or hole nibbled at leaves. Noctuidae damaged fabric on the back side of the basket, and caterpillars Helicoverpa armigera algazali phyllaries and gnaw through holes in the basket (Fig. 1A, 1B).

In phase 4 to 5 true leaves of sunflower plants were infested by larvae of the first generation Margaritia (Pyrausta) sticticallis. They first skeletal leaves, and then completely destroyed the lamina, criss-crossing his web. Caterpillars eat the leaves and the tops of the stems. The average density of caterpillars mostly 0,5—2 specimens /m^2. In 2012 and 2013 on sunflower crops identified local pockets of meadow moth with a maximum density of caterpillars up to 20 copies/m^2 (Fig. 2).

In agrocenoses sunflower identified barbel sunflower (*Agapanthia dahlia* Richt.) and *Mordellistena parvuliformis*, the larvae of which damaged the core of the stem of the sunflower.

Long-term dynamics of populations and pest of sunflower shoots in Luhansk region, 2012—2014

Year	Tanymecus palliatus		Psalidium maxillosum		Wireworm	
	infested area, %	of the average density of specimens /m^2	infested area, %	of the average density of specimens /m^2	infested area, %	of the average density of specimens /m^2
2012	24	0,5	3	0,6	18	1,1
2013	18	0,1	2	0,3	22	0,8
2014	14	0,3	5	0,5	14	0,4

A *B*

Fig. 1A. Caterpillar Helicoverpa armigera (original).
1B. Basket of sunflowers damaged Helicoverpa armigera (original)

Larvae of Agapanthia dahli sunflower developed inside the stem. They ate its way down to the root collar. Damaged plants from breaking in strong winds, were stunted (Fig. 3). The average density of the barbel was 1—3 copies on the stalk. He harmed 1—3% of plant culture.

Fig. 2. Damage to leaves of sunflower Margaritia (Pyrausta) sticticallis (original)

Fig. 3. Agapanthia dahli, imago (original)

Larvae of *Mordellistena parvuliformis* gnaw at the heart narrow, winding passages. All galleries gnawed through towards the root. Since fall within the lower part of the stem, root collar and the main root of the larvae were corroded the entire core. With a strong damaged core of the stem of the sunflower broke (Fig. 5).

Fig. 4. The larva Agapanthia dahlia (original)

Fig. 5. Damage to the stalk of the Mordellistena parvulifarmis (original)

The average density of *Mordellistena parvulifarmis* was 0,5 and 2,9 copies/stem. Larvae were damaged up to 8% of plant culture.

A particular danger is *Mordellistena parvulifarmis* number of larvae more than 15 copies on

one stalk, because the density of its population is a significant decrease in performance culture. From damaged plants obtained lower yields, seeds becomes small, the grain will be fulfilled, with a light core, there empty seeds.

THE CONCLUSIONS

Strict observance of technology cultivation of sunflower — the basis for successful protection of crops from pests. To do this, follow the maturity of sunflower at the same place, which, depending on the precursor, density and the polyphagous specific pests of sunflower should be 8 or more years. Before sowing needs by soil excavation to make an inventory of the number and species composition of soil pests. During the growing season should be regular monitoring of species composition and abundance of pests. In the case of migration of pests from adjacent fields and shelter belts should conduct regional treatment recommended chemicals that will give the opportunity to avoid a continuous processing of the entire field.

BIBLIOGRAPHIC LIST

1. *Вольф В.Г.* Соняшник. — К.: Урожай, 1972. — 228 с.

2. *Кононюк А.А.* Соняшник- провідна культура АПК України / А. А. Кононюк // Агровісник України. — 2007. — №1(13). — С. 47—50.

3. *Методики* випробовування і застосування пестицидів / Трибель О.С., Сігарьова Д.Д., Секун М.П. та ін..; за заг. ред. О.С. Трибеля. — К.: Світ. 2001 — 448 с.

4. *Медведев С.И.* К познанию фауны жуков (Coleoptera) Молдавской СССР и с определьных районов Украины / С.И. Медведев Д.С. Шапиро. — 1957. — С. 173—206.

5. Никитчин Д. И. Подсолнечник/ Д. И. Никитчин. — К.: Урожай, 1993. — 192 с.

6. *Федоренко В.П.* Загроза соняшникової шипоноски / В.П. Федоренко, М. М. Демянюк // Farmer. — 2009. — № 5 — 6. — С. 20—21.

7. *Федоренко В.* Соняшник: шкідники й хвороби / Федоренко В., Ретьман С., Шевчук О. та ін.. // Пропозиція. — 2006. — №6. — С. 96—97.

8. *Фокін А.* Система захисту соняшнику від шкідників / А. Фокін // Пропозиція. — 2006. — № 6. — С. 82—88.

Горновська С.В., Федоренко В.П. Шкідники посівів соняшнику в Північному Степу України

Встановлено домінуючі види фітофагів у різні фази розвитку рослин. Уточнено видовий склад шкідників соняшнику. Встановлено шкідливість фітофагів на посівах соняшнику. Виявлено роки масових розмножень домінуючих видів комах. З 2012 року відбувається наростання чисельності та шкідливості соняшникової шипоноски, соняшникового вусача і лучного метелика на посівах соняшнику в Північному Степу України.

Горновская С.В., Федоренко В.П. Вредители посевов подсолнечника в Северной Степи Украины

Установлены доминирующие виды фитофагов в разные фазы развития растений. Уточнён видовой состав вредителей подсолнечника. Установлено вредоносность фитофагов на посевах подсолнечника. Выявлено годы массовых размножений доминирующих видов насекомых. С 2012 года происходит нарастание численности и вредоносности подсолнечной шипоноски, подсолнечного усача и лугового мотылька на посевах подсолнечника в Северной Степи Украины.

Plant Protection and Quarantine. 2014. Issue. 60.
UDC 632.934.2

D.P. SEREDNYAK, graduate student
Institute of Plant Protection of the National Academy of Agrarian Sciences

V.P. FEDORENKO, Doctor of Biological Sciences, Professor, academician of the National Academy of Agrarian Sciences
National University of Life and Environmental Sciences of Ukraine

FEATURES OF PHOSPHINE USE AGAINST PESTS OF GRAIN STOCKS AT DIFFERENT STAGES OF THEIR DEVELOPMENT

It is investigated the toxic effects of phosphine against pests of grain stocks at all stages of their development. It is defined the indicators of product of the mean concentration at exposure time (PMCET), alternative to methyl bromide, which provide the efficiency of fumigation for rice (Sitophilus oryzae L.) and granary (Sitophilus granarius L.) weevils in all phases of development.

lethal standards, phosphine drugs, grain stocks pests

Investigations of granary pests in Ukraine, damaging grain and grain products during their storage, has set out their species composition, which comprises 116 species. Among the pests of grain stocks during their storage, the most common are 32 species, of which there are 20 beetles, 7 moths and pylarid moths, 2 ticks, and 3 species of small rodents [6].

The most common of these are: granary (*Sitophilus granarius* L.) and rice (*Sitophilus oryzae* L.) weevils, flour (*Tribolium confusum* Duv.) and fusty flour (*Tribolium castaneum* Hrbst) beetles, saw-toothed grain *(Oryzaephi-*