

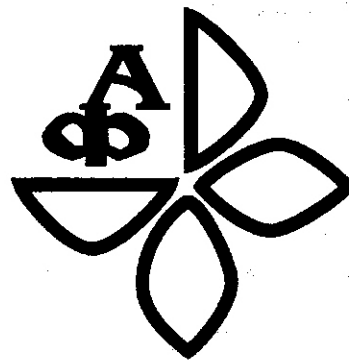
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AGRONOMSKI FAKULTET U ČAČKU



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INSECT PESTS AT SEED WHEAT IN REPUBLIC OF MACEDONIA

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Abstract

A large number of pest insects are met in the seed wheat in Republic of Macedonia, but not all of them are economically important.

In this review paper, presence of the most important pests is registered. In the period 2007 – 2009 the seed wheat was examined from more regions in Republic of Macedonia. The examinations were conducted on the field. Collected material was brought in the laboratory where triage and determination was made.

From the examinations, it could be concluded, that the most represented economically important pests were *Eurigaster spp.*, *Haplotrips tritici* and *Lema melanopus*.

Key words: seed wheat, economically pests, *Eurigaster spp.*, *Haplotrips tritici* and *Lema melanopus*

Introduction

In Republic of Macedonia, growing areas of wheat, in the last three years, are moving around 100000 ha, with average grain yield of 2850 kg/ha. The growing areas of seed wheat are moving around 6000 ha, with average grain yield of 3000 kg/ha. Although, the grain yield of seed wheat is bigger than the total average grain yield of wheat, still, the yields are quite lower compared to the highly developed agricultural countries. So, low yields in our country are result of weak agro technique, not enough fertilizing,, using no sorted seed and not enough protection from diseases and pests.

Wheat is attacked by a lot of pest insects, which cause bigger or smaller damages each year., concerning the yield and the quality features of the seed material. Providing this, our main aim was to give a common review of appearance and intensity of attack of the most important pests at the seed wheat.

Material and methods

The examinations of the growing areas with seed wheat were done in three years 2007 – 2009. In these examinations are comprised growing areas in Strumica, Sv. Nikole, Probistip, Skopje Prilep and Bitola. The size of examined area was moving from 4 – 30 ha. In all three years, total area of 4500 ha, is examined.

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Each year two examinations were done: first, from the beginning to the end of the booting stage, and the second examination was from the beginning of the milk development to the beginning of the dough stage. The intensity of the attack and the damages caused by insect pests were estimated by visual examine, respectively counting the damages from insects of 100 strikes and collecting the insects with net from each parcel of wheat. Collected material from the field was brought to the laboratory of entomology, in the Faculty of agriculture, Strumica, for triage and determination.

Results and discussion

From the examinations of the seed wheat in Republic of Macedonia, it could be seen that the most represented pests are: the sunn pests (*Eurygaster spp.*), wheat thrips (*Haplothrips tritici*), leaf beetle – *Lema melanopus*, leaf aphids – Aphididae and the scarab beetles *Anisoplia spp.*

Sunn pests (*Eurygaster spp.*) are very common pests on seed wheat in our country. They could cause serious damages on the strike of the wheat. According to Stamenković (1993) in the attacked strikes the damages of the grain could be 4 – 82%, or in average, around 29%. Also, germination of the seed is decreased for 56 – 79% and the energy of germination is also decreased. The absolute mass is decreased to 25%. If these parameters are taken in foresight, the damages that cause these insects should be not neglect because of their constantly presence on the sowings.

In our examinations these pest were present with weak to moderate intensity. On table 1 it could be seen the number of representation of *Eurygaster spp.* on the seed wheat. As most represented species were: *E. austriaca* and *E. maura*. Sunn pests, in the three year examinations were present on total area of 820 ha (Table 2) and on some localities the number of all life stages of the sunn pests was moving to 4/m². Although this number could be considered as a serious for treating the wheat, because of it local appearance and for saving money, these pests are not treated with insecticides.

Table 1. Nimer of presence of pest insects at seed wheat 2007 – 2009 in Republic of Macedonia

Species	Year			
	2007	2008	2009	2007 - 2009
	No. of individues	No. of individues	No. of individues	No. of individues
<i>Eurygaster spp.</i>	65	43	42	150
<i>Haplothrips tritici</i>	1550	1675	1323	4548
<i>Lema melanopus</i>	320	176	375	871
Aphididae	545	327	432	1304
<i>Anisoplia spp.</i>	23	15	21	59

According to Lazarevska, 1998, there are more species from the ordo Thysanoptera that are present on the wheat in Republic of Macedonia. In our examinations the most numbered was *Haplothrips tritici* (Thysanoptera, Phloeothripidae). In the three years of examination it was present on total area of 660 ha (Table 2). The intensity of the attack

was weak to moderate, while on some localities it appears with very strong intensity. On these localities to 34 larvae were found on one strike.

Table 2. Presence of pest insects at seed wheat by areas in the period 2007 – 2009 in Republic of Macedonia

Species	Year			
	2007	2008	2009	2007 - 2009
	Area (ha)	Area (ha)	Area (ha)	Area (ha)
<i>Eurygaster spp.</i>	240	210	370	820
<i>Haplothrips tritici</i>	230	235	195	660
<i>Lema melanopus</i>	150	125	180	455
Aphididae	210	105	185	500
<i>Anisoplia spp.</i>	75	55	65	195

The damages that cause *H. tritici* are manifested with change of the color to the hulls, the grain lost its weight, germination is decreasing and there are empty glumes. There are data that the lost of the weight of the grain could be to 20 % if in the glumes are present only 4 thrips larvae (Andus, 1995). By our opinion the damages that cause this pest should not be neglected, but because of already mentioned reasons this pest is not treated with insecticides.

The leaf aphids (Homoptera, Aphididae) are also pests that are present each year on the wheat in R. Macedonia. In our examinations are present with weak to moderate intensity (table 1). The damages that they cause are direct through sap sucking or indirect through the excreted honey dew and through transmitting plant pathogens. Irrespective the type of damage, presence of these pests on seed wheat has negative effect. The presence of leaf aphids was noticed on total area of 500 ha (table 2) of the examined areas.

The leaf beetle (*Lema melanopus*) in the three years of examination was present on total area of 455 ha (table 2) and appeared with moderate to strong intensity (table 1). The lost could be to 30 % if there is strong intensity of appearance. When there is strong intensity of appearance, chemical treatment is done to the seed wheat.

In our examinations, the scarab beetles *Anisoplia spp.* were present on total area of 195 ha (table 2), with weak intensity each year of the examinations. According to the number of presence (table 1) they are not serious pests on the seed wheat in Republic of Macedonia.

Conclusion

Pest insects are present every year on the sowings with seed wheat in Republic of Macedonia. Sunn pests were present on total area of 820 ha, *Haplothrips tritici* was present on total area of 660 ha, leaf aphids were noticed on total area of 500 ha, the leaf beetle (*Lema melanopus*) in the three years of examination was present on total area of 455 ha and the scarab beetles *Anisoplia spp.* were present on total area of 195 ha. Although all pests have negative effect on the sowings with seed wheat chemical treatment to the seed wheat is done only if there is strong intensity of *L. melanopus*.

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