

Species structure and sex ratio of thrips (*Thysanoptera*) on winter rye (*Secale cereale*)

Remigijus ŠMATAS

Lithuanian Institute of Agriculture

Instituto 1, Akademija, Kėdainiai distr., Lithuania

E-mail: remigijus@lzi.lt

Abstract

Investigations on the variation of species diversity and abundance of thrips in winter rye were carried out at the Lithuanian Institute of Agriculture during the period 2002–2004. Assessments of thrips abundance in winter rye were started at the beginning of cereal tillering stage (BBCH 21) and were continued until complete maturity (BBCH 89). In winter rye there were found 16 thrips species that belonged to the three thrips families: 13 thrips species belonged to *Thripidae* family, 2 to *Phlaeothripidae* family and 1 to *Aeolothripidae* family. According to the feeding group of the 16 thrips species found, one species (*Aeolothrips intermedius*) belonged to zoophagous, the rest of the species belonged to phytophagous. *Limothrips denticornis* is the earliest thrips species found on winter rye in spring each year. The dominating species in winter rye were *L. denticornis* (79.3%) and *Haplothrips aculeatus* (15.2%). An average sex ratio of *L. denticornis* was 62.2%, and of *H. aculeatus* 69.6% and of *Frankliniella tenuicornis* 89.0%.

Key words: cereal thrips, *Limothrips denticornis*, *Haplothrips aculeatus*, *Secale cereale*.

Introduction

Thrips are important members of the ecosystem. The vast majority of the described species are herbivorous. As many as 90 species of thrips are of economic importance, including 9 species capable of vectoring plant viruses in the genus *Tospovirus* /Thrips as crops pests, 1997/. Thrips (*Thysanoptera*) are often neglected as pests on outdoor cultivated plants, but damage has occasionally been ascribed to thrips. Some authors noted that the number of thrips on cereals is increasing /Kałol, Kucharczyk, 2004/.

Crops may be attacked by different species of thrips in different parts of the world. This seems especially true for cereal thrips in Europe /Kobro et al., 2000/. Thrips are one of the main insect pests in cereal crops in Lithuania /Šmatas, 2007/. Their occurrence in winter rye is more than twice as high as that in winter triticale and more than eight times as high as that in winter wheat /Šmatas, Šurkus, 2005/.

The data of other authors about species composition of thrips in winter rye in other countries are diverse, but the dominating species are more or less the same. Zawirska and Wałkowski (2000) have reported that *Limothrips denticornis* is a very common and abundant species throughout Poland and have noted that rye is the main host plant of this species. Kałol and Kucharczyk (2004) found that *L. denticornis* and *Haplothrips aculeatus* are among the five most common thrips in winter and spring

wheat. According to Larsson (1988, 2005), in Sweden, rye is normally infested by *L. denticornis*, *Limothrips cerealium*, *H. aculeatus*, *Thrips angusticeps* and *Frankliniella tenuicornis*. In Finland, *L. denticornis*, *H. aculeatus*, *F. tenuicornis* and *Anaphothrips obscurus* were found in winter rye and other cereals /Köppä, 1970/.

The sex ratio index is very important in the knowledge of the biotic potential of the population. Field populations of most species are bisexual, but females often predominate /Vasiliu-Oromulu, 2001/. In some species males are rare or unknown and reproduction is partly or wholly parthenogenetic. Sex ratio can be influenced by year, host plant, the latitude /Köppä, 1970, Vasiliu-Oromulu, 2001/.

The objective of the study was to determine the species structure of *Thysanoptera* in winter rye.

Materials and methods

Experiments were conducted at the Lithuanian Institute of Agriculture, Department of Plant Pathology and Protection during the period 2002–2004.

Investigations on the variation of species diversity and abundance of thrips were carried out in winter rye. Five observation sites 25 m² in size (10 m x 2.5 m) were marked each year. No pest control products were applied in these sites. Assessments of the abundance of thrips in winter rye were started at the beginning of cereal tillering stage (BBCH 21) and were continued until complete maturity (BBCH 89). Plant growth stages were recorded according to BBCH scale /Growth stages..., 2001/. The assessments were done three times a week (on Mondays, Wednesdays and Fridays). Ten randomly selected main stems were cut at the base per each observation site and were immediately placed into a turpentine vapour extractor /Evans, 1933; Lewis, 1960/. After 24 hours' storage in the laboratory the stems were taken out of the turpentine vapour extractors, the remaining thrips were collected from the jar walls, stems, and ear surface with a pair of pincers as well as the thrips remaining in the leaf sheathes. The collected pests were preserved in 70% alcohol. In total, 25 362 thrips were collected and identified during the experimental years.

The species of adult thrips were identified using Strasen (2003), Moritz (1994) descriptors, larvae – using Nakahara (1993) descriptor.

Sex ratio is the percentage of males in a population. Sex ratio was calculated, after formula: $Sr = f : (m + f) \times 100$, where Sr – sex ratio, f – number of females, m – number of males /Vasiliu-Oromulu, 2001/.

Results and discussion

In winter rye there were identified 16 thrips species that belonged to the three thrips families: *Aeolothripidae* family *Aeolothrips intermedius* (Bagnall, 1934), *Thripidae* family – *Anaphothrips obscurus* (Müller, 1776), *Aptinothrips stylifer* (Trybom, 1894), *Chirothrips manicatus* (Haliday, 1836), *Frankliniella intonsa* (Trybom, 1895), *Frankliniella pallida* (Uzel, 1895), *Frankliniella tenuicornis* (Uzel, 1895), *Limothrips cerealium* (Haliday, 1836), *Limothrips denticornis* (Haliday, 1836), *Thrips angusticeps* (Uzel, 1895), *Thrips atratus* (Haliday, 1836), *Thrips fuscipennis* (Haliday, 1836), *Thrips physapus* (Linnaeus, 1758), *Thrips tabaci* (Lindeman, 1888), *Phlaeothripidae* family – *Haplothrips aculeatus* (Fabricius, 1803), *Haplothrips leucanthemi* (Schränk, 1781)

(Table 1, 2, 3, 4). According to trophic status of 16 thrips species found, one (*A. intermedius*) belonged to zoophagous trophic status, the rest belonged to phytophagous. Not the same species were found each year. Females of *A. intermedius* and *L. cerealium* were found only in 2003, *A. obscurus* females were found in 2002 and 2003, *A. stylifer* in 2002 and 2004, *H. leucanthemi*, *T. atratus* in 2004 and *T. physapus* in 2003 and 2004. One male of *T. angusticeps* was found in 2004.

Table 1. Species diversity of adult thrips and their total number in winter rye in 2002
1 lentelė. Suaugėlių tripsų rūšių įvairovė ir bendras kiekis žieminiuose rugiuose 2002 m.

Thrips species <i>Tripsų rūšys</i>	Total number of thrips found / <i>Aptiktų tripsų bendras kiekis</i>					
	Females / <i>Patelės</i>			Males / <i>Patinėliai</i>		
	Number <i>Kiekis</i>	Spread period <i>Plitimo laikas</i>	BBCH*	Number <i>Kiekis</i>	Spread period <i>Plitimo laikas</i>	BBCH*
<i>A. obscurus</i>	22	May III–Jul I	65–77	0	–	–
<i>A. stylifer</i>	1	Jul II	85	0	–	–
<i>C. manicatus</i>	5	May II, Jun I, III	51–57, 71, 77	0	–	–
<i>F. intonsa</i>	9	Apr III, May III–Jun III	30, 65–77	14	May III–Jul III	69–77
<i>F. pallida</i>	4	May I, Jun II–III	31, 73, 77	0	–	–
<i>F. tenuicornis</i>	47	May I–Jul I	31–85	13	May III–Jul II	65–85
<i>H. aculeatus</i>	408	May I–Jul II	31–92	148	Apr III–Jul II	30–91
<i>L. denticornis</i>	1440	Apr III–Jul II	30–92	794	May III–Jul II	69–91
<i>T. fuscipennis</i>	1	Jun I	71	0	–	–
<i>T. tabaci</i>	21	Jun I–Jul I	71–85	0	–	–
Total / <i>Iš viso</i>	1958			969		

Note / *Pastaba*. * – plant growth stages according to BBCH scale / *augalo augimo tarpsnis pagal BBCH skalę*. Months / *Mėnesiai*: Apr – *balandis*, May – *gegužė*, Jun – *birželis*, Jul – *liepa*, Aug – *rugpjūtis*; I–III – ten-day period / *dešimtadienis*.

In spring, the females of *L. denticornis* appear in the field very early /Zawirska, Walkowski, 2000/. In our experiment they were the earliest species of thrips found on winter rye in spring each year. First *L. denticornis* females in spring were found from the third ten-day period of April in 2002 and 2004 and from the first ten-day period of May in 2003. *L. denticornis* was the dominating species each year and constituted as many as 76.3% in 2002, 69.6% in 2003 and 91.9% in 2004. In Poland, this species is the second numerous species and according to various authors constitute 19.3% /Szeplińska, 2005/ – 27.6% /Zawirska, Wałkowski, 2000/ of all individuals found in rye. Andjus (1998) has recorded that *L. denticornis* is the most numerous species on barley in Yugoslavia. “Thrips as crop pests” (1997) suggests that *L. denticornis* is one of main thrips species in rye in North Europe and North America. Buntin and Beshear (1995) in their investigations carried out in North America did not find *L. denticornis* in rye at all. According to them, the prevalent species in rye are *F. fusca* (49.6%), which in our experiment was not found at all, and *L. cerealium* (44%) which we found as little as 0.1% only in 2003.

Table 2. Species diversity of adult thrips and their total number in winter rye in 2003
2 lentelė. Suaugėlių tripsų rūšių įvairovė ir bendras kiekis žieminiuose rugiuose 2003 m.

Thrips species <i>Tripsų rūšys</i>	Total number of thrips found / <i>Aptiktų tripsų bendras kiekis</i>					
	Females / <i>Patelės</i>			Males / <i>Patinėliai</i>		
	Number <i>Kiekis</i>	Spread period <i>Plitimo laikas</i>	BBCH*	Number <i>Kiekis</i>	Spread period <i>Plitimo laikas</i>	BBCH*
<i>A. intermedius</i>	1	May III	49–51	0	–	–
<i>A. obscurus</i>	81	Jun III–Aug I	73–89	0	–	–
<i>C. manicatus</i>	25	May II–III, Jun III–Jul II, Aug I	33–37, 71–83, 89	1	Jul I	77
<i>F. intonsa</i>	35	Jun II–Aug I	69–89	8	Jun I, III–Jul II	59,73–83
<i>F. pallida</i>	16	May I, III, Jul II–Aug I	30, 37, 77–89	0	–	–
<i>F. tenuicornis</i>	130	May I–II, Jun I–Aug I	30–37, 55–89	13	Jun II–Jul III	61–87
<i>H. aculeatus</i>	884	May II–Aug I	31–89	373	May III–Aug I	37–89
<i>L. cerealium</i>	2	May II, Jul III	31, 85	0	–	–
<i>L. denticornis</i>	2252	May I–Jul III	30–85	1509	Jun I–Jul III	59–85
<i>T. fuscipennis</i>	3	Jun II, Jul III, Aug I	69, 85, 89	0	–	–
<i>T. physapus</i>	1	Jun II	61	0	–	–
<i>T. tabaci</i>	72	Jun I–II, Jul II–Aug I	55–69, 77–89	0	–	–
Total / <i>Iš viso</i>	3502			1904		

Note / *Pastaba.* Explanations under Table 1 / *Paaiškinimai po 1 lentelės.*

H. aculeatus appeared in winter rye field one ten-day period later than *L. denticornis* and was the second dominating species (15.2%). According to Zawirska and Wałkowski (2000) in Poland this species is dominating on rye and constitutes 65.2%. But according to Szeplińska (2005) this species takes the third place and constitutes 12.2% of all thrips found on rye. Köpā (1970) reports that *H. aculeatus* is amongst the four most important species in Finland and is chiefly found on rye and winter wheat. “Thrips as crop pests” (1997) reports *H. aculeatus* being one of the six most important thrips on rye in North Europe.

F. tenuicornis constituted 2.2%, polyphagous *T. tabaci* 2% and other species less than 1%. The data of Szeplińska (2005) agree with our findings about *F. tenuicornis* – 2.0% from total thrips number found in winter rye. Other authors /Kačkol, Kucharczyk, 2004/ also found these two species on rye or other cereals. Zawirska and Wałkowski (2000) found 0.8% of *F. tenuicornis* in rye and ascribed them to “cereal” thrips.

Apart from adult thrips, we identified the larvae of the thrips found (Table 5). It was established that in winter rye the prevalent genera were *Limothrips* (accounted for 62.4% of the total content of thrips larvae) and *Haplothrips* (34.9%) larvae. The data from the 2002–2004 period suggest that 52% of thrips caught during the three experi-

mental years were adults and 48% *Haplothrips* spp., *Limothrips* spp. and other species larvae. The *Limothrips* spp. larvae were found from heading to development of fruit stages each year. The *Haplothrips* spp. larvae were found later compared with *Limothrips* spp. larvae – from flowering to full ripening stages.

Table 3. Species diversity of adult thrips and their total number in winter rye in 2004
3 lentelė. Suaugėlių tripsų rūšių įvairovė ir bendras kiekis žieminiuose rugiuose 2004 m.

Thrips species <i>Tripsų rūšys</i>	Total number of thrips found / <i>Aptiktų tripsų bendras kiekis</i>					
	Females / <i>Patelės</i>			Males / <i>Patinėliai</i>		
	Number <i>Kiekis</i>	Spread period <i>Plitimo laikas</i>	BBCH*	Number <i>Kiekis</i>	Spread period <i>Plitimo laikas</i>	BBCH*
<i>A. stylifer</i>	1	Jul III	83	0	–	–
<i>C. manicatus</i>	6	May II–III, Jul II–III	41–57, 77–83	5	Jul II–III	77–85
<i>F. intonsa</i>	8	Apr III, May III, Jul I, III, Aug I	31, 55, 73, 75, 83–89	1	Jul I	75
<i>F. pallida</i>	14	May I–Jul I, Jul III–Aug I	32–75, 83–87	0	–	–
<i>F. tenuicornis</i>	84	Apr III–Aug III	31–89	2	Jul I	73–75
<i>H. aculeatus</i>	129	May I–Jul I, Jul III–Aug I	32–75, 83–87	69	Jun II–III, Jul III–Aug I	65–73, 83– 89
<i>H. leucanthemi</i>	1	Jun III	73	0	–	–
<i>L. denticornis</i>	2802	Apr III–Aug I	31–87	1694	Jun I–Jul III	59–83
<i>T. angusticeps</i>	30	Apr III–Jul III	31–77	1	Apr III	31–32
<i>T. atratus</i>	1	May I	32–33	0	–	–
<i>T. fuscipennis</i>	1	May I	32	0	–	–
<i>T. physapus</i>	3	May I, Jun II, Jul II	32–33, 65, 77	0	–	–
<i>T. tabaci</i>	37	Jun II–Aug I	71–87	0	–	–
Total / <i>Iš viso</i>	3118			1772		

Note / *Pastaba.* Explanations under Table 1 / *Paaiškinimai po 1 lentelės.*

Table 4. Species diversity of adult thrips and their total number in winter rye in 2002–2004
4 lentelė. Suaugėlių tripsų rūšių įvairovė ir bendras kiekis žieminiuose rugiuose 2002–2004 m.

Thrips species <i>Tripsų rūšys</i>	Total number of thrips found / <i>Aptiktų tripsų bendras kiekis</i>							
	2002		2003		2004		2002–2004	
	Number <i>Kiekis</i>	%	Number <i>Kiekis</i>	%	Number <i>Kiekis</i>	%	Number <i>Kiekis</i>	%
1	2	3	4	5	6	7	8	9
<i>A. intermedius</i>	0	0	1	0.1	0	0	1	0.1
<i>A. obscurus</i>	22	0.8	81	1.5	0	0	103	0.8
<i>A. stylifer</i>	1	0.1	0	0	1	0.1	2	0.1
<i>C. manicatus</i>	5	0.2	26	0.5	11	0.2	42	0.3
<i>F. intonsa</i>	23	0.8	43	0.8	9	0.2	75	0.6
<i>F. pallida</i>	4	0.1	16	0.3	14	0.3	34	0.3

Table 4 continued
4 lentelės tęsinys

1	2	3	4	5	6	7	8	9
<i>F. tenuicornis</i>	60	2.1	143	2.7	86	1.8	289	2.2
<i>H. aculeatus</i>	556	19.0	1257	23.3	198	4.1	2011	15.2
<i>H. leucanthemi</i>	0	0	0	0	1	0.1	1	0.1
<i>L. cerealium</i>	0	0	2	0.1	0	0	2	0.1
<i>L. denticornis</i>	2234	76.3	3761	69.6	4496	91.9	10491	79.3
<i>T. angusticeps</i>	0	0	0	0	31	0.6	31	0.3
<i>T. atratus</i>	0	0	0	0	1	0.1	1	0.1
<i>T. fuscipennis</i>	1	0.1	3	0.1	1	0.1	5	0.1
<i>T. physapus</i>	0	0	1	0.1	3	0.1	4	0.1
<i>T. tabaci</i>	21	0.7	72	1.3	37	0.8	130	2.0
Total / Iš viso	2927		5406		4890		13223	

Table 5. Genus diversity of thrips larvae and their total number in winter rye in 2002–2004
5 lentelė. *Tripsų lervų genčių įvairovė ir bendras kiekis žieminiuose rugiuose 2002–2004 m.*

Thrips genera <i>Tripsų gentys</i>	Total number of thrips larvae found / <i>Aptiktų tripsų lervų bendras kiekis</i>			
	Number <i>Kiekis</i>	Spread period <i>Plitimo laikas</i>	BBCH*	%
2002				
<i>Haplothrips</i> spp.	1894	May III–Aug I	61–89	69.2
<i>Limothrips</i> spp.	803	May II–Jun II	55–75	29.4
Other larvae / <i>Kitos lervos</i>	39	May II–Jul II	51–91	1.4
Total / Iš viso	2736			100
2003				
<i>Haplothrips</i> spp.	1934	Jun II–Aug I	69–89	44.4
<i>Limothrips</i> spp.	2255	Jun I–Jul I	55–77	51.7
Other larvae / <i>Kitos lervos</i>	169	May III–Aug I	49–89	3.9
Total / Iš viso	4358			100
2004				
<i>Haplothrips</i> spp.	402	Jun II–Aug I	65–89	8.0
<i>Limothrips</i> spp.	4520	Jun I–Jul II	59–77	89.6
Other larvae / <i>Kitos lervos</i>	123	May III–Aug I	53–87	2.4
Total / Iš viso	5045			100

Note / *Pastaba.* Explanations under Table 1 / *Paaiškinimai po 1 lentelės.*

Sex ratio was 67% in 2002, 65% in 2003 and 64% in 2004 for all collected thrips. Andjus (1998) found as many as 80% females. Sęczkowska (1970) claims, that the percent of males hatched is a little higher than that of females. However, the number of adult females is higher than males. The author explains it by high natural mortality rate of males after copulation. It also can be influenced by the latitude /Vasiliu-Oromulu, 2001/. Sex ratio of *L. denticornis* varies greatly from year to year /Köpä, 1970/. It also varies on different species of host plant /Köpä, 1969/. Köpä (1970) found that sex ratio of *L. denticornis* on rye is on average 72% and 83–93% on other crops. In our case, sex ratio of *L. denticornis* was much lower and did not vary greatly – 64.5% in 2002, 59.9%

in 2003 and 62.3% in 2004. Sex ratio for *H. aculeatus* was 73.4% in 2002, 70.3% in 2003 and 65.1% in 2004. Köpă (1969) found it also higher 81.1–84.4% in winter rye. In our observation, sex ratio of *F. tenuicornis* was 78.3% in 2002, 90.9% in 2003 and 97.8 in 2004. Sex ratio of other species found cannot be determined with certainty because of the sparsity of this species.

Conclusions

1. In winter rye, there were found 16 thrips species that belonged to the three families: 13 thrips species belonged to *Thripidae* family, 2 to *Phlaeothripidae* family and 1 to *Aeolothripidae* family. According to the feeding group of the 16 thrips species found, one species (*Aeolothrips intermedius*) belonged to zoophags, the rest of the species belonged to phytophagous.

2. The prevalent species in winter rye were *Limothrips denticornis* (79.3%) and *Haplothrips aculeatus* (15.2%).

3. An average sex ratio of *L. denticornis* was 62.2%, of *H. aculeatus* 69.6% and of *Frankliniella tenuicornis* 89.0% in winter rye. Sex ratio of the prevalent thrips species (*L. denticornis* and *H. aculeatus*) did not vary markedly during the 2002–2004 experimental period.

Received 05 10 2009

Accepted 17 11 2009

REFERENCES

1. Andjus L. J. Thrips species on wheat and barley in Yugoslavia // 6th international symposium on *Thysanoptera*: Akdeniz University, April 27–May 1, 1998. – Antalya, Turkey, 1998, p. 1–5
2. Buntin G. D., Beshear R. J. Seasonal abundance of thrips (*Thysanoptera*) on winter small grains in Georgia // *Environmental Entomology*. – 1995, vol. 24, p. 1216–1223
3. Evans J. W. A simple method of collecting thrips and other insects from blossom // *Bulletin of Entomological Research*. – 1933, vol. 24, p. 349–350
4. Growth stages of mono- and dicotyledonous plants: BBCH monograph. – 2001, p. 14–18
5. Kałol E., Kucharczyk H. The occurrence of thrips (*Thysanoptera*, *Insecta*) on winter and spring wheat in chosen regions of Poland // *Acta Phytopathologica et Entomologica Hungarica*. – 2004, vol. 39, p. 263–269
6. Köppă P. Studies on the thrips (*Thysanoptera*) species most commonly occurring on cereals in Finland // *Annales Agriculturae Fenniae*. – 1970, vol. 9, p. 191–265
7. Köpă P. The composition of the thrips species in cereals in Finland / The sex index of some species of thrips living on cereal plants // *Annales Agriculturae Fenniae*. – 1969, vol. 35, p. 65–72
8. Kobro S., Teksdal A. E., Andersen A. Cereals as host plants for thrips (*Tysanoptera*) in Norway // *Norway Journal of Entomology*. – 2000, vol. 47, p. 1–6
9. Larsson H. Economic damage caused by cereal thrips in winter rye in Sweden // *Acta Phytopathologica et Entomologica Hungarica*. – 1988, vol. 23, p. 291–293
10. Larsson H. Economic damage by *Limothrips denticornis* in rye, triticale and winter barley // *Journal of Applied Entomology*. – 2005, vol. 129, p. 386–392
11. Lewis T. A. A method for collecting *Thysanoptera* from *Gramineae* // *Entomologist*. – 1960, vol. 93, p. 27–28

12. Moritz G. Pictorial key to the economically important species of *Thysanoptera* in Central Europe // Bulletin OEPP / EPPO Bulletin. – 1994, vol. 24, p. 181–208

13. Nakahara S. Syllabus for *Thysanoptera* larvae / The 1993 international conference on Thysanoptera: prepared for the thrips identification workshop: October 1, 1993. – Burlington, USA, 1993. – 24 p.

14. Sęczkowska K. Wstępne obserwacje nad biologią i występowaniem *Limothrips denticornis* Hal. (*Thysanoptera*) // Annales universitatis Mariae Curie-Skłodowska. Sectio C. – 1970, vol. 25, p. 303–312

15. Strassen R. Die Terebranten Thysanopteren Europas und des Mittelmeer-Gebietes. – Keltern, Deutschland, 2003. – 277 S.

16. Szeplińska D. Density and the species structure of *Thysanoptera* (thrips) in winter rye and oat crops // Journal of Plant Protection Research. – 2005, vol. 45, p. 55–58

17. Šmatas R. Amarų ir tripsų plitimas ir žalos mažinimas javuose // Šių dienų augalų apsauga mokslo ir agroverslo kontekste. – 2007, p. 187–194

18. Šmatas R., Šurkus J. Tripsų gausumo kaita žieminiuose javuose [Occurrence of thrips in winter cereals (summary)] // Žemdirbystė-Agriculture. – 2005, t. 91, Nr. 3, p. 95–106

19. Thrips as crop pests. – Harpenden, UK, 1997. – 740 p.

20. Vasiliu-Oromulu L. The dynamic of the sex ratio index of thrips populations in mountainous meadows // Thrips and Tospoviruses: proceedings of the 7th international symposium on *Thysanoptera*: July 2–7, 2001. – Calabria, Italy, 2001, p. 315–324

21. Zawirska I., Wałkowski W. Fauna and importance of thrips (*Thysanoptera*) for rye and winter wheat in Poland. Part I. Fauna of *Thysanoptera* on rye and winter wheat in Poland // Journal of Plant Protection Research. – 2000, vol. 40, p. 35–55

ISSN 1392-3196

Žemdirbystė-Agriculture, t. 96, Nr. 4 (2009), p. 260–267

UDK 633.14“324”:632.6/.7

Tripsų (*Thysanoptera*) rūšinė sudėtis ir lyčių santykis žieminiuose rugiuose (*Secale cereale*)

R. Šmatas

Lietuvos žemdirbystės institutas

Santrauka

Thysanoptera rūšinės sudėties ir lyčių santykio žieminiuose rugiuose tyrimai vykdyti 2002–2004 m. Lietuvos žemdirbystės institute. Tripsų gausumo žieminiuose rugiuose stebėjimai pradėti javų krūmijimosi pradžioje (BBCH 21), o baigti visiškos brandos tarpsniu (BBCH 89). Žieminiuose rugiuose rasta 16 tripsų rūšių, kurios priklausė trims šeimoms: trylikos rūšių tripsai priklausė *Thripidae*, dvi – *Phlaeothripidae* ir viena – *Aeolothripidae* šeimoms. Pagal mitybinę grupę iš rastų 16-os rūšių tripsų viena (*Aeolothrips intermedius*) priklausė zoofagams, likusios – fitofagams. Visais tyrimų metais rugiuose anksčiausiai pradėjo plisti *Limothrips denticornis* rūšies tripsai. Rugiuose vyravo *L. denticornis* (79,3 %) ir *Haplothrips aculeatus* (15,2 %) rūšių tripsai. *L. denticornis* rūšies tripsų lyčių santykis buvo 62,2 %, *H. aculeatus* – 69,9 %, *Frankliniella tenuicornis* – 89,0 %.

Reikšminiai žodžiai: javiniai tripsai, *Limothrips denticornis*, *Haplothrips aculeatus*, *Secale cereale*.