

THE OCCURRENCE OF POTENTIALLY HARMFUL MOTHS IN SOMBOR AND ČELAREVO (SERBIA) IN 2016 AND FORECAST FOR 2017

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Abstract

A light trap, type RO Agrobečej, was used in 2016 for recording the presence of moths at localities in Sombor and Čelarevo. The trap was operational from the beginning of April to mid-October. Altogether over 38000 moths were collected. More than 180 species were identified. A significantly smaller frequency of moth species, in comparison to multi-annual averages, was recorded for the species *Loxostege sticticalis*, *Ostrinia nubilalis*, *Autographa gamma*, *Helicoverpa armigera*, *Spodoptera exigua*, *Agrotis ipsilon*, *A. segetum* and *Hyphantria cunea*. The number of recorded specimens of the species *Lacanobia oleracea* was below average in Sombor, but above average in Čelarevo. A significantly larger number of moths, compared to multi-annual averages, was recorded for the species *Mamestra brassicae* and *Agrotis exclamationis*. According to Mészáros (1963), the brood coefficient was more than 1 for the species *Lacanobia oleracea*, *A. exclamationis*, *A. segetum* and *H. cunea*. For these species, there is a positive forecast for 2017. Damage caused by the first brood can be expected from *L. oleracea* on crucifer and sugar beet production, *A. exclamationis* on late sown corn, and also on watermelon, crucifers, pepper, tomato and eggplant when seedlings are taken outdoors. The abundance of *H. cunea* is low, so damages from the first brood are expected on mulberry and walnut. The numerousness of *A. segetum* is low, so no significant damages are expected, i.e. damages in 2017 can occur only locally.

KEY WORDS: Fall webworm, heart and dart owl moth, light trap

Introduction

Keeping track of the number of moths by using light traps is a means for forecasting and signaling the need for the suppression of certain species of harmful moths. A light trap is non-selective and it catches large numbers of nocturnal insects. During 2016 more than 38000 specimens were collected, from more than 180 species. This paper presents records for the species *Loxostege sticticalis* (Linnaeus, 1761), *Ostrinia nubilalis* (Hübner, 1796), *Autographa gamma* (Linnaeus, 1758), *Helicoverpa armigera* (Hübner, 1808), *Spodoptera exigua*

(Hübner, 1808), *Lacanobia oleracea* (Linnaeus, 1758), *Mamestra brassicae* (Linnaeus, 1758), *Agrotis ipsilon* (Hufnagel, 1766), *A. exclamatoris* (Linnaeus, 1758), *A. segetum* (Denis & Schiffermüller, 1775) and *Hyphantria cunea* (Drury, 1773) in 2016 and provides a forecast for 2017.

Material and Methods

Light traps, type RO Agrobečej, were used, with the light source coming from a 250W mercury bulb. The traps were operated from April 9 to October 14, 2016. One was placed in Sombor, the other in Čelarevo. According to the UTM map, the light trap in Sombor was placed in the field area marked CR56, and the one in Čelarevo in the area marked CR81. Specimens were devitalized using dichlorvos, collected daily and processed in the laboratory. The gathered data were compared to multi-annual averages (Vajgand *et al.*, 2005a, 2005b; Vajgand, 2012). A long-term forecast was made based on brood coefficients (Mészáros, 1963). The brood coefficient is the quotient between the number of moths of second and of first generation. If this coefficient is larger than 1, the population of this species is stable, it is growing and in the next year the first generation will be larger than in the previous year.

Results

Loxostege sticticalis – Beet webworm

In 2016, this moth's frequency was significantly lower than average values (Table I). During the year, 10 specimens were recorded in Sombor and 28 in Čelarevo. The economic damage resulting from the presence of this moth on cultivated plants was not recorded in 2016.

In Sombor, single specimens were recorded from June 24 to July 13 and 2 specimens on August 27. In Čelarevo, specimens were recorded from June 24 to July 12 (Fig. 1). On average, 1 to 3 moths were collected per night. Subsequently, a single specimen was recorded on August 10, and from August 24 to 30, another eight specimens were recorded, 1 or 2 per night.

According to previous research, the first generation in Sombor is present from May 1 to June 4. The second generation occurs from June 8 to July 18. The third generation flies from July 19 to August 10, and the fourth generation is present from August 11 to September 18. When frequency data for 2016 are compared to those of average frequency (Vajgand, 2012), it is possible to conclude that the moths were present in the periods of second and fourth brood.

No long-term forecast is made for beet webworm. Mass occurrences are always abrupt, so more frequent analysis of the number of moths is needed.

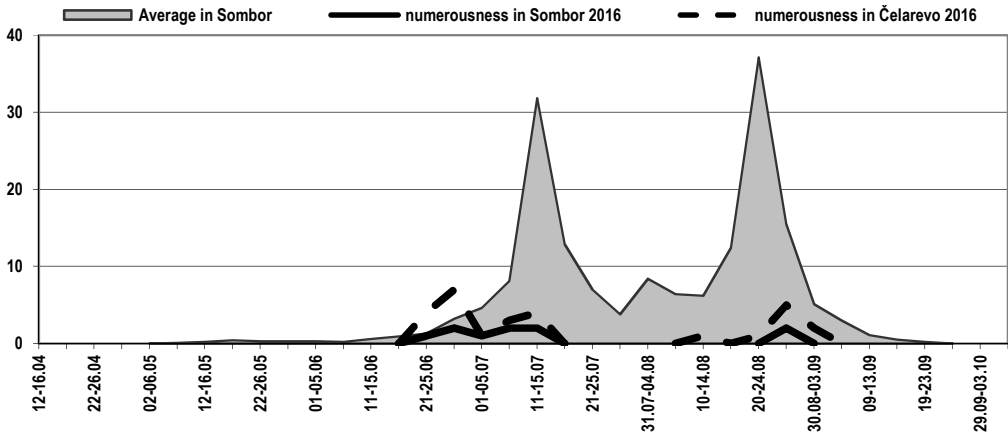


Figure 1. Flight dynamics of *Loxostege sticticalis* on light traps. Abscissa - five-day period; ordinate - number of moths.

Ostrinia nubilalis – European corn borer

The frequency of this moth in 2016 was below the multi-annual average. 5086 specimens were recorded in Sombor and 14810 in Čelarevo, while annual averages are 8857 and 24492, respectively (Table I). However, even this numerousness was enough for the European corn borer to inflict significant damage on pepper, sweet corn and seed corn in 2016.

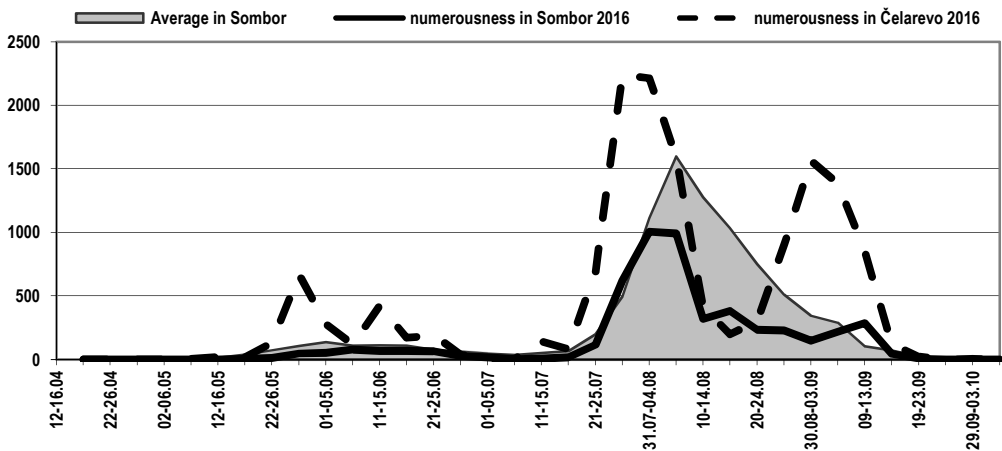


Figure 2. Flight dynamics of *Ostrinia nubilalis* on light traps. Abscissa - five-day period; ordinate - number of moths.

The first brood occurred in Čelarevo from May 2 to July 4, and in Sombor from May 12 to July 9 (Fig. 2). A single specimen was recorded in Sombor on April 25. Altogether there were 449 specimens recorded in Sombor and 2077 in Čelarevo. The frequency peak was recorded in Čelarevo on May 30 (316 specimens per night), and in Sombor on June 6 (31 specimens). In Čelarevo there was another peak on June 12 (121 specimens).

The second brood was active just after the first one, in Čelarevo from July 6 to August 11, in Sombor from July 11 to August 12. During this period 7439 specimens were registered in Čelarevo, while 3081 were recorded in Sombor. The peak in Čelarevo occurred on August 1 (834 specimens) and in Sombor on August 5 (301 specimens).

A period of inactivity was almost non-existent, so that the third brood was active from August 13 to September 2 in Čelarevo, and from August 13 to September 26 in Sombor. The peak in Čelarevo was registered on August 31 (479 specimens), and in Sombor on September 10 (97 specimens).

The frequency dynamic is significantly different from the average (Fig. 2). Moth activity was almost continual. At the end of May numbers dropped significantly in Čelarevo. At the same site the third brood was clearly distinguishable, and the number of specimens was several times greater than that of the multi-annual average (Table I).

A long-term forecast based on the brood coefficient is not reliable for this species.

Autographa gamma – Silver Y moth

This species was not abundant in 2016. There were 81 specimens recorded in Sombor (average is 450), and 164 in Čelarevo (average 189) (Table I). On average, 1 to 5 specimens per night were recorded. On only a few occasions were more moths recorded. The peak in Sombor occurred on June 23 (9 specimens), and in Čelarevo on June 22 (10 specimens). The period of activity lasted from April 9 to October 3 in Sombor and from April 18 to September 30 in Čelarevo (Fig. 3).

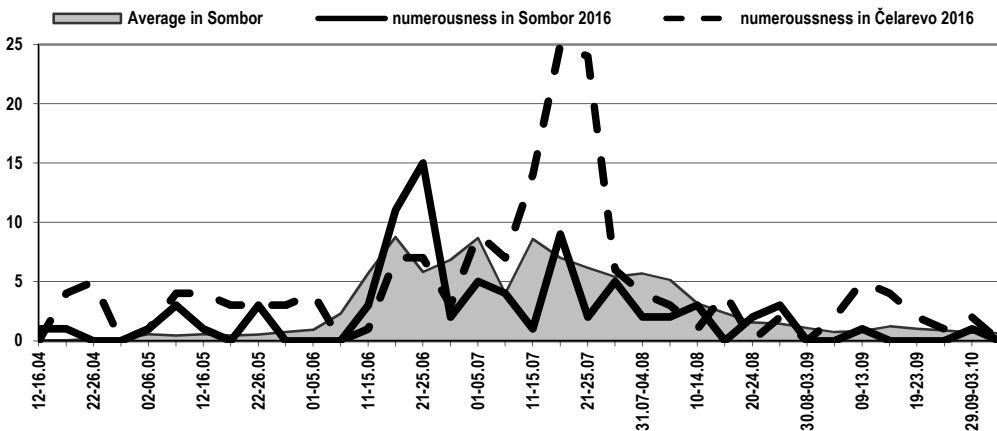


Figure 3. Flight dynamics of *Autographa gamma* on light traps. Abscissa - five-day period; ordinate - number of moths.

Individual caterpillars were found in 2016 on crops of soybean, pepper, corn, tobacco, green beans and sugar beet, but suppression measures were economically justified only in certain cases on pepper. No long-term forecast was made since this is a migratory species. In 2016, there were no significant migrations in Bačka, unlike in 2015 (Vajgand, 2016).

Helicoverpa armigera – Cotton bollworm, Corn earworm

In 2016, this species caused damage to corn, pepper, tomato, cabbage and tobacco. In Sombor, 894 specimens were recorded, and in Čelarevo 775 (Table I). That is respectively equivalent to 80 and 86% of the average values, but was nonetheless enough to inflict significant damage locally. The extent of damage was not significant on corn (except for seeds and sweet corn). For the other aforementioned crops, it was necessary to apply chemical suppression measures in the second half of August and in September.

The first specimen was caught in a light trap on April 25 in Sombor. This is the earliest record of the species since 1986, when monitoring began. In Čelarevo, the moths first appeared on May 7. At both localities 1 or 2 specimens were collected per night until June 29. After that, frequency increased, which is in accordance with multi-annual data (Fig. 4). The maximal peak in Sombor was on August 26 (86 specimens per night), and on August 31 in Čelarevo (55 specimens per night). Another peak occurred on July 28 in Čelarevo, with 14 specimens captured in one night, and in Sombor on August 13 with 26 specimens. The activity lasted until September 22 in Čelarevo and September 29 in Sombor.

A long-term forecast for 2017 for cotton bollworm is not given since this is a migratory species.

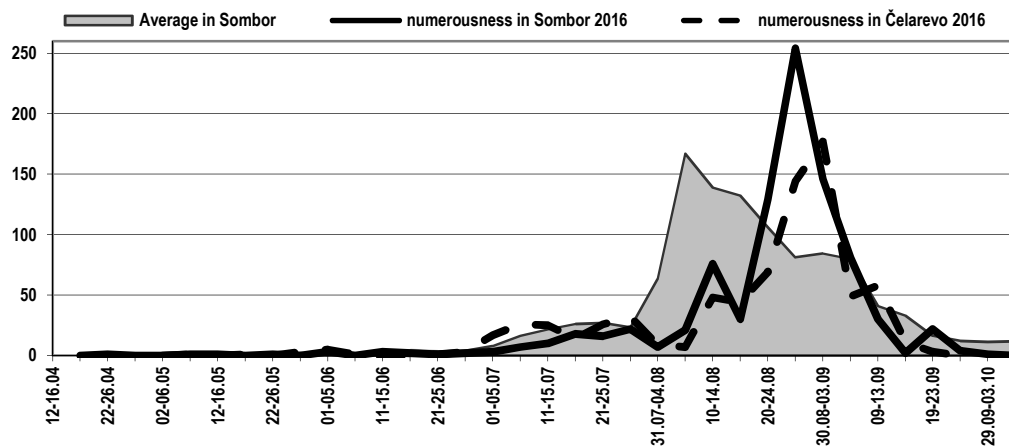


Figure 4. Flight dynamics of *Helicoverpa armigera* on light traps. Abscissa - five-day period; ordinate - number of moths.

Spodoptera exigua – Beet armyworm

In Sombor, 21 specimens were recorded and in Čelarevo 43, which is less than the multi-annual average (Table I). Neither mass occurrence of caterpillars nor damage from this species were recorded in 2016.

The presence of the species was established from June 4 in Sombor and June 9 in Čelarevo. For both localities, this is the earliest occurrence of the species since monitoring began (Fig. 5). One or two specimens per night were collected until September 21 in Sombor and September 22 in Čelarevo.

This is a migratory species, so no long-term forecast for 2017 is given.

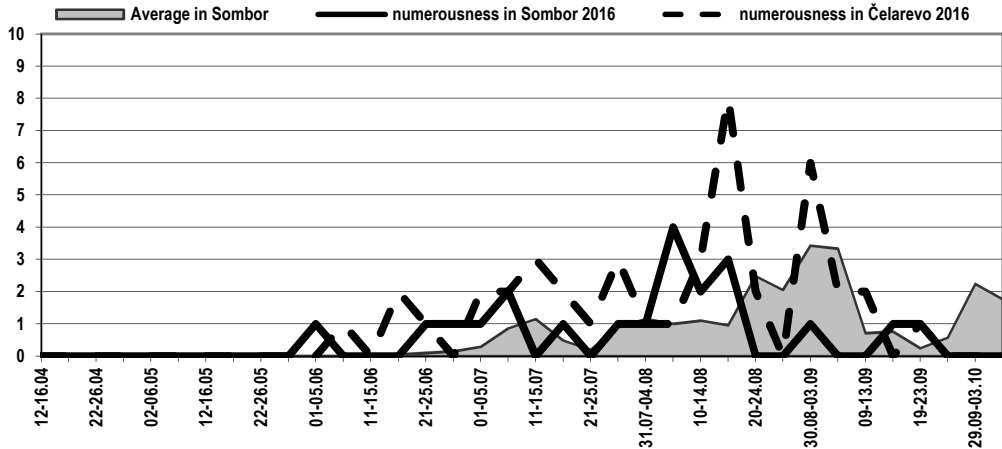


Figure 5. Flight dynamics of *Spodoptera exigua* on light traps. Abscissa - five-day period; ordinate - number of moths.

Lacanobia oleracea (Linnaeus, 1758) –Bright-line Brown-eye

Based on the flight dynamics, three broods appeared in 2016. Overall, 363 specimens were recorded in Sombor and 187 in Čelarevo. Compared to average values (Table I), it can be seen that the species was less numerous in Sombor, and more than average in Čelarevo. Caterpillars were found on sugar beet and crucifers, but no suppressing measures were necessary. On sugar beet, *M. brassicae* was dominant, and on crucifers it was *Plutella maculipennis*, so suppression measures against these species also suppressed Bright-line Brown-eye.

Specimens of the first brood were recorded from April 16 to June 17 in Čelarevo, and from April 17 to June 25 in Sombor. The first brood peak was registered in Čelarevo on June 3 (10 specimens), and in Sombor on June 6 (9 specimens). Altogether 112 specimens of the first brood were recorded in Čelarevo and 84 in Sombor (Table I).

The second brood in Čelarevo was active from June 24 to August 16 and in Sombor from July 3 to August 19. Of this brood, 42 specimens were recorded in Čelarevo and 188 in Sombor. This is less than the average for Čelarevo, and almost exactly the average for Sombor. The frequency peak occurred on July 27 in Čelarevo (6 specimens), and August 2 in Sombor (15 specimens).

The third brood in Sombor appeared on August 21 and lasted until September 25. In Čelarevo, it started on August 24 and lasted until September 22. The third brood peak was recorded on September 7 (12 specimens)

in Sombor, and on September 11 in Čelarevo (5 specimens). In Sombor, there were 91 specimens recorded, which is triple the average number (Table I). More specimens of the third brood were recorded only in 2010. In Čelarevo, the 33 recorded specimens are double the average.

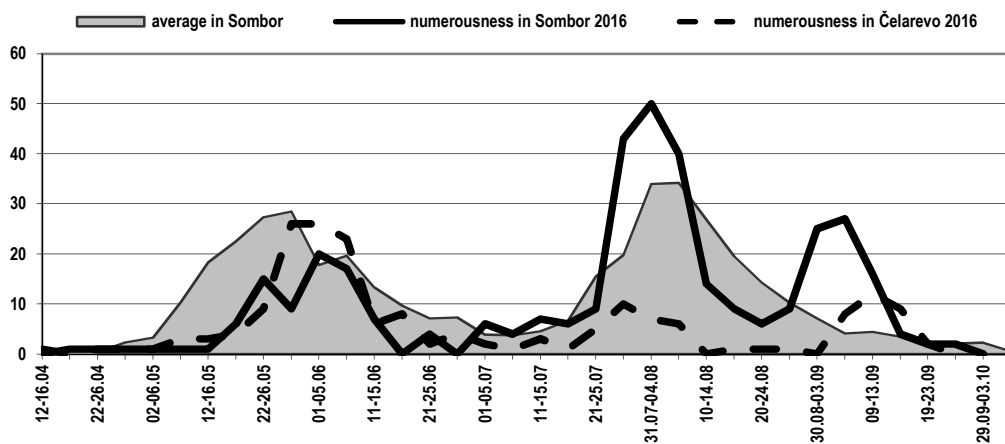


Figure 6. Flight dynamics of *Lacanobia oleracea* on light traps. Abscissa - five-day period; ordinate - number of moths.

The increase in numbers and highest frequency of the first brood occurred slightly later than usual (Fig. 6). It should be noted that the increase in numbers of second brood occurred earlier than usual, although the first brood was slightly late. The third brood was clearly identifiable, which does not occur each year.

The Mészáros brood coefficient for Sombor was 3.3, and for Čelarevo 0.7. Because of this brood coefficient, i.e. an increase in numbers for the first brood in Sombor and a decrease in Čelarevo, the forecast is expected to be negative. With numerousness at such high levels it could be expected that it will be necessary to suppress the first brood on crucifers and sugar beet.

Mamestra brassicae – Cabbage moth

In 2016, the species was present in larger numbers than average. There were 114 specimens recorded in Sombor and 84 in Čelarevo, while averages are 105 and 25, respectively (Table I). High frequency of moths made it necessary to suppress caterpillars locally on sugar beet (on approximately 15% of the area in Bačka) and on almost all crucifer crops in some areas.

The first brood in Sombor lasted from May 2 to 26, and in Čelarevo from May 17 to May 28. There were only 6 specimens in Sombor and 4 in Čelarevo, which is typical for this species.

The second brood was active between June 26 and August 9 in Čelarevo, and from June 29 to August 10 in Sombor. The number of specimens in Čelarevo was 39 and in Sombor 34. In Sombor, the peak was recorded on July 19 (7 specimens). There was no evident peak in Čelarevo, but on July 204 specimens were recorded.

The third brood was active from August 15 to September 26 in Sombor, and from August 24 to September 22 in Čelarevo. Of that brood, 74 specimens in Sombor and 41 in Čelarevo were recorded. Maximum values were on September 7 in Sombor (11 specimens) and on September 11 in Čelarevo (10 specimens).

The frequency dynamics for this species in 2016 are significantly different to the average (Fig. 7). Both first and second brood started earlier, and the second brood achieved peak earlier than usual. During period of fly third brood in 2017, in previous years, in September only 1 or 2 specimens were caught per night, rarely 3 or 4. In 2016, there was a distinct third brood with apparent peaks.

Along-term forecast is not given since the Mészáros brood coefficient proved unreliable for this species.

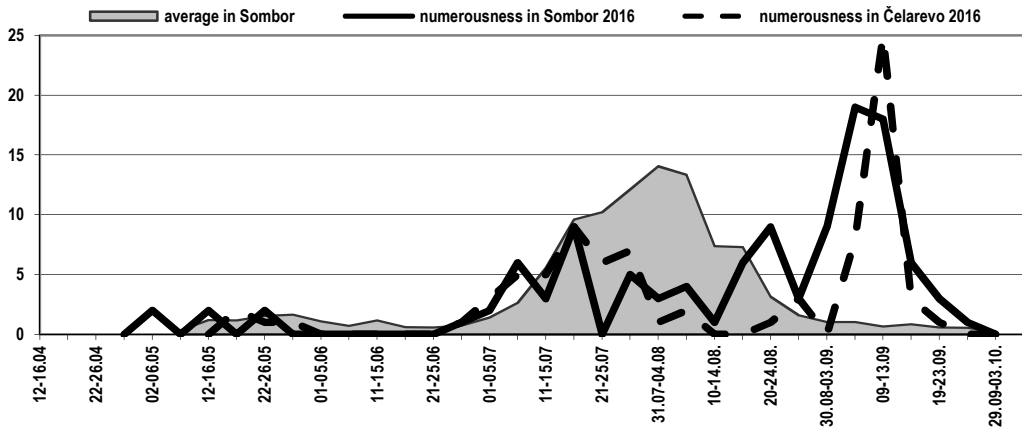


Figure 7. Flight dynamics of *Mamestra brassicae* on light traps. Abscissa - five-day period; ordinate - number of moths.

Agrotis ipsilon (Hufnagel, 1766) – Black cutworm, Greasy cutworm or Dark sword-grass

Numerousness in 2016 was half of the average values in Sombor and Čelarevo (Table I). In both places, 19 specimens were recorded, whereas the average is 39. There was no evidence of damage to crops made by this species.

The first record for this species in Čelarevo was on April 12; 17 specimens were recorded between May 29 and September 7 and 1 specimen on October 1. The species was present in Sombor from June 4 to September 6. In the aforementioned periods, certain breaks between records were noted. In each case 1 or 2 specimens were caught per night (Fig. 8).

A long-term forecast is not given since this is a migratory species.

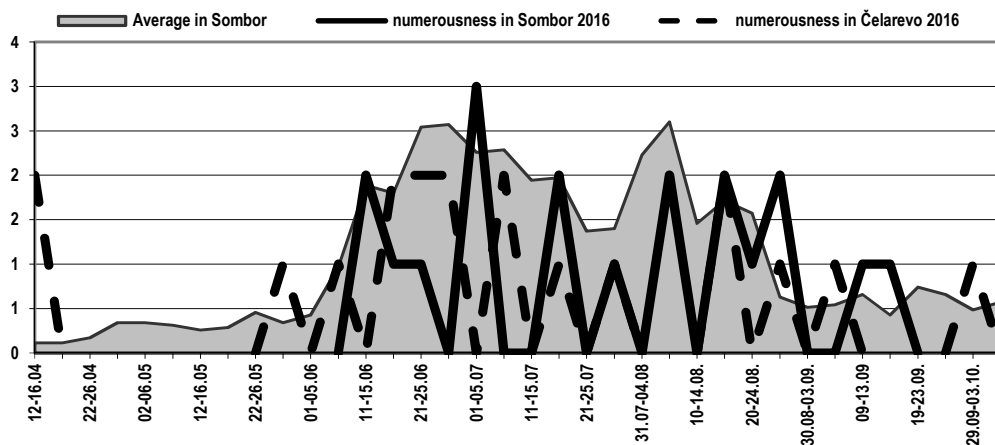


Figure 8. Flight dynamics of *Agrotis ipsilon* on light traps. Abscissa - five-day period; ordinate - number of moths.

Agrotis exclamatoris – Heart & dart

In 2016, recorded values were higher than the multi-annual average. There were 296 specimens recorded in Sombor and 131 in Čelarevo. Averages are 220 and 111, respectively (Table I). Damage from this species was noticed on potato, corn and carrot, so it was suppressed on these crops.

There were three broods present, but the third generation produced only a few specimens. The first brood in Sombor lasted from May 1 to June 24, in Čelarevo from May 7 to June 3. A single specimen was recorded in Sombor on April 13. The peak was recorded only in Sombor on May 27– 7 specimens. In Sombor, 77 specimens were recorded and 25 were recorded in Čelarevo, which is 80% of the average. Frequency dynamics were similar to the average (Fig. 9).

The second brood occurred some 10-14 days earlier than usual (Fig. 9) and lasted from July 3 to August 28 in Sombor, and from July 5 to August 2 in Čelarevo. A peak was achieved in both places on July 28, with 11 specimens in Sombor and 10 in Čelarevo. Altogether, 210 specimens were recorded in Sombor and 100 in Čelarevo, which is significantly more than the multi-annual average (Table I).

The third brood lasted from August 30 in Čelarevo and August 31 in Sombor until September 9 in Čelarevo and September 19 in Sombor. Nine specimens were recorded in Sombor and 6 in Čelarevo. The occurrence of a third brood is quite unusual for this species.

The Mészáros brood coefficient is 2.9 for Sombor and 4.2 for Čelarevo. Based on these statistics, a positive long-term forecast is given. Having in mind the number of specimens that started overwintering, economically significant damage can be expected on late-sown corn, watermelons, crucifers, tomato and pepper sown in open fields or propagated in the second half of May and first half of June.

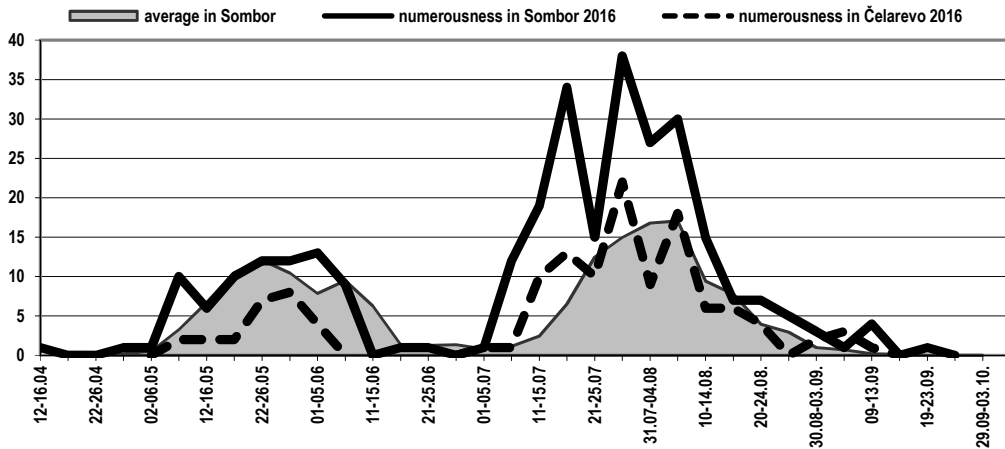


Figure 9. Flight dynamics of *Agrotis exclamationis* on light traps. Abscissa - five-day period; ordinate - number of moths.

Agrotis segetum – Turnip moth

In most years, this species is more abundant than the species *A. exclamationis*, but in 2016 the situation was the reverse. In Sombor, 65 specimens were recorded in comparison with the average of 300 (Table I). In Čelarevo, 107 specimens were recorded, while the average is 134. Frequency dynamics are similar to the average ones (Fig. 10).

The first brood lasted from May 4 to June 7 in Čelarevo, and from May 12 to June 5 in Sombor. In Čelarevo there were 26 specimens and in Sombor 18. There is no obvious peak in Sombor, but frequency was highest in the period May 27-31. In Čelarevo the peak of the first brood was recorded on May 19, with 8 specimens.

The second brood lasted from July 5 to August 19 in Čelarevo, and from July 7 to August 9 in Sombor. A peak was recorded only in Čelarevo, on July 20– 7 specimens. The values recorded are lower than average, especially in Sombor where the average number is 205, but in 2016 only 38 specimens were recorded, which is the smallest number of second brood specimens since monitoring started.

The third brood in Čelarevo lasted from September 1 to October 14 and in Sombor from September 13 to October 12. Only 1 or 2 specimens were recorded per night, with no obvious peaks.

The Mészáros brood coefficient value is 2.6 for Sombor and 3 for Čelarevo and therefore a positive forecast for 2017 is announced. Considering the number of recorded individuals, this species will not be able to do damage on its own. Since caterpillars of *A. segetum* and *A. exclamationis* always appear together and the numerousness of *A. exclamationis* is significant, suppression of this species will also control *A. segetum*.

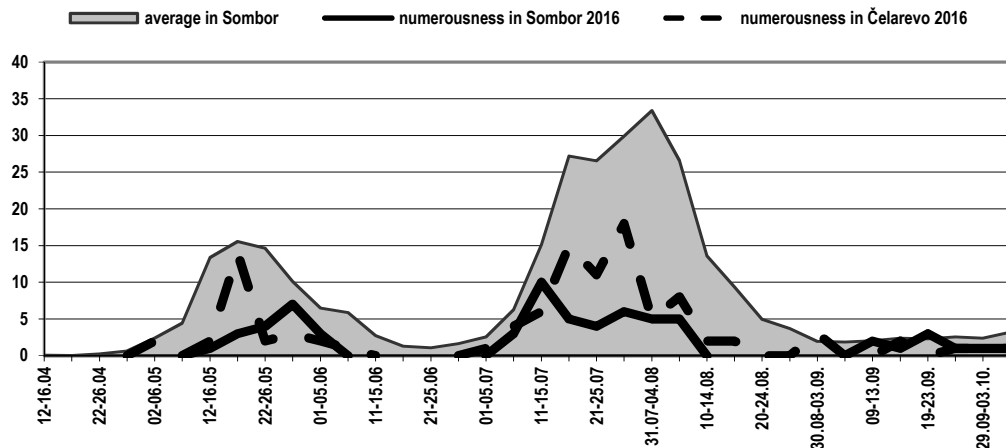


Figure 10. Flight dynamics of *Agrotis segetum* on light traps. Abscissa– five-day period; ordinate– number of moths.

Hyphantria cunea – Fall webworm

This species was scarce in 2016. There were 29 specimens in Sombor and 14 in Čelarevo. In Sombor this is significantly less than average, in Čelarevo it was equal to the multi-annual average (Table I).

Three broods of this species were recorded, although the third brood provided just a few specimens. In Čelarevo there was only a single first-brood moth on May 14, and in Sombor 2, on May 14 and 25. Second brood specimens occurred in Sombor from July 10 to August 11, in Čelarevo from July 22 to August 9, with short breaks in between (Fig. 11). In both localities, there was a maximum of three specimens per night. There was no distinct peak; moths were most numerous in the first five days of August, a little later than usual. Of the third brood, two single specimens were recorded on September 2 and 10 and in Čelarevo 5 specimens were recorded from September 1-4. According to previous research (Fig. 11), the occurrence of a third brood is unusual for fall webworm. Its caterpillars were abundant on mulberry trees that remained leafless, but also on extensively produced cherry, plum and walnut, and on wild plants by the roads.

The Mészáros brood coefficient in Sombor is 13.5 and 13 in Čelarevo. Consequently, there is a positive forecast for the year 2017. The first brood is predicted to be larger than that of 2016. The total number of moths was small at both localities, so damage by caterpillars during the spring of 2017 are possible on mulberry and walnut trees. Damages caused by the second brood could be expected on early pome fruits and walnuts, where the use of insecticides is stopped in second half of July.

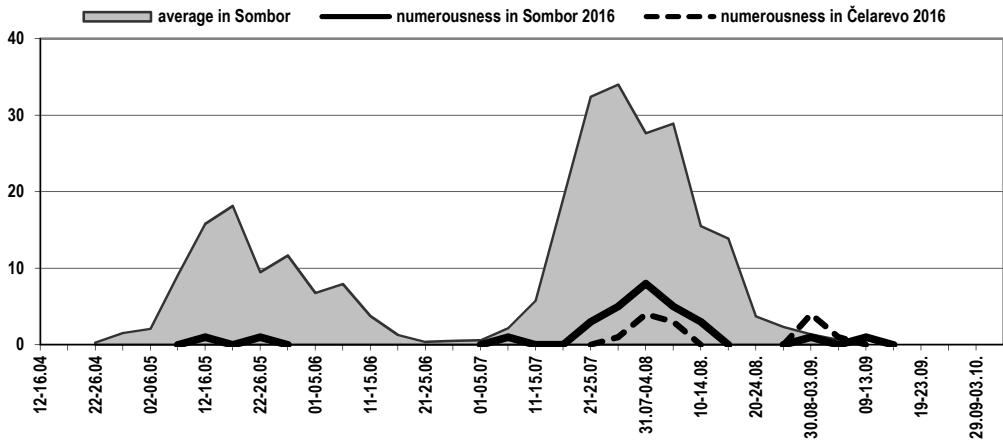


Figure 11. Flight dynamics of *Hyphantria cunea* on light trap. Abscissa - five-day period; ordinate - number of moths.

Table I. Average numerousness of moths and numerousness in 2016

		<i>Loxostege sticticalis</i>	<i>Ostrinia nubilalis</i>	<i>Autographa gamma</i>	<i>Helicoverpa armigera</i>	<i>Spodoptera exigua</i>	<i>Lacanobia oleracea</i>	<i>Mamestra brassicae</i>	<i>Agrotis ipsilon</i>	<i>Agrotis exclamatoris</i>	<i>Agrotis segetum</i>	<i>Hyphantria cunea</i>
numerousness of 1 st generation	Sombor average	-	910	-	-	-	200	11	-	91	79	89
	Sombor in 2016	-	449	-	-	-	84	6	-	77	18	2
	Čelarevo average	-	2244	-	-	-	59	2	-	34	18	8
	Čelarevo in 2016	-	2077	-	-	-	112	4	-	25	26	1
numerousness of 2 nd generation	Sombor average	-	7439	-	-	-	188	94	-	129	204	186
	Sombor in 2016	-	3081	-	-	-	188	34	-	210	38	25
	Čelarevo average	-	16582	-	-	-	50	19	-	77	80	8
	Čelarevo in 2016	-	7373	-	-	-	42	39	-	100	72	8
numerousness of 3 rd generation	Sombor average	-	508	-	-	-	19	0	-	0	17	3
	Sombor in 2016	-	1556	-	-	-	91	74	-	9	9	2
	Čelarevo average	-	5666	-	-	-	18	4	-	0	61	0
	Čelarevo in 2016	-	5360	-	-	-	33	41	-	6	9	5
numerousness per year	Sombor average	58	8857	416	1119	26	407	105	39	220	300	278
	Sombor in 2016	10	5086	81	894	21	363	114	19	296	65	29
	Čelarevo average	219	24492	189	904	58	127	25	39	111	134	16
	Čelarevo in 2016	28	14810	164	775	43	187	84	19	131	107	14

Discussion and Conclusion

A significantly smaller abundance than average was recorded for the species *L. sticticalis*, *O. nubilalis*, *A. gamma*, *H. armigera*, *S. exigua*, *A. ipsilon*, *A. segetum* and *H. cunea*.

The occurrence of *L. oleracea* was lower than average in Sombor and higher than the multi-annual average in Čelarevo. Significantly more abundant than multi-annual averages were the species *M. brassicae* and *A. exclamationis*.

In 2016, economically significant damage was caused by the caterpillars of *H. armigera* on seed corn, sweet corn, pepper, green beans, tomato, by *L. oleracea* and *M. brassicae* on crucifers and sugar beet, by *A. exclamationis* and *A. segetum* on potato and carrot, and by *H. cunea* on mulberry and fruit nurseries.

A long-term forecast for the species *L. sticticalis*, *A. gamma*, *H. armigera*, *S. exigua* and *A. ipsilon* is not possible since these are migratory species. For *M. brassicae*, the Mészáros brood coefficient is unreliable. For *L. oleracea*, *A. exclamationis*, *A. segetum* and *H. cunea*, the Mészáros brood coefficient is more than one and a positive forecast is made, which means the abundance of the first brood in 2017 is expected to be more than in 2016.

Such abundance of *L. oleracea* indicates that damage to crucifers and sugar beet can be expected even from the first brood.

The abundance of *A. exclamationis* gives reason to believe that damage could be expected on late-sown corn and on vegetables when seedlings are taken outdoors (watermelon, crucifers, pepper, tomato, eggplant).

The number of recorded *A. segetum* was not high, so no significant damage is expected; possible only locally.

The occurrence of *H. cunea* was also lower than average, so damage from the first brood is expected only on mulberry and walnut trees. Special attention should be paid to walnut and pome fruits where intensive protection ends early, meaning fall webworm can leave the trees leafless.

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ПОЈАВА ПОТЕНЦИЈАЛНО ШТЕТНИХ ЛЕПТИРА У СОМБОРУ И ЧЕЛАРЕВУ (СРБИЈА) У 2016. ГОДИНИ И ПРОГНОЗА ЗА 2017. ГОДИНУ

ДРАГАН ВАЈГАНД

Извод

За праћење лептира у 2016. години коришћена је светлосна клопка, тип РО Агробечеј, на локалитетима Сомбор (УТМ ознака је CR56) и Челарево (УТМ ознака је CR81). Клопка је радила од почетка априла до средине октобра. Прикупљено је преко 38000 ноћних лептира. Они су сврстани у 180 врста.

Значајно мања бројност лептира од вишегодишњег просека је забележена код врста: *Loxostege sticticalis*, *Ostrinia nubilalis*, *Autographa gamma*, *Helicoverpa armigera*, *Spodoptera exigua*, *Agrotis ipsilon*, *Agrotis segetum* и *Hyphantria cunea*.

Врста *Lacanobia oleracea* у Сомбору је била мање бројна, а у Челареву бројнија од вишегодишњег просека. Значајно већа бројност лептира од вишегодишњег просека је забележена код врста: *Mamestra brassicae* и *Agrotis exclamationis*.

Током 2016. године економски значајне штете су правиле гусенице *H. armigera* на семенском кукурузу, кукурузу шећерцу и шећерној репи. *A. exclamationis* и *A. segetum* у кромпиру и мркви, а *H. cunea* на дуду и у расадницима воћа.

Дугорочна прогноза за врсте: *Loxostege sticticalis*, *Autographa gamma*, *Helicoverpa armigera*, *Spodoptera exigua* и *Agrotis ipsilon* се неизрађује јер су селице. За врсту *Mamestra brassicae* и *Ostrinia nubilalis* коефицијент генерације по Месарошу није поуздан. За врсте *Lacanobia oleracea*, *Agrotis exclamationis*, *A. segetum* и *Hyphantria cunea* је коефицијент по Месарошу већи од 1. За њих се саопштава позитивна прогноза што значи да се очекује да ће бројност прве генерације лептира 2017. године бити већа у односу на бројност прве генерације 2016. године.

Бројност *L. oleracea* је таква да се могу очекивати штете већ од прве генерације у купусњачама и шећерној репи. Бројност *A. exclamationis* јетаква да се штете могу очекивати на касно посејаним кукурузима, те поврћу које се производи из расаде (лубенице, купусњаче, паприка, парадајз, патлиџан). Бројност *A. segetum* је мала, неочекују се значајније штете, могуће само локално. Бројност *H. cunea* је мала, штете прве генерације се очекују на дуду и ораху. Пажњу треба обратити на орах и коштичаво воће, где се рано завршава интензивна заштита па дудовац локално прави голобрст.

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