European Corn Borer (*Ostrinia nubilalis* Hbn.) Bioecology in Eastern Romania

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The European corn borer, *Ostrinia nubilalis* Hbn., is a dangerous pest of the Romanian corn crop. In the context of the climatic warming recorded in the last years in the east of Romania, at A.R.D.S Secuieni, bioecology research was carried out in order to establish the pest appearance, evolution and number of generations. Thus, in 2020 and 2021, we monitored the development of the egg, larva, pupa, and moth stages, respectively the flight curve and the maximum flight peak. The bioecological study was carried out based on the observations made in the experimental corn field and using a field cage, where the evolution of each stage was followed. The results showed that the European corn borer hibernates as a mature larva in corn residue and continues to develop in the spring when the weather warms. The first pupae were identified in late May (2020) or early June (2021) when ∑(tn-10)◦C was 127.1◦C in 2020 and 161.8◦C in 2021. Mature larvae pupated from May to July, being identified over 37 days. The rising average temperatures recorded during the winters of 2020 and 2021 favored the survival of 60.7% of hibernating larvae.
Due to the high percentage of mature larvae survival and favorable weather conditions from March to June, the insect made an intense flight, which started in June and ended in September. For flight monitoring, we used the light trap, and the first moths were captured when ∑(tn-10)◦C (sum of degree-days) was, on average, 245.6◦C. In 2020, the flight lasted 94 days, and in 2021, 104 days. The first eggs were identified when the total ∑(tn-10)◦C reached 351.5◦C. Adults laid eggs for 25 days, which corresponded to the insect's peak flight period recorded in late June and early July. Observations showed that high summer temperatures caused some of the larvae to pupate, resulting in a secondary flight being recorded in August. Although the scientific literature mentions the existence of one generation per year, it is obvious that in our area there is also a multivoltine ecotype, which, favored by the increased temperatures, finds favorable conditions to develop.
The first larvae hatched when ∑(tn-10)◦C totaled 438.4◦C, and instar III–V larvae were recorded in the corn plant at harvest. The obtained results showed us that under the conditions of Secuieni, the insect presents one complete generation per year.
The research carried out reflects the situation of the pest in the eastern part of the country, where the climatic conditions and the food source contribute to the expansion or decrease of the population, this somewhat limits the applicability of the data.
Understanding the bioecology of the European corn borer can provide valuable information in managing population levels and identifying the optimal time to limit infestations in corn crops.

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