

The first finding on the biology and spread of Brown Marmorated Stink Bug *Halyomorpha halys* (Heteroptera, Pentatomidae) in Georgia

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Introduction. Increasing the spread area of invasive insect pest species Brown Marmorated Stink Bug (BMSB) *Halyomorpha halys* (Stål) (Heteroptera - Pentatomidae) is a significant challenge not only for Georgia, but also for the US and European countries. BMSB has more than 100 hosts and many of them are the commercially valuable crops (citrus, fruit, nuts, vegetables and cereals). In Georgia, BMSB populations were first observed during the 2015 season. The first severe economic injuries of BMSB on agricultural crops were reported during the next, 2016 season, when high levels of infestation in hazelnuts were observed in west regions of Georgia (Samegrelo, Guria and Imereti). In addition to hazelnuts, BMSB may also has the potential to cause direct damage to wine grapes with the severe economic impact on viticulture, the leading industries of agriculture in Georgia. Neither biology nor behavior of BMSB in the Georgia and Caucasus region are yet investigated and research projects oriented to study Stink Bug's biology and behavior are the matters of high scientific demand.

Aim and Objectives. The aim of the research was to investigate BMSB' biology, behaviour, population spread, infestation levels on hazelnut crops in different regions of West Georgia and reveal effectiveness of various tools of pest management.

Methods. The field studies were conducted in the selected experimental hazelnut orchards in Samegrelo region (West of Georgia). The commercially available BMSB' monitoring tools (clear sticky traps baited with pheromone lures) were installed in 2 Demo plots. During the monitoring process the numbers of BMSB adults and nymphs were registered and BMSB migration routes from overwintering sites to orchards were recorded. Statistical analyses was performed in order to reveal the effect of abiotic factors (temperature) on BMSB population. Laboratory studies implied microscopical analysis to prove identification of BMSB and its larval stages.

Results. The studies showed that the first stink bug adults from overwintering generation started to appear on sticky traps in the end of May, while all instar nymphs and adults were observed during the end of July and through August. The peak occurrence of adults and all nymphal stages in the field was observed at 896-1061DD13.9. The forested areas and wild vegetation appears to provide the source of continuous influx of the pest to the orchard, while the BMSB influx from neighboring meadow and abandoned buildings was less important. The wooded areas supported the development of two BMSB generations.

Conclusion. The proposed study will contribute to define effective monitoring and management strategy for BMSB and guide future research toward the effective planning and implementation of best Integrated Pest Management practices in Georgia.