Surveillance of invasive mosquitoes in port and airports of Veneto Region (Northeast Italy).

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Introduction

In recent years, commercial trade intensification increased the risk of invasive mosquito species spreading. Ports and airports are sites with a high risk of introduction of Aedes Invasive Mosquito Species (AIM). For this reason, entomological surveillance for early detection of these species has been conducted in Veneto Region, Northeast Italy.

Material and methods

Monitoring was performed during 2018, 2019 and 2020. Venice "Marco Polo" Airport and Port of Marghera (VE) were monitored over the three years, while Treviso "Canova" Airport just for the first two. The surveillance was conducted from June to October. In 2018, 10 ovitraps were monitored in each site, while in 2019 and in 2020, there were 7 ovitraps and 3 BG-sentinel traps. The samples were collected every 2 weeks during 2018 and weekly during 2019 and 2020. The eggs laid in the ovitraps were counted and left to hatch in the laboratory. The hatched larvae and adults caught in the BG-sentinel traps were identified morphologically and confirmed by molecular analysis.

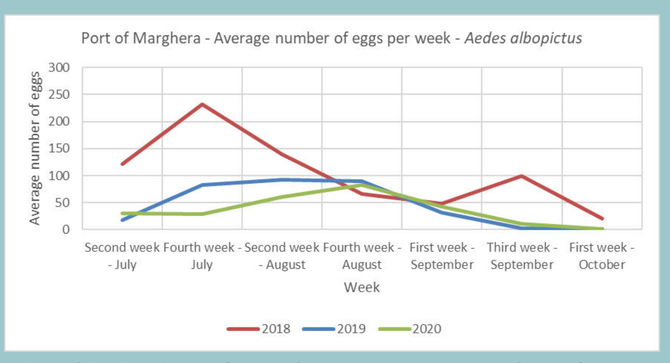
Picture 1 – Port of Marghera - 2020

Picture 2 – Venice Airport - 2020

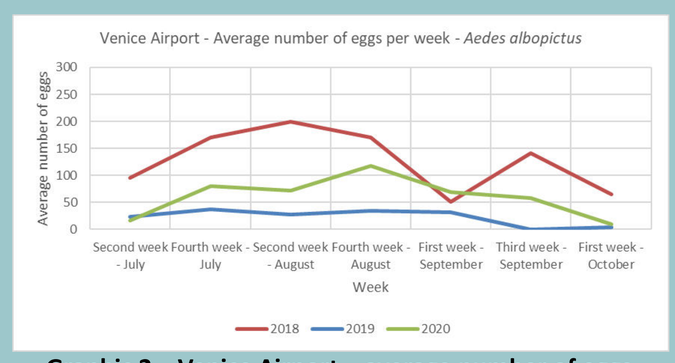
Picture 3 – Treviso Airport - 2019

Results

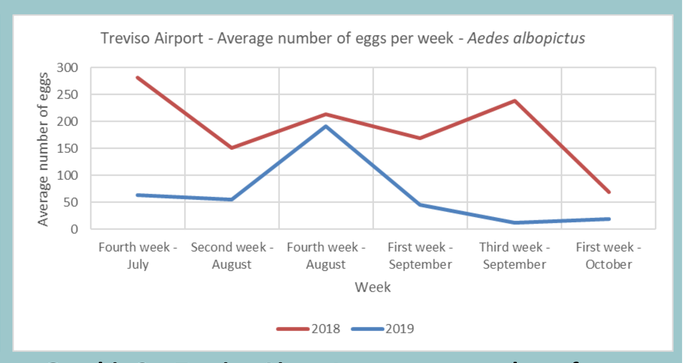
•**2018:** From Port of Marghera the average number of eggs per ovitrap was 78, with a total of 5355; from Venice Airport the average number of eggs was 105, with the total being 8305; from Treviso Airport the average number of eggs was 184, with a total of 10862. In July one egg of *Aedes koreicus* was found in Venice Airport; all other eggs hatching belonged to *Aedes albopictus*.
•**2019:** From Port of Marghera the average number of eggs per ovitrap was 43, while the total was 4345; from Venice Airport the average number of eggs was 27, while the total was 2659; from Treviso Airport the average number of eggs was 61, while the total was 5869. Two adults of *Aedes koreicus* were detected in Treviso Airport, one specimen in July and one in October.
•**2020:** From Port of Marghera the average number of eggs per ovitrap was 35, while the total was 3626; from Venice Airport the average number of eggs per ovitrap was 54, while the total was 5630. One adult of *Aedes koreicus* was detected in Venice Airport in July.



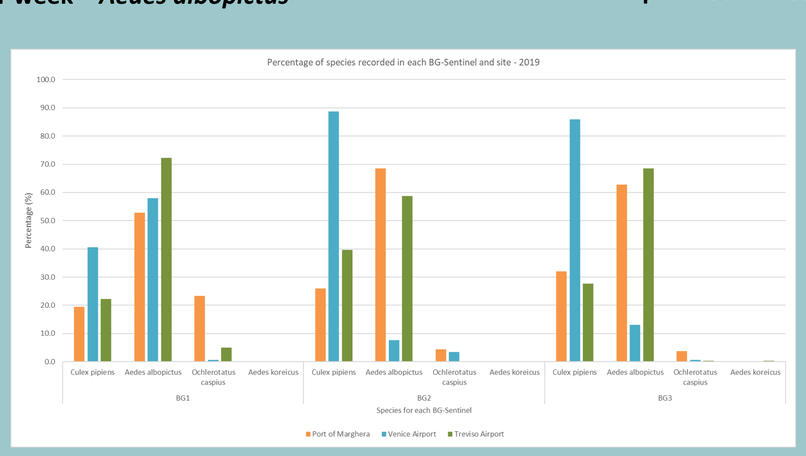
Graphic 1 – Port of Marghera – average number of eggs per week – *Aedes albopictus*



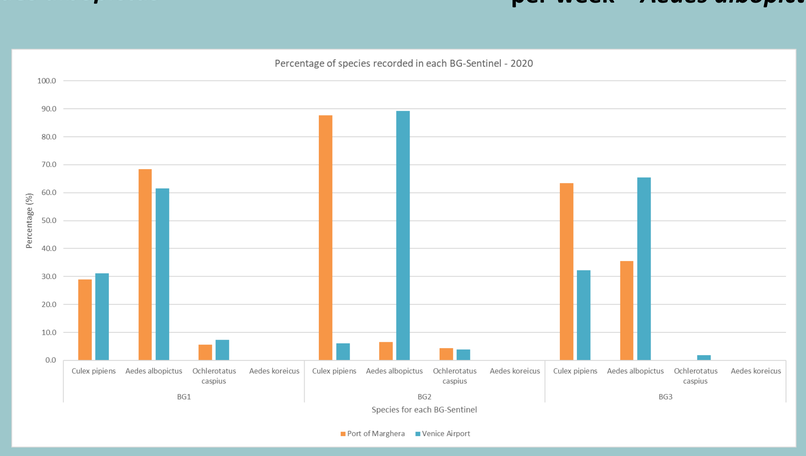
Graphic 2 – Venice Airport – average number of eggs per week – *Aedes albopictus*



Graphic 3 – Treviso Airport – average number of eggs per week – *Aedes albopictus*



Graphic 4 – Percentage of species recorded in each BG-Sentinel and site - 2019



Graphic 5 – Percentage of species recorded in each BG-Sentinel and site - 2020

Conclusions

The current distribution of *Aedes koreicus* which is established in the Municipality of Preganziol, 8.5 km from Treviso Airport and 17 km from Venice Airport, suggests how the specimens found in Venice and Treviso Airports could much more probably be brought by passengers or airport personnel than new introductions. The high number of eggs and adults of *Aedes* spp. collected during the three years of surveillance seems to indicate that the monitoring is efficient. However, the next step could be an increase in the number of ovitraps and BG-sentinel traps in the monitored sites and sampling of the surrounding areas to increase the possibility of detection of new introduced species. Moreover, the high infestation of *Aedes albopictus* in the three sites is a wake-up call for the risk of exportation of this species towards countries where it is not yet present. It is strongly recommended to improve the efficacy of the control programs against *Aedes albopictus* in the monitored sites

Picture 4

Picture 5

Picture 6

Picture 7