

Longevity and reproductive profile of *Scaphoideus titanus* Ball adults reared under controlled conditions

Ivo Ercole Rigamonti¹, Paola Girgenti¹, Mauro Jermini¹

¹ DeFENS, University of Milan, via Celoria 2, I-20133 Milano, Italy.

² Research Station Agroscope Changins – Wädenswil ACW, Centro di Ricerca di Cadenazzo (TI). A Ramél, 18, CH-6593 Cadenazzo, Switzerland

Abstract: The invasive leafhopper *Scaphoideus titanus* Ball (Hemiptera: Cicadellidae) was introduced into Europe in the past century and has become one of the most important pests in the European viticulture since when its role as epidemic vector of Flavescence dorée (FD) was ascertained. It has colonized many of the most important European viticultural areas from Portugal to the Black Sea and it is subjected to mandatory insecticide treatments wherever FD is present. Despite its economic importance, many aspects of its biology, in particular the biology of the adults, are still poorly known. These data are important for a correct pest management, and are crucial for the development of physiologically based demographic models, an important tool to predict the phenology, age structured dynamic, and distribution of the species across wide geographic areas.

In order to study biology of *S. titanus* adults, couples were formed a few days after adult emergence. The couples were caged and reared on vine seedlings under controlled conditions, at constant temperatures ranging from 16±1 °C to 30±1 °C. The longevity, fecundity, egg oviposition duration and rate were recorded.

As expected the maximum average longevity, 112 days, was registered at the lowest temperature. Adults lifespan is greater than one month up to 24 °C, but it drops to 12 days at 30 °C. The results confirmed that the data reported in the literature underestimated both the fecundity and the duration of the egg laying period. The females pass through a long pre oviposition period, begin laying eggs two to four weeks after emergence, and continue laying eggs until death. The maximum fecundity was registered at 21°C, with an average of 50.8 eggs per female. The number of eggs decreased abruptly above 24 °C to almost zero (0.24 eggs female⁻¹) at 30 °C. Conversely, at 15 °C the fecundity was greater than 20 eggs female⁻¹. At all temperatures except at 30 °C the oviposition rate is between 0.5 and 1 egg day⁻¹ female⁻¹. These data suggest that *S. titanus* prefers relatively mild climates and they could contribute to explain its distribution area in Europe.

Key words: egg, female, oviposition