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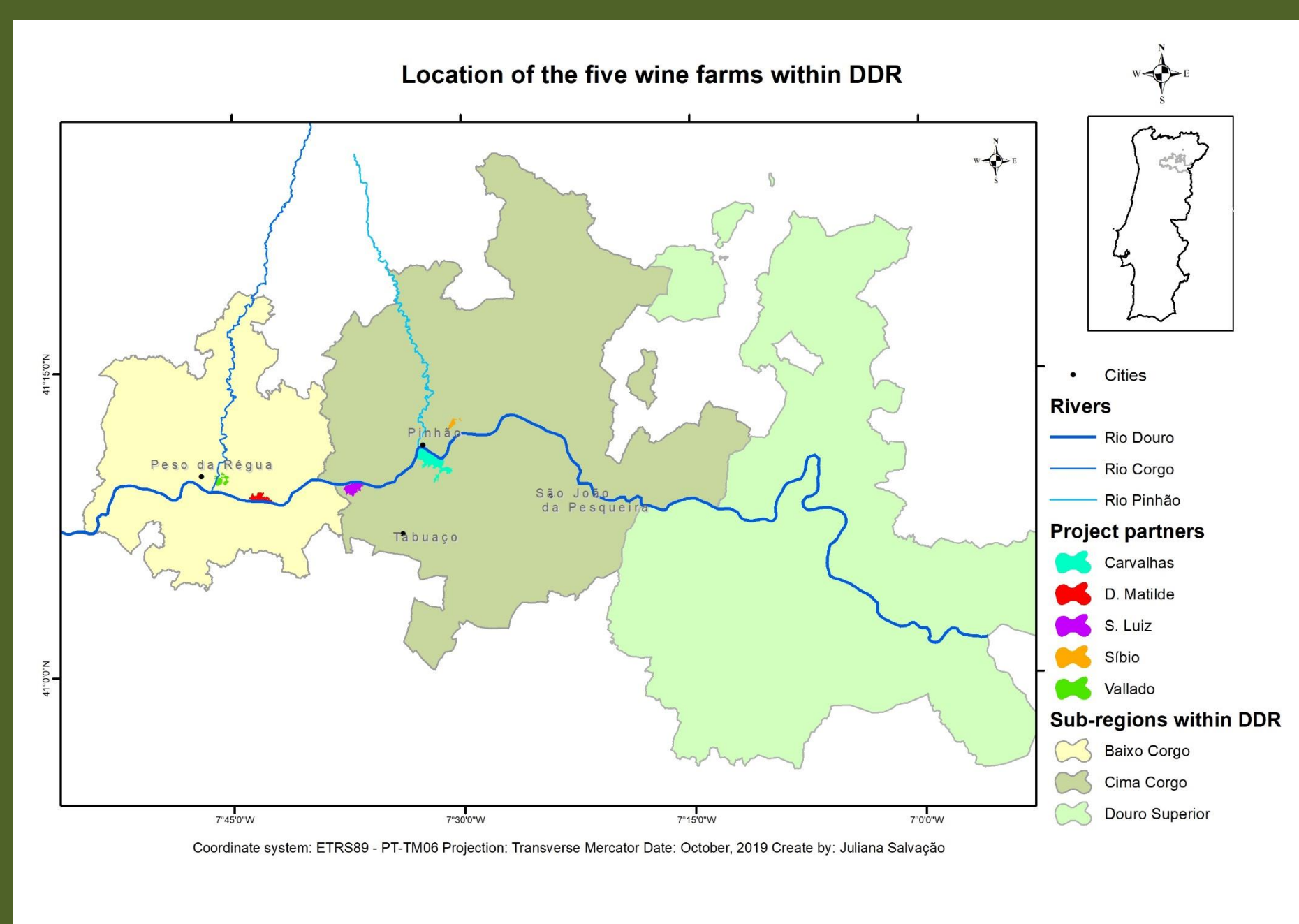


Figure 1 Location of the farms where the study took place

INTRODUCTION *Lobesia botrana* is a key grapevine pest in southern European countries, including the Douro Demarcated Region (DDR). Mating disruption (MD) is one of the most promising pest management strategies against the pest, and has been successfully applied in several wine-growing regions. However, in DDR, results have not been always satisfactory. Because it is known that grapevine cultivars may differ in their susceptibility to *L. botrana*, the aim of this study, held during 2019 in five farms from DDR (Carvalho, D. Matilde, S. Luiz, Sibio and Vallado) (Figure 1), was to evaluate the susceptibility, to the pest, of a set of grapevine cultivars with economic importance in the region (i.e. Touriga Nacional, Touriga Franca, Tinta Barroca, Sousão, Arinto and Rabigato), in order to identify the possible influence of the studied cultivars on the effectiveness of MD use in DDR. Specifically it was intended to: (i) compare the larval population density of *L. botrana* first and second generations, on the studied grapevine cultivars; (ii) to assess if there is an influence of the cultivar on the larval age composition; (iii) to test whether some inflorescence or bunch traits can influence age composition of *L. botrana* larvae. In this communication the main tasks performed so far are presented.

MAIN TASKS

1 Larval population density of the *Lobesia botrana* on the studied grapevine cultivars

. The larval population levels of the first and second generation of the *L. botrana* were estimated in 100 inflorescences (Figure 2) and 100 bunches (Figure 3) per cultivar, respectively.



Figure 2 Grapevine inflorescence infested by the first generation of *L. botrana*



Figure 3 Grapevine bunch infested by the second generation of *L. botrana*.

2 Influence of the grapevine cultivar on the larval age composition of *Lobesia botrana*

. All the larvae collected in (1) were identified in the laboratory on the basis of head-capsule colour and of body-cuticle granulation;

. The instar of the larvae was determined by the head-capsule measurement (Figure 4). This measurements were made with a stereoscopic microscope with an ocular micrometer using the computer software Digital Imaging Solutions. Widths were measured as the distance between the most distant lateral sides of head capsule margins.



Figure 4 *L. botrana* head capsule width

3 Influence of the morphological traits of inflorescences or bunches on cultivar susceptibility and larval age composition of *Lobesia botrana*

. The inflorescence traits (i.e., length, weight, and hairiness) were estimated on 20 inflorescences per cultivar. Inflorescences were collected in 10 canes (one on the upper and one on the bottom shoot). The hairiness was estimated using five classes based on the percentage of flower buttons covered by pubescence: 0 = 0%, 0.5 = 25%, 1 = 50%, 1.5 = 75%, 2 = 100%.

. The bunch traits (i.e., compactness, berry number, total and average berry volumes) were measured. To estimate the compactness a graduated beaker filled with water was used (Figure 5).



Figure 5 Compactness measurement

4 Response of *Lobesia botrana* to volatiles emitted by the grapevine cultivars

. The response of mated females of *L. botrana* to volatiles emitted by grapevine cultivars was tested by using an four-arm olfactometer (Figure 7).

. Adults used in the experiments came from a laboratory colony established on the basis of larvae collected in (1). Larvae were reared in 500 ml polypropylene containers, on a artificial diet (Frontier Agriculture Sciences, USA) (Figure 6).



Figure 6 *L. botrana* larvae reared in artificial diet

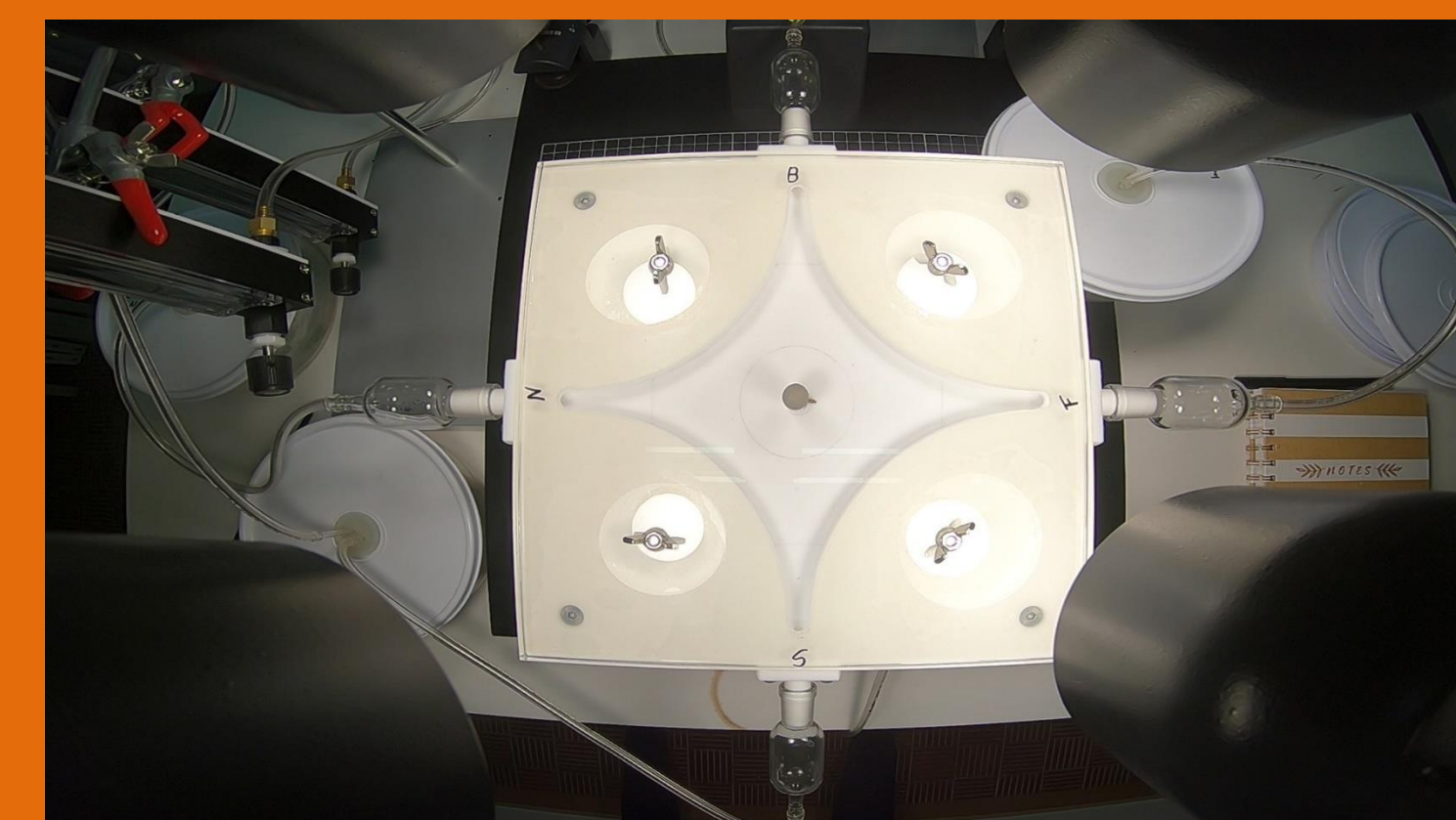


Figure 7 Four-arm olfactometer used in the study

The importance of the results for the improvement of MD strategy against *L. botrana* in DDR is discussed.