

First experiment of organic and integrated pest management against *Varroa destructor* in Ischilín región (Córdoba-Argentina)*



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Thymol effect



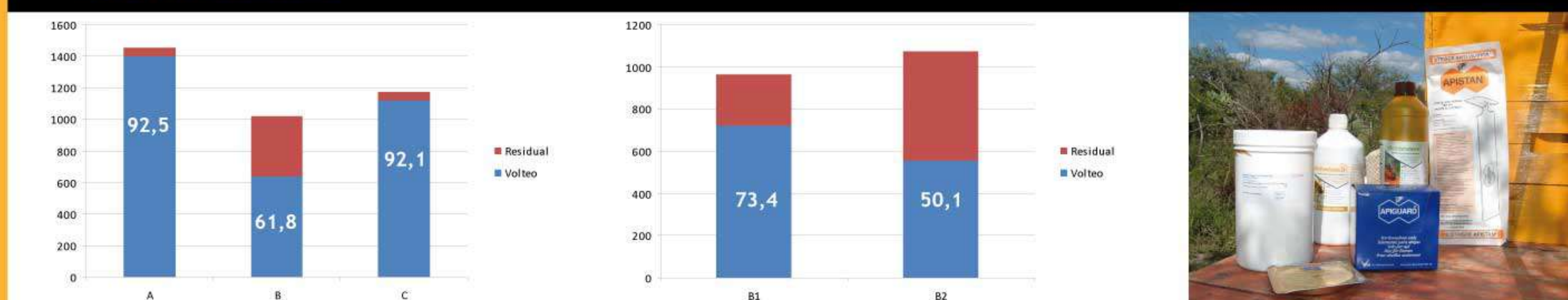
Base with nets and drawers

Frame for queen trapping

Alejandro Ruffa



Trays at one week interval



Number of mites and efficacy treatment



Vita-Europe mite control products



COOPIS experimental apiary

The objective of the study was to evaluate the acaricide efficacy of thymol and oxalic acid combined with queen exclusion. Thirty nuclei of COOPIS collective apiary have been selected. Each hive was equipped with a screen bottom board. The colonies were randomly divided into three batches of ten nuclei. The A batch received two applications of 12.5g of thymol (50g of Apiguard gel) at a one week interval. The batch B was divided in two groups of 5 nuclei. B1 received three applications of an oxalic acid solution (oxalic acid: water: sugar, 1:10:10) at a five day interval.

The batch B2 received only two applications of oxalic acid at a one week interval. The batch C was used as reference batch for chemical treatment and received two strips of Apistan. At the end of the treatments, the remaining mites were recovered using an Apistan treatment. We then trapped the queen on a frame to limit the amount of brood available in the nuclei. One month after the start of the experiment, the different batches received another oxalic acid treatment in almost broodless condition.

The mean efficacy per batch was 92.5% ± 3.3 (A); batch B = 61.8% (B1 = 73.4% ± 3.1; B2 = 50.1% ± 3.6) and batch C = 92.1% ± 3.9. The mean infestation rate was 1243 mites per nuclei. Because full colonies may have much more mites at the end of the production season, it is recommended to block queen laying as an integrated method combined with thymol and oxalic acid treatments.