

First results of the performance recording at the UAB bee apiary



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INTRODUCTION

Bees make vital contributions to the maintenance of plant species and food production chain by their specific role in pollination. In the last years, a decrease in pollination has been reported and mainly attributed to:

i) destruction of natural habitat and loss of biodiversity, ii) attack of diseases (*Varroa destructor*) and iii) predators (*Vespa velutina*), and iv) effects of pesticides.

OBJECTIVES

The purpose of this TFG is to summarize the short history and results of performance recording of the experimental apiary UABee build up at the UAB through the study of its:

- Population dynamics and foraging activity of the bees throughout the seasons.
- Health treatments and relevant husbandry practices.
- Weight of the hives, honey production and they floral origin according to pollen identification.
- Incidence and control of predators detected at the UAB.

MATERIALS & METHODS

The apiary (#ES082660002257) started activities in March 2019 with 6 Dadant-type beehives that were populated with bees of the Iberian subspecies (*A. mellifera iberiensis*) and located at the UAB campus (Bellaterra).

Recording visits were done throughout 2019 and 2020.



Figure 1. General view of the hives.

RESULTS

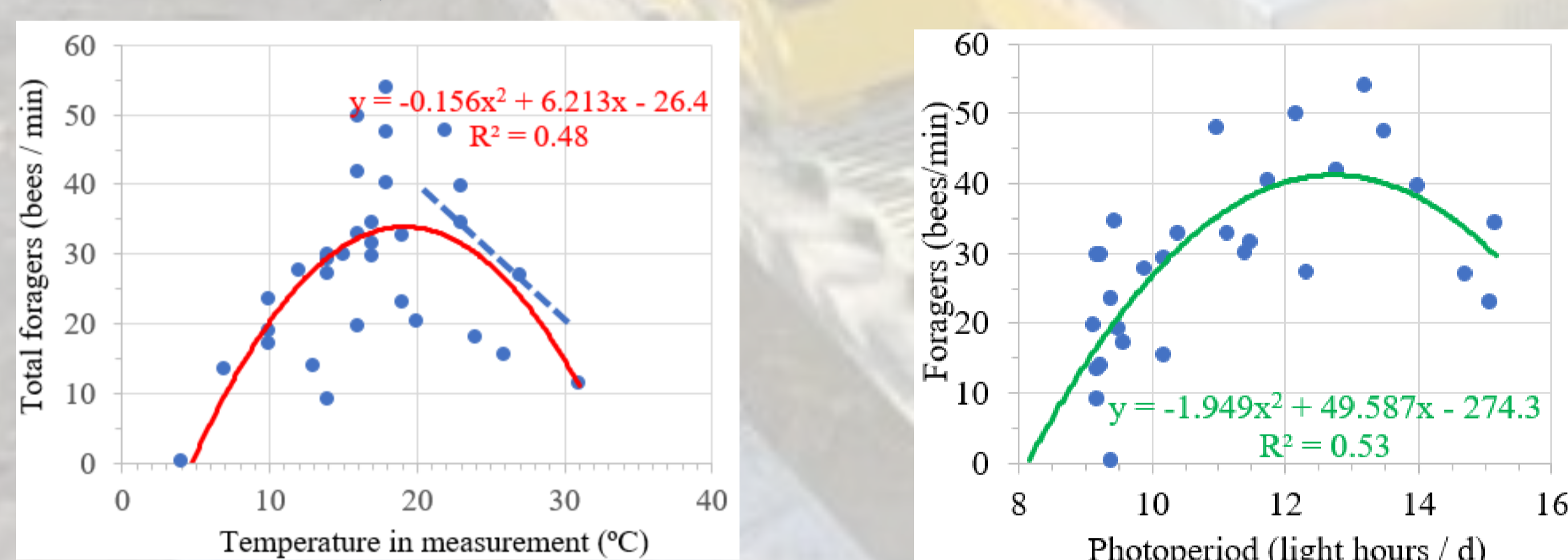


Figure 2. Relationship between the number of total foragers per minute according to the temperature and photoperiod at the time of recording between 2019 and 2021

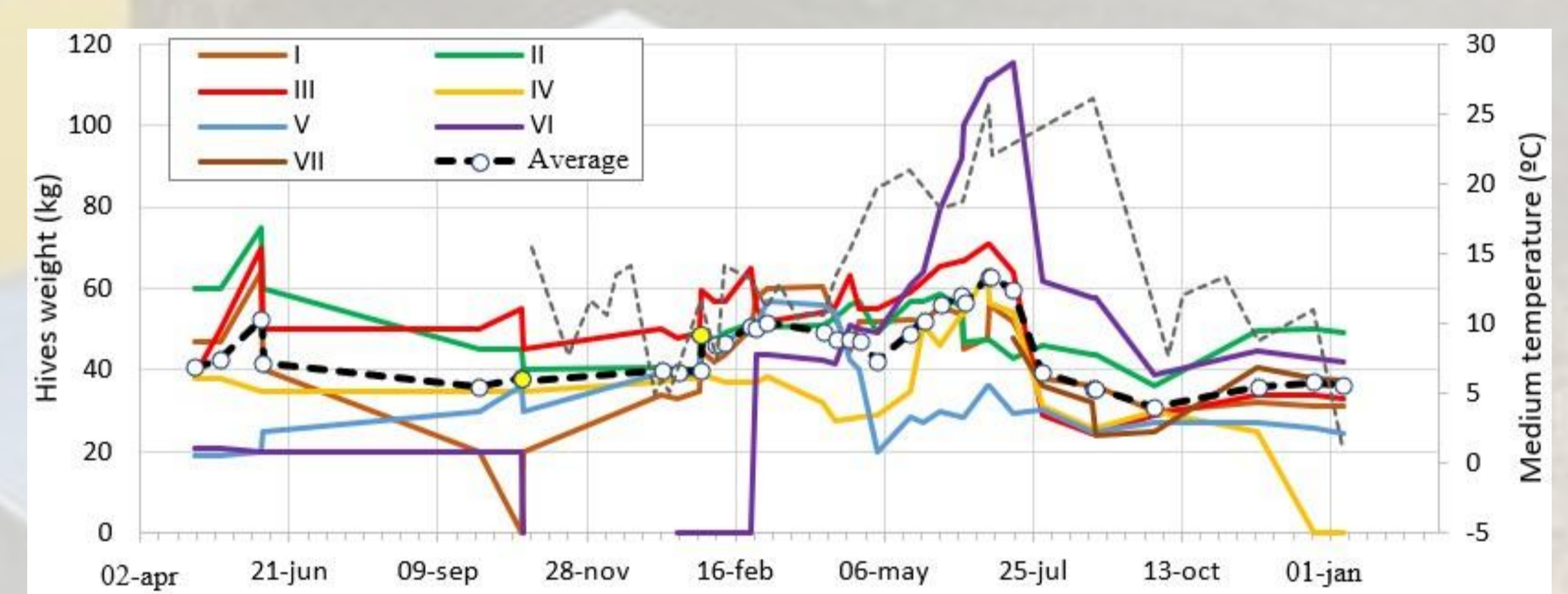


Figure 4. Evolution of the total weight of hives (I to VII) of the UABee apiary during 2019 and 2020.

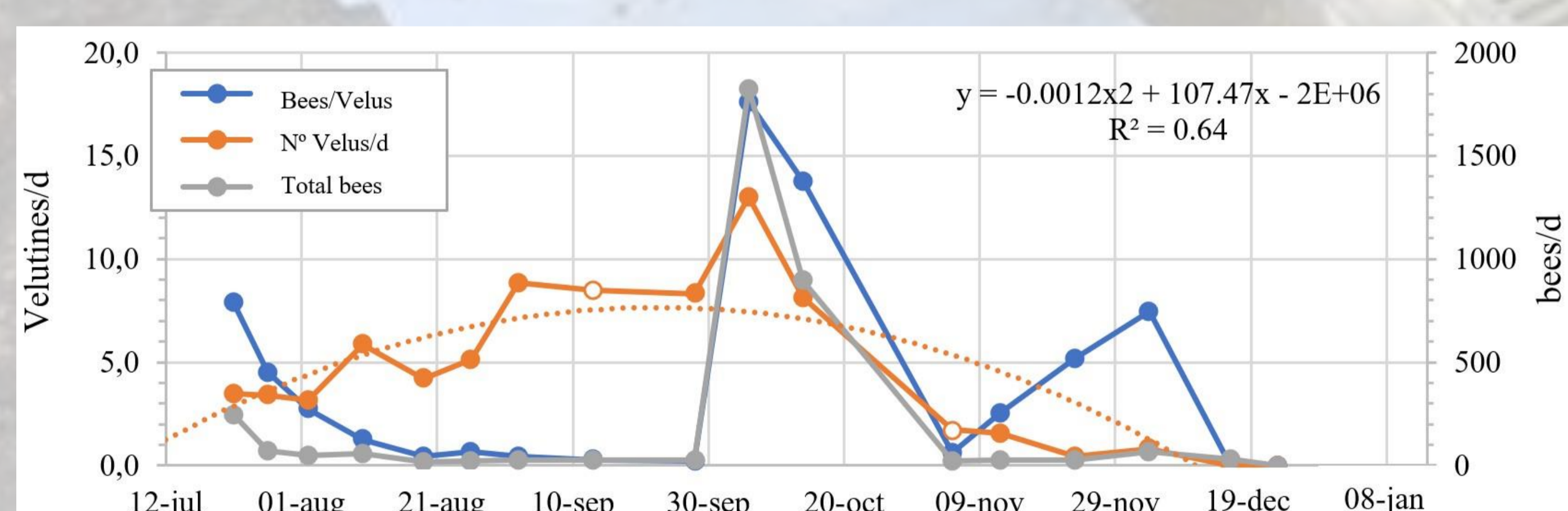


Figure 3. Velutines and bees found on electric harps between July 22 and December 23, 2020. White dots indicate estimated means due to harp damage.

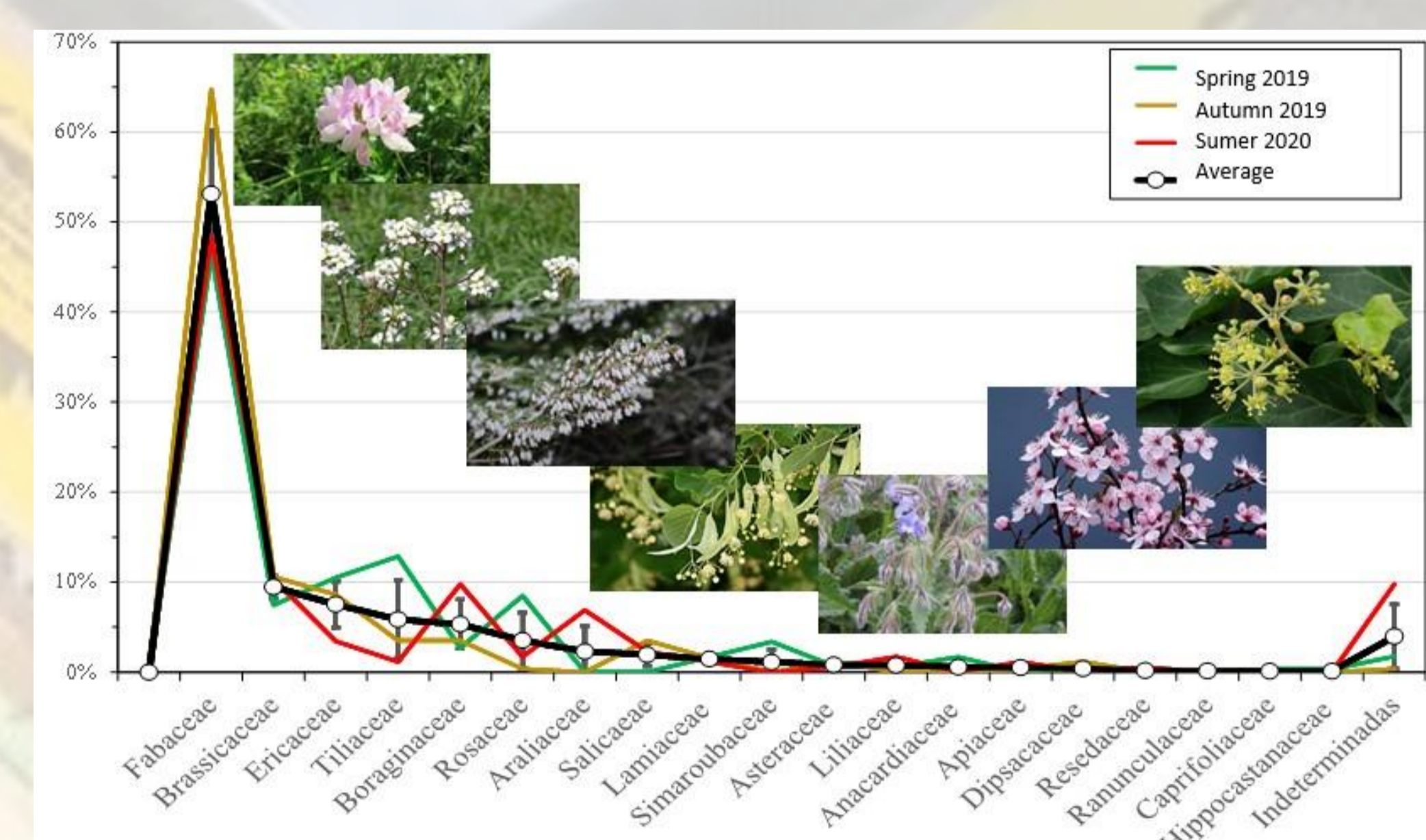


Figure 5. Pollen profile of the collected honey from the melisopalynological analysis done by the LAP-UAB Service.

CONCLUSIONS

- ✓ Weight of the hives and activity of the bees increased as temperature increased, although it decreased by the summer heat and honey crops, recovering slightly in autumn.
- ✓ The maximum foraging activity (55 bees / min) was observed at 19.9°C
- ✓ The percentage of foragers carrying pollen was relatively constant (mean, 32%), which indicated an adequate breeding activity in the hives.
- ✓ Beehive census was kept at 6 hives, reporting 33% mortality during 2019-20 (16.7% per year) lower than average in Spain.
- ✓ Summer attack of velutine wasps accounted for 1/3 of the total hive losses of and if they could be avoided, the mortality of the apiary would be 11%.
- ✓ Annual honey crop was 13.4 ± 1.5 kg/hive, being classified by their pollen content as Class II and Class III, and consistent with the Mediterranean forest and scrub vegetation seen in the UAB.