



# ANNUAL PRODUCTIVE EVOLUTION AND VARROASIS CONTROL IN THE UABEE APIARY

## OBJECTIVES

- Review and compare data from the annual monitoring of the hive, such as weight, temperature and humidity, in order to make personalized decisions at all times.
- Review the efficacy of a new treatment with lithium chloride salts compared to conventional treatment (Amitraz) for the control of *Varroa destructor*.

## MATERIAL & METHODS



### SENSORS

- External: measure weight/temperature/humidity (3M metal scale)
- Internal: measure sound/temperature/humidity (Hive Heart 3.0)

Data is monitored in 10 minute intervals and can be viewed using applications such as HiveGateway and HiveMonitoring

### VARROA CONTROL



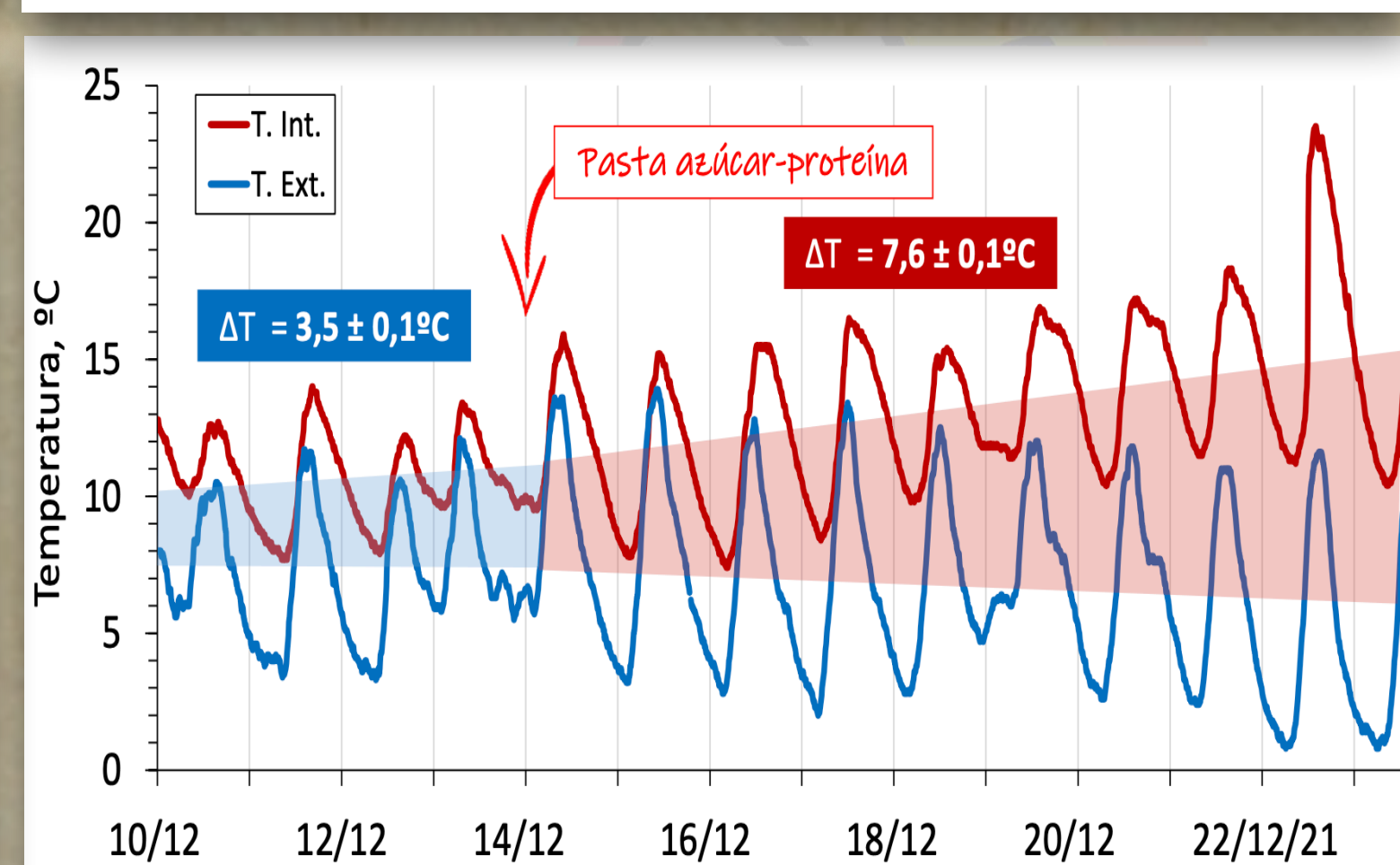
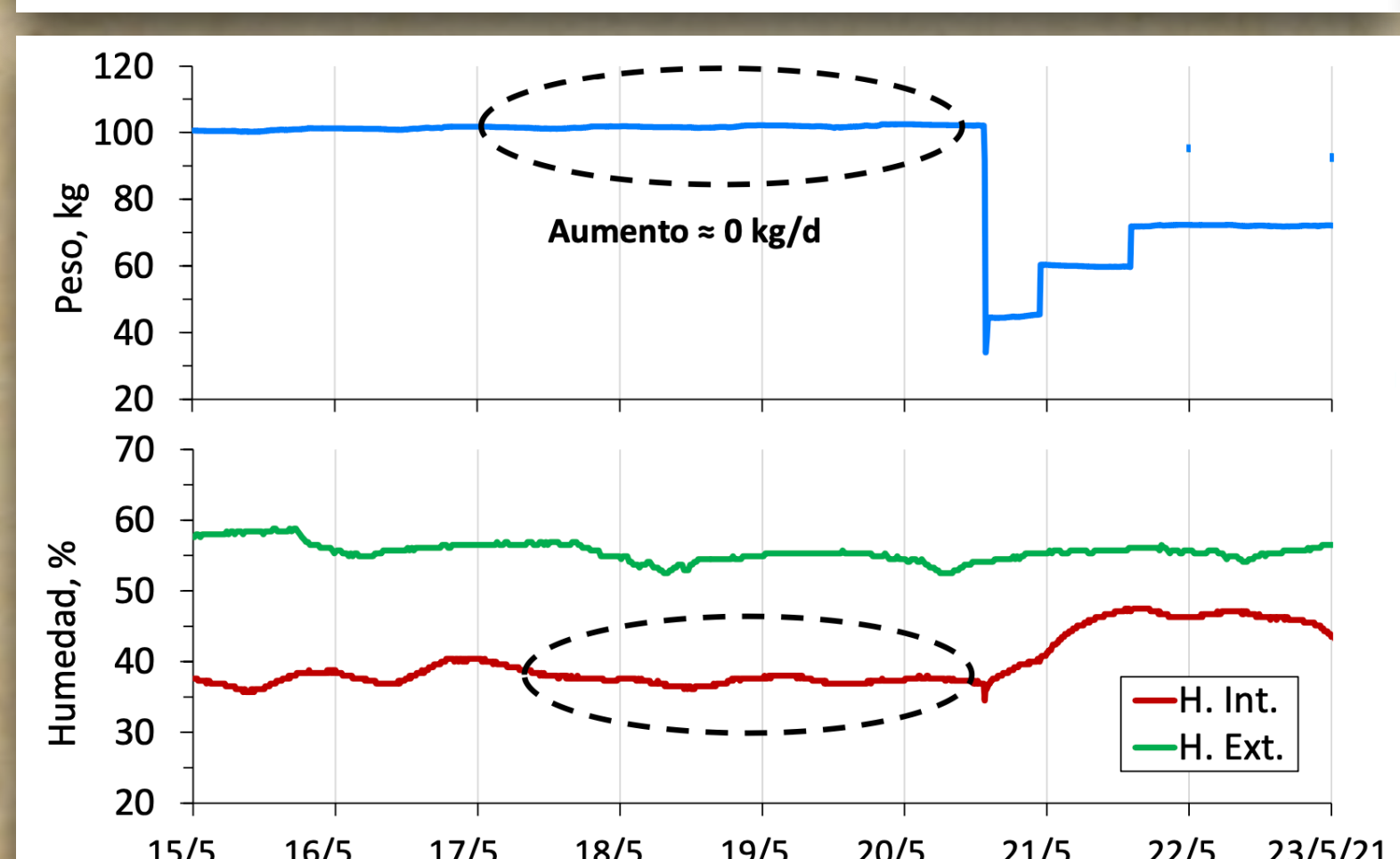
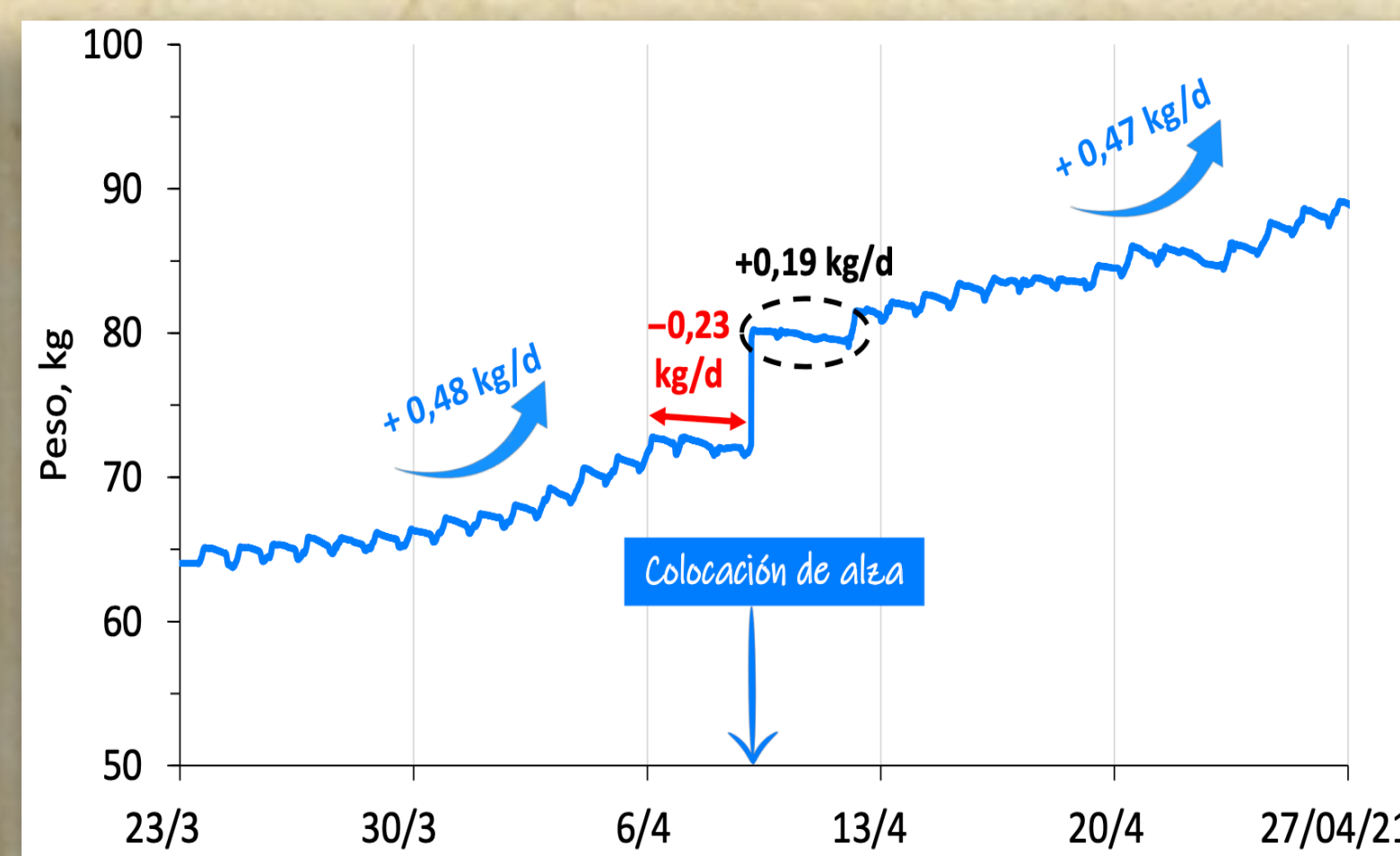
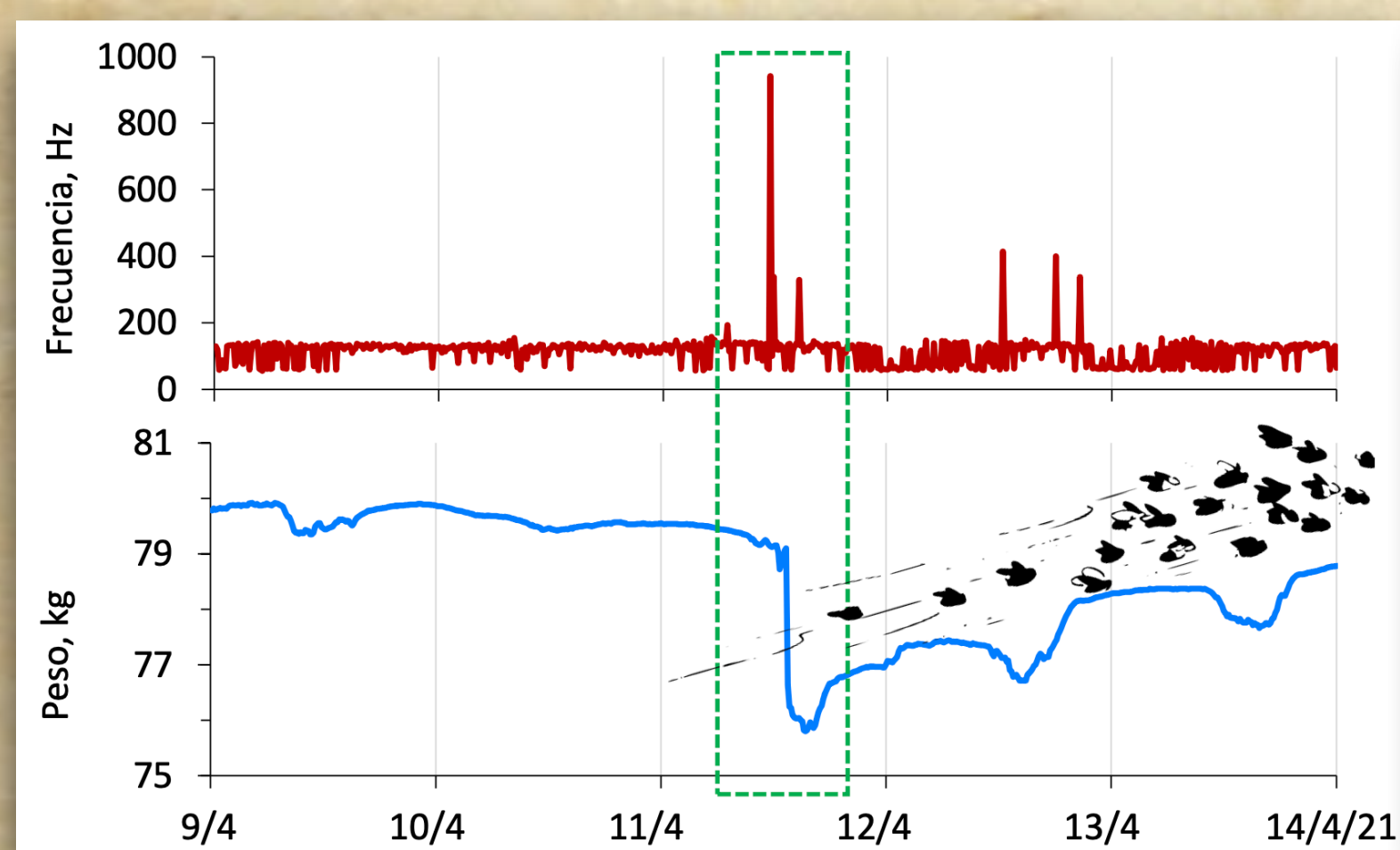
5 hives & 1 nucleus per group

- Strips w/ amitraz (500mg) → Apivar (2xH & 1xN stripes)
- LiCl 25mM (1.08g LiCl/kg sugar syrup) → ad libitum

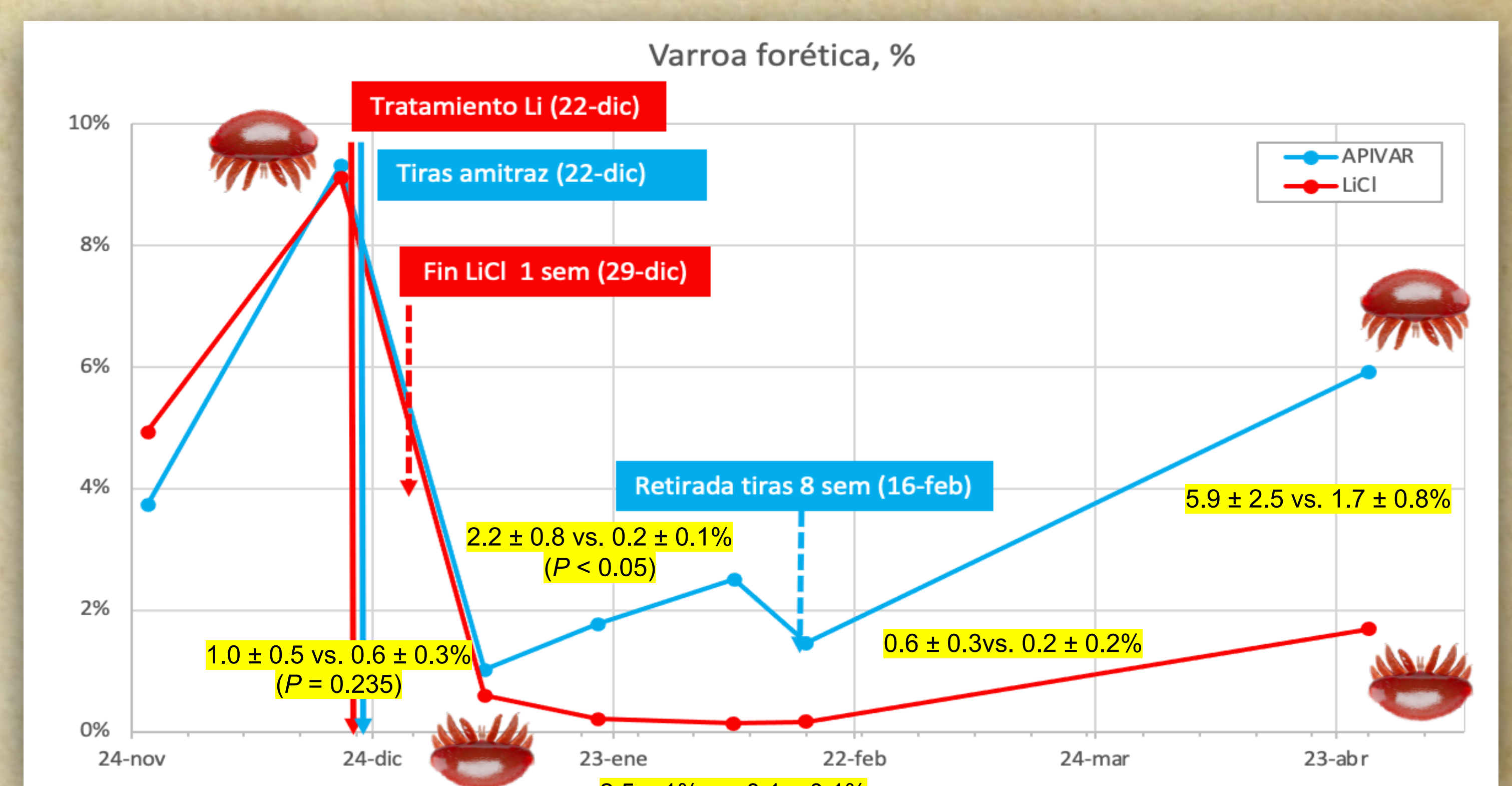
## RESULTS

### SENSORS

Weight	◦ Variations throughout the day and the year ◦ Minimum: 34.5 Kg (02/26). Maximum: 66.6 Kg (05/17)
T°C - HR	External $\Delta T$ : -1.9-43.7°C; HR: 27.9-92.3% Internal $\Delta T$ : 4.6-39.4°C; HR: 34-92%
Sound	◦ Quiet periods: 50-150 Hz ◦ When disturbed: 300-500 Hz ◦ Prior to swarming: up to 1,500 Hz



### APIVAR VS LiCl



### HONEY PRODUCTION

- 20/05/2021 ⇒ 102.5kg
- 26/07/2021 ⇒ 95.3kg
- 20/05/2022 ⇒ 141.5kg
- Julio 2022 ⇒ 110kg



### 4 HARVESTS

Spanish mean x3 & own previous productions

## CONCLUSIONS

### LiCl TREATMENT

- Greater efficiency and durability
- No anomalies, casualties, or other unusual behavior
- ¿Systemic administration ⇒ Constant basal levels?
- Use in ecological apiculture
- No toxicity in Humans, within the established dosis

### SENSORS

- Making important decisions at key moments
- Periodic review of batteries & control of errors in the system
- Complementary tool to beekeeper visits