
Internship in IPM
Six months for Master 2, engineer
From March to August 2026

At Entomological lab of ANPN, France, Cancon (47)
Accommodation and scholarship provided
Driving licence required

# Evolutionary and Applied Insights into Hazelnut Resistance to the Pre-Dispersal Seed Predator *Curculio nucum* L.

## Scientific background

The hazelnut weevil (*Curculio nucum* L.) is the unique pre-dispersal seed predator of European hazelnuts (*Corylus avellana* L.), capable of infesting up to 80% of nuts [1]. Host and its predator have coevolved, and one key hypothesis is that the rate of shell hardening represents a host defence that creates a trade-off between resistance to the weevil and nut development [2]. Oviposition occurs within a narrow phenological window when the shell is penetrable; outside this window, larvae may fail to enter or become trapped inside the nut, creating an evolutionary dead end.

## Goals

The intern will construct a phenology-based varietal risk matrix using degree-day accumulation and shell hardness dynamics, and quantify the evolutionary trade-off between defence and reproduction across cultivars. This framework will also provide actionable insights for IPM, including cultivar selection and timing of control measures.

## Profil required

Strong interest in plant-insect interactions, coevolution and IPM. Prior practical experience is an advantage, particularly in using a penetrometer, performing insect dissections and conducting statistical analyses with R, or similar tools. **A driving licence is required** to access the field.

**Contact:** To apply, send your application (CV and cover letter) to rhamidi@anpn.eu

1. Germain, E.; Sarraquigne, J.-P.; Breisch, H. *Le noisetier*, CTIFL ed.; Ctifl Paris: 2004.
2. Hamidi, R.; Toillon, J.; Thomas, M. Underestimated Damage Caused by the European Hazelnut Weevil, Curculio nucum (Curculionidae). *Agronomy* **2022**, *12*, 3059.