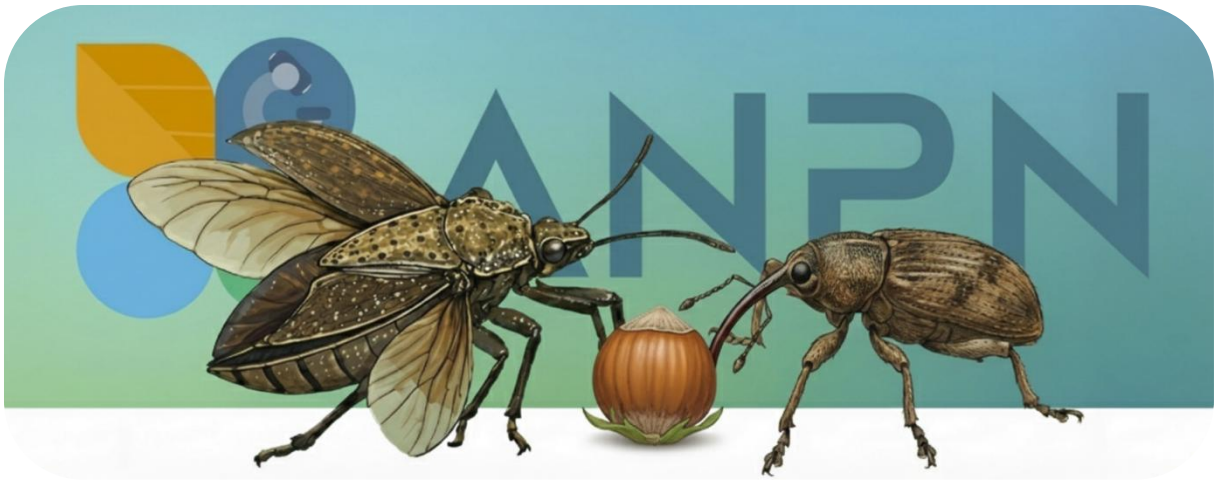

Internship in IPM
Six months for Master 2, engineer
From March to August 2026

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

Evaluation of deterrent compounds targeting the two main pests of French hazelnuts: the brown marmorated stink bug (*Halyomorpha halys*) and the European hazelnut weevil (*Curculio nucum*)

Scientific background

In Europe, *Curculio nucum* is the main pest of hazelnuts. Adults drill through the shells to feed and/or lay eggs. Without control, yield losses can reach up to 80% [1,2]. In contrast to the weevil, *Halyomorpha halys* only feeds on hazelnuts. However, despite chemical control, up to 30% of hazelnuts may still be damaged. Phytophagous insects rely on plant-derived chemical cues (kairomones) to assess host quality, not only for adult feeding but, critically, to ensure the successful development of their offspring. Natural compounds or products could therefore be used to disrupt or manipulate the behavioural responses of both pests to hazelnuts. A set of candidate products has already been screened under this framework, with promising results.

Goals

The aim of this study is therefore to (1) evaluate the dose–response relationships of these products, applied alone or in combination, (2) test the formulations under field conditions, and (3) assess their potential phytotoxicity. In addition, the putative anti-oviposition pheromone of *C. nucum* could be investigated.

Profil required

Rigor, autonomy, curiosity and critical sense; Knowledge in chemistry and/or in insect ethology would be an asset. 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., and Breisch, H. (2004). Le noisetier, CTIFL Edition (Ctifl Paris).
2. Hamidi, R., Toillon, J., and Thomas, M. (2022). Underestimated Damage Caused by the European Hazelnut Weevil, Curculio nucum (Curculionidae). Agronomy *12*, 3059.