University Academic Curriculum Vitae

Personal information

Name: Veronica Carnio

Education since leaving school

- 2012 Bachelor's degree in Biotechnology; University of Padua
- 2015 Master's degree in Biotechnology for food science; University of Padua

Present appointment

- Ph.D. student
- 01/01/2022 – final exam in 2025
- Free University of Bolzano Bozen
- Thesis: New Strategies For Sustainable Apple Crop Protection Against Cydia pomonella and Halyomorpha halys
  Period abroad: Visiting Researcher at USDA Appalachian Fruit Research Station, Kearneysville, WV, USA (July 2024 – September 2024)
  Summer schools: X Corso Introduzione alla tassonomia degli Imenotteri Apoidei italiani (CREA) and PAPILIONES - Approfondimenti inerenti all' ordine Lepidoptera e riconoscimento dei Ropaloceri presenti nel Parco Nazionale dello Stelvio (BMS)

Professional experience

Chronological list of all previous employments (each with job title, starting and finishing dates, level, employer, responsibilities)

From / to	Job title	Name of academic Institution	Academic level	responsibilities
2023 – ongoing	Teaching Assistant	Free University of Bolzano Bozen	MSc in Biotechnology	Novel Food in Food Authenticity and Innovation – Lab exercises
2021 – 2021	Research Assistant	Laimburg Research Centre	MSc in Biotechnology	Research and Monitoring of parasitoids associated with major insect pests in fruit crops
2014 – 2021	Professional beekeeper	Ape Impertinente, Società semplice	MSc in Biotechnology	Co-founder
2017 – ongoing	Tecnico/esperto apistico	Regione Veneto	MSc in Biotechnology	Technical support

Publications

- Carnio, V., Favaro, R., Preti, M., & Angeli, S. (2024). Impact of aggregation pheromone traps on spatial distribution of Halyomorpha halys damage in Apple Orchards. Insects, 15(10), 791.
- Falagiarda, M., Carnio, V., Chiesa, S. G., Pignalosa, A., Anfora, G., Angeli, G., Ioriatti, C., Mazzoni, V., Schmidt, S., & Zapponi, L. (2023). Factors influencing short-term parasitoid establishment and efficacy for the biological control of Halyomorpha halys with the Samurai Wasp Trissolcus japonicus. Pest Management Science, 79(7), 2397–2414.

Further data

- Carnio, V., Preti, M., & Angeli, A., (2023). Cydia pomonella (Lepidoptera: Tortricidae) management through female removal in apple crop of Trentino-Alto Adige Region. Dgaae Entomology Congress 2023. Bolzano (20-23.02.23)
- Carnio, V., Preti, M., & Angeli, A., (2023). Optimization of the female removal technique for the Cydia pomonella (Lepidoptera: Tortricidae) management in apple orchards CNIE 2023 XXVII Congresso nazionale di entomologia, Palermo
- Carnio, V., Preti, M., & Angeli, A., (2023). Implementing the 'female removal' technique for apple orchard protection: recent results in the Trentino-Alto Adige region, Italy. ECE 2023 XII European Congress of Entomology, Crete, Greece

Language competence

Italian: Native speaker English: B2 German: A1

Technical skills

Agricultural entomology

- Expertise in sustainable pest management strategies, including behavioral manipulation (e.g. mating disruption, attract-and-kill, female removal, push-pull) and classical biological control with natural enemies for major fruit tree pests like *Cydia pomonella* and *Halyomorpha halys*.
- Expertise in designing and developing insect trap prototypes for monitoring and mass trapping, integrating semiochemical (kairomones, pheromones) and semiophysical (light) approaches. Expertise includes the creation of fully automated trap prototypes for remote monitoring of insect pests, developed from scratch to the pre-commercial stage.
- Expertise in designing and implementation of protocols for pest population and insect biodiversity monitoring. Including trapping, beat sampling, egg mass and immature stage sampling, parasitization diagnosis, and plant damage assessment with spatial and temporal approaches.
- Experience in mass-rearing *Drosophila suzukii*, *Trissolcus japonicus*, and *Halyomorpha halys* in laboratory (including microbiological controlled conditions) and semi-field.
- Knowledge of Electroantennography/Gas Chromatography-Electroantennographic Detection protocols, and volatile organic compounds sampling. Knowledge in design and execution of behavioral assays.
- Expertise in species identification of major insect pests affecting fruit crops. Trained in the taxonomy and ecological roles of Apoidea and Lepidoptera and their biodiversity monitoring.

Data Analysis

- Experience in data analysis and processing, including data cleaning, data organization, statistical modeling, and data visualization using R (and related packages) and Excel.
- Experience in geospatial data analysis and processing using QGIS software.
- Expertise in artificial intelligence applied to computer vision, including implementation and validation of deep-learning models for image identification, detection, segmentation, and classification (e.g. YOLO).
- Expertise in dataset preparation and annotation for deep-learning models training applied to pest insects remote monitoring.
- Trained in chemical data analysis, including the identification and quantification of volatile organic compounds using ChemStation and related analytical tools.

General IT Skills

- Proficient in Windows, macOS, and Linux environments.
- Advanced user of Microsoft Office (Word, Excel, PowerPoint).
- Proficient in image editing using GIMP or Photoshop.