Partnership in Action

CABI's activities in Chile

Regional Consultation 2016

10-11 February 2016

Andrés France

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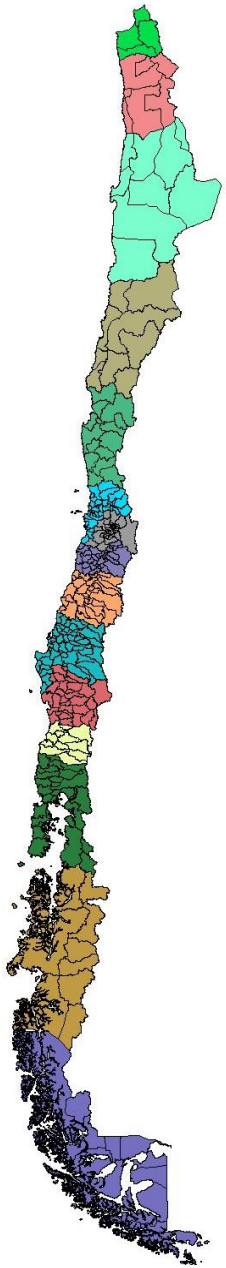

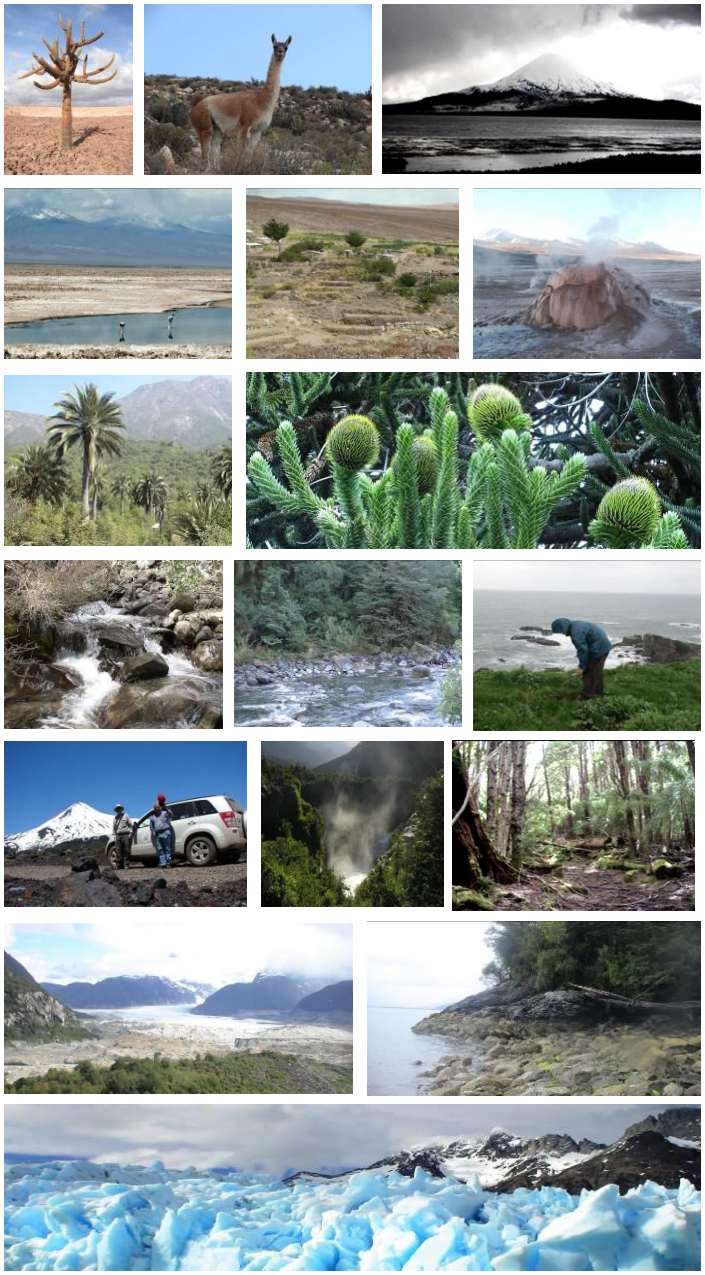

Overview

- Current Situation
- History of collaboration CABI- Chile
- Projects
- Agricultural Production – Main commodities
  - Government priorities
  - Main crops- commodities
  - Challenges

Project – Activities implemented in Chile

- Early work between the Austral University and the International Mycology Institute (IMI) in forest mycology, since 1985Chile became member country of CABI in 1995.
- The National Agricultural Research Institute (INIA) is named as the liaison institution with CABI.
- First visit of the Insect Pathology leader of CABI to Chile in 1996.
- CABI support the initial work in Insect Pathology at INIA and the preparations of related projects to EU and Darwin Initiative.
- Dr. Moore support the formation of a Insect Pathology Program at INIA

Project – Activities implemented in Chile

- The Darwin Initiative project (2006-2009): Conserving an using entomopathogenic fungi and nematodes within Chile. Three years of successful partnership.
- Advise on the recently formed Chilean Bank of Microbial Genetic Resources.
- The Darwin Initiative project (2015-2017): Restoring the native flora and associated microflora of Robinson Crusoe Island
- Recently focusing on control of invasive species at Archipelago Juan Fernández.

The Darwin Initiative project: Conserving an using entomopathogenic fungi and nematodes within Chile

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Surveys of Chile 2007 – Present

Surveys for insect killing microorganisms from extreme habitats in Chile
The objective – to find environmentally fit organisms to control insect pests











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Chile

Surveys of Chile

Chilean soil samples baited out with waxmoths, nematodes and sclerotia

1500 soil samples from very north to very south of Chile, from sea level to >4500 m








Chile

Over 600 insect-killing isolates, from a range of habitats. Stored at the Centro Tecnológico de Control Biológico, Chillán.

Chile

Bioassays

Testing against a range of insect pests in Chile

Collected over 500 isolates of entomopathogenic fungi and 101 isolates of entomopathogenic nematode (including three new species of nematode and one new species of gut-residing bacteria)

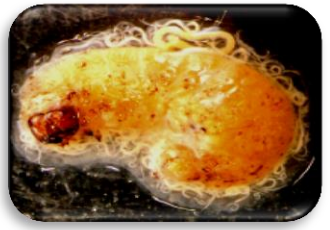










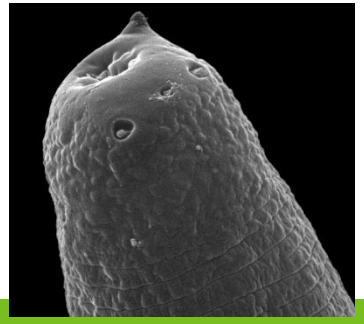


New species:

Heterorhabditis atacamensis

Steinernema australe

Steinernema unicornum



Developing management capacity

- A fully curated long-term collection place in Chile.
- Training in taxonomy, long term collection, sampling, cryopreservation and microbial production.
- A large numbers of new isolates of Entompathogenic Fungi (520) and nematodes (101) from a range of ecosystems, including climatic and topographic extremes.
- Numerous presentations and workshops provided by project staff to a range of audiences (primary school children, scientists and farmers).


Ciencia & Tecnología

VIAJÓ A LA ZONA PARA OBSERVAR LOS EFECTOS DEL SISMO DEL 20 DE FEBRERO DE 1835

Darwin describió los estragos de terremoto que asoló Concepción

En honor al naturalista

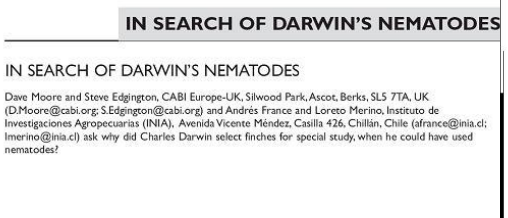
El viaje en la barcaza Beagle


Ciencia

Hongos y gusanos, pesticidas del futuro


Ciencia & Tecnología

Simposio congregará a expertos mundiales en control biológico

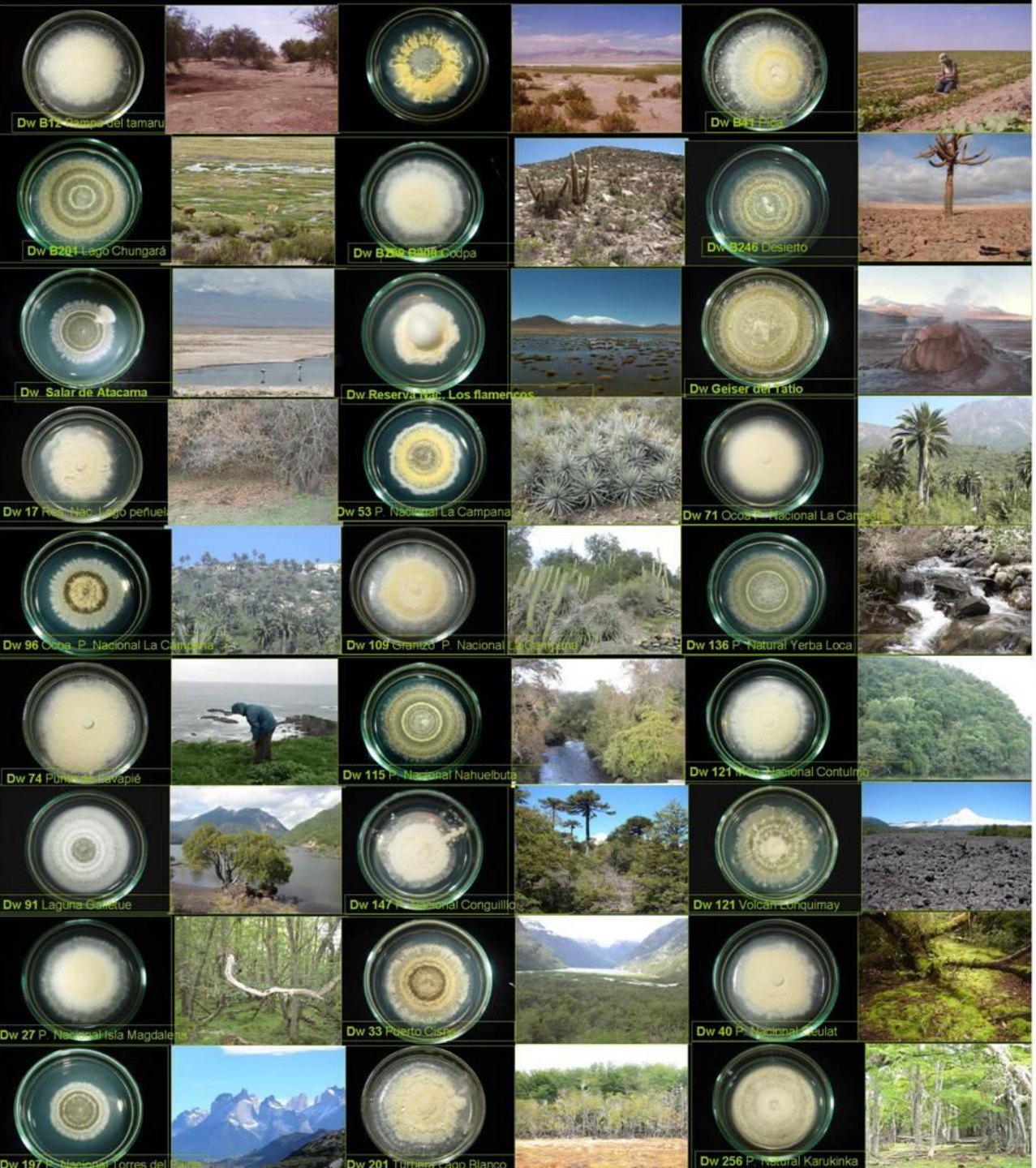

IN SEARCH OF DARWIN'S NEMATODES

IN SEARCH OF DARWIN'S NEMATODES

Dave Moore and Steve Edgington, CABI Europe-UK, Silwood Park, Ascot, Berks, SL5 7TA, UK (D.Moore@cabi.org; S.Edgington@cabi.org) and Andrés France and Loreto Merino, Instituto de Investigaciones Agropecuarias (INIA), Avenida Vicente Méndez, Casilla 426, Chillán, Chile (afrance@inia.cl; lmerino@inia.cl) ask why did Charles Darwin select finches for special study, when he could have used nematodes?

Developing management capacity

- Grade and undergrade Thesis.
- Scientific presentations and posters at conferences and congress.
- Numerous media articles in newspaper, radio and TV).
- A photo-diary on www.youtube.com
- A project video on www.youtube.com/watch?v=OSAObI2K9iI
- A 16-minute film on the project in Spanish and English.
- A significant rise in awareness of biodiversity within Chile along with a substantial increase in scientific capacity within the host country.



Cooperation:

Microbial Culture Collections

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Chilean Network of Microbial Culture Collections: Numbers and field of expertise

Culture Collections in Chile registered at the WFCC

- Four Culture Collections ca. 3000 trains: Bacteria, Yeasts and Fungi
- Agriculture, Biotechnology, Enviromental, and Human and animal healthy related microorganisms

Cledir Santos - CCCT, UFRO; Email: cledir.santos@ufrontera.cl
Mariella Rivas - ACF, Uantof; Email: mariella.rivas@uantof.cl
Eduardo Alvarez Duarte - ChFC, Uchile; Email: ealvarezd@med.uchile.cl
Andrés France - CChRGM, INIA; Email: afrance@inia.cl
Patricio Godoy - CCHFL, UACH; Email: patricio.godoy@uach.cl

Microbial Culture Collections in Chile registered at the WFCC

Culture Collection of the Biotechnology Center-CUC (WDCM 830)
Jaime Rodriguez
Centro de Biotecnología, Universidad de Concepción
Concepción, Chile

Chilean Fungal Collection-CCF (WDCM 1077)
Eduardo Alvarez Duarte
ICBM - Facultad de Medicina Universidad de Chile Santiago, Chile

Chilean Microbial Genetic Resources Collection-CChRGM (WDCM 1067) Andrés France
Instituto de Investigaciones Agropecuarias Chillán, Chile

Chilean Culture Collection of Type Strains-CCCT (WDCM 1111)
Cledir Santos
BIOREN-UFRO, Universidad de La Frontera Temuco, Chile

New Initiatives

Restoring the native flora and associated microflora of Robinson Crusoe Island (RCI)

- DARWIN INITIATIVE
- To increase in-situ conservation of biodiversity on RCI.
- Management of invasive plants and the re-establishment of threatened native species.
- To increase ex-situ conservation of biodiversity on RCI by conserving native plant species in a new seed bank facility.
- To enhance capacity within the local RCI community to conserve biodiversity.
- To promote local community participation in developing and implementing habitat restoration plans in degraded areas of RCI.

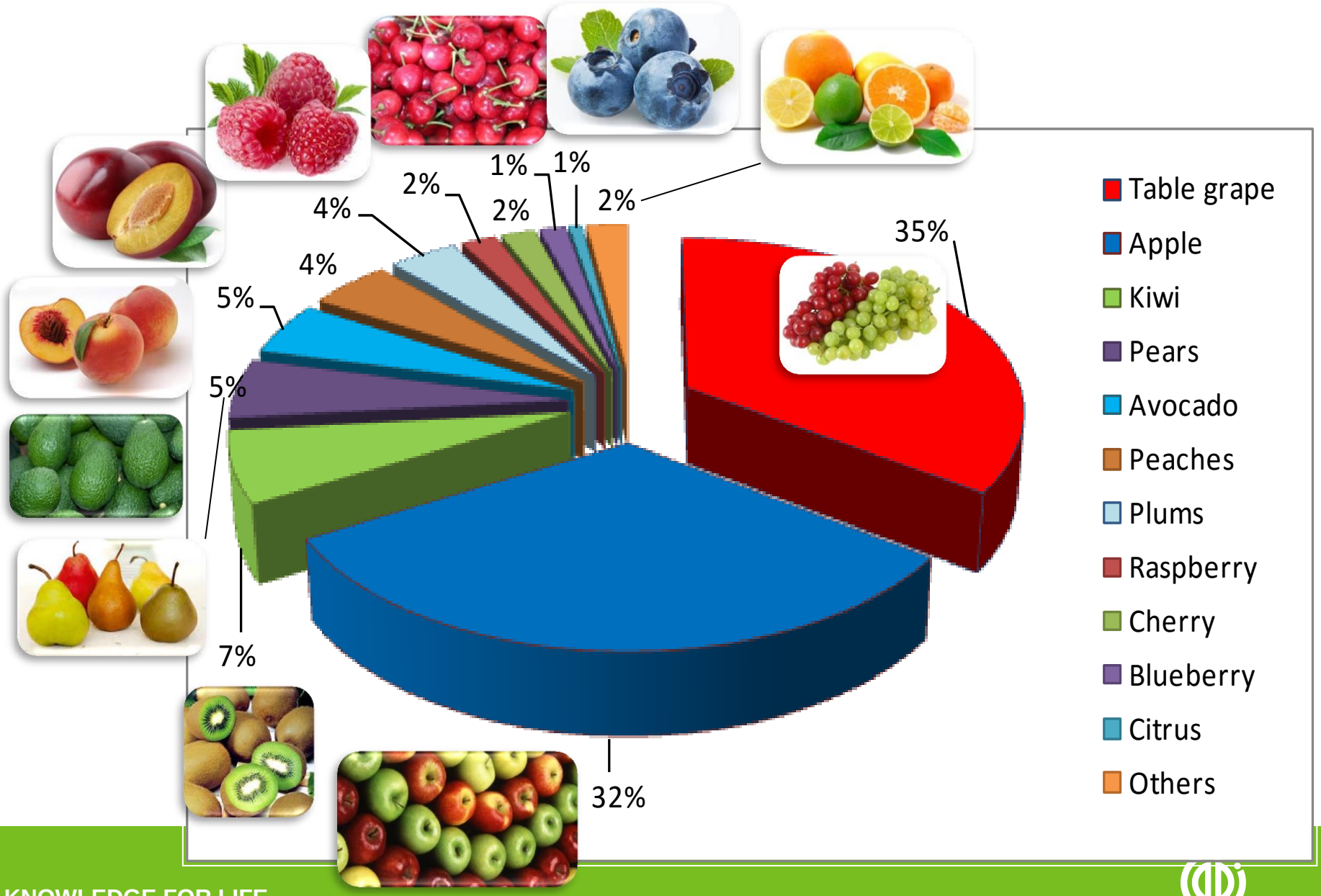
Possible lines of cooperation

- Sustainable production and integrated pest and disease management.
- Products free of chemicals or no residue .
- Use of biological control.
- Improve the technology of small farmers.
- Environment protection.
- Invasive species control.
- Endemic organisms protection.

Challenges faced by Chile

- Distance from the main markets.
- Agriculture is highly dependent of the climate and latitude.
- The country is mainly mountains, desert and cold estepa.
- Doesn't have major sources of traditional energy.
- Chile is the country with more free trade agreements in the world.
- Major exporter of fruit, seed and wine.

Proportion of fresh fruits exported



National top priorities in agriculture

- Fresh fruit, wine and forest production.
- Sustainable production.
- Pesticide reduction and cero residue .
- Use of biological control.
- Climatic change and mitigation.
- Improve irrigation and precision agriculture.
- Environment protection.
- Invasive species control.

Thank you