



Innovation

Repeat after me:

Padric = Paw-ric

Jorge = Hor-hae



**“I suppose I’ll be the one
to mention the elephant in the room.”**

- Innovation comes from all of us

- Scientists
- Industry
- Farmers
- Students
- Athletes



- Ferrero's history on innovation

- Fuori Pasto Dolce
- Post-war commodity prices
- Pasta Gianduja-----Supercrema-----Nutella

- Past, Roots, Strong Vision for the Future. Michelle Ferrero's Legacy

Michele Ferrero's Legacy

- Ferrero's history on innovation
 - Fuori Pasto Dolce
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- Past, Roots, Strong Vision for the Future. Michelle Ferrero's Legacy
- About People and Passion:
 - Passion for food, for the hazelnut crop
 - How can we bridge from Italy to Ontario and vice versa?
 - How to approach the future?
 - "The Fosbury Flop"
 - Did not change the rules
 - Applied science of balance





- 99% food companies looking for the next big thing
- Classic ROI approach
 - Launch Innovation based on financial constraint =
You can land in a very different place than you intended
 - Two variables:
 1. Investment
 2. Time to return de capital
- ROF approach
 - Return over future is the Start-up Approach
 - Two variables:
 1. Time to develop the idea
 2. Opportunity

- Some ideas/products will not go to market
- Some forget about their Roots and their History
- Disruptive Innovation

Product to Science
(ROI)

Science to Product
(ROF)



Hazelnut Company

18th February, 2016

HCo AgrolInnovation Masterplan: 6 streams based on a global “Innovation Network”

PURE RESEARCH LABS / NURSERY

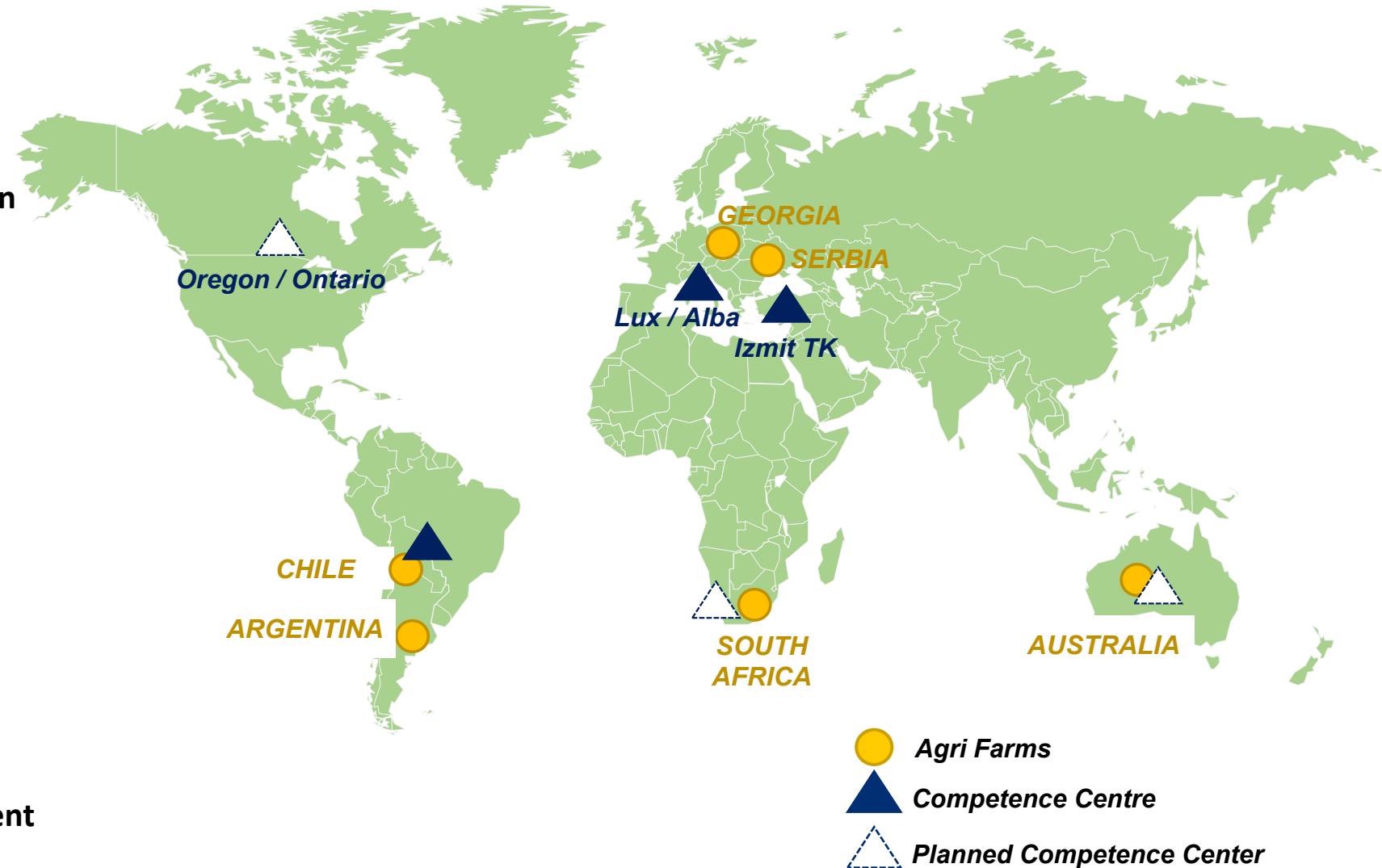
- 1 Varietal research and breeding
- 2 Nurseries development / Propagation techniques

FIELD RESEARCH

- 3 Improving Agricultural Techniques
- 4 Efficiency of Mechanization

AGRONOMIC DATA COLLECTION & ANALYTICS

- 5 Climatology and improvement of estimates / forecast
- 6 FMS installation for farm management



AgroInnovation should address how to...

- ... reduce the **time to full-production** [7 years → 4 years] ?
- ...complete **cultivar map collection and preservation**?
- ...apply **micro-propagation, rootstocks, micro-grafting**... methods?
- ...apply **Precision Farming** (data analytics applied to **mechanization & irrigation, drones, ...**) ?
- ...keep Hazelnut **stock for >1yr** at the **same quality**?
- ...anticipate **climate change** impacts?
- ...Hazelnut as **lever** for **rural development**?
- ...

1. Varietal research and breeding

- We mostly use Italian and European varieties of *Corylus avellana* L. :
 - Chile: Barcelona.....
 - Georgia: Italian selected varieties along with Georgian local high quality varieties (Anakliuri and Dedoplistiti).....
 - South Africa:
 - Australia:.....
 - Serbia: Tonda di Giffoni, Tonda Gentile delle Langhe (?), Tonda Gentile Romana, Nochione, Mortarella (?)
- Improving the certification of the mother plants in the nurseries. Specially for rootstock material to consistently propagate a desired adaptable and high producing cultivar



2. Nurseries development / propagation techniques

- Establish nurseries in all our Agrifarms globally to guarantee our hazelnut supply for 2016 and partially 2017
- Technically supporting third party nurseries to supply our outgrowers networks
- Partnership with ISMEA and CIVI-Italia for implementing a voluntary certification system for propagation material
- Traditional cutting's propagation techniques
- Grafting techniques
- Initializing micro-propagation efforts with cutting edge technologies (University of Guelph, Canada)

3. Improving agricultural techniques

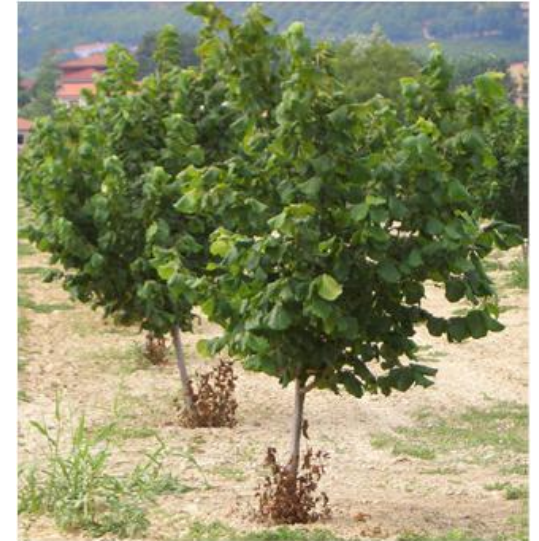
Nutrition:

- Land selection related to soil texture
- Current nutritional levels
- Traditional fertilization and fertirrigation



Crop growth management:

- Planting schemes: Street/distance, pollinator schemes
- Transplant timing
- Stem training system (Bush, single stem and free base)
- Vegetation management (weed control, mulching, shredding, tilling)
- Pruning
- Suckers control



Pollination:

- Selection of good and adaptable pollinator to different geographies.
- Artificial pollination

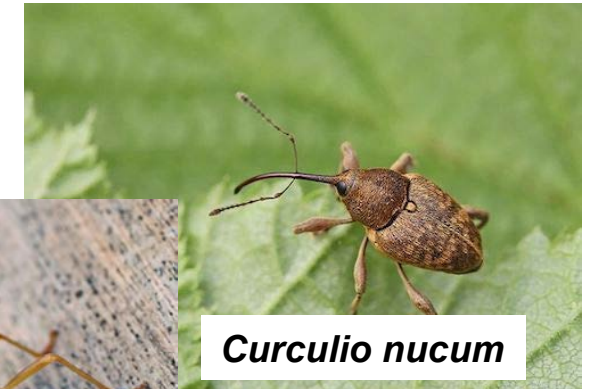
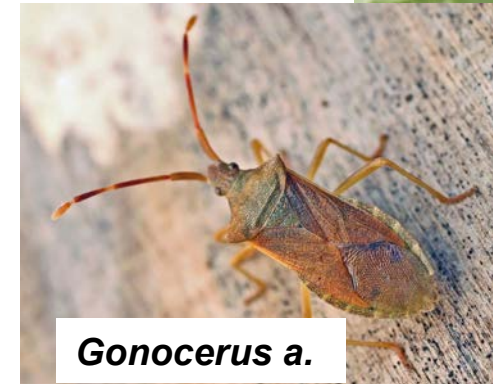
3. Improving agricultural techniques

IPM: Integrated Pest Management

- Chemical control
- Mechanical control

Irrigation

- Drip irrigations
 - ✓ Sub-surface
 - ✓ Surface
- Sprinkle systems



4. Efficiency of mechanization

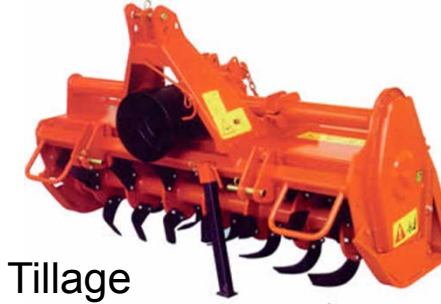
General utility tractors (60-80 HP)

Pruning

- Hedging and topping tractor
- Manual



Raking



Tillage



Drainage

Harvesting:

- Harvests preparation: Herbicide burn down
- Mechanical harvest: Raking and harvesting
- Harvesting:
 - ✓ Trailers harvesters
 - ✓ Self propelled harvester



Post-harvest operations:

- Drying facilities
- Cracking facility (AgriChile)



5. Data collection and analysis

CLASSIFIED

6. FMS (Farm Management Systems)

CLASSIFIED

We've got some excellent results until now

"Ferrero Farmers Turkey" [FFT] program



- 14.000 trained farmers in 2015
- 93 "model farms" with +20% productivity

Mechanical operations tracking via devices in Georgia



Warehousing best practices for preserving hazelnut quality



+4° C + nitrogen



Grafting techniques on 5 European varieties

FERRERO

Full-mechanized de-husking system in Georgia



Drones for pollination: successful test in Chile



Ferrero Canada

18th February, 2016

- Ferrero Canada believes in creating a sustainable local business community and towards that goal, tries to source as much as possible from local suppliers
- Today 90% of the packaging used in our plant (in terms of value) is sourced from North America and 71% is sourced from Canada (of them 93% from Ontario)
- In FY 2012/2013, the number of local technical suppliers (based in North America) increased by 2% and now 74% of them are based in Ontario.

Until recently, the Company has been sourcing its hazelnuts mainly from Italy and Turkey. To ensure sufficient and fresh supplies for future demand, Ferrero has identified other regions around the world where climactic conditions are favorable for growing hazelnuts.

On September 23, 2013, the Ferrero Group and the Ontario Hazelnut Association jointly signed a Memorandum of Understanding to facilitate development of large-scale hazelnut farming in Ontario.

It is a multi-stakeholder endeavor designed to create a sustainable hazelnut farming business in the region, which will upon maturation of the plants, provide Ferrero Brantford with local sourcing of this important raw material for products such as Nutella®, as well as other manufacturers using hazelnuts.

Partners include:

- Ferrero Canada and the Group's Hazelnut Business Development division
- Industry-farmers/growers, nurseries, aggregators
- Academia-University of Guelph agricultural practitioners and researchers
- Government: the Ontario Ministry of Agriculture and Rural Development amongst others.

Ferrero's involvement in this project consists of:

- transferring knowledge on innovative hazelnut farming practices;
- investing in selective farming and/or nursery production;
- providing training, research and extension services.

By 2023, the goal is to have planted 5,570,000 trees covering 22,280 acres, which should yield close to 11,000 metric tons of hazelnuts/year.



“Hazelnut is the Ferrero Family signature on most of the products”

Thank you!

