

Andermatt

Webinar Agritech in Latin America
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Andermatt Group

- Passionate about healthy food and healthy environment
- Dedicated to biological control of pests in agriculture for more than 30 year
- Committed to quality, innovation and peoples satisfaction



Healthy food and healthy environment for all

“The world demands for environmental friendly and residue-free food production. We want to replace chemical pesticides with good biological alternatives. Together with you we can make a real change”

Drs. Isabel and Martin Andermatt
Founders of Andermatt Biocontrol

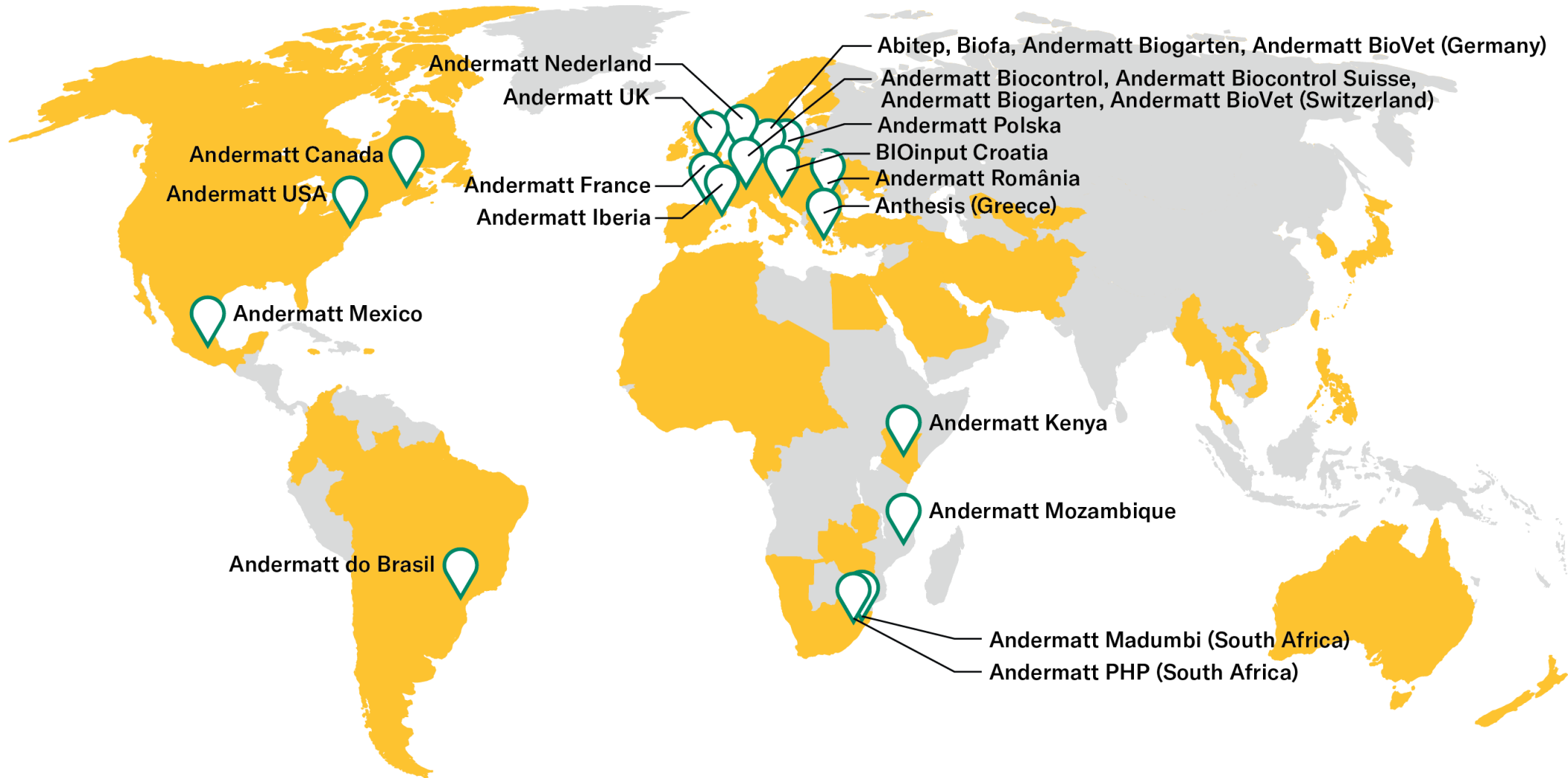


Company facts

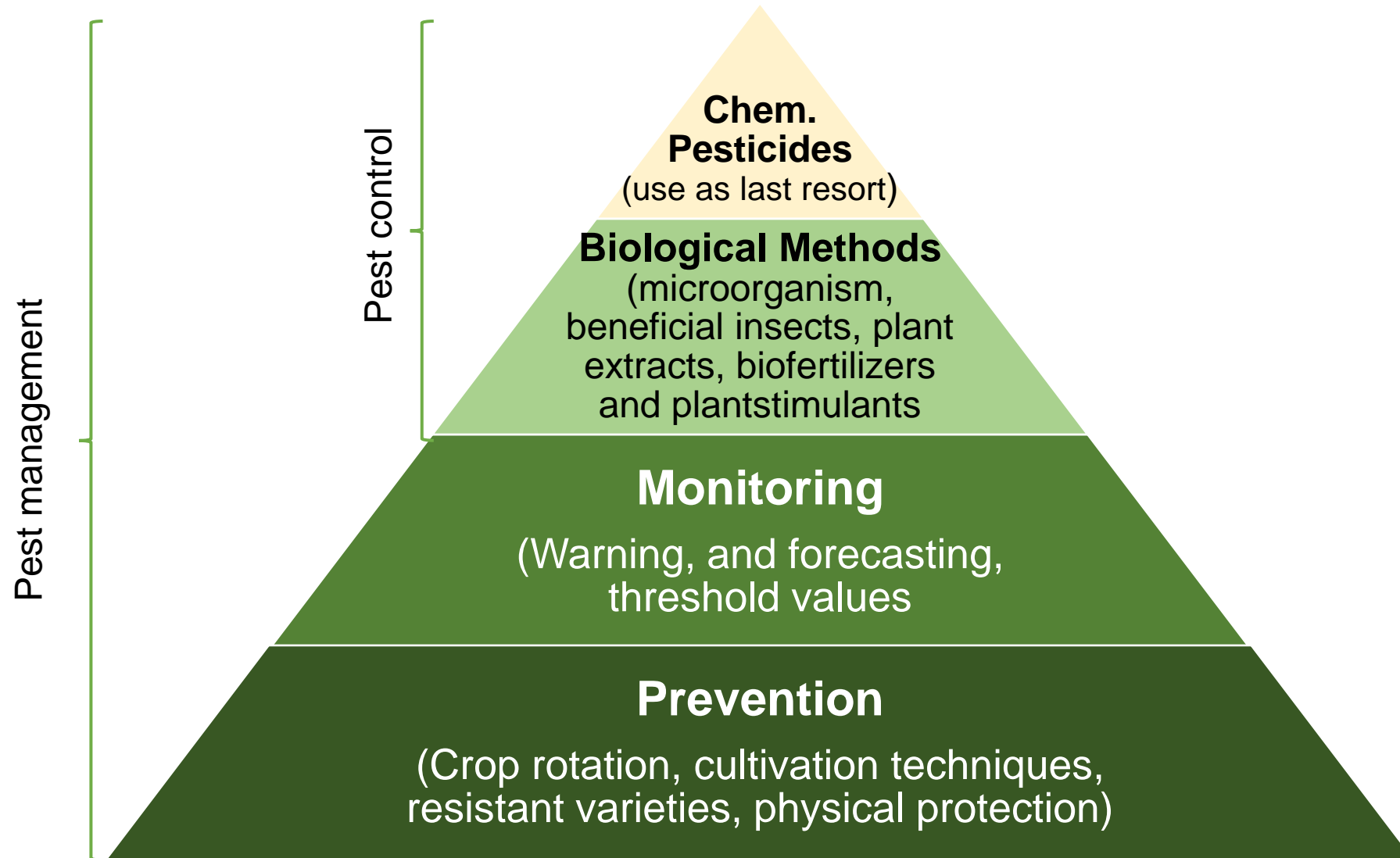
- Since 1988
- Independent and family/employee owned
- Strong global product portfolio
- 10 global manufacturing sites
- 21 marketing subsidiaries
- Over 500 employees worldwide
- Global headquarters in Grossdietwil, LU, Switzerland



Global footprint and distribution



What is Integrated Pest Management (IPM)



The adoption of IPM has been very slow

IPM Level	Period	Principles	Low-tech farming	High-tech farming
1.0	1960-1980s	Use of resistant varieties, introduction of threshold concepts, apply when pest infestation reach certain presence levels	Complex and knowledge intensive	Farmers started to appreciate agro-ecological principles, though Chemical pesticides remained dominant pest-control method
2.0	1980-2020s	Start of biocontrol, improved agro-ecological interventions such as intercropping, preservation of beneficial organism	Farmers slowly adopting biocontrol in particular when receiving constant technical support (Community demand)	Consumer demand drives adoption of biocontrol in EU and USA. Latam adoption driven by demands in export countries and pest resistance drives row crop adoption in partic. in Brazil
3.0	2020 beyond	Greater proactive farmer empowerment and educational component, advancement to integrated agroecological systems.	Smartphone communication allows digital integration of small holders	Precision farming, digital monitoring and growing consumer demand lead to accelerated adoptions

The adoption of biocontrol in Brazil vs. Europe and USA

- Europe and USA – high consumer demand for organic and healthy foods
- Use of biocontrol mainly in fruit and vegetable crops



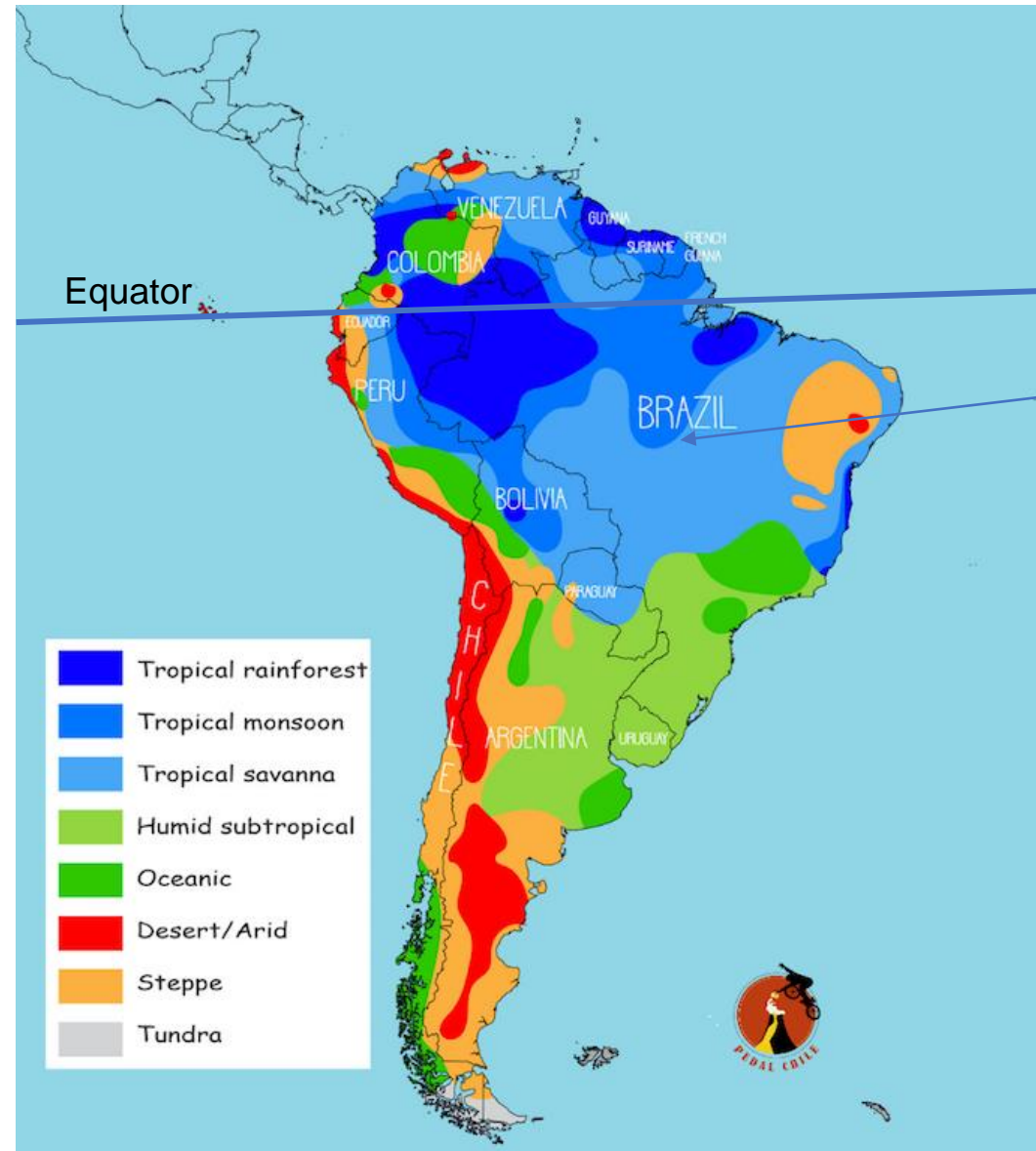
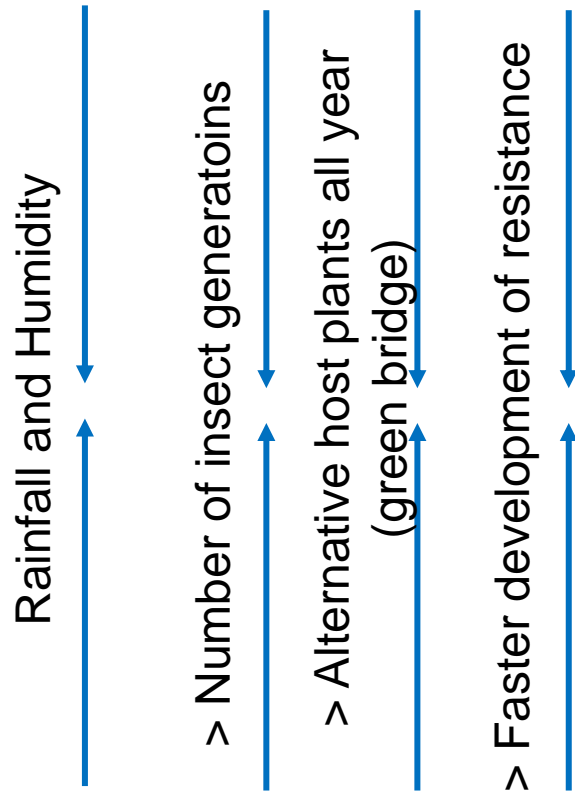
Consumer Demand

- Brazil – very limited domestic consumer demand for organic food
- Use of biocontrol predominantly in row crops driven by pest resistance problems



Demand caused by specific climate and pest conditions

Tropical climate favours pest resistance to pesticides



2 crops/year non-irrigated
3 crops/year irrigated

Why has the adoption of Biocontrol not further advanced in the Latam&Caribbean region

- Brazil, the country with the fastest adoption process in Latam - but still Only at 4%
- Registration process in many countries are jeopardizing a fast adoption process,
- Requires a shift in mind-set for all stakeholders: industry, distribution and farmer,
- Requires new learning and training

Why is the adoption rate still only at 1 - 4% ?

- Adoption process difficulties are reported in the literature:
- Some farmers associate biocontrol products for organic farming only!
- Accustomed and high dependence to chemical pesticides, trust in chemistry,
- Believe that biologicals must be cheaper than chemicals
- Not familiarized with the use of biocontrol products
- Doubts about the efficacy - can a microorganism or a macro-organism really substitute “hard chemistry”?

Chemical vs. Biological solutions

example of a furrow treatment at planting in potatoes

Chemical Standard

- Fungicide only



Biological Solution

- Control of fungal, bacterial pathogens
- Suppression of nematode populations
- Solubilizer and mobilizer of nutrients (P and K)
- Production of amino acids and enzymes
- Siderophores produced by bacteria qualatinze metallic micro-nutrients making them plant available

Key Motivators for Adoption of Biologicals

1. Resistance against pesticides and or GMO's
2. Buyers / Export market demands residue free products (very limited for grains, more important for fruits)
3. Consumer demand for pesticide free produce (applies for high income markets)
4. Prohibition of certain chemical pesticides
5. Poor soil biota due to climate conditions or due to heavy use of pesticides

Andermatt highlights in the Latam market

Successes for Andermatt in Latam

- 1) **Virus products** for control of specific problematic pest problems
 - ❑ **Madex®** for oriental fruit and codling moth control in apples
 - ❑ **Spodovir®** for fall army worm control in corn and soybeans
 - ❑ **Tutavir®** for tomato leaf minor control
- 2) **Phosbac®** – phosphor solubilizing biofertilizer for all crops
- 3) **Nembac®** – bacterial solution to control soil nematodes for all crops

Madex Twin

Baculovirus CPGv

- Andermatt global pioneer in Virus products
- Successfully introduced in Argentina, Chile and Uruguay in registration in Brazil
- **Benefits:**
 - Very selective – not harmful to beneficial insects
 - No residues – requirement for export
 - Not toxic to animals and humans



Tutavir

Baculovirus PhopGV

- First regular registration in Brazil, in development in Argentina, Paraguay and Uruguay
- Tomato leaf minor devastating pest originated in South America reached global presence
- **Benefits**
 - Same efficacy as chemicals
 - Very low toxicity
 - No residues and not harmful



Phosbac – Bacterial Phosphor Biofertilizer

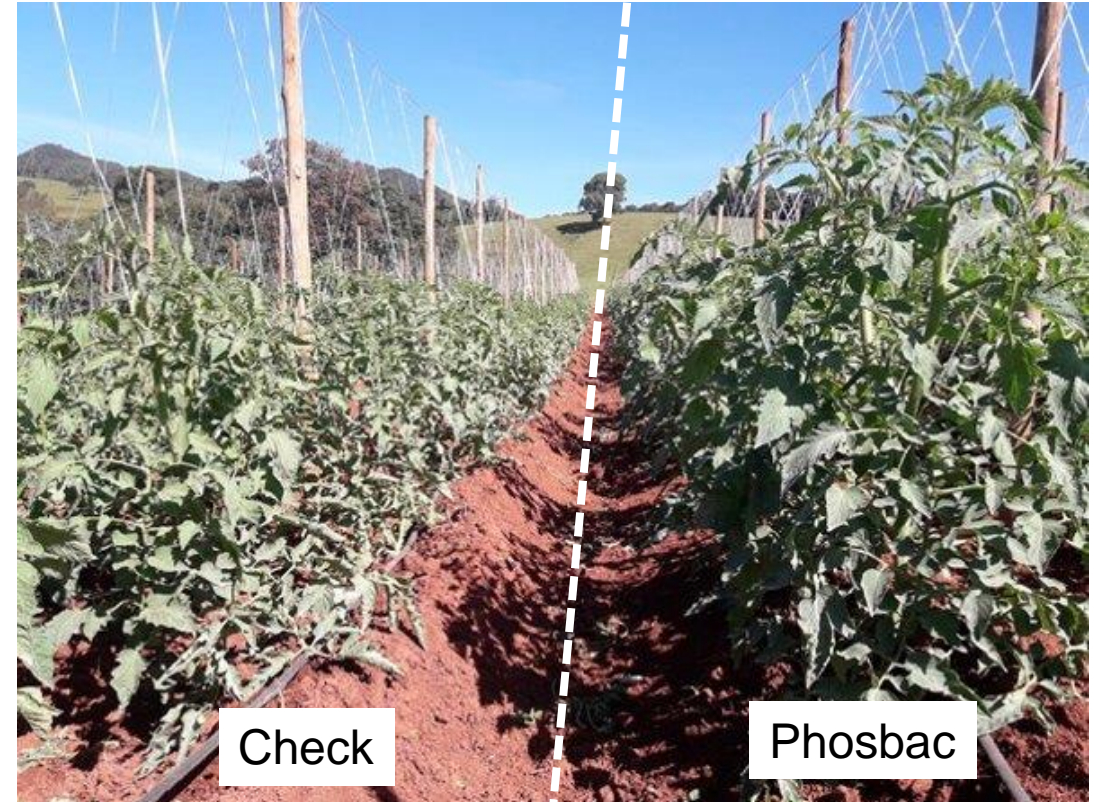
Bacillus velenzensis - FZB45

- Successfully introduced in Brazil

Andermatt was the pioneer company in launching the 1st Phosphor Biofertilizer

- **Benefits:**

- Improves efficacy of applied fertilizers
- Fertilizer rates can be reduced
- Lowers farmers costs
- Improves plant growth and development



Nembac – Bionematicide

Bacillus velenzensis - FZB42

- Registration in Brazil, in development in Argentina, Bolivia, Colombia, Caribbean, Paraguay, Uruguay, Peru,

Nematode management tool

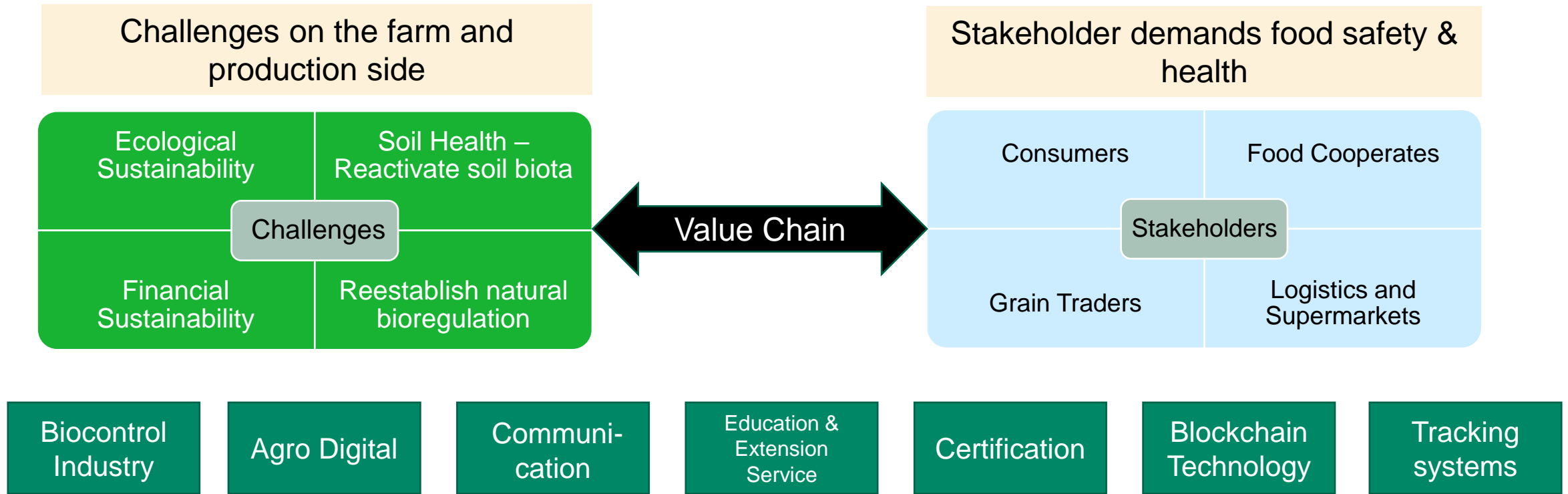
- Formation of biofilm protecting roots system:
- Cost effective nematode control as a seed or furrow treatment
- Superior efficacy to the highly toxic chemical nematicides



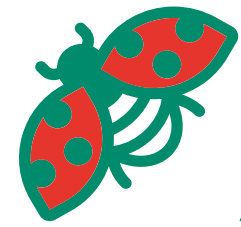
Key success factors

- Innovative differentiated and unique solutions can support higher prices for imported products
- Product quality must be evident and perceivable to the farmer
- Access to farmer is crucial direct or via distribution
- Build platform for direct communication with farmer
- Intensive testing and product demonstration in the field

Business opportunities to support a faster move to sustainable farming systems



- Field activity tracking systems which provide transparent information to stakeholders
- Link to the consumer to the producer
- Motivate consumer to pay for sustainable production
- Reward and motivate farmer to adopt eco sustainable production systems



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