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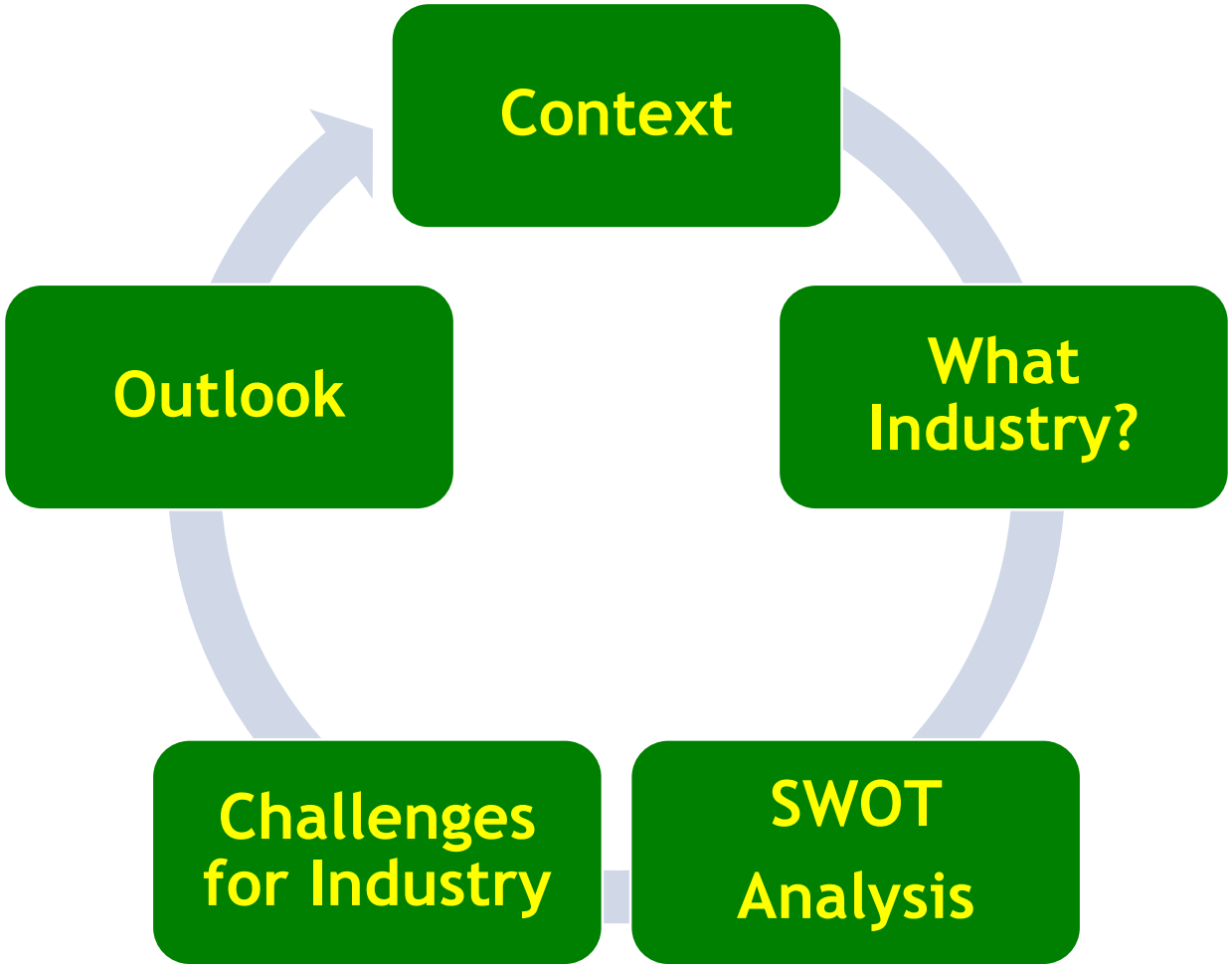
TRICENO

Bio-control
Business Perspectives

ABIM 2013

Bâle, October 23rd, 2013

What are we going to talk about today



Context

Take Home Message Nr. 1

Quantitative Demands:

Population ⇗ Agricultural Land ⇨

Population ⇗ Meat production ⇗ ⇗

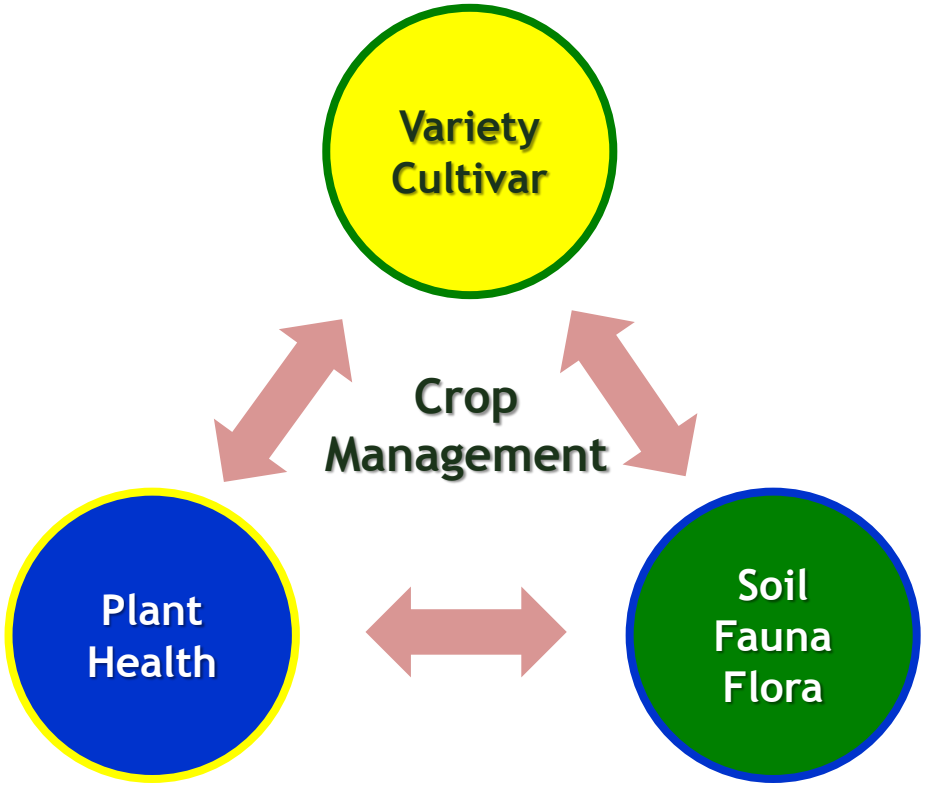
Qualitative Demands:

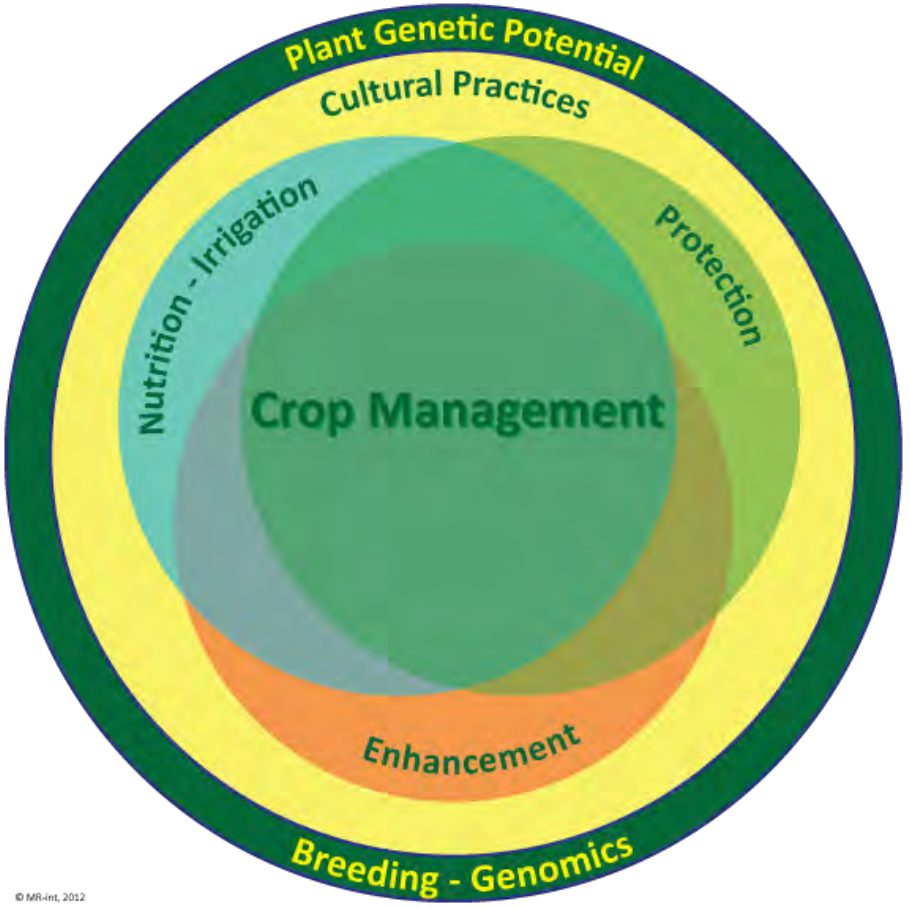
Human Safety ⇗ ⇗

Environmental Impact ⇘⇘

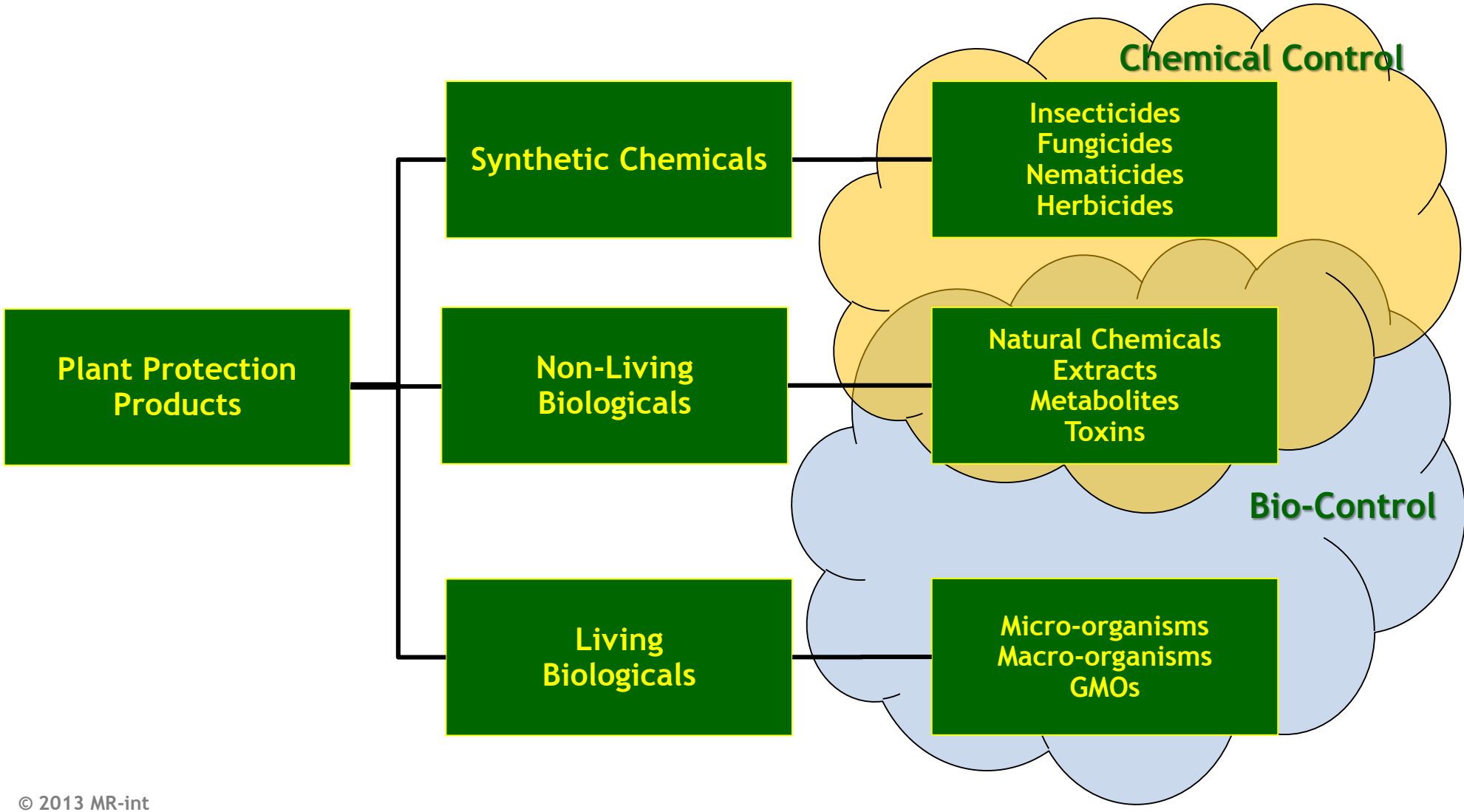
Agriculture must become more intensive and more sustainable!

What industry are we speaking of?





Definition Overlaps



"BIO": how to understand?

By Mode of Action

- induced by the product itself, biological process ⇔ chemical toxicity.
- induced by the plant: systemic acquired resistance, GMOs

By Mode of Production

- harvesting, fermentation, of breeding ⇔ chemical synthesis (extraction?)

By Natural Origin

- absence of human artifices (chemical reactions, GMOs are out)
- since all is human discovered and concentrated: what are the boundaries?

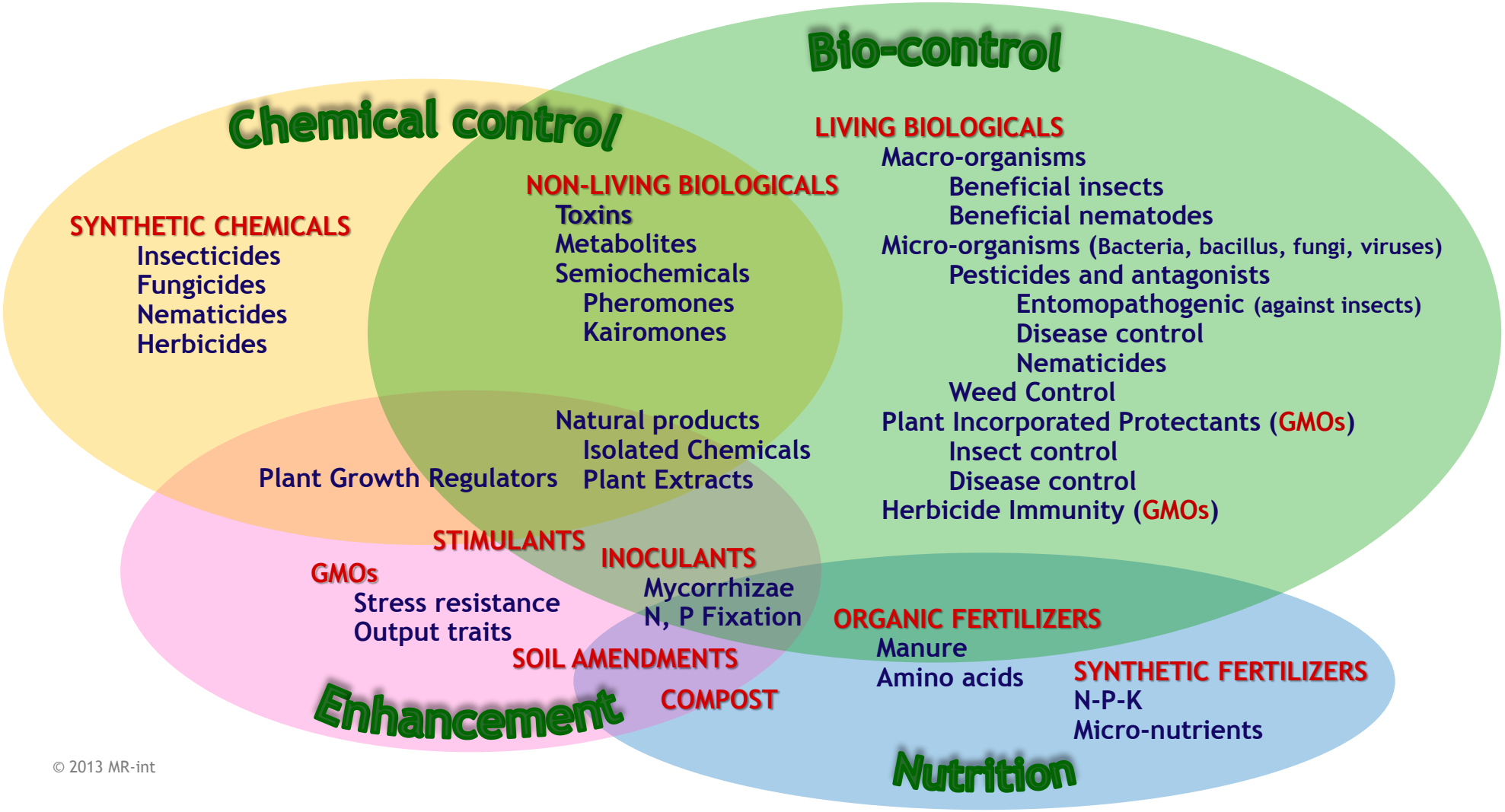
By "Organic" Classification

- authorised for organic agriculture – agricultura ecológica – agriculture bio

By Administrative Definition

- way to steer product registration and use – from a policy perspective

Product categories taken in a wider sense



Developments for Sustainable Agriculture

- **Plant variety** improvement
  - High yield
  - Drought and salt tolerance
  - GMO or not
- **Irrigation systems** improvement
- **Crop management** method improvement
  - Soil preparation
  - Targeted fertilizer application
  - Integrated pest management (chemicals, biologicals, GMOs)
  - Use of novel methods to improve plant uptake of water and nutrients and to withstand stresses, as for example mycorrhizae.
- Improvement of the **information** provided to the growers and farm managers
  - Precision farming
  - Meteorological data and forecasts
  - Risk evaluation: drought or flood, diseases and infestations
  - Anticipation of needs: irrigation, crop protection treatment
  - Decision aid for an optimal crop management

Take Home Message Nr. 2

"Bio" isn't a clear differentiator
Integrated Crop & Pest Management
for Sustainable Agriculture
doesn't ask for one sided solutions

Take a Wholesome Approach
Build an Array of Products & Solutions

Genetics - Nutrition - Protection - Enhancement

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Bio-Control Products: SWOT Analysis

STRENGTHS

- Reduced risk profile, human toxicity and ecology
- No residues, no pre-harvest interval
- Target specific (?)
- Less registration hurdles
- Shorter time-to-market
- Green and fashionable
- Sought after by food chain distribution and retail

WEAKNESSES

- Levels of control
- Target specific, niche markets (?)
- Too broad, unverifiable claims
- Expertise of user required
- Stability from shelf to plant
- Lack of standards for quality control
- Intellectual property protection

OPPORTUNITIES

- Further reduced regulatory requirements
- Formulation and delivery systems
- Costs and scale up limitations
- Use in certified organic agriculture
- Integrated crop programs
- Discovery of new active ingredients
- Resistance management strategies

THREATS

- Impact in case of massive use
- Increased regulatory requirements
- Synthetic chemicals remain low risk
- “Snake oil” claims

Build on strengths and opportunities, but…
… don’t deny weaknesses and threats
… and manage expectations wisely

Challenges

A. To get new innovative products and services

B. To master the product development process

C. To pass the regulatory hurdles

D. To access all valuable target markets

E. To be big and profitable

Challenge A: to get new innovative products

Current Problem

- Somehow constipated pipe-line:
  - Synthetic chemicals discovery in 20 years 50% less new AIs.
  - Natural chemicals: rare novelties.
  - Micro-organisms, few species (<100 strains of ~36 species)
  - GMOs, two basic traits.
- Narrow mindedness
  - Single Technology approaches
  - Isolated experts

Discovery Orientation:

- New **modes of action** are needed
  - Breakthrough activity profile
  - Resistance management
  - Crop yield orientation
- Different **kinds of products** (PEPs):
  - Nutrition efficiency
  - Stress resistance biotic / abiotic
  - Soil biological conditioning
  - Growth regulation
  - ⇨ e.g. Endophytes: N, P fixation, Mycorrhiza, other symbiosis
- Associated services
  - **Information** and decision aids
- **R&D Connections** across fields of expertise

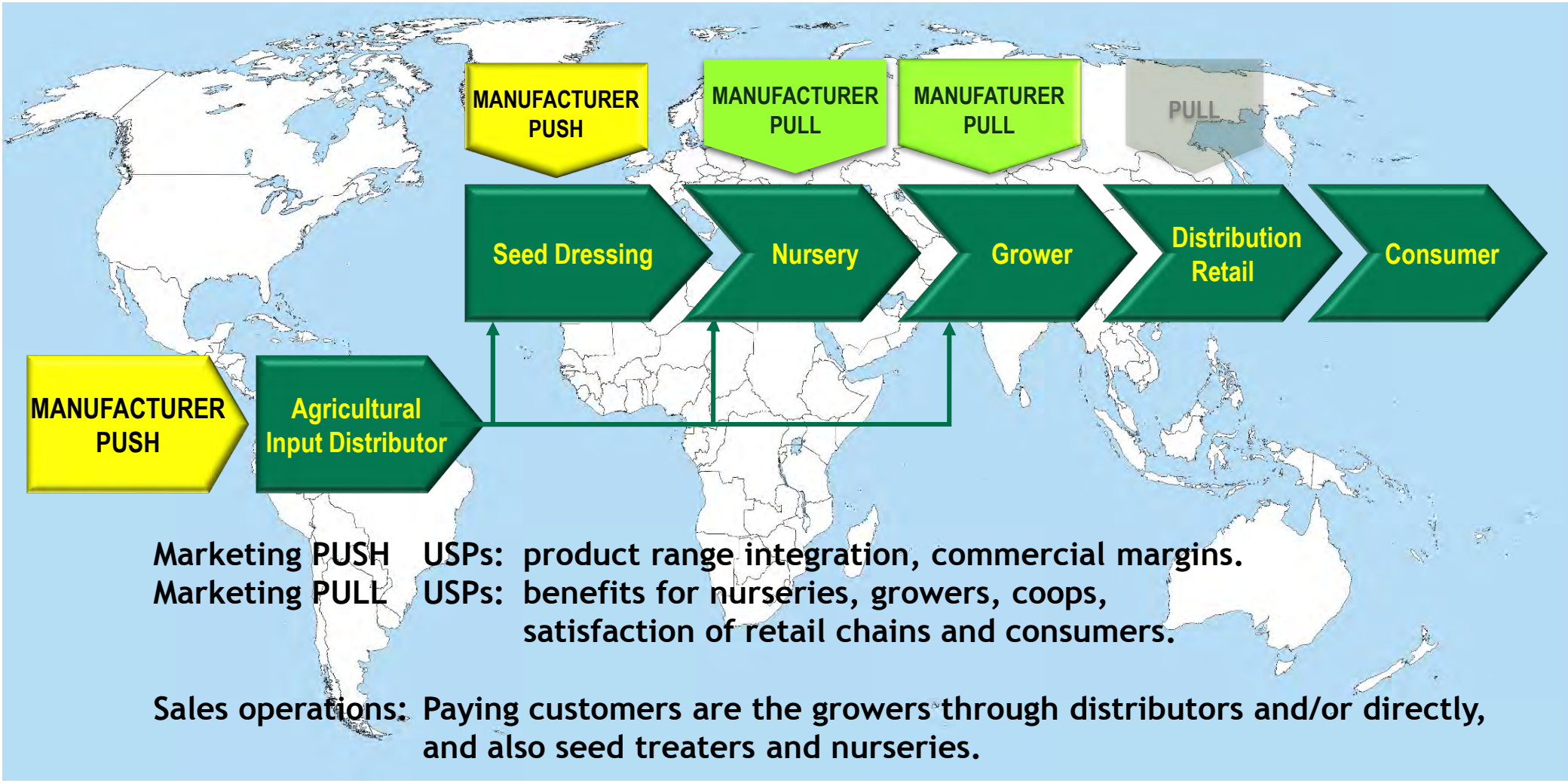
Take Home Message Nr. 3

Discovery and Innovation in High Demand

Integration of various technologies

! Think out of the box !

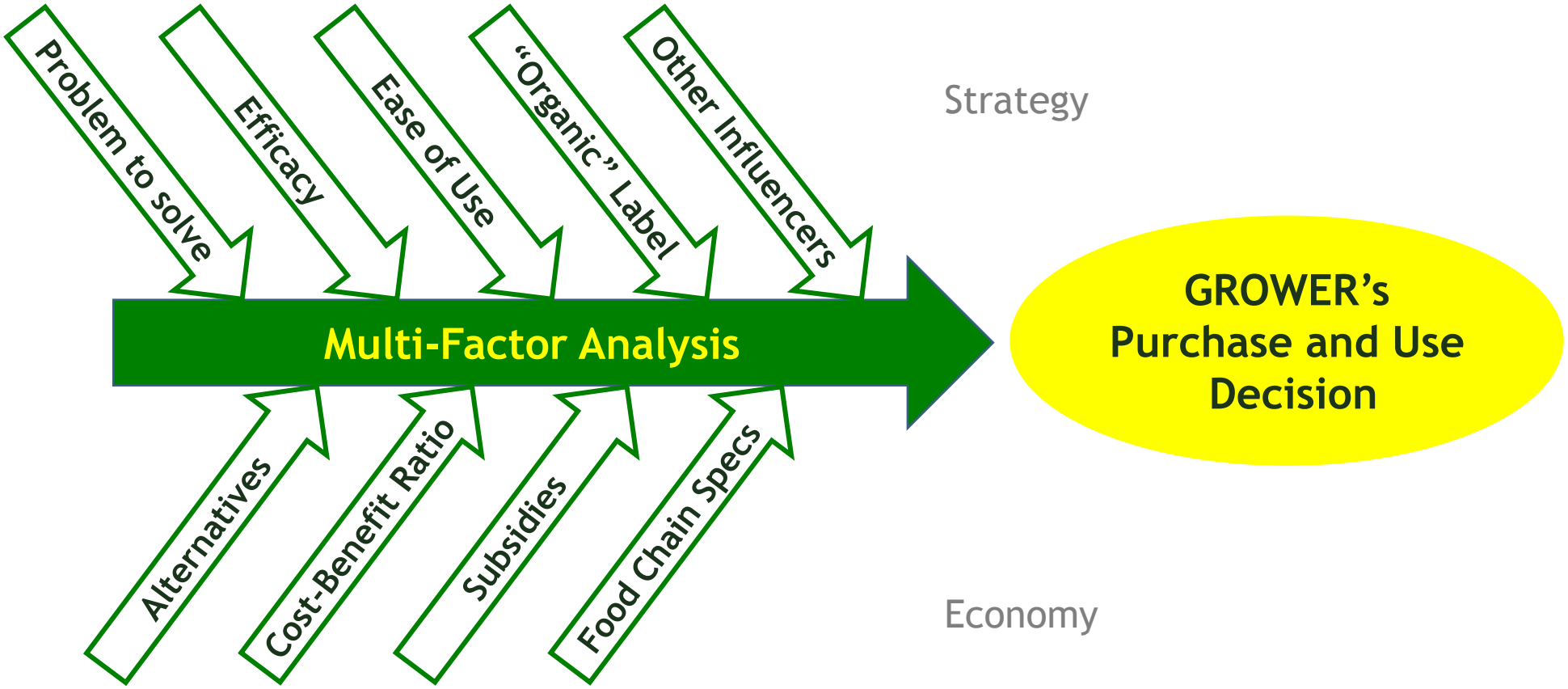
Challenge D: Access all Markets at all Levels



Marketing PUSH USPs: product range integration, commercial margins.
Marketing PULL USPs: benefits for nurseries, growers, coops, satisfaction of retail chains and consumers.

Sales operations: Paying customers are the growers through distributors and/or directly, and also seed treaters and nurseries.

The purchasing decision lies with the GROWER



Challenge D: Markets and Marketing

Market Expectations

- Proven efficacy, if possible at the level of current chemical methods
- No chemical residues in the harvested produces:
  USP of biologicals!
- No negative impact on produce quality (e.g. blemishes)
- Product storage stability: shelf-life on farm expected to be 2 years
- Ease of use
- Competitive cost (as total costs of treatments per Ha and season)
- No major change in crop management
- Organic certification
  (in case of use of, but not limited to, this mode of cultivation)

Marketing Requirements

- **Products** with verifiable claims
  … *against today's high farmer standards*
- **Positioning** within wider crop management systems
  … *more difficult stories to explain*
  Training, Vulgarization, Demos
- Collaboration with **distributors**
  … *so far pampered with easier to sell chemicals*
- **Pricing**
  … *not much room for choice*
  Compete with generics
  on a $/Ha for full crop cycle

Take Home Message Nr. 4

Integrated Solutions
Integrated Product Range
Complex and Multiple Markets

Increased Marketing Efforts,
in Quantity and Complexity

Challenge E: to finance the development

	Chemical substance		Micro-organism		Key differences
	Costs USD m	Duration a	Cost USD m	Duration a	
Field development	20-40	4-6	2-5	4-6	Narrower crop scope. More parameters to test.
Technical development	10-40	4-6	4-15	4-6	Fermentation is a given.
Registration	20-30	5-7	2-10	4-6	Fewer data requirements.
Total	**60-100**	**5-7**	**8-25**	**4-6**	

Blockbuster Syndrome

Affordable "Niches"

Take Home Message Nr. 5

From “nice to have” to “need for ROI”
Long processes, high economic risks

Secure financial robustness over long years
Expand & Diversify niche products/technologies

Recent Industry Developments

M&A

Strategic Alliances

IPO

New Comers

Bringing own technologies into agriculture
Novozymes, industrial enzymes
Lallemand, yeasts
Others: green chemistry, white biotech ???

Labelling

Organic, Fair trade, ISO, etc.
A bureaucratic business

Outlook

Huge Market Opportunities

- Large niches in single countries (USA, Brazil) rather than in European puzzle
- Global market size, CAGR, etc.: wrong and unimportant

No Substitute for Chemicals

- Complement in programs, residues, resistance
- Gap filling for minor uses, orphan crops

Paradigm Change in Discovery

- New frontier: endophytes, inoculants, other PEPs
- Genomic, other ‘omics, agronomy, biology, chemistry, biotechnology

Further Outlook

More Strategic alliances. M&A

- to get rapid access to available products and technologies;
- to use the marketing powerhouse of major companies to facilitate and accelerate market entry

Government: Friend and Foe

- Too often more talk than walk
- Extension offices need to play [again] an important role:
  more agronomy - less bureaucracy
- Complex public-private projects can help… or disorient and distract

Few private investors in AG area

- Little understanding for agricultural sector
- Not adverse to risks but rather to long time for ROI

Take Home Message Nr. 6

The industry is in full upheaval
Solo players may have a too thin voice

Be ready for strategic, R&D, and operational alliances
Groom the bride for M&A (or IPO)
Seek public support but avoid distraction by public money

Summary

- Agriculture must become more intensive **and** more sustainable!
- Wholesome solutions and integrated products ranges with Genetics - Nutrition - Protection - Enhancement
- Seek new technologies they may come from “elsewhere”
- High professionalism and quality
- Increased marketing efforts, in quantity and complexity
- Secure financial robustness over long years
- Be ready for strategic, R&D, and operational alliances
- Seek public support but avoid distraction by public money

¡¿ Will IBMA INTERNATIONAL BIOCONTROL MANUFACTURERS ASSOCIATION merge with CropLife INTERNATIONAL ?!

MR-int Service Offer

Strategic Consulting:

- Strategy Analysis and Development: for the whole enterprise or for single Business Units;
  - in particular in the field of crop protection and crop enhancement, and in fine chemicals;
- Business Development: external contacts, partners evaluation, management of joint projects.

Ventures, Partnerships, Mergers & Acquisitions:

- Target scouting and evaluation;
- Due diligence preparation and execution;
- Negotiation;
- Integration management.

Operational Improvement:

- Business Processes and Systems:
  design and deployment, in particular product development;
- Capital Investment Projects:
  scoping, assessment, steering and follow-up.

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And new! TRICENO

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A consortium of three senior consultants with vast experience and background in crop protection and crop nutrition