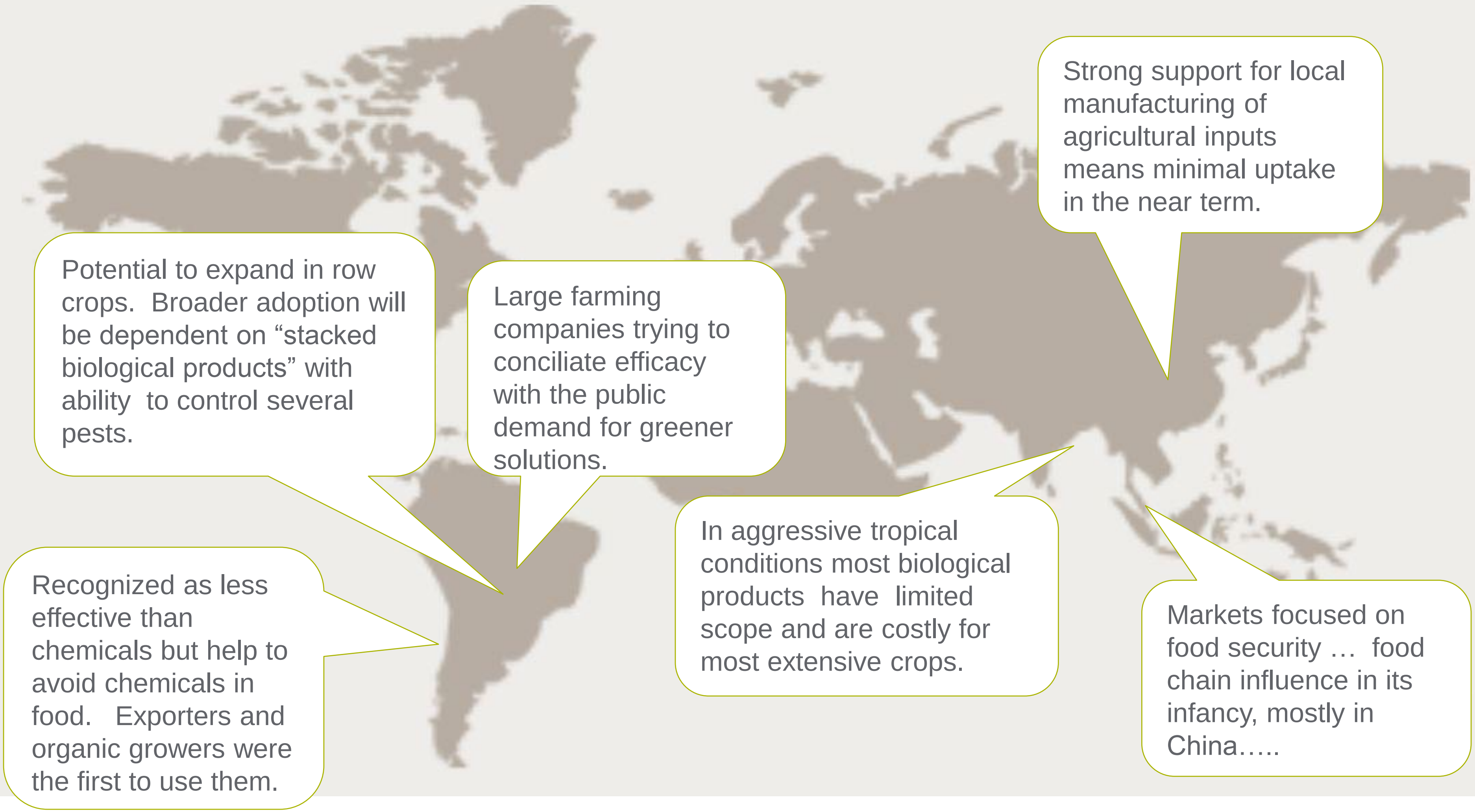
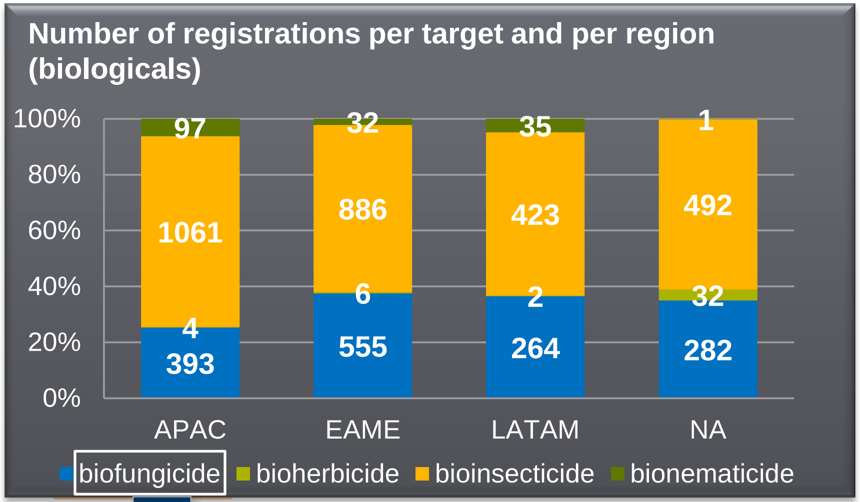
Biologicals in Developed and Emerging Markets: A World Apart?

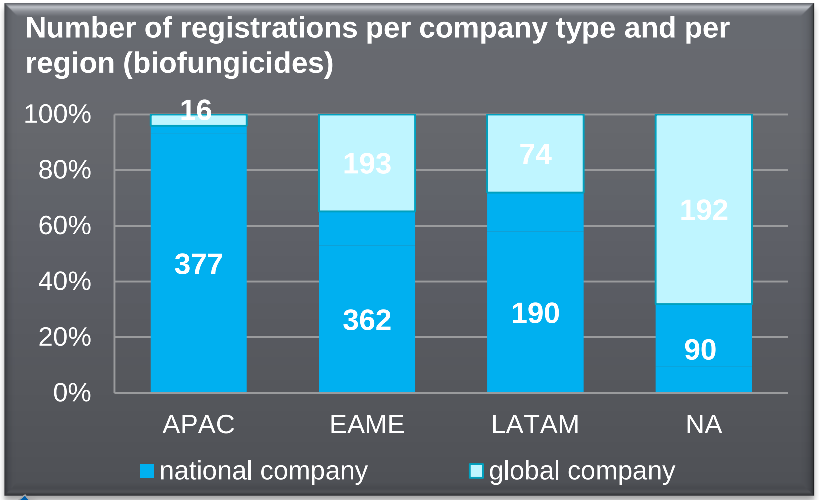
Rob Neill/ Gerardo Ramos – 22/10/2014

Attitudes on biologicals in emerging markets–Syngenta managers



Local players prevalent in emerging markets





Source: Syngenta internal analysis – September 2014

What's behind market growth?

Reduced chemical residues	EU retailers demanding lower residues than regulations require. Setting secondary standards for marketing purposes
Easier, quicker registrations	Limited human safety and environmental safety required. Potential for rapid registration
Resistance management	Alternative modes of action to control resistant pests, diseases and/or slow resistance build up
Public Perception	Public believes that bioControls have health and sustainability advantage vs. chemistry
Performance	New solutions for growers, integration with chemicals for high performance programs

Key drivers changing in importance over time

1 – not relevant   10 – highly influential

DRIVERS	2013	2025
Residues	10	8
Regulatory	7	4
Resistance Management	4	10
Public Perception	6	6
Performance	4	9
	$1.7 bn	$7.0 bn

Growth will increasingly be driven by improvements in microbial technology, giving mainstream growers new options for resistance management and general pest control. Regulatory barriers will tighten over time, resembling chemicals in mid term.

Market size source: Dunham Trimmer – GLOBAL BIOPESTICIDE DATA ANALYSIS – July 2014

Technical challenges related to emerging markets

- Resistance Management
  - Environment favors pest shift and resistance development
  - Lack of appreciation for good agricultural practices to prevent resistance build
  - Rapid intensification
- Evolving Regulatory Environment
  - Varying standards; harmonization will occur
  - Regulation will increase
  - Development & commercialization complications with Convention on Biological Diversity
- Protecting Trade Secrets ⟶ Local formulation production is needed
- Formulation Knowhow
  - Mixtures
  - Shelf Life
  - Easy to Use

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Commercial challenges related to emerging markets

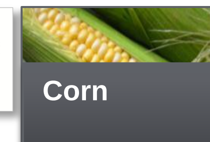
- Educating the customer/creating demand in fragmented markets
- Value Proposition: many low value generics
- Lack of differentiation in solo products; creation of mixtures
- Limited recognition of public perception, residue drivers
- Lack of quality trial data to market with

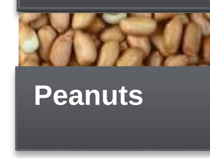
Case Studies

CLARIVA™ Seedcare Nematicide

- Based on *Pasteuria* spp. endospores
- Excellent control of cyst nematodes in soybeans
- New tool for resistance management
- Works under variable environmental conditions
- *Clariva™ commercialized in North America; planned for Brazil*

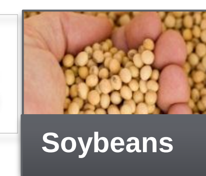
AFLA-GUARD® Biofungicide





- Non-toxigenic strain of Aspergillus flavus (NRRL 21882)
- Significantly reducing aflatoxin levels (of up to 90%)
- Helps manage complexities and risks associated with crop aflatoxin levels
- *AFLA-GUARD® commercialized in North America; planned for EU, Australia and South America*

QUANTIS® Biostimulant



- Amino acid based product providing ready to use nutrients for plants
- Created from natural fermentation process for yeast production
- Functions as plant nutrient regulator; helps plants recover from stress
- *QUANTIS® commercialized in Brazil; launch for corn in Brazil 2015, planned for EU and North America*