

Responding to Biosafety Needs in Africa : FAO Perspective



By

Dr. Arturo Martinez

Chief

**Seeds and Plant Genetic
Resources Service**

Agriculture Department

FAO



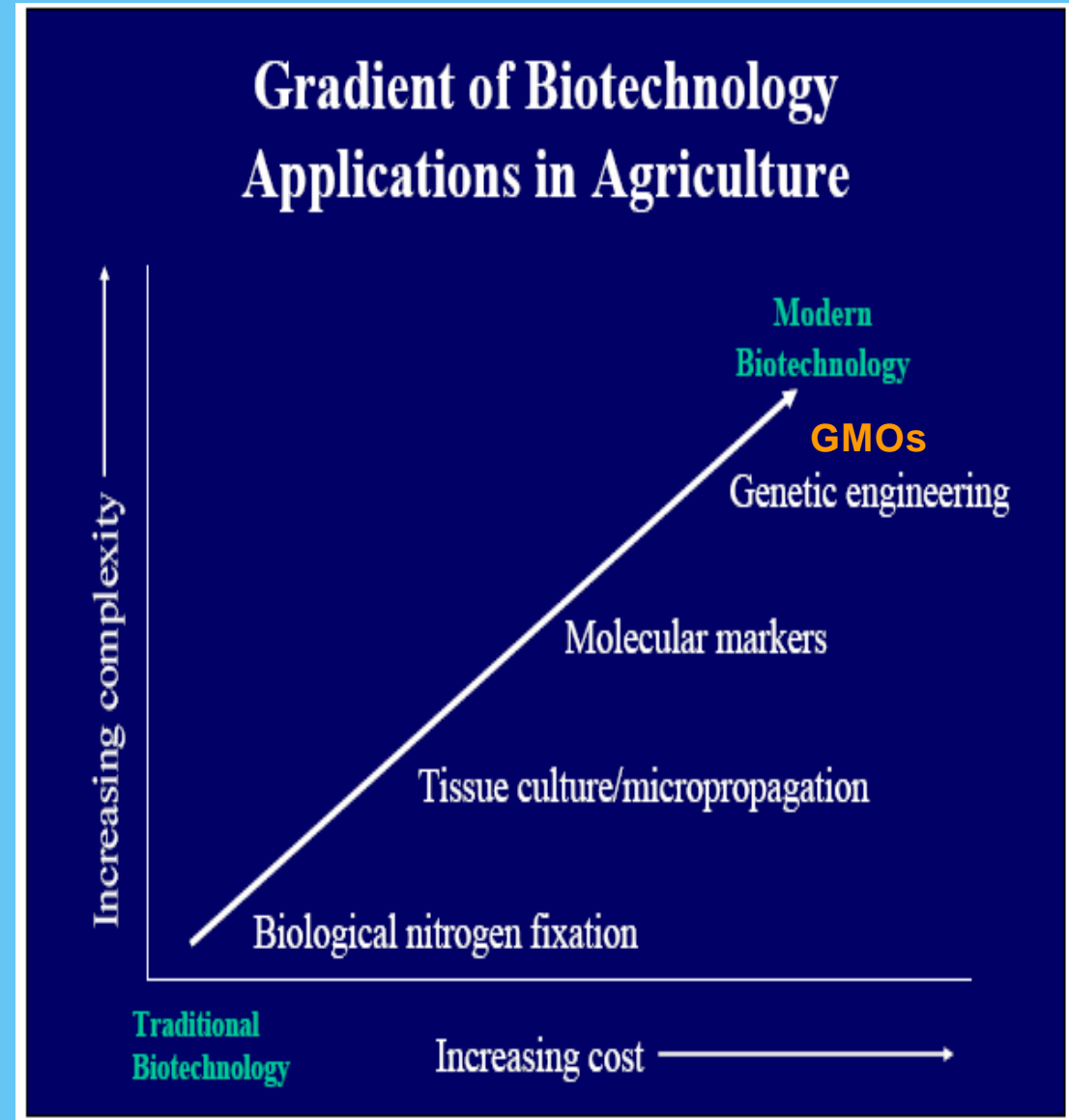
OUTLINE

- Biotechnology in food and agriculture
- Biosafety instruments
- FAO role and activities
- FAO activities in Africa



Application of Biotechnology for Food and Agriculture

- Breeding and improvement of crops, trees, livestock, and fish.
- Diagnostics, epidemiology, vaccines, food processing, harvesting, bio-remediation
- Common set of techniques, interdisciplinary, multipurpose.
- Biodiversity analysis, systematics, taxonomy





Agriculture and GMOs

New Traits

1. Insect Resistance
2. Herbicide Resistance
3. Virus Resistance
4. Longer Shelf life
5. Modified Oil
6. High Nutrition Value

Available GMOs

Corn
Carnation
Papaya
Potato
Poplar
Rice
Soybean
Squash
Sugarbeet
Tomato

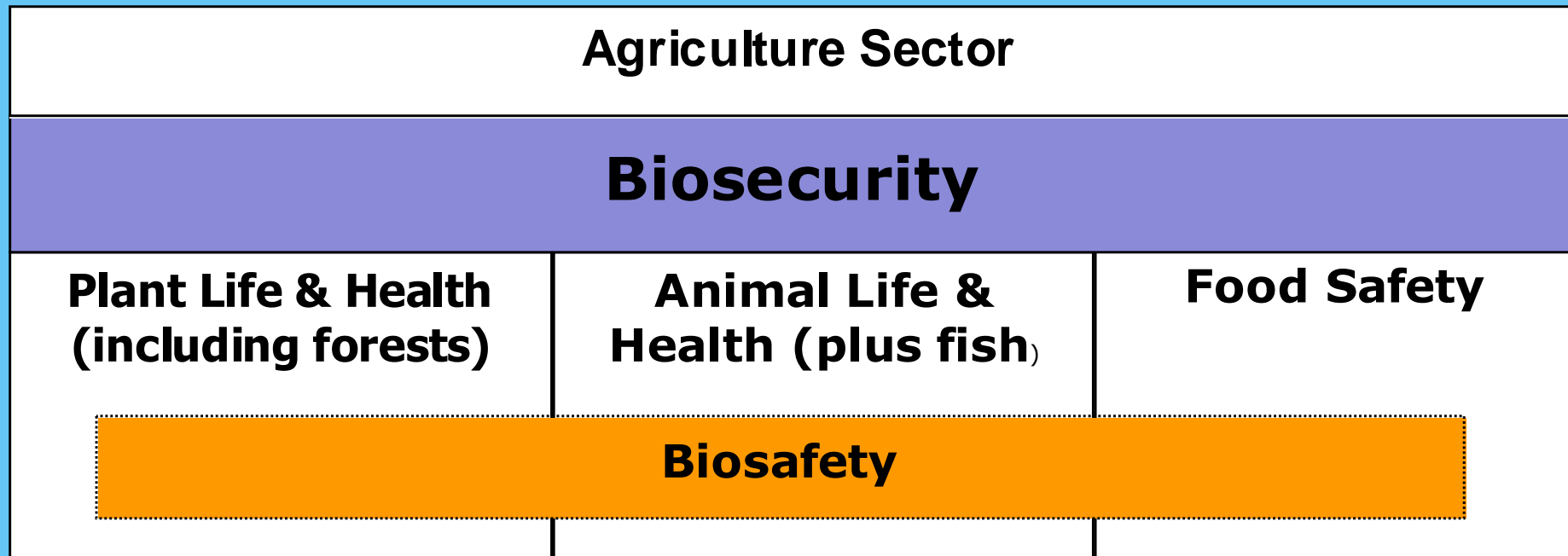
In development

Apple
Banana
Barley
Citrus
Cassava
Eucalyptus
Grapes
Olive
Pineapple
Pine
Rubber
Sweet Potato
Walnut





Biosafety Scope





International Instruments and Biosafety

Convention on Biological Diversity (CBD): requires parties to domestically regulate or manage the risks associated with the use and release of LMOs likely to have adverse environmental impacts that could affect the conservation and sustainable use of bio-diversity.

Cartagena Protocol on Biosafety (CBD): Protection of biological diversity from potential risks posed by LMOs. Applies to transboundary movement of LMOs, ensure development, handling, transport, use, transfer and release of LMOs is undertaken in a manner that prevents or reduces risks to biodiversity, taking into account any risk to human health.

International Treaty on Plant Genetic Resources for Food and Agriculture (FAO): conservation and sustainable use of PGRFA and the fair and equitable sharing of the benefits arising out of their use, in harmony with the CBD, for sustainable agriculture and food security.



International Instruments and Biosafety (cont.)

Codex Alimentarius (FAO/WHO): Develops, adopts principles of risk analysis and guidelines for food safety assessment, including for GM food products.

International Plant Protection Convention (FAO): Sets standards for risk analysis, prevention of introduction and spread of pests including GMOs that are pests. Develop and apply harmonised phytosanitary measures.

Agreement on the Application of Sanitary and Phytosanitary Measures: applies to all SPM which may directly or indirectly affect international trade. A multi-lateral framework of rules to guide the development, adoption and enforcement of SPM to minimise their negative impacts on trade.

Agreement on Technical Barriers to Trade: (WTO) No country should be prevented from taking measures necessary to ensure the quality of its exports; to protect human, animal or plant life or health, or the environment; or prevent deceptive practices. Applies to packaging, marking and labelling requirements.



Biosafety policy aspects

- Several multilateral international instruments relevant
 - to biosafety, food and agriculture.
 - No single comprehensive legally binding instrument.
 - Multi-party (country) signatories
 - Integrated through national frameworks & legislations
 - Managed by a variety of competent authorities



Biosecurity

- Strategic and integrated approach with direct relevance to the sustainability of agriculture, food safety, and the protection of the environment, including biodiversity.
- Encompasses policy and regulatory frameworks, instruments and activities that analyse and manage risks in the sectors of food safety, animal life and health, and plant life and health, including associated environmental risks.
- Covers introduction of plant pests, animal pests and diseases, and zoonoses, the introduction and release of genetically modified organisms (GMOs) and their products, and the introduction and management of invasive alien species and genotypes.



Responding to Biosafety Needs

FAO focus is on strengthening capabilities in developing countries, expanding the knowledge base and fostering effective linkages among stakeholders

Capacity Building

Policy and planning

Research organization and management

International regulatory obligations

Technology assessment and transfer

Support to global research partnership



FAO Activities in Biosafety in Africa

- Launch of Africa Seed Biotechnology Program
- On going national technical assistance projects for policy, law development, training for regulatory agencies and institution building : Benin, Communauté Économique et Monétaire de l'Afrique Centrale (CEMAC), DR Congo, Kenya, Swaziland, Tanzania, Uganda
- Regional and sub regional Hands-on FAO-ISTA training in GM seed detection
- Numerous publications (www.fao.org/biotech)
- Biotech newsletter, Electronic forum



FAO BioDeC

Biotechnologies in Developing Countries

STATUS OF RESEARCH
AND APPLICATION
OF CROP BIOTECHNOLOGIES
IN DEVELOPING COUNTRIES

Preliminary assessment



*is a data base on the status of
development, adoption and
application of biotechnologies in
developing countries*

http://www.fao.org/biotech/inventory_admin/dep/default.asp



Strengthen Country Capacity

Assistance to Countries

- National biotech policy
- National biosafety framework
- Institutional set up
- Training : Risk analysis, seed food safety, GMO detection and legal aspects.
- Public awareness

Build Regional Networks

The logo for ABNETA (Asia-Bio-Net), featuring a stylized DNA double helix on either side of the text 'ABNETA' in a rounded rectangular box.

ABNETA

A banner for REDBIO 2004, featuring a globe, a DNA helix, and a person's face. The text reads 'REDBIO 2004' and 'V Encuentro Latinoamericano y del Caribe de Biotecnología Agrícola'. The FAO logo is visible in the bottom right corner.

REDBIO 2004
V Encuentro Latinoamericano y del Caribe de Biotecnología Agrícola

A banner for ASIAN BIO-NET, featuring a collage of fresh vegetables (broccoli, tomatoes, green beans) on the left and the FAO logo on the right. The text reads 'ASIAN BIO-NET' and 'An official web site of the FAO Regional Office for Asia and the Pacific (FAO RAP) project on Capacity Building in Biosafety of GM Crops in Asia'.

ASIAN BIO-NET
An official web site of the FAO Regional Office for Asia and the Pacific (FAO RAP) project on Capacity Building in Biosafety of GM Crops in Asia

The logo for APAARI (Asia Pacific Consortium on Agricultural Biotechnology), featuring a stylized globe with a grain stalk in the center, surrounded by the letters 'A', 'P', 'A', 'A', 'R', 'I'.

APAARI *on the web*

Asia Pacific Consortium on Agricultural Biotechnology

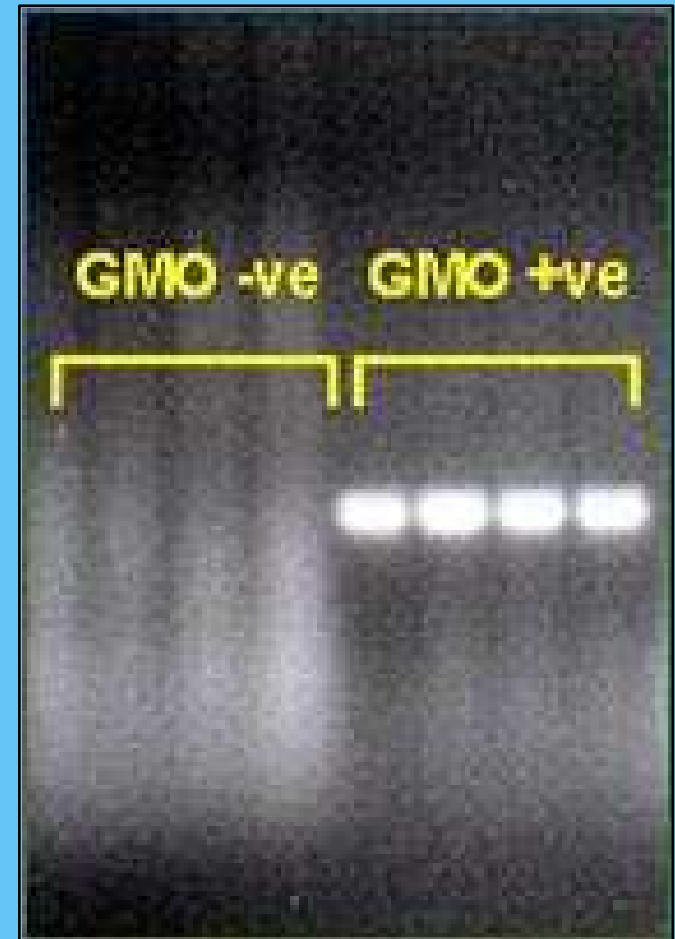
Funding: Banks, Donors, Multilaterals, UN, Trust Funds



Build Technical Skills

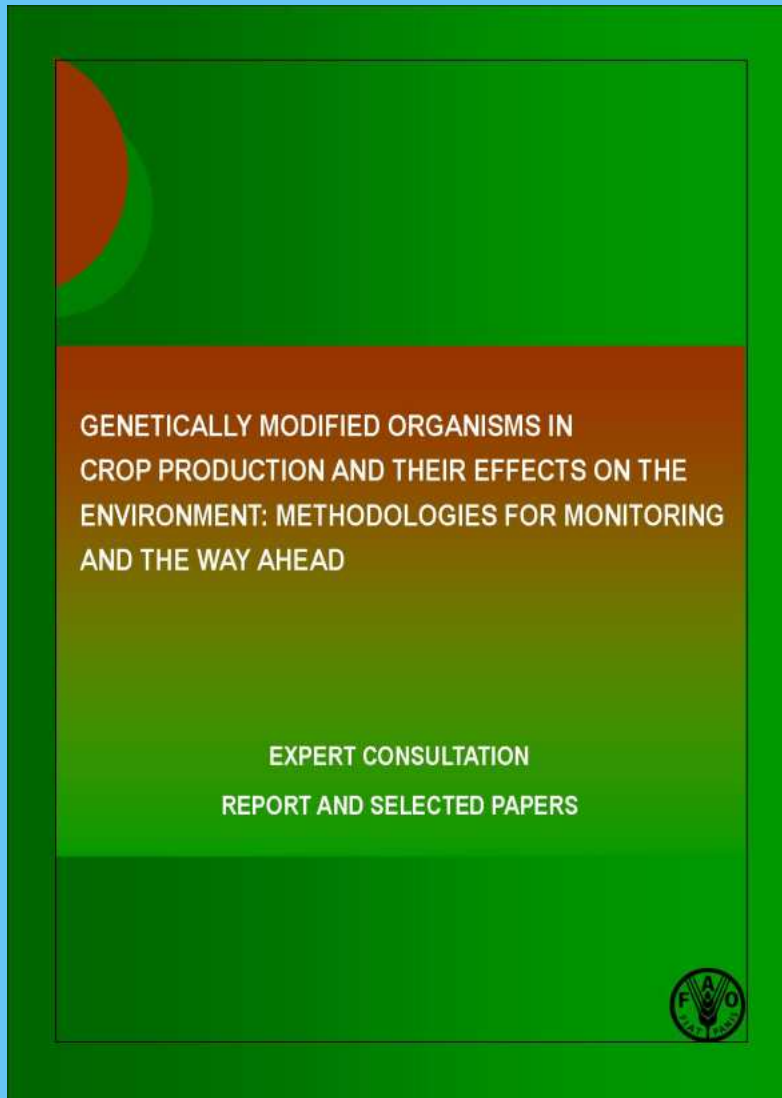
FAO - ISTA Training for GM Seed Detection (2003 – 2005)

- Pretoria- East and Southern Africa region
- Cairo - Near East and North Africa region
- Buenos Aires - Latin America region
- Bangkok – Asia Pacific region
- Lubliana - Central Eastern Europe
- Beijing – Greater Mekong subregion
- Kingston - Caribbean subregion
- Cotonou : West Africa region (upcoming)





Multidisciplinary Expert Consultations on Biosafety (2003-2006)



- Environmental effect of GMOs.
- Monitoring methodologies and
- Strategies for GMOs in crop production.
- Organic Seeds and Coexistence.
- Biosafety in the framework of Biosecurity.



Africa Seed Biotechnology Program

- Approved by Africa Union Summit 2007 with technical assistance from FAO
- Goal: To increase food security in Africa through the establishment of effective seed systems within the framework the international arrangements and in partnership with relevant organizations
- Biosafety capacity building and institutional strength are integral components of ASBP



Way Forward

- Advance in S & T as crucial to meet global challenges for food production and poverty alleviation. Scientists have a tremendous responsibility.
- Enabling policy environment and political support to promote growth and development
- Regulatory frameworks to ensure quality products and protecting natural resource base.
- Integrated approach and better management of agro-biodiversity for a sustainable economic growth
- Public awareness and dialogue for understanding for better understanding the benefit of biotechnology together and with sound biosafety rules and regulations.



THANK YOU



GMOs: Potential Risks and Concerns

Health: Safety of food for human and livestock, new allergens, toxins

Environment: impact on biodiversity, gene-flow, biosafety, changes in agricultural inputs

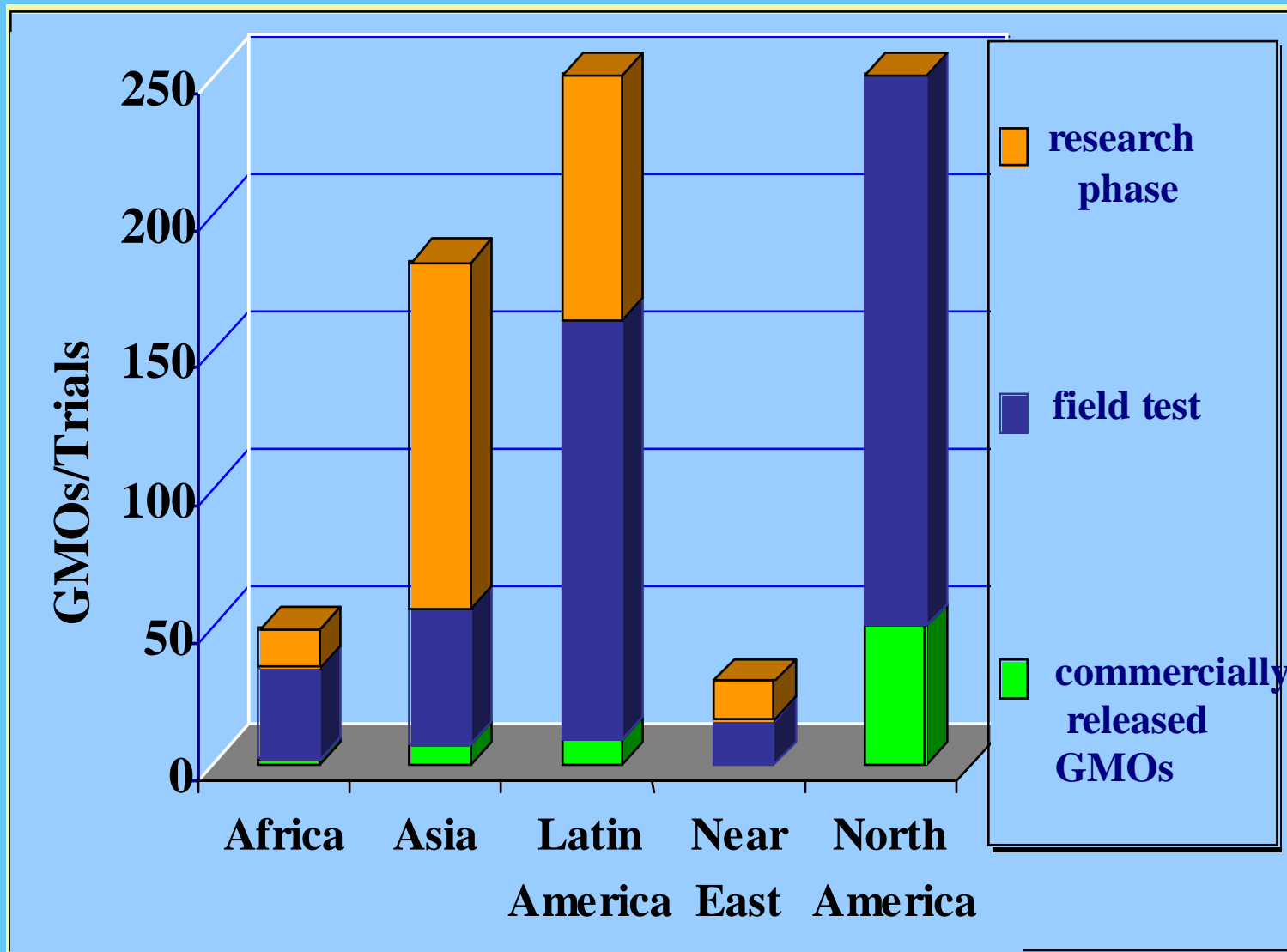
Socio-economic: Dominance of a few companies, access to proprietary technologies; impact on seed sector and on resource poor farmers

Ethical and religious: equity, interference with nature, public trust, cultural context



Low diffusion to ag-biotech cannot be substituted by more biosafety

Slow Diffusion in Most Developing Countries



DEMANDS

- Investment
- Capacity
- Infrastructure
- Institutions
- Markets



Elements for Integration

Comprehensive Approach to Biotechnology Development

