



**Agricultural
Biotechnology
Innovation and
Market Access**

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thrive

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Big trends are at work in the world.

Centers of economic activity are shifting.

Markets are dynamic and increasingly interdependent.

Supply chains are being put to new tests.

Consumers expect more from the foods they eat.

Food security is important to everyone, everywhere.

And so is Cargill.

Investing to serve new markets and economic growth.

Managing risk and uncertainty to deliver reliability.

Developing sustainable solutions from farm to fork.

Pursuing innovation that meets nutritional needs.

Rising to the challenge of safe, nutritious and affordable food for all.

Agricultural Supply Chains are Built for Commodities

BULK HANDLING SYSTEM

- Price and quality are the key driver for customers of agricultural commodities.
- Quality is managed through recognized grain standards and these standards enable fungibility and movement of undifferentiated products from the farm forward
- Efficiencies and cost management provides competitive advantage, both domestically and internationally



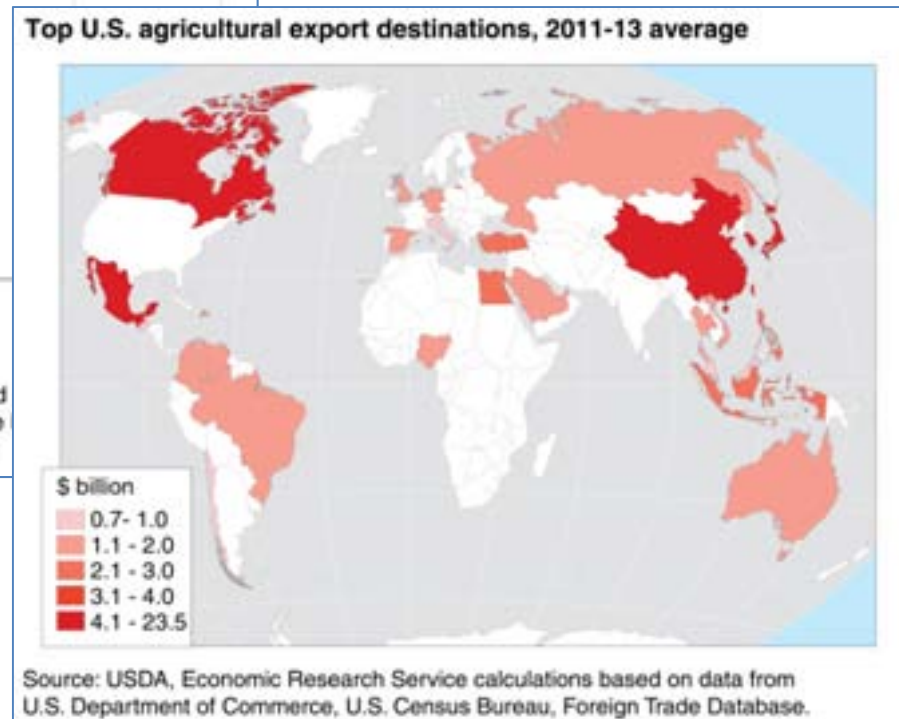
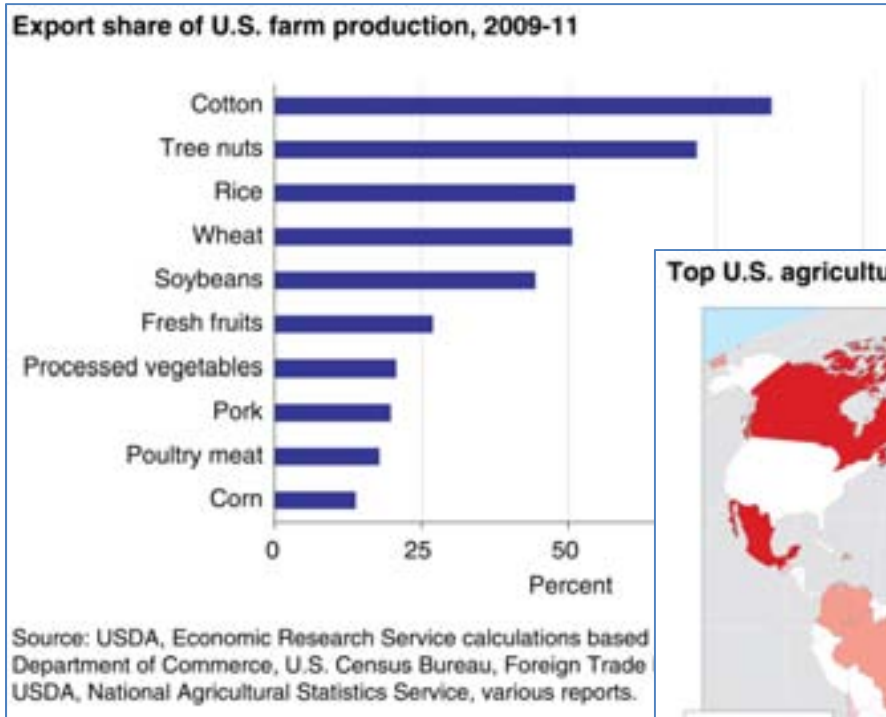
Fungibility

- *Farmers have widely embraced growing a generic product, with clear specifications.*
- *For those who originate and handle grain, fungibility has been a key attribute to enable efficient supply chains*
- *For both domestic and international customers, a commodity approach has enabled access to a safe, low cost and predictable food and feed supply chains*

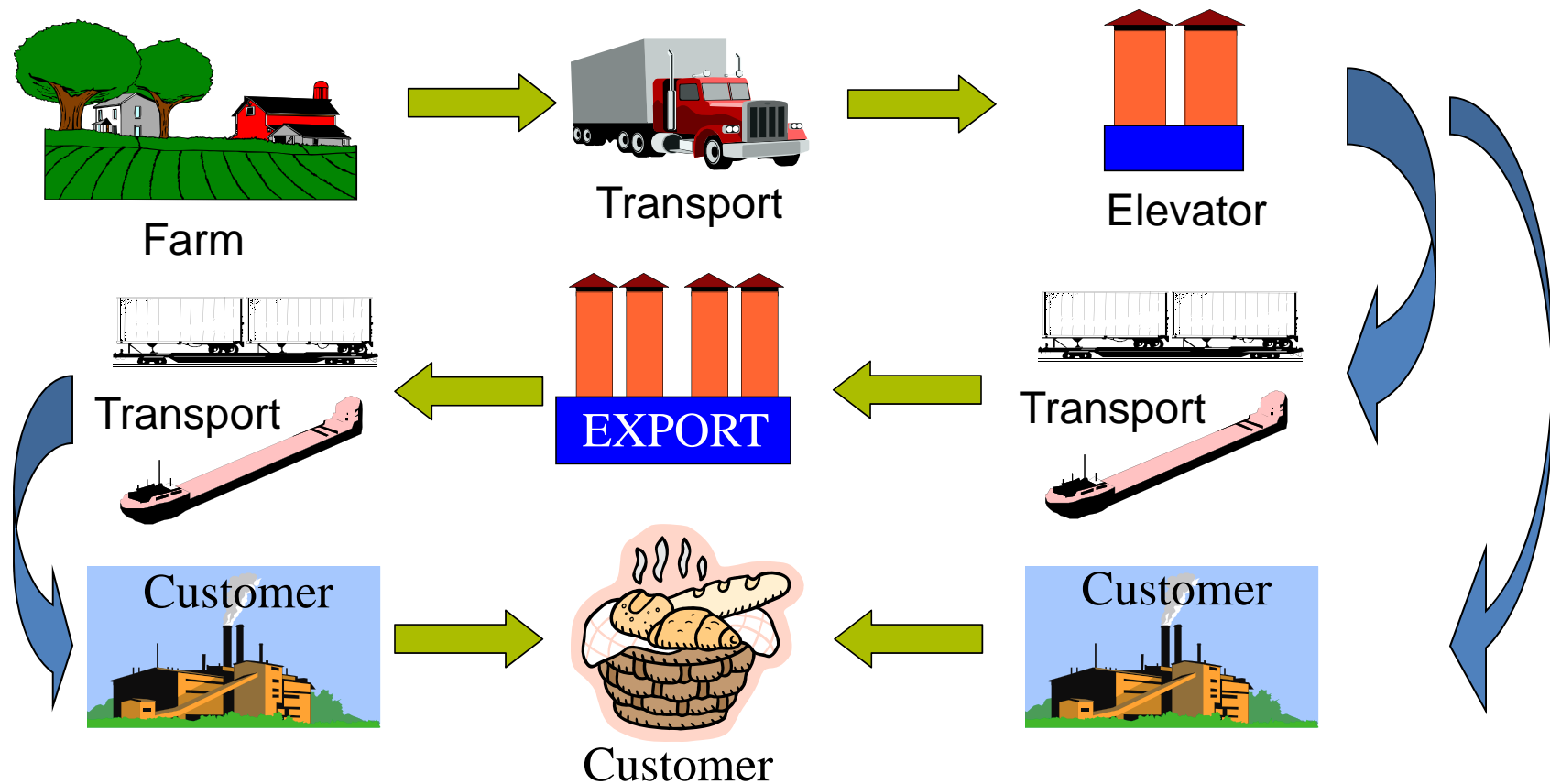


Innovation needs to coexist in parallel to or within the agricultural commodity system to enable value creation and US agricultural competitiveness

Export markets are critical to U.S. agriculture



Farm to Fork is a Complex Web






Truck Staging

Grain Accumulation





Transportation



1 Panamax (50K tons) = 38 barges = 2200 semi trailers
= 2M bushels = 330 trillion soybeans

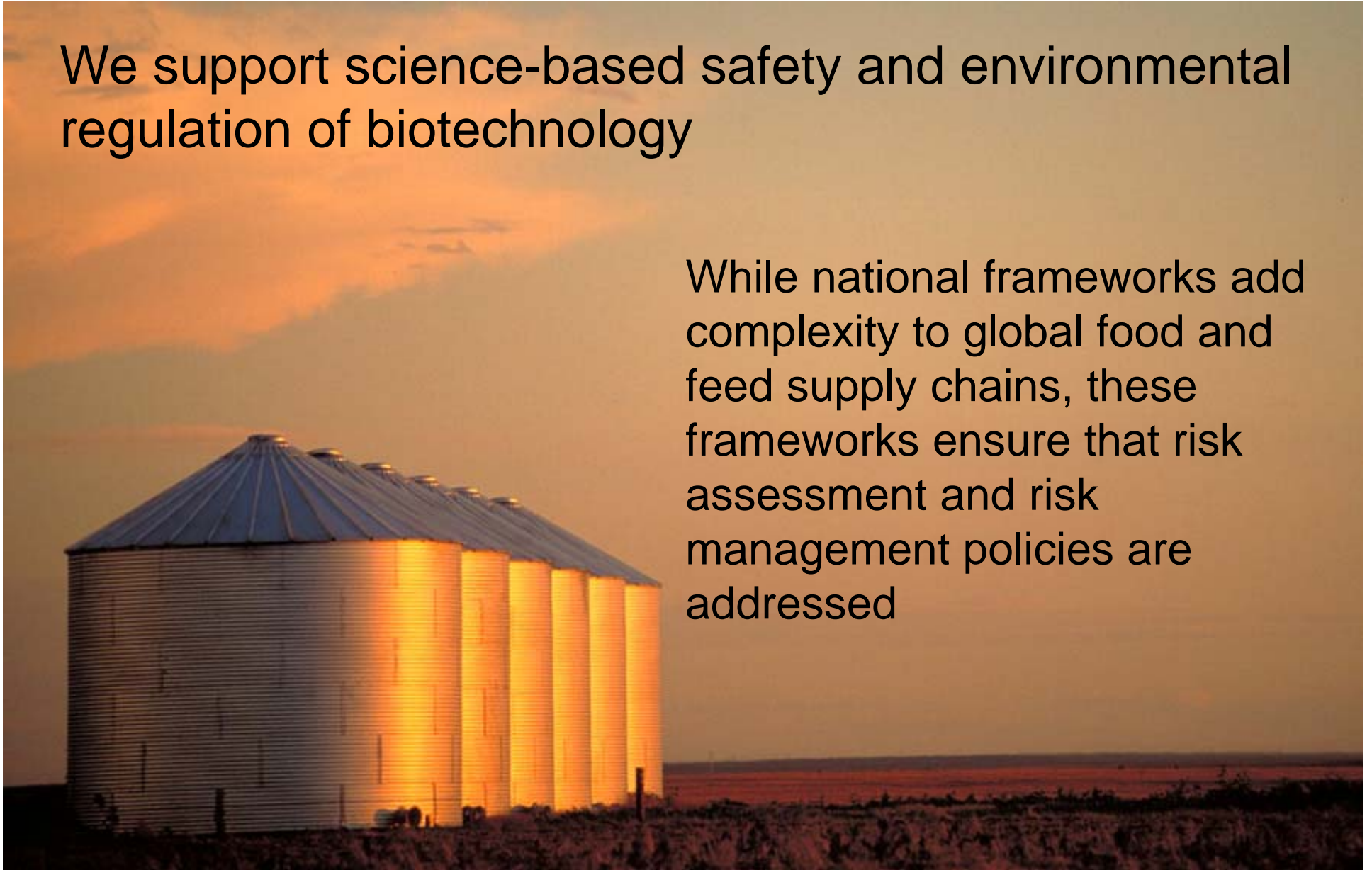
Export Location

Integration of Agricultural Biotechnology

Role of Regulation

We support science-based safety and environmental regulation of biotechnology

While national frameworks add complexity to global food and feed supply chains, these frameworks ensure that risk assessment and risk management policies are addressed



Asynchronous approvals have complicated agricultural biotechnology integration into global food and feed supply chains

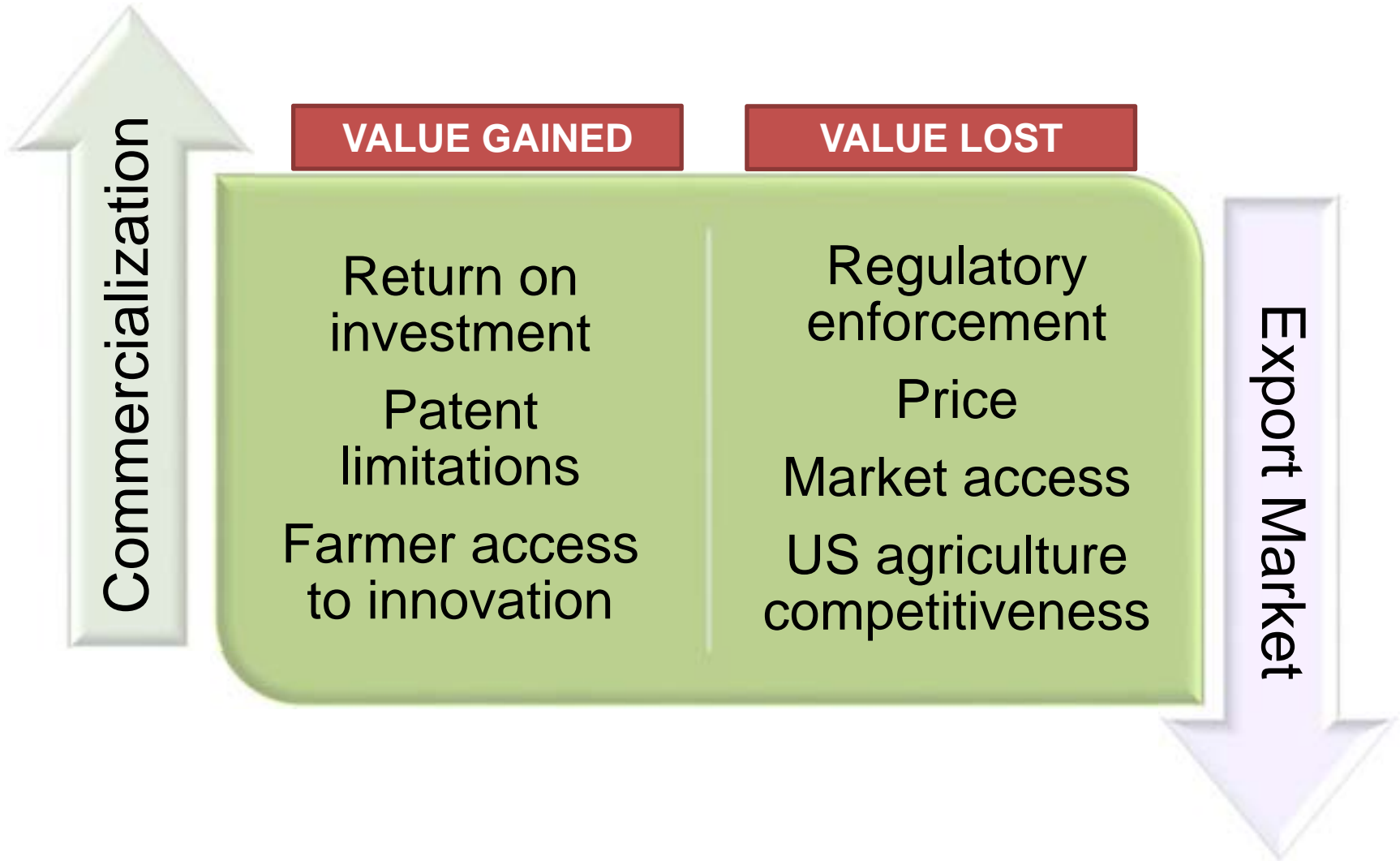
- Most risk assessment frameworks are similar but the timing of approvals can vary by years
- Asynchronous approvals are incompatible with trade
- Once commercialized, supply chains can not effectively manage the exclusion of specific traits approved in some markets but not others
- Commodities are not fungible when the supply contains a product not approved for use in a destination market

Sectors have seen significant changes in regulations and testing capabilities

- Increased focus and enforcement
- Greater awareness of unapproved events
- More and better testing



Impact of Commercialization Decisions



Commercialization strategies have become more aggressive and risky in some cases

- Strong desire to commercialize traits in approved markets
- Commercialization strategies vary by commodity
- Soybean value chain has remained steadfast in discouraging traits without key markets
- Corn sector has tried with limited success, to enable coexistence via grain channeling



Asynchronous Approvals and Key Markets

Lessons Learned

- In general, there is **zero tolerance** for unapproved events (unless LLP policies apply)
- A small amount of product can negative affect a large volume of product
- Grain channeling programs should be judged based on their outcomes, not their plans
- Neither Identity-preservation (IdP) nor grain channeling can manage unapproved events to zero
- Testing is not a solution
- Expect a low level presence (LLP) of GM material in all commodity shipments originating in countries with domestic GMO production

The Economics of Commercialization

TRAIT VALUE IS DIMINISHED BY MARKET LOSSES

- Solutions that account for the full costs of commercialization
- Models for sharing risks and reward
- Better government policy



Going Forward

Find solution to asynchronous approvals

- Effected parties in importing and exporting countries need to recognize and address asynchronous approvals
- Champion the Global LLP Initiative to help governments move off of zero tolerance policies for “safety-approved” GMOs

“There is an immediate need to address the risk to trade arising from LLP occurrences, a risk that impacts importing and exporting countries alike, and global food security in general.” -
International Statement on LLP

Going Forward

Commercialization Standards

Until International Challenges are resolved:

- Enable *Innovation and Market Access*
 - Recognize and address full costs of commercialization
 - Demand responsible commercialization
- Recognize the interdependence of supply chains in the global food systems
 - Limit the impacts of asynchronous approvals

Innovation AND Market Access release the full value of Agricultural Biotechnology to the global food system

