Industrial Markets meet the “World of Agriculture”

By Akin Ozkutan, Cargill

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Evolution of biobased products

Biobased products are not new.

- Vegetable oils, starch derivatives, proteins traditional industrial ingredients
- Development of petrochemicals displaced biobased products
- Starch & vegetable oil traditionally compete for space in Industrial markets; Paper, Building material, Paints & Coatings are early implementers.
- Biotechnology has enabled use of biobased feedstock for fermentation

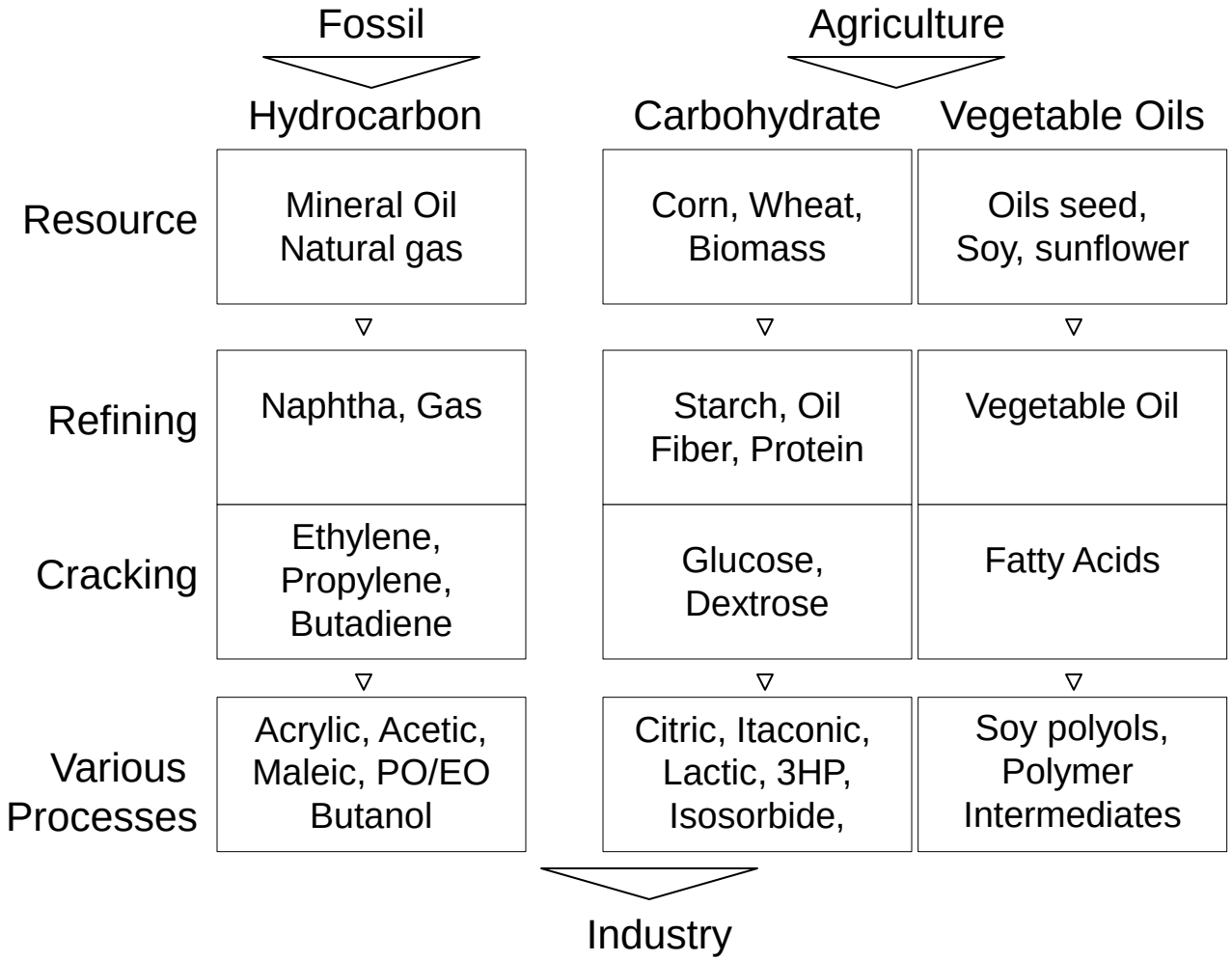
Drivers for the Bio-Industrial revolution

Examples of historically used arguments to support biobased products:

- A better consumer experience; hard and soft factors
- Continuity; fossil based products are finite resources
- Economical advantages; cost reduction and diversification
- More dependable, renewable and lower-cost feedstock's
- More environmentally friendly products and processes; smaller environmental footprint


Cargill
Industrial Bio-Products
Fostering the
Bio-Industrial
Revolution

The Biorefinery process: Farm to Industry



- Annually Renewable
- Environment
- Capital intensity
- Less energy
- Cost saving and diversification
- New products
- New functionality

Processes are still valid, however some assumptions on feedstock have changed.
Vast experience around time-to-cash created a new filter

Factors influencing Bio Feedstock

- **Supply : Grain/Root, Oilseeds**
  - Global trading Patterns
  - Local trading habits & policies
  - Weather events
  - Regulatory Challenges
  - Improved farming practices
  - Process capacity utilisation
  - Forex fluctuations
  - Climate

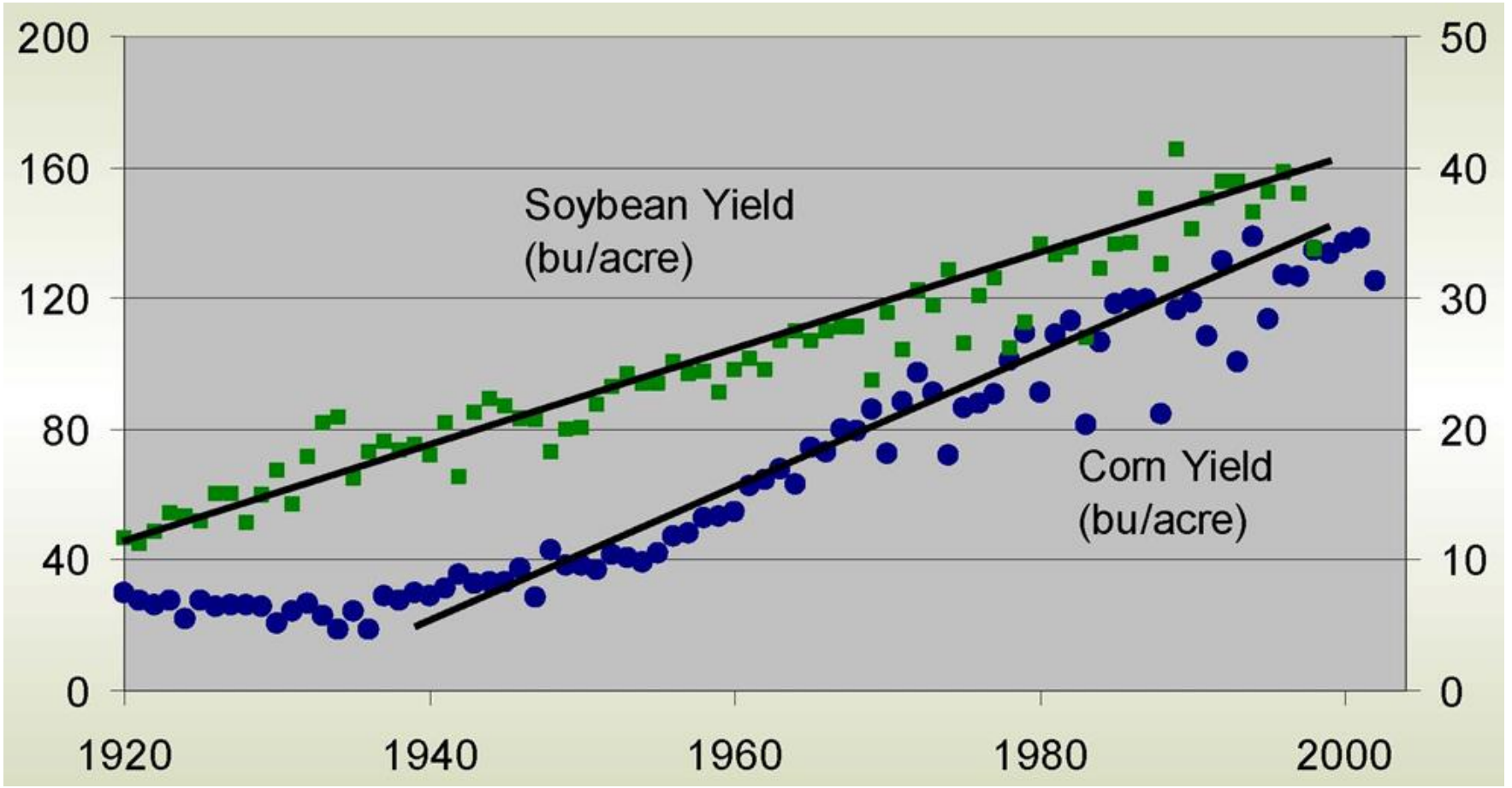
- **Demand : Elasticity of Substitutes**
  - Rationing behavior per feedstock grade
  - Economical Growth/Contraction
  - Population Growth
  - Fund activity
  - Geographical demand shifts
  - Stock/Usage ratio
  - Feed Conversion Rates
  - Develop ways to use non-grain biomass for fuel
  - Stimulated Bio-fuel demand

Current World Supply of Selected Commodities

Commodity	Quantity (in MT/year)
Fats/Oils	~ 166 million
Sugar	~ 160 million
Crude Petroleum	~ 4,000 million
Grain/Rice/Oilseeds	~ 2,600 million

Crude remains the largest traded commodity/resource

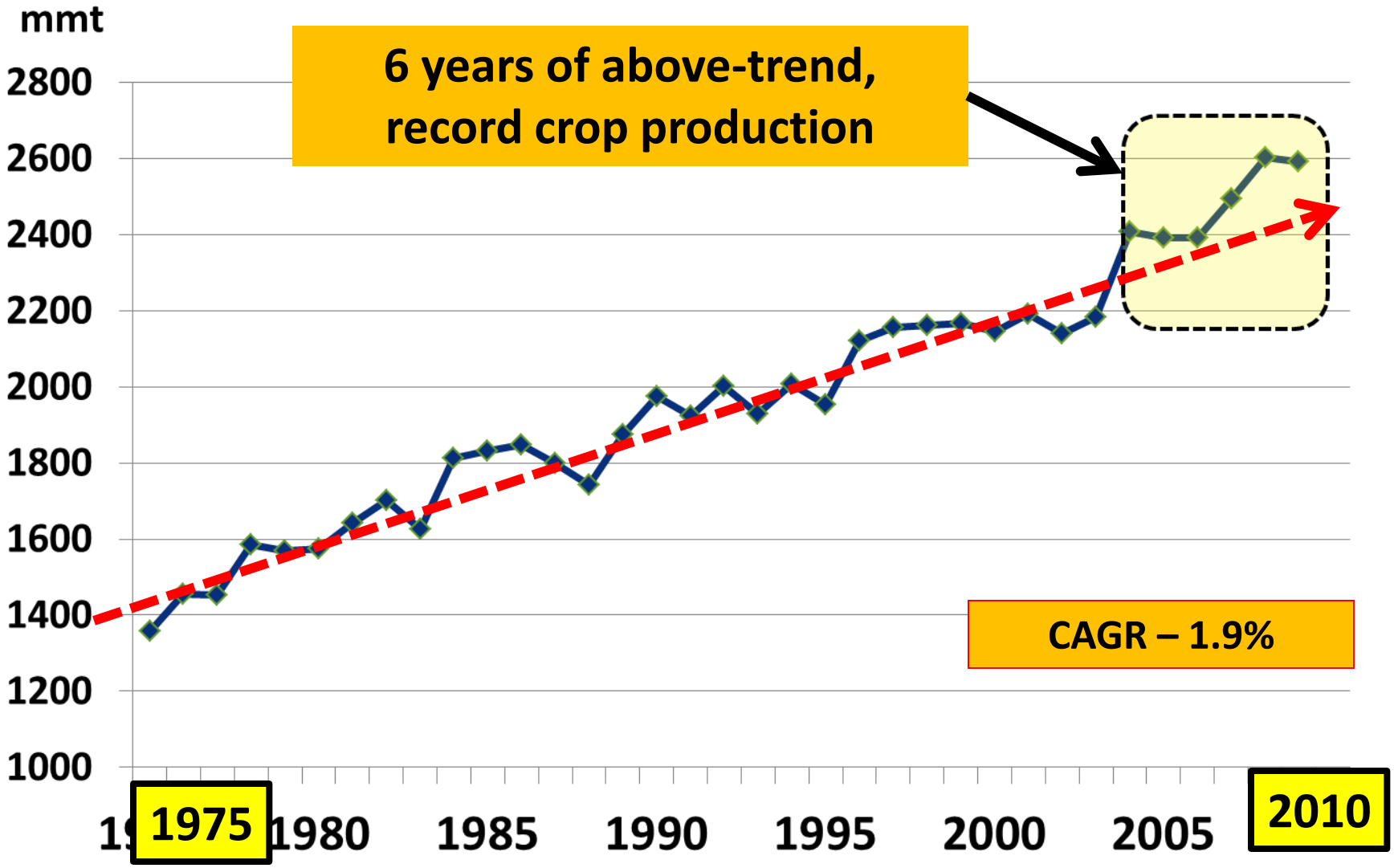
Crop Yields



Source: Internal Cargill

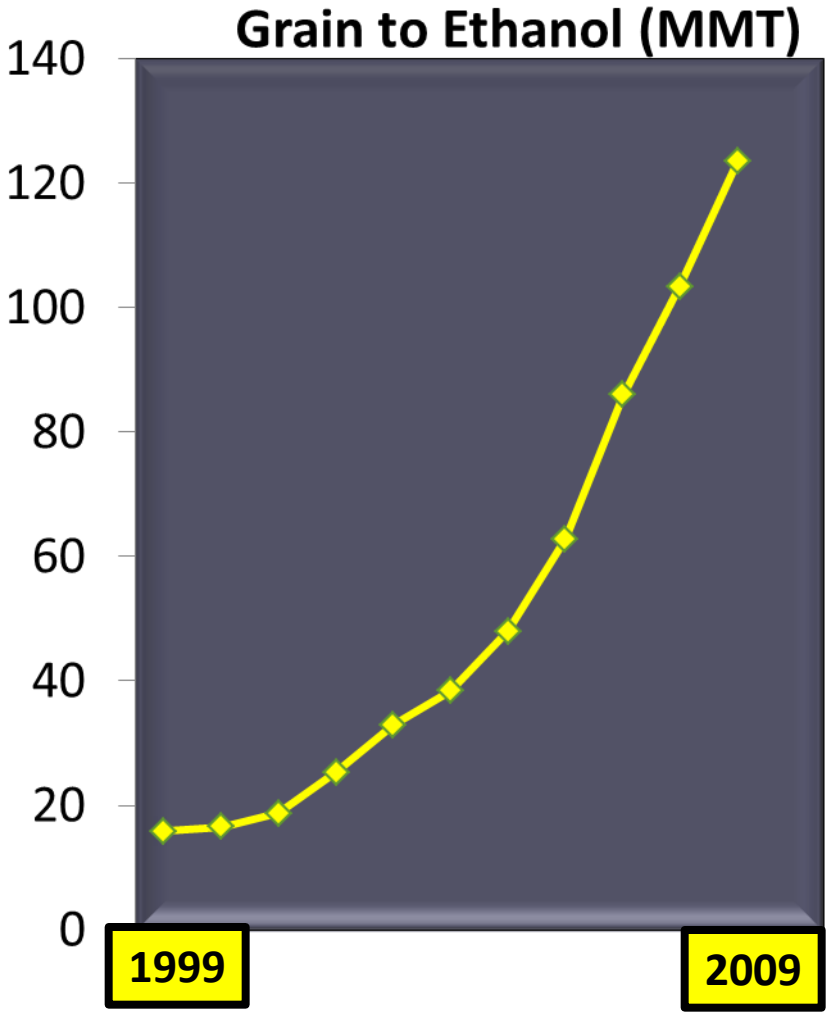
Crop yields have continually improved to match the increased demand for agricultural products

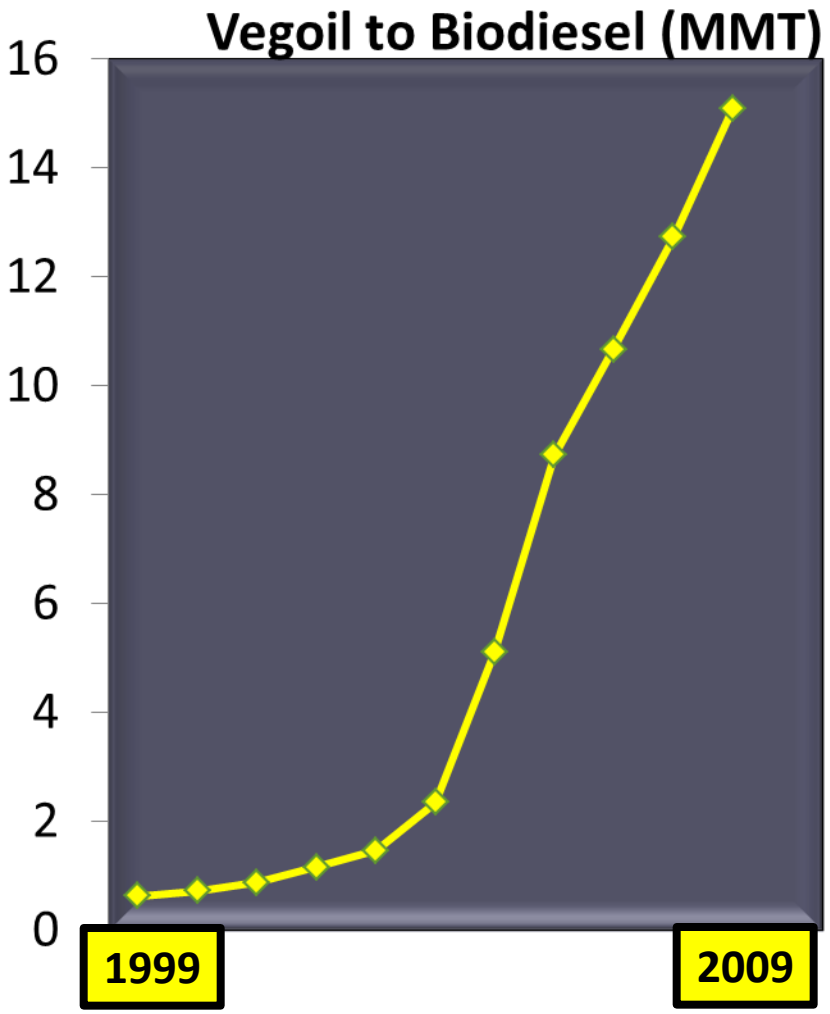
Global Production of Grain, Rice, and Major Oilseeds



Source: USDA FAS

Bio-fuel impact on Grain & Oilseed Use

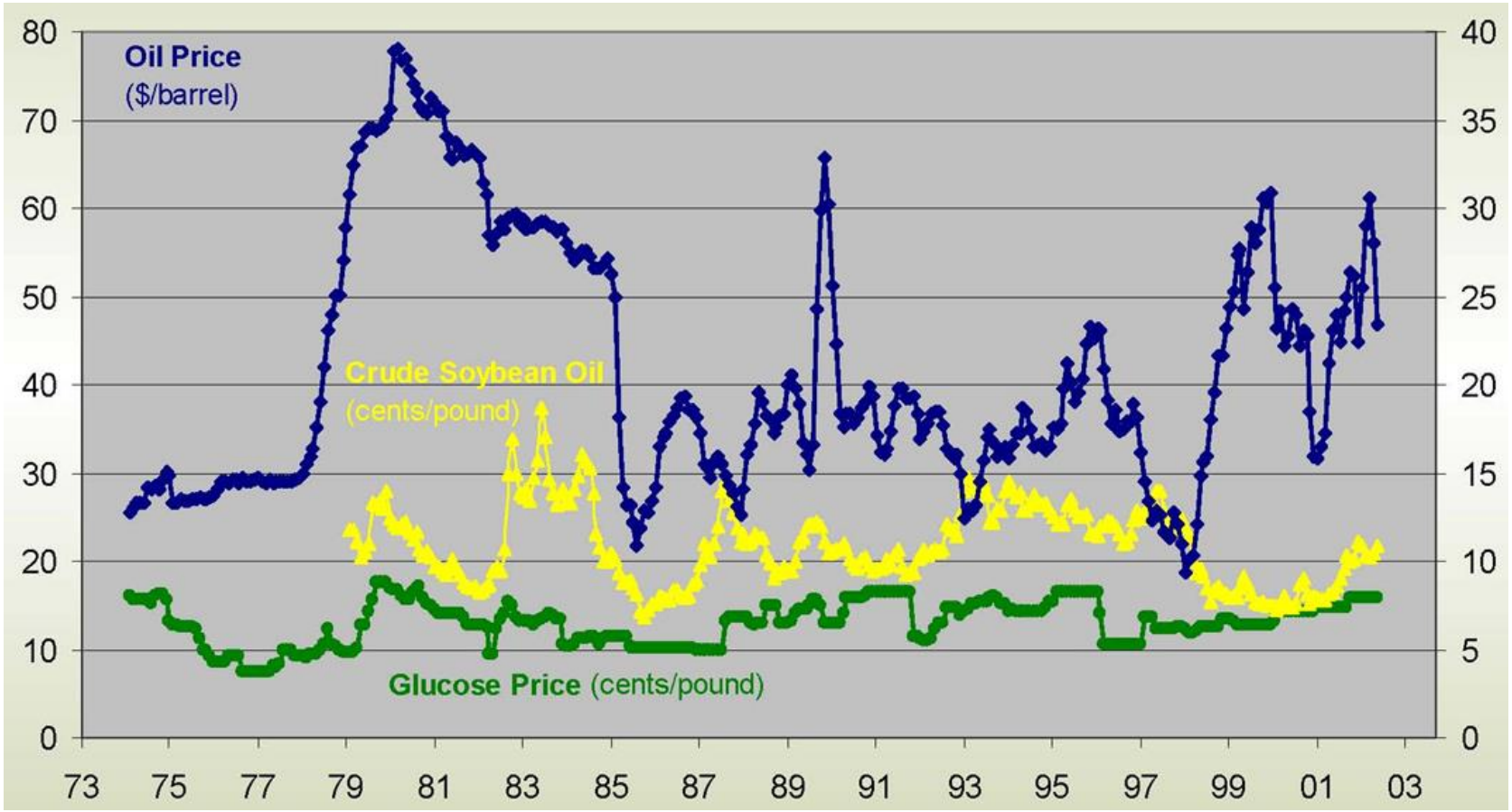




Bio-fuels related grain use has seen a steep increase in last 10 years

Source: Cargill

Price comparison: Crude, Glucose, Soybean Oil



Source: Internal Cargill

Historically, biobased products provided cost opportunities versus a volatile crude price

Global Trading Patterns

- **Supply**
  - Maize (US) - Wheat (Europe) - Barley (All)
- **Trading**
  - Wheat Big 8
  - Corn Big 5
- **Regulatory and Weather**
  - Sugar beet and cane
  - Tapioca
  - Potato

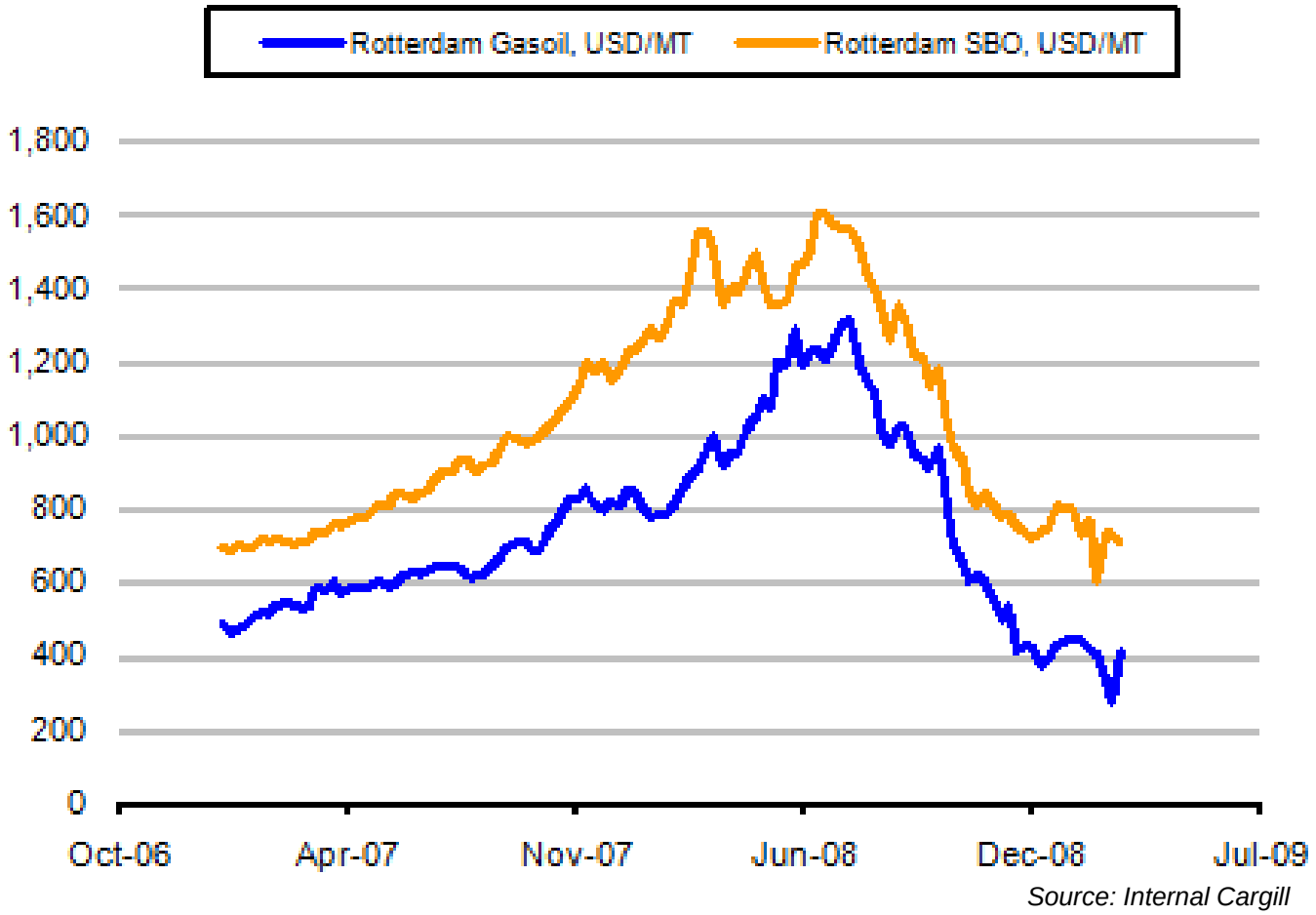
3 Large trading complex evolutions largely determine commercial pure feedstock cost

CBOT-Matif Wheat Price 2000-2009 vs Stock/Use ration

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Stock/Usage	31%	26%	25%	32%	31%	28%	24%	30%	30%+

Wheat Stock/Use ratio remains a very strong fundamental indicator for wheat pricing

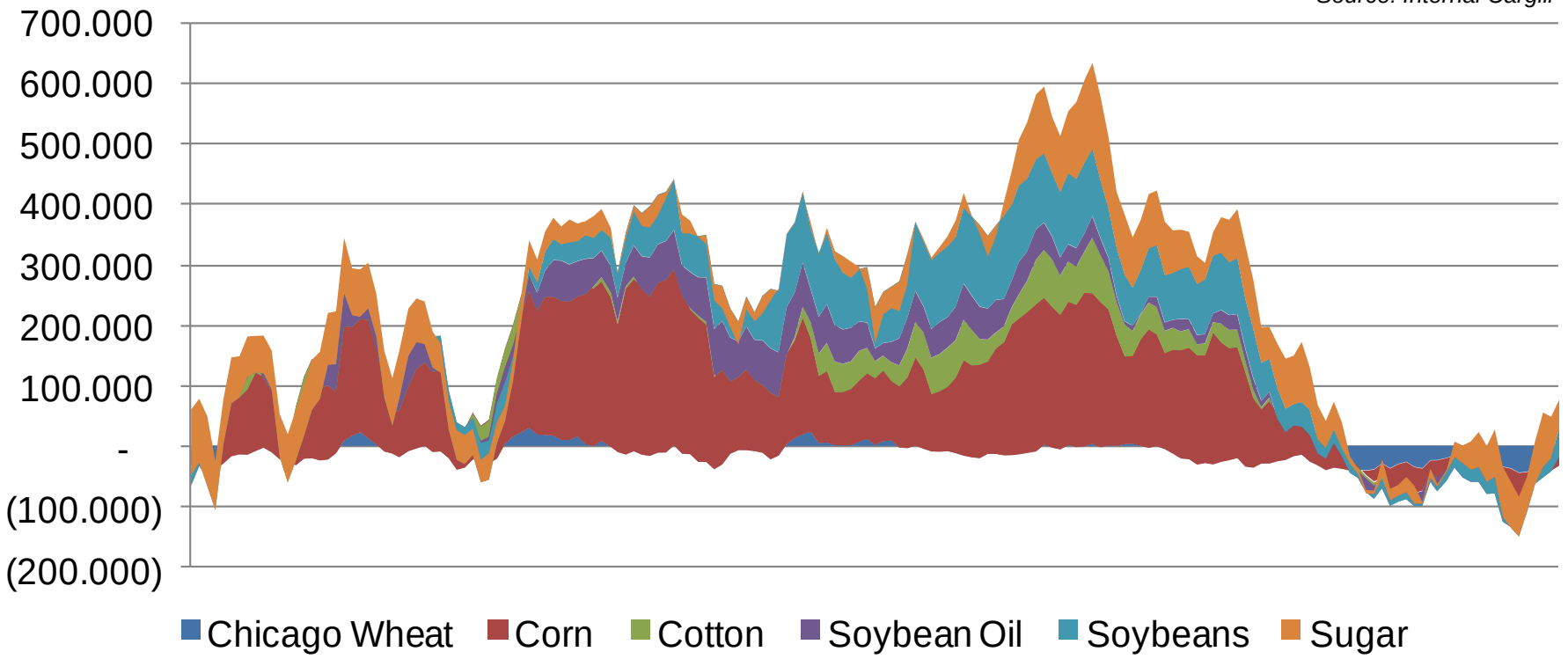
Price Comparison: Gasoil vs Soybean Oil



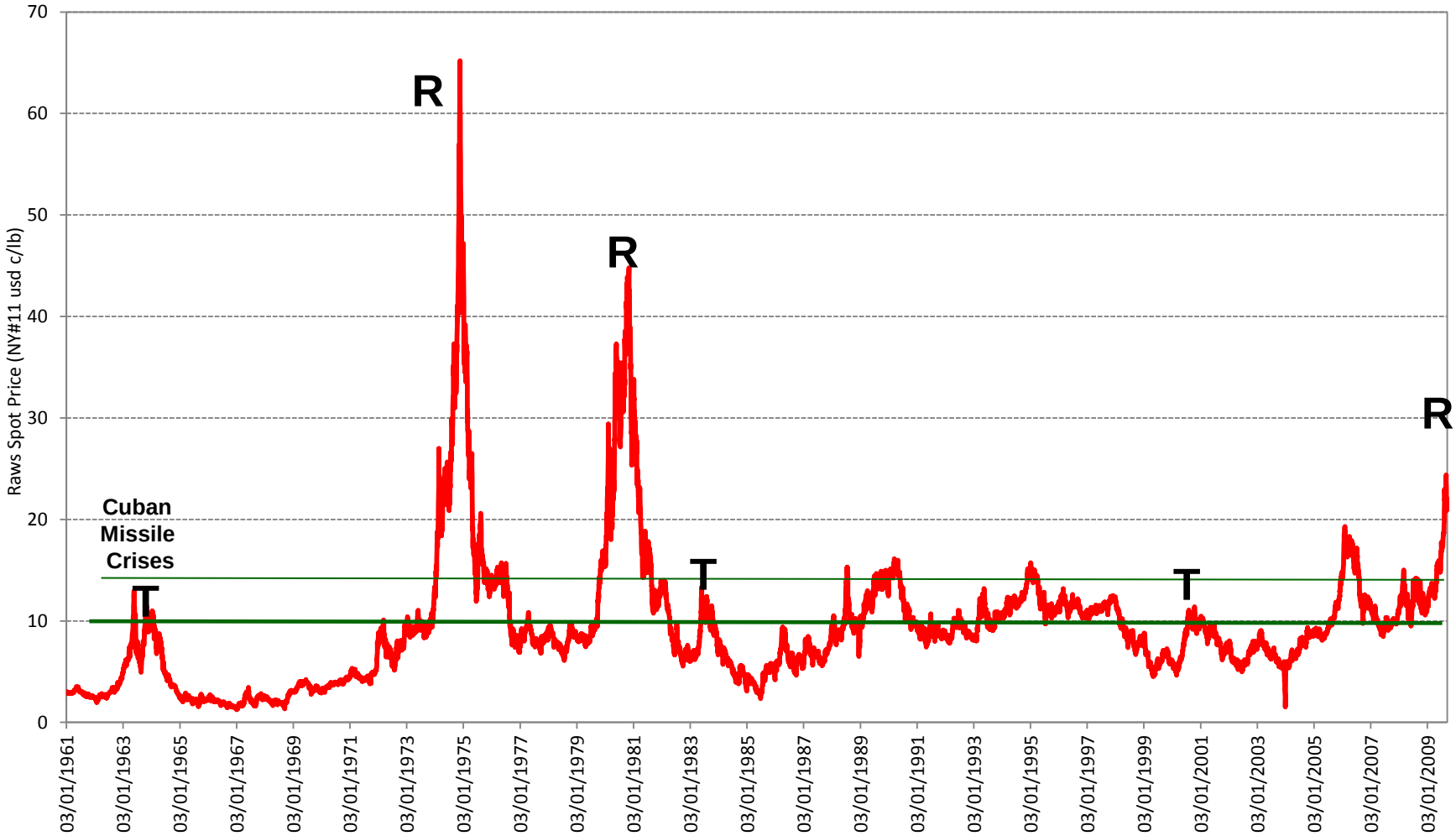
Source: Internal Cargill

Fund Activity in Commodities

Source: Internal Cargill

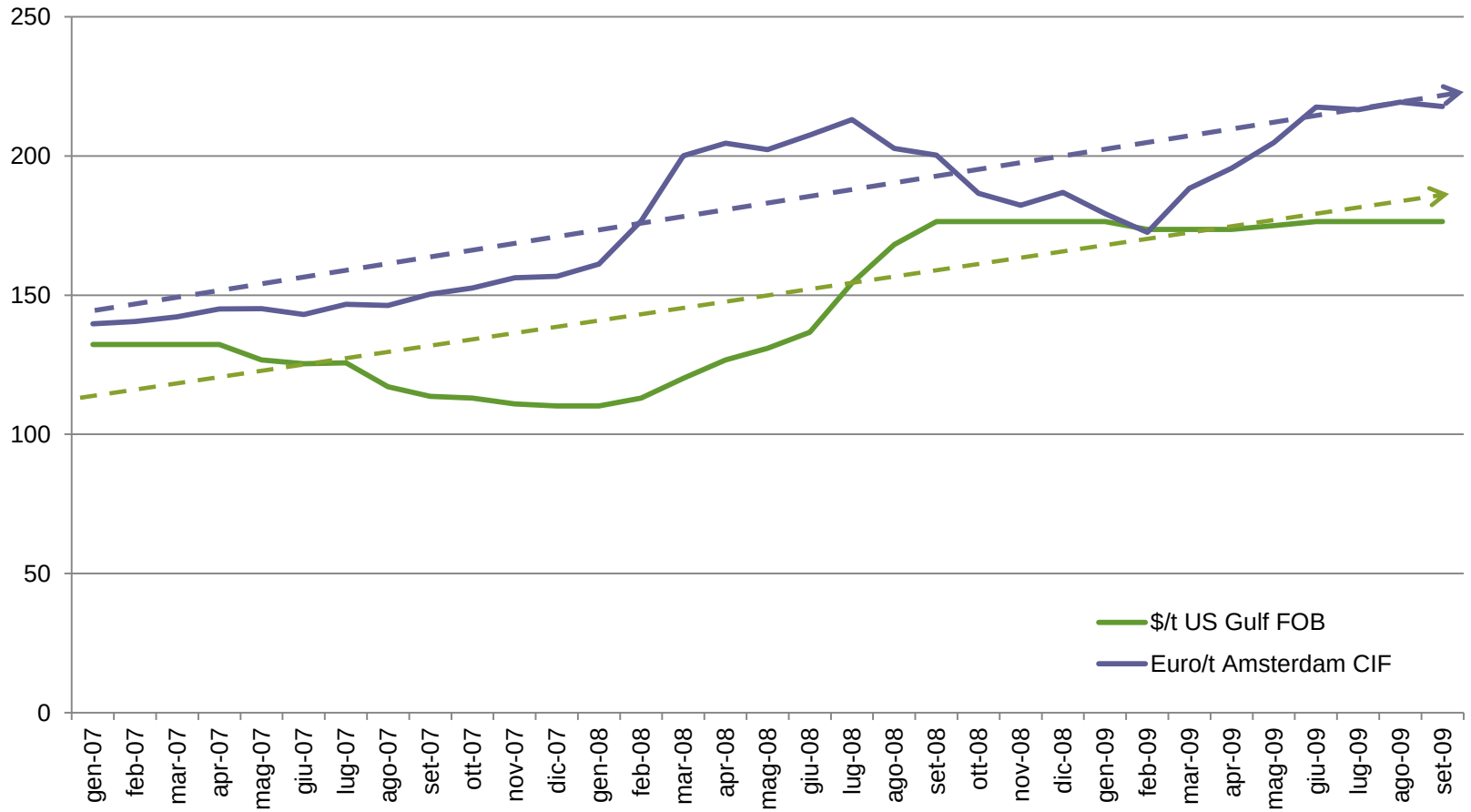


Sugar Price Evolution



Sugar price rally requires 3 factors : Tightening S&D, Economic Rebound (U), Overall Commodity price drive

Molasses Price Evolution



Significant production dismantled in Europe has influence Molasses trade flows, coupled by the dramatic production dip in India

Feed Conversion Ratios - Effect Land Use

Animal	Feed Conversion Ratio (Approx.)
Cattle	8 : 1
Hogs	4 : 1
Poultry	2.5 : 1
Fish	1 : 1

50pct of Global grain and oilseed demand is fed to animals. Changes in animal protein consumption have an impact on grain markets

Thank you for your attention

Akin_Ozkutan@cargill.com

Industrial Markets meet the "World of Agriculture"

The new realm

Future biobased product initiatives can have one or some of below elements underneath their success :

- Novel catalysts, enzymes and process technologies for improved yields and selectivity
- Deep insights and understanding of agriculture-based ingredients and their physical and molecular chemistry (Food/Fuel)
- A purpose fit relationship between the players involved in delivering from farm to consumer

Initiatives solely depending on a consistent low feedstock price will be more vulnerable in the new environment.

EXPECT INNOVATION

DESIGN

TECHNOLOGY

SUSTAINABILITY

ErgoStep™ Backing

with

BiOH™

A Cargill Innovation

800.248.2878 tandus.com

MONTEREY C&A CROSSLEY

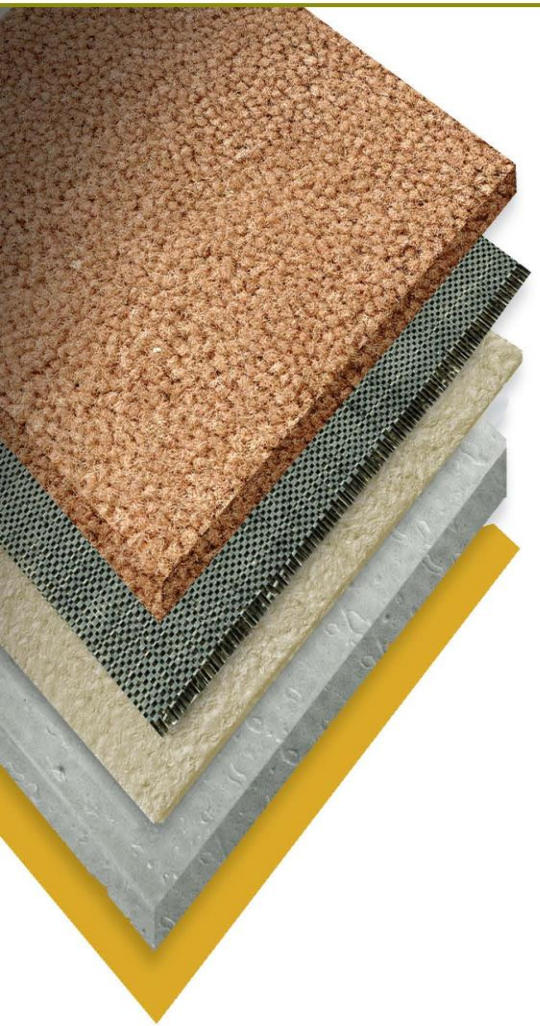
For more than 40 years, Tandus has been examining ways to be a better corporate citizen and environmental steward. While we are proud of our many significant, real accomplishments, and know that we have made a positive and lasting difference in the world, **we understand that sustainability is a journey, not a destination**. We realize there is much more to do and are committed to following and finding new roads to reducing our environmental footprint.

As a result, Tandus is the first carpet company to partner with Cargill to use a biobased polyol cushion. Developed by Cargill, BiOH™ production uses ingredients from soybean oil,* which results in 36% less global warming emissions and uses 61% less non-renewable energy than traditional polyols[1]. At Tandus, our goal is nothing less than unwavering, environmental accountability. Our culture is about making a difference, and our environmental commitment is to LEAVE NO TRACE™, becoming givers to, rather than takers from, the Earth.

*Though BiOH™ Polyols are made from soybean oil, they do not have a significant impact on global food supply due to the small scale of the polyol market relative to total vegetable oil supply.

[1]Results from a preliminary life cycle analysis by Five Winds International.

ErgoStep™ Backing



Face Yarn

Primary Backing

Pre-coat

ErgoStep™ Backing with BiOH polyols

Broadloom

Size
12 foot/3.6 m
(width minimum)

Installation
Direct glue

Warranty
10 years

Primary Backing

Features Woven Polypropylene
Function Low static propensity
Low moisture absorbency
Provides flexible strength
Benefits Durability

Pre-coat

Features Polymeric Binder
Function Maintains excellent tuft bind for life of carpet
Maintains flexibility over a wide range of temperatures and site conditions
Creates a polymeric bond between the primary and attached backing for a unified composite material
Benefits Withstands heavy foot traffic
Facilitates seaming and pattern match

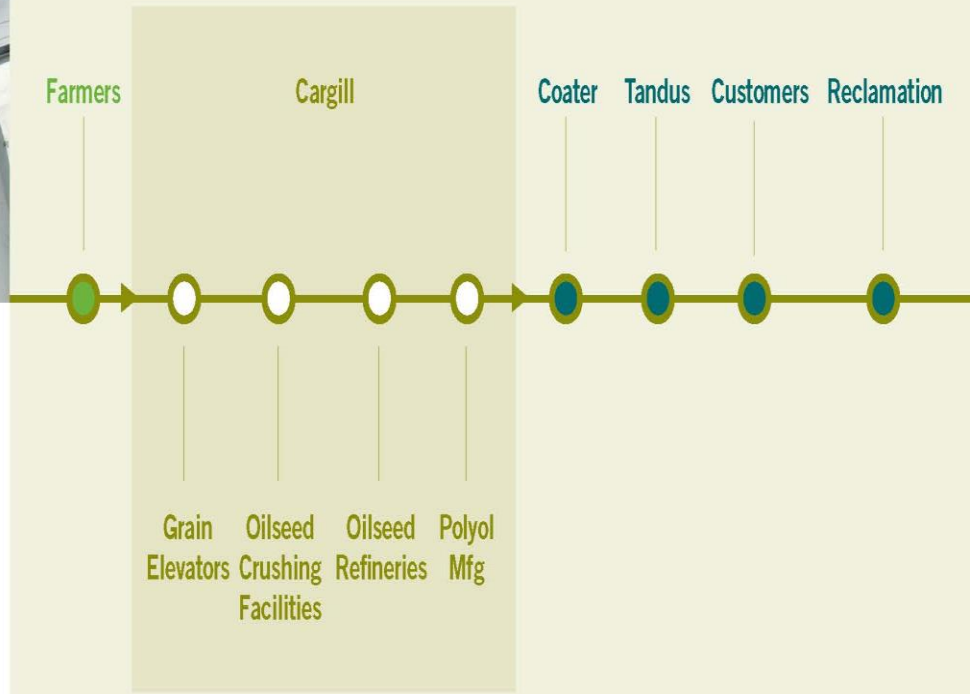
ErgoStep™ Backing

Features High Density Polyurethane Cushion with BiOH polyols
Function Cushion comfort
Benefits Adds comfort
Reduces crushing
Extends carpet life cycle
Complies with CRI Green Label Plus Standard
Felt 100% PC recycled-content Polyester

ErgoStep™ Backing is:	oz/yd2	%Post Consumer Recycled Content	% Biobased
Polyurethane Cushion	28	18	10
NonWoven PCR Polyester Felt	4.5	100	0
ErgoStep Backing	32.5	30	8.6

BiOH polyols–A Vertically Integrated Value Chain

Helping Reduce Our Environmental Footprint



LEED® Certification

Guideline specifications in order to contribute to the achievement of LEED certification

	Face Wt. oz/yd²	% Post Consumer Recycled Content *(Total Product)*	% Biobased
Monterey/Crossley	22	10.5%	3.0%
	41	8.7%	2.5%

LEE Industries

Earth-Friendly Upholstery

BiOH® A Cargill Innovation

- The “eco” story started as an upgrade: NaturalLEE
- Six months later, they made many of the NaturalLEE options standard across their furniture line
- LEE’s business has continued to prosper over the past 18 months

Read below to learn more about each earth-friendly step we took to make naturalLEE.

1. Seat Cushions: The seat cushions are made up of Preserve® foam core with fiber wraps in a 100% cotton down proof ticking. The Preserve foam replaces 20% of the petroleum-based ingredients with a renewable soy-based BiOH™ polyol. The fibers are 80% regenerated fibers. Regenerated fibers consist of virgin fibers and waste fibers that are added with a binder fiber. This reduces the amount of waste that would normally go into our nation’s landfills.

2 & 3. Back & Throw Pillows: The backs and throws are made up of 100% recycled fibers made from clear and white plastic bottles. The recycled material is reprocessed into its original form and then into fiber. The cushion casing is made up of 100% down proof ticking.

4. Seat Deck & Trim Pad: The seat deck and trim pad are made up of 80% regenerated fibers that consist of virgin fibers and waste fibers that are added with a binder fiber.

5. Arm Padding: Foam padding is Preserve® foam with soy-based BiOH™ polyol. A fiber overlay made up of 80% regenerated fibers that consist of virgin fibers and waste fibers that are added with a binder fiber.

6. Finish: Not only naturalLEE, but all LEE frames use only water-based finishes.

7. Fabric: Fabrics are made from organic and natural fibers. This is in addition to our premium selection of LEE fabrics.

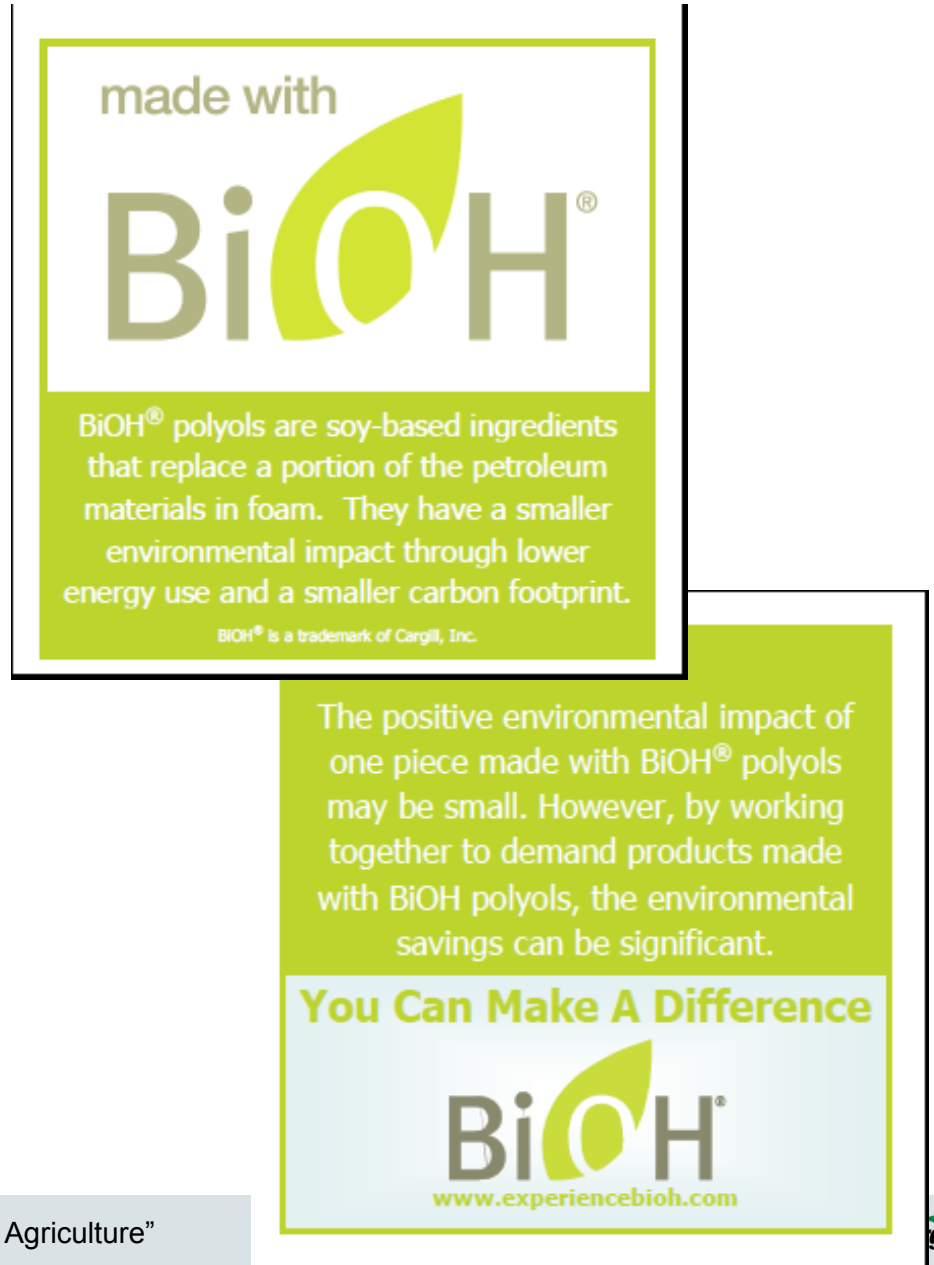
8. Frame: Constructed of engineered laminate panels and soy-based resins. These panels use less old growth timbers and maximize lumber yields, making these truly environmentally friendly products. All of our suppliers voluntarily adhere to the Sustainable Forestry Initiative (SFI); all of our laminate frames meet this stewardship ethic. Even more, the springs used in our frames are made from 60% recycled metal.

9. Recycling: Our efforts go beyond naturalLEE. Throughout the organization we recycle paper, plastic, aluminum products and cardboard. In manufacturing, all fabric, trimmings, and fiber waste are recycled through a national waste management company who, in turn, distributes almost 100% of our raw materials for use in other products.

As part of our commitment toward a better future, one tree will be donated to American Forests® for every piece of naturalLEE furniture sold.

Partnership with HOM Furniture

- We are partnering with HOM Furniture to promote the use of BiOH® polyols in the Serta mattresses they carry
- Bedding sales associate training, product information, and social media support
- Not necessarily promoting the mattresses as “green”, but identifying the benefits of the soy foams with BiOH polyols



Platinum Plus Carpet Cushion through Home Depot Stores

- Sold as the premium carpet underlayment at Home Depot
- Premium driven by both product performance as well as green/healthy message

What is **AsWood™** ?

What is **AsWood™** ?

- **AsWood™ is Dynea's new family of low emission adhesives**
- **It is a concept for achieving emission levels at the level found in natural untreated wood**
- **Dynea's resin solution for panel boards and wood based products that are used in situations where people are particularly sensitive to indoor air quality.**
- **Registered trademark**

AsWood by dynea