The Sustainability Imperative

Feeding A Hungry World

Fertilizer Outlook and Technology Conference

Fertilizer Industry Round Table

November 17, 2010
Savannah, GA

Dr. Dave Downey

Center for Food and Agricultural Business

Purdue University

The World is Changing….Fast

CHANGE!

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Feeding A Hungry World

A Look at population growth

1959 -- 3 billion people

2000 -- 6 billion people

2050 -- 9 billion (projected) people

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Standard of Living Increasing for Many

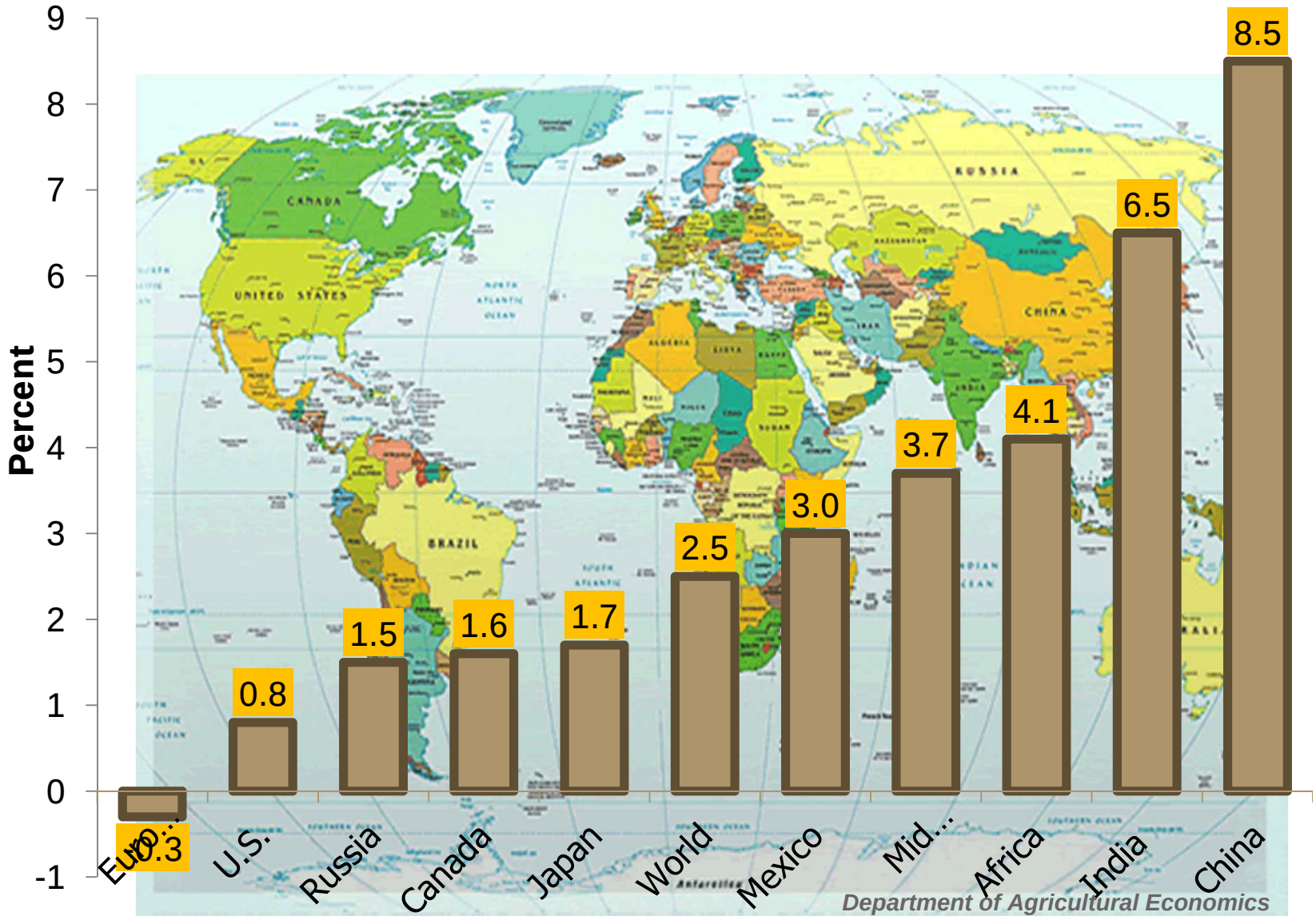
- Standard of living is growing rapidly

  …..especially in BRIC countries

  Brazil, Russia, India, and China

- Many people want to and can afford to eat better

2010 Real Economic Growth Rates %



World Population Growth & Meat Consumption

People are eating better…and can afford to!

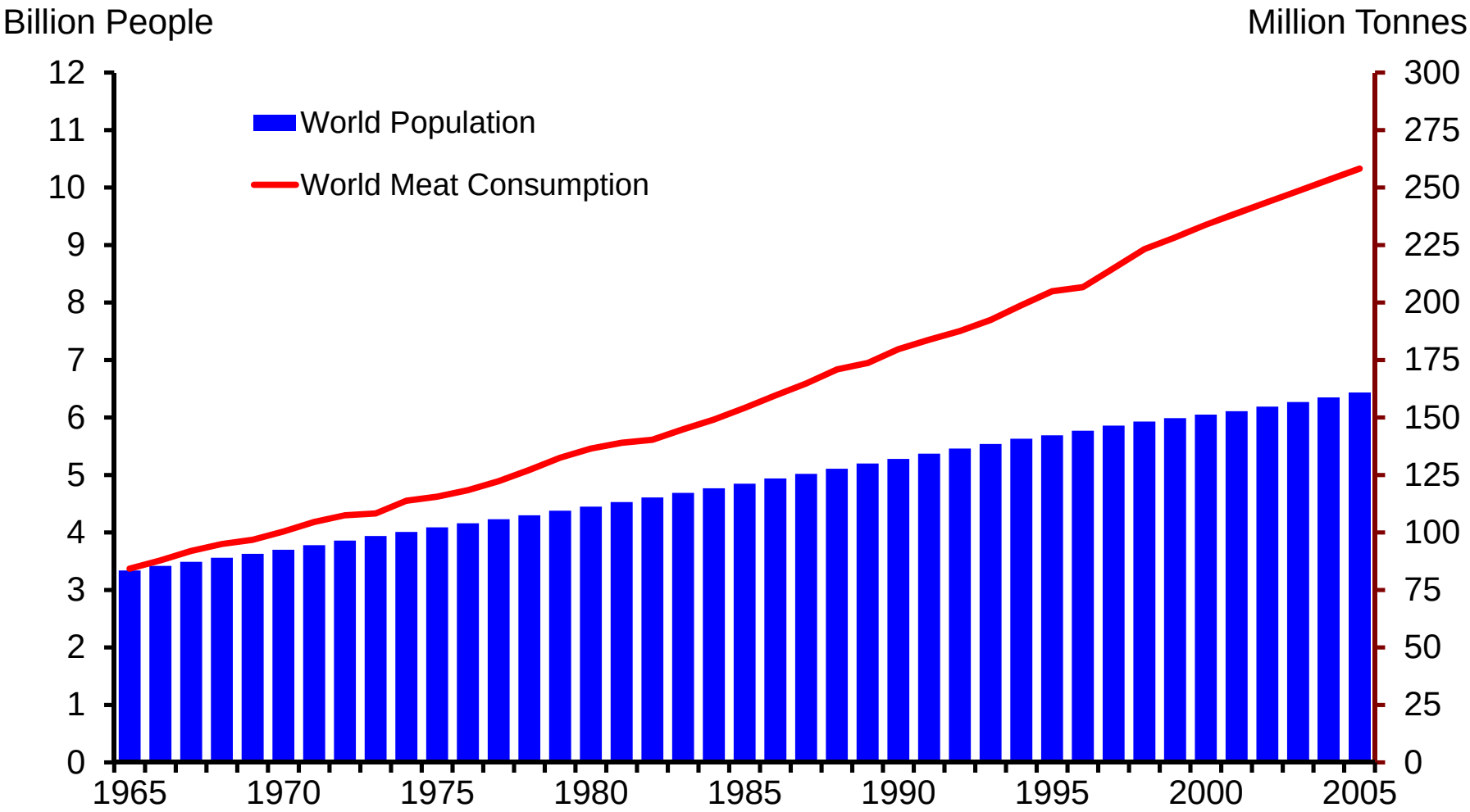


Chart Compliments of Joel Newman, AFIA

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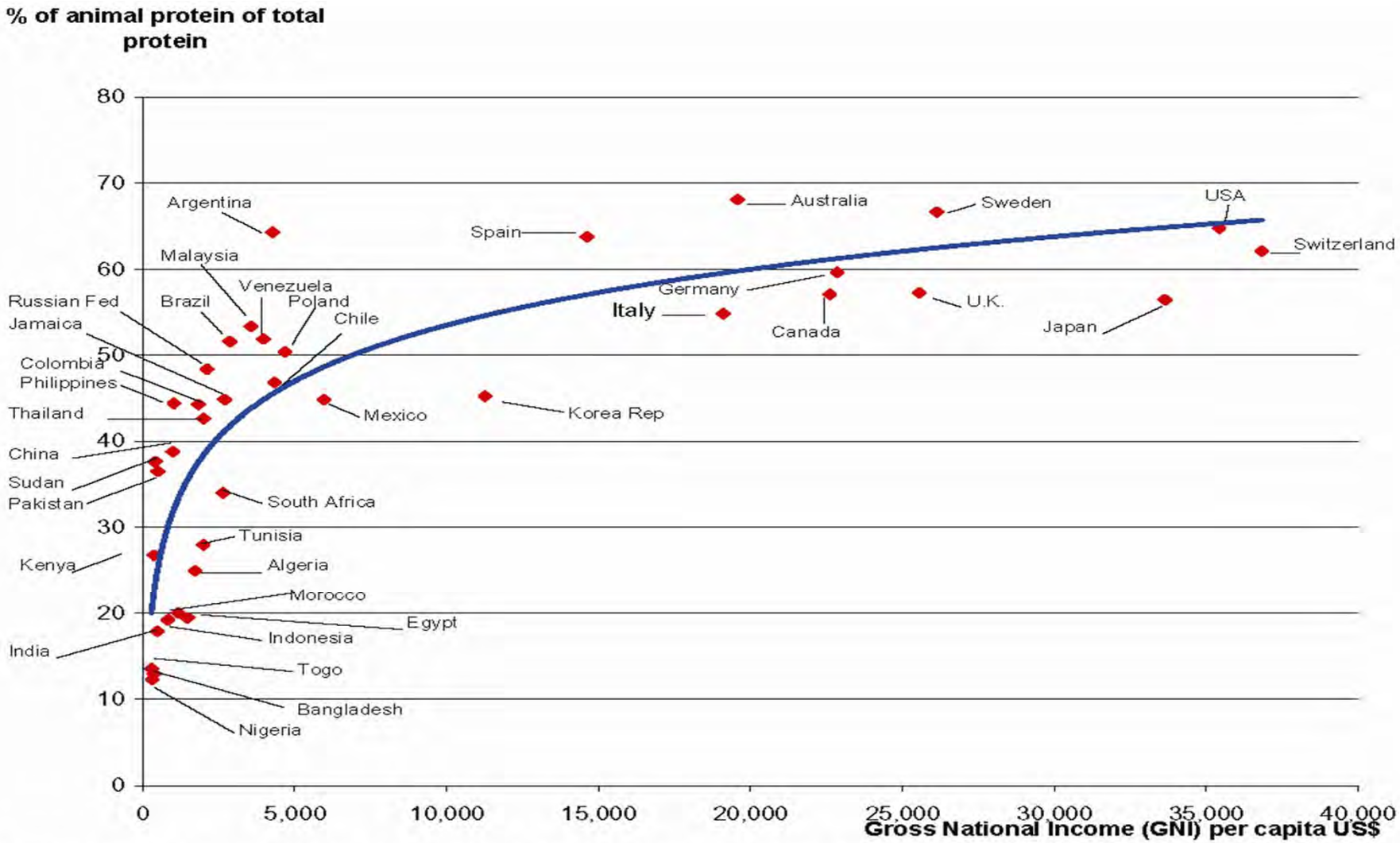
Animal Protein as a Share of Total Protein



Source: Based on data through 2002 from FAO and World Bank.

But At The Same Time…..
Hunger and Malnourishment

- 1.02 billion malnourished people in 2009 in the world (FAO)
- Increased by 10% in 2009
- Hungry people are generally less productive and more open to protest/social unrest/conflict

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Resource Constrains

Agricultural land will become more scarce

- Limited “new land” availability
- 80% of new “capacity”
  must come from productivity growth

Water quality/ quantity/ availability problems

- May be the most “limiting resource”
- Distribution and efficiency of use critical

Petroleum energy and other natural resources are becoming increasingly restrictive

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Conclusions

HUGE IMPROVEMENTS MUST BE MADE
IF WE ARE GOING TO FEED
50% MORE PEOPLE IN 25 YEARS

We must produce a great deal more food and do it in a way that protects our ability to continue to produce food in the future

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The Fertilizer Industry Plays
A Critical Role
In Sustainability

Sustainable Agriculture
The "Triple Bottom Line"

We must find ways to produce safe food
for a rapidly growing population
while maintaining our agricultural environment
for future generations

Produce food in environmentally friendly ways

Produce food in a way that is profitable for farmers

Produce food in a way that is socially equitable

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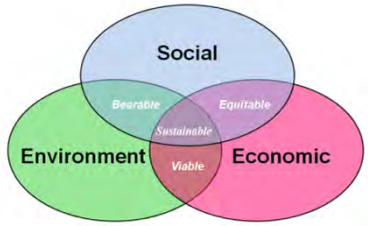
Addressing Sustainability



Many very large food and agribusinesses
have created a specific departments to address
sustainability Issues
....from a total supply chain perspective

They are motivated by

- A sincere responsibility for doing “what is right”
- Strong public sentiment
  that demands their being pro-active
- A fear of more costly regulations if they do not

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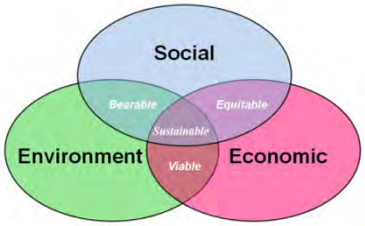

How Are Agribusinesses Responding To Sustainability Pressures?

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Sustainability in Agribusiness Survey

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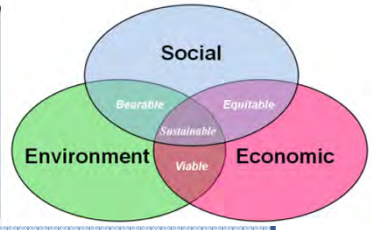
Agribusinesses

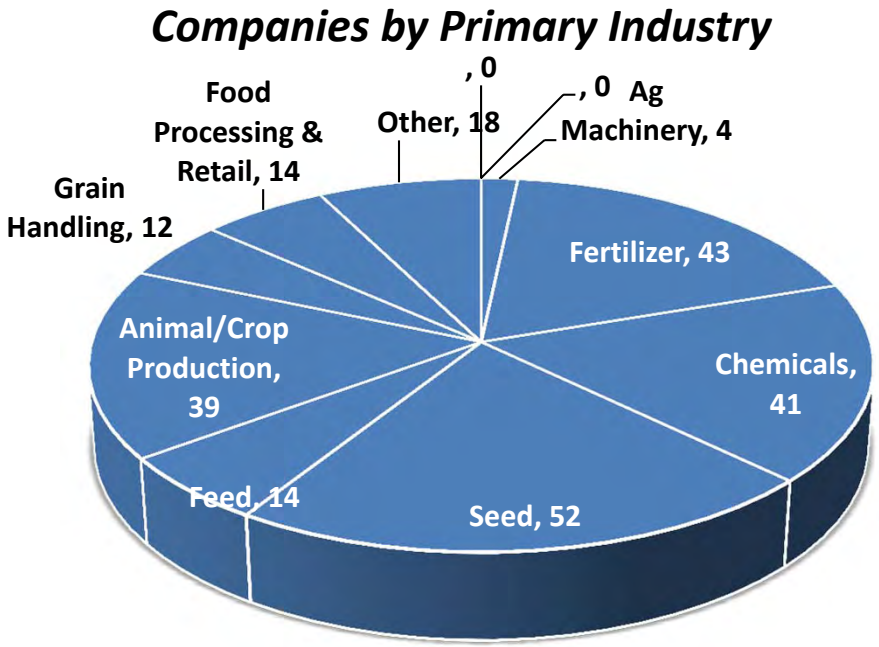


113 observations

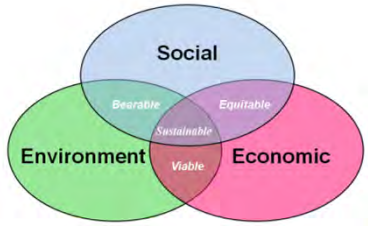
From Agribusiness Executives

Participating in Programs at Purdue's

Center For Food and Agricultural Business



Views of Sustainability



Basic Sustainability Topics

Percentage that Responded “Strongly” or “Somewhat” Agree

	Agribusinesses
Complying with environmental and social laws and standards	95%
Responding to external environmental and social pressures	92%

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Views of Sustainability (Cont.)

Purposes of Focusing On Sustainability

Percentage that Responded “Strongly” or “Somewhat” Agree

	Agribusinesses
A way to strengthen image	92%
A strategy for cost savings	57%
A function of the beliefs of management	76%
A source of competitive advantage	74%
A way to impact employee satisfaction	76%
An opportunity for new sources of revenue	61%
A function of aligning employee and company values	71%

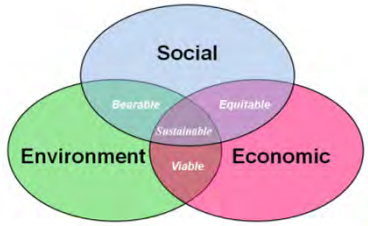
Views of Sustainability (Cont.)

Purposes of Focusing On Sustainability

Percentage that Responded “Strongly” or “Somewhat” Agree

	Agribusinesses
A method of risk management	74%
A value integrated into the business	70%
Collaboration with others	61%
Addressing hunger, poverty, and societal welfare	62%
Reducing impact on the environment	90%
An integral part of the core business	73%

Key Points



Most respondents are involved in sustainability as:

- Complying with laws and standards
- Responding to external pressures
- A way to strengthen image
- Reducing impact on the environment

Most respondents also see sustainability as:

- A function of beliefs of management
- A function of aligning employee and company values
- A value integrated into the business

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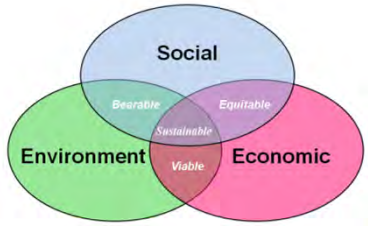
Sustainability Actions



Internal Sustainability Topics

Percentage that Responded “Using,” “Developing,” or “Considering”

	Agribusinesses
Sustainability features added to existing products	85%
Processes that include sustainability considerations	95%
Marketing and public relations	70%
A task force or employee position	62%
Environmental management system	73%
Substantially re-developed products and processes	71%
Sustainable supply chain management	74%

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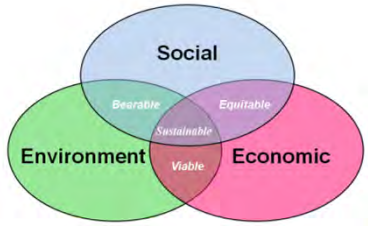
Key Points



Actions with highest level of use:

- Sustainability processes
- Products with sustainability features
- Environmental management systems

Respondents were more likely to be involved with ‘internal actions’ rather than ‘external actions’

The fact is that few agribusinesses are doing much to influence policy and attitudes on ‘sustainability issues’

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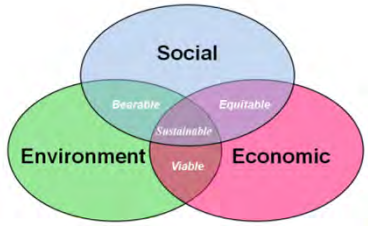
Sustainability Measures



Percentage that Responded “Using,” “Developing,” or “Considering”

	Agribusinesses
Reduction targets for resource	72%
Reduction targets for pollution	68%
Formal sustainability reports	58%
Environmental management system certification	36%
Life cycle assessment of environmental, social, and economic costs	48%
Recognition from an independent third party	27%

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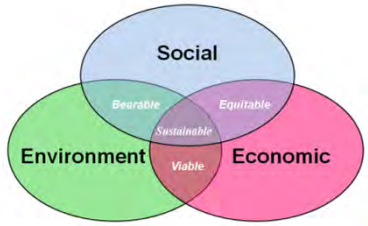

The Reality is that Sustainability is beginning to be taken seriously by a great many agribusinesses

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Important Questions

What additional role can the fertilizer industry play
in producing sufficient food for a hungry world
while maintaining or improving
our ability to produce food in the future?

How can the science and technology of soil nutrients
contribute to the sustainability initiative?

How can farmers working, with the fertilizer industry
and the entire food chain, make a difference
in producing food in a sustainable manner?

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Three Perspectives

The Food Industry – Tim Carey - PepsiCo

How are consumers interests reflected through the food chain to farm production

The Grower – Mac Carraway – SMR Farms

How can farmers incorporate sustainable practices into food production

The Distribution System – Dave Coppes – Heartland Coop

How can ag retailers and distributors make a difference beyond following regulations?

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Procedure

Guests will share their perspective on Sustainability

Interactive discussion with panel

Open discussion with all audience and panel

Introducing…..

Mr. Tim Carey

Director, Sustainability and Technology
PepsiCo Americas Beverages

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Introducing…..

Mr. Mac Carraway

President
SMR Farms
Bradenton, Florida

SMR Farms

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SMR Farms

Fertilizer Outlook and Technology Conference

SMR Farms

Cattle • Turf • Trees • Landscape • Citrus

Lakewood Ranch.
The Nature Of Florida Living.

A Brief History Of Schroeder-Manatee Ranch

- Assembly and family history
  - SMR is the parent company of SMR Farms
  - The Uihlein family – 1922
  - 31,000 acres / 48 square miles
  - Priorities
    - Formerly owned the Schlitz Brewing Company
    - Strong family board with a commitment to agribusiness, master-planned development and environmental stewardship

SMR Farms
Cattle • Turf • Trees • Landscape • Citrus

Lakewood Ranch.
The Nature Of Florida Living.

Agricultural Operations – SMR Farms

- Diversified Ag Operation
  - Citrus (oranges and tangerines)
  - Brangus and hybrid cow-calf operation; Bahiagrass
  - Improved / value-added turfgrasses
  - Golf / sports turf installation
  - Containerized and field-grown tree nursery
  - Row crop leasing

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The SMR Evolution –

Schroeder-Manatee Ranch, Inc.

- SMR Farms
- Lakewood Ranch
- SMR Aggregates, Inc.
- Sarasota Polo Club

Diversification – What a Concept!

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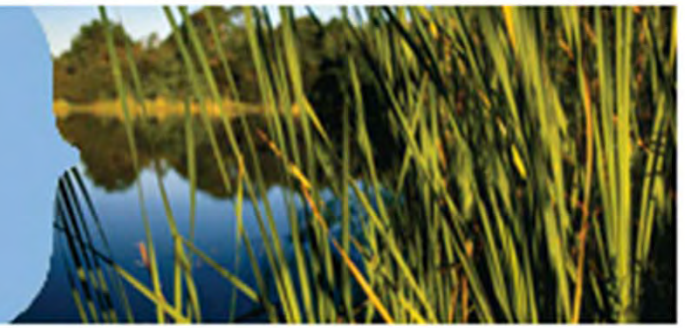

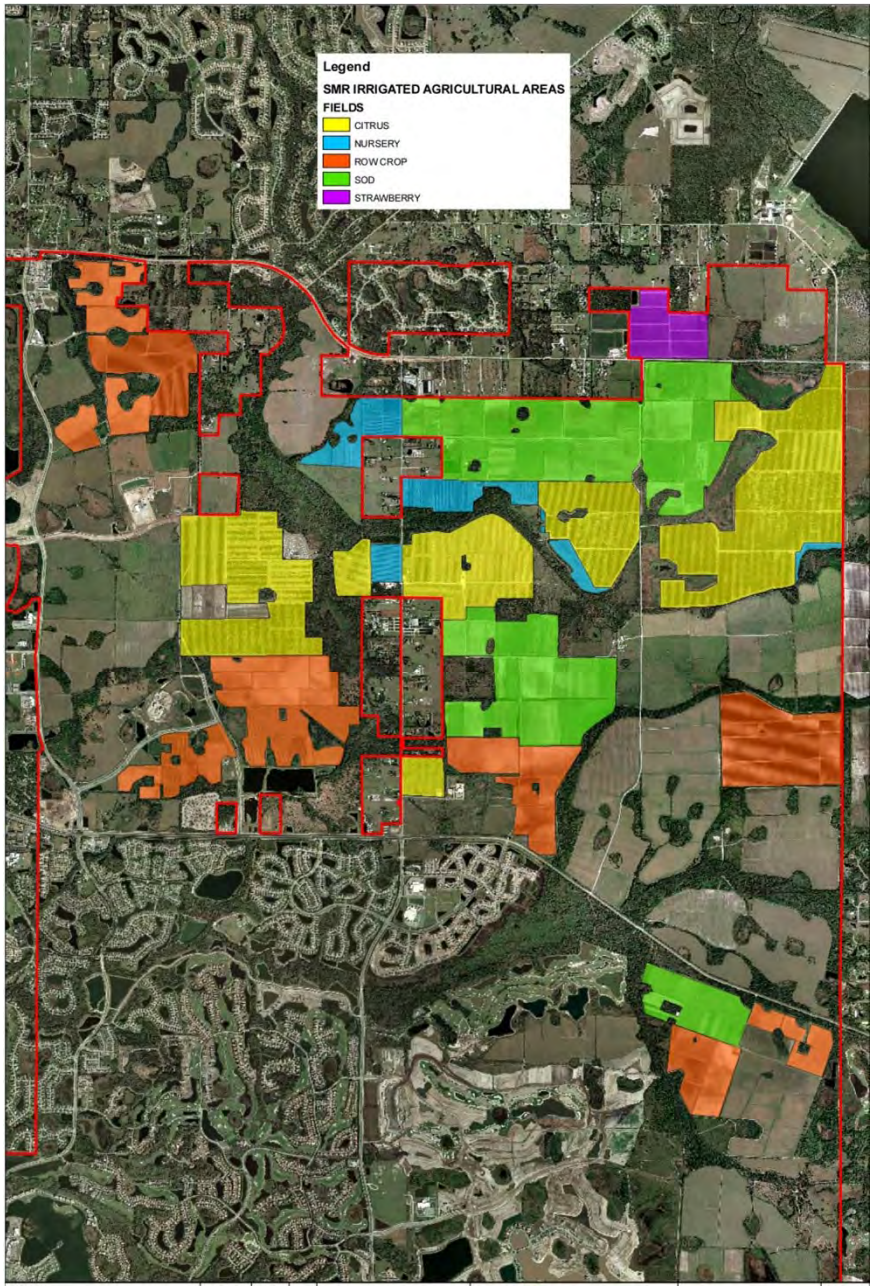

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SMR FARMS IRRIGATED AGRICULTURAL AREAS

SMR Farms
Cattle • Turf • Trees • Landscape • Citrus

SCHROEDER-MANATEE RANCH

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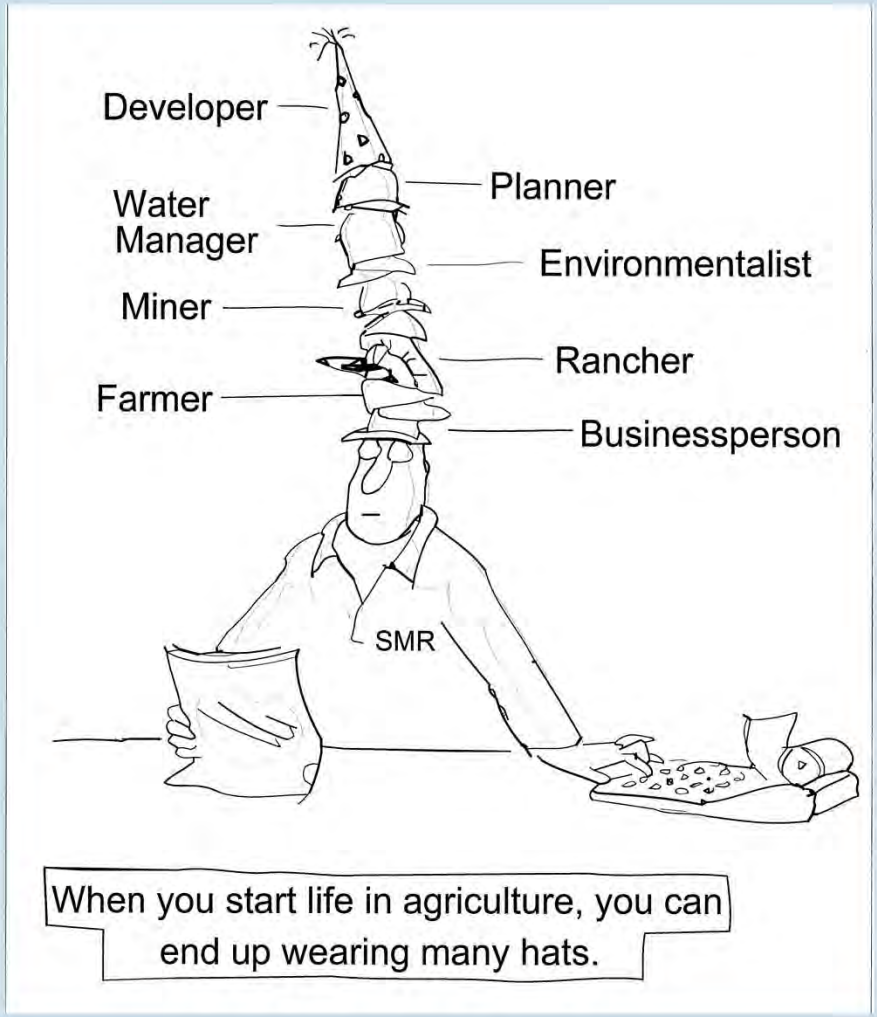

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Cattle • Turf • Trees • Landscape • Citrus

Lakewood Ranch,
The Nature Of Florida Living.

Thank You!

www.smrfarms.com

SMR Farms
Cattle • Turf • Trees • Landscape • Citrus

Lakewood Ranch.
The Nature Of Florida Living.

Introducing…..

Mr. Dave Coppes

HEARTLAND CO-OP

Executive Vice President
Heartland Coop
West Des Moines, Iowa

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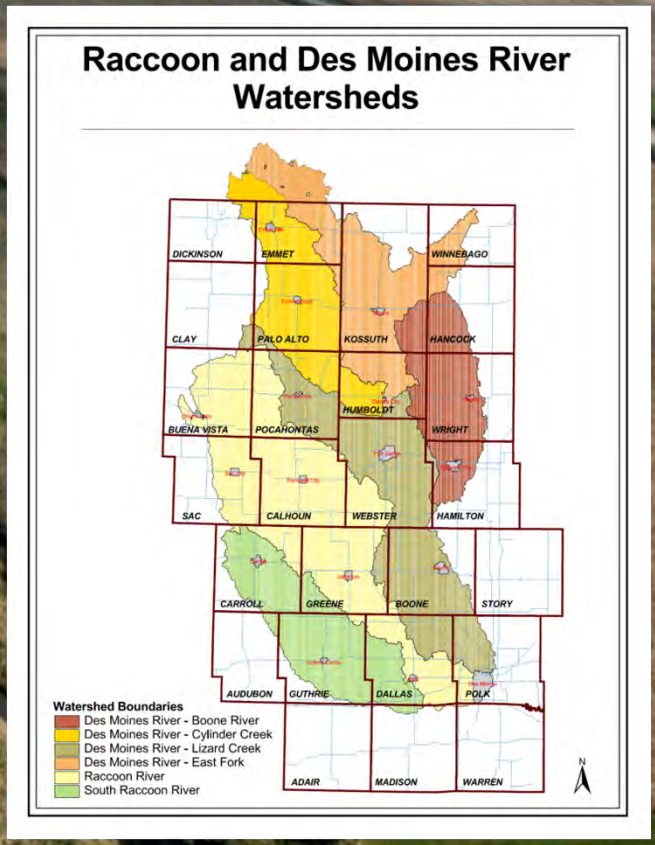
Agriculture Clean Water Alliance

ACWA
Agriculture's Clean Water Alliance



13 Participating Ag Retailers

ACWA
Agriculture's Clean Water Alliance

Founding Members:

Heartland Coop WDM	West Central Ralston	FC Coop Farnhamville	Ag Partners Albert City
Dedham Coop Dedham	First Coop Assoc Cherokee	NEW Coop Ft. Dodge	Pro Coop Gilmore City
CPS Wall Lake, IA	Van Diest Supply Webster City	Association Insight, ISA Roger Wolf, Exec. Director	

Expansion Members:

Helena Chemical WDM	Key Cooperative Roland / Sully	Gold Eagle Coop Eagle Grove	

Key Partners:

Des Moines Water Works (DMWW)	Natl. Lab for Ag & Environment	IDNR IDALS	IA Soybean Iowa State Univ.

HEARTLAND CO-OP

Mission

- Reduce nutrient loss from farm fields; to keep the nutrients from entering the Raccoon and Des Moines river watersheds.
  - Assist farmers to improve environmental performance with voluntary BMP's.
    - Bridge science to application on the land
  - Engage with others to ensure the realities of production ag are considered in regulatory approach to nutrient mgt.

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Water Monitoring

- Certified Sampling
  - Nitrate and Bacteria
- Real-time Remote Monitoring
- Investigative Monitoring
  - Ammonia / Cyanobacteia
- Project Monitoring
  - Bioreactors
  - Event-triggered monitoring

ACWA
Agriculture's Clean Water Alliance

Findings – Complex System

- Seasonal spikes, but no direct correlation between fall N application and Nitrate spikes at DMWW
  - Jan. 2003
    - Dry winter, tile lines were not running; high nitrate levels > 11 mg/l
- Identified Point-source issues
  - Outlet Creek, Storm Lake
    - Tyson plant – permitted by IDNR
  - Brushy Creek – 13 livestock farms
- Nitrogen Cycle is real - Soil mineralization, etc.
- Unique events
  - "free ammonia" issue – Spring 2009
  - Cyanobacteria bloom – Summer 2009 & 2010
- Requires better science to avert ineffective regulation.

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Bioreactor Demo & Evaluation

ACWA
Agriculture's Clean Water Alliance

ACWA
Agriculture's Clean Water Alliance

Remember, there are two best times to plant a tree.

20 Years Ago

OR

Today

HEARTLAND CO-OP