



# Impacts of Feeding Biotechnology Derived Soybean Meal To Livestock, Poultry, & Aquaculture



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# Past History – Some Marketers of Meat/Milk/Eggs Tried Non-GMO Niche

- Some UK food retailers tried “non-GM-fed”.
- McDonald’s in seven EU countries (briefly).
- Initially, they simply sourced soymeal from Brazil, and “looked the other way”.
- Now that biotech soybeans are grown in all states of Brazil, high costs for true non-GMO soymeal are driving EU animal feeders back to use of commodity soy (i.e., biotech).

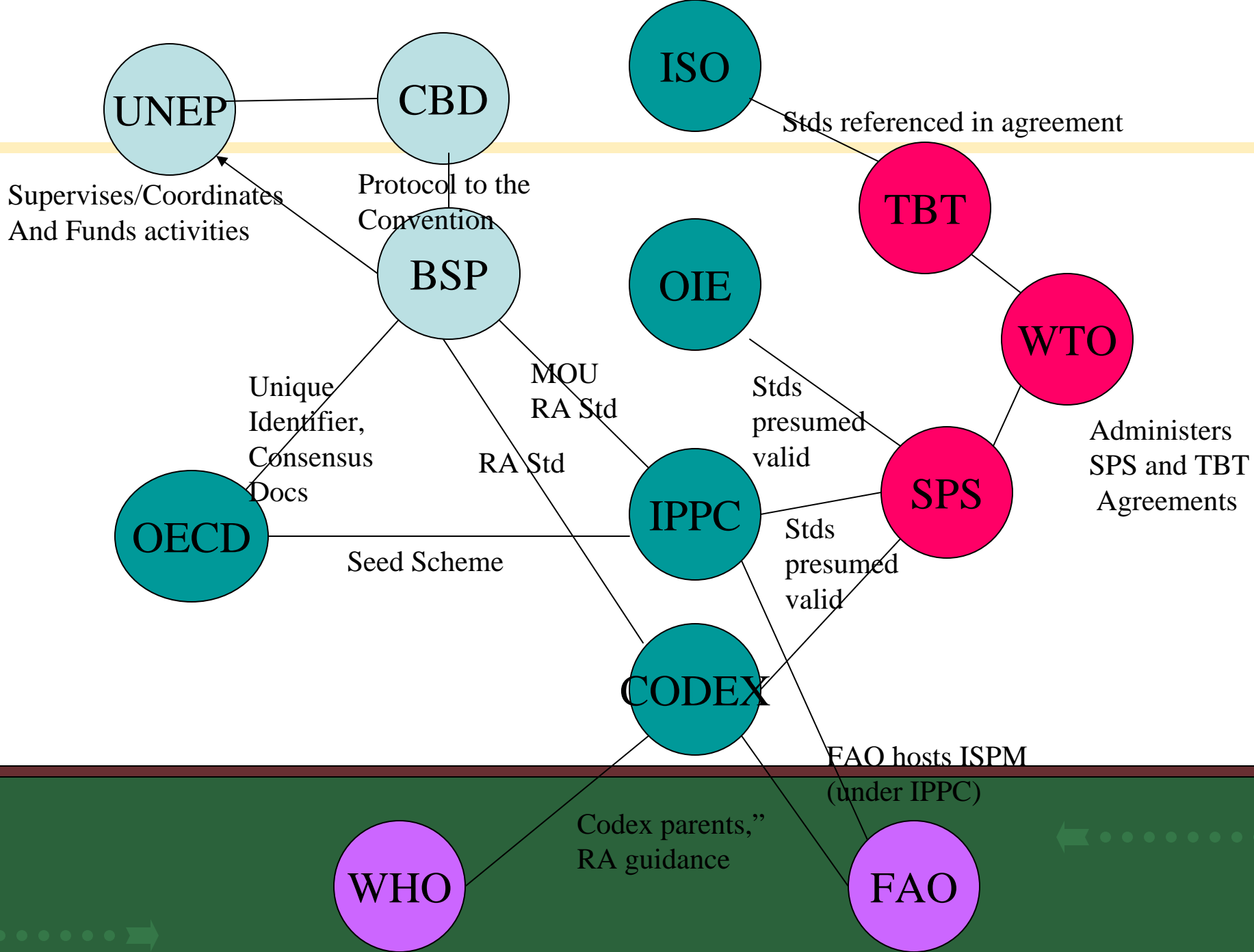
# The Present – A Totally New Marketer

## Criteria for Meat/Milk/Egg Production

- The “sustainability of production” of meat/milk/eggs is starting as a corporate procurement requirement.
- One major Dutch milk production co-op says will require “sustainably produced” soymeal fed to its dairy cows, as of 2009. Others talking about it.
- Good news is that biotech soybean varieties (92% of 2008 acres) have made U.S. soybean production MORE SUSTAINABLE. A 47% reduction in pkg. (bag) use by U.S. soy farmers has further increased the sustainability.
- Meat/milk/egg producers & retailers will **prefer U.S. soymeal**, for all rational sustainability procurement def.

# Commonalities Emerging, In Most Definitions of Sustainable Production

- Reduction in “carbon footprint” (which is facilitated via biotech soybean varieties).
- Even if U.S. CRP acres are brought into crop production, their biotech-soy-facilitated “no till” production minimizes CO2 release.
- Packaging reduction (47% bag decrease).
- Ongoing improvement in sustainability (coming new soy varieties will enable that, plus reduce “dead zones” in gulf of Mexico and elsewhere).



# Some Irrational Draft 'Sustainable Ag' Definitions Have Been Proposed:

- U.S. farmer and other ag organizations are monitoring (both the draft corporate procurement regimens, and draft formal standards).
- USDA has intervened in at least one case, when one draft effort sought to define “sustainably produced” in ways that conflicted U.S. government policy/standards.
- Although some seek to define “sustainable” as non-GMO crops only, that would contravene the overwhelming weight of facts (e.g., the biotech-facilitated increase in carbon-saving “no-till” production following 1996 advent). Those no-till acres also reduce ag cont. to “dead zones”.

# Some Draft Sustainability Std. Efforts:

American National Standards Institute ANSI is supposed to be an open forum to set industry standards:

- ISO 9000 (qual.) & 14000 (Env) stds. usage earlier attempted in some agricultural settings.
- ANSI already has many specific ag-technology standards
- But...

# Draft ANSI Sustainable Ag Std.:

- 2007 --Anti-biotechs NSF in Ann Arbor and SCS drafted a “non-GMO/organic” standard on sustainable agriculture.
- That ANSI draft standard uses organic standards as a base, then adds carbon emissions, “local/food miles”, socialist labor standards, mandatory traceability and labeling (which contravenes official USG policy), etc.



# Overseas “Sustainable Ag” Draft Req.

- Analysis shows proveable “Sustainability” could be key to keeping some markets open to U.S. commodities under Biosafety Protocol (BSP) and other new restrictive regimes.
- “Sustainable use of genetic resources” required by BSP.
- “Sustainable Biofuels” use soon to be mandated in EU, with import restrictions on vegetable oils that EU deems to not be sustainable.
- Regions of Brazil seeking EU markets with “**Responsible Soybean Standard**” think their RTRS std will be tech-neutral, but NGOs involved caused it to be defined “non-GMO only” in EU markets.
- For Market Access – Draft Sustainable Ag standards could be:
  - Opportunity – US soybeans are **proveably** “sustainably produced”.
  - Threat – Some overseas markets trying to use “Precautionary Principle” to bar all use of biotech crops in a “sustainable” production system (badly defined).

# Some Evolving European National, Corporate, and EU “Sustainable Ag” Production Procurement Req.

- Friesland Foods (large Dutch milk co-op)-announced in 2008 that only “sustainably produced” soymeal will be fed to its farm members’ cattle, as of 2009. Referenced RTRS std., but only for certification the soy didn’t come from newly deforested areas.

# Evolving European National, Corporate, and EU “Sustainable Ag” Production Procurement Req.

- Neste’ Oil (large Finland-based petroleum company)- announced in 2008 that only “sustainably produced” vegetable oil is used to make its branded biodiesel. That was based on certification to “standard” of the Roundtable for Sustainable Palm Oil (RSPO)– which the Dutch earlier declared to NOT be sustainable (and thus denied all subsidies to palm-oil-based biofuels).
- RSPO has said no certification being done yet!.

# Evolving European National, Corporate, and EU “Sustainable Ag” Production Procurement Req.

- Netherlands government completed a TESTING FRAMEWORK FOR SUSTAINABLE BIOMASS in 2007. The biofuel reduction in LCA greenhouse gas emissions (versus petroleum-source fuel) must be at least 30%.

# Evolving European National, Corporate, and EU “Sustainable Ag” Production Procurement Req.

- Germany’s BIOFUELS SUSTAINABILITY ORDINANCE mandates sustainability requirements for feedstocks used to make biofuels. German government is working on criteria development and certification of sustainability.

# Evolving European National, Corporate, and EU “Sustainable Ag” Production Procurement Req.

- Beginning April, 2008, large UK fossil fuel suppliers have been required to comply with the Renewable Transport Fuel Obligation (RTFO); including sending monthly SUSTAINABILITY REPORTS to the RTFO administrator. In August, 2008, NGOs publicized the fact most UK fuel suppliers didn't know which country their biofuel feedstock had come from, so could not know which were sustainably produced.

# Evolving European National, Corporate, and EU “Sustainable Ag” Production Procurement Req.

- European Parliament (EP) and European Commission (EC) have both proposed mandatory sustainability req. for biofuel feedstocks— expressed in terms of their reductions in LCA greenhouse gases vs. petro fuels. EP is >37%, EC is >50%.

# Other Potential National, Multi-national, State, Etc. “Sustainable Ag” Production Procurement Req.

- California – biofuels GHG reduction only.
- Canada – biofuel subsidies go to only the “most sustainable” producers (gov’t set criteria).
- Brazil – “social” requirements for sustainability (buy only from family farmers, guarantee them a minimum annual income, etc.)
- United Nations Environment Program (UNEP)- is developing a set of sustainability criteria, including greenhouse gas emission reductions and “social” requirements (labor conditions, small/family farms, etc.)
- WalMart- held a “sustainability index meeting” in Bentonville for its Tier 1 suppliers in mid-2008.



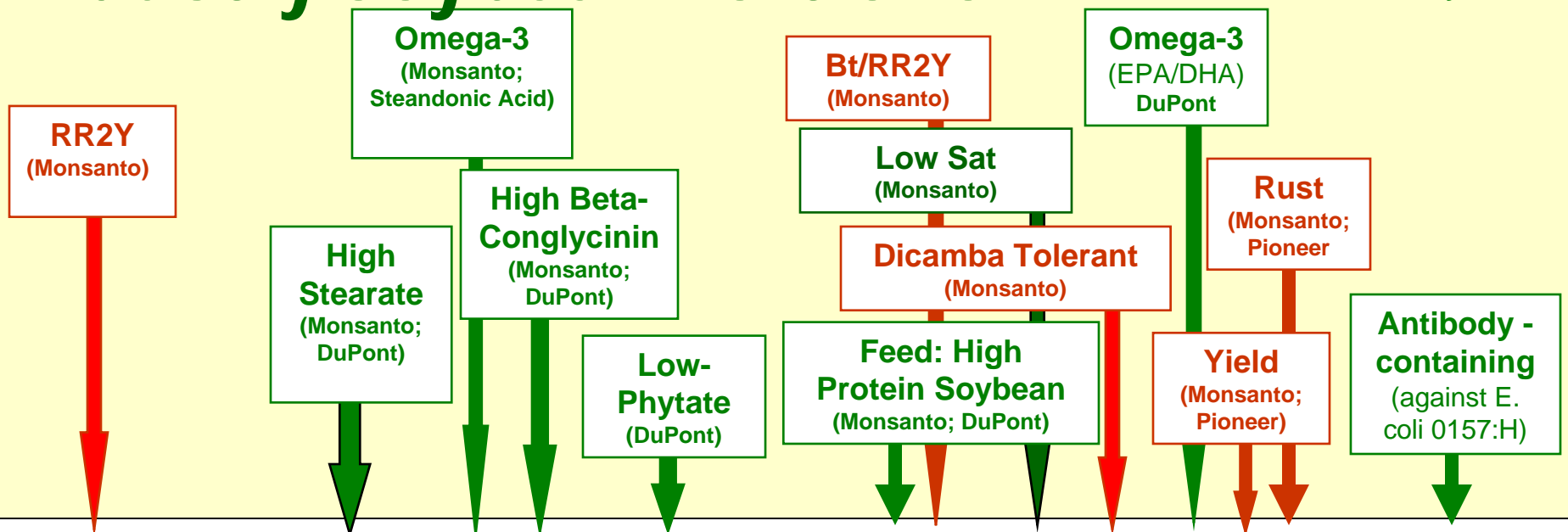
# A Good Definition of Sustainable Ag

Congress in the 1990 Farm Bill [Food, Agriculture, Conservation, and Trade Act of 1990 (FACTA), Public Law 101-624, Title XVI, Subtitle A, Section 1603]... defined the term sustainable agriculture to mean an integrated system of plant and animal production practices having a site-specific application that will, over the long term:

- satisfy human food and fiber needs.
- enhance environmental quality and the natural resource base upon which the agricultural economy depends.
- make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls.
- sustain the economic viability of farm operations.
- enhance the quality of life for farmers and society as a whole.

# Industry Soybean Portfolio

■ Agronomic  
■ Quality/Food



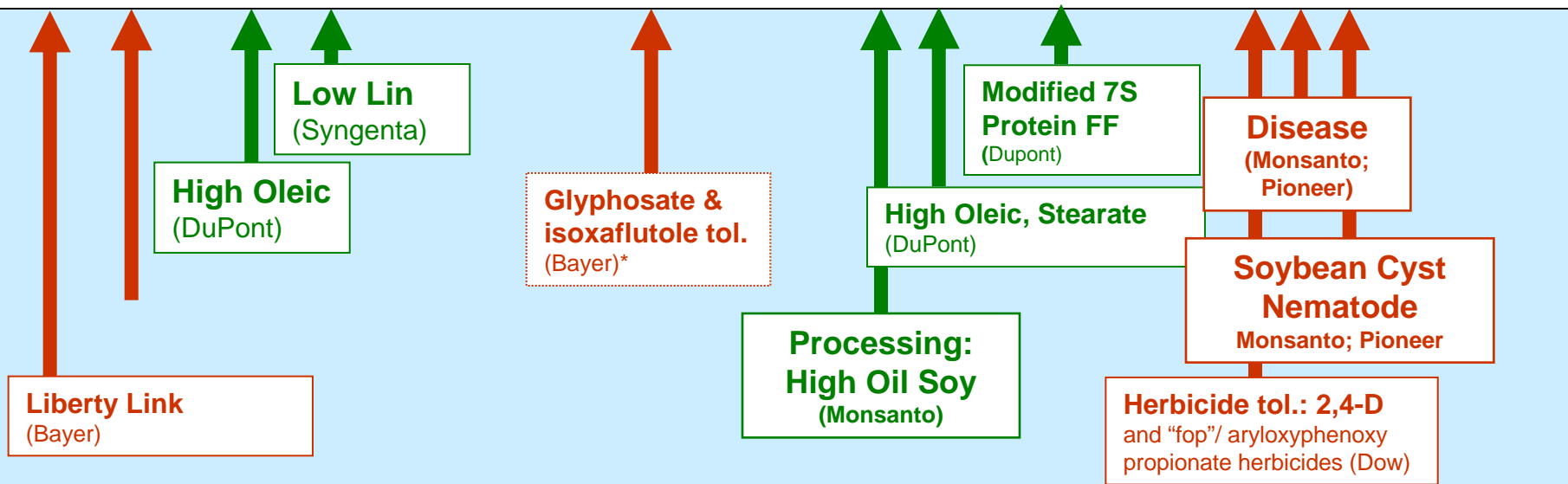
2009

2010

2011

2012

201X



Liberty Link  
(Bayer)

High Oleic  
(DuPont)

Low Lin  
(Syngenta)

Glyphosate &  
isoxaflutole tol.  
(Bayer)\*

Processing:  
High Oil Soy  
(Monsanto)

High Oleic, Stearate  
(DuPont)

Modified 7S  
Protein FF  
(Dupont)

Disease  
(Monsanto;  
Pioneer)

Soybean Cyst  
Nematode  
Monsanto; Pioneer

Herbicide tol.: 2,4-D  
and "fop"/ aryloxyphenoxy  
propionate herbicides (Dow)