

# Certification and supply chain standards

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# Highlights

1

Companies are responding to perceived reputational and environmental risks

2

Developing their own sustainability metrics

3

Significant data challenges limit efficacy

4

Particularly challenging for the complex supply chain of commodity crops



# Consumer ecolabels

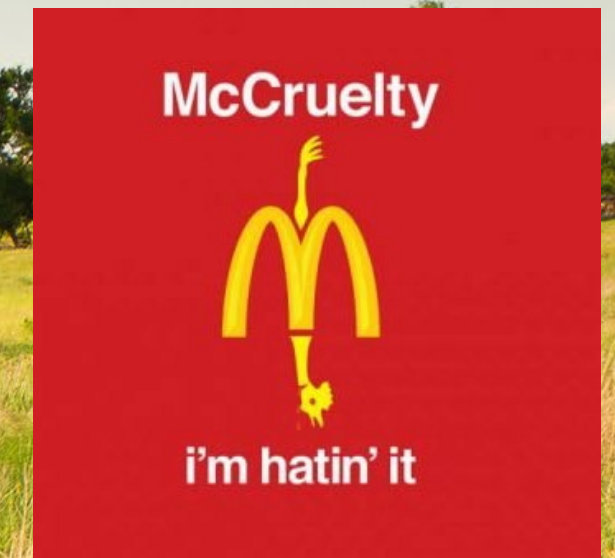


Logic: Rewarding producers for favorable practices



# Leveraging corporate risk

- Rise in interest groups
- Sustainability scorecards
- Logic: Larger retailers control enough of the market share that they can dictate terms to suppliers



	74%	7	6	8	8	9	7	7	52/70
	69%	8	5	7	6	8	7	7	48/70
	57%	8	6	3	6	6	5	6	40/70
	53%	5	6	5	3	8	5	5	37/70
	49%	4	5	5	4	6	6	4	34/70
	49%	7	4	3	3	7	5	5	34/70
	41%	4	6	4	4	5	4	2	29/70
	40%	2	3	3	3	6	5	6	28/70
	36%	5	3	3	4	4	3	3	25/70





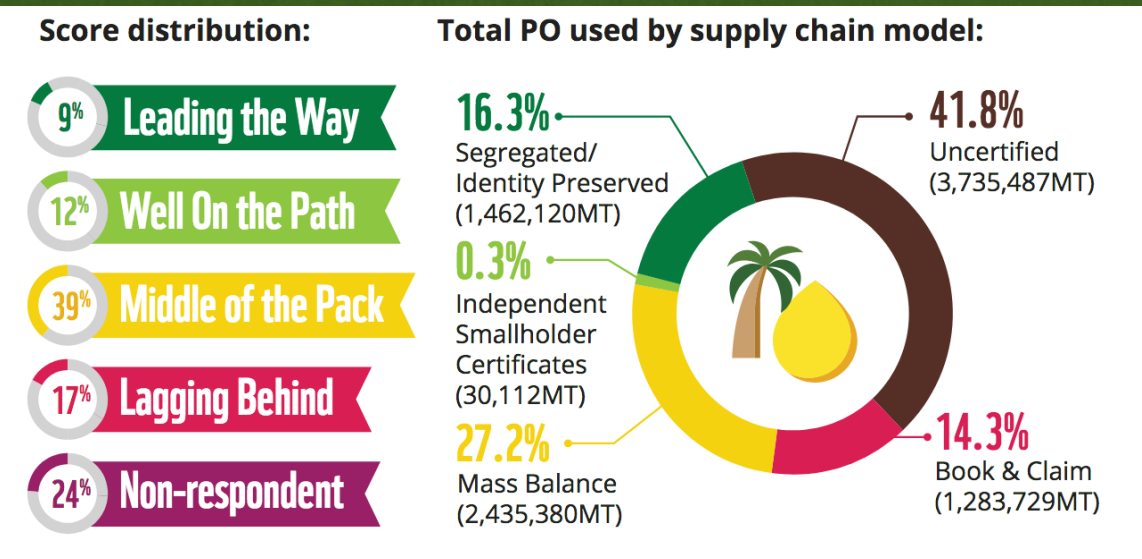
## Multi-stakeholder initiatives

### □ Collaboration of actors

- Industry, NGO, farmers, academics

### □ Little research -> mixed reviews

- High transaction costs and accountability issues ([Winter, 2017](#))
- Transformative potential ([Smith et al., 2019](#))
- Can improve outcomes under certain conditions ([Thorlakson et al., 2018](#))





## How do they work?

- Key performance indicators
- Metrics focus on continuous improvement
- Aids companies in communicating about sustainability

## Basic features of supply chain standards

Voluntary  
guidelines

Data  
collection

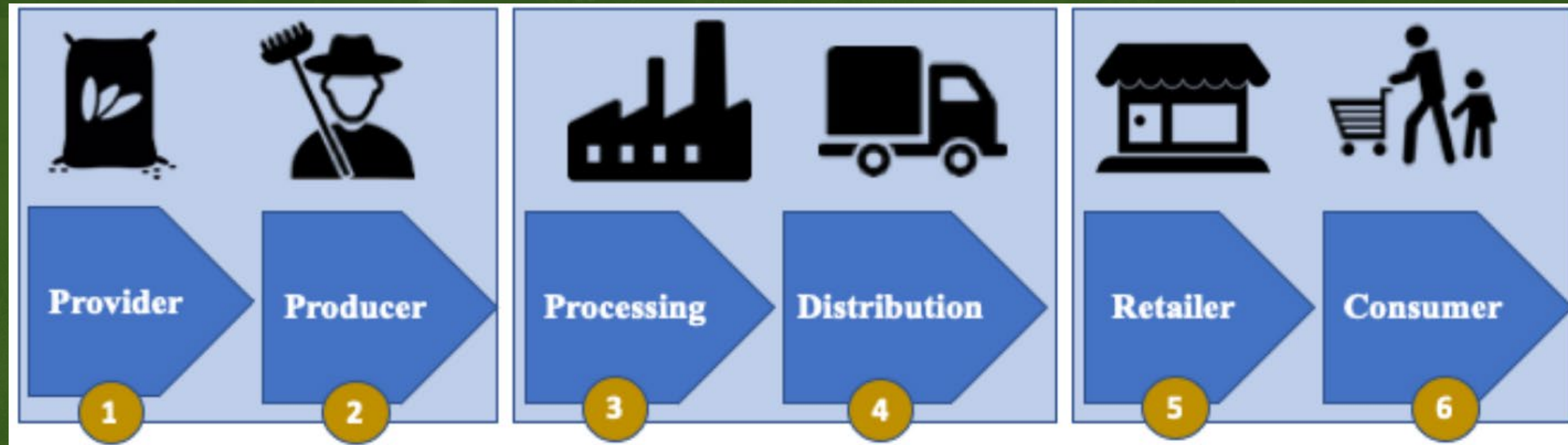
Data  
sharing

Minimal  
incentives



# Inside the supply chain

Adapted from Kamalaris et al., 2019)



## Ag retailers



syngenta®

## Aggregators/traders



TATE & LYLE



## Food companies



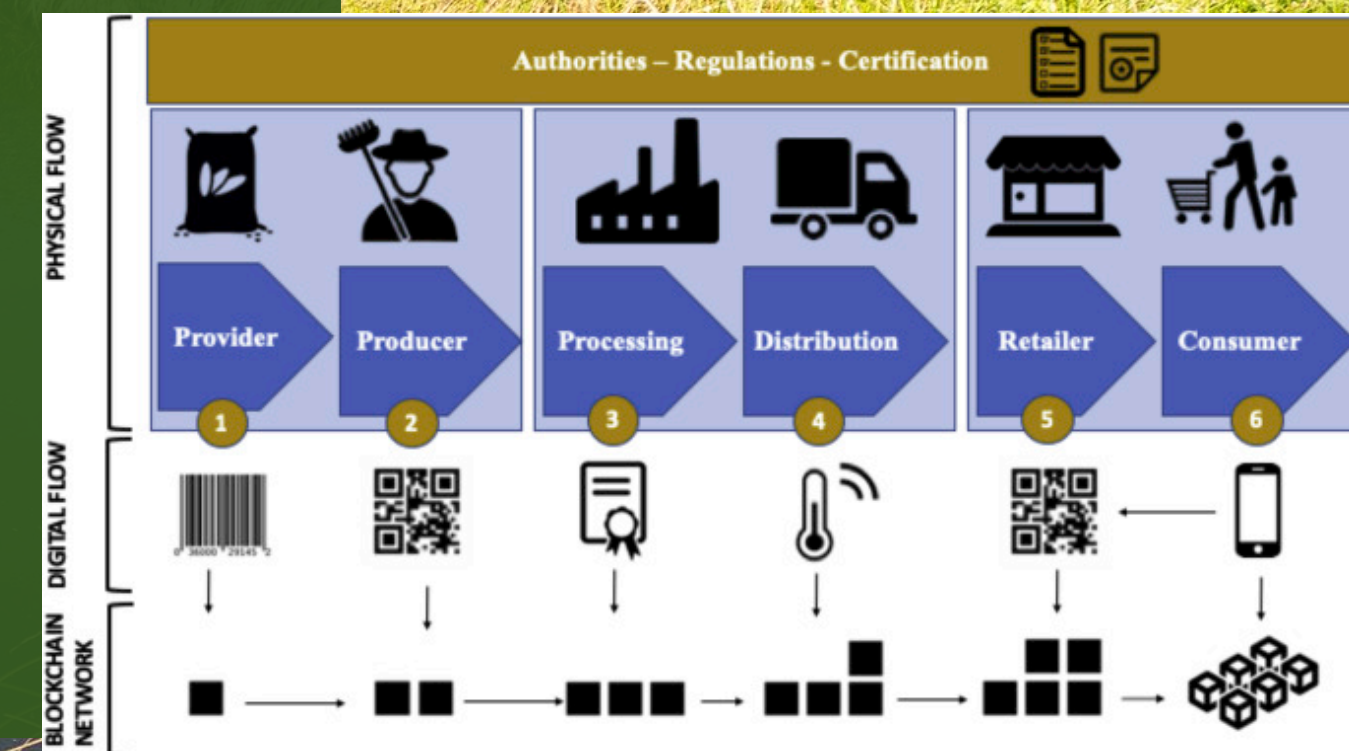


# Why supply chain standards are relevant for reducing nitrogen

1. Retailers have experienced supply chain risk
2. Limits of consumer ecolabels for 'invisible' crops (Waldman and Kerr, 2014)
3. Traceability technology



Cargill to advance regenerative agriculture practices across 10 million acres of North American farmland by 2030





# Measuring sustainability

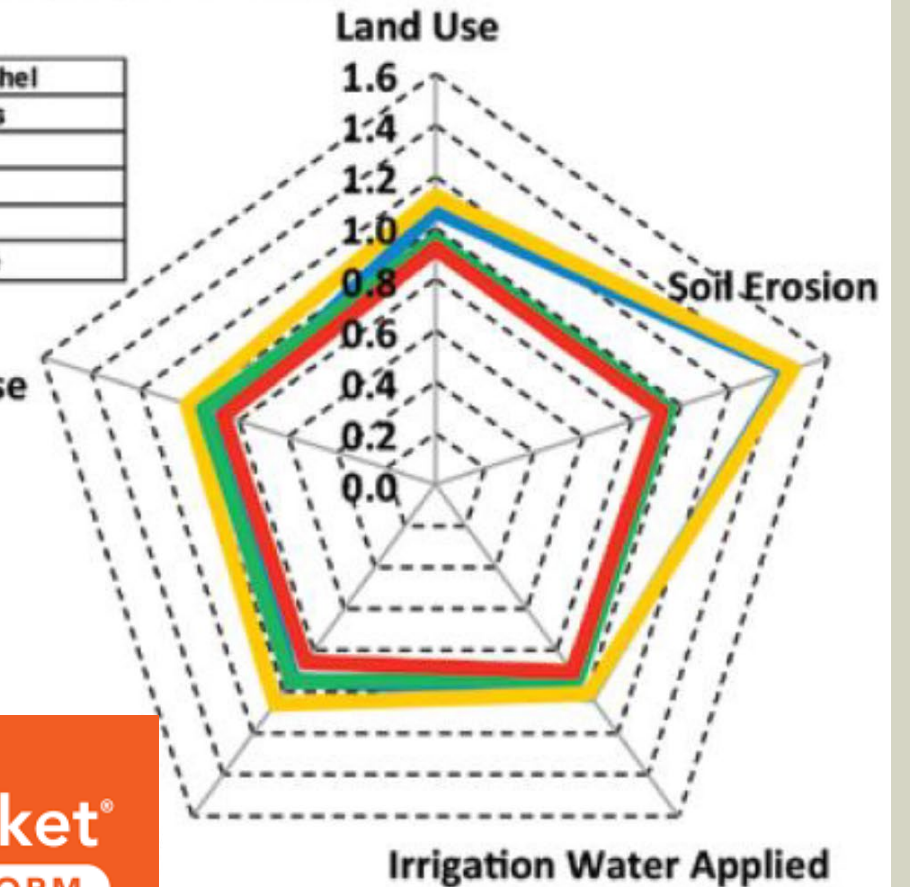
- ❑ Allows Farmers to input: Slope, soil characteristics, nutrient & pest management, tillage practices
- ❑ Analyze environmental outcomes (including water quality index)
- ❑ Compare with industry averages
- ❑ Limitations
  - Partial farm data
  - Generalized to practices

Index of Per Bushel Resource Impacts to Produce Wheat  
(United States, Year 2000 = 1)

Year	2000 *	Unit - per Bushel
Land Use	0.029	Planted Acres
Soil Erosion	0.152	Tons
Irrigation Water Applied	0.580	Acre Inches
Energy	92,862	Btus
Greenhouse Gases	23.5	Pounds CO <sub>2</sub> e

\* Five-year average 1996 - 2000

- 5 Yr. Avg. 1980 - 84
- 5 Yr. Avg. 1987 - 91
- 5 Yr. Avg. 1997 - 01
- 5 Yr. Avg. 2007 - 11

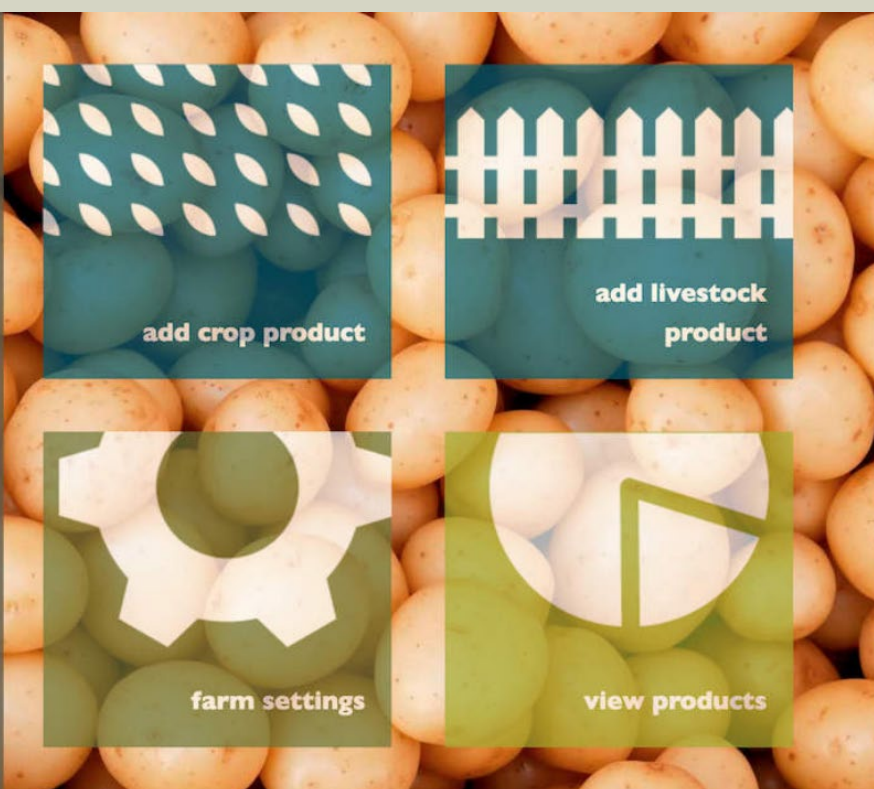


Field to Market®  
FIELDPRINT PLATFORM

## Welcome to the Cool Farm Tool Online

New, for NW Europe and temperate forest areas of N. America: "Biodiversity", in the left-hand menu, to assess the biodiversity of your farm.

Otherwise, you have four main options. You can create a new crop or livestock product footprint, view a previously entered product footprint or change your farm settings. Note that after they are first entered, farm settings are unlikely to change.





# Hurdles for supply chain standards

## 1) Data quality & farm diversity

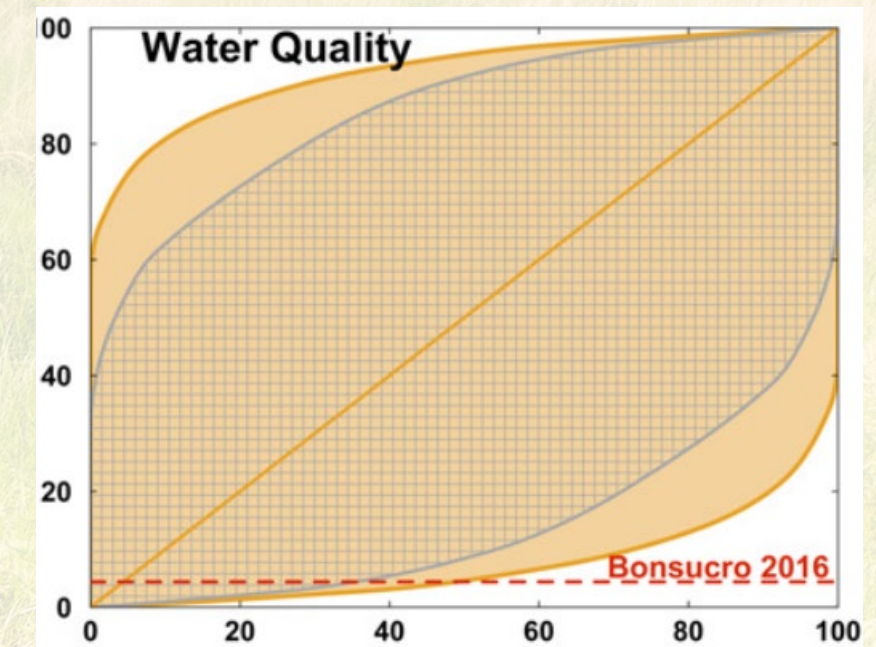
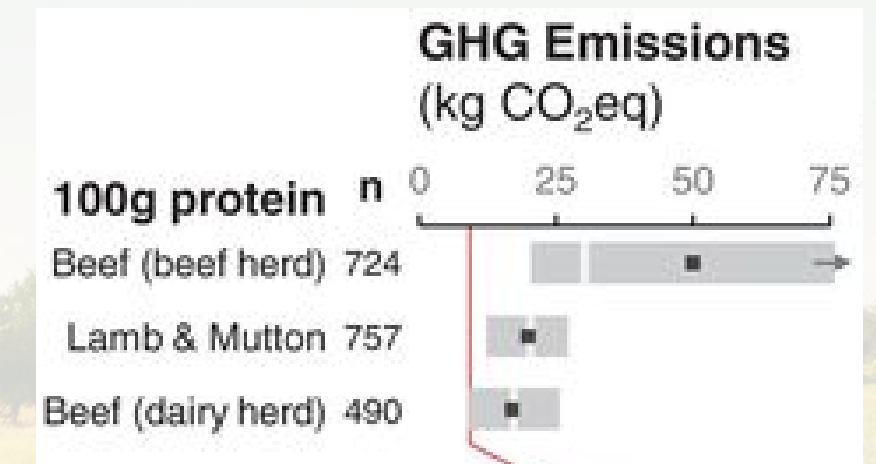
- Large differences in environmental outcomes between animals, crops (Poore & Nemecek, 2018) farms, and fields

## 2) Selection bias

- Majority of pollution is often concentrated among a small group of producers (Smith et al., 2019)

## 3) Incentives: “No carrot or stick” (Freidberg, 2017)

## 4) Verification and feedback





Thank you!

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# References

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