Sustainability as a Business Driver

Fulfilling future needs from Biomass

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World Agricultural Forum
Brussels - November 30, 2011

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HEALTH · NUTRITION · MATERIALS

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The English language version of this document is leading.

A more comprehensive discussion of the risk factors affecting DSM's business can be found in the company's latest Annual Report, which can be found on the company's corporate website, www.dsm.com

DSM - introduction

WAF Brussels – 30 November, 2011

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DSM Mission Statement

Our purpose is to create brighter lives for people today and generations to come.
We connect our unique competences in Life Sciences and Materials Sciences to create solutions that nourish, protect and improve performance.

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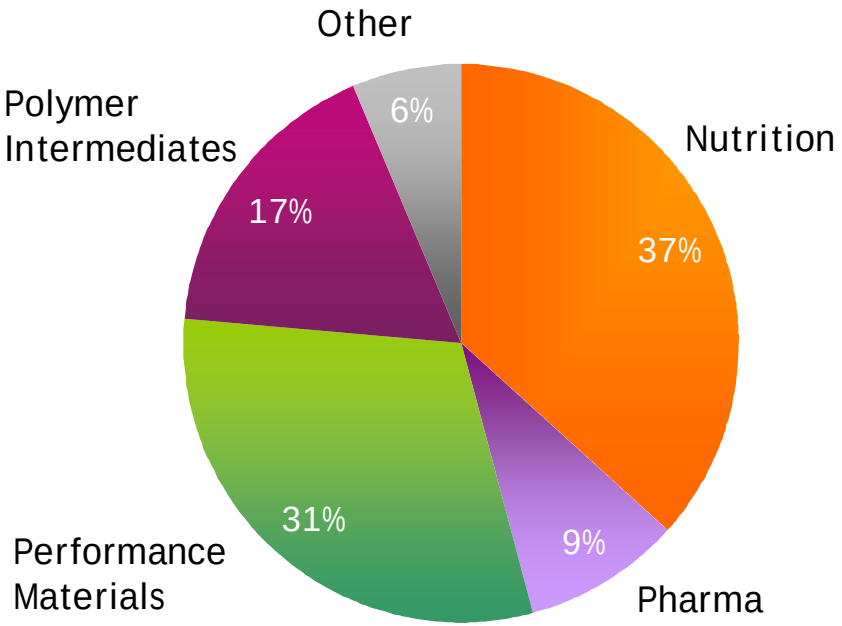
Life Sciences & Materials Sciences

Key figures 2010 (continuing business)

- Sales ~ € 8.2bn
- EBITDA ~ € 1.2bn
- Cash operating activities ~ € 1.1bn
- ROCE ~ 15%
- R&D expense ~ € 425m
- Workforce ~ 22,000 at year-end

Total sales in 2010: ~ €8.2bn



Dow Jones Sustainability Indexes
Member 2010/11

2010: no.1 (5 out of last 7 years)

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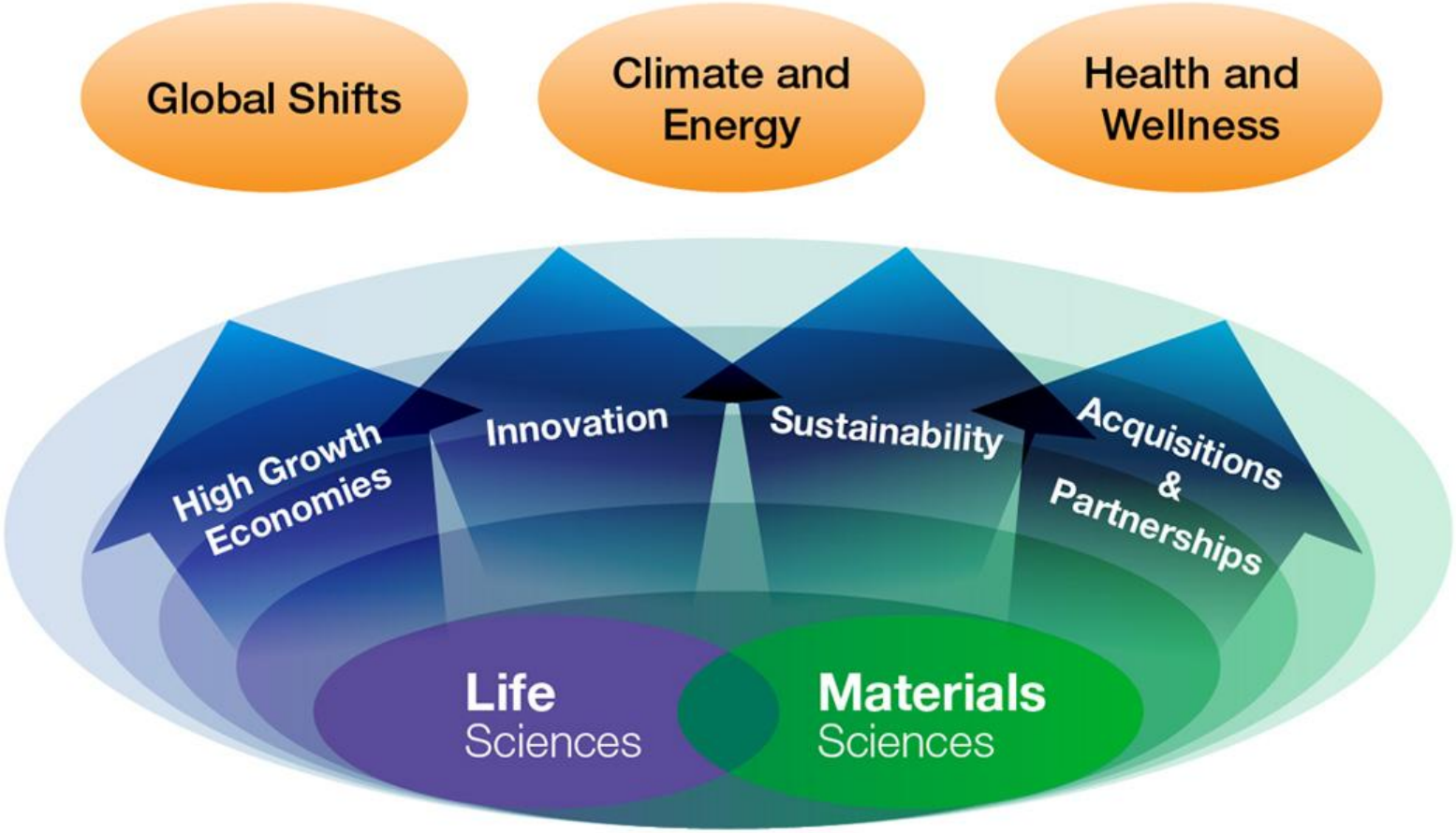
DSM in motion: *driving focused growth*



Clear sustainability aspirations

Sustainability aspirations 2011 - 2015	
Dow Jones Sustainability Index:	Top ranking (“Gold”)
ECO+ (innovation pipeline):	at least 80% of pipeline is ECO+
ECO+ (running business):	from ~34% towards 50%
Energy efficiency:	20% improvement from 2008 till 2020
Greenhouse Gas emissions:	25% reduction from 2008 till 2020
Engagement Survey:	towards High Performance Norm
Diversity & People+:	to be updated in 2011

Challenge #1: 9 billion people to feed!

Stretching the challenge – diets will change with increasing living standards

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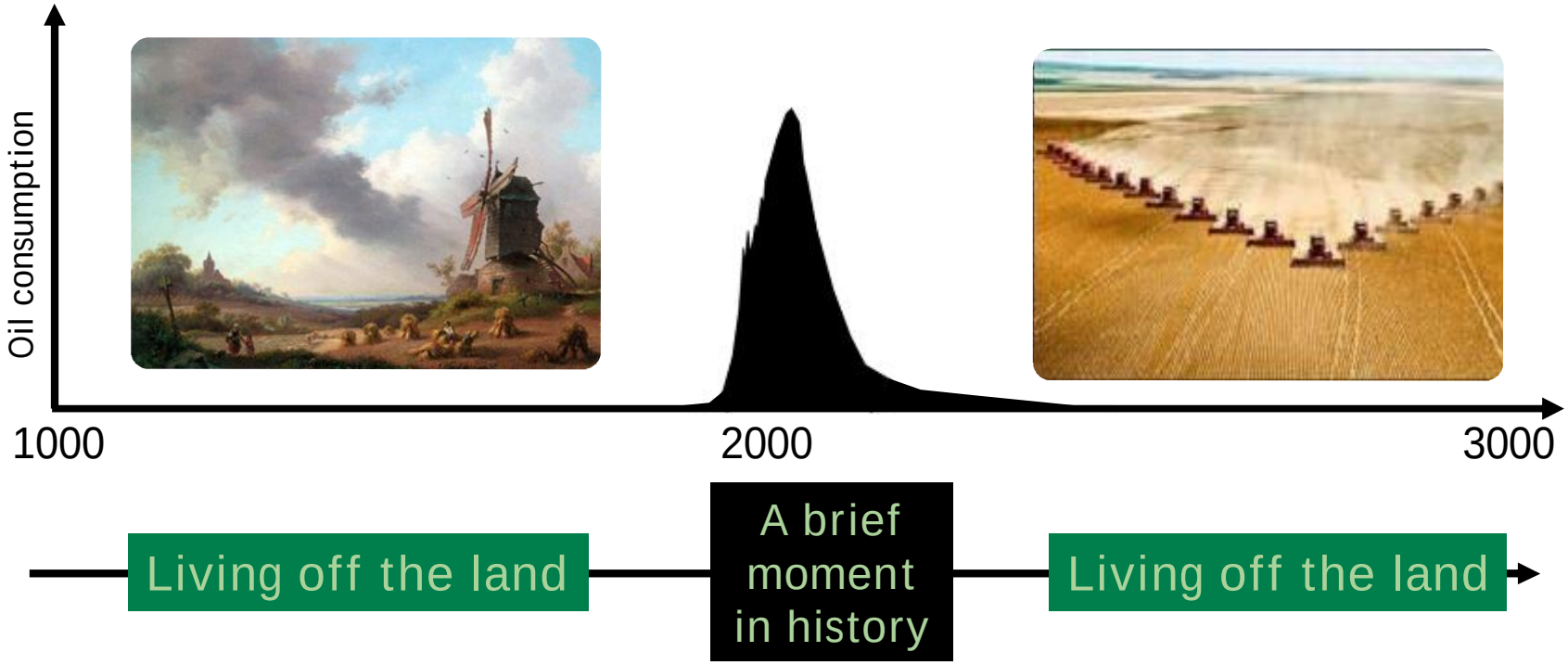
Challenge #2: Energy Security



The Oil age will end long before we run out of oil
And while running out, it will become much more expensive

Challenge #3: Climate Change

We urgently need to improve our carbon footprint

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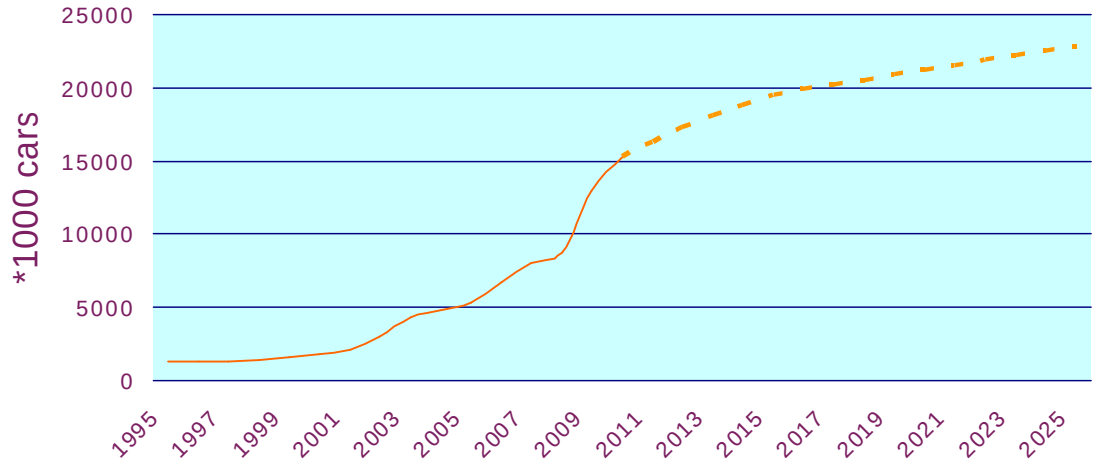
Challenge #4: Demand for Consumer Goods

Car sales in China

Source: JD Power



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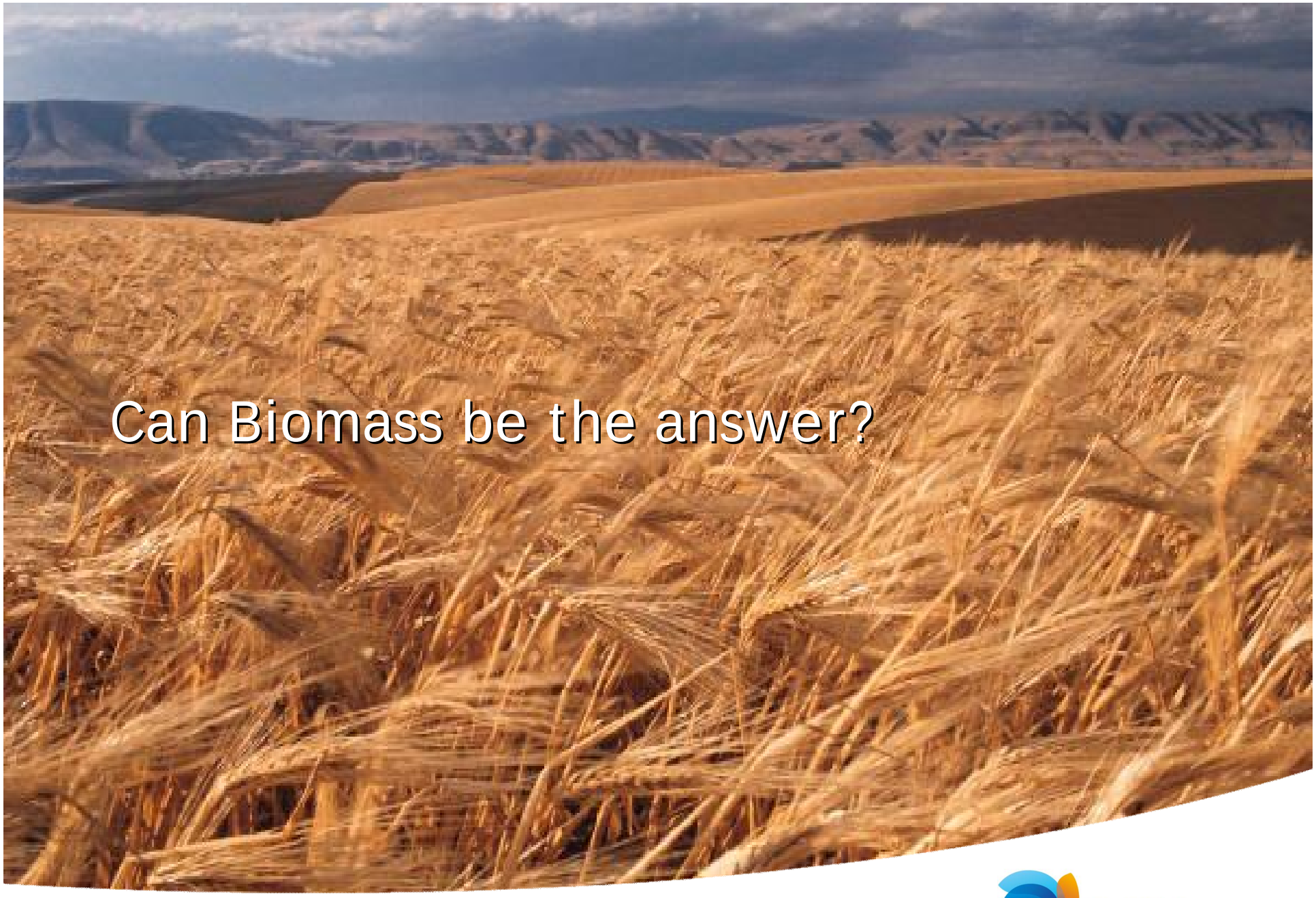

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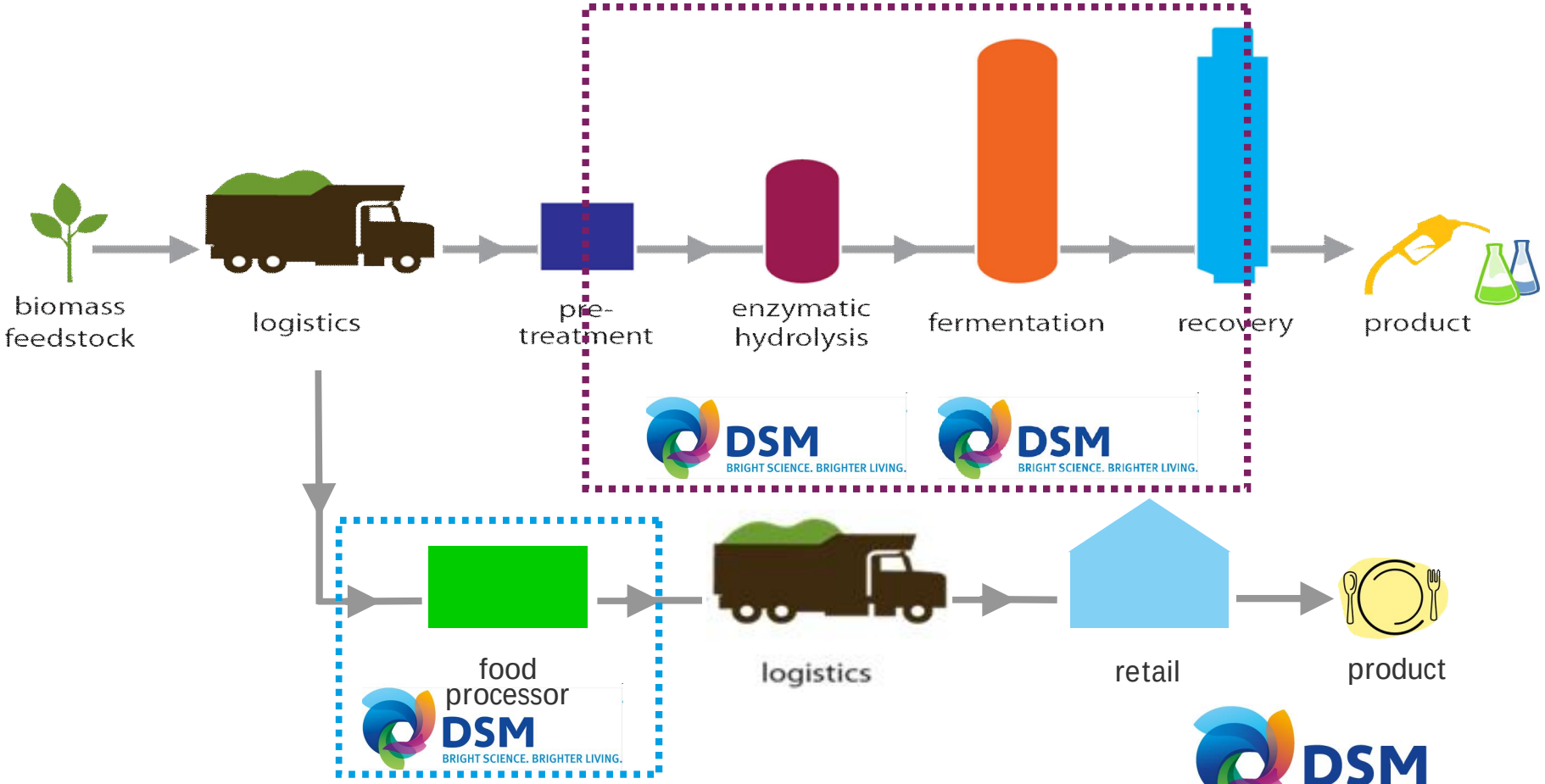
From a technology point of view: it can!



The *Industrial* Green Revolution

First generation

Second generation

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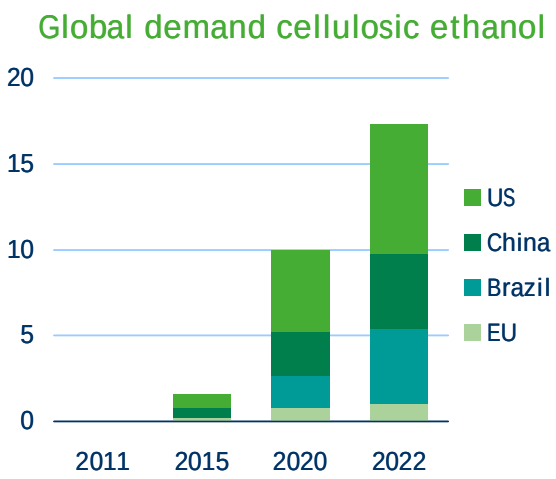
DSM focus on bio-based economy



- Solutions for global Climate & Energy needs
- Leadership position in conversion technologies for Cellulosic biofuels with #1 position in yeast
- Understanding end market needs
- We have the necessary competences including: biotech, chemistry & polymerization

Bio-based Energy

Cellulosic Bio-ethanol
Bio-gas
Bio-diesel

Bio-based Chemicals

Bio-succinic acid
Bio-adipic acid

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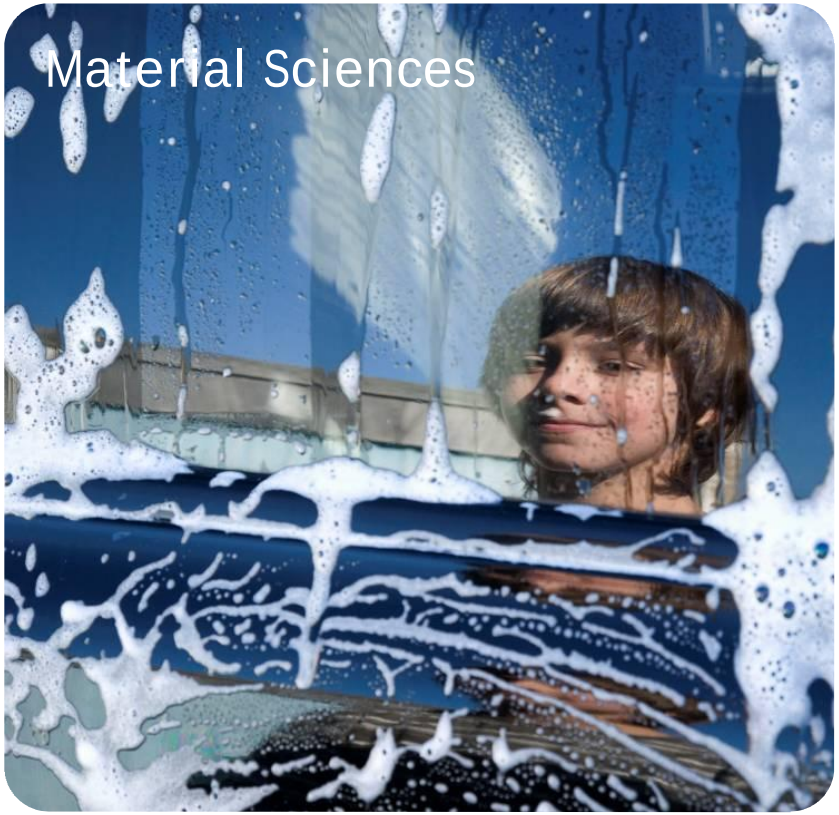
DSM: Life Sciences & Material Sciences



DSM: Life Sciences & Material Sciences

Life Sciences

- World's leading producer of vitamins and other nutritional ingredients
- Involved in fighting 'Hidden hunger'
  - micronutrient (vitamin and mineral) deficiency
  - 2 billion people affected
  - Working with
    - WFP
    - USAID
    - Sight & Life

Material Sciences

- 40+ years in materials experience
- World leader in performance materials

Will there be enough Biomass?
Biomass Availability 2050 (EJ, ExaJoules 10^{18})

- Global energy demand in 2050 is estimated at 600-1040 EJ
- Yearly biomass demand estimate in 2050: 50-250 EJ
- Conservative production capacity estimate 2050 is 200-500 EJ:
  - Reststreams forestry & agriculture: 40-170 EJ
  - Additional forrestry: 60-100 EJ
  - Energycrops from land not used for agriculture (idle): 120 EJ
  - Energycrops on marginal land: 70 EJ
  - Increased agricultural yields: 140 EJ
- Alternative energy sources needed
- Abundant supply for chemicals (<5% of the consumption)

Source: Copernicus Institute, WUR, MNP en ECN; http://www.senternovem.nl

Threats & Opportunities

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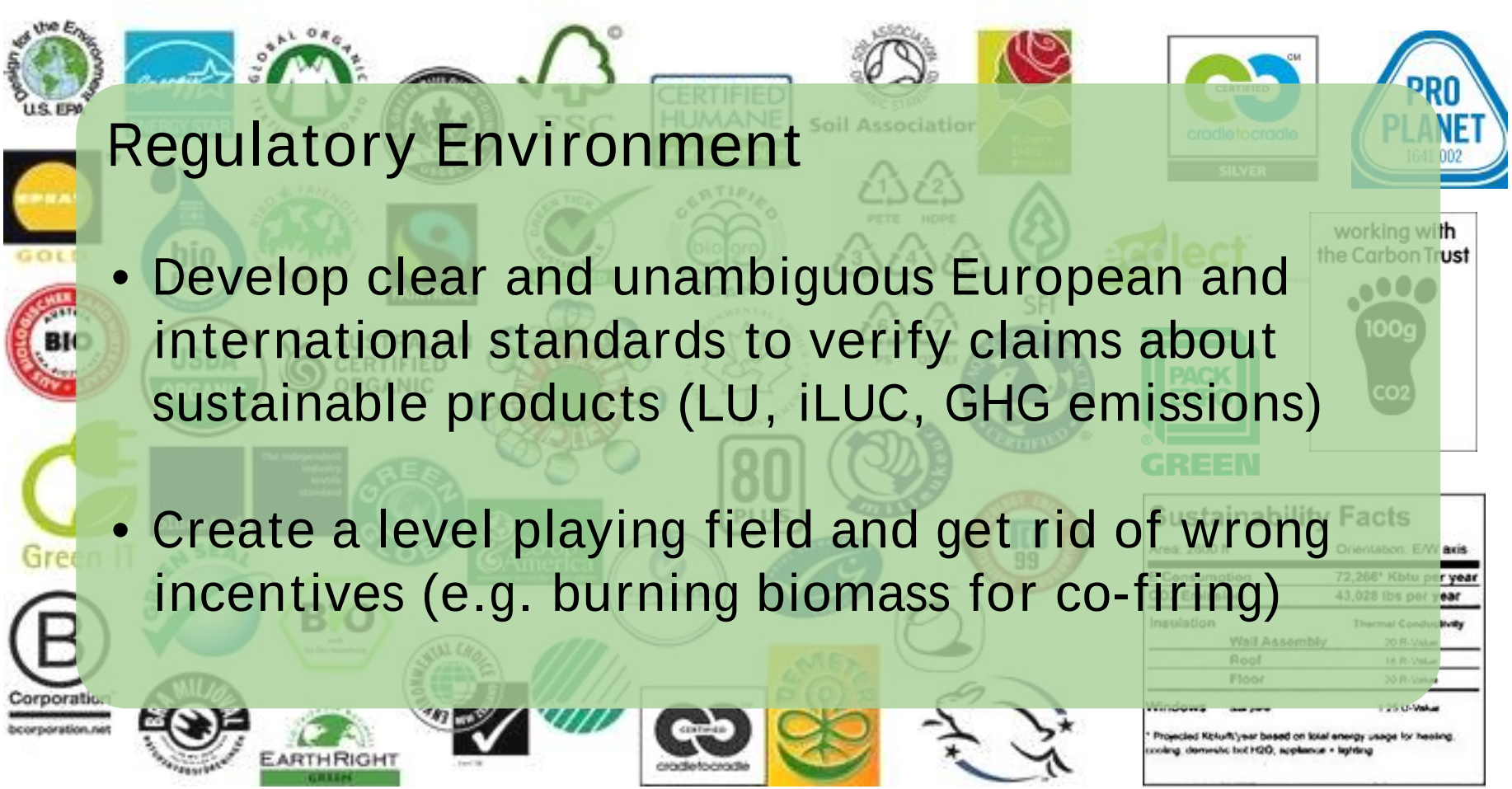
Sustainable Sourcing of Biomass, How?



Regulatory Environment

- Develop clear and unambiguous European and international standards to verify claims about sustainable products (LU, iLUC, GHG emissions)
- Create a level playing field and get rid of wrong incentives (e.g. burning biomass for co-firing)

Conclusions

- Challenges & Opportunities
  - Food security
  - Energy
  - Climate Change
  - Demand for consumer goods
- From Fossil-based to Bio-based: the time to act is now, BUT in a responsible & sustainable way
- Cooperation throughout the value chain is a MUST
- The Bio-Based Economy offers huge opportunities for agriculture

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