Why not the Right:

to Food and Fuel ?

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Daan Dijk Rabobank Nederland

Is there a dilemma?

Can we feed 9 bn. and fuel the economy sustainably?

Trends in Food & Agriculture

- Available calories/cap: 25% up in spite of tripling world population since WWII
- Agricultural production to double by 2030 (assuming arable land will not exceed 1.6 bn ha currently)
- Increased efficiencies in use of land, water, labour and other inputs have led to overproduction and to price erosion since WWII
- Changing Diets; Today 40% of cereal crops used to feed life stock
- Currently < 0.1% of global arable land used for modern bio-energy crops
- Still large surplus land suitable for rain fed crop cultivation: 4,2 bn ha
- 70% of the world's poor live in rural areas with very low land productivity

Food Security depends on more variables

Trends in Energy

- Global energy demand up with 50% from 470 EJ to >700 EJ in 2030
- Strongest growth in electricity use and energy for transportation
- Share of Renewable energy 13% but 10% (47 EJ) is conventional bio-energy and poses a serious threat to natural forests and biodiversity
- Strong growth in Wind, Bio-energy and Solar but share of RES in global demand still <3%
- Modern Bio-energy provides only about 1% of global energy demand
- But attracted more VC/PE investment in 2005 than Solar ($ 3.9 vs. $ 1.8bn)

Bio-energy has a large potential

Solar Energy and Electric Cars may change the role of (bio)fuels

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- Tesla Motors was founded in 2003, 'to make electric cars that are fun to drive'.
- Tesla Roadster was launched in July 2006. A two-seat sports car powered by a motor with only one moving part, the Tesla Roadster is capable of 135 mpg equivalent (57km/l), and accelerating from 0 to 60 mph in about four seconds, with a range of 250 miles on a single charge
- Sales: from 2007 onwards in North-America, first 100 cars already sold.

Ultimately sustainability is an equipment industry

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Why Bio-energy?

- Bio-energy driven by very real concerns:
  - North: energy security & climate change
  - South: income generation & access to energy
- Bio-energy can compete with fossil fuels in many end use markets
- Bio-energy commodity prices follow oil prices and not vice versa
- Small holders and local producers of biomass can make a profit

Energy Crops do not need to be Food Crops

Biofuels can help rural development

- Agriculture has inportant role in rural development
  - Many countries depend on income from agriculture
  - 70% of the world's poor live in rural areas.
  - 50% world population depends on traditional biomass for basic but very unhealthy energy services
- Need for a new "green revolution"
  - Boosting land-, water- en labour productivity
  - Increasing income levels
  - Increasing local food and energy security
  - While protecting biodiversity and natural forests

Trade conditions for bio energy should be on a par with oil

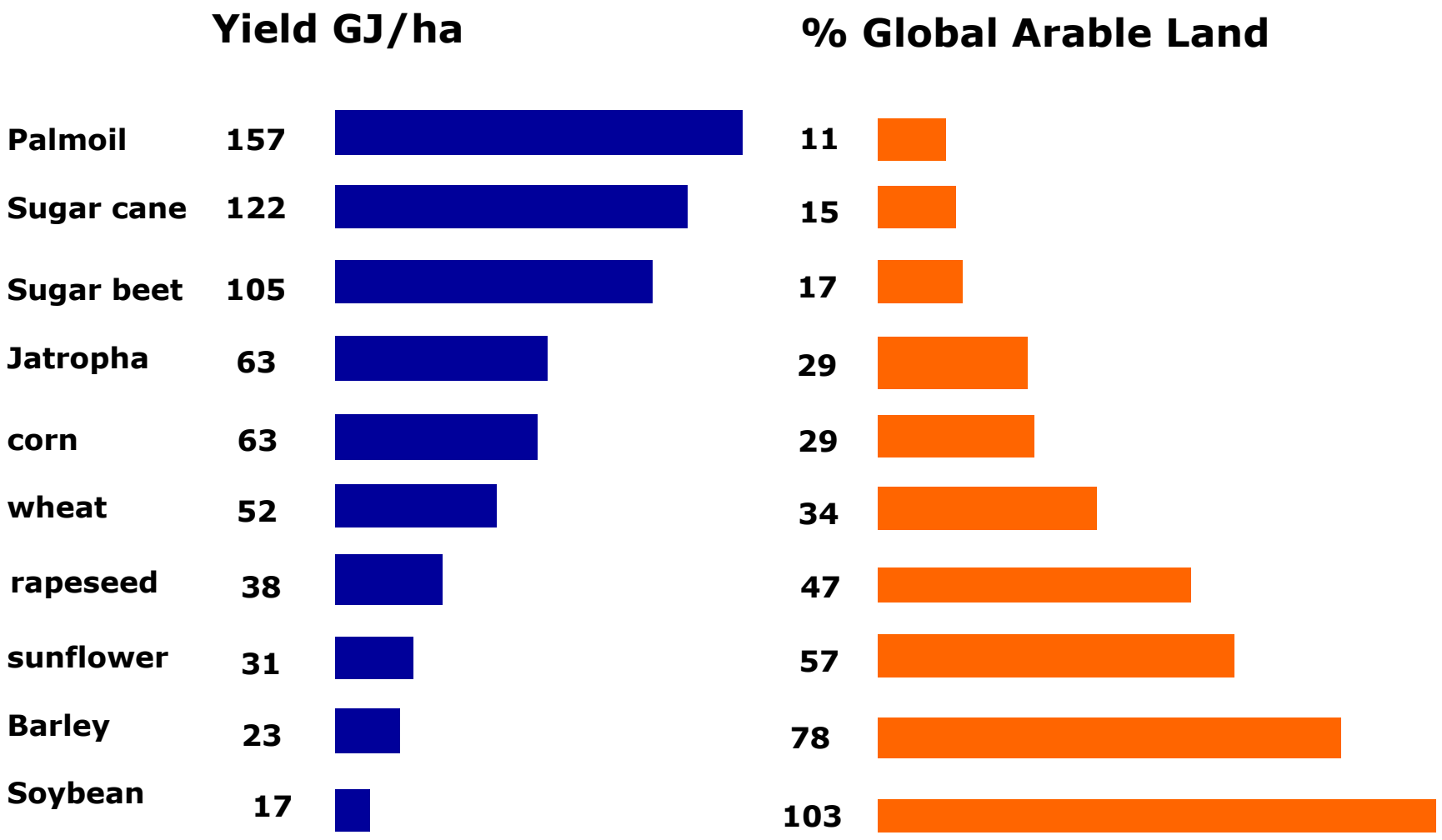
Cassava: Example case sustainable intensification

- Multiple uses
- Can be used for food
- Or converted to bioethanol
- Residues biofuel used as feed for livestock
- Extra income from carbon credits

Need for pilot projects , “show cases” of sustainable intensification

Is Acreage an Issue?

Land Requirements for 25% substitution of transport fuels



Food or Fuel?

- Conflicts can be avoided by clever choice of feedstock
  - High yield (perennial) crops
  - MSW and agricultural residues
  - Non food crops and cellulosic crop residues (2nd generation)
  - Aquatic biomass (algae)
- Potentially enough for 1/3 rd of projected global energy demand in 2050
- This would require some 20% of agricultural/pasture lands
- Income form bio energy can increase agricultural productivity and free up land for food, feed and fuel
- Bio-energy to be complemented by energy efficiency and other renewables

Revenues from energy farming can boost agricultural productivity

Key success factors bio-energy

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- Know how, technology
  - Crop choice,
  - Yield per ha,
  - Cost of production
- Organization of the value chain
  - From crop to drop
- Civilization in the value chain:

Sustainability not an option but a condition

"Cramer Criteria"

- Broeikasgas: overall balans positief; behoud van bestaande koolstofreservoirs
- Lokale voedselvoorziening en biomassatoepassingen: niet in gevaar brengen
- Beschermde gebieden & kwetsbare biodiversiteit: uitgesloten; waar mogelijk versterkt
- Bodem-, water- en luchtkwaliteit: minimaal behouden
- Positief effect op lokale welvaart:
- Goed voor welzijn van werknemers en lokale bevolking:.

Speciale aandacht voor kleine producenten

Toetsingskader

- Bedrijfsniveau:
- Bewijslast bij aanbieder bio-energie of biobrandstof
- Keten verantwoordelijkheid
- Certificeringsysteem noodzaak

- Macroniveau: primair overheden
- landgebruik, grond- en voedsel prijzen, ontbossing
- Indirecte effecten op voedselvoorziening, welvaart
- Internationale samenwerking bij monitoring:

Hoe verder?

- Overheid
- Duurzaamheidscriteria verwerken in stimuleringskader bioenergie
- Vormgeven aan toetsingskader op macro-niveau (BUZA/OS)
- Versterken Internationaal draagvlak: EU & productielanden

- Bedrijven
- “Cramer regels” geen luxe maar noodzaak
- Handelen volgens toetsingskader

- Practisch vervolg
- Samenwerkingsverband overheid, bedrijven, NGO’s
- In pilotprojecten certificering en rapportage verder ontwikkelen

“Coalition of the Willing”

- BIOX
- Cefetra Groep
- Control Union
- ECN
- Electrabel
- EPZ
- Essent
- Havenbedrijf Rotterdam
- IMSA-OASE
- LEI
- Maris Group
- NUON
- Oxfam Novib Probos
- Peterson Bulk Logistics
- Rabobank
- Shell Nederland
- Universiteit Utrecht
- VNPI
- Wereld Natuur Fonds
- WUR

Why we care?

- The core business of our clients is in natural resource development
- Their long term business depends on sustainable natural resource use
- Nature is unforgiving, we need to play by the “rules of the house”

Your Partner in Sustainable Food, Feed & Energy Farming

Conclusie

- Groei Bio-energie vooral gedreven door overheden (Noord en Zuid!)
- Snel toenemende vraag naar en productie van biomassa voor energie
- Positief voor energieleveringszekerheid, klimaat en rurale ontwikkeling
- Maar ook reële bezorgdheid over mogelijke schadelijke neveneffecten
- Overheden willen daarom stimulering koppelen aan criteria t.av . duurzaamheid
- Ook consumenten/NGOs stellen eisen aan integriteit bio-energie productieketen
- Ondernemers en de financiële sector kunnen hier niet om heen