Dutch Agriculture and the Climate

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Focus of this presentation

• Short introduction of agriculture in The Netherlands

• Mitigation and agriculture in The Netherlands
  o Objectives and results
  o Main issues and policies

• Adaptation and agriculture in The Netherlands
  o Possible effects, positive as well as negative
  o Policy

• International aspects
Land Use in the Netherlands

Nature (ca 12%)
- Wetlands
- Forests and semi-cultivated lands

Agriculture (55%)
- Western part: urban dominated
  Mainly sub sea level
  Clay (arable use) and peatland (meadows)
- South-West: clay (arable use)
- Northern part: clay (arable use) and peatland (meadows)
- South and East
  Sand and (river) clay with meadows forests and moorland

NB 19% is water
Dutch agriculture: key figures

• Economic significance of the AgriFood complex: 675,000 fte
  (10% of employment)

• Added value: €52 billion
  (9.5% GDP)
  • Livestock € 26 billion
  • Greenhouses € 9 billion (check)

• Export Value: € 85 billion
  (22%, 2016),
  76% within Europe

• Wageningen University and Research
Climate Change: The critical role of Agriculture, Forestry and Other Land Uses

Fundamental human activities (crop and livestock production, forestry, associated land use changes) are both a cause of, and a potential victim of, current and future climate change:

1. They are responsible for large, global scale environmental change

2. Management practices and land use change lead to large amounts of GHG

3. The resulting climate change endangers food security and ecosystems
Climate Smart Agriculture

• It is a huge challenge to feed the world’s 9 billion people in 2050.

• Climate Smart Agriculture:
  • increasing sustainable food production,
  • enhancing resilience to climate change
  • and reducing greenhouse gas emissions.

• Focus of this presentation: mitigation and adaptation
Mitigation: points of action in a nut shell
Dutch approach

• Covenants and multiyear agreements
  o Agro Covenant (2008 – 2020)
  o Long-term agreement Energy Transition Greenhouse Sector (2014 – 2020), including an innovation programme
  o Long-term agreement on energy efficiency Agro Industry (food sector)

  o OESO-report: *SYNERGIES AND TRADE-OFFS BETWEEN AGRICULTURAL PRODUCTIVITY AND CLIMATE CHANGE MITIGATION AND ADAPTATION: DUTCH CASE STUDY*
  http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=COM/TAD/CA/ENV/EPOC%282016%297/FINAL&docLanguage=En

• Stimulation of innovation (Wageningen University and Research)
• Subsidies or tax reduction on innovations and investments
• Subsidies on the production of renewable energy
• Communication directed at the reduction of meat consumption
Objectives and results Agrocovenant
(Source: Moerkerken et al., 2014, page 11)

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<thead>
<tr>
<th>Topic</th>
<th>Ambition 2020</th>
<th>Realised in 2012</th>
<th>Reference 1990</th>
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<tbody>
<tr>
<td><strong>Saving energy 1990-2020</strong></td>
<td>&gt;2% per year</td>
<td>2,9% per year</td>
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<td><strong>Increased energy efficiency all sectors</strong></td>
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<td><strong>GHG emissions 1990-2020</strong></td>
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<td>– CO2-emission agriculture</td>
<td>6,2 Mton (-20%)</td>
<td>6,2 Mton</td>
<td>7,6 Mton</td>
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<td>– Non-CO2 emission agriculture</td>
<td>16 Mton (-30%)</td>
<td>18,4 Mton</td>
<td>24,6 Mton</td>
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GHG emissions Dutch agriculture (1990-2014)
source: Pollutant Release and Transfer (Register/CBS,PBL and Wageningen UR, 2016)
Agricultural greenhouse gas emissions resp. Total, CO$_2$, N$_2$O and CH$_4$
CO$_2$ trend - greenhouse sector

Glasshouse cultivation (greenhouse gas total as CO2 equivalent)

Electricity production from CHP (2010 = 100%; see right axis)
N$_2$O trend - fertilizer use
CH₄ trend - livestock farming
Working towards a new agreement with the agrisectors

- EU pledge for Cop21 (de INDC): at least 40% reduction of domestic greenhouse gases in 2030
- Effort Sharing Decision (2016/2017)
- EU Winter Package: governance (2017)
- National Integral Energy and Climate Plan (2017 and 2018)
- New agreement with the agricultural sectors 2021 – 2030?
Necessity of adaptation

Percentage change in yields between 2010 and 2050

More specific: Europe
Adaptation – policy until 2016

• Up to the farmers:
  o agricultural watermanagement (together with the Waterboards)
  o adaptation to the salification of ground water in coastal areas (other crops)
  o risk management on the farm by preventive measures like diversification, soil management, drainage, insurance etc.

• Governmental facilitates:
  o Helping to start an insurance against extreme weather events
  o Wageningen University and Research.

• More general: water policy; Common Agricultural policy; spatial planning; land leasing prices; etc.
June 2016
Adaptation - policy – after 2016

• National Adaptation Plan 2016
  o Many effects on agriculture positive as well as negative (see picture)

  o Main issue for agriculture: extreme weather events

  o June 2016: wake up call: a hail storm with (very local) massive damage on buildings, crops and greenhouses

  o Coming years: more involvement of the ministry

  o International cooperation on knowledge exchange, innovation and research
snapshot international initiatives & partners
International

• Food chains operate internationally

• The European food system impacts food systems worldwide

• E.g. soy and palm oil are major import products that have substantial impact on biodiversity and greenhouse gas emissions outside Europe

• This is an object of concern

• Eddy Esselink will go into this later in the programma.
European Declaration in December 2015

- Private Sector: “Commitment to Support 100% Sustainable Palm Oil in Europe”
- Public Sector: “The Amsterdam Palm Oil Declaration”
# Policies adaptation and mitigation -1

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<tr>
<th>International &amp; Regional</th>
<th>Trade &amp; economic cooperation agreements</th>
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<tbody>
<tr>
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<td>• WTO regulations and agreements</td>
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<td>• Bilateral, regional and multilateral trade agreements</td>
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<td>• European Agricultural Policies (e.g. Rural Development Plan, expiring dairy quota)</td>
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<td>Climate frameworks, agreements &amp; coalitions</td>
<td>• United Nations Framework Convention on Climate Change</td>
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<td>• Kyoto Protocol (1(^{st}) commitment period 2008-2012 and 2(^{nd}) commitment period 2013-2020)</td>
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<td>• Global Climate Change Alliance</td>
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<td>• Global Alliance for Climate Smart Agriculture</td>
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<td>• COP 21- Intended Nationally Determined Contributions (INDC)</td>
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<td>National development plans</td>
<td>• “Climate Agenda: Resilient, Prosperous, and Green” (2013)</td>
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<td>National adaptation plans</td>
<td>• Green Loans (1995 - )</td>
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<td>• Dutch enterprise policy (generic instruments)</td>
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<td>• Incentive scheme sustainable energy production (SDE+)</td>
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<td>• Tax relief for environmental friendly investments</td>
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<td>Rural development plans</td>
<td>Rural Development Plan (RDP)</td>
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Policies adaptation and mitigation -2

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<tr>
<th>Sectoral</th>
<th>Land Legislation and policies outlining the allocation of national land resources: land rights, distribution, acquisition, management, use, forms of tenure</th>
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| Non-agricultural (Energy, infrastructure, water, mining, & trade) | • “Energy Agreement for Sustainable Growth” (2013)  
• Water Framework Directive (WFD)  
• EU Action on Water Scarcity and Drought  
• Delta Programme  
• National Emission Ceilings for certain pollutants (the NEC Directive)  
• Top sectors policy  
• Energy saving subsidies: De Demonstratieregeling Energie Innovaties (DEI) en de subsidie duurzame energie (SDE). |
### Policies adaptation and mitigation -3

**Agri-cultural**
- Platform Sustainable Greenhouse Horticulture (PDG) Programme for the Reduction of other GHG (ROB, 1999)
- The General Administrative Regulation for Holdings in the Greenhouse Sector (AMvB Glastuinbouw 2002)
- Integrated approach on Nitrogen (PAS)
- Action Programme “Greenhouse as Source of Energy”
- Covenant for Clean and Efficient Agricultural Sectors 2008-2020
- “Sustainable Dairy Chain”
- Long-term agreement food sector
- Long-term agreement energy transition greenhouse sector 2014-2020
- Green Deal Initiatives
- CO2 offsetting system in greenhouse horticulture
- Research and development (innovation policy, innovation programme low-emission animal feed
- Financial incentives energy saving (subsidy market introduction energy innovations for greenhouse horticulture (in Dutch: Marktintroductie Energie Innovaties, MEI) and subsidies for investment in energy efficiency and renewable energy 2016)