

Material flow in the German biofuel sector, 2007

Kathrin Strohm

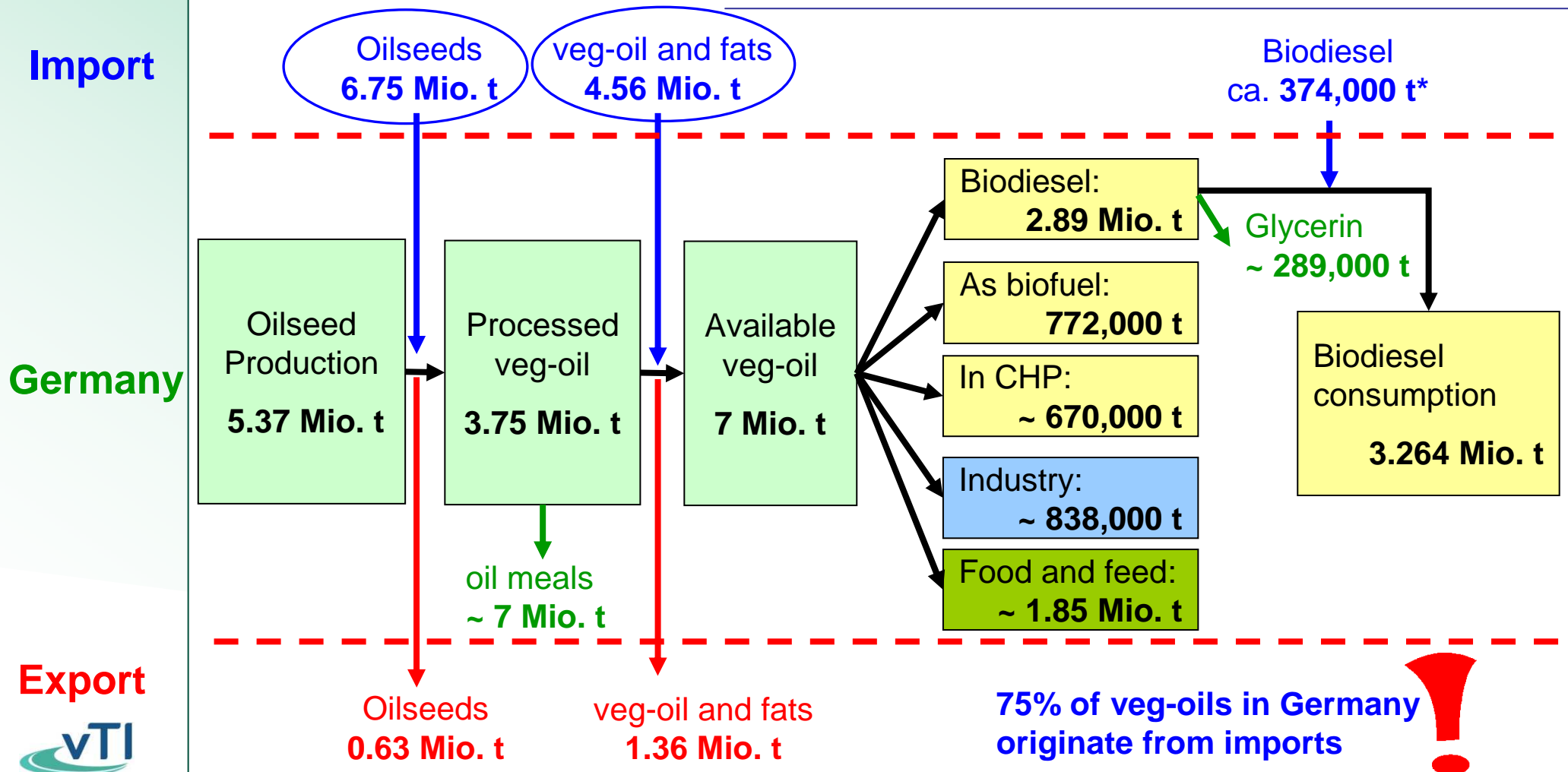
Berlin
01.12.2009



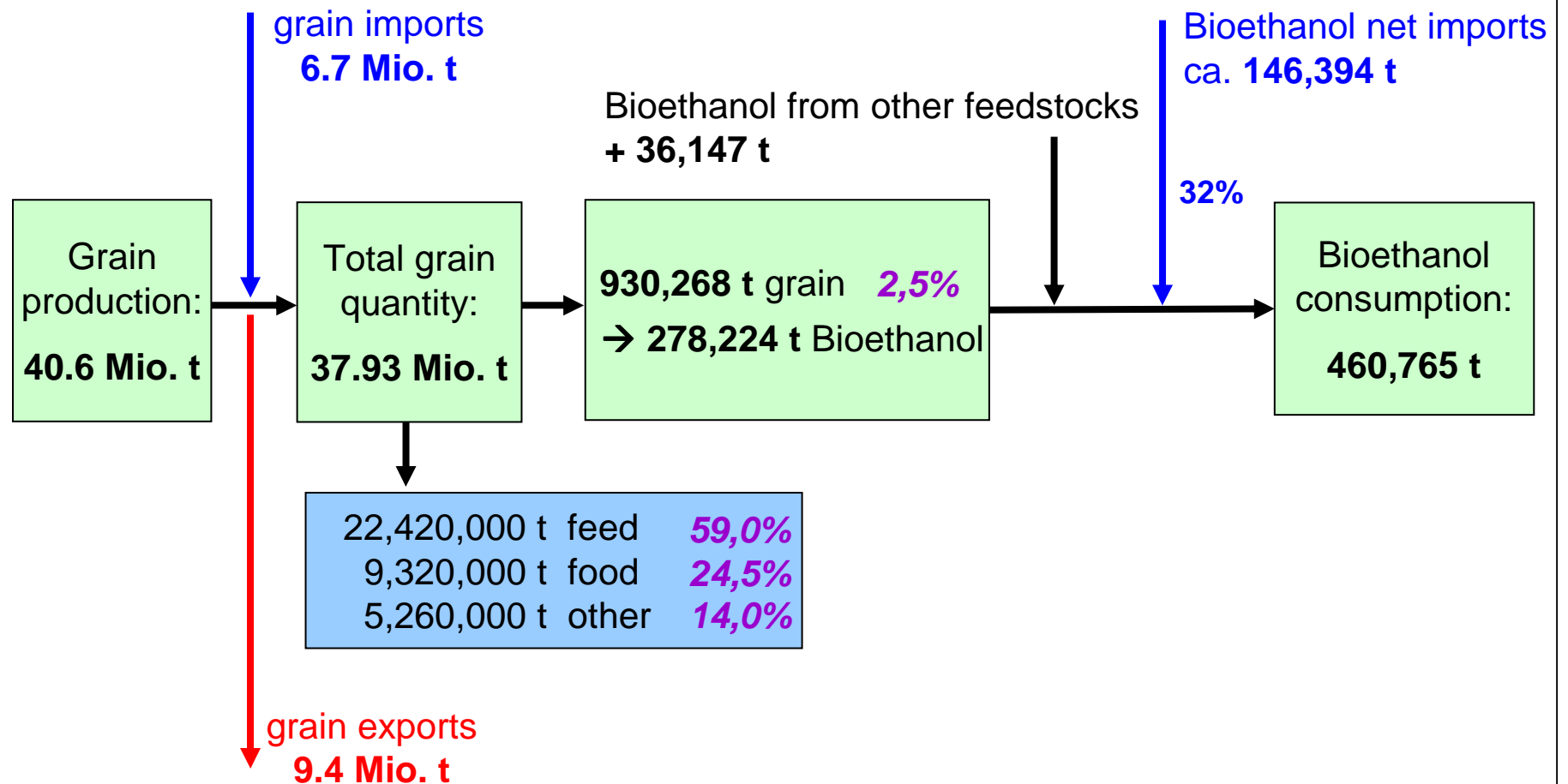
Background

- **Study on behalf of BMELV**
- **Conducted Feb – April 2009**
- **Data sources:**
 - **Various official statistics of ministries and state agencies**
 - **Data of biofuel associations**
 - **Few estimations where data gaps**

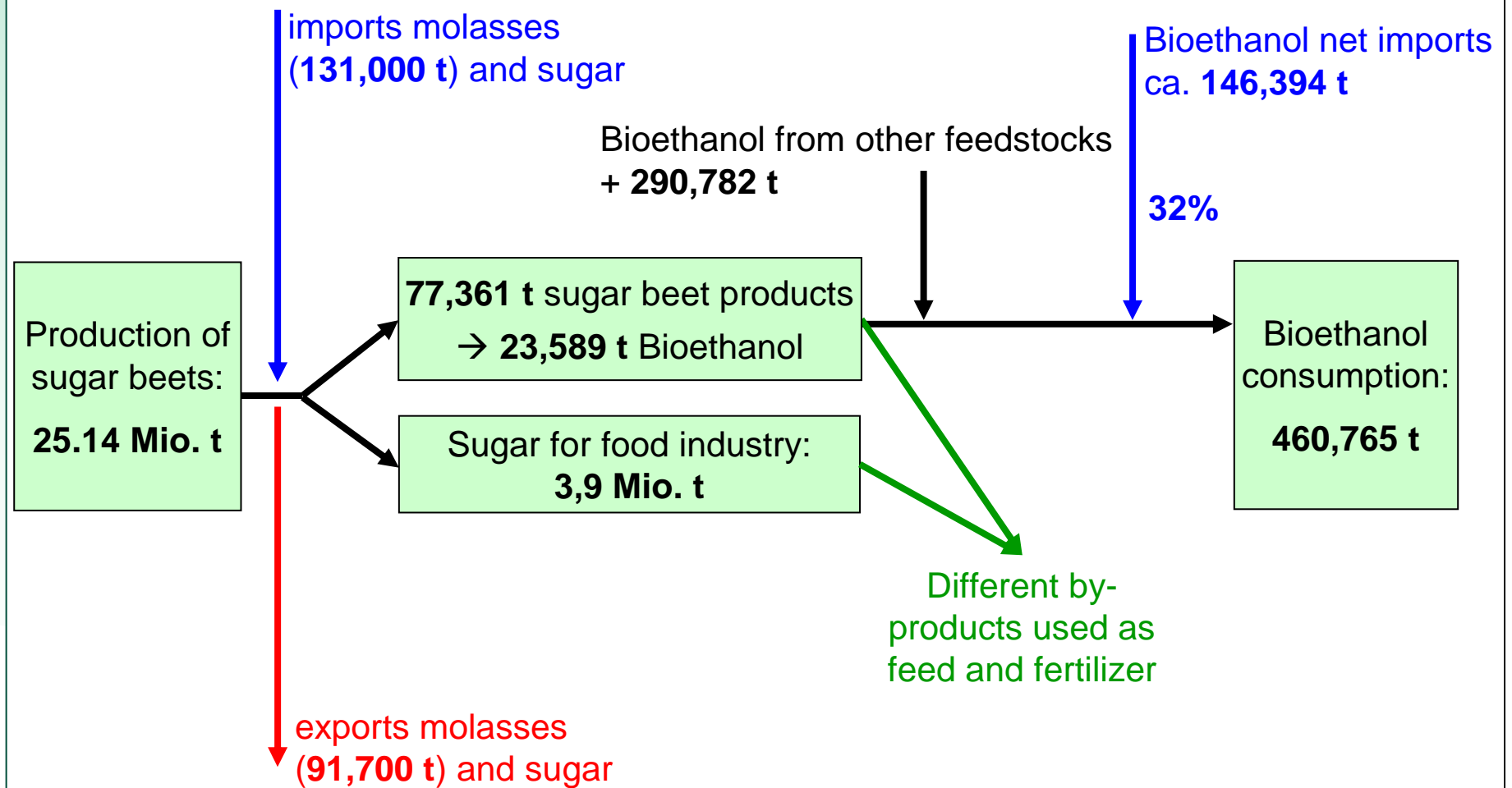
Use of vegetable oil, Germany 2007



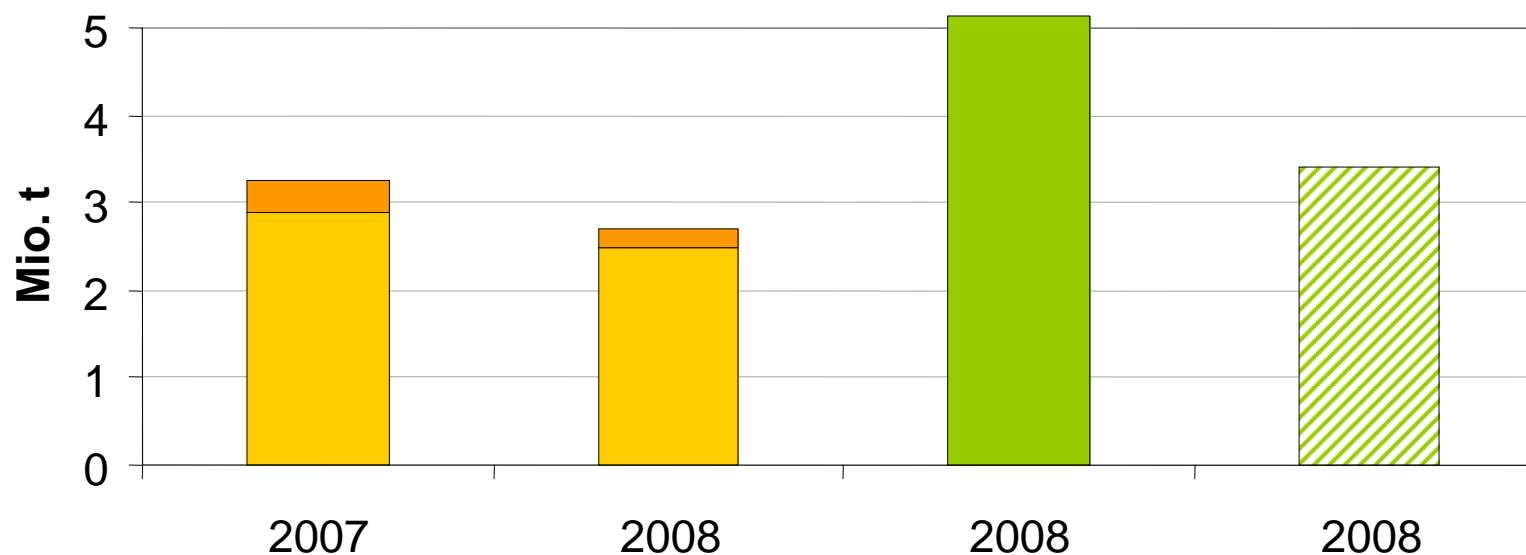
Bioethanol from grain, Germany 2007



Bioethanol from sugar beets, Germany 2007



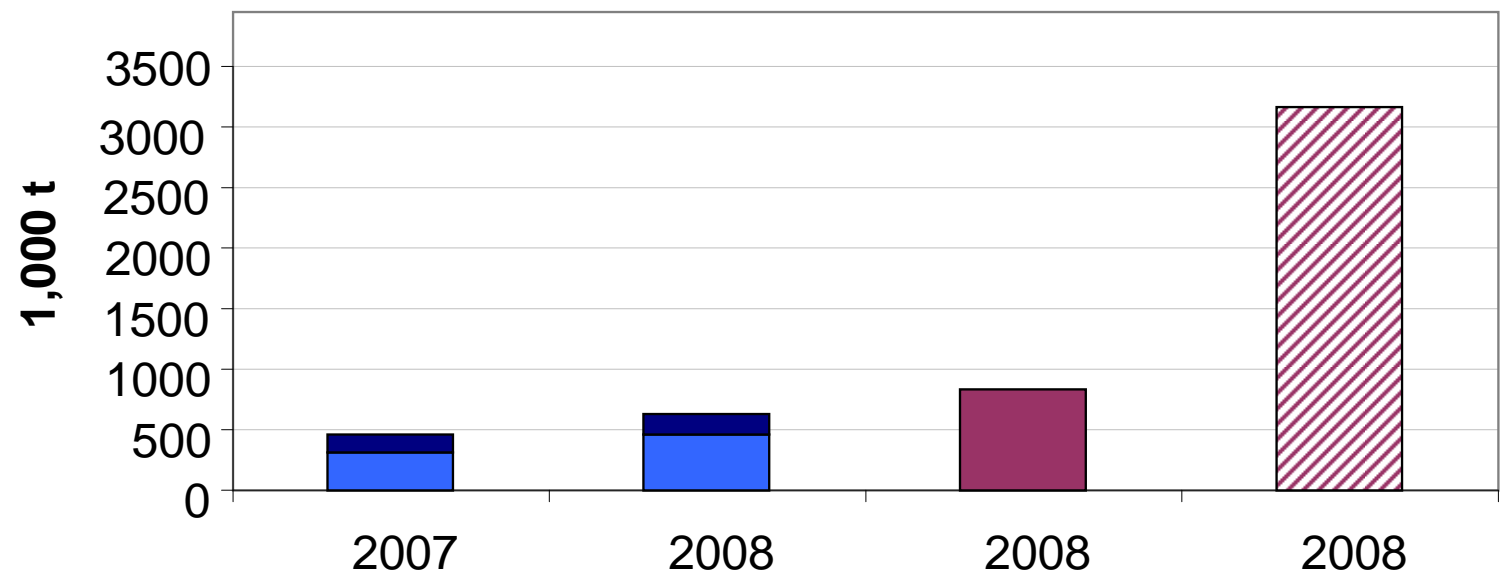
Biodiesel overview Germany 2007 - 2008



**In the long run:
Biodiesel: 2 – 3,5 Mio. t**

- Production in DE
- Net Imports (estimate)
- Production capacity in DE
- ~ 10% of DE 2008 diesel consumption (energetic)

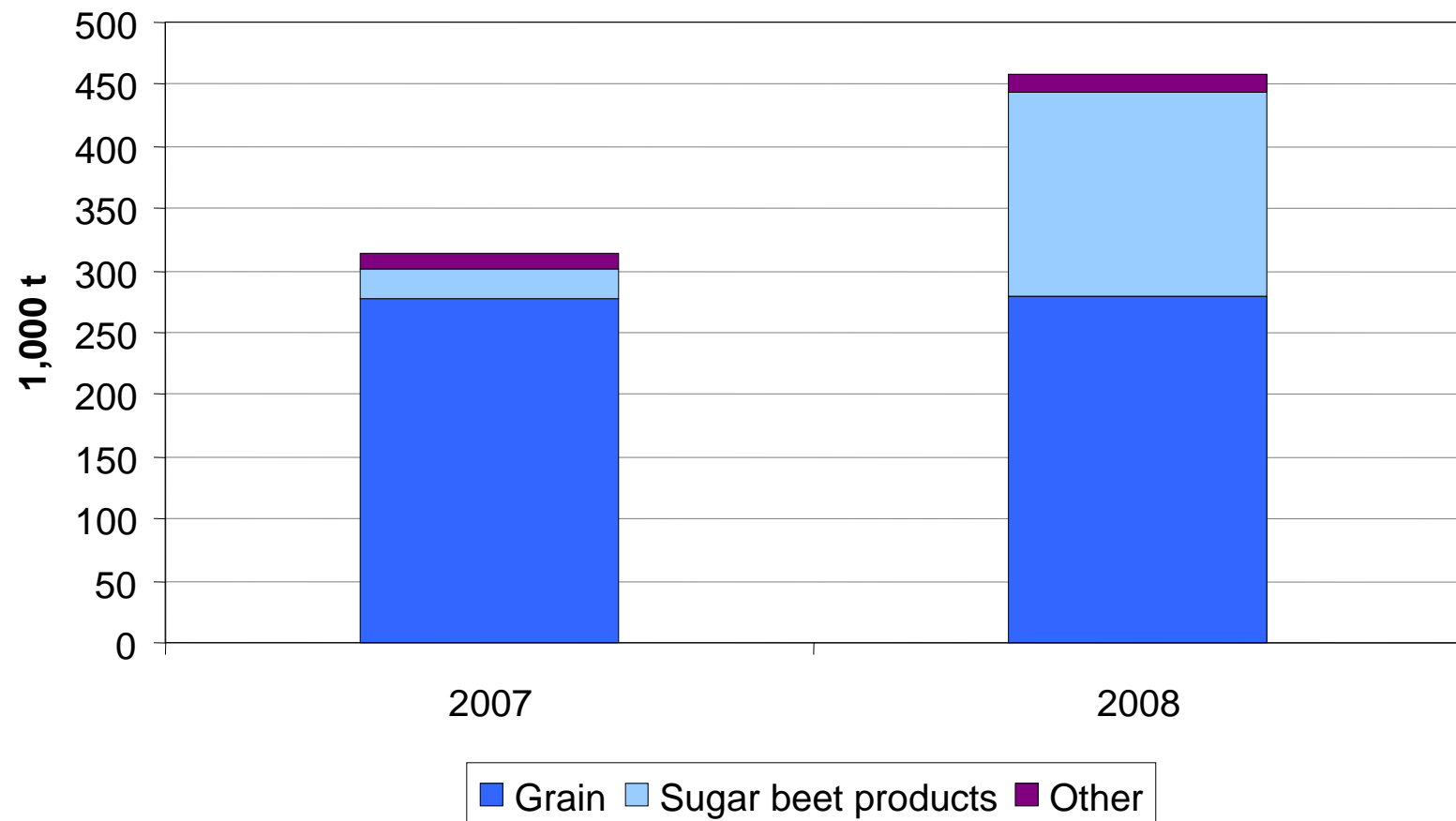
Bioethanol overview Germany 2007 - 2008



**In the long run
Bioethanol:
1,5 - 2,5 Mio. t**

- ~ 10% of DE 2008 gasoline consumption (energetic)
- Production capacity in DE
- Net Imports (estimate)
- Production in DE

Feedstock for Ethanol production in Germany



Sustainably produced biofuels – needed in 2010

Ministry of Finance and Environment estimate...

- ca. 948,000 t Bioethanol
- ca. 3 Mio t Biodiesel / vegetable oil

...to be needed to fulfill biofuels quota (combined: 6,25%)
in 2010.

EU Directive 2009/30/EC – fuel quality

- Member states have to request suppliers of transport fuel to gradually reduce their life cycle green house gas emissions by a minimum of 6% until 31.12.2020
 - reference = EU average of fossil fuels in 2010
 - 2% by 31.12.2014
 - 4% by 31.12.2017
 - Needs to be translated into national law by 31.12.2010

If possible and after investigation, further

- 2% reduction via the use of CCS and electric vehicles and
- 2% reduction via the measures of the Kyoto protocol

Possibilities to fulfill the fuel quality directive

1. Improve efficiency of fossil fuel exploration
 2. Improve conversion process (refinery efficiency)
 3. Use of biofuels
 4. Use of alternative fuels (electricity, CNG+Biomethan etc.)
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- Options 1 and 2 have only very little impact
 - Biofuels will play major role to fulfill requirements
 - biofuels with larger GHG saving potential will gain in importance

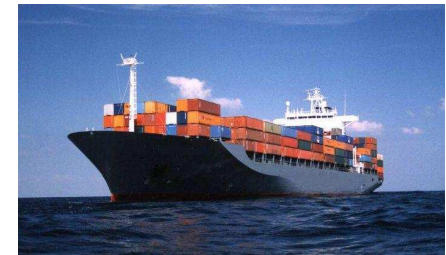
Coalition agreement – German government October 2009



Latest by 2013 the extent of **tax reductions** for biofuels shall be designed **according to their CO₂ reduction potential**.

Conclusions

- So far, German Ethanol market much smaller than Biodiesel market but potential for growth, especially once E10 will be introduced
- Imports play already a significant role for Germany's supply with vegetable oils and biofuels
→ in future likely to increase



Backup

Calculation of 10% biofuels share in 2008

Biodiesel:

$$31,075,000^1 \times 10\% \times 1/0,91^2$$

¹ Consumption of diesel and biodiesel in DE in 2008

² 0,91 = diesel equivalent

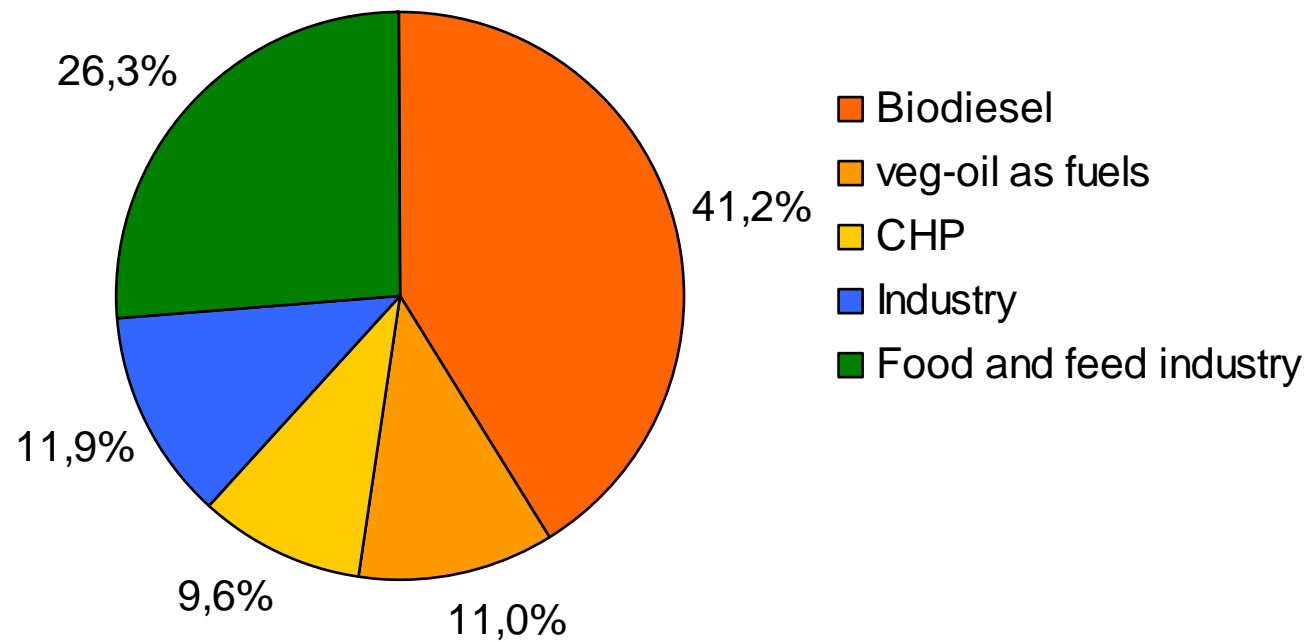
Ethanol:

$$20,569,000^1 \times 10\% \times 1/0,65^2$$

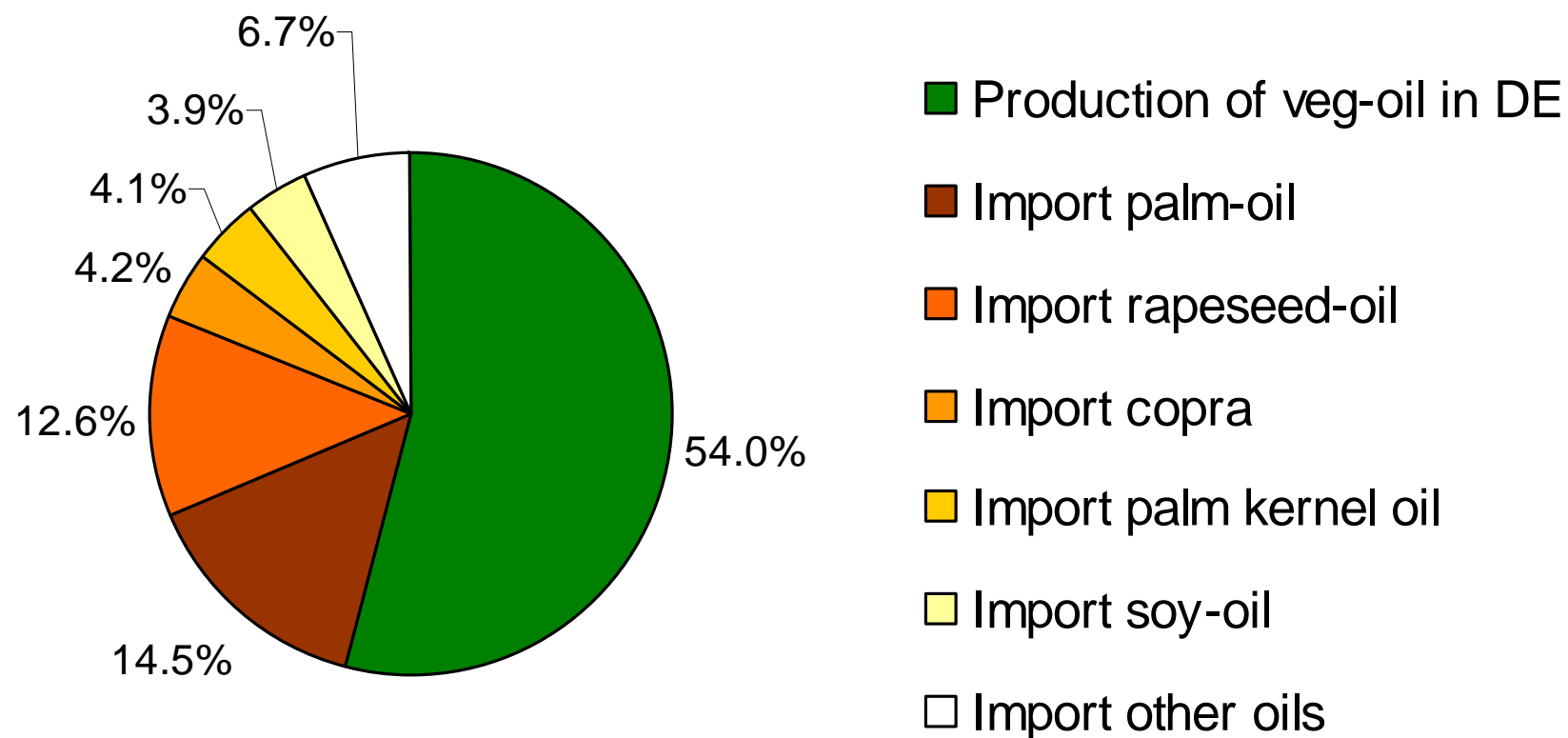
¹ Consumption of gasoline and ethanol in DE in 2008

² 0,65 = gasoline equivalent

Use of vegetable oil, Germany 2007



Type and source of veg-oils, Germany 2007



Use of selected vegetable oils, Germany 2007

