



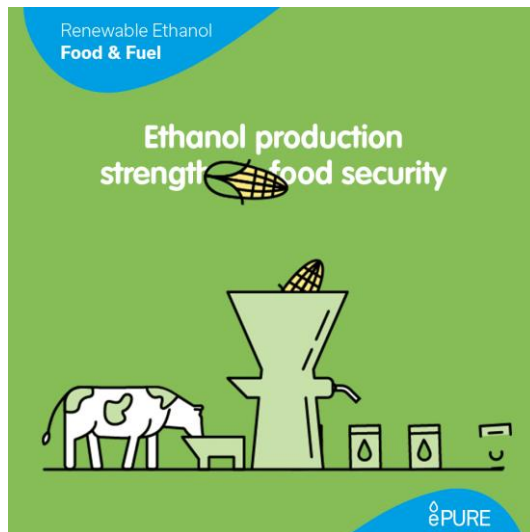
Ethanol in Europe

***Bioethanol in Europe a story of chances for all:
Environment – Farming – Feeding – Independence
DG Agri - Market Observatory Comite
5. July 2019, Brussels***

European renewable ethanol fuels decarbonisation

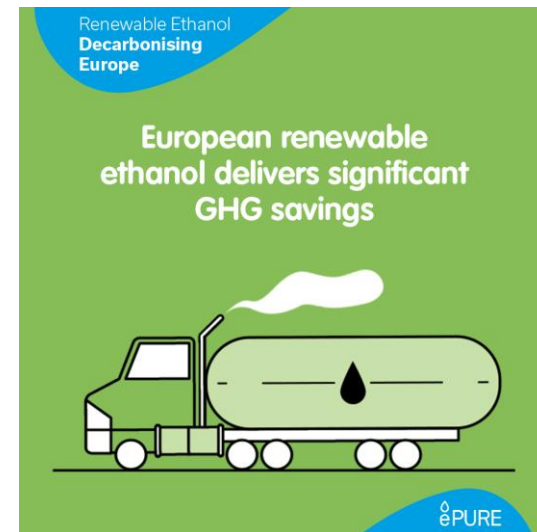
A renewable energy source that...

- Is produced from European crops, wastes and residues
- Creates food AND fuel
- Boosts rural economy
- Delivers important climate benefits

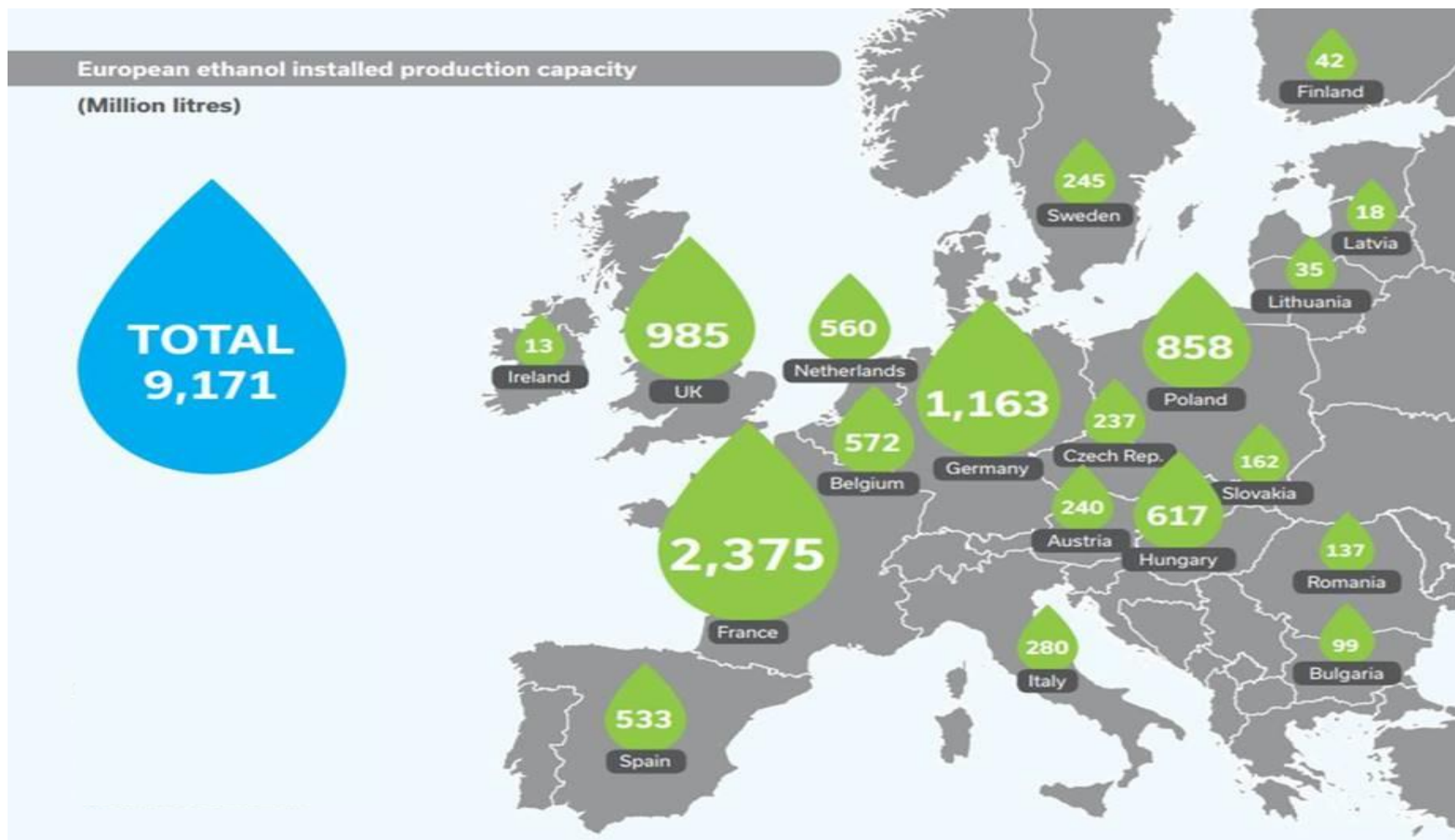


A clean mobility solution

- 70% GHG savings over petrol
- Reduces harmful emissions
- Works at scale in today's cars (E5, E10...)
- E10 a success in several countries
- Essential to decarbonisation goals

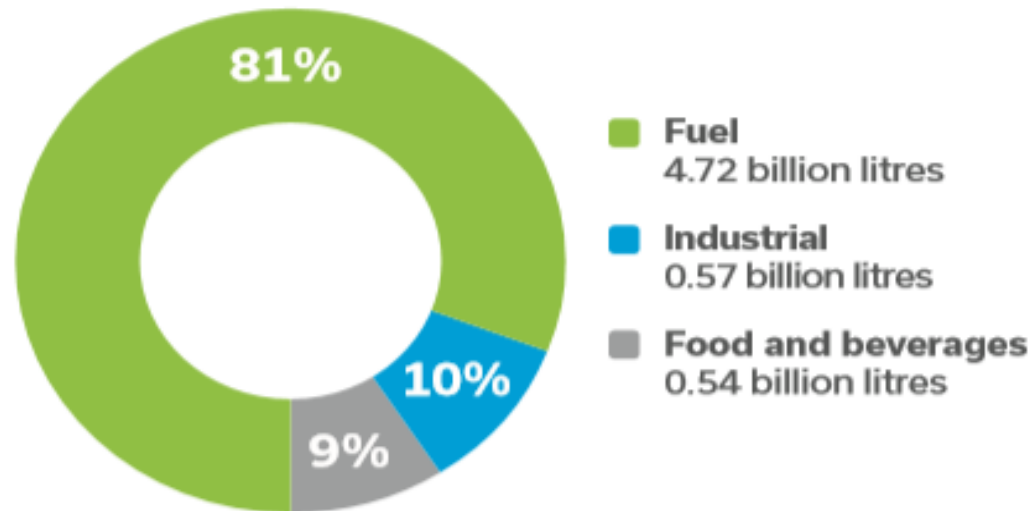


Geographical Ethanol production EU



Renewable ethanol production by end-use

In 2017, ePURE members produced 5.84 billion litres of ethanol, 81% of which was for fuel use. Other markets, such as beverages and industrial applications represented respectively 9% and 10% of the production use.

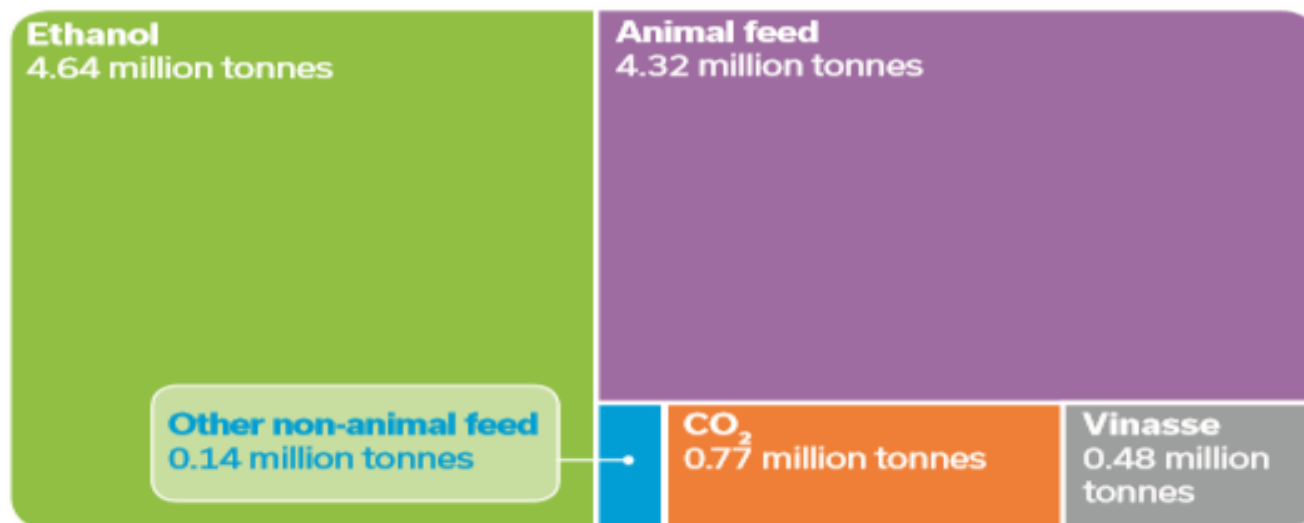


Source: Aggregated and audited data of ePURE members (pure alcohol)

Value for All

Main output of European renewable ethanol plants

Animal feed makes up the largest share of co-products produced by ePURE members. Of the 5.71 million tonnes of co-products produced in 2017, 4.32 million tonnes were animal feed.



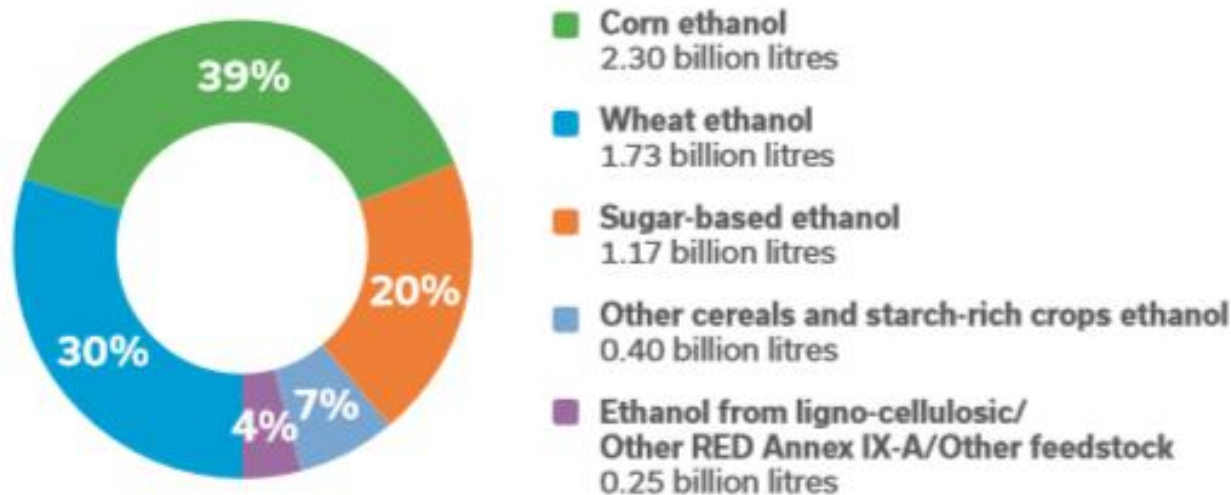
Source: Aggregated and audited data of ePURE members (ethanol - pure alcohol; animal feed co-products - dry matter equivalent; other co-products - commercial equivalent)

Food reserve for the world, better then set aside !!!

Raw Material

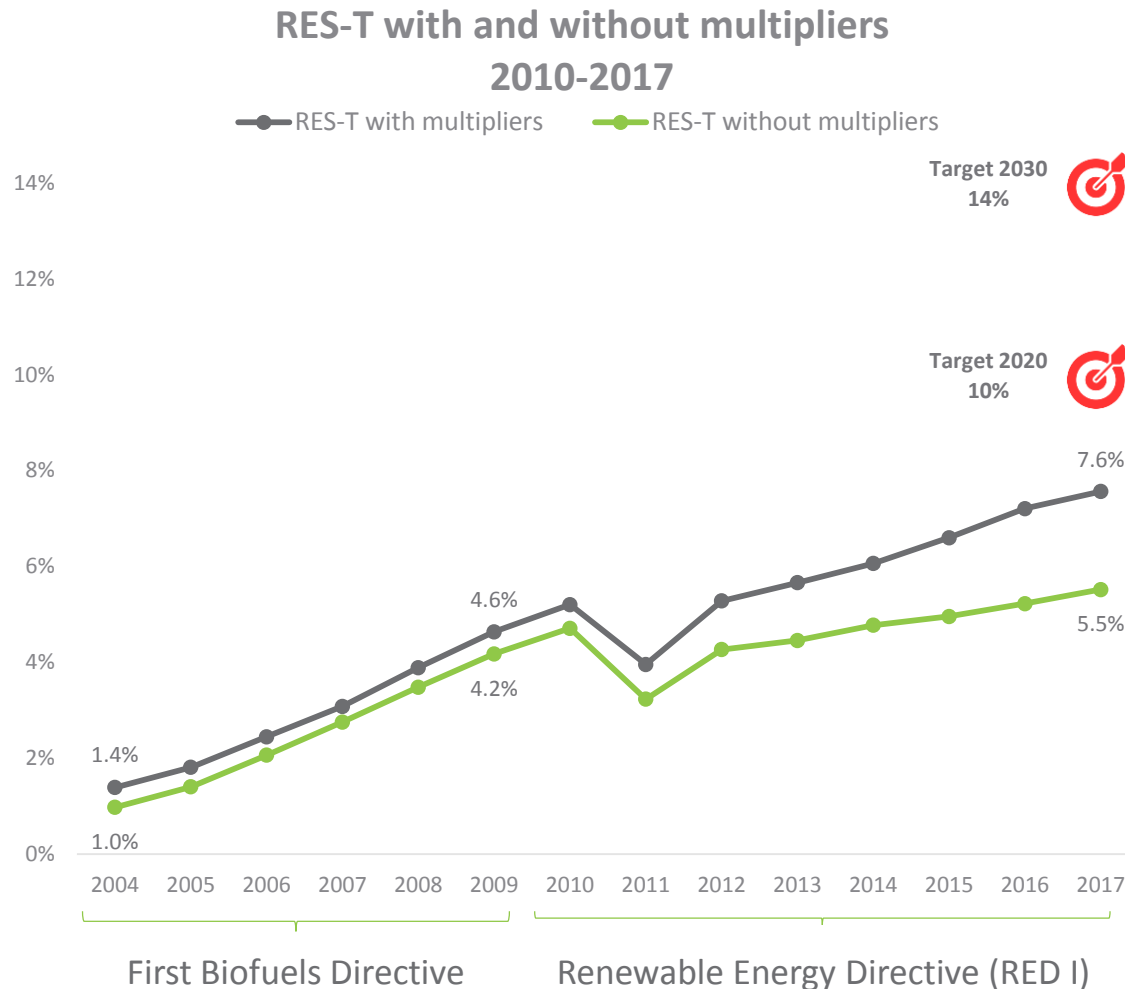
Share of European renewable ethanol produced from each feedstock type

In 2017, 39% of the ethanol produced was from corn followed by wheat (30%) and sugars (20%).



Source: Aggregated and audited data of ePURE members (pure alcohol)

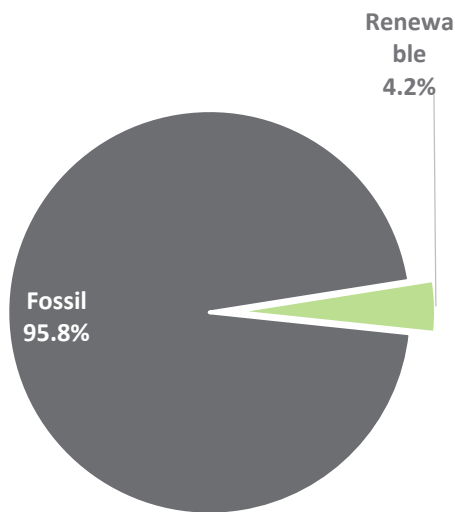
RES-T progress slowing down and most increase happening only on paper



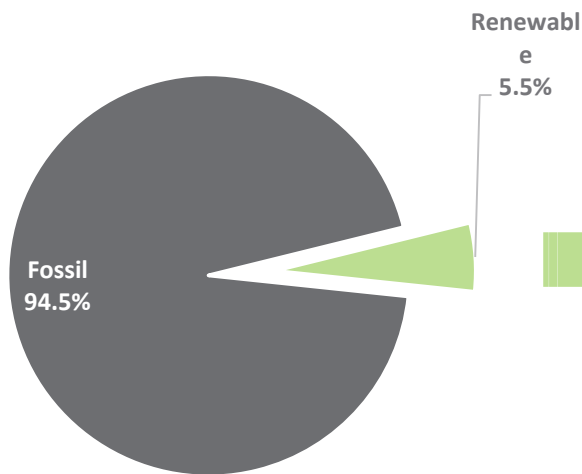
- RES-T has increased from **1.4% in 2004 to 7.6% in 2017**
- However, **most increase since RED I only on paper because of multipliers**
- **Without multipliers, RES-T only grew by 1.3% since 2009**
- 2020 RES-T target difficult to achieve with multiplier, impossible without
- 2030 RES-T target will be a major challenge

Most of the 'real' RES-T (w/o multipliers) is coming from crop-based biofuels

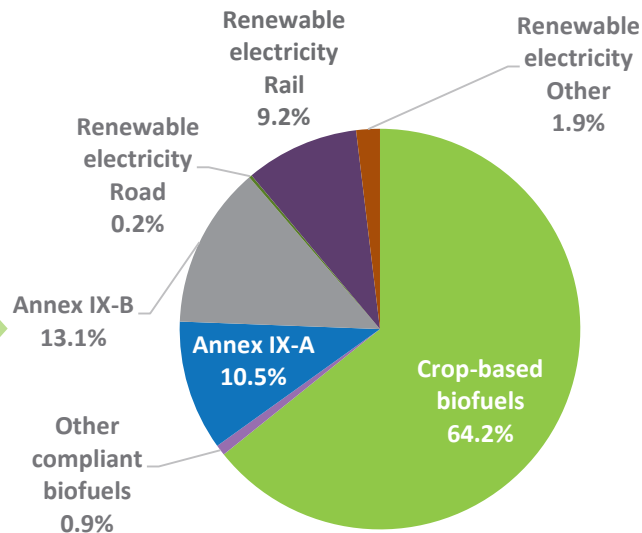
RES-T 2009
without multipliers



RES-T 2017
without multipliers



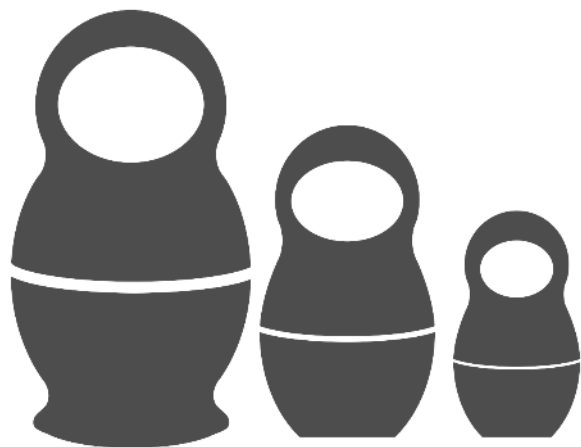
RES-T 2017 - Contribution
without multipliers



RED II: RES-T contributors

Renewables in transport target (RES-T)

- Min 14% by 2030
- An obligation (e/e, v/v or GHG reduction) put on fuel suppliers
- Can be lowered if crop cap is reduced, in the same proportion



Crop-based biofuels limited

- 2020 levels +1%, within a 7% limit
- MS below 1% can up to 2%
- High-ILUC risk biofuels capped at 2019 levels and progressively phased out from 2023

Annex IX biofuels:

- Part A (advanced biofuels): 0.2% in 2022 → 1% in 2025 → 3.5% in 2030
- Part B: limited to 1.7%

Multipliers for Annex IX biofuels, EVs, renewable electricity in rail, maritime and aviation fuels

RED II: Low and High ILUC- risk biofuels

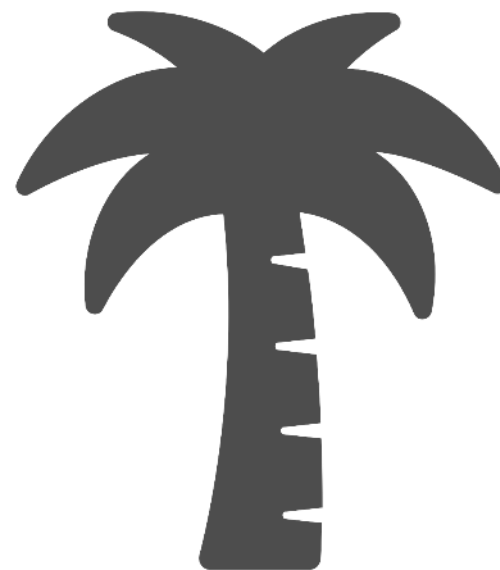
A report on worldwide expansion of food and feed crops

A delegated act to:

- Determine the high ILUC-risk feedstock and their gradual decrease
- Set out the criteria for certification of low ILUC-risk biofuels

Delegated act published

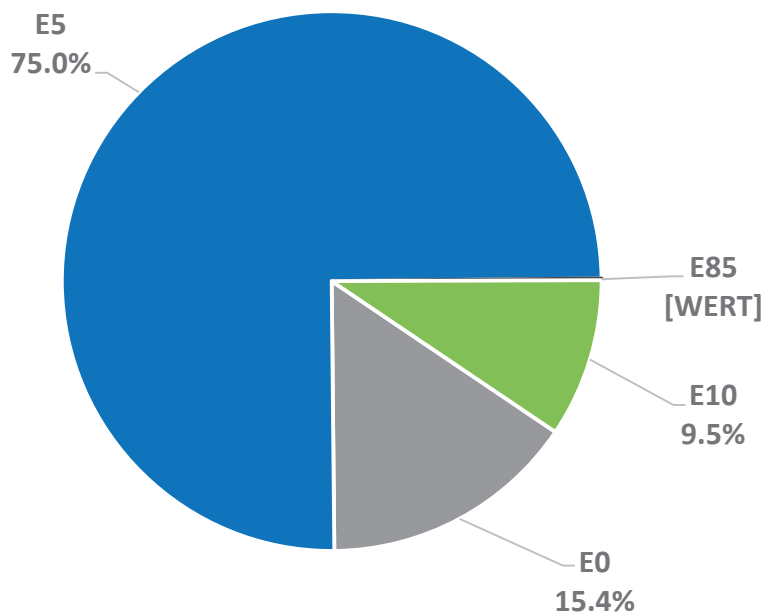
- Leaves only palm oil as high-ILUC



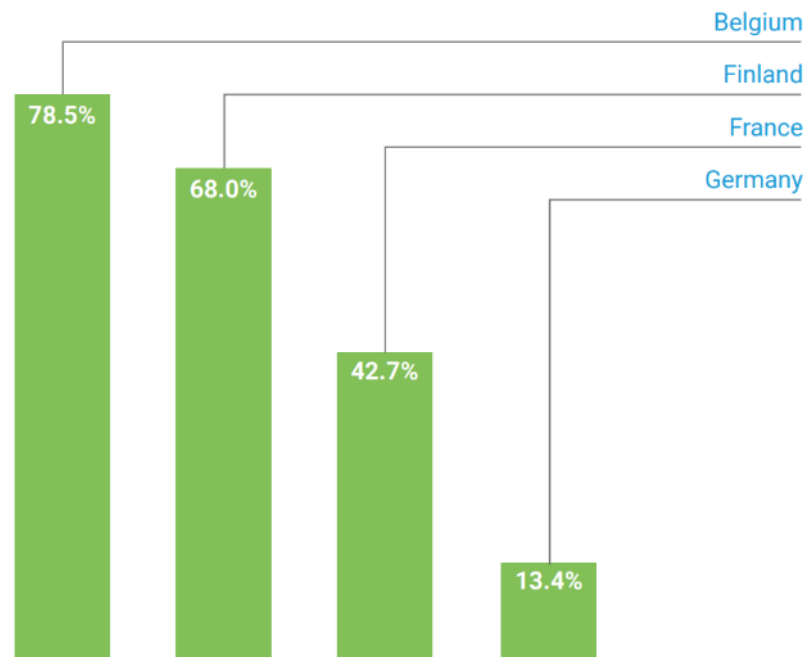
Impact on the fuel ethanol market

- Ethanol incorporation rate remains around 3.3% e/e ($\approx 5\%$ v/v)
- The vast majority of the petrol market remains an E5 market
- E0 market share reducing, while E10 uptake grows modestly

Petrol market (2016)

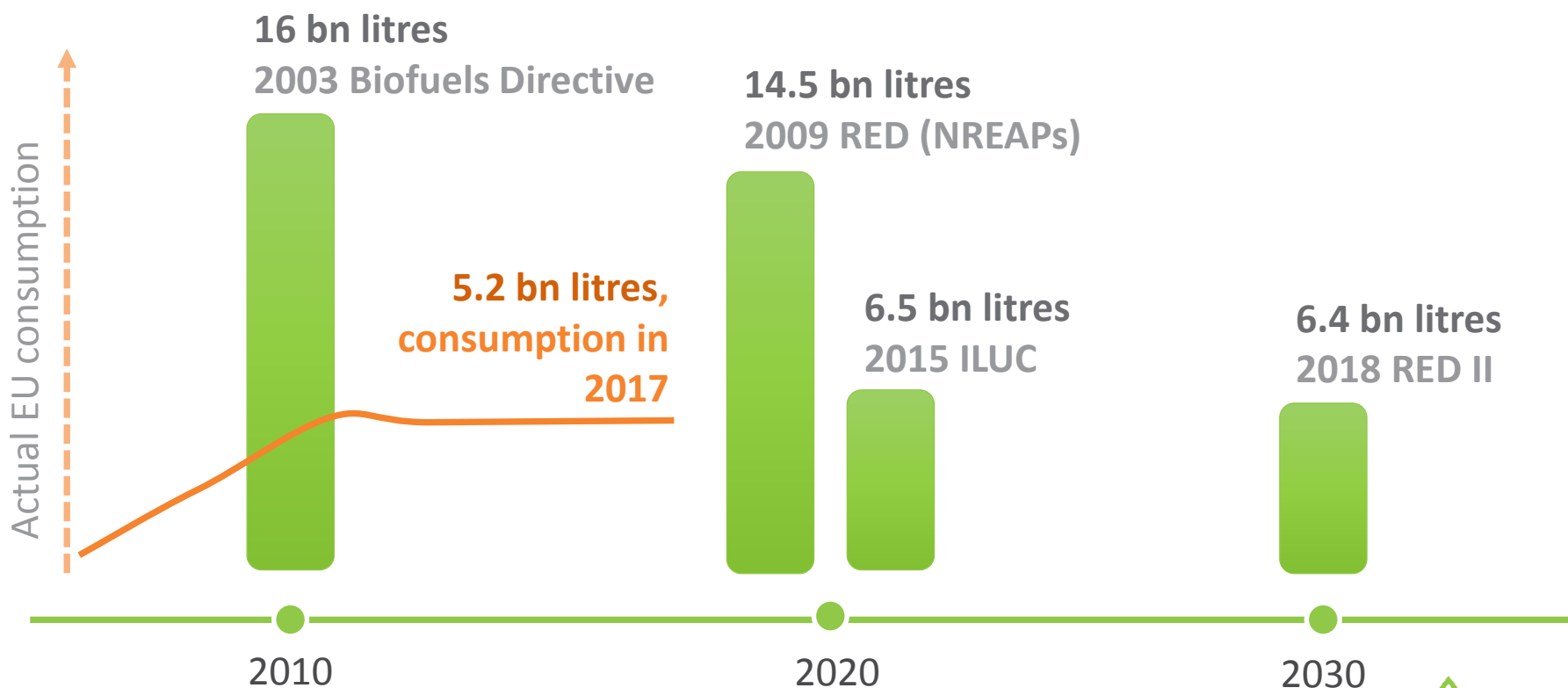


E10 petrol market share (2017/18)



EU ethanol market perspectives

Unstable EU policies, declining consumption and overcapacities, put the EU industry at serious risk



Source: NREAPs; EU Agricultural outlook for the agricultural markets and income 2018-2030

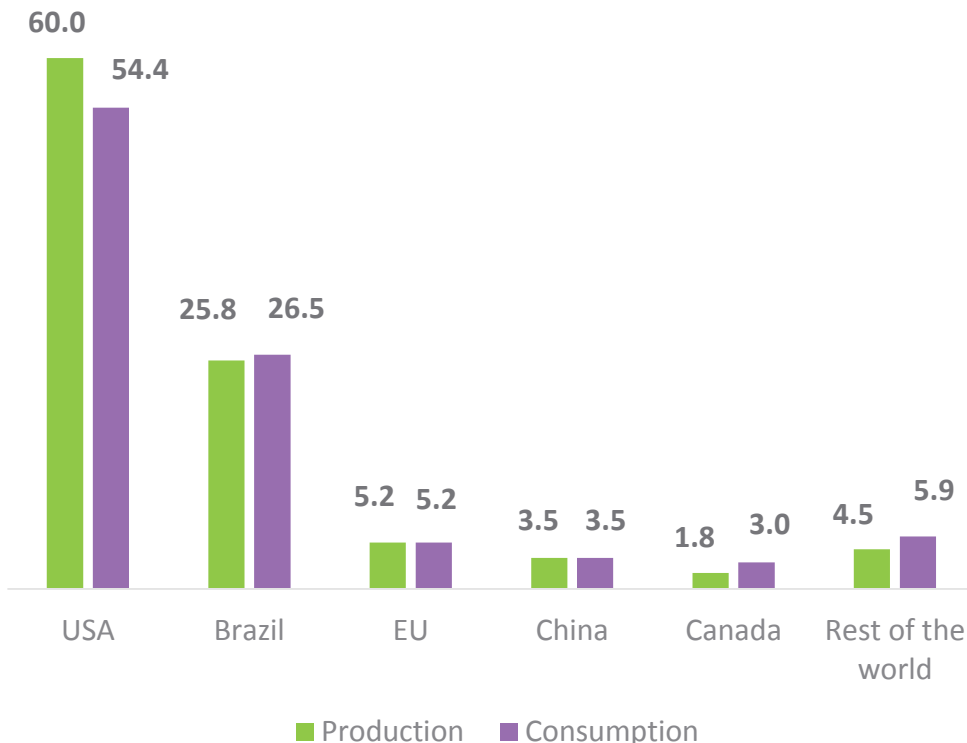
The United States produces more ethanol than the rest of the world combined

Fuel ethanol production 2017
billion litres

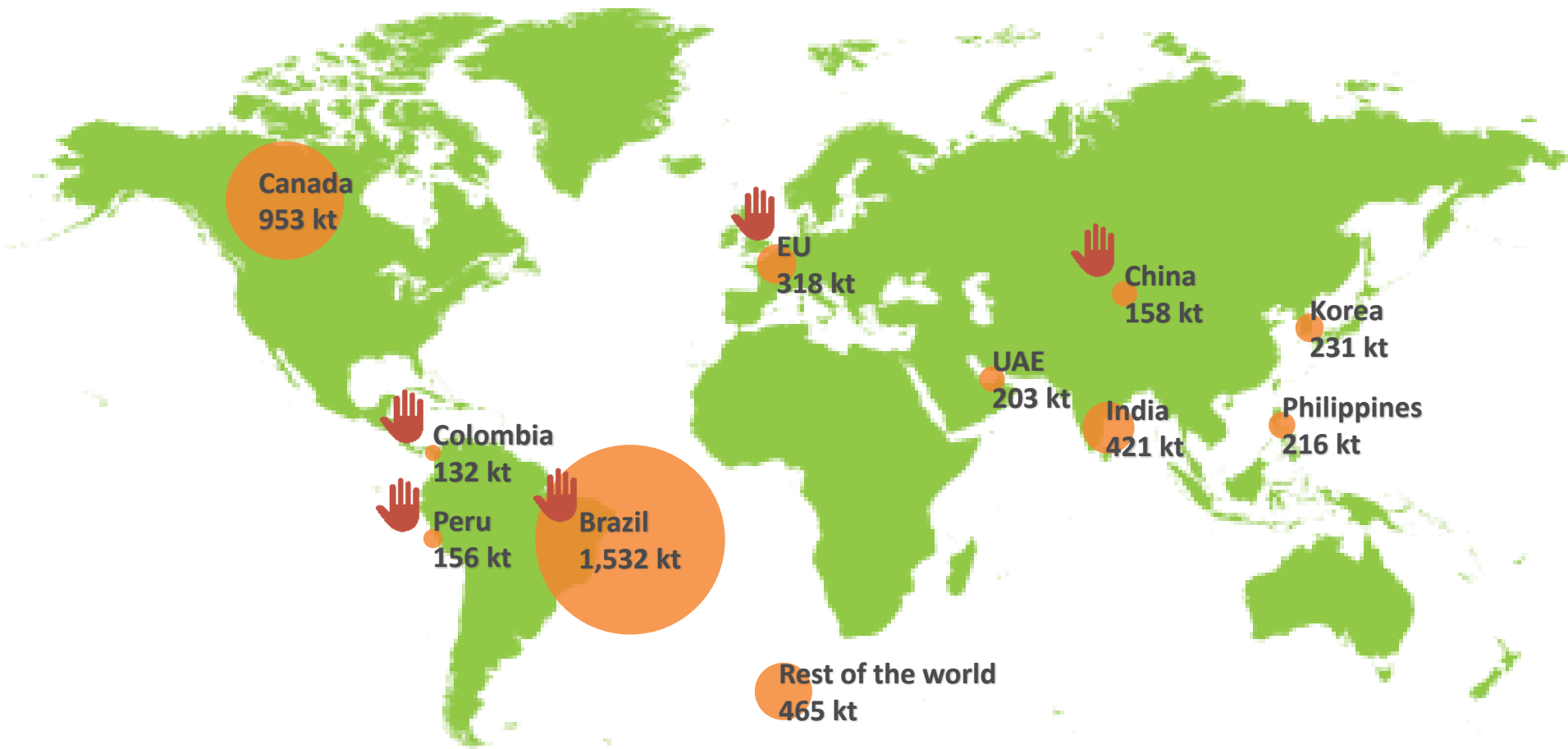
Globally 100 billion litres
fuel ethanol produced in
2017

The US alone accounts for
60% of global fuel
ethanol production

‘Minor’ US exports are
‘Major’ imports for other
countries



US ethanol exporters facing increasingly difficult market access conditions (2018)



Have introduced measures to protect their market against U.S. exports or are investigating

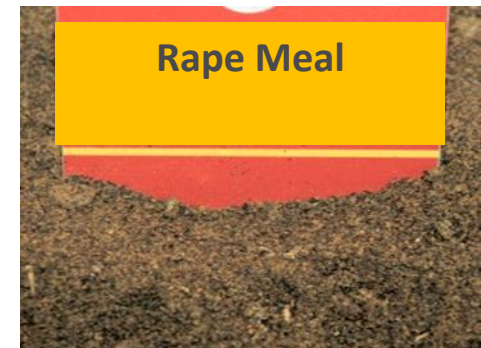
Source: USITC

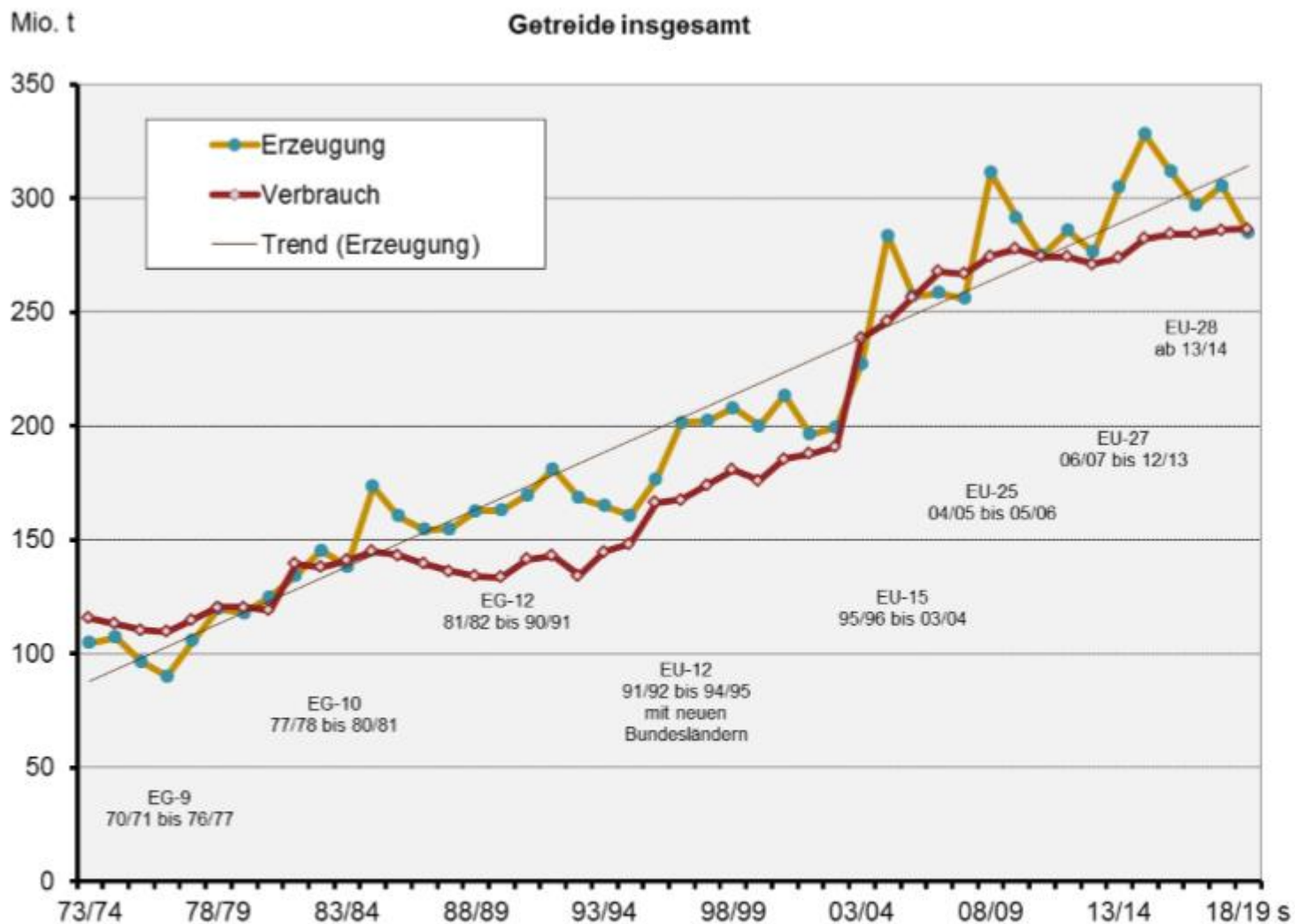


Added value for Protein supply

ProtiGrain®

Das Plus an Protein





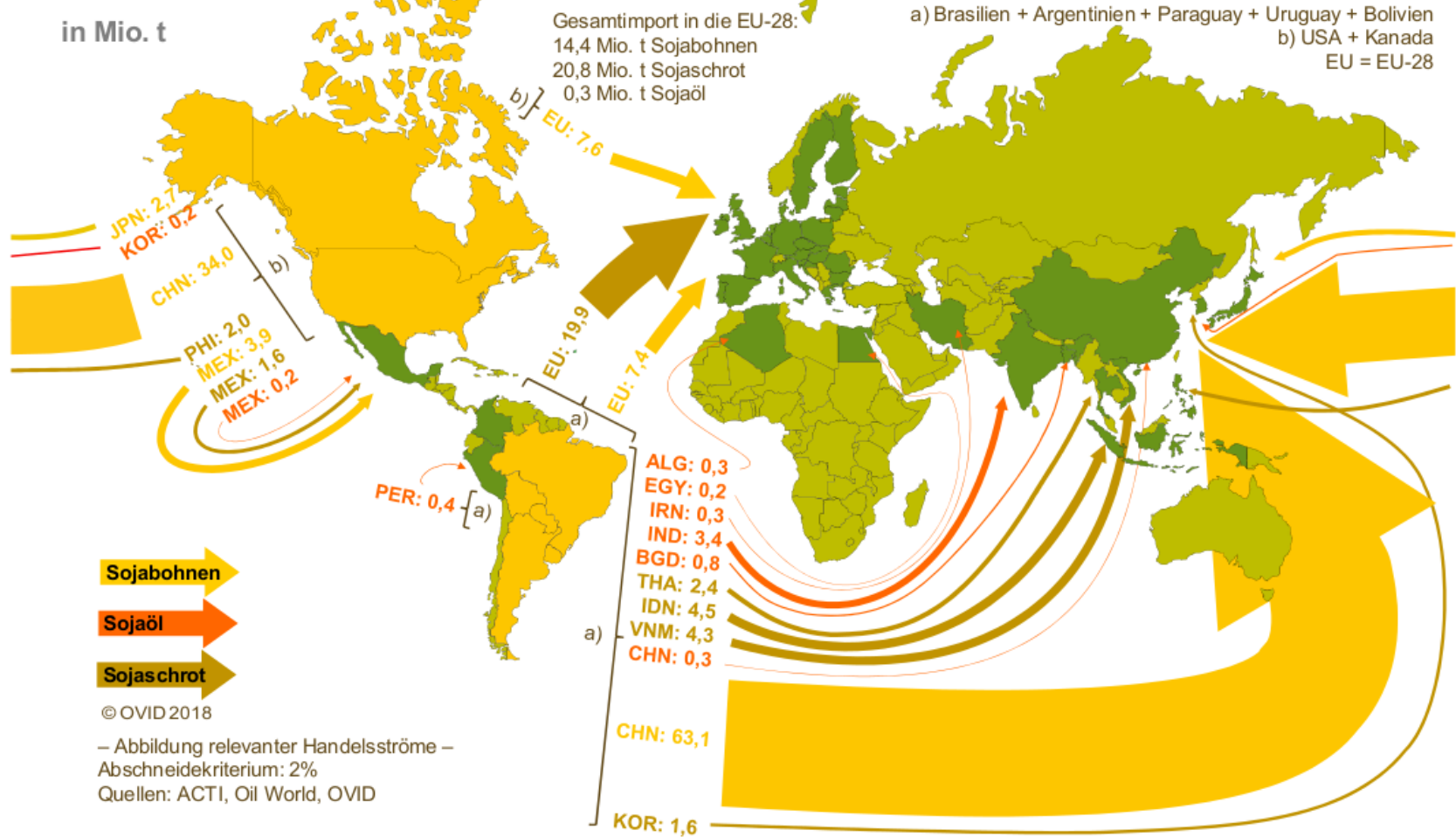
Stand: 12.12.2018

EU – steady surplus on Starch/and lower competitiveness on Export

Source: EU-Commission

Handelsströme Sojabohnen, -öl und -schrot 2017

in Mio. t

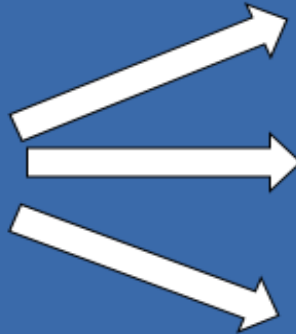


EU – huge Protein Deficit

ProtiGrain/DDGS – More Protein per ha compared to Soybeans !

Senkung des Importbedarfs an Proteinfuttermittel: Beispiel Stoffstrom Bioethanolproduktion

3 Teile Getreide:
z.B. 7,5t/ha Weizen



1 Teil CO₂
für Lebensmittel oder industrielle Anwendungen

1 Teil Bioethanol (2.800 l Bioethanol/ha)
= 23.000 km Fahrleistung

1 Teil Proteinfuttermittel *
= 2.639 kg DDGS/Trockenschlempe
= 660 kg nutzbares Rohprotein (nXP) → deckt zu 90 % den Jahresbedarf einer durchschnittlichen deutschen Milchkuh
= ersetzt 1,3 ha Soja oder 2.290 kg Sojaextraktionsschrot

* Trockenschlempe/DDGS

Quelle: Klenk/Kunz (2008) Zuckerindustrie

Keeping added value in Europe in Farming and Feeding!



4 mio mt Ethanol



12 mio mt grains

**2 mio ha of EU
Total 176mha (1%)**



4,5 mio mt DDGS



The meaning of Biodiesel for Farming and Feeding in Europe



14,5 mio mt Rape
2/3 of EU Rapeseedharvest



8,1 mio mt



4,8 mio ha



Value for Europe – Biofuels

Acreage with high added value



4,8 mio ha Rape
=
14,5 mio mt Rape



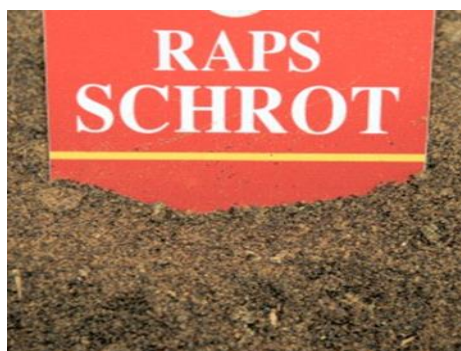
2 mio ha grain
=
12 mio mt grain

Total Acreage EU
Total quantity EU

6,8 mio ha
26,5 mio mt

Biofuels deliver – Independence on Protein Imports

Animal Feeding



8,1 mio mt



4,5 mio mt DDGS



Equivalent to 9 mio mt Soybeanmeal

and: GMO free



Biofuels

- **Secure** added value in european Agriculture and industry
- Improve economically underdeveloped areas.
- Keep more options for crop rotation in the field
- Reduce the dependence on protein Imports
- Deliver high quality NON-GMO protein Food and Feed for european Animal Farming
- Are added value to supply security (in Emergency case they can be used as food security).
- Reduce GHG-Emissions – „The Ton of CO₂ which you are not saving now, you can not safe tomorrow “!
- Are out of the region for the region





european renewable ethanol



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