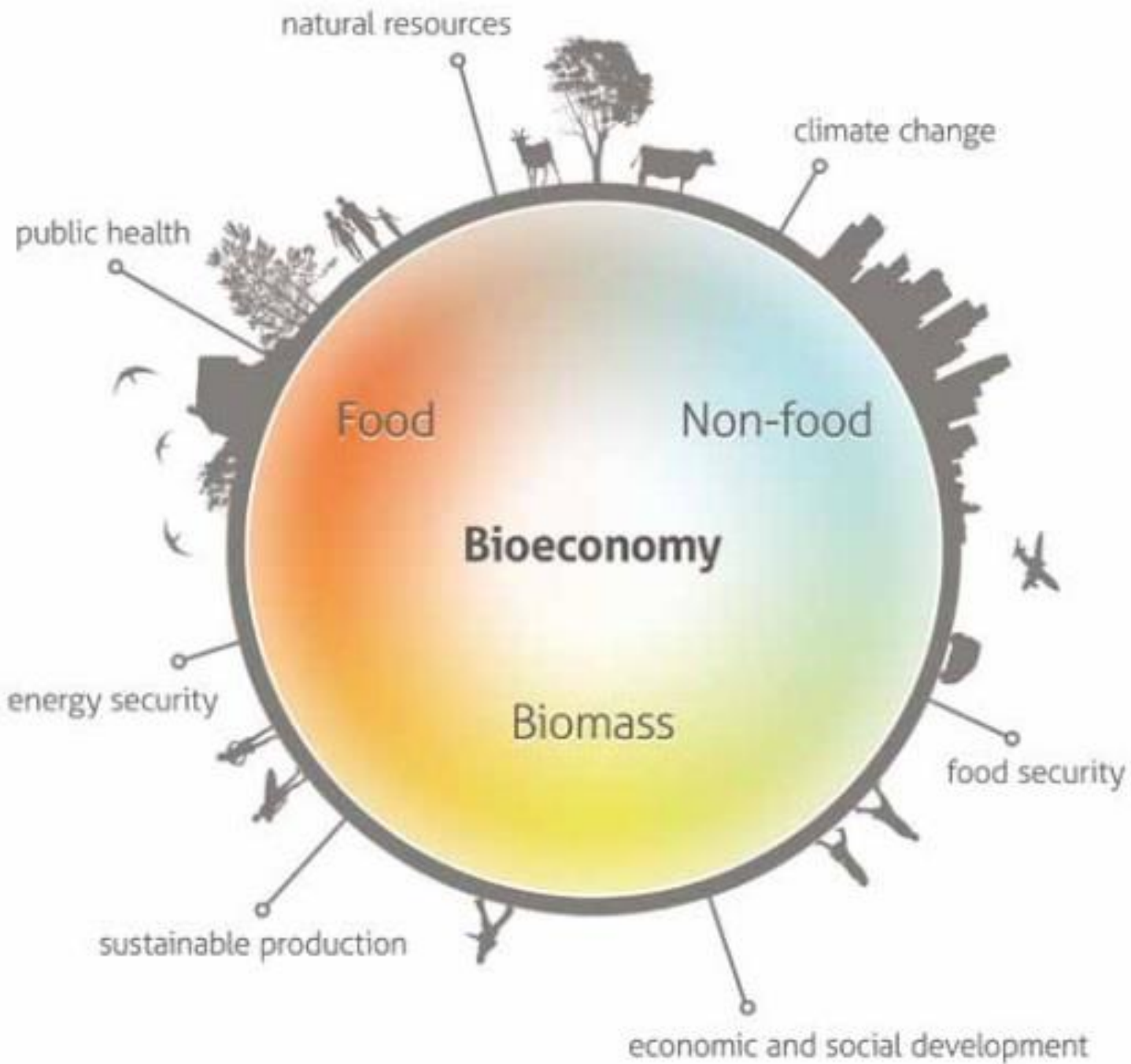




Present stage of bioeconomy in Europe

Bioeconomy Course 2017, Jihočeská univerzita v Českých Budějovicích

Nikola Sagapova
EF JU



Bioeconomy strategies and transition

- 2010- 6 bioeconomy strategies worldwide
- 2015- 40 nations target bioeconomy in their policy strategies
- driving force past few years: peak oil
- nowadays: climate protection targets

Sustainable bioeconomy: premises

- 1. Biomass is underexploited:
 - too much waste, not used optimally
 - more energy and materials can be extracted from current biomass stream
- 2. The biomass potential can be upgraded by:
 - closing yield gaps
 - introducing new or improved species
 - introducing new extraction/processing tech.

Key principles for sustainable bioeconomy

- **Food first:** ensure the primacy of food security
- **Sustainable yields:** am. harvested < regrowth
- **Cascading approach:** sequential use according to „value added“ principle
- **Circularity:** reduce/reuse/recycle
- **Diversity:** specific practices at different scales, diversify output

Avoiding new externalities

- Bioeconomy as a miracle solution generating less externalities than fossil-based economy?
- Application of a technology ALWAYS has consequences, that inventors didn't intended, and are often not foreseen-> Jevons paradox
- Negative impact on labor market- replace L with K

Hottest companies in Adv. Bioeconomy 2016

Company name (State)

1. Amyris (US)
2. LanzaTech (US)
- 3. Novozymes (DK)**
4. Renewable Energy Group (US)
5. Solozyme (US)
6. DuPont Industrial Biosciences (US)
7. Genomatica (US)
- 8. DSM (NL)**
- 9. BASF (DE)**
10. BioAmber (US)

Company name (State)

13. Beta Renewables (IT)
19. Avantium (NL)
22. Green Biologics (UK)
28. Clariant (CH)
30. Neste Oil (FI)
31. Abengoa Bioenergía (ES/US)
33. Stora Enso (FI)
35. Reverdia (NL)
42. Evolva (CH)
47. Corbion (NL)
49. Evonik (DE)

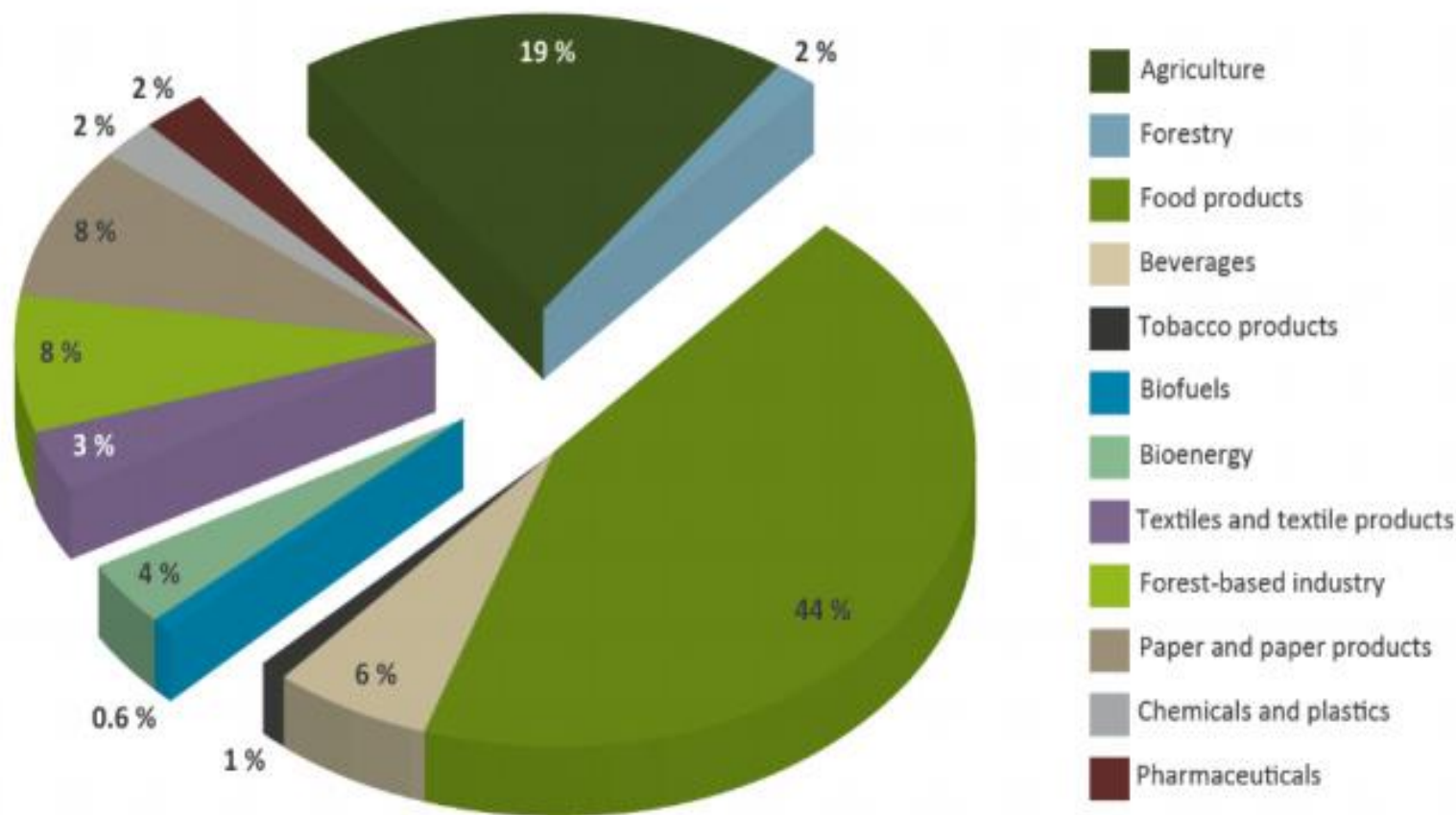
Bioeconomy Policies

- dedicated bioeconomy strategy
- bioeconomy-related strategy
- be-related strategy; dedicated be-strategy is under development
- dedicated be-strategy is under development



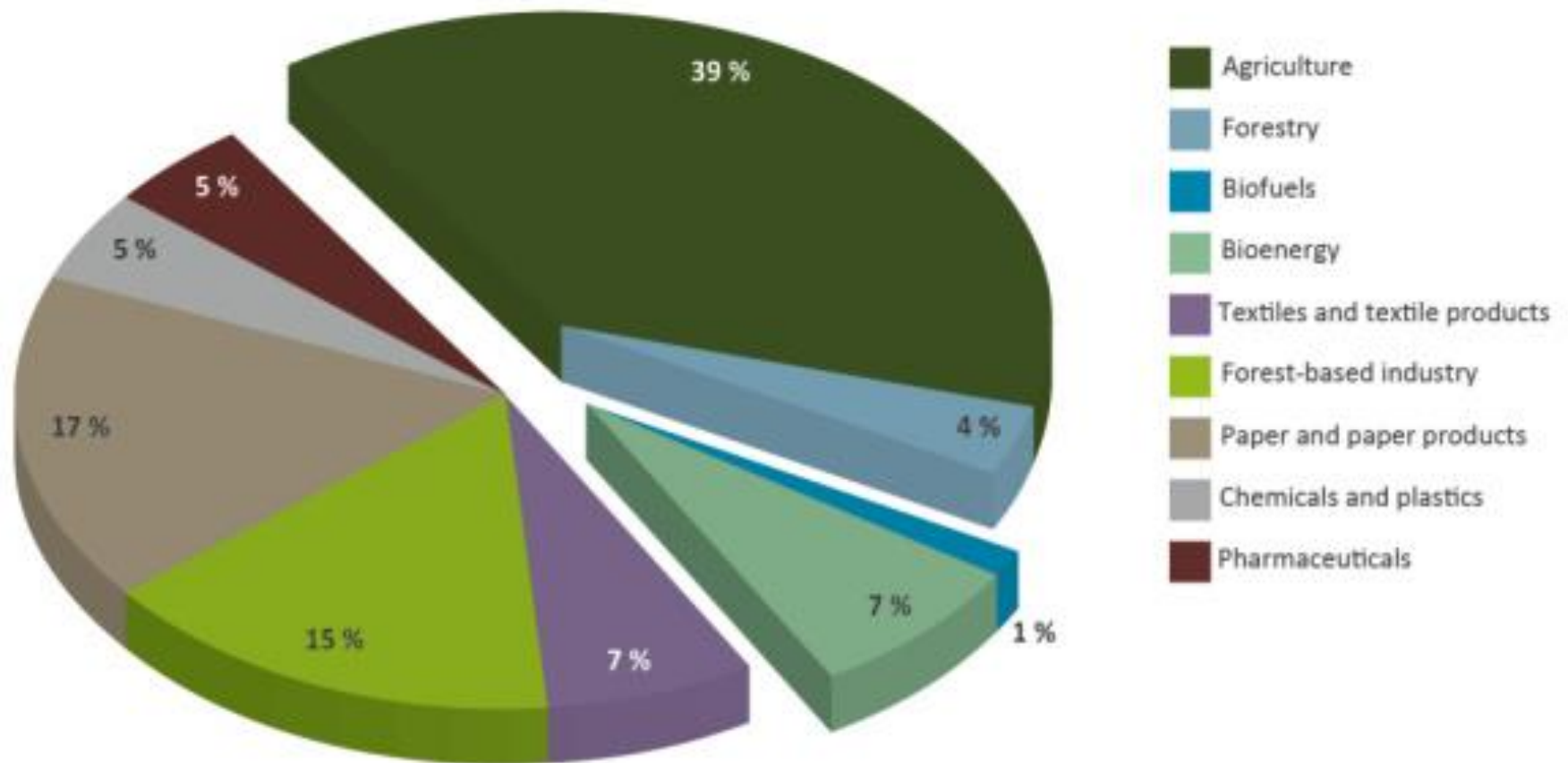
Turnover in the EU bioeconomy (EU-28, 2013)

Total: 2.1 trillion Euro



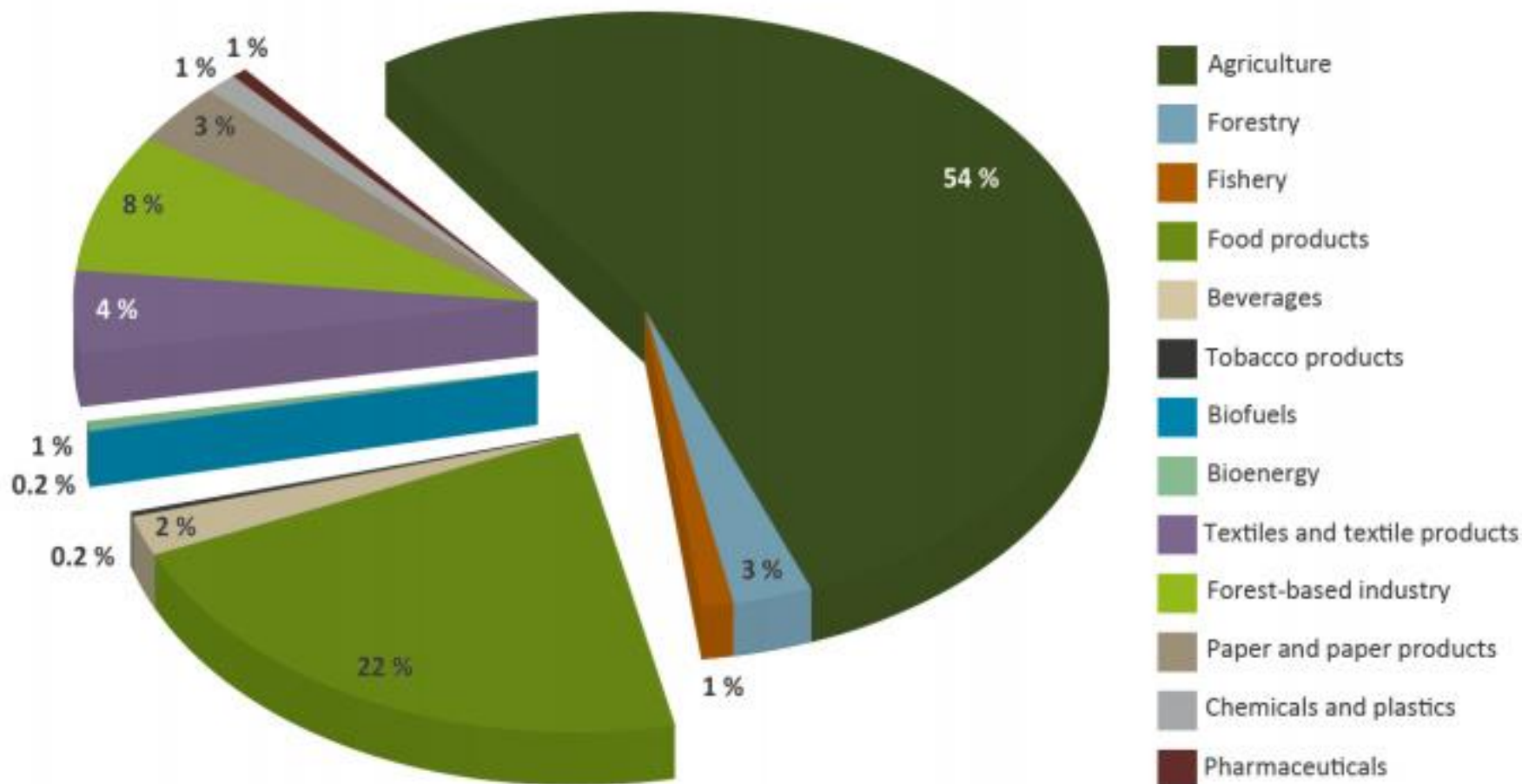
Turnover in the EU bio-based economy* (EU-28, 2013)

Total: 1 trillion Euro



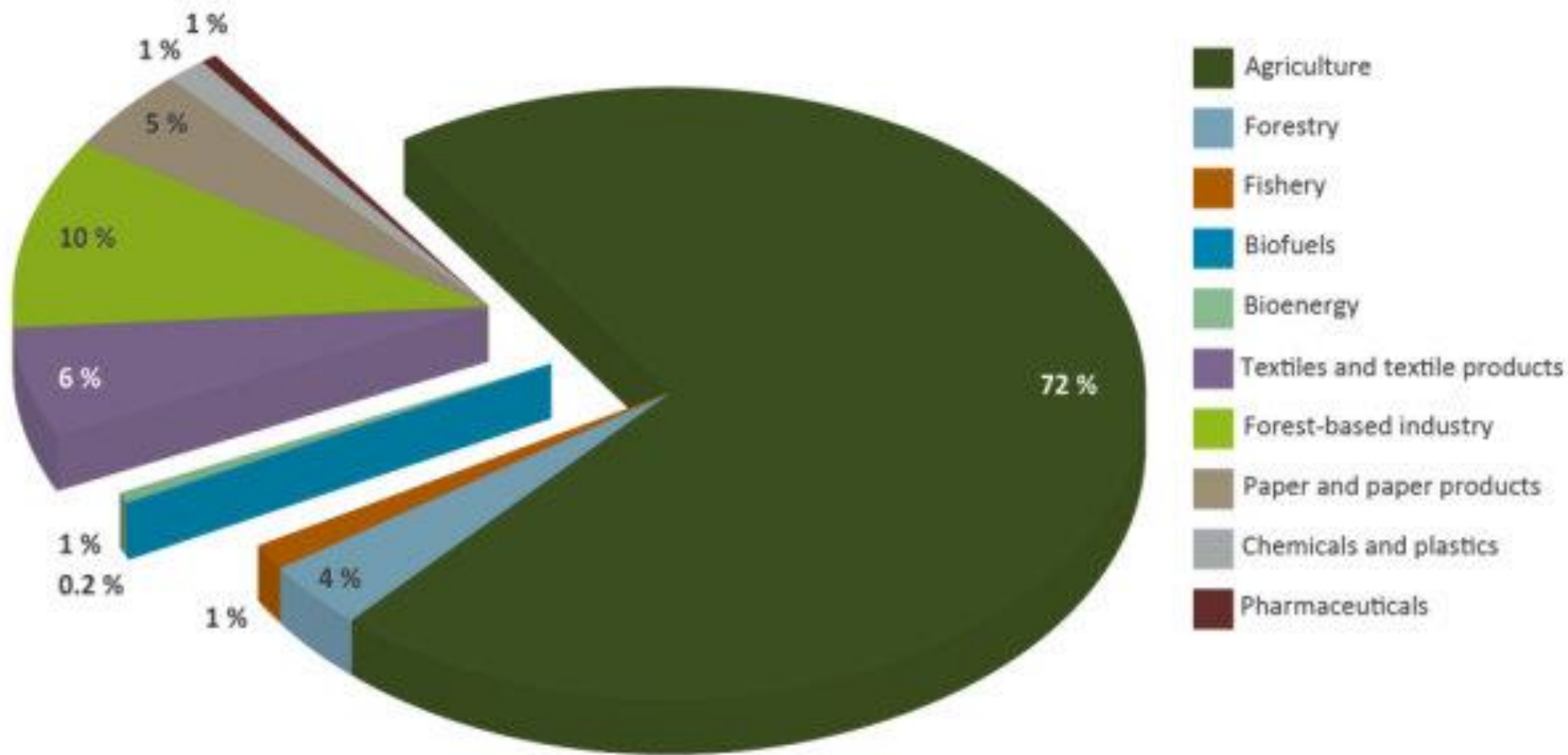
Employment in the EU bioeconomy (EU-28, 2013)

Total: 18.3 million

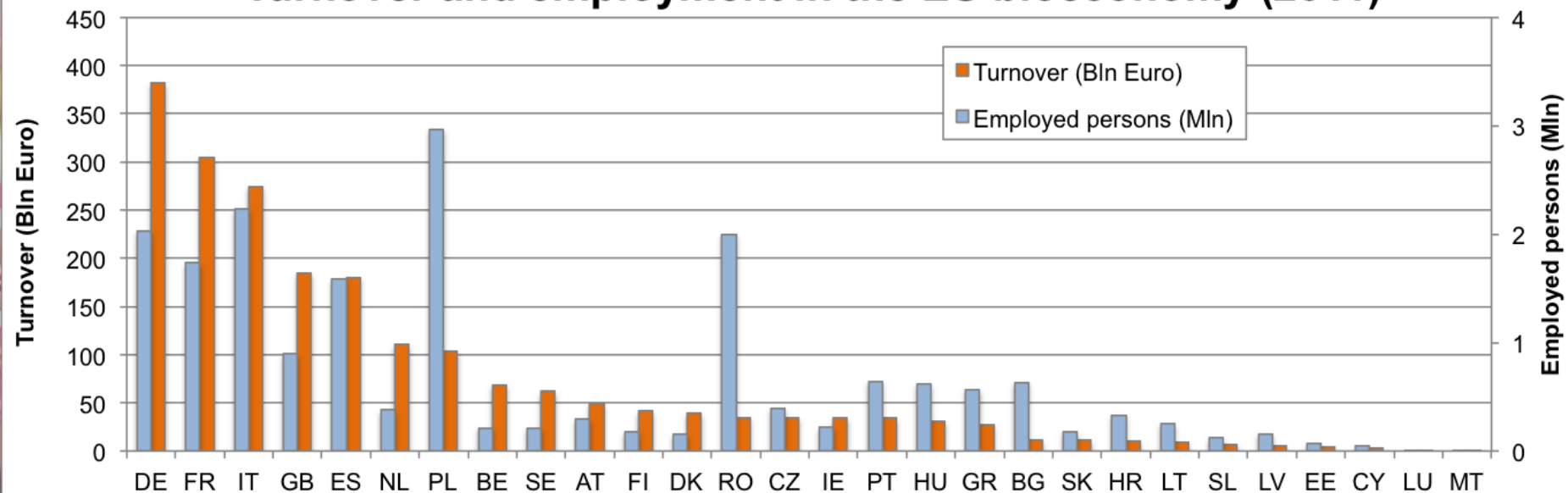


Employment in the EU bio-based economy* (EU-28, 2013)

Total: 13.8 million

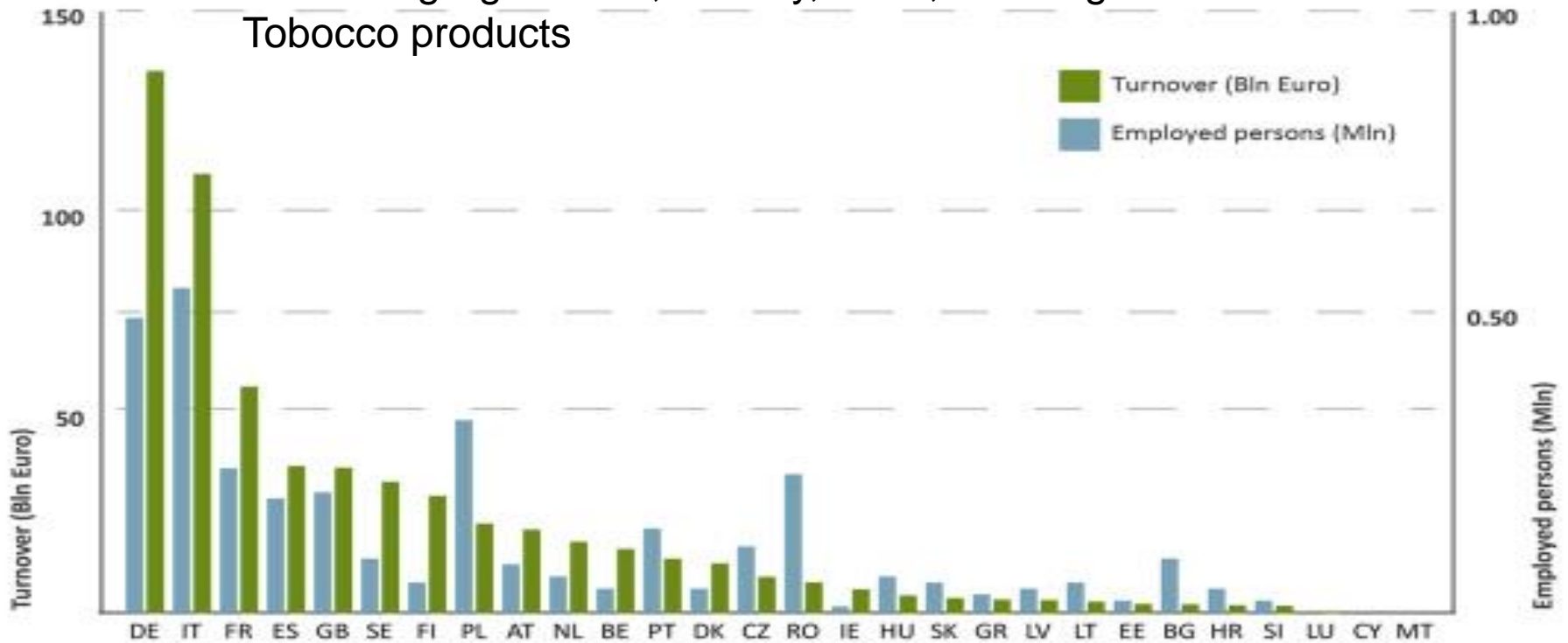


Turnover and employment in the EU bioeconomy (2011)



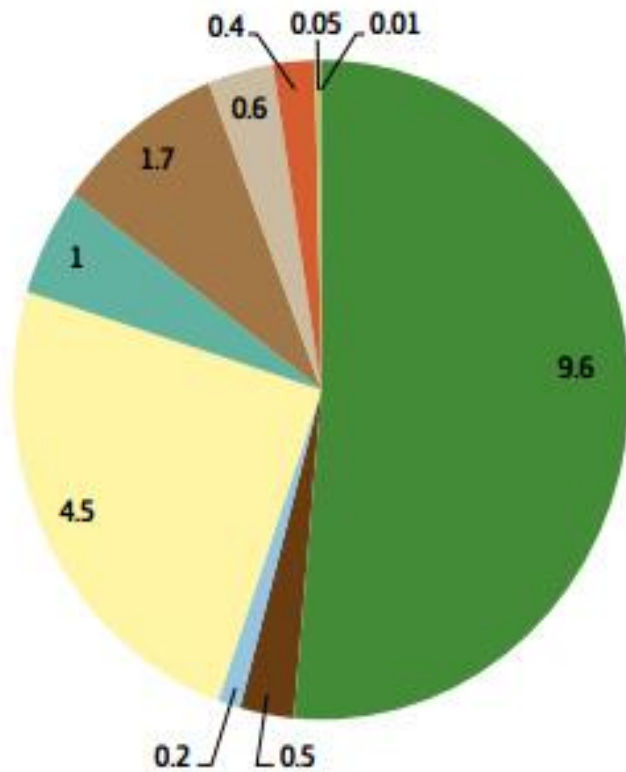
Turnover and employment in the EU bio-based economy* (EU-28, 2013)

*excluding Agriculture, Fishery, Food, Beverages and Tobacco products

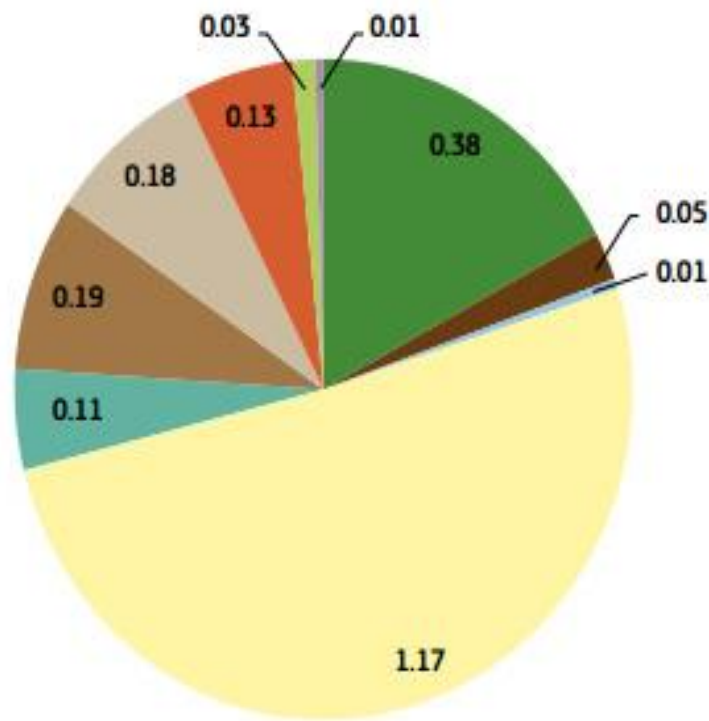


Employment & turnover, EU bioeconomy 2014

- Employment: 18,6 mil., turnover: 2,2, tril. EUR

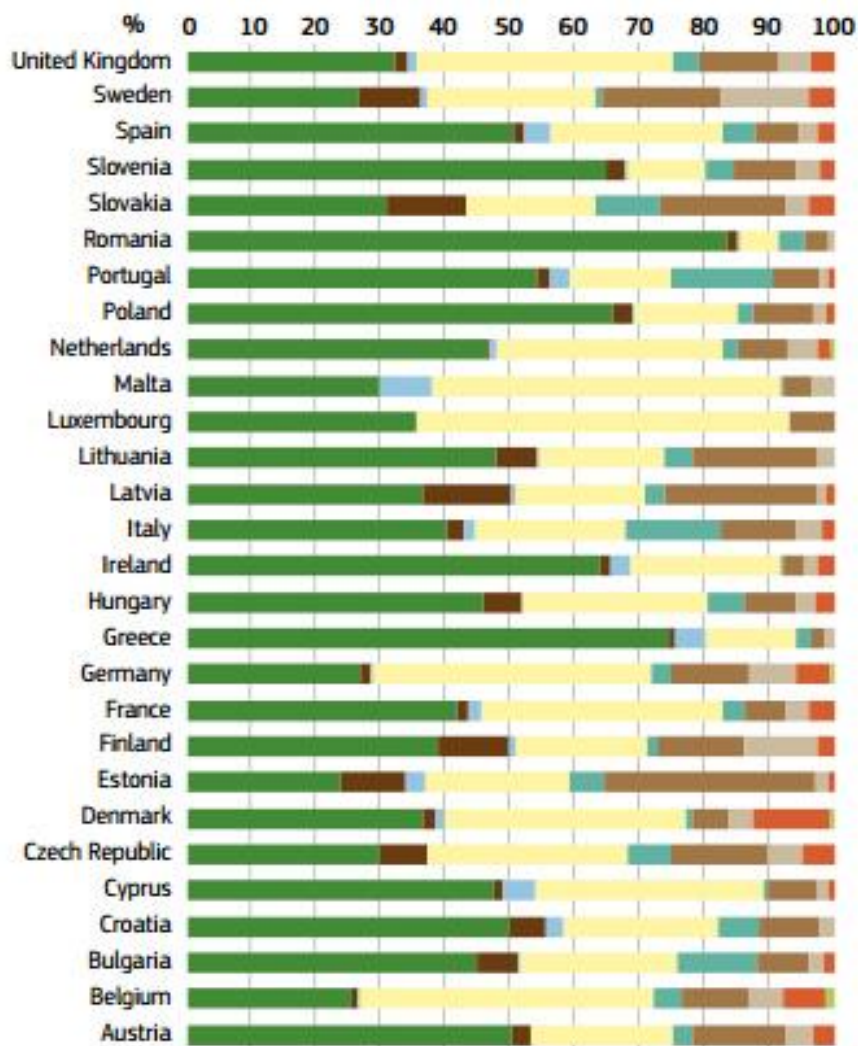


Employment [million persons employed] in the bioeconomy sectors of the EU (2014)

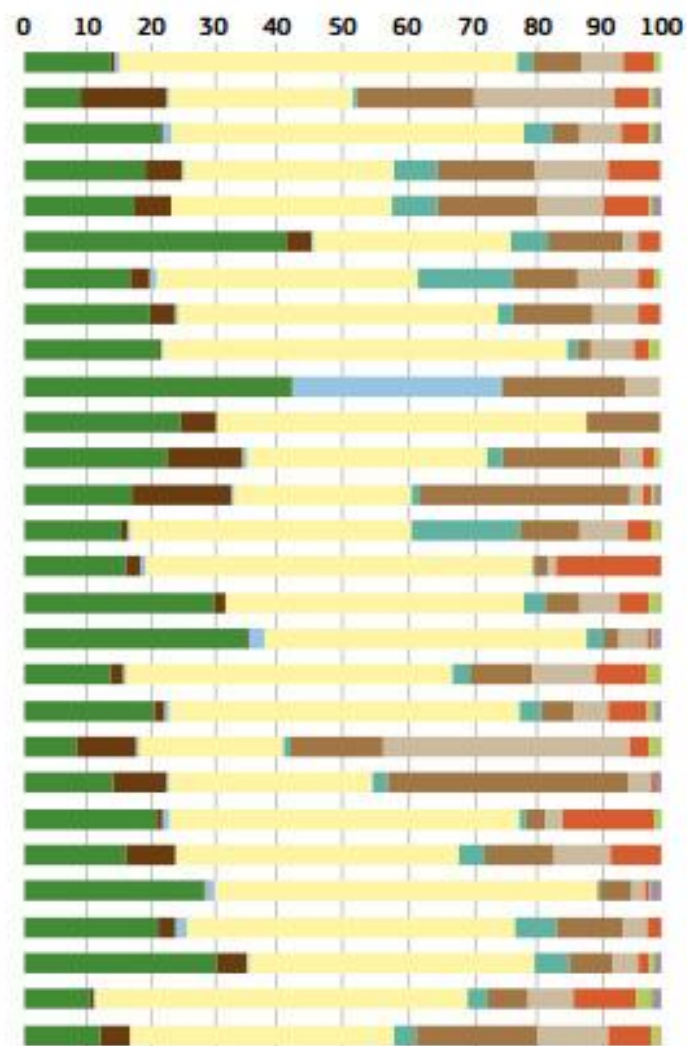
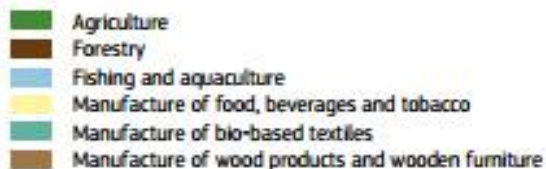


Turnover [trillion EUR] in the bioeconomy sectors of the EU (2014)

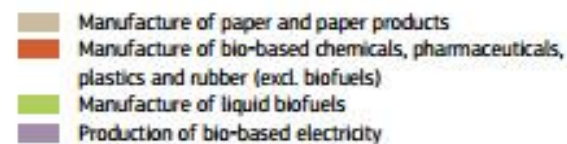
- Agriculture
- Forestry
- Fishing and aquaculture
- Manufacture of food, beverages and tobacco
- Manufacture of bio-based textiles
- Manufacture of wood products and wooden furniture
- Manufacture of paper and paper products
- Manufacture of bio-based chemicals, pharmaceuticals, plastics and rubber (excl. biofuels)
- Manufacture of liquid biofuels
- Production of bio-based electricity

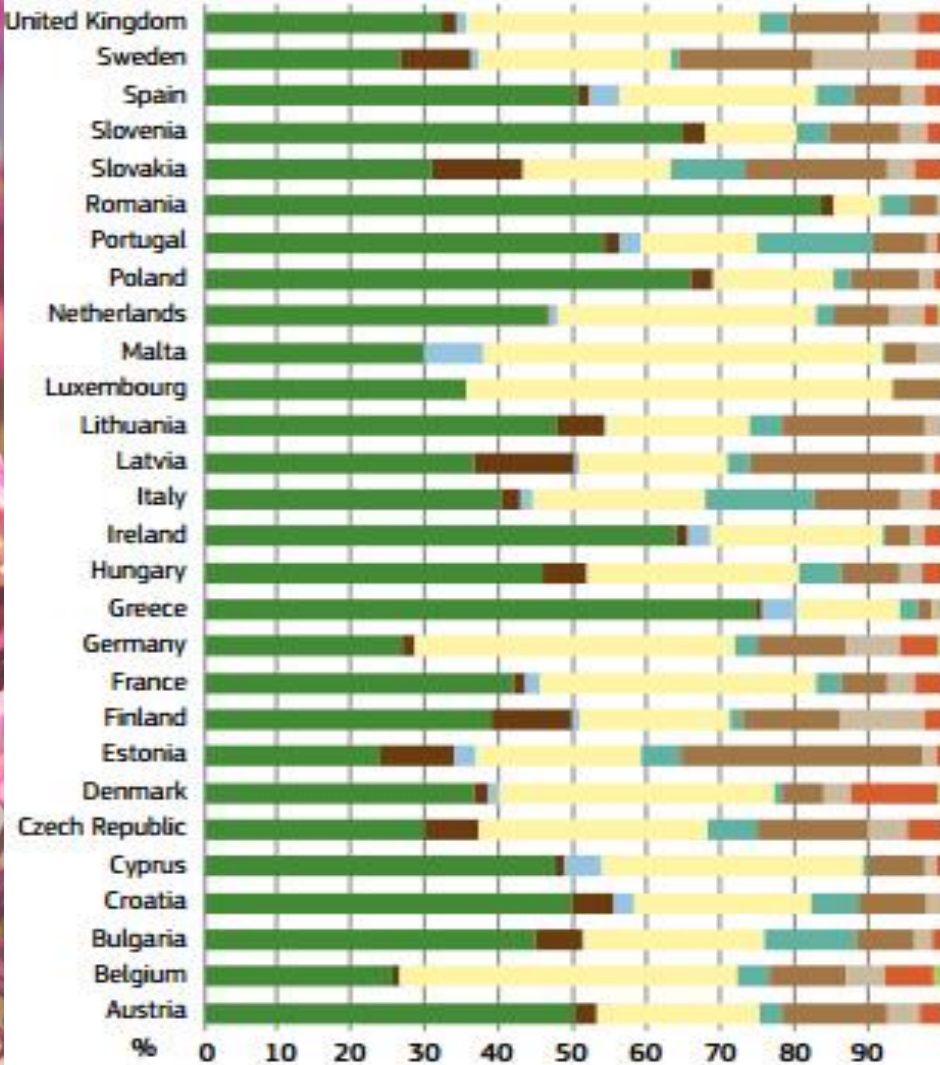


Employment in the bioeconomy sectors of activity in the 28 EU Member States, in percentage

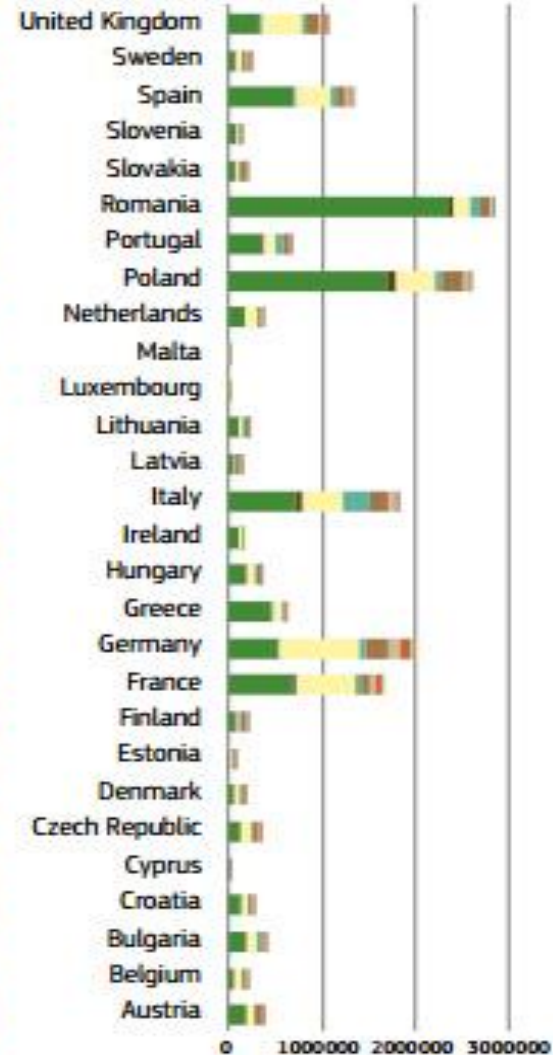


Turnover in the bioeconomy sectors of activity in the 28 EU Member States, in percentage



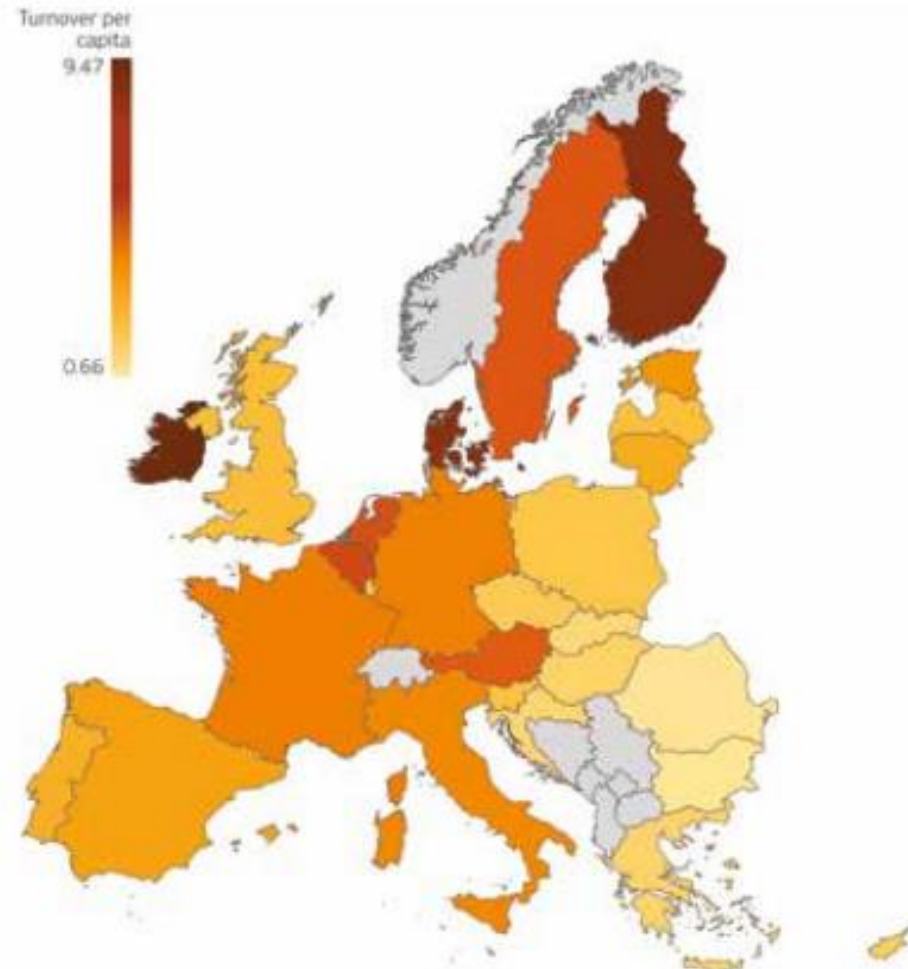
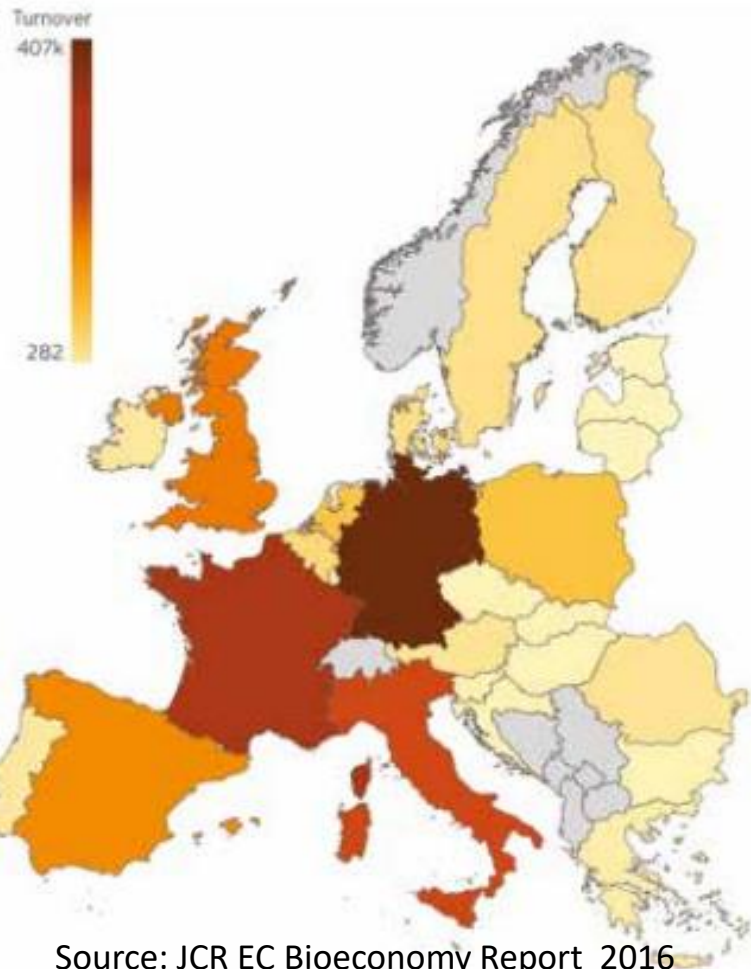


Employment in EU bioeconomy, number of employed



Contribution to EU bioeconomy turnover

- cca 50 % of turnover: DE (18%), FR (15%), IT (13%)



Source: JCR EC Bioeconomy Report 2016

European bioproducts examples

Car tyre

(DE)



Sector:
Automotive

Producer:
Continental

Engine cover

(DE/NL)



Sector:
Automotive

Producers:
DSM | Daimler

Chewing gum

(CH)



Sector:
Food & Beverages

Producers:
Evolva | Fertin Pharma

Toothpaste

(DE/CR)



Sector:
Cosmetics industry

Producers:
BASF |
Neva Cosmetics

Toilet paper

(IT)

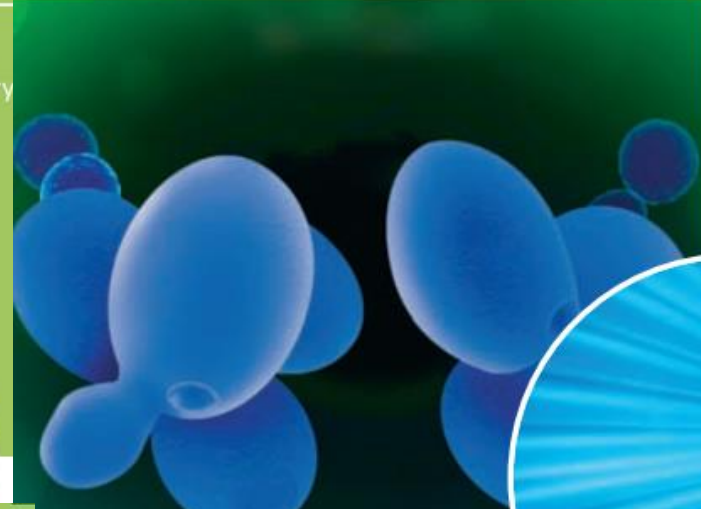


Sector:
Cosmetics industry

Producer:
Sofidel

Face cream

(GR)

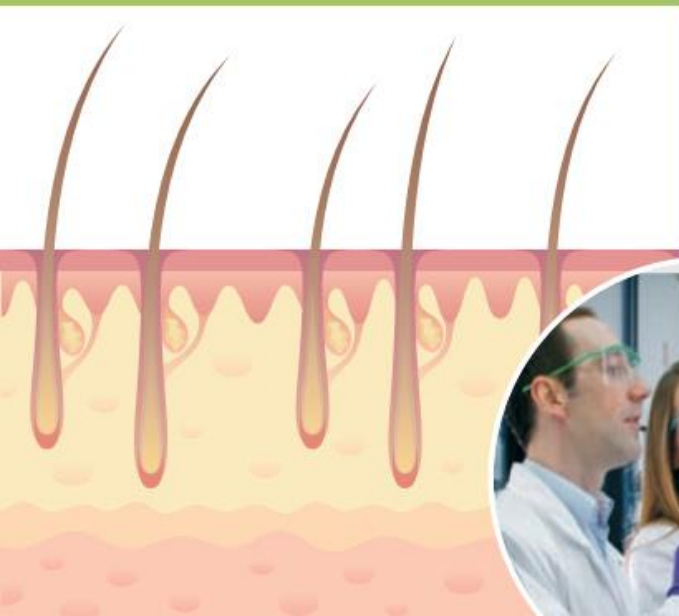


Sector:
Cosmetics industry

Producer:
Korres

Conditioner

(FR)

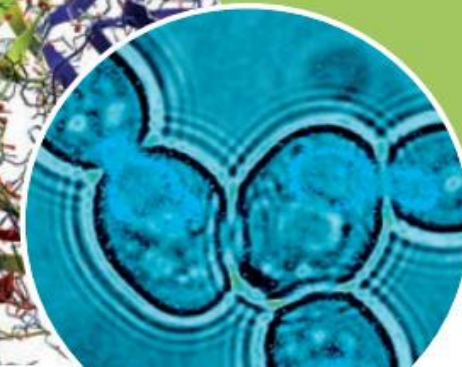
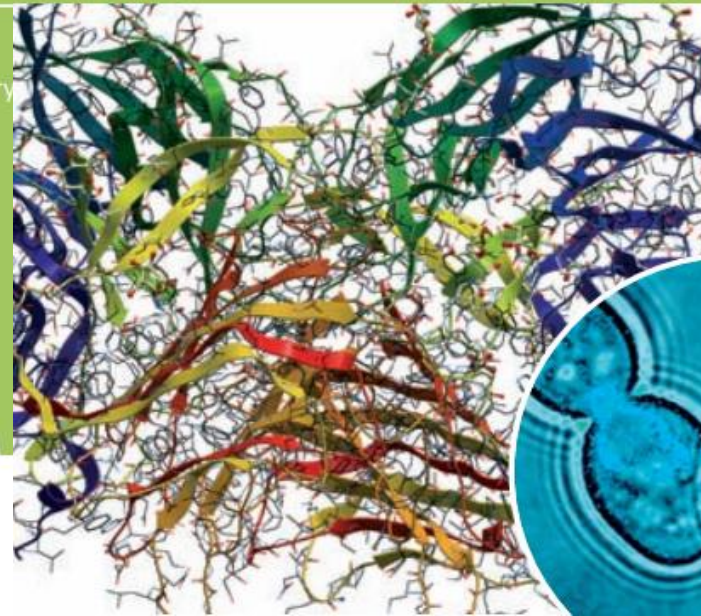


Sector:
Cosmetics industry

Producer:
L'Oréal

School uniform

(UK/DK)



Sector:
Textiles

Producers:
Marks & Spencer |
Novozymes

A close-up photograph of various pink and purple flowers, including columbines and smaller blossoms, set against a soft, out-of-focus background. The flowers are vibrant and detailed, with some showing stamens and delicate petals.

**THANK YOU FOR YOUR
ATTENTION!**