

Bioeconomy Strategy & Action Plan Knowledge Centre for Bioeconomy

**Rural Development Innovation Week
2019 annual event of the Tuscany Region RDP EAFRD 2014-2020**

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Director for Sustainable Resources, Joint Research Centre, European Commission
28.03.2019

EU Bioeconomy

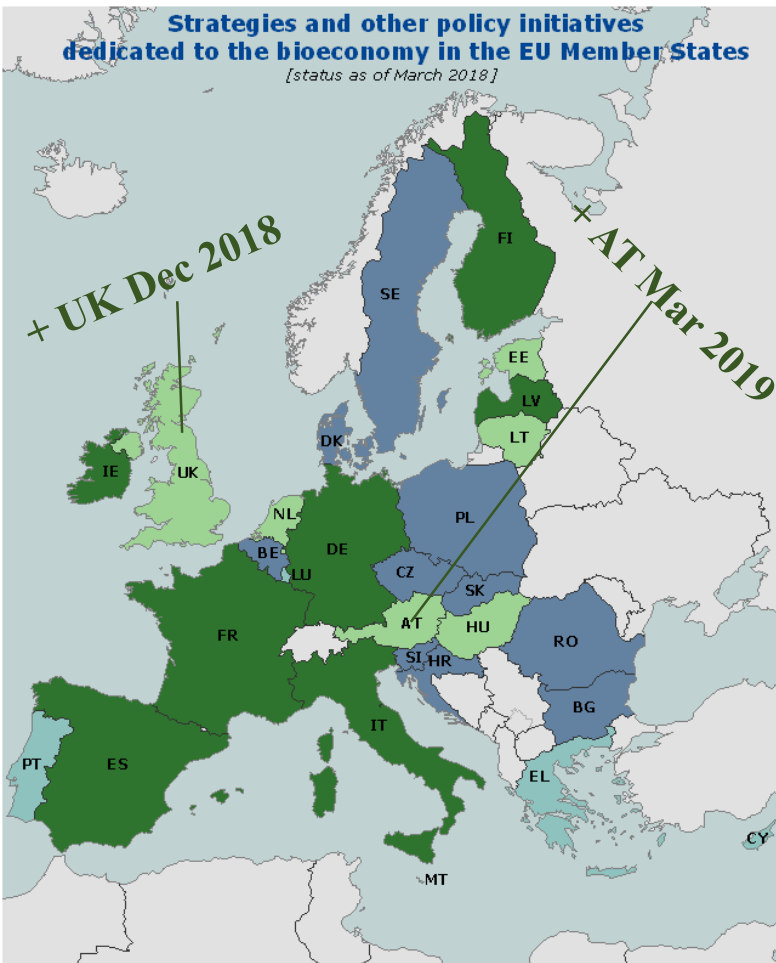
Bioeconomy covers all sectors & systems that rely on biological resources, their functions and principles. It includes:

- Ecosystems on land and sea
- Primary production sectors (agriculture, forestry, aquaculture/fisheries, waste/side streams)
- Economic sectors and industries based on biological resources and processes to produce food, feed, bio-based products, energy and services

COM/2018/673: A sustainable Bioeconomy for Europe: Strengthening the connection between economy, society and the environment



Bioeconomy in the Member States



Source: European Commission's Knowledge Centre for Bioeconomy
Administrative Boundaries: © EuroGeographics © UN-FAO © Turkstat

Bioeconomy in the EU - *Great diversity... - Wide variety...*

- **9 MS** have a dedicated bioeconomy strategy

Finland, Latvia, Germany, Italy, France, Spain, Ireland + UK (Dec. 2018), AT (Mar. 2019)

- **5 MS** in the process

Estonia, Hungary, Lithuania, the Netherlands + Sweden (Apr. 2019)

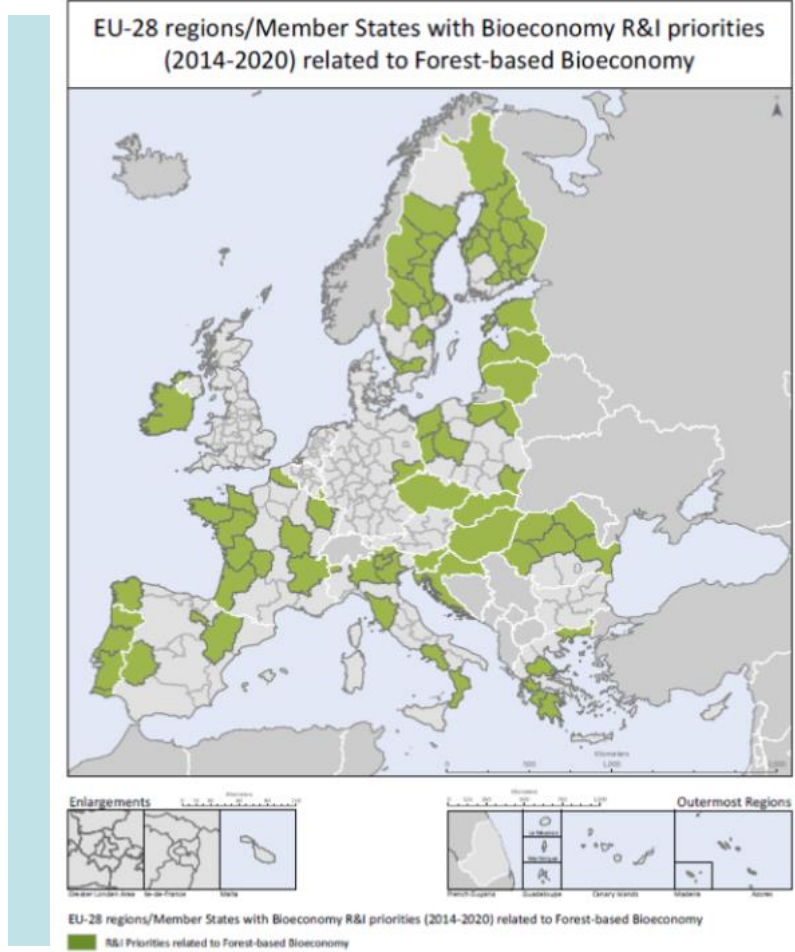
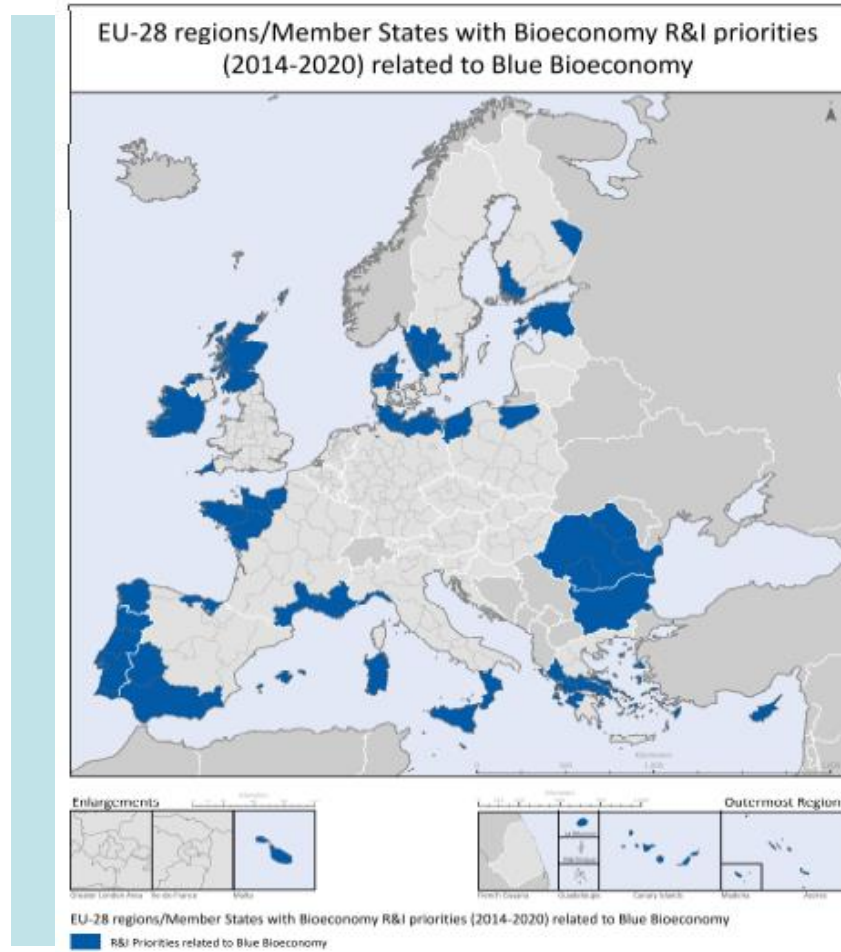
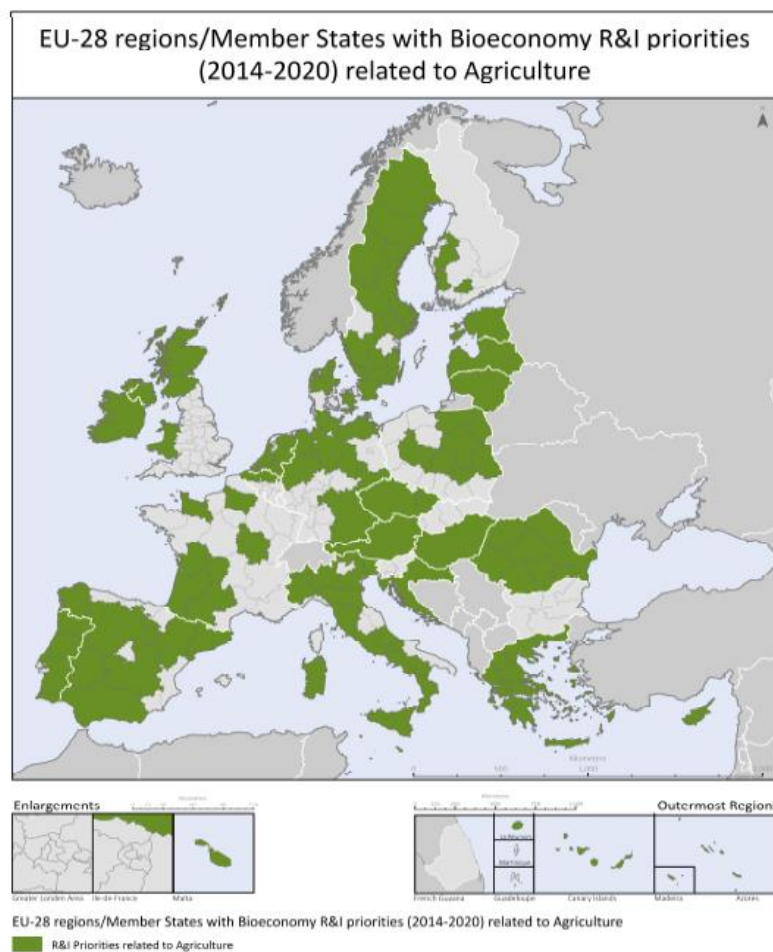
- **11 CEE MS** plan to develop one under the **Bioeast initiative**

Bulgaria, Croatia, Czechia, Hungary, Poland, Romania, Slovakia, Slovenia, Estonia, Lithuania, Latvia

- **>50 regions** have a bioeconomy-related strategy. Almost all foresee R&I in their RIS3 (*CoR Opinion*)

- **Only a few cities** have bioeconomy-related priorities in their policies

Bioeconomy in the regions



Almost all EU regions (98.6%) foresee R&I in bioeconomy in their RIS3 2014-2020

BUT drivers, capacities and approaches are different

EU Bioeconomy policy

2012: **Bioeconomy Strategy and Action Plan**
EC Communication (COM(2012)60)

2017: **Review of the Bioeconomy Strategy**
SWD(2017)374

2018: **Updated EU Bioeconomy Strategy and
Action Plan**
(COM(2018)673 & SWD(2018) 431)



Bioeconomy Strategy Action Plan

1

STRENGTHEN AND SCALE-UP THE BIO-BASED SECTORS, UNLOCK INVESTMENTS AND MARKETS



Mobilise stakeholders in **development** and **deployment** of **sustainable bio-based solutions**



Launch the **EUR 100 million** Circular Bioeconomy Thematic **Investment Platform**



Analyse **enablers and bottlenecks** for the deployment of **bio-based innovations**



Promote and develop **standards, labels and market** uptake of **bio-based products**



Facilitate the **development of new sustainable biorefineries**



Develop new **biodegradable products**, including bio-based plastic substitutes



Bioeconomy Strategy Action Plan

2

DEPLOY LOCAL BIOECONOMIES RAPIDLY ACROSS EUROPE



Launch a Strategic Deployment Agenda for sustainable food and farming systems, forestry and bio-based products



Launch pilot actions for the development of bioeconomies in rural, coastal and urban areas



Support regions and Member States to develop Bioeconomy Strategies



Promote education, training and skills across the bioeconomy

Europe's
bioeconomy
weaving it all together



Bioeconomy Strategy Action Plan

3

UNDERSTAND THE ECOLOGICAL BOUNDARIES OF THE BIOECONOMY



Enhance **knowledge** on bioeconomy



Monitor **progress** towards a sustainable bioeconomy



Promote **good practices** to operate the bioeconomy within **safe ecological limits**



Enhance the **benefits** of biodiversity in **primary production**

data & information

Knowledge Centre
for Bioeconomy

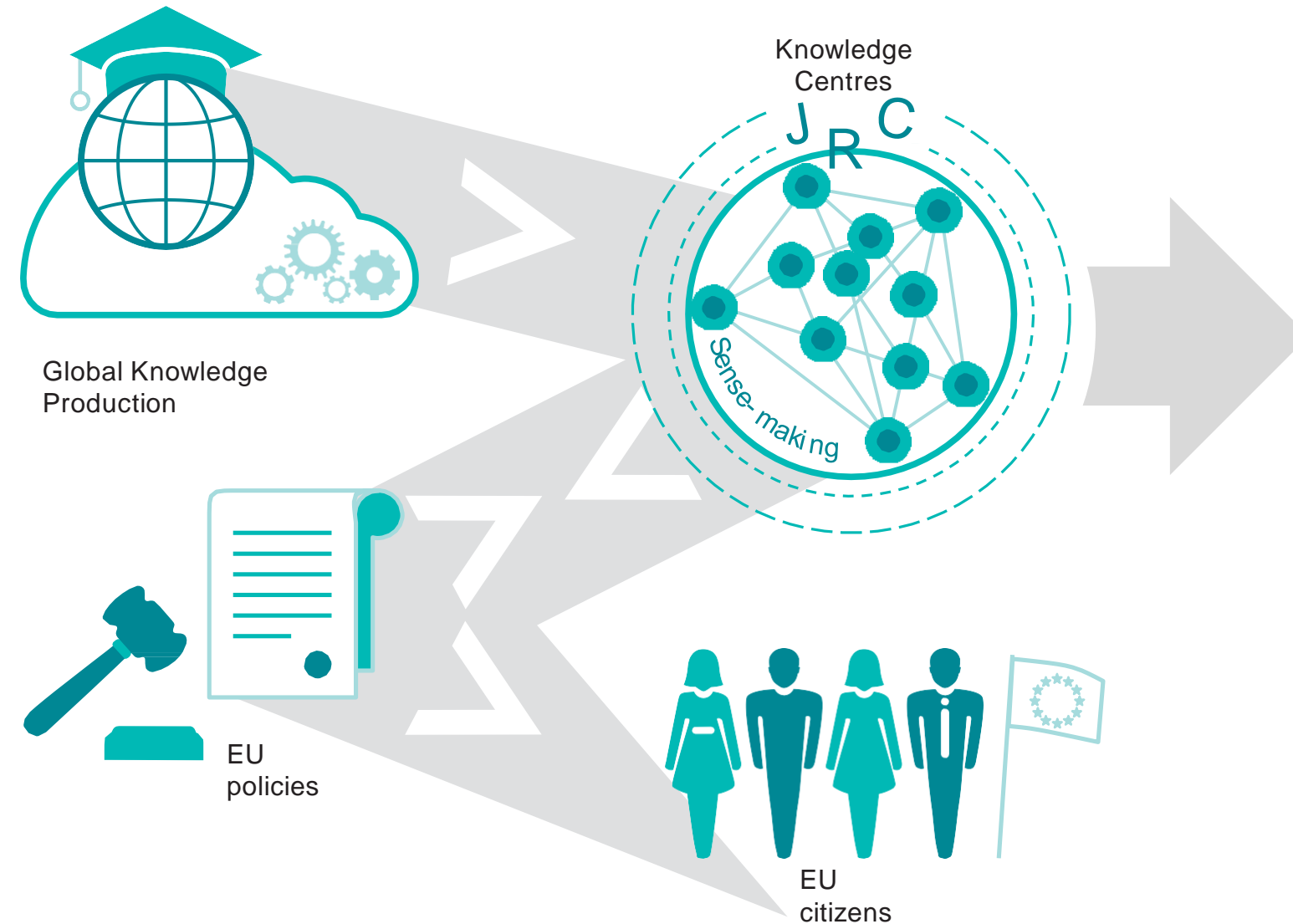


Europe's
bioeconomy
weaving it all together



European
Commission

The Knowledge Centre for Bioeconomy



Knowledge Centre for Bioeconomy: identifying and filtering relevant information and making it accessible

623 documents &
347 BE-related terms

379 news items &
172 events

256 datasets
from 9 organisations

European Commission > Knowledge for policy > Search

Knowledge for policy

Search Bioeconomy

Refine your search result using the form, left.

Search bioeconomy Search

Search options

Knowledge service
Bioeconomy (210)

Content type
Publication (210)

Knowledge service topics
--Choose--

Publication type
--Choose--

Year of publication
--Choose--

Related organisations
--Choose--

Search results (210)

Showing results 1 to 10

KNOWLEDGE SERVICE Bioeconomy (210) CONTENT TYPE Publication (210)

PUBLICATION | 01/02/2018
[Denmark as growth hub for a sustainable bioeconomy](#)
Statement by the National Bioeconomy Panel...

PUBLICATION | 28/10/2018
[Bioeconomy: Policy Paper](#)
Social challenges and objectives of bioeconomy...

PUBLICATION | 15/09/2017
[Mapping Sustainability Criteria for the Bioeconomy](#)

PUBLICATION | 28/10/2018
[The Spanish Bioeconomy Strategy - 2030 Horizon](#)

European Commission > Knowledge for policy > News

Knowledge for policy

Search Bioeconomy

Refine your search result using the form, left.

Search Search

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Knowledge service
Bioeconomy (325)

Filter by date:
2018 (242)
2017 (83)

Thesaurus
Search...

Search results (325)

Showing results 1 to 10

KNOWLEDGE SERVICE Bioeconomy (325)

NEWS | 23/11/2018
[Report on potential pyrolysis plant locations in Europe](#)

NEWS | 23/11/2018
[Scientific publication on the contribution of biojet fuels from forest residues to the SDGs](#)

NEWS | 23/11/2018
[Vision 2040 of the European Forest-based Sector](#)

NEWS | 16/11/2018
[EU project develops mobile biofuel production units](#)

NEWS | 16/11/2018
[A new dataset on algae production in Europe](#)

Research (74)
Bio-based chemicals and materials (50)
Bio-based (47)
Bioenergy (42)
Innovation (42)
Bioeconomy (40)
Biofuel (35)
Policy (35)
Biorefinery (33)
Biomass (32)
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Knowledge for policy

Search Bioeconomy

Refine your search result using the form, left.

Search Search

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Knowledge service
Bioeconomy (259)

Content type
Dataset (259)

Knowledge service topics
--Choose--

Related organisations
--Choose--

Geographic coverage
--Choose--

Thesaurus
Search...

Search results (259)

Showing results 1 to 10

KNOWLEDGE SERVICE Bioeconomy (259) CONTENT TYPE Dataset (259)

DATASET | 16/03/2018
[Renewable Energy Education](#)
Data on the number of renewable energy education courses provided worldwide. It displays data by region, country or technology in a variety of forms such as pie charts and maps....

DATASET | 16/03/2018
[Renewable Energy Country Roadmaps](#)
Overview data on the key renewable energy map by country. Data on final energy consumption, electricity capacity, and energy sector demand by technology for 2010 and the reference case (2030) It is based on the 'REmap: Roadmap for a renewable e...

DATASET | 16/03/2018
[Renewable electricity production cost](#)
Data on the Levelised Cost of Electricity (LCOE) of the different renewable energy technologies (including solid biomass) at a regional level, expressed in USD/kWh....

Agriculture (122)
Bioenergy (95)

Knowledge Centre for Bioeconomy: bringing together researchers, policymakers and other experts in the field

- CoP launched in September 2018
- Workshop on 'Modelling tools for the EU Bioeconomy' (Oct. 2018)
- Workshop on 'Monitoring the economic, environmental and social progress of the EU bioeconomy' (Nov. 2018)
- Workshop on 'Algae production in Europe' (Feb. 2019)
- Workshop on bioeconomy indicators (planned Jun. 2019)
- Workshop on the knowledge base on the bioeconomy (planned Sep. 2019)



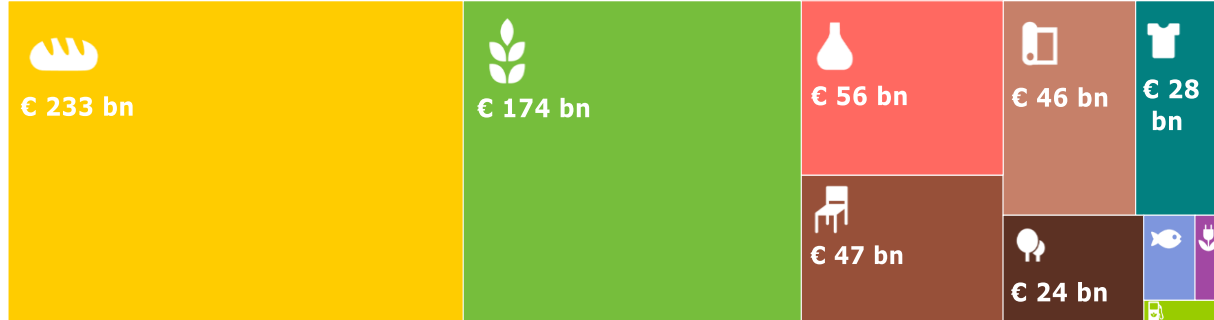
Examples of research activities

Economic and social dimensions of the bioeconomy

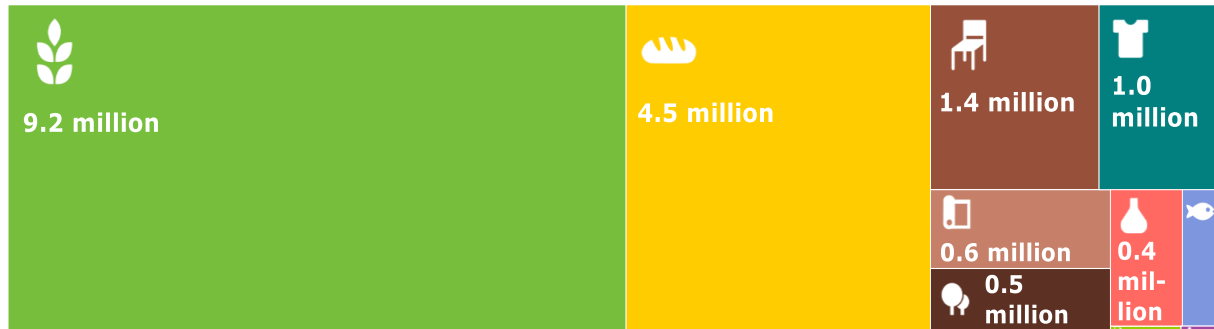
Turnover - EUR 2.3 trillion



Value added - EUR 621 billion



Jobs - 18 million people



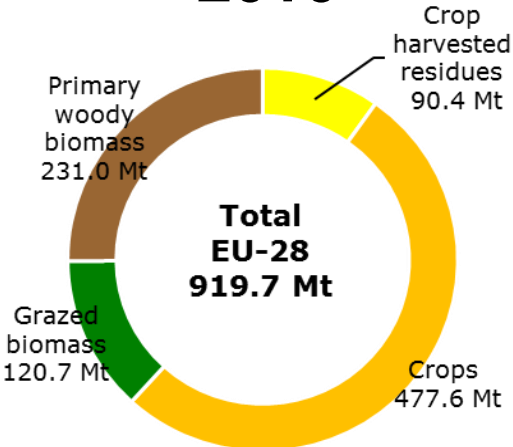
- Agriculture
- Forestry
- Fishing and aquaculture
- Manufacture of food, beverages and tobacco
- Manufacture of bio-based textiles
- Manufacture of wood products and furniture
- Manufacture of paper
- Manufacture of bio-based chemicals, pharmaceuticals, plastics and rubber (excluding biofuels)
- Manufacture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

Examples of research activities

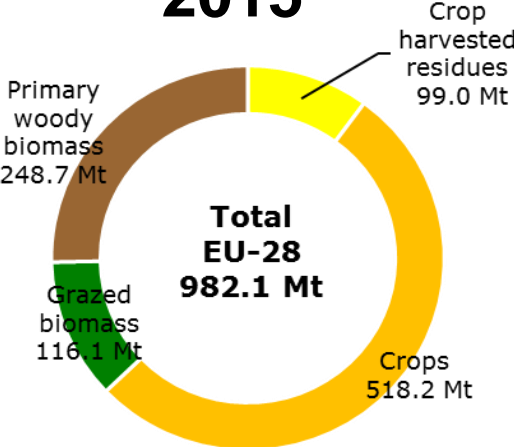
Assessments of EU-28 biomass



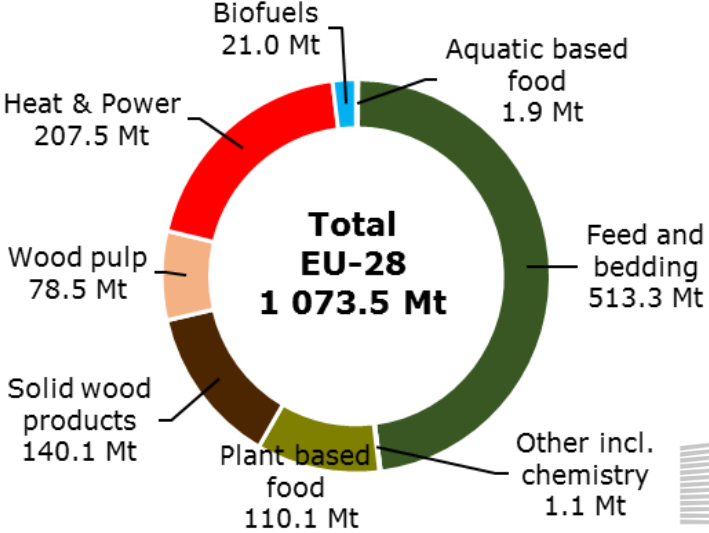
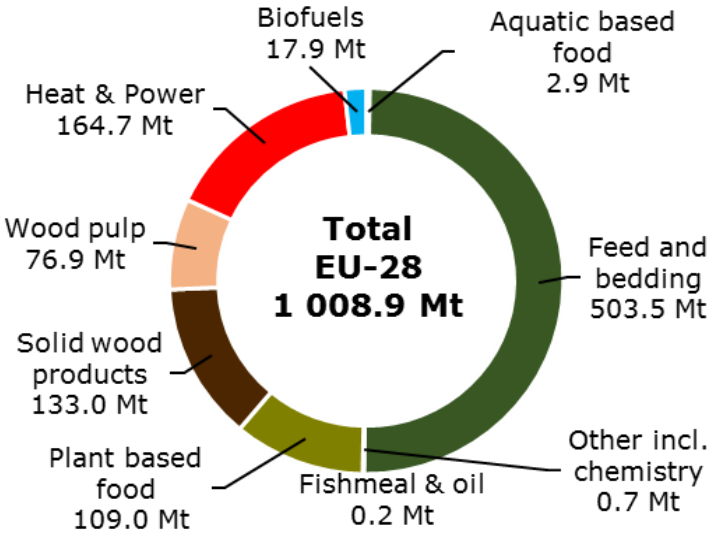
2010



2015



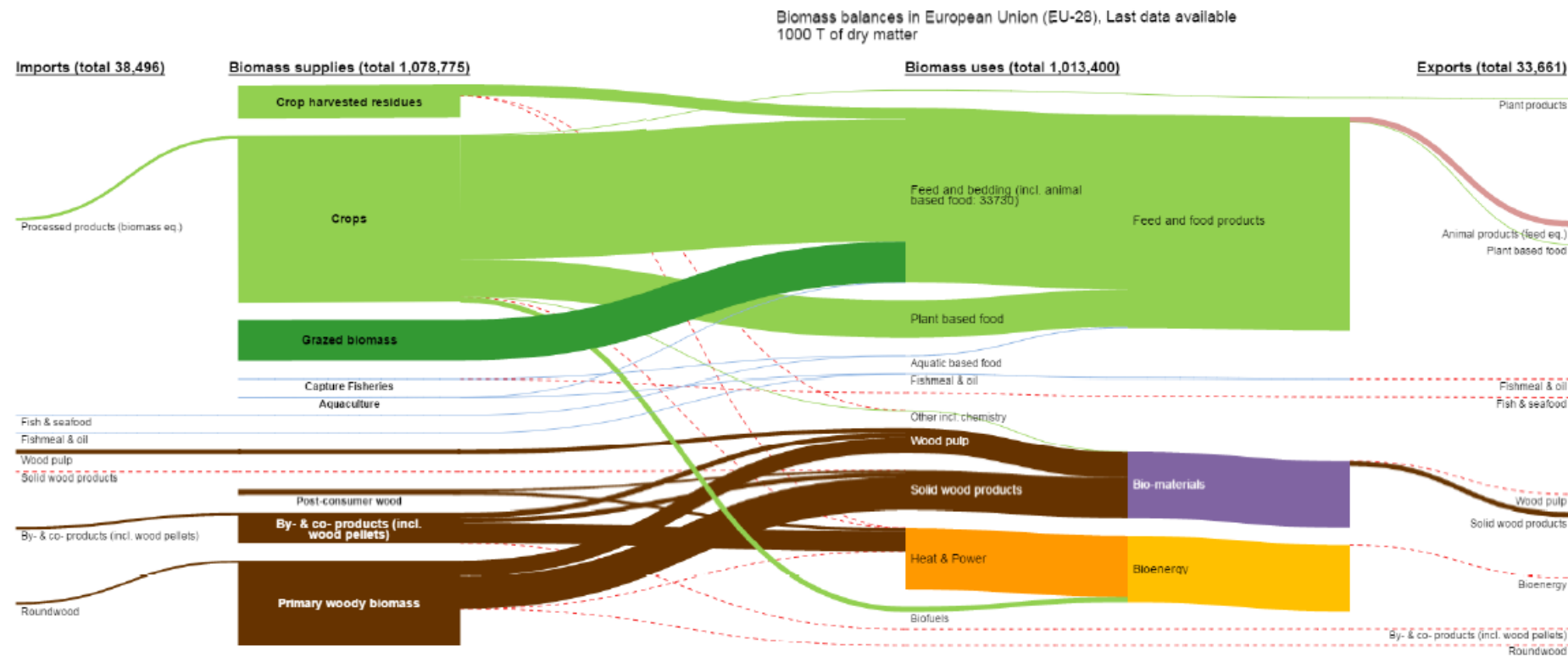
SUPPLY



USES

Biomass flows in the EU – cross sectorial

EU-28, Net trade



Source: data from the BIOMASS project, European Commission – Joint Research Center
Please note: Supply and use figures might not match due to estimation errors, stock changes, waste and/or loss of biomass or differences in the data sources used

Source: Biomass flows in the European Union, EUR 28565 EN

Please note: Supply and use figures might not match due to estimation errors, stock changes, waste and/or loss of biomass or differences in the data sources used



European
Commission

(1000 m³)



Examples of research activities

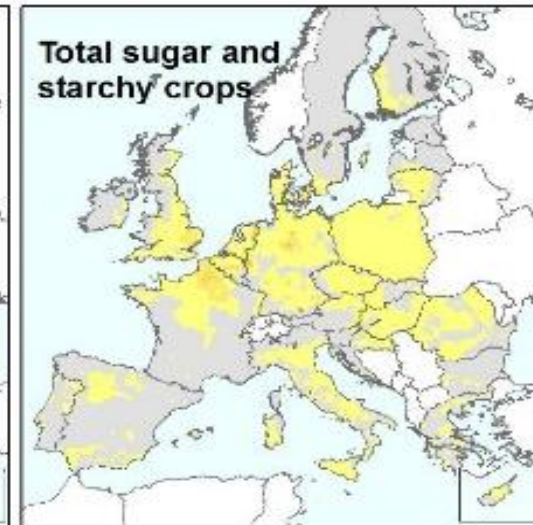
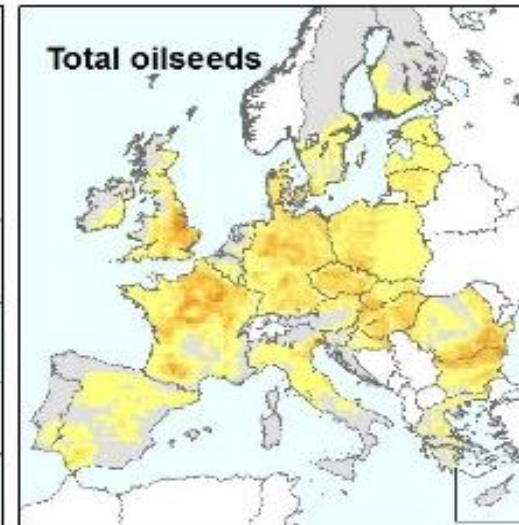
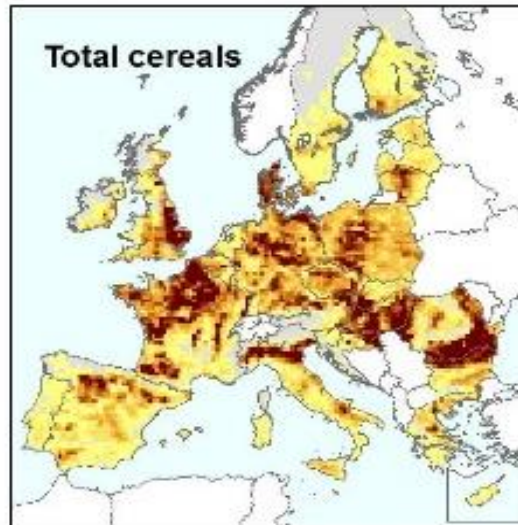
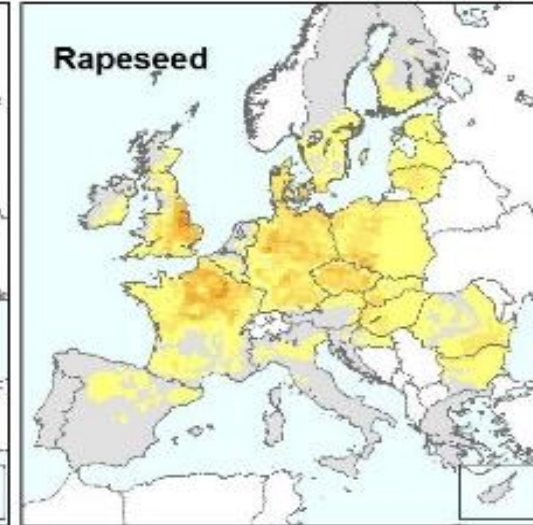
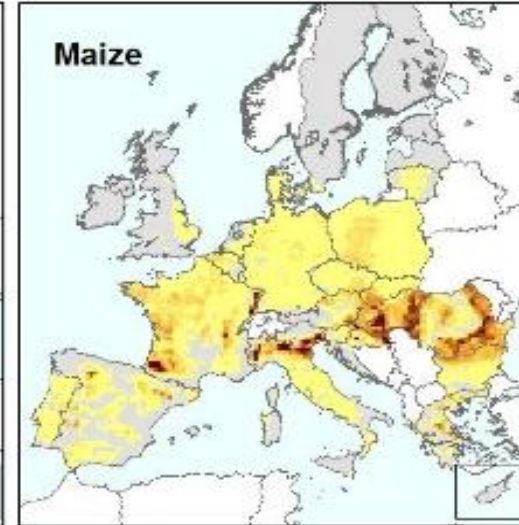
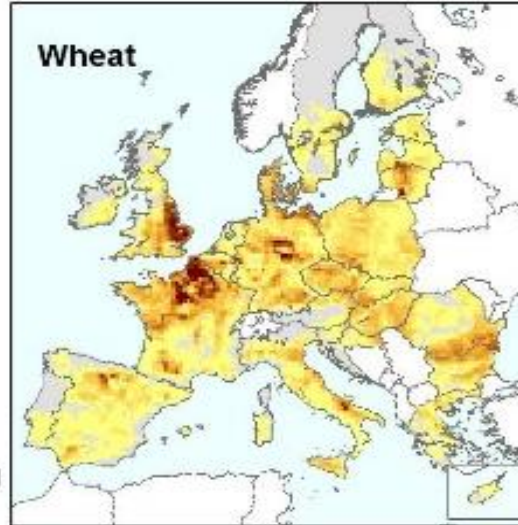
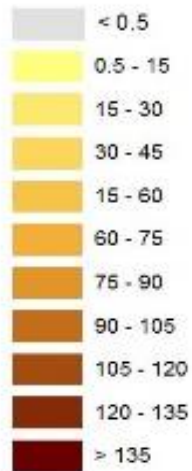
Mapping crop residues production

Spatially explicit

- *Total residue production*
- *Crops and crop groups*

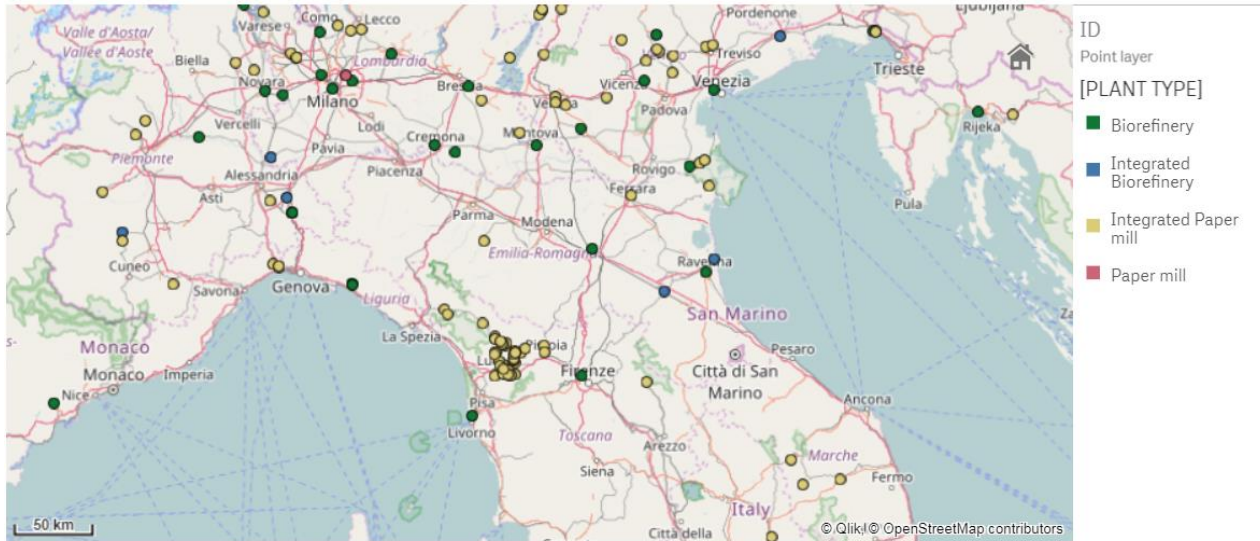
Crop residues
production in the EU

kt y⁻¹ per 25 km cell



Examples of research activities

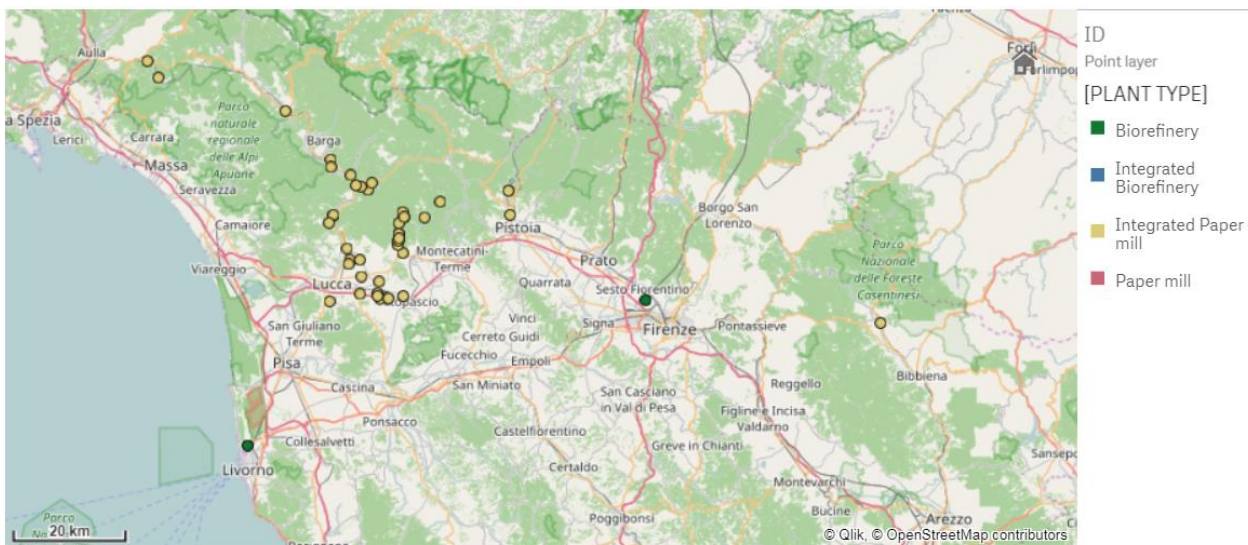
Biorefineries distribution in Tuscany



Biorefineries are production facilities that convert renewable biomass into valuable products

JRC has compiled a database of biorefineries. Pulp and paper mills have been included because of their potential to be considered biorefineries

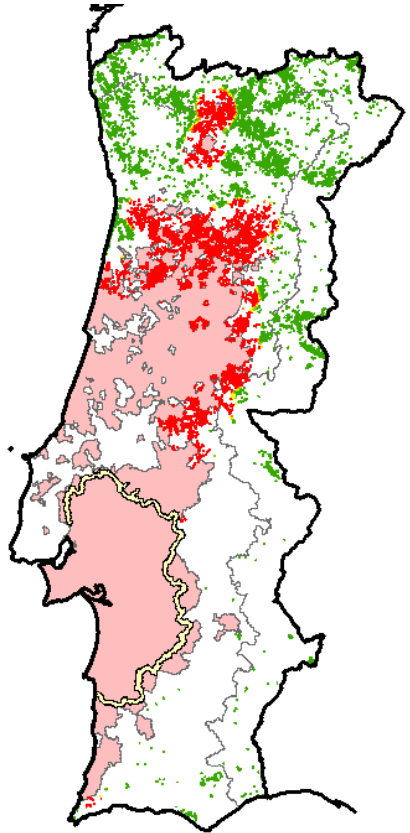
As of 2018, two biorefineries have been found to operate in Tuscany. One is located in Sesto Fiorentino and the other one is located in Livorno. The first one produces chemicals from wood and wood residues while the other one produces biodiesel from vegetable oil



Tuscany is one of the major European regions in terms of number of pulp & paper mills. Around 36% of the Italian mills are operating in Italy in the Lucca area. Most of them are of medium to large size

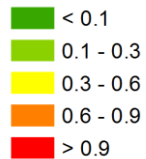
Examples of research activities

Forest and tree health



Model-forecasted pine wood nematode spread in Portugal during 2018 in the absence of control measures

Probability of infection



Coniferous forest (COS2007)

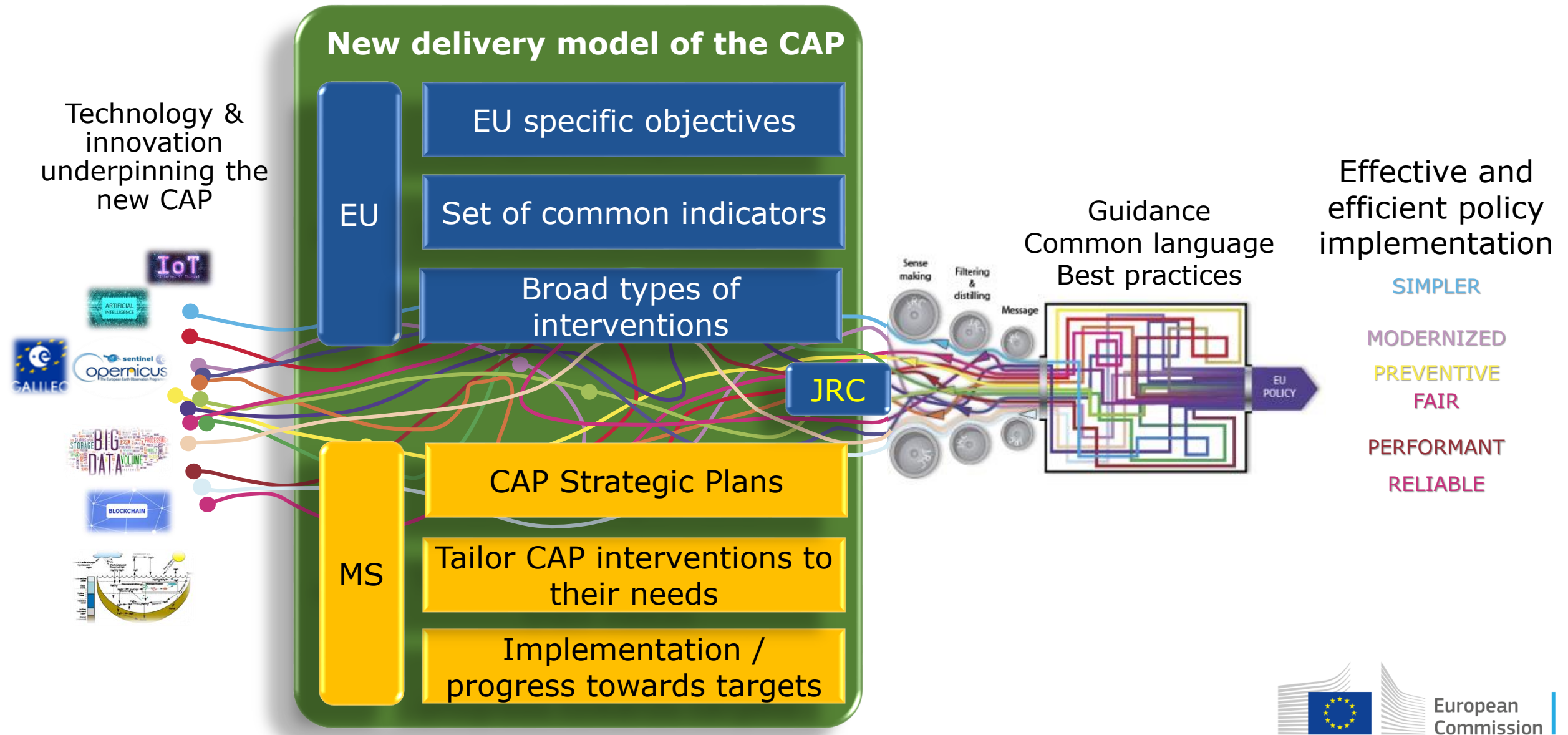


Early detection of olive trees showing symptoms of *Xylella fastidiosa* infection using remote sensing



Examples of research activities

Support to the new CAP



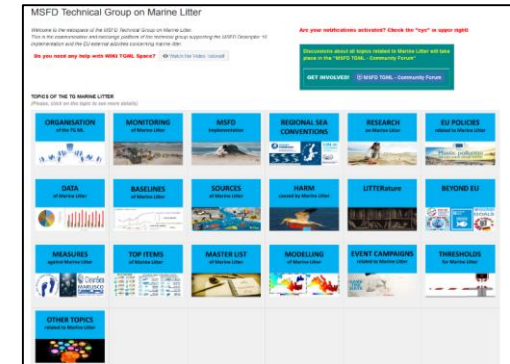
Examples of research activities

Marine litter



Harmonization and development of methodologies for the quantitative assessment of marine litter

- Co-chairing the MSFD Technical Group on Marine Litter, as part of the Marine Strategy Framework Directive
- Providing guidance for marine litter monitoring: Beach Litter, Floating Litter, Seafloor Litter, Micro-litter, entanglement + ingestion
- Deriving baselines of marine litter quantities in different environmental media, also in support to the EU Plastics Strategy (Top Litter Items)
- Development of litter thresholds and compliance checking approaches
- Development of methodologies for litter monitoring
- Collaboration outside EU for harmonization of approaches at global scale: Regional Sea Conventions, United Nations



Link to TG Litter documents:

http://mcc.jrc.ec.europa.eu/dev.py?N=41&O=434&titre_chap=TG%20Marine%20Litter



MoU JRC - Toscana

Framework of collaboration between the JRC and the research institutions and infrastructures of the Tuscan scientific and innovation system.

In force since 20 November 2018 for 5 years (signed by DG JRC V. Sucha and President RT E. Rossi)



MoU JRC - Toscana

- Areas of mutual interest
 - ✓ Digital platforms and open data
 - ✓ Science advice to policy-making
 - ✓ Innovation Ecosystems and Smart Governance
 - ✓ Enhancement of higher education and research
- Topics of mutual interest between the JRC Scientific Directorates and the Universities/Research Institutions located in the regional territory
 - ✓ Technology Transfer and Industry 4.0
 - ✓ Agriculture, Bio-economy, food, nutrition and health
 - ✓ Water Management, Climate, Energy and Circular Economy
 - ✓ Critical Raw Materials
 - ✓ Artificial Intelligence and Robotics
 - ✓ Disaster risk management and Civil Protection

Conclusions

- There is not one single bioeconomy, the bioeconomies across Europe are diverse and local, and this constitutes their added value.
- Significant investments in R&I funding for the bioeconomy foreseen in 2021-2027. The 2018 Bioeconomy Strategy foresees additional actions to deliver a sustainable circular bioeconomy.
- A concerted effort by public authorities at EU, national and regional level and the private sector is needed.
- JRC collaboration with Tuscany and other regions will support evidence-informed policy/decision-making at regional level.



Thanks

Any questions?

You can find us at EC-Bioeconomy-KC@ec.europa.eu