



## FOOD WASTE, FOOD SYSTEMS AND BIOECONOMY: CIRCULAR VALUE CHAINS IN THE BIOECONOMY SECTOR



### OVERVIEW

The Leadership Group on Food waste, food systems and the bioeconomy has been working since November 2020 to highlight and raise awareness about the importance and complexity of food systems and the bioeconomy as a driver of the transition towards a circular economy in Europe. The purpose of the workshop is to showcase good practices and successful projects on agri-plastics and circularity, bio-based industry trends, the utilisation of secondary biomass and the role of universities in boosting action on food waste.

### NEW CHALLENGES

Agri-plastics and circularity: good practices and the road ahead

- Reducing plastic waste is an essential goal for all sectors of our economy, which can only be achieved by collective efforts.
- Farmers have been implementing the transition towards more sustainable agriculture using several available techniques.
- Plastics in agriculture are an ally for farmers, helping them produce more sustainably, but impacts on the environment should be limited and monitored. Better collection systems can help achieve this.
- There is a clear need to establish EU standard collection schemes in each Member State. This is the best way to reduce plastic pollution in agriculture in a systemic way and to increase recycling.

Bio-based industry trends and utilisation of secondary biomass

- Trends in bio-based industry: most development is being done using bio-based naphtha or oil as an input for classic fossil fuel refineries. Most processes are chemical, producing products that are similar to fossil fuel-based ones.
- The bio-based share of European markets is around 3% of total products.
- Secondary biomass: residuals from agriculture, forestry, animal husbandry, fishery; residuals from the food and feed industry; residuals from bio-based industries; biowaste; wastewater.
- Barriers facing the sector: used for incineration; used as feed; agricultural residuals used for soil improvement; logistics for highly distributed resources; new processes and value chains for stakeholders; established system for waste elimination and incineration; investment in up-scaling.

- Solutions and drivers: decentralise pre-treatment; biorefineries; circular nutrient flow through fertigation/biochar/digestate; technology optimisation; carbon pricing; EC taxonomy.

Food waste and youth: how universities can help inspire action

- Statistics: 88 million tonnes of food is wasted each year in the EU and there are around 17 million tertiary education students.
- Universities as a launch pad for student-led food waste action: providing support for student initiatives, student food waste ambassadors and student environmental networks.
- Universities leading by example: University Food Policy and call to action for universities (incorporate strategy on food waste into university policies and encourage student initiatives).
- An effective transition to the circular economy will require new jobs, skills and mindsets. New ways of learning with innovative features will be needed: youth programmes should be designed to be interdisciplinary and engaging.
- Three educational processes on the circular economy with a focus on food: MOOC Circular Business Models for Sustainable Urban Food Systems; Digital Education for a Sustainable World (Digi Edu Hack 2021); Girls Go Circular.

## KEY MESSAGES

In the agricultural sector, efforts are being made to achieve plastic-neutral farming by reducing waste at source, improving collection and recycling, developing greener alternatives, and achieving zero waste to nature or landfill. However, there is an urgent need to introduce national collection schemes in all European countries. Member States and the European Commission should support the initiative and provide the necessary resources to speed up the process. We already have the relevant expertise and experience; we just need the political will and necessary funding.

Circular food systems and bioeconomy are a vital nexus for climate change and biodiversity loss mitigation. Nowadays, there are many advanced technologies able to convert biomass and residues into valuable materials. However, to achieve economic effectiveness and scale up existing technology we need higher investments in research for the various sectors, stronger engagement from more companies and optimisation of resources and logistics. Education on the circular economy from a very early age is a basic requirement.

Leveraging collaboration could be really beneficial for the various stakeholders in the area of the circular economy. Some universities are leading the way in the circular discourse. More and more universities are working on the circular economy by joining forces with other institutions and universities in and outside Europe through partnerships and by sharing good practices. Engaging with local communities is also essential.

In particular, universities can empower young people to take action against food waste and lead by example. There are many interesting projects going on which aim to involve students in tackling the problem of food waste, for example based on cooperation with initiatives like Too good to Go. However, more innovative learning methods are needed to inspire circular action.