

## **Agricultural Residues: Policy recommendations from the European Biomass Association (AEBIOM)**

The discussion on the biomass potential is becoming an important topic of discussion with the update of the Bioeconomy Strategy and the work of the Joint Research Centre on this topic. At the same time, the potential of agricultural residues is often disregarded in the discussion. With the reform of the Common Agriculture Policy and the framing of national subsidy schemes after the adoption of the new Renewable Energy Directive, it is important to understand better which place agricultural residues could take in the future of bioenergy.

One can distinguish between residues from primary agricultural operations (i.e. residues from the harvesting of annual crops and prunnings) and residues from secondary operations (i.e. grain storage, agri-food and feed industries). Besides on farm use (e.g. animal bedding) and a part of residues to be left on the field for soil fertility, a significant amount of residues can be used for bio-energy. According to a recent JRC study, 46 percent of the aboveground agricultural biomass production are residues<sup>1</sup> representing a large potential for bioenergy. S2Biom, one of the largest EU project on this topic, estimates that between 342-400 dry million tonnes of agricultural biomass<sup>2</sup> are available per year by 2030 making it the second largest potential of all biomass sources after forest biomass accounting for 490 dry million tonnes currently used and potentially increasing up to 660 dry million by 2030.<sup>3</sup>

These results sound very promising, but until now there is not a large use of residues for bioenergy and varies between Member States: In Denmark, straw is a significant part of the renewable energy mix<sup>4</sup>, whereas in most other countries this part is much smaller or non-existent.<sup>5</sup> In total, only around 15 dry million tonnes are currently used in Europe.<sup>6</sup> Yet, in Northern and Eastern Europe, agricultural residues

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<sup>1</sup> JRC (2018): Biomass production, supply, uses and flows in the European Union: p. 13

<sup>2</sup> Agricultural biomass includes straw, stubbles, woody pruning & orchards residues, grassland cuttings not used for feed purposes, biomass from road side verges, by-products and residues from food and fruit processing industry.

<sup>3</sup> S2Biom (2016): Vision for 1 billion dry tonnes of lignocellulosic biomass as a contribution to biobased economy by 2030, p. 17.

<sup>4</sup> Inbiom (2011) : Straw to Energy. Status, Technologies and Innovation in Denmark: p. 7.

<sup>5</sup> AEBIOM Statistical report (2017): p. 56.

<sup>6</sup> S2Biom (2016): *op. cit.*, p. 17.

collection could be increased by up to 150% without decreasing soil fertility.<sup>7</sup> In Southern Europe, residues from secondary operations (e.g. olive stones) are an interesting source of residues. The use of agricultural residues is particularly suitable for sparsely-wooded countries with a large agricultural sector. To unlock this potential, political incentives can play an important role to incentivize the use of agricultural residues for bioenergy.

#### 1. *Integrate agricultural biomass in the political vision for renewable energy*

Agricultural residues are often lacking in the political vision for renewable energy. A clear inclusion in European and national strategies on renewable energy is needed to unfold its market potential.

A diversification of sources of biomass increases the flexibility to reach future renewable energy targets. To achieve this diversification, a main challenge at stake is to increase cooperation between the agricultural and the energy sector. Linking both policies should thus become an important part of the 2050 Roadmap of the European Commission.

Following the Commission Communication on Future of Food and Farming<sup>8</sup>, both the emergence of the bio-economy and increased ambition on climate objectives are priorities for the future Common Agriculture Policy. Being a key part of the bio-economy and increasing the share of renewable energy in Europe, using agricultural residues for bioenergy responds very well to these priorities. Thus, this important reform will be a key opportunity to incentivise the use of agricultural residues for bioenergy.

#### 2. *Create a stable, financial and regulatory support structure for agricultural residues*

Well-tailored support schemes can be very important for the market uptake of agricultural residues as shown by the Danish example. In Denmark, since the 1980s, there has been a decentralisation of Danish energy production. As transport is often not economically viable due to low density of the residues, fostering local energy production is an important incentive for agricultural residues. In the 1990s, central power plants were required to uptake 1.4 million tons of biomass including 1 million ton of straw. In addition, the Heating Supply Law provided the Energy Ministry with the ability to regulate fuel choice and led to a stronger deployment of renewable heating solutions.<sup>9</sup> Today, straw generates around 15 to 20 PJ of renewable energy in Denmark.<sup>10</sup>

Agricultural residues being of lower quality than wood need specific boilers. Further research and development is needed to improve the combustion process of agricultural residues. To establish a

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<sup>7</sup> Monforti *et al.* (2015): Optimal energy use of agricultural crop residues preserving soil organic carbon stocks in Europe. In: Renewable and Sustainable Energy Reviews.

<sup>8</sup> Commission (2017): Communication on The Future of Food and Farming, p. 18-20.

<sup>9</sup> Inbiom : Straw to energy. Status, Technologies and Innovation in Denmark. 2011: p. 6.

<sup>10</sup> IEA Bioenergy Task 40 (2014): Impact of promotion mechanisms for advanced and low-iLUC biofuels on markets. Straw for bioenergy: p. 11.

market for agricultural residues, but also for the appropriate technologies, financial incentives are needed for investment to take place. Targeted support can be provided via national subsidy schemes and rural development programmes.<sup>11</sup>

A regulatory market barrier for agricultural residues is that they are often considered as waste by national legislation. This leads to restrictions in use for households and to additional administrative burden for producers. Agricultural residues are excluded from the scope of the Waste Framework Directive<sup>12</sup> at European level, but at national level, some legislative frameworks consider those residues as waste.

### 3. *Raise awareness and share knowledge and develop logistical support*

The energetic use of agricultural residues is still quite unknown among farmers, public authorities and building and heating professionals. More in general, awareness and trust must be raised also among public authorities and end-users to facilitate the switch from fossil fuels to bioenergy.

To facilitate the uptake of agricultural biomass, more educational training and knowledge sharing is needed. To untap the potential of agricultural residues, changes are needed in the current farming practices (i.e. collection of residues).

Moreover, there needs to be an infrastructure facilitating the development of a market for agricultural residues. Standardization and certification systems are important to ensure constant quality and confidence for consumers. Integrated Biomass Logistic Centres<sup>13</sup> creating synergies in terms of facilities, equipment and staff capacities can be an important factor to overcome logistical and infrastructural barriers.

At EU level, projects and awareness raising measures targeting agricultural residues should be supported to create knowledge sharing networks among different stakeholders, create an infrastructure ensuring quality and logistics and increase visibility for agricultural residues to bioenergy.

**About AEBIOM:** The European Biomass Association (AEBIOM) is the common voice of the bioenergy sector with the aim to develop a sustainable bioenergy market based on fair business conditions. AEBIOM is a non-profit, Brussels-based international organisation founded in 1990 that brings together around 40 associations and 90 companies, academics and other associations from across Europe.

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<sup>11</sup> Rural Development Regulation Art. 17 “Investment in physical assets” and Art. 19 “Farm and business development”, Art. 20 “Basic Services and Village Renewal in Rural Areas”

<sup>12</sup> Waste Framework Directive (2008/98/EC), Art. 2 (1) point f.

<sup>13</sup> On the idea of Intergrated Biomass Logistic Centres, the following EU project has been developed: <http://agroinlog-h2020.eu/en/home>