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Boosting the adoption of Bio-Based Technologies

How BBioNets' BBTs Assessment Tool Can Help Andalusian Primary Producers Choose Profitable and Sustainable Practices

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Title	How BBioNets' BBTs Assessment Tool Can Help Andalusian Primary Producers Choose Profitable and Sustainable Practices
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Brief summary	This article presents the BBioNets Bio-Based Technologies (BBTs) Assessment Tool, with emphasis on its relevance and potential use by primary producers in Andalusia. It includes reflections on the region's biomass potential and how this tool can support practical, data-driven decision-making, particularly for advisory networks such as the project's Forest and Agriculture Networks (FANs).
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Spain is among the European leaders in biomass resources, with 27.6 million hectares of forest (57% of its territory). It is also the world's top olive oil producer (over 1.4 million tonnes in 2015–2016) and Europe's leading pork producer, generating over 50 million tonnes of manure annually. Despite this potential, Spain remains among the lowest-ranking EU countries in biomass-to-energy and bioproduct conversion, signalling a clear need for improved resource valorisation (De Gregorio, 2020).

Andalusia offers one of the richest biomass portfolios in Southern Europe, yet farmers and forest owners still face difficulties identifying which bio-based technologies (BBTs) are truly worth investing in, especially under conditions of price instability, seasonal supply, and infrastructure gaps.

To support producers and advisory networks in making smart, data-driven decisions, the BBioNets project has developed the BBTs Assessment Tool. This tool, grounded in scientific methodology and regional input, offers a new way to prioritise technologies that are not only viable but also profitable in a given local context.

The BBTs Assessment Tool uses an Excel-based interface powered by Power Pivot to combine the comprehensive inventory of BBTs. These BBTs are generated with input from all project partners with region-specific data collected through BBioNets' Forest and Agriculture Network (FAN) workshops (in this particular case, the Spanish FAN). The results gathered at the FAN workshops in Andalusia have served to reveal specific information on both the biomass resources available in the region and the main challenges faced by producers when it comes to valorising them (Figure 1). All these variables are collected and integrated into the BBTs Assessment Tool to suggest the most viable technological options.

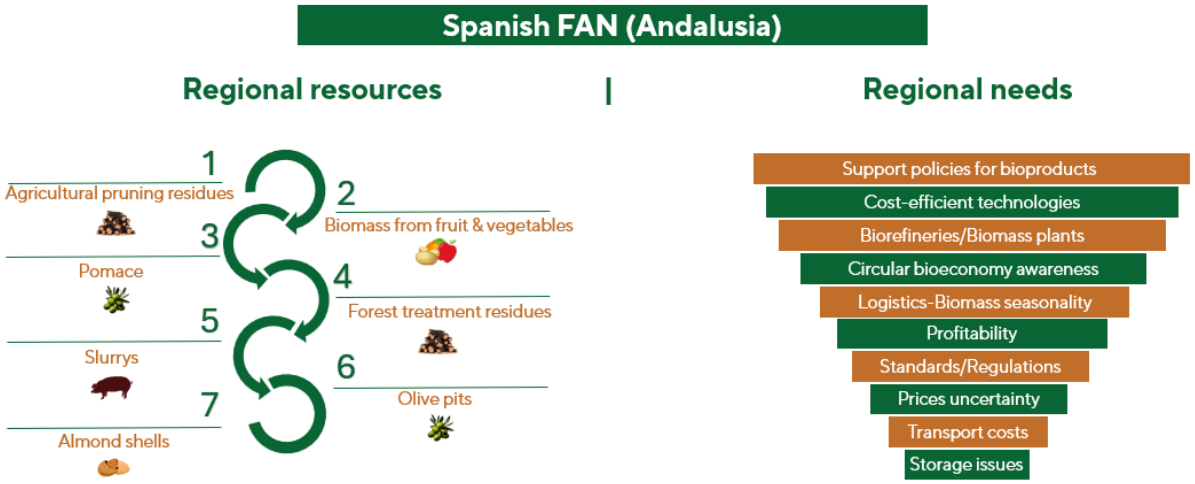


Figure 1: Resources and Needs Identified in Andalusia (Spain FAN Workshop).

With this tool, users can filter options by investment capacity, acceptable payback periods, and available biomass types, as well as by social and environmental impacts (e.g., water use, land requirements, added value to land, or energy independence). Based on the filtered and selected options, each BBT is scored and plotted on a cost-effectiveness matrix, highlighting those that offer the highest return with manageable complexity and cost.

Producers in Andalusia, whether they manage olive groves, fruit farms or forest areas, have difficulties in making profitable decisions about adopting BBTs. This task involves managing a complex set of variables, such as investment capacity, non-feedstock availability, processing infrastructure and/or expected return periods. To address this, the BBioNets BBTs Assessment Tool simplifies this complexity by:

- Integrating **regional realities** (such as type and volume of biomass, seasonality, and local costs) into a structured analysis.
- **Scoring technologies** based on economic performance (CAPEX, OPEX, ROI), technical feasibility, and environmental impact.
- **Filtering options** according to the user's constraints (e.g. investment limit, processing volume, complexity tolerance).
- **Prioritising technologies** that align best with the user's context — favoring those with low entry cost, quick returns, or high co-benefits like soil improvement or energy generation.

It should be noted that the tool is integrated into the BBioNets Knowledge Platform, offering a user-friendly online interface with updated regional data, downloadable results and multilingual support.

In short, the tool provides a practical shortcut: it helps producers identify which technologies are not just possible, but profitable, based on real conditions, not assumptions. By distilling technical complexity into prioritised, region-specific insights, the tool becomes a strategic asset for producers working in Andalusia, offering:

- **Evidence-based advice** for cooperatives and producers.
- **Customised pathways for BBT adoption** aligned with real-world constraints.
- **Strategic planning** for public investment or OG project design.

The benefits generated by this tool serve to support different groups such as farmers and cooperatives looking to valorise underused biomass, or public planners and innovation hubs seeking evidence to guide funding or training initiatives.

The bioeconomy is not just about innovation, but about making the right decisions, in the right places and at the right time. **For Andalusia's primary producers, where biomass is abundant but margins are tight, tools like the BBioNets BBTs Assessment Tool can make a real difference, bringing clarity to investment choices and accelerates the transition to a profitable, circular bioeconomy.**

For further information, explore the BBioNets deliverables:

- D2.2 – BBT Assessment Tool v1 (https://bbionets.eu/wp-content/uploads/2025/07/D2.2_BBT_Assessment_tool-v1_fn.pdf)
- D1.5 – Regional Needs and Challenges (https://bbionets.eu/wp-content/uploads/2025/07/D1.5_Regional_Needs_Challenges_fn.pdf)
- D2.4 – Regional Dynamics Study (https://bbionets.eu/wp-content/uploads/2025/07/D2.4_High_level_study_regional_dinamics_BBTs_fn.pdf)

References

De Gregorio, M. (2020). Biomasa en España. Generación de valor añadido y análisis prospectivo (Estudios sobre la Economía Española, 2020/01). FEDEA. *https://documentos.fedea.net/pubs/eee/eee2020-01.pdf*

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Document information

Title	BBioNets – Creation and promotion of Forest and Agriculture Networks to boost Bio-Based Technologies adoption and Value Chain development (GA No 101133904)
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Coordinator	Munster Technological University Ms. Carmen Girón Domínguez (carmen.dominguez@mtu.ie)
Project overview	BBioNets constitutes a thematic network that relies on, promotes, and further advances the work carried out by EIP-AGRI Operational Groups (OGs) with respect to **management and/or processing of agricultural and forest biomass with Bio-Based Technologies (BBTs)**. The project has set up 6 regional Forest and Agriculture Networks – FANs (IE, ES, IT, EL, PL, CZ) that identify local needs, prioritise specific BBTs and share BBT knowledge ready for practice to farmers and foresters, boosting the (re)definition of value chains, stimulating cross-fertilisation beyond borders, and bringing Europe to the forefront of farming, forestry and bioeconomy with economically viable and sustainable practices.
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