BBioNets

Boosting the adoption of Bio-Based Technologies

DELIVERABLE D2.2

BBTs Assessment Tool – v1

MTU

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Table of Abbreviations

Abbreviation	Description
AB	Advisory Board
BBT	Bio-Based Technology
D	Deliverable
FAN	Forest and Agriculture Networks
HLRD	High-Level study of Regional Dynamics
OG	Operational Groups
RPFA	Regional Partners for Forestry and Agriculture
RR	Represented Region
T	Task
WP	Work Package

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Executive Summary

This document, titled "BBTs Assessment Tool - v1," outlines the initial version of the Bio-Based Technologies (BBTs) Assessment Tool, detailing its features and the 'Reference' Scenarios for each Represented Region (RR). It describes the tool's integration with project tasks such as the BBioNets knowledge inventory, regional dynamics studies, and workshops for identifying and validating regional needs and BBTs.

The primary objective of the tool is to prioritize the most suitable BBTs for each RR based on user-provided data, enhancing accuracy with more detailed input. The methodology section elucidates the tool's operation, interrelationships of information, and accuracy improvement. A data model created with Power Pivot is explained, showcasing its design and functionality.

The report covers various applications of the tool, results interpretation through a 2-D cost-effectiveness plot and presents 'Reference' Scenarios from each region. An annex provides guidelines for partners on using the tool to develop 'Reference' Scenarios.

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1 Introduction

This document is the D2.2 "BBTs Assessment Tool - v1". It provides an overview of the functionalities of the first version of the Bio-Based Technologies (BBTs) Assessment Tool and the 'reference' scenario for each Represented Region (RR).

The BBTs Assessment tool is presented in the context of the project, how it interacts with other tasks such as the BBioNets knowledge inventory, the high-level study on regional dynamics (T2.3), the workshops held during T1.2 to identify regional needs and challenges, and the future workshops to be held during T1.3 for the validation and prioritisation of bio-based technologies (BBTs).

The main objective of the tool is to generate a proposed prioritisation of the most appropriate BBT for each RR using the mapped BBTs. The tool is designed so that the more information the user provides, the more accurate the results will be. In other words, the more accurate the suggested prioritisation of BBTs for each RR.

This report comprises six chapters along with references and is organised as follows:

Chapter 1: Introduction which describes issues concerning deliverable scope, objectives, how it is the function in the project, and it briefly presents the structure of deliverable.

Chapter 2: The context of the BBTs Assessment tool which describes how the BBTs Assessment tool fits within the project and a deeply description of terms related to the tool.

Chapter 3: Methodology: this section has been written to explain how it works, how the information relates to each other and why it becomes more accurate as more information is added. A data model has been developed using Power Pivot within the tool and it is explained how it is designed, how the different tables are built, how they relate to each other and a visual representation of how it works.

Chapter 4: Uses of the BBTs Assessment tool: the “Reference” Scenario is explained, as well as how to interpret the results in a 2-D plot of cost-effectiveness variables.

Chapter 5: 'Reference' Scenarios information: 'Reference' Scenarios each region is collected and presented in this deliverable, indicating the basis of the BBTs Assessment tool for each region.

Chapter 6: Conclusion: The last section summarises conclusions on BBTs Assessment tool and on next steps.

The deliverable also includes, as an **annex**, the guidelines written for partners on how to use the BBTs Assessment tool to create a 'Reference' Scenario.

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2 Context of the BBTs Assessment tool in the project

The BBTs Assessment tool is an Excel file designed to consolidate data from various BBioNets resources and analyse it through its Power Pivot engine. This process enables the matching of the needs and resources of the Represented Regions (RR) collected in T1.2 with the available Bio-Based Technologies (BBT) mapped in T2.1, with the generation of a **suggested prioritisation of the most suitable BBTs for said region**. The tool considers both quantitative (investment costs, operational costs, processing capacity, etc.) and qualitative (added value, process complexity, etc.) variables to analyse cost/benefit for each BBTs.

The tool has been designed in such a way that the more information the user provides, the more accurate the results will be. In other words, the more accurate suggested prioritisation of BBTs would be obtained for each RR.

As illustrated in Figure 1, the BBTs Assessment tool will commence by incorporating data from tasks T1.2 and T2.1, namely the outputs of the Forestry and agricultural Network (FAN) workshop and the inventory of BBTs. This information, once introduced into the Excel tool, will facilitate the generation of a preliminary list with the suitability of the BBTs found until date, considering the current resources and needs of a single region, or 'Reference' Scenario. A total of six copies of the BBTs Assessment tool will be created, along with six distinct Represented Region-Specific Scenarios (RR-Specific Scenarios). These will contain information that will assist partners in identifying the BBTs that are most needed in each RR.

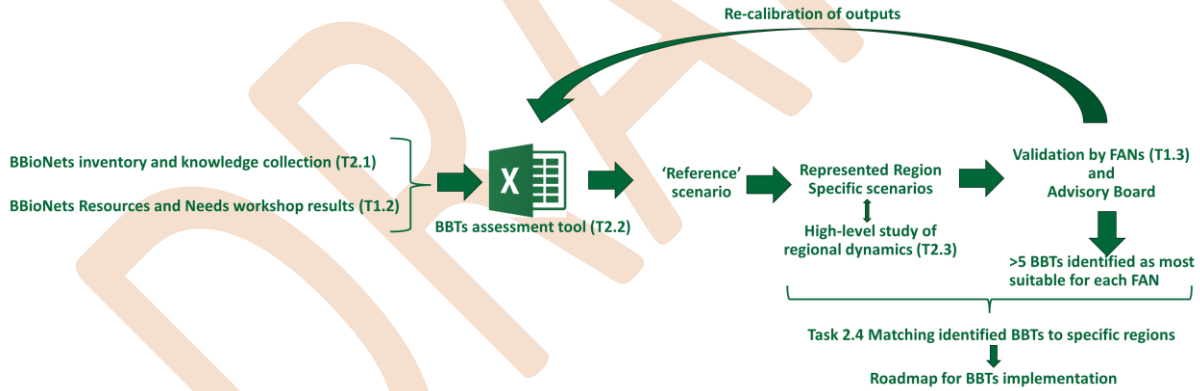

Figure 1. Relation of tasks and BBTs Assessment tool outputs per Represented Region.

Once the 'Reference' Scenario has been generated for each RR, the process of producing the Represented Region-Specific Scenarios will commence. To achieve this, the High-level study of regional dynamics (HLRD; T2.3) and the BBTs Assessment tool (T2.2) will be employed in a process of information sharing. Nevertheless, the RR-specific scenarios would not be finalised until they have undergone two levels of validation. Firstly, the FANs of each RR would validate them (T1.3). Secondly, the BBioNets Advisory Board would also give a validation. This validation will introduce a weighting factor in the Excel tool, which will enable the recalibration of the previous outputs. This will result in the generation of a final prioritisation list of BBTs, comprising at least five BBTs suitable for each RR.

Subsequently, these outputs will be collated by T2.4 in a roadmap for the implementation of the prioritised BBTs in each Represented Region.

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The following section defines the 'Reference' Scenario, the RR-Specific Scenario and the validation.

2.1 Composition of the BBTs Assessment tool

The following section provide the logic of the tool by breaking it down into its three main parts, namely: 'Reference' Scenarios, RR-Specific Scenarios and 2.1.3 Validation of the RR-Specific Scenarios.

2.1.1 'Reference' Scenarios

The 'Reference' Scenarios is the first output of collection of information, and it is introduced in the BBTs Assessment tool in T2.2. This information is both the Inventory Knowledge collection, from T2.1 and the FAN Workshops outputs generated in T1.2 (Figure 2).

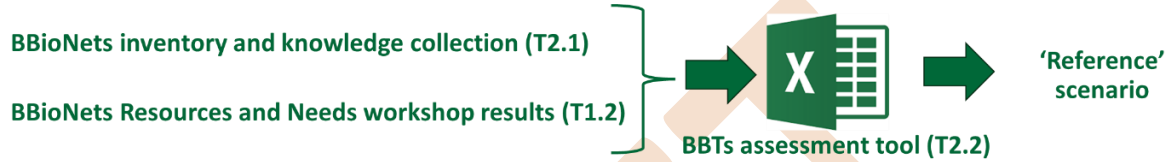

Figure 2. 'Reference' Scenario representation.

Prior conducting the FAN Workshops (T1.2) in each RR and the gathering information for the Inventory knowledge collection started (T2.1), the leaders of both tasks (Teagasc and CREA) met with MTU to align ideas and collect information that are also necessary for the implementation of the BBTs Assessment.

In the Table 1 it is represented, row by row, the relation of the fields from the Inventory knowledge collection, the questions from the FAN Workshops outputs and the BBTs Assessment tool's table. The name of each table and the information it stores is indicated.

In Section 5 there is collected the 'Reference' Scenario information per each RR in form of screenshots of the BBTs Assessment tool.

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Table 1: Relation of resources for the creation of the 'Reference' Scenarios generated with the BBTs Assessment tool.

BBioNets Resources and Needs workshop results (T1.2)	BBioNets inventory and knowledge collection (T2.1)	BBTs Assessment tool	
Question	**Field**	**Information analysed**	**Table names**
FAN REGION	Region OG/PROJECT	Country / Region	n/a
Q1. What are the primary or secondary resources available in your representative region?	Reference sector (NACE Section A - Agriculture, Forestry and Fishing; group level)	Type of feedstock processed by the BBT	*T1.1_t*
	Key Word (Guidelines on EIP OG)		*T1.2_t*
	Categories: Bioeconomy fields (Escobar & Lainbach, 2021)		*T1.3_t*
	Feedstock (Biomass / Biomass residues / wastes)		*T1.4_t*
	Value chains (Assessment: Feedstock are abundantly available or not)		*T1.5_t*
Q2. What processing equipment is currently being used in your representative region?	Description BBT *(narrative synthesis)*	*Key words to search on inventory about the equipment/machinery used in the BBT and the "conditions" to use the BBT*	*T2.1_t*
	Intended user / conditions of access. *(narrative synthesis)*		*T2.2_t*
Q3. What secondary products/by-products are currently being generated in your representative region?	Outcomes and final product *(narrative synthesis)*	*Key words to search on inventory about the biomasses produced from the BBT*	*T3_t*

Q4. What is your representative region's processing needs regarding primary and secondary resources? (identified needs should be ranked from high to low)	Needs / Problem statement *(narrative synthesis)*	Problem statement/Context of the creation/use of the BBT with the biomass *Manual weightage added after human's analysis*	*W4_t*
Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of farm size of the stakeholders which FAN members interact with (ha): e.g. 10 – 400 ha	Processing Capacity (T/day)	Quantity of feedstock to potentially be processed by the BBT. ** additional information is needed to be added for this **	*T5.1_t*
Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of forest size of the stakeholders which FAN members interact with (ha):			*T5.2_t*
Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average farm size (ha):			*T5.3_t*
Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average forest size (ha):			*T5.4_t*
Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total farmed area (ha):			*T5.5_t*

Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total forest area (ha):			*T5.6_t*
Q6. How much would the farmers/foresters in your representative region be willing to invest in the short-term time (2 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €	Investment cost (€)	Investment costs (€)	*T6.1_t*
Q6. How much would the farmers/foresters in your representative region be willing to invest in the long-term time (5 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €			*T6.2_t*
Q7. What return on investment period (number of years) is acceptable for investment in a bio-based technology? Please provide an average value of FAN and a range of values (years).	Return of investment (€ or Year)	Return of investment (years)	*T7_t*
Q8. What key stakeholders are you currently interacting/collaborating with?	Type of partners	Stakeholders Involved	*T8.1_t*
Q8. Nature of collaboration: e.g. advisory			*T8.2_t*
Q8. Type of collaboration: open or closed to new members or partners.			*T8.3_t*
Q9. Where do you go for information in your region?	n/a *This information is useful for WP3*	n/a *This information is useful for WP3*	n/a

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Q10. What are the most significant environmental impacts in the region worrying your sector (forest/agriculture)?	C Sink (Assessment on directly supporting CO_2 sequestration (capturing and storage))	Environmental considerations of the BBT	*T10.1_t*
Q10. What are the most significant environmental impacts in the region worrying your sector (forest/agriculture)?	Sustainability – environment		*T10.2_t*
Q11. What ideas do you have for involving women, the unemployed, and the youth in this area?	Sustainability – socio	Benefits/impacts for society from implementing the BBT	*T11_t*
Q12 Thinking about the current resources and needs identified, what improvements could be implemented to make the process more circular?	n/a *This information is useful for T2.4*	n/a *This information is useful for T2.4*	n/a
Q13 Do you know of a more circular approach/technology that will help your RR work in a more circular way?	n/a *This information is useful for T2.4*	n/a *This information is useful for T2.4*	n/a

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2.1.2 RR-Specific Scenarios

The RR-Specific Scenarios is the second output of collection of information. A second layer of information is added to the BBTs Assessment tool in T2.2. This second layer of information is the High-level study of Regional Dynamics (Figure 3). Information from the HLRD study will be added to the BBTs Assessment tool during T2.4.

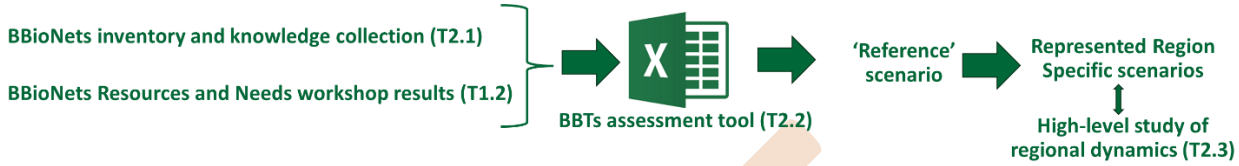

Figure 3. RR-Specific Scenario representation.

Prior conducting the definition of the HLRD, CTA and MTU met to align ideas and collect information, so the BBTs Assessment tool could analyse them.

As the HLRD gathers specific information from each region (economic indicators, characterization of the operational groups (OG) of the region, and the BBTs already established, etc.), which will help the BBTs Assessment tool during T2.4 improve the prioritisation of the suggested BBTs according to the region's capabilities.

2.1.3 Validation of the RR-Specific Scenarios (weightage)

The validation of the RR-Specific Scenarios comes from the need of verify with FAN members and the BBioNets Advisory Board (AB) the pre-selection of BBTs identified as most suitable for each region.

FAN's feedback will come from the T1.3, where inputs on currents variables and pre-selection of BBTs will be given. This will be interpreted by the BBTs Assessment tool as weightage information, that will serve as an input to the "Weight" Excel sheet. This weightage information will be obtained from further workshops celebrated in each region and implemented in the tool during T2.4. BBioNets Advisory Board feedback will come in the form of a revision of the BBTs identified per each region, gathered through a document that will be prepared for this purpose.

In the end, the validation phase will recalibrate said preliminary selection of BBTs through weightage and prioritisation, thus generating the final suggested prioritisation of the most suitable BBTs for each Represented Region (Figure 4).

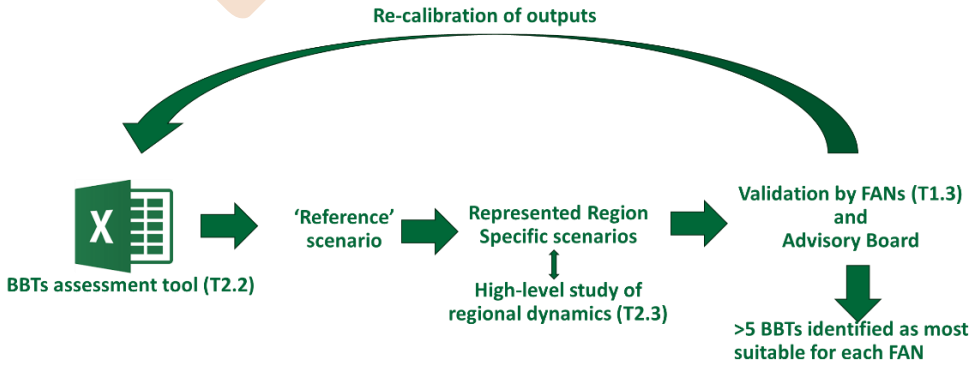

Figure 4. Validation phase represented.

3 Methodology

To generate a suggested prioritisation of the most suitable BBTs for each RR, an Excel Tool template has been developed, which will be used in each region, hence, each RR will have their own BBTs Assessment tool copy. Eventually, these copies will be merged into one interactive file for public use.

The following subsections provide an explanation of the way this Excel tool template has been designed, its components and its interactions.

3.1 Conceptual design

The BBTs Assessment tool will work with 5 background sheets (Figure 5). First, the list of BBTs from the inventory (T2.1) is copied into the assessment tool in the "Inventory copy" sheet. At the same level, the answers from the FAN workshops (T1.2) are also copied into the "Workshop Answers" sheet. In the final version of the BBTs Assessment tool, in the "Weight" sheet, the weighting of preferred BBTs and variables from subsequent FAN workshops (T1.3) will be added. The fourth sheet, "Translate Tables", is used by the partners to add additional information that will help to homogenise the different resources (inventory and workshops). Finally, in the final version of the BBTs Assessment tool, an extra sheet will be added to the tool to include information from the High-level study of Regional Dynamics.

The tool gathers all the background information in a series of tables in the "Data Model" sheet. This sheet is designed solely to have all background information formatted as Tables, so Power Pivot can read and work with the information. All calculations are made in the Power Pivot Data Model feature of MS Excel.

Finally, these calculations are reflected in the "Alignment" sheet. This sheet holds a manually built PivotTable with all the calculated fields, holding weightages per each BBT listed. Then these individual weights are added up per BBT and per effectiveness or cost, depending on which variables are considered for effectiveness and which are considered for cost. In the "Chart" sheet, these results are represented in a 2-D plot graph.

As mentioned above, this tool will hold more information as the project progresses. In Figure 6 it is represented which part of the model represents the information collected for the 'Reference' Scenario in contrast to the RR-Specific Scenarios and Validation. At the beginning of T2.2 it was developed the whole concept, development of the tool, inclusion of Inventory information, FAN workshop answers (T1.2), part of the weightages, and adding information manually in the "TranslateTables" sheet. When T2.4 starts, the tool will be updated and revised, weightages information will be added, as well as the inclusion of information from the HLRD study. This will generate the updated version of the list of BBTs prioritised per RR and a final chart.

The next subsections will delve into the specificities of each Excel sheet and how they interact with each other.

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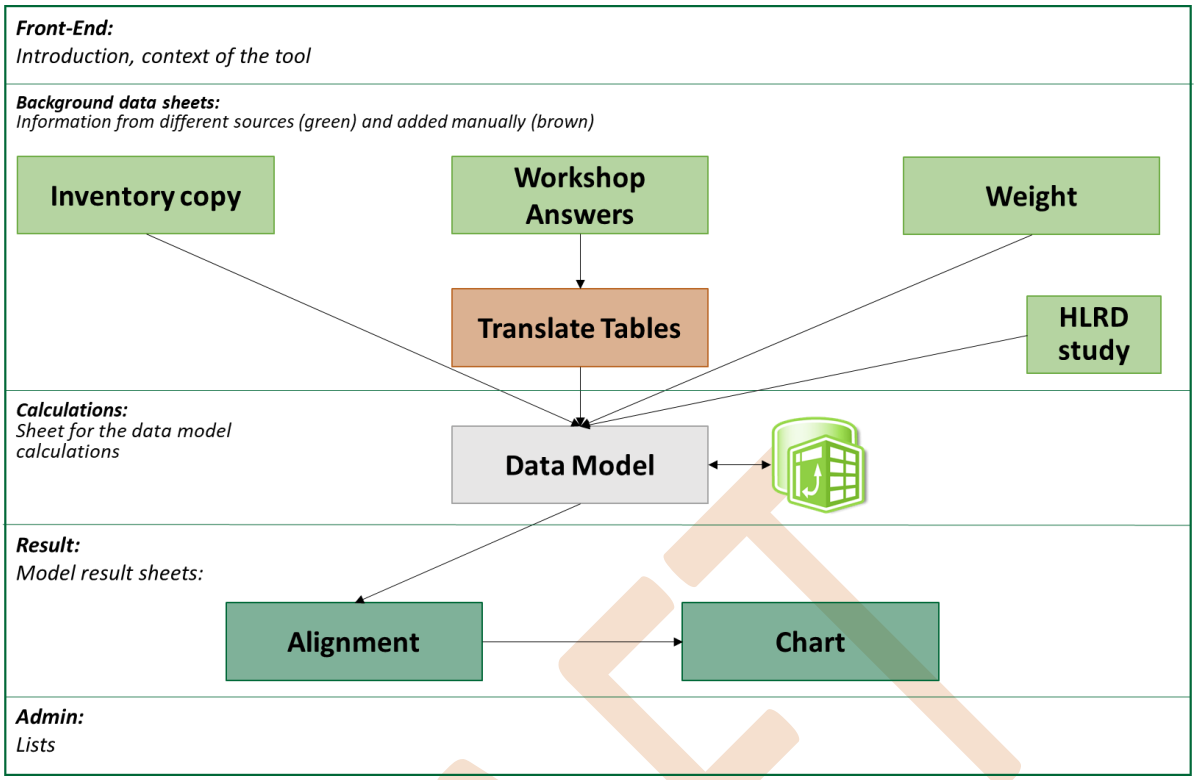

Figure 5. Concept design of the BBTs Assessment tool

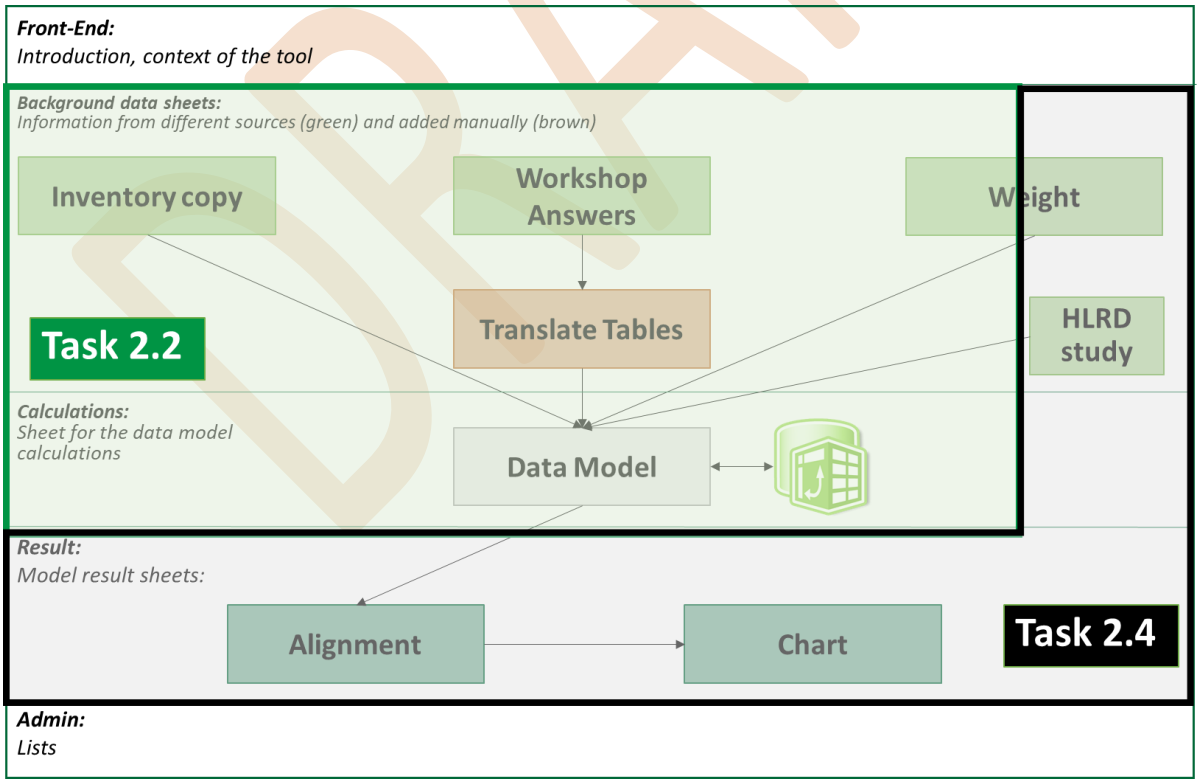

Figure 6. BBTs Assessment tool concept regarding project tasks

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3.2 Components of the tool

As previously stated, the tool utilises the Power Pivot engine to analyse the information. Microsoft defines Power Pivot as an Excel add-in that enables users to perform sophisticated data analysis and create complex data models. **In both Excel and Power Pivot, users can create Data Models, which are collections of tables with interrelated data**[1].

In this context, Power Pivot enables users to link information stored in Excel tables to generate automated, pre-defined analyses, pivot tables and charts, namely automatic output tables and charts.

The following subsections will first clarify the **type of tables contained in each Excel sheet, thus helping the BBioNets partner to understand and locate the relevant information from different resources.** On the other hand, the **Data Model created with Power Pivot is explained, giving details of how the tables interact with each other.**

Finally, for the purpose of this deliverable, it was created a methodology for navigating through these Excel sheets to create a 'Reference' Scenario, for partners to follow while using the BBTs Assessment tool during T2.2. These instructions are explained in Appendix I Guidelines for Reference Scenarios.

3.2.1 Excel sheets

The Excel file contains nine (9) Excel sheets so far: an Introduction sheet, a copy of the Inventory Knowledge Collection sheet, the Workshop Results sheet, the Association of Results sheet, the Weighting sheet, the Data Model sheet, the Alignment sheet, the Chart sheet and the Lists sheet.

The Table 2 clarifies the purpose of each Excel sheet and whether it is intended to be used during T2.2 or T2.4.

Table 2: Purpose of Excel sheets.

Excel Sheet name	Purpose	Used during T2.2?	Used during T2.4?
Introduction	Introduce the user to the BBTs Assessment tool	Yes	Yes
Inventory copy	This Excel sheet is designed to hold the most up-to-date information available from the Inventory Knowledge Collection (T2.1) and allow the tool to use it for analysis.	Yes	Yes
Workshop Answers	This Excel sheet holds the answers from the Resources and Needs workshop from 1 Represented Region	Yes	Yes*
TranslateTables	This Excel sheet will start to link the workshop outputs with the inventory of BBTs. It has 4 subsections, as this mapping or translation of outputs will be done in 4 different ways.	Yes	Yes*

[1] https://support.microsoft.com/en-us/office/power-pivot-powerful-data-analysis-and-data-modeling-in-excel-a9c2c6e2-cc49-4976-a7d7-40896795d045#:~:text=Power%20Pivot%20is%20an%20Excel,rapidly%2C%20and%20share%20insights%20easily.

Weight	This Excel sheet will contain the information from the validation workshops with the FANs (T1.3) and the Advisory Board. The aim is to recalibrate this preliminary version through weighting and prioritisation to produce the final proposed prioritisation of the most appropriate BBT for each Represented Region.	Only 1 table will be used	Yes*
Data Model	This Excel sheet contains the final tables that will feed into the Power Pivot model, with all the information automatically added from the other Excel sheets.	Yes	Yes*
Alignment	This Excel sheet is the result of the Power Pivot model after comparing information from the related tables and weights. It contains a pivot table with the results of the calculations.	Only preliminary info, not definite.	Yes
Chart	This Excel sheet represents the prioritised list of BBTs for the RR.	Only preliminary info, not definite.	Yes
Lists	This is an admin Excel sheet that holds static information used in all other Excel sheets and Power Pivot.	Yes	Yes

*This will be updated if needed for T2.4.

In the following subsections it will be explained the specific information that the PowerPivot Data Model uses from the Excel sheets.

3.2.1.1 "Inventory copy" sheet

The "Inventory copy" sheet is not a real table that Excel reads, it is just a copy of the Inventory Knowledge Collection (T2.1). For Power Pivot to use this information, areas of information in this sheet have been defined as 'names' to use the Inventory information by Inventory fields. In other words, the most relevant inventory fields (cell ranges) have been assigned a name to address their information for the calculation. The inventory fields selected for the tool has been:

- Reference Sector
- Processing Capacity
- Outcomes
- Needs and problem statements
- Key word
- Investment
- Intended user
- Description of the BBT
- BBT codes.

The screenshot below (Figure 7) shows the names created from the Inventory sheet and the cell ranges to which each name is assigned.

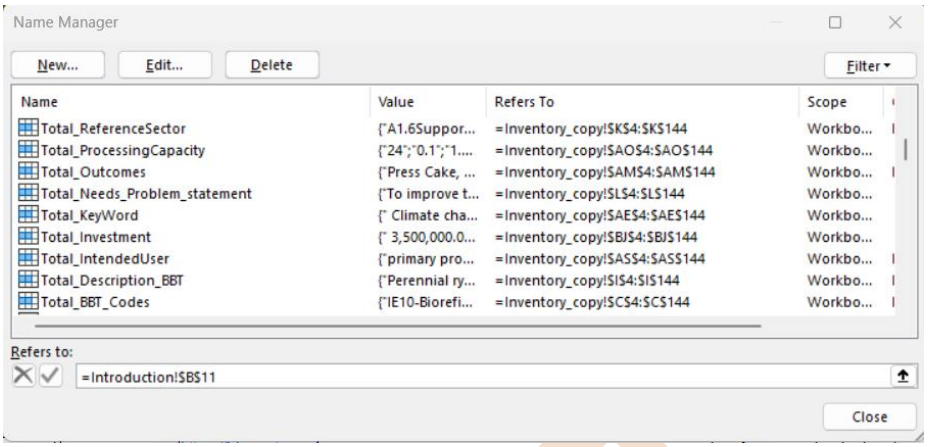

Figure 7. Screenshot of Excel's Name Manager with detail of the Names created in the Inventory sheet.

3.2.1.2 "Workshop Answers" sheet

As explained, this sheet holds the answers from the FAN workshops (T1.2), hence the tables are aligned with the questions asked in the workshops, to hold said answers. This sheet does hold real tables readable by Power Pivot (made by selecting an array of cells and then pressing with Ctrl + T). In Table 3 it is clarified the name of said tables and to which questions they relate to, and in Figure 8 it can be appreciated a screenshot of this sheet in the model.

Table 3. Table names in the Workshop

Table names in the "Workshop Answers" sheet	BBioNets FAN workshop (T1.2) questions
Q1_t	Q1. What are the primary or secondary resources available in your representative region?
Q2_t	Q2. What processing equipment is currently being used in your representative region?
Q3_t	Q3. What secondary products/by-products are currently being generated in your representative region?
Q4_t	Q4. What is your representative region's processing needs regarding primary and secondary resources? (identified needs should be ranked from high to low)
Q5.1_t	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of farm size of the stakeholders which FAN members interact with (ha): e.g. 10 – 400 ha
Q5.2_t	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of forest size of the stakeholders which FAN members interact with (ha):

Q5.3_t	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average farm size (ha):
Q5.4_t	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average forest size (ha):
Q5.5_t	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total farmed area (ha):
Q5.6_t	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total forest area (ha):
Q6.1_t	Q6. How much would the farmers/foresters in your representative region be willing to invest in the short-term time (2 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €
Q6.2_t	Q6. How much would the farmers/foresters in your representative region be willing to invest in the long-term time (5 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €
Q7_t	Q7. What return on investment period (number of years) is acceptable for investment in a bio-based technology? Please provide an average value of FAN and a range of values (years).
Q8.1_t	Q8. What key stakeholders are you currently interacting/collaborating with?
Q8.2_t	Q8. Nature of collaboration: e.g. advisory
Q8.3_t	Q8. Type of collaboration: open or closed to new members or partners.
Q9_t	Q9. Where do you go for information in your region?
Q10_t	Q10. What are the most significant environmental impacts in the region worrying your sector (forest/agriculture)?
Q11_t	Q11. What ideas do you have for involving women, the unemployed, and the youth in this area?
Q12_t	Q12 Thinking about the current resources and needs identified, what improvements could be implemented to make the process more circular?
Q13_t	Q13, Do you know of a more circular approach/technology that will help your RR work in a more circular way?

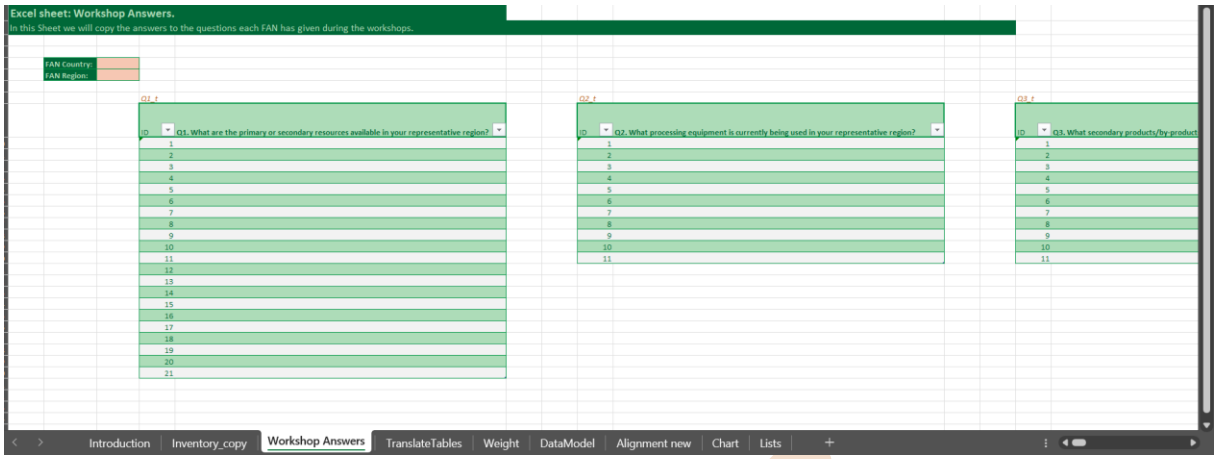

Figure 8. Screenshot of the Workshop Answers sheet.

3.2.1.3 "TranslateTables" sheet

The association of the workshop outputs with the Inventory of BBTs will be done in 4 different ways, depending on the type of information. Partners will need to manually add additional information in this sheet. To make it visually readable, this sheet has been divided in 4 colour-coordinated sections:

1) Association of outputs by drop-down cells (Section 1, green). The user will need to interact with the tables in this section.
2) Association of outputs by adding extra information from a quick desk research study (Section 2, yellow). The user will need to interact with the tables in this section.
3) Association of outputs by typing key words to (Section 3, blue). The user will need to interact with the tables in this section.
4) Association of outputs automatically (Section "Automatic Tables"). The user has **not** to interact with the tables in this section. These tables are designed to process information from both workshop answers sheet, the weight sheet, and the other sections in this Translated Tables sheet.

In Table 4 it is clarified the association of information, and in Figure 9 it can be appreciated a screenshot of this sheet in the model.

Table 4. Association of information in "TranslateTables" sheet

Section and colour	Type of information	Table names	Associations	
			Source of information 1	Source of information 2
Section 1 – Green	Dropdown cells	*T1.1_t*	Q1 Answers	Reference sector
		T1.2_t	Q1 Answers	Key Word
		T1.3_t	Q1 Answers	Categories
		T1.4_t	Q1 Answers	Feedstock

		T1.5_t	Q1 Answers	Value chains
		T8.1_t	Q8.1 Answers: key stakeholders	Type of partners
		T8.2_t	Nature of collaboration	Type of partners
		T8.3_t	Type of collaboration	Type of partners
		T10.1_t	Q10 Answers	C Sink
		T10.2_t	Q10 Answers	Envi Sustainability
		T11_t	Q11 Answers	Socio Sustainability
Section 2 - Yellow	Adding extra information (yield of biomasses)	*T5.3_t*	Q5.3 Answers. National statistics data, Average farm size (ha):	Processing Capacity
		T5.4_t	Q5.4 Answers. National statistics data, Average Forest size (ha):	Processing Capacity
Section 3 - Blue	Narrative synthesis fields	*T2.1_t*	Q2 Answers	Description BBT
		T2.2_t	Q2 Answers	Intended user / conditions of access
		T3_t	Q3 Answers	Outcomes and final product
Section 4 - Brown	Automatic tables	*T5.1_t*	Q5.1 Answers	*Transformation of answers into numbers*
		T5.2_t	Q5.2 Answers	*Transformation of answers into numbers*
		T5.5_t	Q5.5 Answers. Region total farmed area (ha):	*T5.3_t*
		T5.6_t	Q5.6 Answers. Region total forest area (ha):	*T5.4_t*
		T6.1_t	Q6.1 Answers: Willingness of investment in the short-term time (2 years)	*W6.1_t*
		T6.2_t	Q6.2 Answers: Willingness of investment in the long-term time (5 years)	*W6.2_t*
		T7_t	Q7 Answers: Return on investment period (number of years)	*W7_t*
		T2.1_a	*T2.1_t*	Prioritisation of BBT Codes with regards to the info in *T2.1_t*

		T2.2_a	*T2.2_t*	Prioritisation of BBT Codes with regards to the info in *T2.2_t*
		T3_a	*T3_t*	Prioritisation of BBT Codes with regards to the info in *T3_t*
		T5.3_a	*T5.3_t*	Processing capacity
		T5.4_a	*T5.4_t*	Processing capacity
		T6.1_a	*T6.1_t*	Investment costs
		T6.2_a	*T6.2_t*	Investment costs
		T7_a	*T7_t*	Return of Investment

Figure 9. Screenshot of the Translate Table sheet

3.2.1.4 "Weight" sheet

This Excel sheet is only partially used for the 'Reference' Scenario, as it is intended to hold primarily information from T1.3 in the final versions for T2.4 analysis. The table named *W4_t* is the only one used for the 'Reference' Scenario creation, as it is only in this sheet where the answers from Question 4 from the FAN workshops (T1.2) are used. This sheet is used to give a weight to the different answers from the tables in "TranslateTables" sheet. At this stage, only weight of +1 or -1 is contemplated. A weightage of +1 on each BBT is to be added if the BBT problem statement meets one of the workshops needs. Otherwise, a weightage of -1 should be added on the BBT row.

After T1.3, these weightages will include more variability, as per FAN needs and AB feedback. Below, in Table 5 it is shown the names of the tables that hold the weights and how these relates to other information sheet.

Table 5: Weight tables and its relationship with other information.

Weight Table name	Information weighted from other sheets		
	Table names	Source of information 1	Source of information 2
W1.1_t	*T1.1_t*	Q1 Answers (Workshop Answers)	Reference sector (TranslateTables)
W1.2_t	*T1.2_t*	Q1 Answers (Workshop Answers)	Key Word (TranslateTables)
W1.3_t	*T1.3_t*	Q1 Answers (Workshop Answers)	Categories (TranslateTables)
W1.4_t	*T1.4_t*	Q1 Answers (Workshop Answers)	Feedstock (TranslateTables)
W1.5_t	*T1.5_t*	Q1 Answers (Workshop Answers)	Value chains (TranslateTables)
W2.1_t	*T2.1_a*	*T2.1_t* (TranslateTables)	Prioritisation of BBT Codes with regards to the info in *T2.1_t*
W2.2_t	*T2.2_a*	*T2.2_t* (TranslateTables)	Prioritisation of BBT Codes with regards to the info in *T2.2_t*
W3_t	*T3_a*	*T3_t* (TranslateTables)	Prioritisation of BBT Codes with regards to the info in *T3_t*
W4_t	n/a	Q4 Answers (Workshop Answers)	BBT needs/problem statement (Inventory_copy)
W5.3_t	*T5.3_a*	*T5.3_t* (TranslateTables)	Processing capacity (Inventory_copy)
W5.4_t	*T5.4_a*	*T5.4_t* (TranslateTables)	Processing capacity (Inventory_copy)
W6.1_t	*T6.1_a*	*T6.1_t* (TranslateTables)	Investment costs (Inventory_copy)
W6.2_t	*T6.2_a*	*T6.2_t* (TranslateTables)	Investment costs (Inventory_copy)
W7_t	*T7_a*	*T7_t* (TranslateTables)	Return of Investment (Inventory_copy)
W10.1_t	*T10.1_t*	Q10 Answers (Workshop Answers)	C Sink (Lists)
W10.2_t	*T10.2_t*	Q10 Answers (Workshop Answers)	Envi Sustainability (Lists)
W11_t	*T11_t*	Q11 Answers (Workshop Answers)	Socio Sustainability (Lists)

3.2.1.5 "Data Model" sheet

The "Data Model" sheet holds real tables, readable by Power Pivot. These tables are automatically filled from the other Excel sheets. The sheet is presented in 3 sections, depending on the source of the information:

1) Section 1 – Tables with information from the "Inventory" sheet. This also includes the information on the table in the "Lists" sheet for the Category field (read section 3.2.1.8). In this section the following tables were created:
    a. Inventory1
    b. TCat1
    c. TCat2
    d. TCat3
    e. TCat4
2) Section 2 – Hold all tables from the "TranslatedTables" sheet.
3) Section 3 – Hold all tables from the "Weight" sheet.

3.2.1.6 "Alignment new" sheet

The "Alignment new" sheet is the result of Power Pivot model after comparing information from the related tables and the weightages.

This sheet holds a Pivot Table, i.e., a 'summary' table that gathers desired fields from related tables. These relations have been built in the Power Pivot Data Model (see section 3.2.2) with the objective to be able to hold in 1 table all weights and relate them to specific BBTs. This will lead to a different weightage assigned to each BBT and hence, to a prioritisation of them.

Both effectiveness and cost related variables are included in this "Alignment new" sheet, to generate a 2-D chart that will help prioritize the BBTs using both types of variables. See Table 6 to understand the relationship between the type of variables and the Inventory field analysed.

Table 6: Types of variables and fields analysed

Type of variable	Fields analysed
Effectiveness	Reference sector
	Key Word
	Feedstock
	Value chains
	Categories
	Intended user / conditions of access
	Outcomes and final product
	Processing Capacity

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	C Sink
	Envi Sustainability
	Socio Sustainability
	Needs
Cost	Investment costs
	Return of investment

3.2.1.7 "Chart" sheet

The "Chart" sheet presents a table summarising the weights of BBTs per effectiveness and cost. This table is as well represented in a 2-D plot chart, i.e., a cost/effectiveness chart, that represents the BBTs prioritised against both variables, the cost variables are presented in the Y axis and the effectiveness variables are presented in the X axis. As previously mentioned, **the tool has been designed in a way that will generate more accurate results as the user provides more information**. At this stage, with only 'Reference' Scenario information, the chart does not provide the ultimate prioritisation of BBTs. In Section 4 there is a detailed explanation on how to interpret this 2-D plot chart.

3.2.1.8 "Lists" sheet

"Lists" sheet holds real tables readable by Power Pivot with information to be used in all sheets mentioned above, i.e., tables for the dropdown menus in "TranslateTables" sheet and a table that changes the way information is presented in the "Inventory_copy" sheet under the field "Categories". The categories field in the inventory has been added by indicating an X on those columns a BBT could be categorized to. However, Power Pivot needs an intermediate transformation, as reading X is not compliable. This table in Lists Excel sheet makes this intermediate transformation.

3.2.2 Data Model (Power Pivot)

The BBTs Assessment Tool data model was developed using Power Pivot, following Microsoft's guidelines[2]. A snowflake schema design was created in Power Pivot, as the name suggests, the design resembles a snowflake. This design has a central *fact* table, containing only values and foreign keys (data linked to another tables), which will be the centre of the snowflake. This table then is surrounded by several *dimension* tables and *dimension* sub-tables, which store descriptive information, providing context to values in the *fact* table, through foreign keys [1].

For the BBTs Assessment tool the *fact* table is Inventory1, in the "Data Model" sheet. The remaining tables in the "Data Model" sheet are considered *dimension* tables. In Figure 10 it can be appreciated the diagram view in the Power Pivot window, where table Inventory1 is the centre of the snowflake diagram, and the remaining tables (*dimension* tables) are connected to it by direct relations. The Figure

[2] https://support.microsoft.com/en-gb/office/create-a-data-model-in-excel-87e7a54c-87dc-488e-9410-5c75dbcb0f7b#:~:text=Add%20existing%2C%20unrelated%20data%20to%20a%20Data%20Model&text=It%20can%20be%20any%20range,the%20Create%20PivotTable%20dialog%20box.

11 shows a clarification of Figure 10, by identifying which tables come from the “TranslateTables” sheet, “Data model” Sheet or “Weight” sheet. The “Inventory” sheet provides information to these tables through the abovementioned Names, which provides the information of the BBTs to the other tables.

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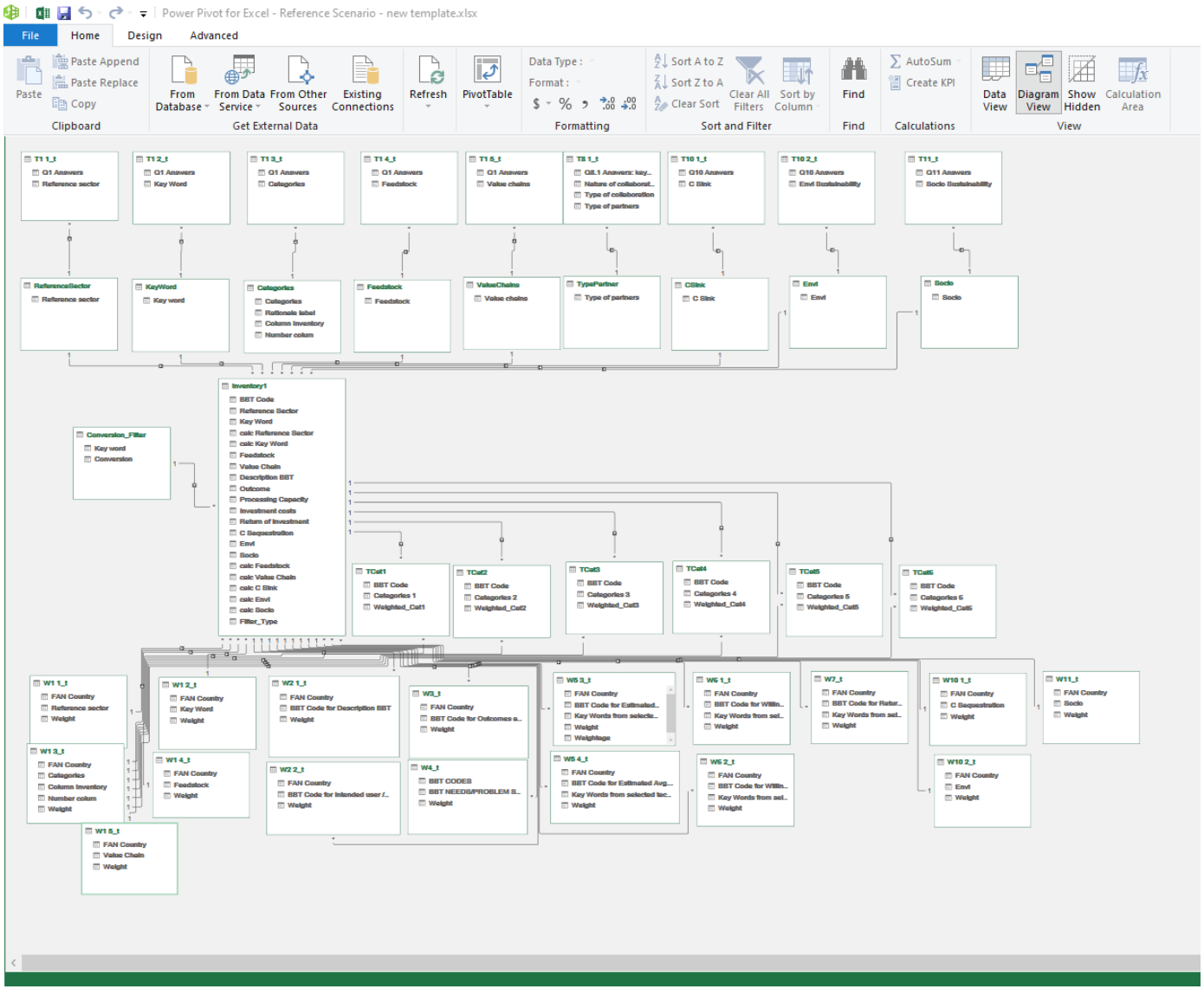

Figure 10. Screenshot of BBTs Assessment tool Power Pivot window.

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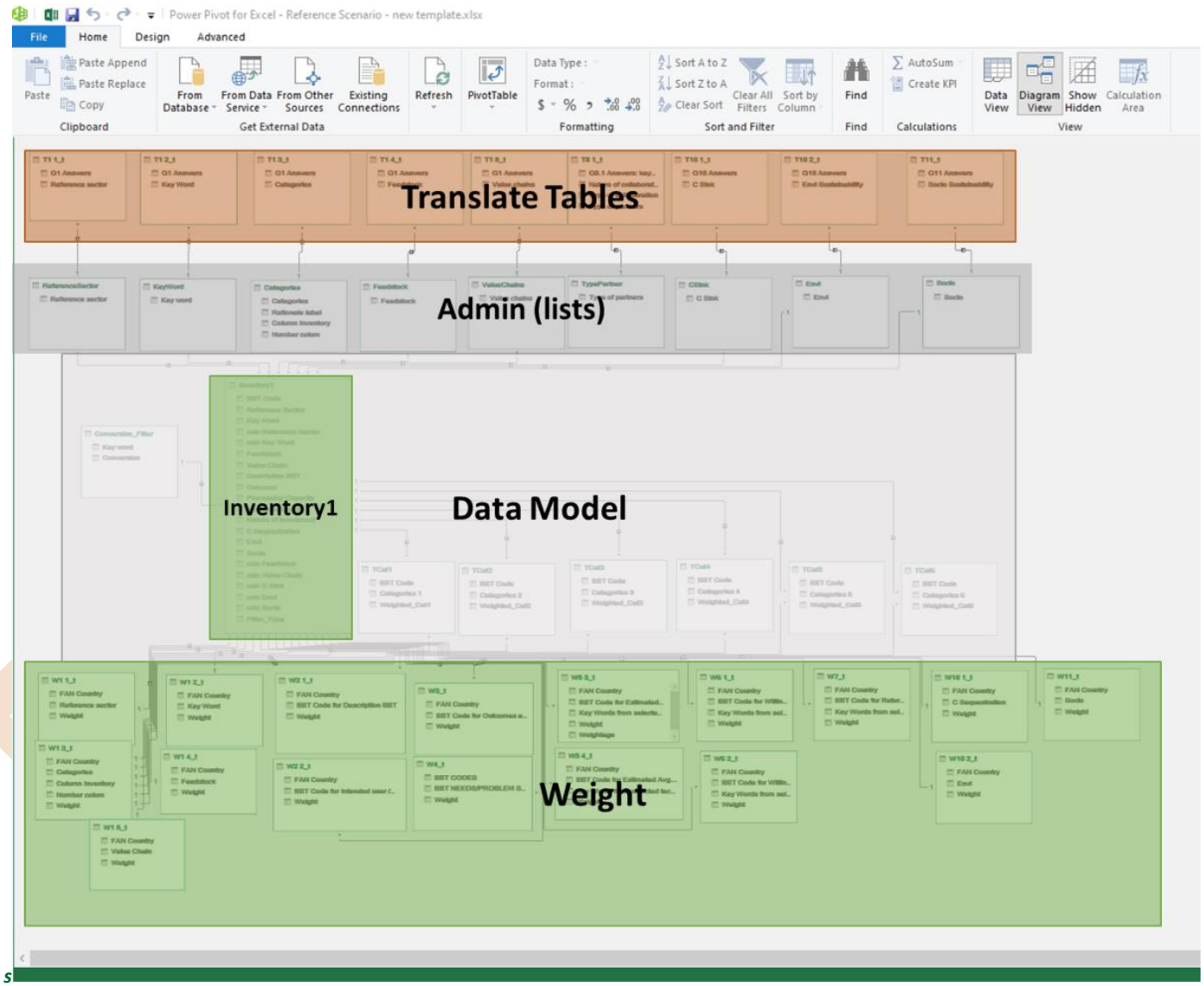

Figure 11. Clarification of the Power Pivot s

nowflake diagram

4 Usage scenarios and functionalities of the tool

BBioNets will generate 6 BBTs Assessment tool Excel files, one per each Represented Region which will consolidate data from various BBioNets resources with its Power Pivot engine. The result is a **suggested prioritisation of the most suitable BBTs for said region.**

This prioritisation is made considering both quantitative (investment costs, operational costs, processing capacity, etc.) and qualitative (added value, process complexity, environmental, social and economic sustainability, etc.) variables to analyse their cost/benefit for each BBTs.

The tool has been designed in such a way that the more information the user provides, the more accurate the results will be. In other words, the more accurate suggested prioritisation of BBTs would be obtained for each RR.

As explained above in Section 2, at this point, in version 1, the BBTs Assessment tool only holds information for the 'Reference' Scenario. Once the tool has information from T2.3, T1.3 and the Advisory Board, the prioritisation of BBTs for each region will be more accurate for each region's needs. See Figure 12 for visual representation.

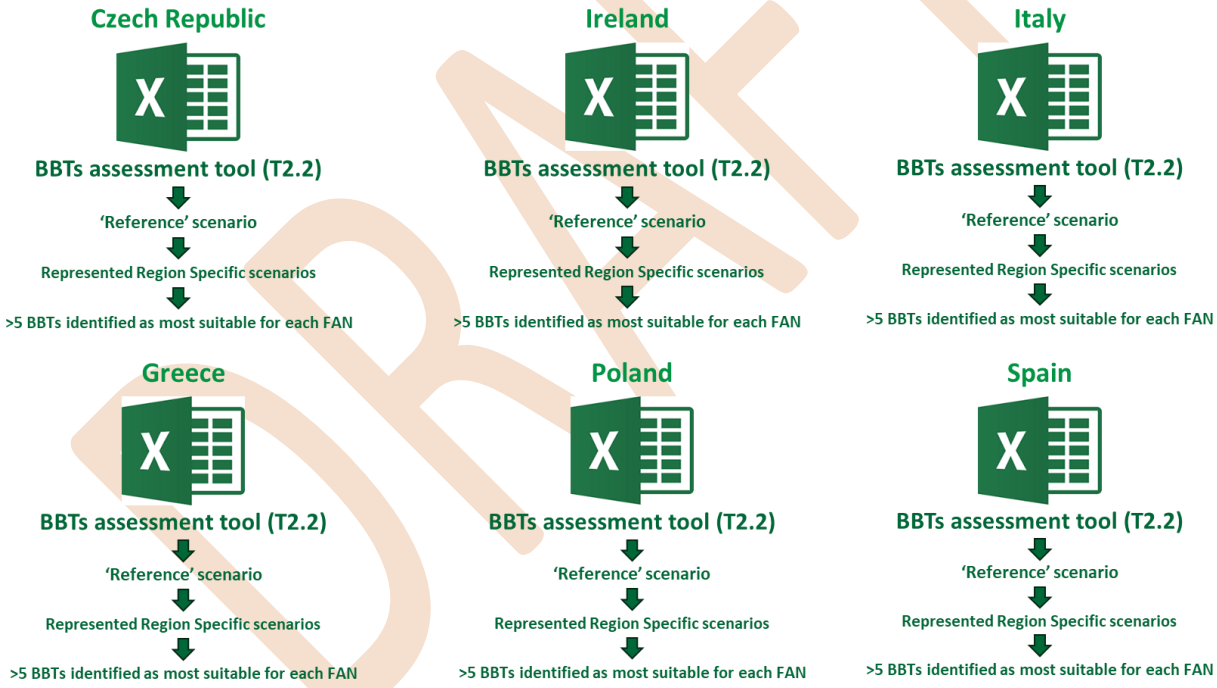

Figure 12. Representation of the layer of information for the BBTs Assessment tool for each region

The proposed prioritisation of the most appropriate BBTs for each region will be useful for primary producers (farmers and foresters) as target groups. This tool will include information from the FAN of each region. These FANs provide information on their needs, current resources and priorities and are therefore the main target group. In addition, their advisors, cooperatives, next network, research and policy makers can also benefit from the knowledge on which BBTs would be more successful in their region. This can be achieved through knowledge transfer, which will help to spread the knowledge of the benefits of implementing BBTs for the circular bioeconomy of their region, and through funding and investment opportunities, which will boost their implementation.

In a final stage, MTU will work with IUNG to evaluate the creation of an online interactive version of the BBTs Assessment tool, where all 6 tools will be integrated into the BBioNets platform, and anyone could consult the information of the tools freely and free of charge.

4.1 Interpretation of results

In addition, the tool provides the results in a 2-D plot graph, where BBTs are prioritised against both variables, with the cost variable on the Y axis and the effectiveness variable on the X axis. This means that BBTs that fall in the area to the top of the horizontal axis are cost increasing and the area to the right of the vertical axis is more effective or beneficial to the needs of the region. If a BBT falls in the lower right quadrant, the BBT would be more economical and more effective, but if it falls in the upper left quadrant, it would be less effective and less economical. The Figure 13 provides a visual guide to the interpretation of the 2-D plot.

Figure 13. Cost-Effectiveness 2-D plot interpretation guide. Adapted from [2].

This visual representation of the proposed prioritisation of BBTs will help users to quickly and clearly identify which BBTs would be more interesting for their region, depending on their needs.

5 ‘Reference’ scenario information

This section records the ‘Reference’ scenario information for each RR, using information from the FAN workshops (T1.2) and the Inventory of Knowledge collection (T2.1). This information has been revised by each Regional Partners for Forestry and Agriculture (RPFA) following the guidelines written on how to use the BBTs Assessment tool to create a 'Reference' scenario (See Appendix I Guidelines for 'Reference' Scenarios).

The ‘Reference’ Scenario information for each RR is presented as follows:

- Information for the Workshop “Answers” sheet.
- Information for the “TranslateTables” sheet.
- Information for the “Weight” sheet.

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5.1 Czech Republic

5.1.1 Information for the “Workshop Answers” sheet.

FAN Region: Jihomoravský

FAN Country:	Czech Republic
FAN Region:	Jihomoravský

Q1_t

ID	Q1. What are the primary or secondary resources available in your representative region?
1	Plant and forest wastes
2	Organic wastes from industrial production
3	Wastes from livestock production
4	Municipal organic waste
5	Fast-growing woody plants
6	Grape seeds
7	Residues (stillage (from distillery))
8	Pits
9	Sewage sludge
10	Used cooking oil

Q2_t

ID	Q2. What processing equipment is currently being used in your representative region?
1	Biogas stations
2	Biomass heating plants
3	Composting plants
4	Sugar production
5	Power plant
6	Dairies
7	Distilleries
8	Wineries
9	Wastewater treatment plants
10	
11	

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Q3_t

ID	Q3. What secondary products/by-products are currently being generated in your representative region?
1	Biogas
2	Compost
3	Garden substrates
4	Mulch chips
5	Molasses
6	Carbon lime
7	Dried sugar cuttings
8	Electricity
9	Heat
10	Digestate
11	Heating pellets
12	Biofuels

Q4_t

ID	Q4. What are your representative region's processing needs regarding primary and secondary resources? (identified needs should be ranked from high to low)
1	A long-term survey carried out by ZERA identified problems related to insufficient technological interconnection between composting plants, biogas plants and wastewater treatment plants
2	Availability of biomass combustion boilers
3	Motivation of cider, distilleries and wineries to recover waste biomass in biogas plants, by incineration or composting
4	Use of gastro and kitchen waste for biogas and compost production
5	Promote wastewater treatment combined with algae cultivation for biomass
6	
7	
8	
9	
10	
11	

Q5.1_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of farm size of the stakeholders which FAN members interact with (ha): e.g. 10 – 400 ha
1	5.00 - 500.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.2_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of forest size of the stakeholders which FAN members interact with (ha):
1	500.00 - 129000.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

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Q5.3_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average farm size (ha):
1	2.495
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.4_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average forest size (ha):
1	1000
2	
3	
4	
5	
6	
7	
8	
9	
10	

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Q5.5_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total farmed area (ha):
1	356,511.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.6_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total forest area (ha):
1	186,722.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q6.1_t

ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the short term time (2 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q6.2_t

ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the long-term time (5 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

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Q7_t

ID	Q7. What return on investment period (number of years) is acceptable for investment in a bio-based technology? Please provide an average value of FAN and a range of values (years).
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q8.1_t

ID	Q8. What key stakeholders are you currently interacting/collaborating with?
1	Innovation Broker
2	Agricultural practice consultancy
3	
4	
5	
6	
7	
8	
9	
10	

Q8.2_t

ID	Q8. Nature of collaboration: e.g. advisory
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q8.3_t

ID	Q8. Type of collaboration: open or closed to new members or partners.
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q9_t

ID	Q9. Where do you go for information in your region?
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q10_t

ID	Q10. What are the most significant environmental impacts in the region worrying your sector (forest/agriculture)?
1	Intensive agricultural production is associated with the use of fertilisers and protective chemicals, substances whose production and consumption place a significant burden on the environment
2	Increase in average temperature: Climate change is leading to a gradual increase in temperature. This can have negative impacts on forest ecosystems, such as changes in tree species, the spread of pests and increased risk of fires.
3	Long-term drought: The South Moravian region suffers from insufficient rainfall, which affects water availability for forests and agriculture. Dry periods can lead to soil water loss and reduced crop yields.
4	Soil erosion: Intensive agriculture and inappropriate soil management can cause soil erosion. This adversely affects soil quality and crop productivity.
5	Extreme weather events: Heavy rains and strong winds can cause flooding, landslides and damage to forests. These events are becoming more frequent because of climate change.
6	
7	
8	
9	
10	

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Q11_t

ID	Q11. What ideas do you have for involving women, the unemployed, and the youth in this area?
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	

Q12_t

ID	Thinking about the current resources and needs identified, what improvements could be implemented to ke the proce
1	The current capacity of composting plants is not fully utilised, there is a lack of suitable facilities for sludge treatment and processing in the region, which would enable technological interconnection with composting plants
2	The use of kilns as a source of energy, their calorific value is similar to charcoal. A tonne of pellets has the calorific value of 500 m3 of natural gas.
3	The liquid residues have a low dry matter content, so it is advantageous to process them by anaerobic digestion in biogas plants. One tonne of digestate produces 60 m3 of biogas.
4	Suitability of the region for algal biomass cultivation
5	Use of biomass boilers
6	Cultivation of energy herbs and trees
7	Use of gastro and kitchen waste
8	Eliminate all negative effects of spontaneous fallow on fallow land, use or conserve the land appropriately
9	
10	

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Q13_t

ID	Do you know of a more circular approach/technology that will help your RR work in a more circular wa
1	Inclusion of a hygiene level in composting plants for the possibility of composting gastro and kitchen waste
2	Incineration or co-incineration of stones for energy and heat production.
3	Use of liquid digestate for biogas production in biogas plants
4	Subsidies for biomass combustion boilers
5	Joint collection of gastro and kitchen waste
6	Utilisation of produced dendro-mass, which remains unused for technological reasons, in various stages of production and processing of wood.
7	Use of agricultural drones to monitor the condition of plants and more accurately apply fertilisers and to locate game at harvest time.
8	
9	
10	

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FAN Region: Vysočina

FAN Country:	Czech Republic
FAN Region:	Vysočina

Q1_t

ID	Q1. What are the primary or secondary resources available in your representative region?
1	Plant and forest wastes
2	Organic wastes from industrial production
3	Wastes from livestock production
4	Municipal organic waste
5	Fast-growing woody plants
6	Grape seeds
7	Residues (stillage (from distillery))
8	Pits
9	Sewage sludge
10	Used cooking oil

Q2_t

ID	Q2. What processing equipment is currently being used in your representative region?
1	Biogas stations
2	Biomass heating stations
3	Composting plants
4	Power plant
5	Gristmills
6	Distilleries
7	Wineries
8	Wastewater treatment plants
9	
10	
11	

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Q3_t

ID	Q3. What secondary products/by-products are currently being generated in your representative region?
1	Biogas
2	Compost
3	Garden substrates
4	Mulch chips
5	Electricity
6	Heat
7	Digestate
8	Heating pellets
9	Biofuels
10	
11	
12	

Q4_t

ID	Q4. What are your representative region's processing needs regarding primary and secondary resources? (identified needs should be ranked from high to low)
1	Building a network of buyers for compost from composting plants, as compost is almost unmarketable or very little used in the Highlands. Farmers in the region have enough manure due to livestock production and do not need compost. However, it is suitable, among others, for areas in drinking water protection zones or protected landscape areas, of which there are many in the region.
2	Use of food waste and kitchen waste for biogas and compost production
3	
4	
5	
6	
7	
8	
9	
10	
11	

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Q5.1_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of farm size of the stakeholders which FAN members interact with (ha): e.g. 10 – 400 ha
1	5.00 - 500.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.2_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of forest size of the stakeholders which FAN members interact with (ha):
1	500.00 - 73000.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

DRAFT

Q5.3_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average farm size (ha):
1	51.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.4_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average forest size (ha):
1	2000
2	
3	
4	
5	
6	
7	
8	
9	
10	

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Q5.5_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total farmed area (ha):
1	365,068.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.6_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total forest area (ha):
1	196,670.00
2	
3	
4	
5	
6	
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8	
9	
10	

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Q6.1_t

ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the short-term time (2 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €
1	
2	
3	
4	
5	
6	
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9	
10	

Q6.2_t

ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the long-term time (5 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €
1	
2	
3	
4	
5	
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Q7_t

ID	Q7. What return on investment period (number of years) is acceptable for investment in a bio-based technology? Please provide an average value of FAN and a range of values (years).
1	
2	
3	
4	
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7	
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Q8.1_t

ID	Q8. What key stakeholders are you currently interacting/collaborating with?
1	Innovation Broker
2	Agricultural practice consultancy
3	
4	
5	
6	
7	
8	
9	
10	

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Q8.2_t

ID	Q8. Nature of collaboration: e.g. advisory
1	
2	
3	
4	
5	
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8	
9	
10	

Q8.3_t

ID	Q8. Type of collaboration: open or closed to new members or partners.
1	
2	
3	
4	
5	
6	
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8	
9	
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Q9_t

ID	Q9. Where do you go for information in your region?
1	
2	
3	
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5	
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9	
10	

Q10_t

ID	Q10. What are the most significant environmental impacts in the region worrying your sector (forest/agriculture)?
1	Intensive agricultural production is associated with the use of fertilisers and protective chemicals, substances whose production and consumption place a significant burden on the environment
2	Increase in average temperature: Climate change is leading to a gradual increase in temperature. This can have negative impacts on forest ecosystems, such as changes in tree species, the spread of pests and increased risk of fires.
3	Higher average temperature results in higher evaporation of water from soil, vegetation and water levels, contributing to a negative hydrological balance in the area. Flows in watercourses in the Highlands can be assessed as slightly below normal.
4	Soil erosion: Intensive agriculture and inappropriate soil management can cause soil erosion. This has an adverse effect on soil quality and crop productivity.
5	Extreme weather events: Heavy rains and strong winds can cause flooding, landslides and damage to forests. These events are becoming more frequent because of climate change.
6	
7	
8	
9	
10	

DRAFT

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Q11_t

ID	Q11. What ideas do you have for involving women, the unemployed, and the youth in this area?
1	
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7	
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9	
10	
11	

Q12_t

ID	Thinking about the current resources and needs identified, what improvements could be implemented to make the process more circular?
1	The use of pellets as an energy source, their calorific value is similar to charcoal. A tonne of pellets has the calorific value of 500 m3 of natural gas.
2	Liquid residues have a low dry matter, so it is advantageous to process them by anaerobic fermentation in biogas plants. One tonne of digestate produces 60 m3 of biogas.
3	Use of biomass boilers
4	Cultivation of energy herbs and trees
5	Use of gastro and kitchen waste
6	Eliminate all negative effects of spontaneous fallow on fallow land, and use or conserve the land appropriately
7	
8	
9	
10	

DRAFT

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Q13_t

ID	Do you know of a more circular approach/technology that will help your RR work in a more circular wa
1	Inclusion of a hygiene level in composting plants for the possibility of composting gastro and kitchen waste
2	Incineration or co-incineration of stones for energy and heat production
3	Use of liquid digestate for biogas production in biogas plants
4	Subsidies for biomass combustion boilers
5	Joint collection of gastro and kitchen waste
6	Utilisation of the dendro-mass produced, which remains unused for technological reasons, in various stages of production and processing of wood
7	The use of agricultural drones to monitor the condition of plants and more accurately apply fertilisers and to locate game at harvest time
8	Strict adherence to composting technology to destroy the germination capacity of weeds
9	
10	

5.1.2 Information for the “TranslateTables” sheet.

FAN Region: Jihomoravský

SECTION 1 - TRANSLATION OF VALUES FROM DROPDOWN FIELDS IN THE

T1.1_t

Q1 Answers	Reference sector
Plant and forest wastes	A2.1Silviculture and other forestry activities
Organic wastes from industrial production	A1.6Support activities to agriculture and post-harvest crop activities
Wastes from livestock production	A1.4Animal production
Municipal organic waste	A1.6Support activities to agriculture and post-harvest crop activities
Fast-growing woody plants	A2.1Silviculture and other forestry activities
Grape seeds	A1.6Support activities to agriculture and post-harvest crop activities
Residues {stillage (from distillery)}	A1.6Support activities to agriculture and post-harvest crop activities
Pits	A1.6Support activities to agriculture and post-harvest crop activities
Sewage sludge	A1.6Support activities to agriculture and post-harvest crop activities
Used cooking oil	A1.6Support activities to agriculture and post-harvest crop activities

T1.2_t

Q1 Answers	Key Word
Plant and forest wastes	Forestry
Organic wastes from industrial production	Supply chain, marketing and consumption
Wastes from livestock production	Animal husbandry
Municipal organic waste	Rural issues
Fast-growing woody plants	Outdoor horticulture and woody crops (incl. viticulture,olives, fruit, ornamentals)
Grape seeds	Supply chain, marketing and consumption
Residues {stillage (from distillery)}	Circular economy, incl. waste, by-products and residues
Pits	Supply chain, marketing and consumption
Sewage sludge	Rural issues
Used cooking oil	Rural issues

T1.3_t

Q1 Answers	Categories
Plant and forest wastes	Crop residues and perennial plants F1
Organic wastes from industrial production	Biorefineries C2
Wastes from livestock production	Waste or recycled material FC
Municipal organic waste	Waste or recycled material FC
Fast-growing woody plants	Crop residues and perennial plants F1
Grape seeds	Crop residues and perennial plants F1
Residues {stillage (from distillery)}	Waste or recycled material FC
Pits	Crop residues and perennial plants F1
Sewage sludge	Waste or recycled material FC
Used cooking oil	Waste or recycled material FC

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T1.5_t	
Q1 Answers	**Value chains**
Plant and forest wastes	3 - High potential - Significant arisings of feedstocks available
Organic wastes from industrial production	2 - Medium potential - Significant availability of feedstocks available by
Wastes from livestock production	1- Low potential - Low to medium arisings of feedstock available between 2023-
Municipal organic waste	3 - High potential - Significant arisings of feedstocks available
Fast-growing woody plants	2 - Medium potential - Significant availability of feedstocks available by 2035.
Grape seeds	1- Low potential - Low to medium arisings of feedstock available between 2023-
Residues {stillage (from distillery)}	3 - High potential - Significant arisings of feedstocks available
Pits	1- Low potential - Low to medium arisings of feedstock available between 2023-
Sewage sludge	1- Low potential - Low to medium arisings of feedstock available between 2023-
Used cooking oil	3 - High potential - Significant arisings of feedstocks available

T8.1_t	T8.2_t	T8.3_t	
Q8.1 Answers: key stakeholders	**Nature of collaboration**	**Type of collaboration**	**Type of partners**
Innovation Broker			Other
Agricultural practice consultancy			Advisor

	In these cells, we are interpreting the drop-down options are low, medium, or high potential of carbon sequestration as low, medium, or high potential of **carbon emissions**. The wording of the drop-down cells does not reflect this because of how the tool works.
Q10 Answers	**C Sink**
Intensive agricultural production is associated with the use of fertilisers and protective chemicals, substances whose production and consumption place a significant burden on the environment	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Increase in average temperature: Climate change is leading to a gradual increase in temperature. This can have negative impacts on forest ecosystems, such as changes in tree species, the spread of pests and increased risk of fires.	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Long-term drought: The South Moravian region suffers from insufficient rainfall, which affects water availability for forests and agriculture. Dry periods can lead to soil water loss and reduced crop yields.	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Soil erosion: Intensive agriculture and inappropriate soil management can cause soil erosion. This adversely affects soil quality and crop productivity.	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
Extreme weather events: Heavy rains and strong winds can cause flooding, landslides and damage to forests. These events are becoming more frequent because of climate change.	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.

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In these cells, we are interpreting the drop-down options are low, medium, or high potential of environmental benefits as low, medium, or high potential of **environmental impacts**. The wording of the drop-down cells does not reflect this because of how the tool works.

T10.2.1

Q10 Answers	Envi Sustainability
Intensive agricultural production is associated with the use of fertilisers and protective chemicals, substances whose production and consumption place a significant burden on the environment	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Increase in average temperature: Climate change is leading to a gradual increase in temperature. This can have negative impacts on forest ecosystems, such as changes in tree species, the spread of pests and increased risk of fires.	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Long-term drought: The South Moravian region suffers from insufficient rainfall, which affects water availability for forests and agriculture. Dry periods can lead to soil water loss and reduced crop yields.	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Soil erosion: Intensive agriculture and inappropriate soil management can cause soil erosion. This adversely affects soil quality and crop productivity.	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
Extreme weather events: Heavy rains and strong winds can cause flooding, landslides and damage to forests. These events are becoming more frequent because of climate change.	1 - Low potential - doesn't bring any environmental benefits.

T11.1

Q11 Answers	Socio Sustainability

SECTION 2 - ADDING EXTRA INFORMATION TO TRANSLATE VALUES FROM WORKSHOP AWNSERS

T5.3_t

Check if the field "Processing capacity", colum AO, in the Inventory_copy sheet is in T/Day. If that is not the case, please convert the answer in the field to

Q5.3 Answers. National statistics data, Average farm size (ha):	Biomasses identified from Q1	Avg. yearly yield of biomasses perhectare (farm)	Estimated Avg. tonnes of biomass per farm per day	Source of information
2.50	Plant and forest wastes	71.04	0.0486	
-	Organic wastes from industrial production		-	
-	Wastes from livestock production	663	0.4532	
-	Municipal organic waste		-	
-	Fast-growing woody plants	40	0.0273	
-	Grape seeds	2.4	0.0016	
-	Residues (stillage (from distillery))	120	0.0820	
-	Pits	12	0.0082	
-	Sewage sludge		-	
-	Used cooking oil		-	

T5.4_t

Check if the field "Processing capacity", colum AO, in the Inventory_copy sheet is in T/Day. If that is not the case, please convert the answer in the field to T/Day.

Q5.4 Answers. National statistics data, Average forest size (ha):	Biomasses identified from Q1	Avg. yearly yield of biomasses per hectare (forest)	Estimated Avg. tonnes of biomass per forest per day	of informa tion
1,000.00	Plant and forest wastes	1096239	300,339.45	
-	Organic wastes from industrial production		-	
-	Wastes from livestock production		-	
-	Municipal organic waste		-	
-	Fast-growing woody plants		-	
-	Grape seeds		-	
-	Residues (stillage (from distillery))		-	
-	Pits		-	
-	Sewage sludge		-	
-	Used cooking oil		-	

SECTION 3 - TRANSLATION OF VALUES FROM NARRATIVE SYNTHESIS FIELDS IN THE BBIONETS

T2.1_t

Q2 Answers	Key word to find in "Description BBT"
Biogas stations	biogas
Biomass heating plants	heat
Composting plants	compost
Sugar production	sugar
Power plant	power
Dairies	dairy
Distilleries	distilling
Wineries	wine
Wastewater treatment plants	wastewater

T2.2_t

Q2 Answers	Key word to find in "Intended user / conditions of access"
Biogas stations	gas
Biomass heating plants	heat
Composting plants	fertiliser
Sugar production	sugar
Power plant	energy
Dairies	mill
Distilleries	spirit
Wineries	wine
Wastewater treatment plants	wastewater

T3_t

Q3 Answers	Key word to find in "Outcomes and final product"
Biogas	gas
Compost	compost
Garden substrates	grass
Mulch chips	chip
Molasses	sugar
Carbon lime	carbon
Dried sugar cuttings	sugar
Electricity	energy
Heat	heat
Digestate	digestate
Heating pellets	pellet
Biofuels	fuel

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FAN Region: Vysočina

FAN Country: Czech Republic
FAN Region: Vysočina

SECTION 1 - TRANSLATION OF VALUES FROM DROPDOWN FIELDS IN THE BBIONETS INVENTORY

TL1_t

Q1 Answers	Reference sector
Plant and forest wastes	A2.1Silviculture and other forestry activities
Organic wastes from industrial production	A1.6Support activities to agriculture and post-harvest crop activities
Wastes from livestock production	A1.4Animal production
Municipal organic waste	A1.6Support activities to agriculture and post-harvest crop activities
Fast-growing woody plants	A2.1Silviculture and other forestry activities
Grape seeds	A1.6Support activities to agriculture and post-harvest crop activities
Residues (stillage (from distillery))	A1.6Support activities to agriculture and post-harvest crop activities
Pits	A1.6Support activities to agriculture and post-harvest crop activities
Sewage sludge	A1.6Support activities to agriculture and post-harvest crop activities
Used cooking oil	A1.6Support activities to agriculture and post-harvest crop activities

TL2_t

Q1 Answers	Key Word
Plant and forest wastes	Forestry
Organic wastes from industrial production	Supply chain, marketing and consumption
Wastes from livestock production	Animal husbandry
Municipal organic waste	Rural issues
Fast-growing woody plants	Outdoor horticulture and woody crops (incl. viticulture,olives, fruit, ornamentals)
Grape seeds	Supply chain, marketing and consumption
Residues (stillage (from distillery))	Circular economy, incl. waste, by-products and residues
Pits	Supply chain, marketing and consumption
Sewage sludge	Rural issues
Used cooking oil	Rural issues

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T1.3_1

Q1 Answers	Categories
Plant and forest wastes	Crop residues and perennial plants F1
Organic wastes from industrial production	Biorefineries C2
Wastes from livestock production	Waste or recycled material FC
Municipal organic waste	Waste or recycled material FC
Fast-growing woody plants	Crop residues and perennial plants F1
Grape seeds	Crop residues and perennial plants F1
Residues {stillage (from distillery)}	Waste or recycled material FC
Pits	Crop residues and perennial plants F1
Sewage sludge	Waste or recycled material FC
Used cooking oil	Waste or recycled material FC

T1.4_1

Q1 Answers	Feedstock
Plant and forest wastes	Biomass
Organic wastes from industrial production	Wastes
Wastes from livestock production	Wastes
Municipal organic waste	Wastes
Fast-growing woody plants	Biomass
Grape seeds	Biomass residues
Residues {stillage (from distillery)}	Biomass residues
Pits	Biomass residues
Sewage sludge	Wastes
Used cooking oil	Wastes

T1.5_1

Q1 Answers	Value chains
Plant and forest wastes	3 - High potential - Significant arisings of feedstocks available currently.
Organic wastes from industrial production	2 - Medium potential - Significant availability of feedstocks available by 2035.
Wastes from livestock production	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Municipal organic waste	3 - High potential - Significant arisings of feedstocks available currently.
Fast-growing woody plants	2 - Medium potential - Significant availability of feedstocks available by 2035.
Grape seeds	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Residues {stillage (from distillery)}	3 - High potential - Significant arisings of feedstocks available currently.
Pits	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Sewage sludge	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Used cooking oil	3 - High potential - Significant arisings of feedstocks available currently.

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In these cells, we are interpreting the drop-down options are low, medium, or high potential of carbon sequestration as low, medium, or high potential of **carbon emissions**. The wording of the drop-down cells does not reflect this because of how the tool works.

T8.1 ↕ T8.2 ↕ T8.3 ↕

Q8.1 Answers: key stakeholders	Nature of collaboration	Type of collaboration	Type of partners
Innovation Broker			Other
Agricultural practice consultancy			Advisor

T10.1 ↕

Q10 Answers	C Sink
Intensive agricultural production is associated with the use of fertilisers and protective chemicals, substances whose production and consumption place a significant burden on the environment	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Increase in average temperature: Climate change is leading to a gradual increase in temperature. This can have negative impacts on forest ecosystems, such as changes in tree species, the spread of pests and increased risk of	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Higher average temperature results in higher evaporation of water from soil, vegetation and water levels, contributing to a negative hydrological balance in the area. Flows in watercourses in the Highlands can be assessed as slightly below normal.	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Soil erosion: Intensive agriculture and inappropriate soil management can cause soil erosion. This has an adverse effect on soil quality and crop productivity.	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
Extreme weather events: Heavy rains and strong winds can cause flooding, landslides and damage to forests. These events are becoming more frequent because of climate change.	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.

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In these cells, we are interpreting the drop-down options are low, medium, or high potential of environmental benefits as low, medium, or high potential of **environmental impacts**. The wording of the drop-down cells does not reflect this because of how the tool works.

Q10 Answers	Envi Sustainability
Intensive agricultural production is associated with the use of fertilisers and protective chemicals, substances whose production and consumption place a significant burden on the environment	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Increase in average temperature: Climate change is leading to a gradual increase in temperature. This can have negative impacts on forest ecosystems, such as changes in tree species, the spread of pests and increased risk of fires.	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Higher average temperature results in higher evaporation of water from soil, vegetation and water levels, contributing to a negative hydrological balance in the area. Flows in watercourses in the Highlands can be assessed as slightly below normal.	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Soil erosion: Intensive agriculture and inappropriate soil management can cause soil erosion. This has an adverse effect on soil quality and crop productivity.	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
Extreme weather events: Heavy rains and strong winds can cause flooding, landslides and damage to forests. These events are becoming more frequent because of climate change.	1 - Low potential - doesn't bring any environmental benefits.

Q11 Answers	Socio Sustainability

DRAFT

SECTION 2 - ADDING EXTRA INFORMATION TO TRANSLATE VALUES FROM WORKSHOP AWNSERS

T5.3_t

Check if the field "Processing capacity", colum AO, in the Inventory_copy sheet is in T/Day. If that is not the case, please convert the answer in the field to

Q5.3 Answers. National statistics data, Average farm size (ha):	Biomasses identified from Q1	Avg. yearly yield of biomasses per farm	Estimated Avg. tonnes of biomass per farm per day	Source of information
51.00	Plant and forest wastes	215	3.0039	
-	Organic wastes from industrial production		-	
-	Wastes from livestock production	1384	19.3368	
-	Municipal organic waste		-	
-	Fast-growing woody plants	100	1.3972	
-	Grape seeds	0.5	0.0070	
-	Residues (stillage (from distillery))	165	2.3053	
-	Pits	20	0.2794	
-	Sewage sludge		-	
-	Used cooking oil		-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	

T5.4_t

Check if the field "Processing capacity", colum AO, in the Inventory_copy sheet is in T/Day. If that is not the case, please

Q5.4 Answers. National statistics data, Average forest size (ha):	Biomasses identified from Q1	Avg. yearly yield of biomasses per forest	Estimated Avg. tonnes of biomass per forest per day	Source of information
2,000.00	Plant and forest wastes	1325250	1,054,931.51	
-	Organic wastes from industrial production		-	
-	Wastes from livestock production		-	
-	Municipal organic waste		-	
-	Fast-growing woody plants		-	
-	Grape seeds		-	
-	Residues (stillage (from distillery))		-	
-	Pits		-	
-	Sewage sludge		-	
-	Used cooking oil		-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	

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ECTION 3 - TRANSLATION OF VALUES FROM NARRATIVE SYNTHESIS FIELDS IN THE BBIONETS INVENTOF

T2.1.t

Q2 Answers	Key word to find in "Description BBT"
Biogas stations	biogas
Biomass heating stations	heat
Composting plants	compost
Power plant	energy
Gristmills	mill
Distilleries	Distilling
Wineries	wine
Wastewater treatment plants	wastewater

T2.2.t

Q2 Answers	Key word to find in "Intended user / conditions of access"
Biogas stations	gas
Biomass heating stations	heat
Composting plants	fertiliser
Power plant	energy
Gristmills	mill
Distilleries	spirit
Wineries	wine
Wastewater treatment plants	wastewater

T3.t

Q3 Answers	Key word to find in "Outcomes and final product"
Biogas	gas
Compost	compost
Garden substrates	grass
Mulch chips	chip
Electricity	energy
Heat	heat
Digestate	digestate
Heating pellets	pellet
Biofuels	fuel

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5.1.3 Information for the "Weight" sheet

FAN Region: Jihomoravský

Workshop answers regarding processing needs (as visual reference only)		Inventory answers to BBTs needs/problems statement		Manually add weight to BBTs after reading the workshop anwsers
ID	processing needs regarding primary and secondary resources? (identified needs should be ranked from high	BBT CODES	BBT NEEDS/PROBLEM STATEMENT	Weight
1	A long-term survey carried out by ZERA identified problems related to insufficient technological interconnection between composting plants, biogas plants and wastewater treatment plants	IE10-Biorefinery Glas/GLAS	To improve the sustainability, value and resource efficiency of Ireland's livestock sector through farmer diversification into the bioeconomy and to assess the potential role of grass biorefinery in supporting sustainable and resilient communities in rural Ireland.	-1
2	Availability of biomass combustion boilers	IT11-FABER/FABER	Forest biomass and its management to address climate change and GHG emissions.	-1
3	Motivation of cider, distilleries and wineries to recover waste biomass in biogas plants, by incineration or composting	FI12-ForestChip4Farm/FC4FH	Preventing climate change, increasing bioenergy in rural areas, decreasing CO2 emissions from farms and the food chain, promoting a sustainable food chain, and developing new innovations and products.	1
4	Use of gastro and kitchen waste for biogas and compost production	DE13-Lignocellulosic Biorefinery/LIGNO	To valorize the lignocellulosic residues (meadow grass) from farms in a sustainable way.	-1
5	Promote wastewater treatment combined with algae cultivation for biomass	EL14-BIO2CHP/B2CHP	bypasses technical limitations & allows the use of residual biomass for small-scale & on-site energy production	1
6	0	IT15-Scarabeo/HMP2C	There is a need for sustainable and efficient methods in the hemp supply chain to increase quality, valorize and reduce energy consumption.	-1
7	0	HU16-REFERTIL/3RZRO	Recycling and valorization of un-exploited farm and animal by-products	1
8	0	IT17-Mountain Carbon/MNTNC	to help improve the management of the organic matter (OM) from dairy cattle manure in the mountain areas	1
9	0	EE18-Hay Biosyngas/HAYBG	a cost-effective and efficient way to produce bio-coal from late harvested hay pellets to benefit small and medium-sized entrepreneurs	1
10	0	FI19-Wood2Biogas/Wd2BG	to produce and use the gasification gas to boost methane formation in the biogas process, and simultaneously produce biochar, and the use of woody materials in biogas energy production without increasing the amount of digestate from the biogas process	1
11	0	IT20-Clean-ER/CLINR	The accumulation of low economic value woody/shrub biomass in mountain areas poses a significant threat as it increases the	1
		FR21-SeCoPPA /ALFLF	challenges in efficiently drying alfalfa for animal feed, and a need to utilize manure and shredded wood from hedgerows	-1
		IE22-BBFB/CHAR	The unutilised biomass is left to decay which returns carbon dioxide to the atmosphere while also control of vegetation, by herb	-1
		IE23-SBDP/BGAS	The intensification of Irish agriculture, particularly in dairying, has raised concerns about its environmental impact as it is a sign	-1
		DE24-GrassBiowert/BWERT	Displacement of fossil based products with bio-based alternatives, while offering rural diversification opportunities.	-1
		BE25-Grassification/GRSFY	Valorization of roadside grass clippings and improving its digestion with other feedstock, as monodigestion of grass can be tec	-1
		FR26-Pyrogreen/PYROG	A bio-based technology that supports valorizing, recycling and recovering of resources by providing a versatile and easy to im	1
		DE27-GO-GRASS/GOGRS	The grass from protected wetland areas in the polder meadows is heterogeneous, in parts strongly lignified (rigid) and its nutriti	-1
		NL28-GO-GRASS/GOGRS	Low quality natural and roadside grass are used for low added value applications such as compost which also includes costs	-1
		DK29-GO-GRASS/GOGRS	The conversion of annualcrops such as maize, rapeseed and cereals into grassland can significantly reduce nitrate leaching	-1
		PT30-Spawnfoam/SPAWN	changing the paradigm of production and consumption of fossil-based composites and materials, such as plastics, by providi	-1
		DE31-MixBioPells/PLTIZ	Since nowadays wood is getting more scarce caused by the growing demand in material and the energetic use, alternative so	1
		DE32-MixBioPells/PLTHP	in Europe small-scale combustion units (20 to 200 kW) are used almost only with high quality wood fuels, and nowadays wood	1
		DE33-BIOlution/BIOLT	Agricultural waste such as tomato and wheat wastes are not used, which has an environmental impact and a management co	1
		FR34-GRANUL'HAIE/WdPLT	To enhance the value of local raw materials to meet the increasing demand from consumers who are interested in buying local	-1
		ES35-Bioferti+/BFTZ+	Waste recovery of cattle manure and other organic waste, to increase the biological and physical-chemical quality of agricultu	1
		NL36-ManurePellet/MnPLT	a higher percentage of organic matter, a better soil structure and more binding of nutrients in the soil, a problem is formulated f	-1
		IT37-BIOECO_FLIES/W2BSF	to valorize agrifood biomass beyond the typical low added value applicaitons such as fertilizer or biomass for digesters	1
		DK38-Macrofuels/CWEED	There is an undisputed and urgent need to decarbonise the European transport sector and seaweed can be a sustainable bio	1

DK38-Macrofuels/CWEED	There is an undisputed and urgent need to decarbonise the European transport sector and seaweed can be a sustainable bio-	1
IT39-Res4Carbon/RES4C	to define the best practices to guarantee maximum technical, economic and environmental efficiency in the processing, handli	1
FR40-SIVABA/WdPwr	The need to better articulate the various links in the wood energy sector in order to increase its visibility vis-à-vis potential co	1
BE41-BierbeekCHIP/Wd2CN	to valorise the woody material coming from the municipal hollow roads and the wood edges after shredding on the local field	-1
LT42-cogeneration residue/Res2F	a need to develop a production technology for a new type of fertilizer using wood ashes and digestate	-1
IT43-CAREGA/4COAL	a gradual abandonment of the forests and a progressive decrease in commercial relations between forest owners, forestry cor	-1
IT44-COBRAF/COBRA	develop an articulated system of biorefineries that allows maximum exploitation of the biomass of oil crops (hemp, safflowe	1
IT45-Stabilized Litter/StbMn	the impact of stabilized litter obtained from the solid/liquid separation of slurry subjected to a process of sanitation and stab	1
IT46-BIOACTAM/BIOAA	to develop and validate a new generation of products, based on the partial pyrolysis of ligno-cellulosic biomass deriving from	1
PT47-GOEfluentes /GoEFt	increase the efficiency of water and nutrient utilization, reduce the environmental impact of farming and add value to agricult	-1
ES48-INCREdible/RESIN	addressing challenges faced by resin as a non-wood forest product	-1
LV49-WoodResidueLV/W2IHF	developing innovative technological solutions to reclamation of wood processing by-products, further processing and adding v	-1
IT50-RBR-EAS/BCH4R	using different residual biomass with energy purposes (biofuel production), agricultural (production of fertilizer) and food (die	1
AT-Closing cycles/NTREC	Farms need a reasonably closed nutrient cycle to recover energy and resources	-1
PL-BIOGAL/BIOGL	Livestock sector has several challengesbecause of the management of theresources and wastes produced. Manure isone of th	1
ES-LIFE Smart Fertirrigation/FRTGN	pig meat production generates large amounts of manure leading to important environmental problems and many anaerobic di	1
BE-DIGESMART /DIGST	Biogas production is efficient at reducing agricultural emission by converting the biomass into electricity and thermal energy (e	1
NL-VORTEX/VORTX	Manure stripping innovation for efficiency and cost	-1
NL-Manure Evaporation/EVAPR	Different manure processing techniques are already available and the thick fraction can be well tolerated. However, the reduc	-1
DE-Manure Efficiency/MNURE	to develop a procedure for liquid slurry processing for agricultural enterprises, with which slurry and manure can be used to pr	-1
SE-Manure Refining/MNRRF	to produce concentrated, transport-efficient fertilizers from biogas plant that produces large amounts of digested manure, as v	-1
BE-HIATUS/WATER	Almost every year, farmers face water shortages due to drought. Therefore, they are looking for alternatives for this valuable w	-1
ES-GO IMECO/PgSLR	slurry management and treatment system for ensuring the product generated in pig farms is more competitive and has a lower	1
FI-LEX4BIO/BBFRT	reducing dependency on mineral and fossil-based fertilizers by optimizing the use of bio-based fertilizers (BBFs)	-1
IT-ProBEST/BARK	In the production of forest wood fuels, the presence of bark and twigs must be limited. these can be chipped and delivered, es	-1
IT-ProBEST/ASHES	In the production of forest wood fuels, the incombustible elements (ash) must be limited. these can be delivered, essentially	-1
IT-FiLeProPri/WSC	Face the problem of the socio-economic marginality of wood production in private property.	-1
IT-ROSAEXTREM/NRH	Encourage the restructuring of farms with structural problems considerable	-1
IT-M.ER.LI.n/MERL	Analyze needs of partner companies to identify implementation opportunities innovative solutions that are energetically sust	-1
IT-INNOVABIOZOO/INZOO	The project consists of a series of actions divided into the following areas work: preparatory phase, coordination and animatic	-1
ES-AgriCarbón/AC	In Andalusia, agricultural activities play an important role in the socio-economic development which generates contamination	-1
ES-AGUACAVALUE/BYPRO	Promotes possible alternatives for the valorisation of avocado by-products by studying the characterisation of their nutritional	-1
ES-AGUACAVALUE/AVOCA	Spain concentrates the 93% of the avocado production in Europe. Malaga and Granada (Andalusian provinces) have the 88% of	-1
ES-CHERRY4FOOD/CHERR	There is a need for the processing industries of tomato products (gazpacho and salmorejo) to utilise the by-products generate	-1
ES-TOMATOGROUP/TOMAT	There is a need for valorisation of the tomato chopping which currently is a residue with no value.	-1
ES-BIOSUERO/WHEY	In Andalusia, it is produced a large quantity of milk whey every year. From 10 L of milk, it is obtained 1 kg of cheese and 9 L of v	-1
ES-Biochar/BIOCH	The project is mainly focused on the Western Coast of Huelva (Ayamonte, Isla Cristina, Lepe, Cartaya, Gibraleón, Punta Umbría	-1
ES-BIORUMIOLI/FEED	Need to increase the profitability of livestock farms and create an alternative for the olive oil industry by achieving a more effi	-1
ES-OleoValoriza/OLIVE	The olive-mill waterwaste constitute one of the most important environmental problems in olvie cooperatives, since they are	-1
ES-OleoValoriza/OLIV2	The reuse and recovery of olive by-products are essential to reduce environmental pollution and contribute to increasing the e	-1
CZ-TJ02000130/	Among the difficult tasks are the application of fugate (a by-product of biogas production) and the dependence on peat (a non	-1
CZ-QK1920328/	The progressive large-scale decay of spruce stands affecting many areas in the Czech Republic can hardly be prevented and we	-1
CZ-QK1920214/	The issue of protecting water resources while maintaining the competitiveness of agricultural production in their vicinity is qu	-1

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CZ-QK1920328/	The progressive large-scale decay of spruce stands affecting many areas in the Czech Republic can hardly be prevented and we	-1	
CZ-QK1920214/	The issue of protecting water resources while maintaining the competitiveness of agricultural production in their vicinity is qu	-1	
CZ-TH03030319/	Efficient use of processed field by-products.	-1	
CZ-QK1710379/	Use of sewage sludge as a valuable waste raw material in agriculture.	-1	
CZ-TH02030681/	The establishment of field crops (maize) is currently carried out in the form of monoculture. This causes surface runoff of rainv	-1	
CZ-TH02030925/	Increasing the composting rate, especially when processing bulky materials (urban green waste, sludge), which are increasing	1	
CZ-SS06020282/	Conventional mechanical recycling of biopolymers is currently not a technologically feasible process, as their products often e	-1	
CZ-TK04010166/	There is a need to update biomass potential in the light of changing factors affecting land use and biomass yields, including	-1	
CZ-FW06010358/	Reduction of the consumption of liquid substances (including liquid fertilisers) per unit area, in particular better use of these	-1	
EL11-HIPO-ENERGY/NUTRI	- management of Hippophae leaves, which are cultivated only for the harvesting of the fruit- existing studies highlight the nutr	-1	
EL12-ΑΕΙΦΟΡΙΚΑ ΚΗΠΕΥΤΙΚΑ/OREG	control of downy mildew (caused by soil fungi with negative effects in the production) in the context of the circular economy ar	-1	
EL13-OLIHERB/OLIVE	management of the significant quantities of olive leaves produced as by-products during cultivation (pruning), harvesting of ol	-1	
EL14-BioAnimalChar/PIG	cost and quality of pig feed	1	
EL15-COMPOST-INNO/COMPO	- lack of sufficient amounts of organic waste in the cultivation sites - distance of the sources of organic matter from the places	1	
EL16-Compo - Laventer/COLAV	increase of the production and the quality of lavender oil	-1	
EL17-AGROSCHOOLBUS.BIO/RESOL	Sustainable management of the residues (branches and leaves), pruning of the olive tree (and other productive trees).	-1	
EL18-SoilCircle/	Due to the negative effects on crop growth and the environment from the use of synthetic fertilisers, it is recommended to app	-1	
EL19-ΥΓΕΙΑΡΤΟΣ/YOGO	Exploitation of both goat milk and espresso coffee residues	-1	
EL20-Innovative Rice Residue Management Pract	Handling plant residues remaining in the rice fields after harvesting. Their burning was banned because of the reduction in or	-1	
EL21-ΕΛΑΙΩΝΑΣ/OLFER	Management of waste and wastewater generated during the olive farming and olive oil production processes	-1	
PL91-OrzechDębu/ACORN	Changing trends in consumer attitudes and food preferences towards reducing the consumption of meat and animal products.	-1	
PL93-GRIST/GRIST	Organic grain production and processing of brewery residues into meal, using an innovative dehydration method	-1	
pl94-Owoce 4.0/Owoce 4.0	Development of technology dedicated to currant plantations	-1	
0	0		

FAN Region: Vysočina

Workshop answers regarding processing needs (as visual reference only)		Inventory answers to BBTs needs/problems statement		Manually add weight to BBTs after reading the workshop anwsers
ID	processing needs regarding primary and secondary resources? (identified needs should be ranked from high	BBT CODES	BBT NEEDS/PROBLEM STATEMENT	Weight
1	Building a network of buyers for compost from composting plants, as compost is almost unmarketable or very little used in the Highlands. Farmers in the region have enough manure due to livestock production and do not need compost. However, it is suitable, among others, for areas in drinking water protection zones or protected landscape areas, of which there are many in	IE10-Biorefinery Glas/GLAS	To improve the sustainability, value and resource efficiency of Ireland's livestock sector through farmer diversification into the bioeconomy and to assess the potential role of grass biorefinery in supporting sustainable and resilient communities in rural Ireland.	1
2	Use of food waste and kitchen waste for biogas and compost production	IT11-FABER/FABER	Forest biomass and its management to address climate change and GHG emissions.	-1
3	0	FI12-ForestChip4Farm/FC4FH	Preventing climate change, increasing bioenergy in rural areas, decreasing CO2 emissions from farms and the food chain, promoting a sustainable food chain, and developing new innovations and products.	-1
4	0	DE13-Lignocellulosic Biorefinery/LIGNO	To valorize the lignocellulosic residues (meadow grass) from farms in a sustainable way.	1
5	0	EL14-BIO2CHP/B2CHP	bypasses technical limitations & allows the use of residual biomass for small-scale & on-site energy production	-1
6	0	IT15-Scarabeo/HMP2C	There is a need for sustainable and efficient methods in the hemp supply chain to increase quality, valorize and reduce energy consumption.	1
7	0	HU16-REFERTIL/3RZRO	Recycling and valorization of un-exploited farm and animal by-products	1
8	0	IT17-Mountain Carbon/MNTNC	to help improve the management of the organic matter (OM) from dairy cattle manure in the mountain areas	1
9	0	EE18-Hay Biosyngas/HAYBG	a cost-effective and efficient way to produce bio-coal from late harvested hay pellets to benefit small and medium-sized entrepreneurs	-1
10	0	FI19-Wood2Biogas/Wd2BG	to produce and use the gasification gas to boost methane formation in the biogas process, and simultaneously produce biochar, and the use of woody materials in biogas energy production without increasing the amount of digestate from the biogas process	-1
11	0	IT20-Clean-ER/CLINR	The accumulation of low economic value woody/shrub biomass in mountain areas poses a significant threat as it increases the	-1
		FR21-SeCoPPA /ALFLF	challenges in efficiently drying alfalfa for animal feed, and a need to utilize manure and shredded wood from hedgerows	1
		IE22-BBFB/CHAR	The unutilised biomass is left to decay which returns carbon dioxide to the atmosphere while also control of vegetation, by herb	1
		IE23-SBDP/BGAS	The intensification of Irish agriculture, particularly in dairying, has raised concerns about its environmental impact as it is a sign	1
		DE24-GrassBiowert/BWERT	Displacement of fossil based products with bio-based alternatives, while offering rural diversification opportunities.	-1
		BE25-Grassification/GRSFY	Valorization of roadside grass clippings and improving its digestion with other feedstock, as monodigestion of grass can be tec	-1
		FR26-Pyrogreen/PYROG	A bio-based technology that supports valorizing, recycling and recovering of resources by providing a versatile and easy to im	1
		DE27-GO-GRASS/GOGRS	The grass from protected wetland areas in the polder meadows is heterogeneous, in parts strongly lignified (rigid) and its nutriti	-1
		NL28-GO-GRASS/GOGRS	Low quality natural and roadside grass are used for low added value applications such as compost which also includes costs	-1
		DK29-GO-GRASS/GOGRS	The conversion of annualcrops such as maize, rapeseed and cereals into grassland can significantly reduce nitrate leaching	-1
		PT30-Spawnfoam/SPAWN	changing the paradigm of production and consumption of fossil-based composites and materials, such as plastics, by providi	-1
		DE31-MixBioPells/PLTIZ	Since nowadays wood is getting more scarce caused by the growing demand in material and the energetic use, alternative so	-1
		DE32-MixBioPells/PLTHP	in Europe small-scale combustion units (20 to 200 kW) are used almost only with high quality wood fuels, and nowadays wood	-1
		DE33-BIOlution/BIOLT	Agricultural waste such as tomato and wheat wastes are not used, which has an environmental impact and a management co	1
		FR34-GRANUL'HAIE/WdPLT	To enhance the value of local raw materials to meet the increasing demand from consumers who are interested in buying local	-1
		ES35-Bioferti+/BFTZ+	Waste recovery of cattle manure and other organic waste, to increase the biological and physical-chemical quality of agricultu	1
		NL36-ManurePellet/MnPLT	a higher percentage of organic matter, a better soil structure and more binding of nutrients in the soil, a problem is formulated f	1
		IT37-BIOECO_FLIES/W2BSF	to valorize agrifood biomass beyond the typical low added value applicaitons such as fertilizer or biomass for digesters	1

NL36-ManurePellet/MnPLT	a higher percentage of organic matter, a better soil structure and more binding of nutrients in the soil, a problem is formulated f	1
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DK38-Macrofuels/CWEED	There is an undisputed and urgent need to decarbonise the European transport sector and seaweed can be a sustainable bic	1
IT39-Res4Carbon/RES4C	to define the best practices to guarantee maximum technical, economic and environmental efficiency in the processing, hanc	1
FR40-SIVABA/WdPwr	The need to better articulate the various links in the wood energy sector in order to increase its visibility vis-à-vis potential cons	-1
BE41-BierbeekCHIP/Wd2CN	to valorise the woody material coming from the municipal hollow roads and the wood edges after shredding on the local fields c	-1
LT42-cogeneration residue/Res2F	a need to develop a production technology for a new type of fertilizer using wood ashes and digestate	1
IT43-CAREGA/4COAL	a gradual abandonment of the forests and a progressive decrease in commercial relations between forest owners, forestry cor	1
IT44-COBRAF/COBRA	develop an articulated system of biorefineries that allows maximum exploitation of the biomass of oil crops (hemp, safflower, fla	-1
IT45-Stabilized Litter/StbMn	the impact of stabilized litter obtained from the solid/liquid separation of slurry subjected to a process of sanitation and stabiliza	-1
IT46-BIOACTAM/BIOAA	to develop and validate a new generation of products, based on the partial pyrolysis of ligno-cellulosic biomass deriving from f	-1
PT47-GOEfluentes /GoEFt	increase the efficiency of water and nutrient utilization, reduce the environmental impact of farming and add value to agricultu	1
ES48-INCREdible/RESIN	addressing challenges faced by resin as a non-wood forest product	-1
LV49-WoodResidueLV/W2IHF	developing innovative technological solutions to reclamation of wood processing by-products, further processing and adding	-1
IT50-RBR-EAS/BCH4R	using different residual biomass with energy purposes (biofuel production), agricultural (production of fertilizer) and food (dieta	-1
AT-Closing cycles/INTREC	Farms need a reasonably closed nutrient cycle to recover energy and resources	-1
PL-BIOGAL/BIOGL	Livestock sector has several challengesbecause of the management of theresources and wastes produced. Manure isone of	1
ES-LIFE Smart Fertirrigation/FRTGN	pig meat production generates large amounts of manure leading to important environmental problems and many anaerobic dig	1
BE-DIGESMART /DIGST	Biogas production is efficient at reducing agricultural emission by converting the biomass into electricity and thermal energy (c	1
NL-VORTEX/VORTX	Manure stripping innovation for efficiency and cost	-1
NL-Manure Evaporation/EVAPR	Different manure processing techniques are already available and the thick fraction can be well tolerated. However, the reduc	-1
DE-Manure Efficiency/MNURE	to develop a procedure for liquid slurry processing for agricultural enterprises, with which slurry and manure can be used to pro	-1
SE-Manure Refining/MNRRF	to produce concentrated, transport-efficient fertilizers from biogas plant that produces large amounts of digested manure, as	-1
BE-HIATUS/WATER	Almost every year, farmers face water shortages due to drought. Therefore, they are looking for alternatives for this valuable wa	-1
ES-GO IMECO/PgSLR	slurry management and treatment system for ensuring the product generated in pig farms is more competitive and has a lower c	1
FI-LEX4BIO/BBFRT	reducing dependency on mineral and fossil-based fertilizers by optimizing the use of bio-based fertilizers (BBFs)	-1
IT-ProBEST/BARK	In the production of forest wood fuels, the presence of bark and twigs must be limited. these can be chipped and delivered, es:	-1
IT-ProBEST/ASHES	In the production of forest wood fuels, the incombustible elements (ash) must be limited. these can be delivered, essentially at	-1
IT-FiLeProPri/WSC	Face the problem of the socio-economic marginality of wood production in private property.	-1
IT-ROSAEXTREM/NRH	Encourage the restructuring of farms with structural problems considerable	-1
IT-M.ER.LI.n/MERL	Analyze needs of partner companies to identify implementation opportunities innovative solutions that are energetically sustai	-1
IT-INNOVABIOZOO/INZOO	The project consists of a series of actions divided into the following areas work: preparatory phase, coordination and animatior	-1
ES-AgriCarbón/AC	In Andalusia, agricultural activities play an important role in the socio-economic development which generates contamination	-1
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ES-AGUACAVALUE/AVOCA	Spain concentrates the 93% of the avocado production in Europe. Malaga and Granada (Andalusian provinces) have the 88	-1
ES-CHERRY4FOOD/CHERR	There is a need for the processing industries of tomato products (gazpacho and salmorejo) to utilise the by-products generate	-1
ES-TOMATOGROUP/TOMAT	There is a need for valorisation of the tomato chopping which currently is a residue with no value.	-1
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ES-Biochar/BIOCH	The project is mainly focused on the Western Coast of Huelva (Ayamonte, Isla Cristina, Lepe, Cartaya, Gibraleón, Punta Umbrí	-1
ES-BIORUMIOLI/FEED	Need to increase the profitability of livestock farms and create an alternative for the olive oil industry by achieving a more efficie	-1
ES-OleoValoriza/OLIVE	The olive-mill waterwaste constitute one of the most important environmental problems in olvie cooperatives, since they are ch	-1
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CZ-TJ02000130/	Among the difficult tasks are the application of fugate (a by-product of biogas production) and the dependence on peat (a no	-1
CZ-QK1920328/	The progressive large-scale decay of spruce stands affecting many areas in the Czech Republic can hardly be prevented and	-1
CZ-QK1920214/	The issue of protecting water resources while maintaining the competitiveness of agricultural production in their vicinity is quite	-1
CZ-TH03030319/	Efficient use of processed field by-products.	-1
CZ-QK1710379/	Use of sewage sludge as a valuable waste raw material in agriculture.	-1
CZ-TH02030681/	The establishment of field crops (maize) is currently carried out in the form of monoculture. This causes surface runoff of rainwa	-1
CZ-TH02030925/	Increasing the composting rate, especially when processing bulky materials (urban green waste, sludge), which are increasing	1
CZ-SS06020282/	Conventional mechanical recycling of biopolymers is currently not a technologically feasible process, as their products often e	-1
CZ-TK04010166/	There is a need to update biomass potential in the light of changing factors affecting land use and biomass yields, including up	-1
CZ-FW06010358/	Reduction of the consumption of liquid substances (including liquid fertilisers) per unit area, in particular better use of these su	-1
EL11-HIPO-ENERGY/NUTRI	- management of Hippophae leaves, which are cultivated only for the harvesting of the fruit- existing studies highlight the nutr	-1

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CZ-QK1920214/	The issue of protecting water resources while maintaining the competitiveness of agricultural production in their vicinity is quite	-1
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CZ-FW06010358/	Reduction of the consumption of liquid substances (including liquid fertilisers) per unit area, in particular better use of these su	-1
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EL12-ΑΕΙΦΟΡΙΚΑ ΚΗΠΕΥΤΙΚΑ/OREG	control of downy mildew (caused by soil fungi with negative effects in the production) in the context of the circular economy ar	-1
EL13-OLIHERB/OLIVE	management of the significant quantities of olive leaves produced as by-products during cultivation (pruning), harvesting of ol	-1
EL14-BioAnimalChar/PIG	cost and quality of pig feed	1
EL15-COMPOST-INNO/COMPO	- lack of sufficient amounts of organic waste in the cultivation sites - distance of the sources of organic matter from the places	1
EL16-Compo - Laventer/COLAV	increase of the production and the quality of lavender oil	-1
EL17-AGROSCHOOLBUS.BIO/RESOL	Sustainable management of the residues (branches and leaves), pruning of the olive tree (and other productive trees).	-1
EL18-SoilCircle/	Due to the negative effects on crop growth and the environment from the use of synthetic fertilisers, it is recommended to appl	-1
EL19-ΥΓΕΙΑΡΤΟΣ/YOGO	Exploitation of both goat milk and espresso coffee residues	-1
EL20-Innovative Rice Residue Management Pr	Handling plant residues remaining in the rice fields after harvesting. Their burning was banned because of the reduction in org	-1
EL21-ΕΛΑΙΩΝΑΣ/OLFER	Management of waste and wastewater generated during the olive farming and olive oil production processes	-1
PL91-OrzechDębu/ACORN	Changing trends in consumer attitudes and food preferences towards reducing the consumption of meat and animal products	-1
PL93-GRIST/GRIST	Organic grain production and processing of brewery residues into meal, using an innovative dehydration method	-1
pl94-Owoce 4.0/Owoce 4.0	Development of technology dedicated to currant plantations	-1
0	0	

DRAFT

5.2 Greece

5.2.1 Information for the “Workshop Answers” sheet.

FAN Countr	Greece
FAN Regior	Greece

Q1_r

ID	Q1. What are the primary or secondary resources available in your representative region?
1	Chestnut skin
2	Greenhouse Vegetable Plant biomass
3	Olive and olive oil-production biomass and prunings
4	Sheep wool
5	Prunings and grass from fruit trees
6	Stone-fruit residue
7	
8	
9	
10	
11	
12	
13	
14	

Q2_r

ID	Q2. What processing equipment is currently being used in your representative region?
1	Municipal units of household biomass processes
2	Composting Units for plant residues
3	Aerobic and anaerobic processing equipment
4	Bio-stimulants that support the composting process
5	Sensors for detecting the status of the composting material (temperature, CO2 levels, maturity)
6	
7	
8	
9	
10	
11	

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the European Union

Q3 :

ID	Q3. What secondary products/by-products are currently being generated in your representative region?
1	electricity
2	Heating
3	Bio-gas
4	Bio-fertilizers
5	Bio-cyclic Humus-soil
6	Bio-cyclic straws
7	
8	
9	
10	
11	
12	

Q4 :

ID	Q4. What are your representative region's processing needs regarding primary and secondary resources? (identified needs should be ranked from high to low)
1	Need for collaboration with other sectors in order to avoid contamination of residue bio-mass with micro-plastics, petrol residue and other foreign matter
2	A system (i.e. public funding body, leasing model etc) for wide availability of processing technology and know-how to farmers
3	Piloting/demonstration/experimental schemes and educational purposes
4	Education on specific treatment protocols for the quality of the bio-mass streams that is intended for cyclic use.
5	Wool processing technology for use in agriculture
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Q5.1

ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of farm size of the
1	1.00-10.00
2	0.50-20.00
3	0.50-4.50
4	
5	
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Q5.2

ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of forest size of the
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Q5.3_r

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data:	
1	542,312.40	C. Macedonia
2	187,778.30	W.Macedonia
3	334,672.10	Crete
4	84,700.00	Messinia
5		
6		
7		
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9		
10		

Q5.4_r

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data:	
1	90,949.10	fruit tree farms/olive groves
2	6,893.80	
3	134,710.70	
4	181,889.30	
5		
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Q5.5_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data:	
1	533.30	green house vegetables
2	16.70	
3	1,550.90	
4	340.00	
5		
6		
7		
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9		
10		

Q5.6_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data:	
1	43,500.00	chestnuts total in Greece
2		
3		
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Q6.1.1

ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the short-term time (2 years) to implement a technology or practice that would help them process their current resources into bio-
1	10,000.00
2	15,000.00
3	7,000.00
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Q6.2.1

ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the long-term time (5 years) to implement a technology or practice that would help them process their current resources into bio-
1	37,500.00
2	30,000.00
3	30,000.00
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Q7_t

ID	Q7. What return on investment period (number of years) is acceptable for investment in a bio-based technology? Please provide an average value of FAN and a range of values (years).
1	9
2	9
3	8.5
4	9
5	
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Q8.1_t

ID	Q8. What key stakeholders are you currently interacting/collaborating with?
1	MACC
2	KAEM Living Lab
3	EKETA
4	ROBOCOOP-EU
5	BioCycle Hummus Hub
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Q8.2_t

ID	Q8. Nature of collaboration: e.g. advisory
1	General
2	Innovation-co-creation
3	research
4	EU project
5	advisory
6	

Q8.3_t

ID	Q8. Type of collaboration: open or closed to new members or partners.
1	closed
2	open
3	open
4	open
5	open
6	

Q9_t

ID	Q9. Where do you go for information in your region?
1	Advisory services/extension
2	Technology providers
3	Peers/social networks
4	Youtube channels/other social media communities
5	EU portals and publications
6	

Q10_t		Q11_t		Q12_t	
	Q10. What are the most significant environmental impacts in the region worrying your sector (forest/agriculture)?	ID	Q11. What ideas do you have for involving women, the unemployed, and the youth in this area?	ID	Thinking about the current resources and needs identified, what improvements could be implemented to make the process more circula
	ıent	1	give incentives for young people to stay in rural areas	1	Improvement of the high financial burdens of processing
		2	allow more women to take active roles in agriculture	2	Establishment of pilots/experimental/demonstration schemes
	ures / temperatures remaining high during winter	3		3	
	soil erosion	4		4	
		5		5	
		6		6	
		7		7	
		8		8	
		9		9	
		10		10	
		11			

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	Q13_t
ID	Do you know of a more circular approach/technology that will help your RR work in a more circular way?
1	there are such technologies but a professional farmer will usually rely on known methods due to financial risks involved in new practices
2	
3	
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5.2.2 Information for the “TranslateTables” sheet.

FAN Country:	Greece
FAN Region:	Greece

SECTION 1 - TRANSLATION OF VALUES FROM DROPDOWN FIELDS IN THE BBIONETS INVENTORY

T1.1_t

Q1 Answers	Reference sector
Chestnut skin	A1.6Support activities to agriculture and post-harvest crop activities
Greenhouse Vegetable Plant biomass	A1.1Growing of non-perennial crops
Olive and olive oil-production biomass and prunings	A1.2Growing of perennial crops
Sheep wool	A1.4Animal production
Prunings and grass from fruit trees	A1.2Growing of perennial crops
Stone-fruit residue	A1.6Support activities to agriculture and post-harvest crop activities

T1.2_t

Q1 Answers	Key Word
Chestnut skin	Circular economy, incl. waste, by-products and residues
Greenhouse Vegetable Plant biomass	Greenhouse crops
Olive and olive oil-production biomass and prunings	Circular economy, incl. waste, by-products and residues
Sheep wool	Farm diversification
Prunings and grass from fruit trees	Circular economy, incl. waste, by-products and residues
Stone-fruit residue	Circular economy, incl. waste, by-products and residues

T1.3_t

Q1 Answers	Categories
Chestnut skin	Crop residues and perennial plants F1
Greenhouse Vegetable Plant biomass	Crop residues and perennial plants F1
Olive and olive oil-production biomass and prunings	Crop residues and perennial plants F1
Sheep wool	Crop residues and perennial plants F1
Prunings and grass from fruit trees	Crop residues and perennial plants F1
Stone-fruit residue	Crop residues and perennial plants F1

DRAFT

T1.5_t

1 Answers	Feedstock
:in	Biomass residues
Greenhouse Vegetable Plant biomass	Biomass
Olive and olive oil-production biomass and prunings	Biomass
l	Biomass
Prunings and grass from fruit trees	Biomass
residue	Biomass residues

Q1 Answers	Value chains
Chestnut skin	
Greenhouse Vegetable Plant biomass	
Olive and olive oil-production biomass and prunings	
Sheep wool	
Prunings and grass from fruit trees	
Stone-fruit residue	

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In these cells, we are interpreting the drop-down options are low, medium, or high potential of carbon sequestration as low, medium, or high potential of **carbon emissions**. The wording of the drop-down cells does not reflect this because of how the tool works.

T8.1_t *T8.2_t* *T8.3_t*

Q8.1 Answers: key stakeholders	Nature of collaboration	Type of collaboration	Type of partners
MACC	General	Closed	
KAEM Living Lab	Innovation-co-creation	Open	
EKETA	Research	Open	Researcher
ROBOCOOP-EU	EU project	Open	
BioCycle Hummus Hub	Advisory	Open	Advisor

T10.1_t

Q10 Answers	C Sink
Water management	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Soil health	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Rising temperatures / temperatures remaining high during winter	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Desertification/soil erosion	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).

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In these cells, we are interpreting the drop-down options are low, medium, or high potential of environmental benefits as low, medium, or high potential of **environmental impacts**. The wording of the drop-down cells does not reflect this because of how the tool works.

T10.2_t

Q10 Answers	Envi Sustainability
Water management	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Soil health	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Rising temperatures / temperatures remaining high during winter	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Desertification/soil erosion	3 - High potential - Expected to bring at least 3 significant environmental benefits.

T11_t

Q11 Answers	Socio Sustainability
Give incentives for young people to stay in rural areas	2 - Medium potential -Expected to bring 2 or 1 social benefits.
Allow more women to take active roles in agriculture	2 - Medium potential -Expected to bring 2 or 1 social benefits.

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SECTION 2 - ADDING EXTRA INFORMATION TO TRANSLATE VALUES FROM WORKSHOP AWNSERS

T5.3_t

Q5.3 Answers. National statistics data, Average fa	Biomasses identified from Q1	Avg. yearly yield of bio	Estimated Avg. tonnes	Source of information
542,312.40	Chestnut skin		-	
187,778.30	Greenhouse Vegetable Plant biomass		-	
334,672.10	Olive and olive oil-production biomass and prunings		-	
84,700.00	Sheep wool		-	
-	Prunings and grass from fruit trees		-	
-	Stone-fruit residue		-	
-			-	
-			-	
-			-	
-			-	

T5.4_t

Q5.4 Answers. Na	Biomasses identi	Avg. yearly yield of biomasses per forest	Estimated Avg. tonnes of biomass per for	Source of information
90,949.10	Chestnut skin		-	
6,893.80	Greenhouse Vegetable Plant biomass		-	
134,710.70	Olive and olive oil-production biomass and prunings		-	
181,889.30	Sheep wool		-	
-	Prunings and grass from fruit trees		-	
-	Stone-fruit residue		-	
-			-	
-			-	
-			-	
-			-	

SECTION 3 - TRANSLATION OF VALUES FROM NARRATIVE SYNTHESIS FIELDS IN THE BBIONETS INVENTORY

T2.1_t

Q2 Answers	Key word to find in "Description BBT"
Municipal units of household biomass processes	compost
Composting Units for plant residues	compost
Aerobic and anaerobic processing equipment	processing
Bio-stimulants that support the composting proce	bio-stimulants
Sensors for detecting the status of the compostin	sensors

T2.2_t

Q2 Answers	Key word to find in "Intended user / conditions of access"
Municipal units of household biomass processes	
Composting Units for plant residues	
Aerobic and anaerobic processing equipment	
Bio-stimulants that support the composting process	
Sensors for detecting the status of the composting material (temperature, CO2 levels, maturity)	

T3_t

Q3 Answers	Key word to find in "Outcomes and final product"
Electricity	
Heating	
Bio-gas	
Bio-fertilizers	
Bio-cyclic Humus-soil	
Bio-cyclic straws	

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5.2.3 Information for the “Weight” sheet

Workshop answers regarding processing needs (as visual reference only)			Inventory answers to BBTs needs/problems statement		Manually add weight to BBTs after reading the workshop anwsers
W4_t					
ID	Q4. What are your representative region’s processing needs regarding primary and secondary resources? (identified needs should be ranked from high to low)		BBT CODES	BBT NEEDS/PROBLEM STATEMENT	Weight
1	Need for collaboration with other sectors in order to avoid contamination of residue bio-mass with micro-plastics, petrol residue and other foreign matter		IE10-Biorefinery Glas/GLAS	To improve the sustainability, value and resource efficiency of Ireland’s livestock sector through farmer diversification into the bioeconomy and to assess the potential role of grass biorefinery in supporting sustainable and resilient communities in rural Ireland.	-1
2	A system (i.e. public funding body, leasing model etc) for wide availability of processing technology and know-how to farmers		IT11-FABER/FABER	Forest biomass and its management to address climate change and GHG emissions.	-1
3	Piloting/demonstration/experimental schemes and educational purposes		FI12-ForestChip4Farm/FC4FH	Preventing climate change, increasing bioenergy in rural areas, decreasing CO2 emissions from farms and the food chain, promoting a sustainable food chain, and developing new innovations and products.	-1
4	Education on specific treatment protocols for the quality of the bio-mass streams that is intended for cyclic use.		DE13-Lignocellulosic Biorefinery/LIGNO	To valorize the lignocellulosic residues (meadow grass) from farms in a sustainable way.	-1
5	Wool processing technology for use in agriculture		EL14-BIO2CHP/B2CHP	bypasses technical limitations & allows the use of residual biomass for small-scale & on-site energy production	-1
6		0	IT15-Scarabeo/HMP2C	There is a need for sustainable and efficient methods in the hemp supply chain to increase quality, valorize and reduce energy consumption.	1
7		0	HU16-REFERTIL/3RZRO	Recycling and valorization of un-exploited farm and animal by-products	-1
8		0	IT17-Mountain Carbon/MNTNC	to help improve the management of the organic matter (OM) from dairy cattle manure in the mountain areas	-1
9		0	EE18-Hay Biosyngas/HAYBG	a cost-effective and efficient way to produce bio-coal from late harvested hay pellets to benefit small and medium-sized entrepreneurs	-1
10		0	FI19-Wood2Biogas/Wd2BG	to produce and use the gasification gas to boost methane formation in the biogas process, and simultaneously produce biochar, and the use of woody materials in biogas energy production without increasing the amount of digestate from the biogas process	-1
11		0	IT20-Clean-ER/CLINR	The accumulation of low economic value woody/shrub biomass in mountain areas poses a significant threat as it increases the risk o	-1
			FR21-SeCoPPA /ALFLF	challenges in efficiently drying alfalfa for animal feed, and a need to utilize manure and shredded wood from hedgerows	-1
			IE22-BBFB/CHAR	The unutilised biomass is left to decay which returns carbon dioxide to the atmosphere while also control of vegetation, by herbicid	-1
			IE23-SBDP/BGAS	The intensification of Irish agriculture, particularly in dairying, has raised concerns about its environmental impact as it is a significan	-1
			DE24-GrassBiowert/BWERT	Displacement of fossil based products with bio-based alternatives, while offering rural diversification opportunities.	-1
			BE25-Grassification/GRSFY	Valorization of roadside grass clippings and improving its digestion with other feedstock, as monodigestion of grass can be technical	-1
			FR26-Pyrogreen/PYROG	A bio-based technology that supports valorizing, recycling and recovering of resources by providing a versatile and easy to implemer	-1
			DE27-GO-GRASS/GOGRS	The grass from protected wetland areas in the polder meadows is heterogeneous, in parts strongly lignified (rigid) and its nutritiona	-1
			NL28-GO-GRASS/GOGRS	Low quality natural and roadside grass are used for low added value applications such as compost which also includes costs associate	-1
			DK29-GO-GRASS/GOGRS	The conversion of annualcrops such as maize, rapeseed and cereals into grassland can significantly reduce nitrate leaching under EU	-1
			PT30-Spawnfoam/SPAWN	changing the paradigm of production and consumption of fossil-based composites and materials, such as plastics, by providing an inr	-1
			DE31-MixBioPells/PLTIZ	Since nowadays wood is getting more scarce caused by the growing demand in material and the energetic use, alternative solid biof	1
			DE32-MixBioPells/PLTHP	in Europe small-scale combustion units (20 to 200 kW) are used almost only with high quality wood fuels, and nowadays wood is gett	1
			DE33-BIOlution/BIOLT	Agricultural waste such as tomato and wheat wastes are not used, which has an environmental impact and a management cost for th	-1
			FR34-GRANUL'HAIE/WdPLT	To enhance the value of local raw materials to meet the increasing demand from consumers who are interested in buying local prod	-1
			ES35-Bioferti+/BFTZ+	Waste recovery of cattle manure and other organic waste, to increase the biological and physical-chemical quality of agricultural soil	-1
			NL36-ManurePellet/MnPLT	a higher percentage of organic matter, a better soil structure and more binding of nutrients in the soil, a problem is formulated for a	-1
			IT37-BIOECO_FLIES/W2BSF	to valorize agrifood biomass beyond the typical low added value applicaitons such as fertilizer or biomass for digesters	-1
			DK38-Macrofuels/CWEED	There is an undisputed and urgent need to decarbonise the European transport sector and seaweed can be a sustainable bio-based f	-1
			IT39-Res4Carbon/RES4C	to define the best practices to guarantee maximum technical, economic and environmental efficiency in the processing, handling an	-1
			FR40-SIVABA/WdPwr	The need to better articulate the various links in the wood energy sector in order to increase its visibility vis-à-vis potential consume	-1
			BE41-BierbeekCHIP/Wd2CN	to valorise the woody material coming from the municipal hollow roads and the wood edges after shredding on the local fields of Bi	-1
			LT42-cogeneration residue/Res2F	a need to develop a production technology for a new type of fertilizer using wood ashes and digestate	-1
			IT43-CAREGA/4COAL	a gradual abandonment of the forests and a progressive decrease in commercial relations between forest owners, forestry companie	-1
			IT44-COBRAF/COBRA	develop an articulated system of biorefineries that allows maximum exploitation of the biomass of oil crops (hemp, safflower, flax	-1
			IT45-Stabilized Litter/StbMn	the impact of stabilized litter obtained from the solid/liquid separation of slurry subjected to a process of sanitation and stabilizatio	-1
			IT46-BIOACTAM/BIOAA	to develop and validate a new generation of products, based on the partial pyrolysis of ligno-cellulosic biomass deriving from forest	-1
			PT47-GOEfluentes /GoEFt	increase the efficiency of water and nutrient utilization, reduce the environmental impact of farming and add value to agricultural w	-1
			ES48-INCREdible/RESIN	addressing challenges faced by resin as a non-wood forest product	-1
			LV49-WoodResiduelV/W2IHF	developing innovative technological solutions to reclamation of wood processing by-products, further processing and adding value t	-1
			IT50-RBR-EAS/BCH4R	using different residual biomass with energy purposes (biofuel production), agricultural (production of fertilizer) and food (dietary s	-1

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AT-Closing cycles/NTREC	Farms need a reasonably closed nutrient cycle to recover energy and resources	-1
PL-BIOGAL/BIOGL	Livestock sector has several challengesbecause of the management of theresources and wastes produced. Manure isone of the bigge	-1
ES-LIFE Smart Fertirrigation/FRTGN	pig meat production generates large amounts of manure leading to important environmental problems and many anaerobic digestio	-1
BE-DIGESMART /DIGST	Biogas production is efficient at reducing agricultural emission by converting the biomass into electricity and thermal energy (cogen	-1
NL-VORTEX/VORTX	Manure stripping innovation for efficiency and cost	-1
NL-Manure Evaporation/EVAPR	Different manure processing techniques are already available and the thick fraction can be well tolerated. However, the reduction o	-1
DE-Manure Efficiency/MNURE	to develop a procedure for liquid slurry processing for agricultural enterprises, with which slurry and manure can be used to produce	-1
SE-Manure Refining/MNRRF	to produce concentrated, transport-efficient fertilizers from biogas plant that produces large amounts of digested manure, as well as	-1
BE-HIATUS/WATER	Almost every year, farmers face water shortages due to drought. Therefore, they are looking for alternatives for this valuable water,	-1
ES-GO IMECO/PgSLR	slurry management and treatment system for ensuring the product generated in pig farms is more competitive and has a lower envir	-1
FI-LEX4BIO/BBFRT	reducing dependency on mineral and fossil-based fertilizers by optimizing the use of bio-based fertilizers (BBFs)	-1
IT-ProBEST/BARK	In the production of forest wood fuels, the presence of bark and twigs must be limited. these can be chipped and delivered, essentia	-1
IT-ProBEST/ASHES	In the production of forest wood fuels, the incombustible elements (ash) must be limited. these can be delivered, essentially at cos	-1
IT-FiLeProPri/WSC	Face the problem of the socio-economic marginality of wood production in private property.	-1
IT-ROSAEXTREM/NRH	Encourage the restructuring of farms with structural problems considerable	-1
IT-M.ER.LI.n/MERL	Analyze needs of partner companies to identify implementation opportunities innovative solutions that are energetically sustainabl	-1
IT-INNOVABIOZOO/INZOO	The project consists of a series of actions divided into the following areas work: preparatory phase, coordination and animation, ado	-1
ES-AgriCarbón/AC	In Andalusia, agricultural activities play an important role in the socio-economic development which generates contamination in sup	-1
ES-AGUACAVALUE/BYPRO	Promotes possible alternatives for the valorisation of avocado by-products by studying the characterisation of their nutritional profil	-1
ES-AGUACAVALUE/AVOCA	Spain concentrates the 93% of the avocado production in Europe. Malaga and Granada (Andalusian provinces) have the 88% of the to	-1
ES-CHERRY4FOOD/CHERR	There is a need for the processing industries of tomato products (gazpacho and salmorejo) to utilise the by-products generated in th	-1
ES-TOMATOGROUP/TOMAT	There is a need for valorisation of the tomato chopping which currently is a residue with no value.	-1
ES-BIOSUERO/WHEY	In Andalusia, it is produced a large quantity of milk whey every year. From 10 L of milk, it is obtained 1 kg of cheese and 9 L of whey. T	-1
ES-Biochar/BIOCH	The project is mainly focused on the Western Coast of Huelva (Ayamonte, Isla Cristina, Lepe, Cartaya, Gibraleón, Punta Umbría and A	1
ES-BIORUMIOLI/FEED	Need to increase the profitability of livestock farms and create an alternative for the olive oil industry by achieving a more efficient	1
ES-OleoValoriza/OLIVE	The olive-mill waterwaste constitute one of the most important environmental problems in olvie cooperatives, since they are chara	1
ES-OleoValoriza/OLIV2	The reuse and recovery of olive by-products are essential to reduce environmental pollution and contribute to increasing the efficie	1
CZ-TJ02000130/	Among the difficult tasks are the application of fugate (a by-product of biogas production) and the dependence on peat (a non-renev	-1
CZ-QK1920328/	The progressive large-scale decay of spruce stands affecting many areas in the Czech Republic can hardly be prevented and we have	-1
CZ-QK1920214/	The issue of protecting water resources while maintaining the competitiveness of agricultural production in their vicinity is quite cor	-1
CZ-TH03030319/	Efficient use of processed field by-products.	-1
CZ-QK1710379/	Use of sewage sludge as a valuable waste raw material in agriculture.	-1
CZ-TH02030681/	The establishment of field crops (maize) is currently carried out in the form of monoculture. This causes surface runoff of rainwater a	-1
CZ-TH02030925/	Increasing the composting rate, especially when processing bulky materials (urban green waste, sludge), which are increasingly proc	-1
CZ-SS06020282/	Conventional mechanical recycling of biopolymers is currently not a technologically feasible process, as their products often end up	-1
CZ-TK04010166/	There is a need to update biomass potential in the light of changing factors affecting land use and biomass yields, including updating	-1
CZ-FW06010358/	Reduction of the consumption of liquid substances (including liquid fertilisers) per unit area, in particular better use of these substa	-1
EL11-HIPO-ENERGY/NUTRI	- management of Hippophae leaves, which are cultivated only for the harvesting of the fruit- existing studies highlight the nutritiona	-1
EL12-ΑΕΙΦΟΡΙΚΑ ΚΗΠΕΥΤΙΚΑ/OREG	control of downy mildew (caused by soil fungi with negative effects in the production) in the context of the circular economy and th	-1
EL13-OLIHERB/OLIVE	management of the significant quantities of olive leaves produced as by-products during cultivation (pruning), harvesting of olives a	1
EL14-BioAnimalChar/PIG	cost and quality of pig feed	1
EL15-COMPOST-INNO/COMPO	- lack of sufficient amounts of organic waste in the cultivation sites - distance of the sources of organic matter from the places of proc	-1
EL16-Compo - Laventer/COLAV	increase of the production and the quality of lavender oil	-1
EL17-AGROSCHOOLBUS.BIO/RESOL	Sustainable management of the residues (branches and leaves), pruning of the olive tree (and other productive trees).	1
EL18-SoilCircle/	Due to the negative effects on crop growth and the environment from the use of synthetic fertilisers, it is recommended to apply soi	-1
EL19-ΥΓΕΙΑΡΤΟΣ/YOGO	Exploitation of both goat milk and espresso coffee residues	-1
EL20-Innovative Rice Residue Management Practic	Handling plant residues remaining in the rice fields after harvesting. Their burning was banned because of the reduction in organic m	-1
EL21-ΕΛΑΙΩΝΑΣ/OLFER	Management of waste and wastewater generated during the olive farming and olive oil production processes	1
PL91-OrzechDębu/ACORN	Changing trends in consumer attitudes and food preferences towards reducing the consumption of meat and animal products. The ve	1
PL93-GRIST/GRIST	Organic grain production and processing of brewery residues into meal, using an innovative dehydration method	-1
pl94-Owoce 4.0/Owoce 4.0	Development of technology dedicated to currant plantations	-1

5.3 Ireland

5.3.1 Information for the “Workshop Answers” sheet.

FAN Country:	Ireland
FAN Region:	Ireland

Q1_t

ID	Q1. What are the primary or secondary resources available in your representative region?
1	Cattle slurry
2	Tree branches
3	Food waste
4	Poultry manure
5	Pig manure
6	Horticultural waste e.g plant biomass from mushrooms and tomato crops
7	Digestate from AD plants
8	Dairy sludge
9	Brewers sludge
10	Brewers grains
11	Straw
12	Poultry ash
13	Bone meal
14	De-barked timber from processing
15	Saw dust
16	Pine cones
17	Rushes and gorse
18	Green manures e.g cover crops
19	Dairy washings
20	Flue gas from manufacturing plants
21	Food-chain losses i.e sub grade vegetables

Q2_t

ID	Q2. What processing equipment is currently being used in your representative region?
1	Anaerobic digestion plants
2	separators
3	Pyrolysis Biochar kilns
4	Debarkers
5	Mixing equipment for poultry and farmyard manures
6	Plant associated with poultry manure manufacture:
7	Centrifuge (separators)
8	Air dryers (steriliser)
9	Air coolers
10	Pelletisers
11	

Q3_t

ID	Q3. What secondary products/by-products are currently being generated in your representative region?
1	biogas
2	struvite
3	Separated slurry, solid and liquid fractions
4	Inoculated slurry
5	Incinerated poultry manure ash
6	Bespoke bi-product fertilisers
7	Ash from incinerated brewers' grains
8	Biofertilizer, sewage mixed with lime
9	Recycling of crop residues, e.g straw chopping and potato tops
10	Mushroom compost
11	

Q4_t

ID	Q4. What are your representative region's processing needs regarding primary and secondary resources? (identified needs should be ranked from high to low)
1	Incinerators for wood by-product ashes generation
2	Mulchers and chippers for wood by-products
3	Greater number of anaerobic digesters
4	
5	
6	
7	
8	
9	
10	
11	

Q5.1_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of farm size of the stakeholders which FAN members interact with (ha): e.g. 10 – 400 ha
1	10.00-400.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.2_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of forest size of the stakeholders which FAN members interact with (ha):
1	2.00-25.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

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Q5.3_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average farm size (ha):
1	32.4
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.4_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average forest size (ha):
1	7.4
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.5_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total farmed area (ha):
1	4,900,000.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.6_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total forest area (ha):
1	808,000.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

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Q6.1_t

ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the short-term time (2 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €
1	€ 37,500.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q6.2_t

ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the long-term time (5 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €
1	€ 32,500.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q7_t

ID	Q7. What return on investment period (number of years) is acceptable for investment in a bio-based technology? Please provide an average value of FAN and a range of values (years).
1	3
2	4
3	5
4	1
5	10
6	
7	
8	
9	
10	

Q8.1_t

ID	Q8. What key stakeholders are you currently interacting/collaborating with?
1	Teagasc
2	Farmer
3	EPA
4	DAFM
5	University students
6	Organic certification bodies
7	Coillte
8	Manufacturers of bio-based fertilisers
9	Waste processors
10	

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Q8.2_t

ID	Q8. Nature of collaboration: e.g. advisory
1	advisory
2	Advice
3	Licensing & regulatory permission
4	Project funding
5	Education
6	Certification advice
7	Provision of raw materials
8	
9	
10	

Q8.3_t

ID	Q8. Type of collaboration: open or closed to new members or partners.
1	Open
2	Open
3	Open
4	Open
5	Open
6	Open
7	Open
8	Open
9	Open
10	

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Q9_t

ID	Q9. Where do you go for information in your region?
1	advisory services
2	other farmers
3	Internet
4	Department of Agriculture, Food and the Marine -
5	Certification bodies
6	Pilot farms
7	EIPs
8	Lighthouse demos
9	County Council
10	Teagasc Open Days
11	National Ploughing Championships
12	Farm supply merchants – technical sales teams
13	Agronomists
14	Organic certification bodies
15	Organic trust
16	Social media (X, LinkedIn, etc)
17	Media (Agriland, Farmers Journal, Radio)

Q10_t

ID	Q10. What are the most significant environmental impacts in the region worrying your sector (forest/agriculture)?
1	Trade-off between maximising efficiency and excessive removal of biomass from forestry
2	Caution to be exercised in the wise use of bio-based fertilisers. I.e. matching application rates to crop demand
3	Need for faster analysis of nutrient constituents in bio-based fertilisers
4	Carbon sequestration
5	Lower carbon footprint associated to bio-based fertilisers
6	
7	
8	
9	
10	

Q11_t

ID	Q11. What ideas do you have for involving women, the unemployed, and the youth in this area?
1	Youth – Young Scientists Exhibition
2	Citizen science
3	Local development
4	Leaving certificate agricultural science projects
5	EIP projects
6	Green agenda linked to youths
7	Balancing for gender in groups
8	LEADER funds
9	County council
10	Library
11	Local enterprise board

Q12_t

ID	Thinking about the current resources and needs identified, what improvements could be implemented to make the process more circul
1	Making processes more circular
2	slurry separation
3	root harvesting equipment
4	biomass
5	
6	
7	
8	
9	
10	

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Q13_t

ID	Do you know of a more circular approach/technology that will help your RR work in a more circul way?
1	Improved machinery to collect branches, needles/leaves, and other wood-biomass after thinning and felling.
2	Machines to process hemp straw to make fibre.
3	Anaerobic Digestion (AD) plants for shared storage of biomaterials and the production of biomethane
4	Regionally funded shared technology and infrastructure
5	Smaller and more adaptable processing technology
6	Machinery co-operative systems
7	
8	
9	
10	

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5.3.2 Information for the “TranslateTables” sheet.

FAN Country:	Ireland
FAN Region:	Ireland

SECTION 1 - TRANSLATION OF VALU

TITLE

Q1 Answers	Reference sector
Cattle slurry	A1.4Animal production
Tree branches	A2.1Silviculture and other forestry activities
Food waste	A1.6Support activities to agriculture and post-harvest crop activities
Poultry manure	A1.4Animal production
Pig manure	A1.4Animal production
Horticultural waste e.g plant biomass from mushrooms and tomato crops	A1.1Growing of non-perennial crops
Digestate from AD plants	A1.6Support activities to agriculture and post-harvest crop activities
Dairy sludge	A1.6Support activities to agriculture and post-harvest crop activities
Brewers sludge	A1.6Support activities to agriculture and post-harvest crop activities
Brewers grains	A1.1Growing of non-perennial crops
Straw	A1.1Growing of non-perennial crops
Poultry ash	A1.6Support activities to agriculture and post-harvest crop activities
Bone meal	A1.6Support activities to agriculture and post-harvest crop activities
De-barked timber from processing	A2.1Silviculture and other forestry activities
Saw dust	A2.1Silviculture and other forestry activities
Pine cones	A2.1Silviculture and other forestry activities
Rushes and gorse	A2.3Gathering of wild growing non-wood products
Green manures e.g cover crops	A2.3Gathering of wild growing non-wood products
Dairy washings	A1.6Support activities to agriculture and post-harvest crop activities
Flue gas from manufacturing plants	A1.6Support activities to agriculture and post-harvest crop activities
Food-chain losses i.e sub grade vegetables	A1.6Support activities to agriculture and post-harvest crop activities

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BBIONETS INVENTORY

Q1 Answers	Key Word
Cattle slurry	Animal husbandry
Tree branches	Forestry
Food waste	Supply chain, marketing and consumption
Poultry manure	Animal husbandry
Pig manure	Animal husbandry
Horticultural waste e.g plant biomass from mushrooms and tomato crops	Arable crops
Digestate from AD plants	Supply chain, marketing and consumption
Dairy sludge	Water
Brewers sludge	Supply chain, marketing and consumption
Brewers grains	Supply chain, marketing and consumption
Straw	Arable crops
Poultry ash	Supply chain, marketing and consumption
Bone meal	Supply chain, marketing and consumption
De-barked timber from processing	Forestry
Saw dust	Forestry
Pine cones	Forestry
Rushes and gorse	Biodiversity and nature
Green manures e.g cover crops	Crop rotation/crop diversification/dual-purpose or mixedcropping
Dairy washings	Water
Flue gas from manufacturing plants	
Food-chain losses i.e sub grade vegetables	Supply chain, marketing and consumption

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T13_t

Q1 Answers	Categories
Cattle slurry	Waste or recycled material FC
Tree branches	Waste or recycled material FC
Food waste	Waste or recycled material FC
Poultry manure	Waste or recycled material FC
Pig manure	Waste or recycled material FC
Horticultural waste e.g plant biomass from mushrooms and tomato crops	Waste or recycled material FC
Digestate from AD plants	Biorefineries C2
Dairy sludge	Biorefineries C2
Brewers sludge	Biorefineries C2
Brewers grains	Biorefineries C2
Straw	Crop residues and perennial plants F1
Poultry ash	Biorefineries C2
Bone meal	Biorefineries C2
De-barked timber from processing	Waste or recycled material FC
Saw dust	Waste or recycled material FC
Pine cones	Waste or recycled material FC
Rushes and gorse	Crop residues and perennial plants F1
Green manures e.g cover crops	Crop residues and perennial plants F1
Dairy washings	Biorefineries C2
Flue gas from manufacturing plants	Biorefineries C2
Food-chain losses i.e sub grade vegetables	Waste or recycled material FC

T14_t

Q1 Answers	Feedstock
Cattle slurry	Wastes
Tree branches	Biomass residues
Food waste	Wastes
Poultry manure	Wastes
Pig manure	Wastes
Horticultural waste e.g plar	Wastes
Digestate from AD plants	Wastes
Dairy sludge	Wastes
Brewers sludge	Wastes
Brewers grains	Wastes
Straw	Biomass residues
Poultry ash	Biomass residues
Bone meal	Biomass residues
De-barked timber from prc	Biomass residues
Saw dust	Biomass residues
Pine cones	Biomass residues
Rushes and gorse	Biomass
Green manures e.g cover	Biomass
Dairy washings	Wastes
Flue gas from manufacturi	Wastes
Food-chain losses i.e sub	Wastes

T15_t

Q1 Answers	Value chains
Cattle slurry	3 - High potential - Significant arisings of feedstocks available currently.
Tree branches	2 - Medium potential - Significant availability of feedstocks available by 2035.
Food waste	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Poultry manure	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Pig manure	2 - Medium potential - Significant availability of feedstocks available by 2035.
Horticultural waste e.g plant bioma	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Digestate from AD plants	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Dairy sludge	3 - High potential - Significant arisings of feedstocks available currently.
Brewers sludge	2 - Medium potential - Significant availability of feedstocks available by 2035.
Brewers grains	2 - Medium potential - Significant availability of feedstocks available by 2035.
Straw	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Poultry ash	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Bone meal	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
De-barked timber from processing	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Saw dust	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Pine cones	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Rushes and gorse	2 - Medium potential - Significant availability of feedstocks available by 2035.
Green manures e.g cover crops	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Dairy washings	3 - High potential - Significant arisings of feedstocks available currently.
Flue gas from manufacturing plant:	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Food-chain losses i.e sub grade ve	2 - Medium potential - Significant availability of feedstocks available by 2035.

T8.1_t T8.2_t T8.3_t

Q8.1 Answers: key stakehold	Nature of collaboration	Type of collaboration	Type of partners
Teagasc	Advisory	Open	Advisor
Farmer	Advice	Open	Farmer
EPA	Licensing & regulatory permission	Open	Public Authority + LAG
DAFM	Project funding	Open	Public Authority + LAG
University students	Education	Open	Training organization
Organic certification bodies	Certification advice	Open	Advisor
Coillte	Provision of raw materials	Open	Forester
Manufacturers of bio-based fertilis		Open	Processor or retailer
Waste processors		Open	Processor or retailer

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	In these cells, we are interpreting the drop-down options are low, medium, or high potential of carbon sequestration as low, medium, or high potential of **carbon emissions**. The wording of the drop-down cells does not reflect this because of how the tool works.
Q10 Answers	
Trade-off between maximising efficiency and excessive removal of biomass from forestry	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
Caution to be exercised in the wise use of bio-based fertilisers. I.e. matching application rates to crop demand	1 - Low potential - low potential for carbon sequestration
Need for faster analysis of nutrient constituents in bio-based fertilisers	1 - Low potential - low potential for carbon sequestration
Carbon sequestration	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Lower carbon footprint associated to bio-based fertilisers	1 - Low potential - low potential for carbon sequestration

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In these cells, we are interpreting the drop-down options are low, medium, or high potential of environmental benefits as low, medium, or high potential of **environmental impacts**. The wording of the drop-down cells does not reflect this because of how the tool works.

T10.2_t

	Envi Sustainability
Trade-off between maximising efficiency and excessive removal of biomass from forestry	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
Caution to be exercised in the wise use of bio-based fertilisers. I.e. matching application rates to crop demand	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
Need for faster analysis of nutrient constituents in bio-based fertilisers	1 - Low potential - doesn't bring any environmental benefits.
Carbon sequestration	1 - Low potential - doesn't bring any environmental benefits.
Lower carbon footprint associated to bio-based fertilisers	1 - Low potential - doesn't bring any environmental benefits.

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Tit_c

Q11 Answers	Socio Sustainability
Youth - Young Scientists Exhibition	3 - High potential - Expected to bring at least 3 significant social benefits.
Citizen science	2 - Medium potential -Expected to bring 2 or 1 social benefits.
Local development	3 - High potential - Expected to bring at least 3 significant social benefits.
Leaving certificate agricultural science projects	2 - Medium potential -Expected to bring 2 or 1 social benefits.
EIP projects	1 - Low potential - doesn't bring any social benefits.
Green agenda linked to youths	1 - Low potential - doesn't bring any social benefits.
Balancing for gender in groups	1 - Low potential - doesn't bring any social benefits.
LEADER funds	1 - Low potential - doesn't bring any social benefits.
County council	3 - High potential - Expected to bring at least 3 significant social benefits.
Library	1 - Low potential - doesn't bring any social benefits.
Local enterprise board	2 - Medium potential -Expected to bring 2 or 1 social benefits.

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		Check if the field "Processing capacity", colum AO, in the Inventory_copy sheet is in T/Day. If that is not the case, please convert the answer in the field to T/Day.		
75.3_t				
Q5.3 Answers. National statistics da	Biomasses identified from Q1	Avg. yearly yield of biomasses per hectare (f	Estimated Avg. tonnes of biomass per far	Source of information
32.40	Cattle slurry	10.80	0.0959	Average cattle per farm: 70. (https://www.cso.ie/en/releasesandpublications/ep/p-coal/censusofagriculture2020-preliminaryresults/livestock/) Average farm hectare: 32.4 ha. (workshop answers) Average slurry production per housed period per cattle: 5t (https://www.teagasc.ie/media/website/publications/2020/Manure-Management-Practices-Report.pdf and unpublished InformBio work)
-	Tree branches		-	
-	Food waste		0.1200	120 kg of food waste per household or 44 kg per person (that's about half the weight of a full brown bin). https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/food/
-	Poultry manure	0.49	0.0044	Average cattle per farm: 2k. (https://www.cso.ie/en/releasesandpublications/ep/p-coal/censusofagriculture2020-preliminaryresults/livestock/) Average farm hectare: 32.4 ha. (workshop answers) Average litter production per housed period: 8kg (T. Hennessy, "The Economic Importance of the Poultry (Meat and Egg) Sector in Ireland," UCC, 2019)
-	Pig manure	23.26	0.2064	Average cattle per farm: 1.1k. (https://www.cso.ie/en/releasesandpublications/ep/p-coal/censusofagriculture2020-preliminaryresults/livestock/) Average farm hectare: 32.4 ha. (workshop answers) Average litter production per housed period: 685kg (unpublished InformBio work)
-	Horticultural waste e.g plant biomass from mus	71.25	0.6324	Unpublished InformBio work
-	Digestate from AD plants	145,000.00	19.86	number of AD plants: 20 (https://www.energyireland.ie/the-irish-biomethane-sector-requires-policy-and-action-to-mobilise/#:~:text=AD%20technology%20can%20be%20deployed,industry%20in%20many%20European%20countries.) Average digestate produced: 145000 tonnes (Major new AD plant on the way to Kildare Kildare County Council has given the green light to Ireland's biggest non-waste AD plant, which will use 165,000 tonnes of spent brewers' and distillers' grain and crops to produce biomethane. https://www.farmersjournal.ie/major-new-ad-plant-on-the-way-to-kildare-772038
-	Dairy sludge	126,718.00	43.3966	2017 data https://www.teagasc.ie/publications/2020/what-is-in-dairy-processing-wastewater-sludge-dps-.php#:~:text=Volumes%20and%20types%20of%20DPS,(wet%20weight)%20in%202017.
-	Brewers sludge	373,648,000.00	23,265.7534	Unpublished InformBio work
-	Brewers grains	142,000.00	4.4717	Unpublished InformBio work (tonnes nationally produced per 87 breweries)
	Straw	3.11	0.0276	Average yield of wheat, oats, barley and hemp (unpublished informbio work)
	Poultry ash		-	
	Bone meal		-	
	De-barked timber from processing		-	
	Saw dust		-	
	Pine cones		-	
	Rushes and gorse	2.1375	0.0190	BBFB https://www.biomasstobiochar.ie/ (Unpublished InformBio work)
	Green manures e.g cover crops	16.5	0.1465	fodder beet yield in fresh weight (Unpublished InformBio work)
	Dairy washings	126,718.00	43.3966	2017 data https://www.teagasc.ie/publications/2020/what-is-in-dairy-processing-wastewater-sludge-dps-.php#:~:text=Volumes%20and%20types%20of%20DPS,(wet%20weight)%20in%202017.
	Flue gas from manufacturing plants		-	
	Food-chain losses i.e sub grade vegetables		-	

75.4 t	Check if the field "Processing capacity", colum AO, in the Inventory_copy sheet is in T/Day. If that is not the case, please convert the answer in the field to T/Day.			
Q5.4 Answers. Na	Biomasses identifiec	Avg. yearly yield of biomasses per hectare (forest)	Estimated Avg. tonnes of biomass per forest per day	Source of information
7.40	Cattle slurry		-	
-	Tree branches	0.21	0.0004	Estimated from sitka spruce branches only as it represents the 79% of the Irish standing volume harvested (NFI, 2022). Sitka spruce branches yield obtained from 10.1007/s10342-005-0093-3.
-	Food waste		-	
-	Poultry manure		-	
-	Pig manure		-	
-	Horticultural waste e.g plant biomass from mushrooms and tomato crops		-	
-	Digestate from AD plants		-	
-	Dairy sludge		-	
-	Brewers sludge		-	
-	Brewers grains		-	
	Straw		-	
	Poultry ash		-	
	Bone meal		-	
	De-barked timber from p	0.64	0.00	From estimated sawmill residues (unpublished informbio work)
	Saw dust	261,930.39	39.87	From estimated sawmill residues (unpublished informbio work)
	Pine cones		-	
	Rushes and gorse		-	
	Green manures e.g cover crops		-	
	Dairy washings		-	
	Flue gas from manufacturing plants		-	
	Food-chain losses i.e sub grade vegetables		-	

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SECTION 3 - TRANSLATION OF VALUES FROM NARRATIVE SYNTHESIS FIELDS IN THE BBIONETS INVENTORY

T2.1_t

Q2 Answers	Key word to find in "Description BBT"
Anaerobic digestion plants	anaerobic
Separators	separators
Pyrolysis Biochar kilns	pyrolysis
Debarkers	bark
Mixing equipment for poultry and farmyard manures	manure
Plant associated with poultry manure manufacture:	poultry
Centrifuge (separators)	separators
Air dryers (steriliser)	steriliser
Air coolers	air
Pelletisers	pellet

T2.2_t

Q2 Answers	Key word to find in "Intended user / conditions of access"
Anaerobic digestion plants	farm
Separators	industry
Pyrolysis Biochar kilns	industry
Debarkers	forest
Mixing equipment for poultry and farmyard manures	farm
Plant associated with poultry manure manufacture:	farm
Centrifuge (separators)	industry
Air dryers (steriliser)	industry
Air coolers	industry
Pelletisers	forest

T3_t

Q3 Answers	Key word to find in "Outcomes and final product"
Biogas	gas
struvite	phosphate
Separated slurry, solid and liquid fractions	slurry
Inoculated slurry	slurry
Incinerated poultry manure ash	ash
Bespoke bi-product fertilisers	fertiliser
Ash from incinerated brewers' grains	ash
Biofertilizer, sewage mixed with lime	fertiliser
Recycling of crop residues, e.g straw chopping and potato tops	recycle
Mushroom compost	compost

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5.3.3 Information for the "Weight" sheet

Workshop answers regarding processing needs (as visual reference only)			Inventory answers to BBTs needs/problems statement		Manually add weight to BBTs after reading the workshop anwsers
ID	processing needs regarding primary and secondary resources? (identified needs should be ranked from high		BBT CODES	BBT NEEDS/PROBLEM STATEMENT	Weight
1	Incinerators for wood by-product ashes generation		IE10-Biorefinery Glas/GLAS	To improve the sustainability, value and resource efficiency of Ireland's livestock sector through farmer diversification into the bioeconomy and to assess the potential role of grass biorefinery in supporting sustainable and resilient communities in rural Ireland.	-1
2	Mulchers and chippers for wood by-products		IT11-FABER/FABER	Forest biomass and its management to address climate change and GHG emissions.	-1
3	Greater number of anaerobic digesters		FI12-ForestChip4Farm/FC4FH	Preventing climate change, increasing bioenergy in rural areas, decreasing CO2 emissions from farms and the food chain, promoting a sustainable food chain, and developing new innovations and products.	-1
4		0	DE13-Lignocellulosic Biorefinery/LIGNO	To valorize the lignocellulosic residues (meadow grass) from farms in a sustainable way.	-1
5		0	EL14-BIO2CHP/B2CHP	bypasses technical limitations & allows the use of residual biomass for small-scale & on-site energy production	-1
6		0	IT15-Scarabeo/HMP2C	There is a need for sustainable and efficient methods in the hemp supply chain to increase quality, valorize and reduce energy consumption.	-1
7		0	HU16-REFERTIL/3RZRO	Recycling and valorization of un-exploited farm and animal by-products	-1
8		0	IT17-Mountain Carbon/MNTNC	to help improve the management of the organic matter (OM) from dairy cattle manure in the mountain areas	-1
9		0	EE18-Hay Biosyngas/HAYBG	a cost-effective and efficient way to produce bio-coal from late harvested hay pellets to benefit small and medium-sized entrepreneurs	-1
10		0	FI19-Wood2Biogas/Wd2BG	to produce and use the gasification gas to boost methane formation in the biogas process, and simultaneously produce biochar, and the use of woody materials in biogas energy production without increasing the amount of digestate from the biogas process	1
11		0	IT20-Clean-ER/CLINR	The accumulation of low economic value woody/shrub biomass in mountain areas poses a significant threat as it increases the	1
			FR21-SeCoPPA/ALFLF	challenges in efficiently drying alfalfa for animal feed, and a need to utilize manure and shredded wood from hedgerows	1
			IE22-BBFB/CHAR	The unutilised biomass is left to decay which returns carbon dioxide to the atmosphere while also control of vegetation, by herb	-1
			IE23-SBDP/BGAS	The intensification of Irish agriculture, particularly in dairying, has raised concerns about its environmental impact as it is a sign	-1
			DE24-GrassBiowert/BWERT	Displacement of fossil based products with bio-based alternatives, while offering rural diversification opportunities.	-1
			BE25-Grassification/GRSFY	Valorization of roadside grass clippings and improving its digestion with other feedstock, as monodigestion of grass can be tec	-1
			FR26-Pyrogreen/PYROG	A bio-based technology that supports valorizing, recycling and recovering of resources by providing a versatile and easy to im	-1
			DE27-GO-GRASS/GOGRS	The grass from protected wetland areas in the polder meadows is heterogeneous, in parts strongly lignified (rigid) and its nutriti	-1
			NL28-GO-GRASS/GOGRS	Low quality natural and roadside grass are used for low added value applications such as compost which also includes costs	-1
			DK29-GO-GRASS/GOGRS	The conversion of annualcrops such as maize, rapeseed and cereals into grassland can significantly reduce nitrate leaching	-1
			PT30-Spawnfoam/SPAWN	changing the paradigm of production and consumption of fossil-based composites and materials, such as plastics, by providi	-1
			DE31-MixBioPells/PLTIZ	Since nowadays wood is getting more scarce caused by the growing demand in material and the energetic use, alternative so	1
			DE32-MixBioPells/PLTHP	in Europe small-scale combustion units (20 to 200 kW) are used almost only with high quality wood fuels, and nowadays wood	1
			DE33-BIOlution/BIOLT	Agricultural waste such as tomato and wheat wastes are not used, which has an environmental impact and a management co	-1
			FR34-GRANUL'HAIE/WdPLT	To enhance the value of local raw materials to meet the increasing demand from consumers who are interested in buying local	-1
			ES35-Bioferti+/BFTZ+	Waste recovery of cattle manure and other organic waste, to increase the biological and physical-chemical quality of agricult	-1
			NL36-ManurePellet/MnPLT	a higher percentage of organic matter, a better soil structure and more binding of nutrients in the soil, a problem is formulated f	-1
			IT37-BIOECO_FLIES/W2BSF	to valorize agrifood biomass beyond the typical low added value applicaitons such as fertilizer or biomass for digesters	-1
			DK38-Macrofuels/CWEED	There is an undisputed and urgent need to decarbonise the European transport sector and seaweed can be a sustainable bic	-1
			IT39-Res4Carbon/RES4C	to define the best practices to guarantee maximum technical, economic and environmental efficiency in the processing, hanc	-1
			FR40-SIVABA/WdPwr	The need to better articulate the various links in the wood energy sector in order to increase its visibility vis-à-vis potential cons	1
			BE41-BierbeekCHIP/Wd2CN	to valorise the woody material coming from the municipal hollow roads and the wood edges after shredding on the local fields c	1
			LT42-cogeneration residue/Res2F	a need to develop a production technology for a new type of fertilizer using wood ashes and digestate	1

AO	AP	AQ
BE41-BierbeekCHIP/Wd2CN	to valorise the woody material coming from the municipal hollow roads and the wood edges after shredding on the local fields c	1
LT42-cogeneration residue/Res2F	a need to develop a production technology for a new type of fertilizer using wood ashes and digestate	1
IT43-CAREGA/4COAL	a gradual abandonment of the forests and a progressive decrease in commercial relations between forest owners, forestry cor	-1
IT44-COBRAF/COBRA	develop an articulated system of biorefineries that allows maximum exploitation of the biomass of oil crops (hemp, safflower, fla	-1
IT45-Stabilized Litter/StbMn	the impact of stabilized litter obtained from the solid/liquid separation of slurry subjected to a process of sanitation and stabiliza	1
IT46-BIOACTAM/BIOAA	to develop and validate a new generation of products, based on the partial pyrolysis of ligno-cellulosic biomass deriving from f	-1
PT47-GOEfluentes /GoEFt	increase the efficiency of water and nutrient utilization, reduce the environmental impact of farming and add value to agricultu	-1
ES48-INCREdible/RESIN	addressing challenges faced by resin as a non-wood forest product	-1
LV49-WoodResidueLV/W2IHF	developing innovative technological solutions to reclamation of wood processing by-products, further processing and adding	1
IT50-RBR-EAS/BCH4R	using different residual biomass with energy purposes (biofuel production), agricultural (production of fertilizer) and food (dieta	-1
AT-Closing cycles/NTREC	Farms need a reasonably closed nutrient cycle to recover energy and resources	-1
PL-BIOGAL/BIOGL	Livestock sector has several challengesbecause of the management of theresources and wastes produced. Manure isone of	-1
ES-LIFE Smart Fertirrigation/FRTGN	pig meat production generates large amounts of manure leading to important environmental problems and many anaerobic dig	1
BE-DIGESMART /DIGST	Biogas production is efficient at reducing agricultural emission by converting the biomass into electricity and thermal energy (c	1
NL-VORTEX/VORTX	Manure stripping innovation for efficiency and cost	-1
NL-Manure Evaporation/EVAPR	Different manure processing techniques are already available and the thick fraction can be well tolerated. However, the reduc	-1
DE-Manure Efficiency/MNURE	to develop a procedure for liquid slurry processing for agricultural enterprises, with which slurry and manure can be used to pro	-1
SE-Manure Refining/MNRRF	to produce concentrated, transport-efficient fertilizers from biogas plant that produces large amounts of digested manure, as	-1
BE-HIATUS/WATER	Almost every year, farmers face water shortages due to drought. Therefore, they are looking for alternatives for this valuable wa	-1
ES-GO IMECO/PgSLR	slurry management and treatment system for ensuring the product generated in pig farms is more competitive and has a lower	-1
FI-LEX4BIO/BBFRT	reducing dependency on mineral and fossil-based fertilizers by optimizing the use of bio-based fertilizers (BBFs)	-1
IT-ProBEST/BARK	In the production of forest wood fuels, the presence of bark and twigs must be limited. these can be chipped and delivered, es	1
IT-ProBEST/ASHES	In the production of forest wood fuels, the incombustible elements (ash) must be limited. these can be delivered, essentially at	1
IT-FiLeProPri/WSC	Face the problem of the socio-economic marginality of wood production in private property.	1
IT-ROSAEXTREM/NRH	Encourage the restructuring of farms with structural problems considerable	-1
IT-M.ER.LI.n/MERL	Analyze needs of partner companies to identify implementation opportunities innovative solutions that are energetically sustai	-1
IT-INNOVABIOZOO/INZOO	The project consists of a series of actions divided into the following areas work: preparatory phase, coordination and animation	-1
ES-AgriCarbón/AC	In Andalusia, agricultural activities play an important role in the socio-economic development which generates contamination	-1
ES-AGUACAVALUE/BYPRO	Promotes possible alternatives for the valorisation of avocado by-products by studying the characterisation of their nutritional	-1
ES-AGUACAVALUE/AVOCA	Spain concentrates the 93% of the avocado production in Europe. Malaga and Granada (Andalusian provinces) have the 88	-1
ES-CHERRY4FOOD/CHERR	There is a need for the processing industries of tomato products (gazpacho and salmorejo) to utilise the by-products generate	-1
ES-TOMATOGROUP/TOMAT	There is a need for valorisation of the tomato chopping which currently is a residue with no value.	-1
ES-BIOSUERO/WHEY	In Andalusia, it is produced a large quantity of milk whey every year. From 10 L of milk, it is obtained 1 kg of cheese and 9 L of wh	-1
ES-Biochar/BIOCH	The project is mainly focused on the Western Coast of Huelva (Ayamonte, Isla Cristina, Lepe, Cartaya, Gibraleón, Punta Umbrí	-1
ES-BIORUMIOLI/FEED	Need to increase the profitability of livestock farms and create an alternative for the olive oil industry by achieving a more efficie	-1
ES-OleoValoriza/OLIVE	The olive-mill waterwaste constitute one of the most important environmental problems in olvie cooperatives, since they are ch	-1
ES-OleoValoriza/OLIV2	The reuse and recovery of olive by-products are essential to reduce environmental pollution and contribute to increasing the e	-1
CZ-TJ02000130/	Among the difficult tasks are the application of fugate (a by-product of biogas production) and the dependence on peat (a no	-1
CZ-QK1920328/	The progressive large-scale decay of spruce stands affecting many areas in the Czech Republic can hardly be prevented and	-1
CZ-QK1920214/	The issue of protecting water resources while maintaining the competitiveness of agricultural production in their vicinity is quite	-1
CZ-TH03030319/	Efficient use of processed field by-products.	-1
CZ-QK1710379/	Use of sewage sludge as a valuable waste raw material in agriculture.	-1
CZ-TH02030681/	The establishment of field crops (maize) is currently carried out in the form of monoculture. This causes surface runoff of rainwa	-1
CZ-TH02030925/	Increasing the composting rate, especially when processing bulky materials (urban green waste, sludge), which are increasing	-1
CZ-SS06020282/	Conventional mechanical recycling of biopolymers is currently not a technologically feasible process, as their products often e	-1
CZ-TK04010166/	There is a need to update biomass potential in the light of changing factors affecting land use and biomass yields, including up	-1
CZ-FW06010358/	Reduction of the consumption of liquid substances (including liquid fertilisers) per unit area, in particular better use of these su	-1
EL11-HIPO-ENERGY/NUTRI	- management of Hippophae leaves, which are cultivated only for the harvesting of the fruit- existing studies highlight the nutr	-1
EL12-ΑΕΙΦΟΡΙΚΑ ΚΗΠΕΥΤΙΚΑ/OREG	control of downy mildew (caused by soil fungi with negative effects in the production) in the context of the circular economy ar	-1
EL13-OLIHERB/OLIVE	management of the significant quantities of olive leaves produced as by-products during cultivation (pruning), harvesting of ol	-1
EL14-BioAnimalChar/PIG	cost and quality of pig feed	-1
EL15-COMPOST-INNO/COMPO	- lack of sufficient amounts of organic waste in the cultivation sites - distance of the sources of organic matter from the places	-1
EL16-Compo - Laventer/COLAV	increase of the production and the quality of lavender oil	-1

EL14-BioAnimalChar/PIG	cost and quality of pig feed		-1
EL15-COMPOST-INNO/COMPO	- lack of sufficient amounts of organic waste in the cultivation sites - distance of the sources of organic matter from the places		-1
EL16-Compo - Laventer/COLAV	increase of the production and the quality of lavender oil		-1
EL17-AGROSCHOOLBUS.BIO/RESOL	Sustainable management of the residues (branches and leaves), pruning of the olive tree (and other productive trees).		-1
EL18-SoilCircle/	Due to the negative effects on crop growth and the environment from the use of synthetic fertilisers, it is recommended to appl		-1
EL19-ΥΓΕΙΑΡΤΟΣ/YOGO	Exploitation of both goat milk and espresso coffee residues		-1
EL20-Innovative Rice Residue Management Pr	Handling plant residues remaining in the rice fields after harvesting. Their burning was banned because of the reduction in org		-1
EL21-ΕΛΑΙΩΝΑΣ/OLFER	Management of waste and wastewater generated during the olive farming and olive oil production processes		-1
PL91-OrzechDębu/ACORN	Changing trends in consumer attitudes and food preferences towards reducing the consumption of meat and animal products		-1
PL93-GRIST/GRIST	Organic grain production and processing of brewery residues into meal, using an innovative dehydration method		-1
pl94-Owoce 4.0/Owoce 4.0	Development of technology dedicated to currant plantations		-1

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5.4 Italy

5.4.1 Information for the “Workshop Answers” sheet.

FAN Country:	Italy
FAN Region:	North West

Q1_t

ID	Q1. What are the primary or secondary resources available in your representative region?
1	Wastewater
2	Chestnut coppicing
3	Forest resource
4	Woody pruning residues
5	Herbaceous pruning residues
6	Olive mill effluents
7	Depleted substrates
8	Agro-food waste
9	Olive pomace
10	Uncultivated land
11	Grape marc
12	Manure
13	Whey
14	Male claves (They are sent for slaughter in the Netherlands when a valorization chain could be created locally).

Q2_t

ID	Q2. What processing equipment is currently being used in your representative region?
1	Plant for compost from green pruning residues
2	Biochar
3	Biogas production from converting farm by-products with farm-scale anaerobic digesters
4	Vermicompost
5	Nutraceutical compounds extraction plants
6	Distillation apparatus, e.g., Clevenger
7	Microalgae production plants
8	Local wood processing facilities, e.g., sawmills, debarker
9	Compost and biogas from olive-mill waste
10	Plants for processing whey into feed or infant milk powder
11	Cosmetics from processing grapes residues

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Q3_t

ID	Q3. What secondary products/by-products are currently being generated in your representative region?
1	Biogas
2	Compost
3	Energy
4	Biomasses
5	Wood processing residues
6	Frozen insect larvae
7	Digested substrate - frass fertilizer
8	Hazelnut shells for secondary metabolite combustion
9	Wood waste for construction materials
10	Biofertilizers and biostimulants from animal compounds - fish
11	Mushroom production on aromatic plant residues
12	

Q4_t

ID	Q4. What are your representative region's processing needs regarding primary and secondary resources? (identified needs should be ranked from high to low)
1	Transformation chains of plant residues into second raw materials - e.g. Biostimulants, phytosanitary products
2	Innovation
3	Resources for investments
4	Territorial and/or supply chain projects
5	Dissemination visibility– e.g. advertising
6	Transformation plants
7	Recovery chain of depleted substrates from floriculture
8	Material and assortment storage yards
9	Forestry and woodworking mobile equipment – e.g. mobile sawmill, woodchippers, etc.
10	Drying equipment
11	Production of thermoplastic starch for the manufacturing of biodegradable or compostable materials - e.g. Bags for floriculture, pots and containers for fruit growing, clips, etc.

Q5.1_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of farm size of the stakeholders which FAN members interact with (ha): e.g. 10 – 400 ha
1	1.00 - 50.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.2_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of forest size of the stakeholders which FAN members interact with (ha):
1	2.00-10.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

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Q5.3_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average farm size (ha):
1	16
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.4_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average forest size (ha):
1	6.2
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.5_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total farmed area (ha):
1	920,801.00
2	42,397.00
3	62,639.00
4	1,025,837.00
5	12,431,808.00
6	
7	
8	
9	
10	

Q5.6_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total forest area (ha):
1	143,768.00
2	29,487.00
3	18,678.00
4	191,933.00
5	2,653,698.00
6	
7	
8	
9	
10	

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Q6.1_t

ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the short-term time (2 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €
1	€ 2,250.00
2	
3	
4	
5	
6	
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Q6.2_t

ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the long-term time (5 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €
1	€ 2,250.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q7_t

ID	Q7. What return on investment period (number of years) is acceptable for investment in a bio-based technology? Please provide an average value of FAN and a range of values (years).
1	10
2	11
3	12
4	13
5	14
6	15
7	
8	
9	
10	

Q8.1_t

ID	Q8. What key stakeholders are you currently interacting/collaborating with?
1	CREA
2	Nationa Rural Network
3	AGRION
4	Territorial Forestry Consortia
5	ISPRA
6	Universities
7	Ministry – Forestry Direction
8	Piedmont Region
9	Confindustria Cuneo
10	CLEVER innovation hub
11	Chimica Verde Bionet
12	Food and Wine hub
13	CIC composters consortium
14	4p1000
15	Global Soil Partnership

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Q8.2_t

ID	Q8. Nature of collaboration: e.g. advisory
1	applied research
2	consultation
3	applied research
4	Partnership
5	applied research
6	applied research
7	Consultation
8	Consultation
9	advisory
10	Networking
11	Networking
12	Networking
13	Advisory+ networking
14	Networking+training
15	Networking+training

Q8.3_t

ID	Q8. Type of collaboration: open or closed to new members or partners.
1	open
2	open
3	open
4	open
5	open
6	open
7	open
8	open
9	
10	

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Q9_t

ID	Q9. Where do you go for information in your region?
1	Leader farmers
2	Technical studies (consultants – agronomists – environmental engineers)
3	International scientific publications
4	Various magazines
5	Associations and foundations
6	
7	
8	
9	
10	
11	
12	
13	

Q10_t

ID	Q10. What are the most significant environmental impacts in the region worrying your sector (forest/agriculture)?
1	Wastewater
2	Accumulation of phytosanitary products
3	Accumulation of water-insoluble organic components
4	Even when using circular techniques, it's important for the byproduct to be local; otherwise, there's an impact from transportation
5	Accumulation of chemical substances in aquifers and external storage tanks (drugs, PFAS, Triazine, glyphosate)
6	Use of sewage sludge or related residues in agricultural fields
7	Hydrogeological instability due to abandonment of mountain territories
8	
9	
10	

Q11_t

ID	Q11. What ideas do you have for involving women, the unemployed, and the youth in this area?
1	The older the entrepreneur, the more likely they are to make investments
2	Young people are more interested in closing the supply chain and engaging in multifunctional farm activities
3	No differences observed between men and women
4	Higher salaries to allow a larger and more normal family life
5	Workplace closer to your home (smart-working essential)
6	Non-toxic working place
7	Personal growth at work
8	Promote the multifunctionality of the forest and the multidisciplinary to manage the forest in a sustainable way and develop ecosystem services
9	
10	
11	

Q12_t

ID	Thinking about the current resources and needs identified, what improvements could be implemented to make the process more circular?
1	Local-level organization with specific objectives and strategic actions
2	Increases in public funding for these investments reducing the bureaucracy.
3	Joining forces to support the expenses of a new technologies.
4	Entrepreneurial capacity
5	Reduction in investment payback periods
6	
7	
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Q13_t

ID	Do you know of a more circular approach/technology that will help your RR work in a more circular wa
1	Innovative composting cycle for depleted floriculture substrates
2	Wastewater treatment methods
3	Sustainable logistics (electric, or hydrogen, or biomethane trucks, Etc.)
4	Public investments or rewards in sustainable working groups or businesses
5	
6	
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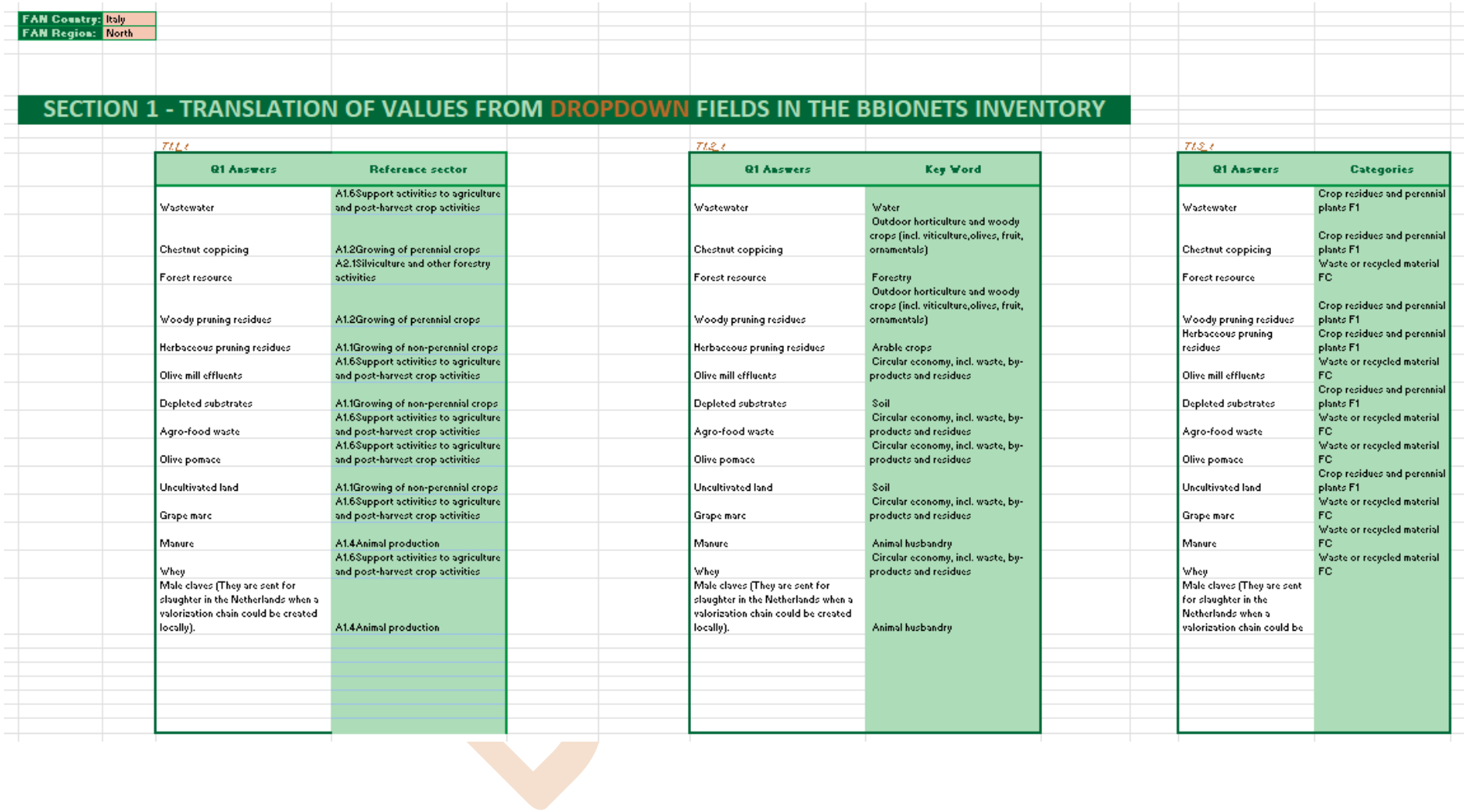
5.4.2 Information for the “TranslateTables” sheet.



FAN Country:	Italy
FAN Region:	North

SECTION 1 - TRANSLATION OF VALUES FROM DROPDOWN FIELDS IN THE BBIONETS INVENTORY

TL1

Q1 Answers	Reference sector
Wastewater	A1.6Support activities to agriculture and post-harvest crop activities
Chestnut coppicing	A1.2Growing of perennial crops
Forest resource	A2.1Silviculture and other forestry activities
Woody pruning residues	A1.2Growing of perennial crops
Herbaceous pruning residues	A1.1Growing of non-perennial crops
Olive mill effluents	A1.6Support activities to agriculture and post-harvest crop activities
Depleted substrates	A1.1Growing of non-perennial crops
Agro-food waste	A1.6Support activities to agriculture and post-harvest crop activities
Olive pomace	A1.6Support activities to agriculture and post-harvest crop activities
Uncultivated land	A1.1Growing of non-perennial crops
Grape marc	A1.6Support activities to agriculture and post-harvest crop activities
Manure	A1.4Animal production
Whey	A1.6Support activities to agriculture and post-harvest crop activities
Male claves (They are sent for slaughter in the Netherlands when a valorization chain could be created locally).	A1.4Animal production

TL2

Q1 Answers	Key Word
Wastewater	Water
Chestnut coppicing	Outdoor horticulture and woody crops (incl. viticulture,olives, fruit, ornamentals)
Forest resource	Forestry
Woody pruning residues	Outdoor horticulture and woody crops (incl. viticulture,olives, fruit, ornamentals)
Herbaceous pruning residues	Arable crops
Olive mill effluents	Circular economy, incl. waste, by-products and residues
Depleted substrates	Soil
Agro-food waste	Circular economy, incl. waste, by-products and residues
Olive pomace	Circular economy, incl. waste, by-products and residues
Uncultivated land	Soil
Grape marc	Circular economy, incl. waste, by-products and residues
Manure	Animal husbandry
Whey	Circular economy, incl. waste, by-products and residues
Male claves (They are sent for slaughter in the Netherlands when a valorization chain could be created locally).	Animal husbandry

TL3

Q1 Answers	Categories
Wastewater	Crop residues and perennial plants F1
Chestnut coppicing	Crop residues and perennial plants F1
Forest resource	Waste or recycled material FC
Woody pruning residues	Crop residues and perennial plants F1
Herbaceous pruning residues	Crop residues and perennial plants F1
Olive mill effluents	Waste or recycled material FC
Depleted substrates	Crop residues and perennial plants F1
Agro-food waste	Waste or recycled material FC
Olive pomace	Waste or recycled material FC
Uncultivated land	Crop residues and perennial plants F1
Grape marc	Waste or recycled material FC
Manure	Waste or recycled material FC
Whey	Waste or recycled material FC
Male claves (They are sent for slaughter in the Netherlands when a valorization chain could be	

T14_1

Q1 Answers	Feedstock
Wastewater	Wastes
Chestnut coppicing	Biomass residues
Forest resource	Biomass
Woody pruning residues	Biomass residues
Herbaceous pruning residues	Biomass residues
Olive mill effluents	Wastes
Depleted substrates	Biomass
Agro-food waste	Wastes
Olive pomace	Biomass residues
Uncultivated land	Biomass
Grape marc	Wastes
Manure	Wastes
Whey	Wastes
Male claves (They are sent for slaughter in the Netherlands when a valorization chain could be	Biomass

T15_1

Q1 Answers	Value chains
Wastewater	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Chestnut coppicing	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Forest resource	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Woody pruning residues	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Herbaceous pruning residues	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Olive mill effluents	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Depleted substrates	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Agro-food waste	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Olive pomace	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Uncultivated land	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Grape marc	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Manure	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Whey	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Male claves (They are sent for slaughter in the Netherlands when a valorization chain could be created locally).	1- Low potential - Low to medium arisings of feedstock available between 2023-2035

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T8.1_1	T8.2_1	T8.3_1	
Q8.1 Answers: key stakeholders	**Nature of collaboration**	**Type of collaboration**	**Type of partners**
CREA	Applied research	Open	Researcher
Nationa Rural Network	Consultation	Open	Advisor
AGRION	Applied research	Open	Researcher
Territorial Forestry Consortia	Partnership	Open	Advisor
ISPRA	Applied research	Open	Researcher
Universities	Applied research	Open	Researcher
Ministry - Forestry Direction	Consultation	Open	Advisor
Piedmont Region	Consultation	Open	Advisor
Confindustria Cuneo	Advisory		Advisor
CLEVER innovation hub	Networking		Other
Chimica Verde Bionet	Networking		Other
Food and Wine hub	Networking		Other
CIC composters consortium	Advisory+ networking		Advisor
4p1000	Networking+training		Training organization
Global Soil Partnership	Networking+training		Training organization

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In these cells, we are interpreting the drop-down options are low, medium, or high potential of carbon sequestration as low, medium, or high potential of **carbon emissions**. The wording of the drop-down cells does not reflect this because of how the tool works.

T10.1_t

Q10 Answers	C Sink
Wastewater	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
Accumulation of phytosanitary products	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
Accumulation of water-insoluble organic components	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
Even when using circular techniques, it's important for the byproduct to be local; otherwise, there's an impact from transportation	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
Accumulation of chemical substances in aquifers and external storage tanks (drugs, PFAS, Triazine, glyphosate)	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
Use of sewage sludge or related residues in agricultural fields	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
Hydrogeological instability due to abandonment of mountain territories	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.

In these cells, we are interpreting the drop-down options are low, medium, or high potential of environmental benefits as low, medium, or high potential of **environmental impacts**. The wording of the drop-down cells does not reflect this because of how the tool works.

T10.2_t

Q10 Answers	Envi Sustainability
Wastewater	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
Accumulation of phytosanitary products	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
Accumulation of water-insoluble organic components	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
Even when using circular techniques, it's important for the byproduct to be local; otherwise, there's an impact from transportation	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
Accumulation of chemical substances in aquifers and external storage tanks (drugs, PFAS, Triazine, glyphosate)	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
Use of sewage sludge or related residues in agricultural fields	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
Hydrogeological instability due to abandonment of mountain territories	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.

T11_t

Q11 Answers	Socio Sustainability
The older the entrepreneur, the more likely they are to make investments	2 - Medium potential -Expected to bring 2 or 1 social benefits.
Young people are more interested in closing the supply chain and engaging in multifunctional farm activities	2 - Medium potential -Expected to bring 2 or 1 social benefits.
No differences observed between men and women	2 - Medium potential -Expected to bring 2 or 1 social benefits.
Higher salaries to allow a larger and more normal family life	2 - Medium potential -Expected to bring 2 or 1 social benefits.
Workplace closer to your home (smart-working essential)	2 - Medium potential -Expected to bring 2 or 1 social benefits.
Non-toxic working place	2 - Medium potential -Expected to bring 2 or 1 social benefits.
Personal growth at work	2 - Medium potential -Expected to bring 2 or 1 social benefits.
Promote the multifunctionality of the forest and the multidisciplinary to manage the forest in a sustainable way and develop ecosystem services	2 - Medium potential -Expected to bring 2 or 1 social benefits.

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SECTION 2 - ADDING EXTRA INFORMATION TO TRANSLATE VALUES FROM WORKSHOP AWNSERS

TS.3_t

eld "Processing capacity", colum AO, in the Inventory copy sheet is in T/Day. If that is not the case, please convert the answer in the fi

Q5.3 Answers. National statistics data, Average fa	Biomasses identified from Q1	Avg. yearly yield of biomasses per farm	Estimated Avg. tonnes of biomass per farm per d	Source of information
16.00	Wastewater		-	
-	Chestnut coppicing		-	
-	Forest resource		-	
-	Woody pruning residues		-	
-	Herbaceous pruning residues		-	
-	Olive mill effluents		-	
-	Depleted substrates		-	
-	Agro-food waste		-	
-	Olive pomace		-	
-	Uncultivated land		-	
	Grape marc		-	
	Manure		-	
	Whey		-	
	Male claves (They are sent for slaughter in the Netherlands when a valorization chain could be creat		-	

TS.4_t

sing capacity", colum AO, in the Inventory copy sheet is in T/Day. If that is not the case, please convert the answ

Q5.4 Answers. National statistics data, Av	Biomasses identified from Q1	Avg. yearly yield of biomasses per forest	Estimated Avg. tonnes of biomass per for	Source of information
6.20	Wastewater		-	
-	Chestnut coppicing		-	
-	Forest resource		-	
-	Woody pruning residues		-	
-	Herbaceous pruning residues		-	
-	Olive mill effluents		-	
-	Depleted substrates		-	
-	Agro-food waste		-	
-	Olive pomace		-	
-	Uncultivated land		-	
	Grape marc		-	
	Manure		-	
	Whey		-	
	Male claves (They are sent for slaughter in the Netherlands when a valorization chai		-	

SECTION 3 - TRANSLATION OF VALUES FROM NARRATIVE SYNTHESIS FIELDS IN THE BBIONETS INVENTORY

T2.1_t

Q2 Answers	Key word to find in "Description BBT"
Plant for compost from green pruning residues	compost
Biochar	pyrolysis
Biogas production from converting farm by-produ	anaerobic digestion
Vermicompost	vermicompost
Nutraceutical compounds extraction plants	extraction
Distillation apparatus, e.g., Clevenger	distillation
Microalgae production plants	microalgae
Local wood processing facilities, e.g., sawmills, debarker	wood
Compost and biogas from olive-mill waste	olive
Plants for processing whey into feed or infant milk powder	whey
Cosmetics from processing grapes residues	grape

T2.2_t

Q2 Answers	Key word to find in "Intended user / conditions of access"
Plant for compost from green pruning residues	pruning
Biochar	biochar
Biogas production from converting farm by-produ	biogas
Vermicompost	vermicompost
Nutraceutical compounds extraction plants	extraction
Distillation apparatus, e.g., Clevenger	distillation
Microalgae production plants	algae
Local wood processing facilities, e.g., sawmills, debarker	sawmill
Compost and biogas from olive-mill waste	biogas
Plants for processing whey into feed or infant milk powder	milk
Cosmetics from processing grapes residues	cosmetic

T3_t

Q3 Answers	Key word to find in "Outcomes and final product"
Biogas	gas
Compost	compost
Energy	energy
Biomasses	biomass
Wood processing residues	wood
Frozen insect larvae	insect
Digested substrate - frass fertilizer	fertiliser
Hazelnut shells for secondary metabolite	combustion
Wood waste for construction materials	construction
Biofertilizers and biostimulants from anin	fertiliser
Mushroom production on aromatic plant r	mushroom

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5.4.3 Information for the "Weight" sheet

Workshop answers regarding processing needs (as visual reference only)		Inventory answers to BBTs needs/problems statement		Manually add weight to BBTs after reading the workshop anwsers
W4_t				
	Q4. What are your representative region's processing needs regarding primary and secondary resources? (identified needs should be ranked from high to low)	BBT CODES	BBT NEEDS/PROBLEM STATEMENT	Weight
	Transformation chains of plant residues into second raw materials - e.g. Biostimulants, phytosanitary products	IE10-Biorefinery Glas/GLAS	To improve the sustainability, value and resource efficiency of Ireland's livestock sector through farmer diversification into the bioeconomy and to assess the potential role of grass biorefinery in supporting sustainable and resilient communities in rural Ireland.	1
	ion	IT11-FABER/FABER	Forest biomass and its management to address climate change and GHG emissions.	1
	:es for investments	FI12-ForestChip4Farm/FC4FH	Preventing climate change, increasing bioenergy in rural areas, decreasing CO2 emissions from farms and the food chain, promoting a sustainable food chain, and developing new innovations and products.	1
	ial and/or supply chain projects	DE13-Lignocellulosic Biorefinery/LIGNO	To valorize the lignocellulosic residues (meadow grass) from farms in a sustainable way.	1
	ination visibility– e.g. advertising	EL14-BIO2CHP/B2CHP	bypasses technical limitations & allows the use of residual biomass for small-scale & on-site energy production	1
	rmation plants	IT15-Scarabeo/HMP2C	There is a need for sustainable and efficient methods in the hemp supply chain to increase quality, valorize and reduce energy consumption.	1
	ry chain of depleted substrates from floriculture	HU16-REFERTIL/3RZRO	Recycling and valorization of un-exploited farm and animal by-products	-1
	l and assortment storage yards	IT17-Mountain Carbon/MNTNC	to help improve the management of the organic matter (OM) from dairy cattle manure in the mountain areas	-1
	Forestry and woodworking mobile equipment – e.g. mobile sawmill, woodchippers, etc.	EE18-Hay Biosyngas/HAYBG	a cost-effective and efficient way to produce bio-coal from late harvested hay pellets to benefit small and medium-sized entrepreneurs	-1
	equipment	FI19-Wood2Biogas/Wd2BG	to produce and use the gasification gas to boost methane formation in the biogas process, and simultaneously produce biochar, and the use of woody materials in biogas energy production without increasing the amount of digestate from the biogas process	1
	11 Production of thermoplastic starch for the manufacturing of bi	IT20-Clean-ER/CLINR	The accumulation of low economic value woody/shrub biomass in mountain areas poses a significant threat as it increases the risk of	1
		FR21-SeCoPPA /ALFLF	challenges in efficiently drying alfalfa for animal feed, and a need to utilize manure and shredded wood from hedgerows	1
		IE22-BBFB/CHAR	The unutilised biomass is left to decay which returns carbon dioxide to the atmosphere while also control of vegetation, by herbicid	-1
		IE23-SBDP/BGAS	The intensification of Irish agriculture, particularly in dairying, has raised concerns about its environmental impact as it is a significan	-1
		DE24-GrassBiowert/BWERT	Displacement of fossil based products with bio-based alternatives, while offering rural diversification opportunities.	1
		BE25-Grassification/GRSFY	Valorization of roadside grass clippings and improving its digestion with other feedstock, as monodigestion of grass can be technical	-1
		FR26-Pyrogreen/PYROG	A bio-based technology that supports valorizing, recycling and recovering of resources by providing a versatile and easy to implemer	-1
		DE27-GO-GRASS/GOGRS	The grass from protected wetland areas in the polder meadows is heterogeneous, in parts strongly lignified (rigid) and its nutritiona	1
		NL28-GO-GRASS/GOGRS	Low quality natural and roadside grass are used for low added value applications such as compost which also includes costs associate	1
		DK29-GO-GRASS/GOGRS	The conversion of annualcrops such as maize, rapeseed and cereals into grassland can significantly reduce nitrate leaching under EU	-1
		PT30-Spawnfoam/SPAWN	changing the paradigm of production and consumption of fossil-based composites and materials, such as plastics, by providing an inn	1
		DE31-MixBioPells/PLTIZ	Since nowadays wood is getting more scarce caused by the growing demand in material and the energetic use, alternative solid biof	1
		DE32-MixBioPells/PLTHP	in Europe small-scale combustion units (20 to 200 kW) are used almost only with high quality wood fuels, and nowadays wood is gett	1
		DE33-BIOlution/BIOLT	Agricultural waste such as tomato and wheat wastes are not used, which has an environmental impact and a management cost for th	1
		FR34-GRANUL'HAIE/WdPLT	To enhance the value of local raw materials to meet the increasing demand from consumers who are interested in buying local prod	-1
		ES35-Bioferti+/BFTZ+	Waste recovery of cattle manure and other organic waste, to increase the biological and physical-chemical quality of agricultural soil	1
		NL36-ManurePellet/MnPLT	a higher percentage of organic matter, a better soil structure and more binding of nutrients in the soil, a problem is formulated for a	1
		IT37-BIOECO_FLIES/W2BSF	to valorize agrifood biomass beyond the typical low added value applicaitons such as fertilizer or biomass for digesters	1
		DK38-Macrofuels/CWEED	There is an undisputed and urgent need to decarbonise the European transport sector and seaweed can be a sustainable bio-based f	-1
		IT39-Res4Carbon/RES4C	to define the best practices to guarantee maximum technical, economic and environmental efficiency in the processing, handling an	1
		FR40-SIVABA/WdPwr	The need to better articulate the various links in the wood energy sector in order to increase its visibility vis-à-vis potential consume	1
		BE41-BierbeekCHIP/Wd2CN	to valorise the woody material coming from the municipal hollow roads and the wood edges after shredding on the local fields of Bi	1
		LT42-cogeneration residue/Res2F	a need to develop a production technology for a new type of fertilizer using wood ashes and digestate	1

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LT42-cogeneration residue/Res2F	a need to develop a production technology for a new type of fertilizer using wood ashes and digestate	1
IT43-CAREGA/4COAL	a gradual abandonment of the forests and a progressive decrease in commercial relations between forest owners, forestry companie	1
IT44-COBRAF/COBRA	develop an articulated system of biorefineries that allows maximum exploitation of the biomass of oil crops (hemp, safflower, flax	-1
IT45-Stabilized Litter/StbMn	the impact of stabilized litter obtained from the solid/liquid separation of slurry subjected to a process of sanitation and stabilizatio	-1
IT46-BIOACTAM/BIOAA	to develop and validate a new generation of products, based on the partial pyrolysis of ligno-cellulosic biomass deriving from forest	1
PT47-GOEfluentes /GoEFt	increase the efficiency of water and nutrient utilization, reduce the environmental impact of farming and add value to agricultural w	-1
ES48-INCREdible/RESIN	addressing challenges faced by resin as a non-wood forest product	1
LV49-WoodResidueLV/W2IHF	developing innovative technological solutions to reclamation of wood processing by-products, further processing and adding value t	1
IT50-RBR-EAS/BCH4R	using different residual biomass with energy purposes (biofuel production), agricultural (production of fertilizer) and food (dietary s	1
AT-Closing cycles/NTREC	Farms need a reasonably closed nutrient cycle to recover energy and resources	1
PL-BIOGAL/BIOGL	Livestock sector has several challengesbecause of the management of theresources and wastes produced. Manure isone of the bigge	1
ES-LIFE Smart Fertirrigation/FRTGN	pig meat production generates large amounts of manure leading to important environmental problems and many anaerobic digestio	-1
BE-DIGESMART /DIGST	Biogas production is efficient at reducing agricultural emission by converting the biomass into electricity and thermal energy (cogen	-1
NL-VORTEX/VORTX	Manure stripping innovation for efficiency and cost	-1
NL-Manure Evaporation/EVAPR	Different manure processing techniques are already available and the thick fraction can be well tolerated. However, the reduction o	-1
DE-Manure Efficiency/MNURE	to develop a procedure for liquid slurry processing for agricultural enterprises, with which slurry and manure can be used to produce	1
SE-Manure Refining/MNRRF	to produce concentrated, transport-efficient fertilizers from biogas plant that produces large amounts of digested manure, as well as	1
BE-HIATUS/WATER	Almost every year, farmers face water shortages due to drought. Therefore, they are looking for alternatives for this valuable water,	-1
ES-GO IMECO/PgSLR	slurry management and treatment system for ensuring the product generated in pig farms is more competitive and has a lower envir	-1
FI-LEX4BIO/BBFRT	reducing dependency on mineral and fossil-based fertilizers by optimizing the use of bio-based fertilizers (BBFs)	1
IT-ProBEST/BARK	In the production of forest wood fuels, the presence of bark and twigs must be limited. these can be chipped and delivered, essentia	1
IT-ProBEST/ASHES	In the production of forest wood fuels, the incombustible elements (ash) must be limited. these can be delivered, essentially at cos	1
IT-FiLeProPri/WSC	Face the problem of the socio-economic marginality of wood production in private property.	1
IT-ROSAEXTREM/NRH	Encourage the restructuring of farms with structural problems considerable	-1
IT-M.ER.LI.n/MERL	Analyze needs of partner companies to identify implementation opportunities innovative solutions that are energetically sustainabl	-1
IT-INNOVABIOZOO/INZOO	The project consists of a series of actions divided into the following areas work: preparatory phase, coordination and animation, ado	-1
ES-AgriCarbón/AC	In Andalusia, agricultural activities play an important role in the socio-economic development which generates contamination in sup	1
ES-AGUACAVALUE/BYPRO	Promotes possible alternatives for the valorisation of avocado by-products by studying the characterisation of their nutritional profil	-1
ES-AGUACAVALUE/AVOCA	Spain concentrates the 93% of the avocado production in Europe. Malaga and Granada (Andalusian provinces) have the 88% of the to	-1
ES-CHERRY4FOOD/CHERR	There is a need for the processing industries of tomato products (gazpacho and salmorejo) to utilise the by-products generated in th	1
ES-TOMATOGROUP/TOMAT	There is a need for valorisation of the tomato chopping which currently is a residue with no value.	1
ES-BIOSUERO/WHEY	In Andalusia, it is produced a large quantity of milk whey every year. From 10 L of milk, it is obtained 1 kg of cheese and 9 L of whey.	-1
ES-Biochar/BIOCH	The project is mainly focused on the Western Coast of Huelva (Ayamonte, Isla Cristina, Lepe, Cartaya, Gibraleón, Punta Umbría and A	-1
ES-BIORUMIOLI/FEED	Need to increase the profitability of livestock farms and create an alternative for the olive oil industry by achieving a more efficient	-1
ES-OleoValoriza/OLIVE	The olive-mill waterwaste constitute one of the most important environmental problems in olvie cooperatives, since they are chara	1
ES-OleoValoriza/OLIV2	The reuse and recovery of olive by-products are essential to reduce environmental pollution and contribute to increasing the efficie	1
CZ-TJ02000130/	Among the difficult tasks are the application of fugate (a by-product of biogas production) and the dependence on peat (a non-renev	-1
CZ-QK1920328/	The progressive large-scale decay of spruce stands affecting many areas in the Czech Republic can hardly be prevented and we have	-1
CZ-QK1920214/	The issue of protecting water resources while maintaining the competitiveness of agricultural production in their vicinity is quite cor	-1
CZ-TH03030319/	Efficient use of processed field by-products.	-1
CZ-QK1710379/	Use of sewage sludge as a valuable waste raw material in agriculture.	-1
CZ-TH02030681/	The establishment of field crops (maize) is currently carried out in the form of monoculture. This causes surface runoff of rainwater a	-1
CZ-TH02030925/	Increasing the composting rate, especially when processing bulky materials (urban green waste, sludge), which are increasingly proc	-1
CZ-SS06020282/	Conventional mechanical recycling of biopolymers is currently not a technologically feasible process, as their products often end up	-1
CZ-TK04010166/	There is a need to update biomass potential in the light of changing factors affecting land use and biomass yields, including updating	1
CZ-FW06010358/	Reduction of the consumption of liquid substances (including liquid fertilisers) per unit area, in particular better use of these substa	-1
EL11-HIPO-ENERGY/NUTRI	- management of Hippophae leaves, which are cultivated only for the harvesting of the fruit- existing studies highlight the nutritiona	-1
EL12-ΑΕΙΦΟΡΙΚΑ ΚΗΠΕΥΤΙΚΑ/OREG	control of downy mildew (caused by soil fungi with negative effects in the production) in the context of the circular economy and th	-1
EL13-OLIHERB/OLIVE	management of the significant quantities of olive leaves produced as by-products during cultivation (pruning), harvesting of olives a	1
EL14-BioAnimalChar/PIG	cost and quality of pig feed	-1
EL15-COMPOST-INNO/COMPO	- lack of sufficient amounts of organic waste in the cultivation sites - distance of the sources of organic matter from the places of pro	-1
EL16-Compo - Laventer/COLAV	increase of the production and the quality of lavender oil	-1
EL17-AGROSCHOOLBUS.BIO/RESOL	Sustainable management of the residues (branches and leaves), pruning of the olive tree (and other productive trees).	1
EL18-SoilCircle/	Due to the negative effects on crop growth and the environment from the use of synthetic fertilisers, it is recommended to apply so	1
EL19-ΥΓΕΙΑΡΤΟΣ/YOGO	Exploitation of both goat milk and espresso coffee residues	-1
EL20-Innovative Rice Residue Management Practic	Handling plant residues remaining in the rice fields after harvesting. Their burning was banned because of the reduction in organic n	1
EL21-ΕΛΑΙΩΝΑΣ/OLFER	Management of waste and wastewater generated during the olive farming and olive oil production processes	1
PL91-OrzechDębu/ACORN	Changing trends in consumer attitudes and food preferences towards reducing the consumption of meat and animal products. The v	-1
PL93-GRIST/GRIST	Organic grain production and processing of brewery residues into meal, using an innovative dehydration method	-1
pl94-Owoce 4.0/Owoce 4.0	Development of technology dedicated to currant plantations	-1
0	0	

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5.5 Poland

5.5.1 Information for the “Workshop Answers” sheet.

FAN Country:	Poland
FAN Region:	Poland

Q1_t

ID	Q1. What are the primary or secondary resources available in your representative region?
1	Straw
2	Manure
3	Slurry
4	fruits and vegetables press waste
5	grass
6	Timber
7	roots
8	branches
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	

Q2_t

ID	Q2. What processing equipment is currently being used in your representative region?
1	anaerobic digestion plants
2	manure separators
3	
4	
5	
6	
7	
8	
9	
10	
11	

Q3_t

ID	Q3. What secondary products/by-products are currently being generated in your representative region?
1	bio-fertiliser
2	soil conditioner
3	compost
4	biogas
5	digestate
6	
7	
8	
9	
10	
11	

Q4_t

ID	Q4. What are your representative region's processing needs regarding primary and secondary resources? (identified needs should be ranked from high to low)
1	root harvesting equipment
2	Biogas production from converting farm by-products with farm-scale anaerobic digesters
3	Press cake and protein for cattle and pig feed, respectively, using green biorefineries processing grasses and other green leaves
4	Biochar production
5	RENURE fertiliser production- Recovery Nitrogen from manure
6	
7	
8	
9	
10	
11	

Q5.1_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of farm size of the stakeholders which FAN members interact with (ha): e.g. 10 – 400 ha
1	10-1000
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.2_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of forest size of the stakeholders which FAN members interact with (ha):
1	10-1000
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.3_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average farm size (ha):
1	11.3
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.4_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average forest size (ha):
1	0.243
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.5_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total farmed area (ha):
1	14,126,274.83
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.6_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total forest area (ha):
1	9,476,925.67
2	
3	
4	
5	
6	
7	
8	
9	
10	

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Q6.1_t

ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the short term time (2 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €	
1	€	244,185.90
2	€	366,278.85
3		
4		
5		
6		
7		
8		
9		
10		

Q6.2_t

ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the long-term time (5 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €	
1	€	1,395,348.60
2	€	2,093,022.90
3		
4		
5		
6		
7		
8		
9		
10		

Q7_t

ID	Q7. What return on investment period (number of years) is acceptable for investment in a bio-based technology? Please provide an average value of FAN and a range of values (years).
1	3
2	4
3	5
4	
5	
6	
7	
8	
9	
10	

Q8.1_t

ID	Q8. What key stakeholders are you currently interacting/collaborating with?
1	farmers
2	scientific institutions
3	farmers, entrepreneurs, scientific institutions
4	local government administration
5	
6	
7	
8	
9	
10	

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Q8.2_t

ID	Q8. Nature of collaboration: e.g. advisory
1	advisory
2	cooperation in project implementation
3	cooperation within the cluster
4	cooperation in organizing local workshops and agricultural fairs
5	
6	
7	
8	
9	
10	

Q8.3_t

ID	Q8. Type of collaboration: open or closed to new members or partners.
1	open
2	open
3	open
4	open
5	
6	
7	
8	
9	
10	

Q9_t

ID	Q9. Where do you go for information in your region?
1	advisory service
2	internet
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	

Q10_t

ID	Q10. What are the most significant environmental impacts in the region worrying your sector (forest/agriculture)?
1	fertilization
2	Expansion related to the development of construction. Occupying suburban areas that were previously used for agriculture or as suburban recreational areas for development
3	extensive forest management
4	
5	
6	
7	
8	
9	
10	

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Q11_t

ID	Q11. What ideas do you have for involving women, the unemployed, and the youth in this area?
1	youth education at school
2	organization of workshops with presentation of success stories of specific farms, start-ups
3	Open days for farmers
4	Promotion at Rural Housewives' Associations (KGW) are a representative example of social organisations shaped in the spirit of Polish tradition)
5	
6	
7	
8	
9	
10	
11	

Q12_t

ID	Thinking about the current resources and needs identified, what improvements could be implemented to make the process more circular
1	slurry separation
2	root harvesting equipment
3	processing animal excrement into modern fertilizers: RENURE -Recovered Nitrogen from manure
4	processing of agro-food waste
5	biochar production
6	pellet from agricultural waste
7	
8	
9	
10	

Q13_t

ID	Do you know of a more circular approach/technology that will help your RR work in a more circular wa
1	Introduction of technology to produce RENURE
2	Introduction of biomass coaling installation
3	mobile pellet production machine
4	
5	
6	
7	
8	
9	
10	

5.5.2 Information for the “TranslateTables” sheet.

FAN Country:	Poland
FAN Region:	Poland

SECTION 1 - TRANSLATION OF VALUES FROM DROPDOWN FIELDS IN THE BBIONETS INVENTORY

T1.1_t

Q1 Answers	Reference sector
Straw	A1.1Growing of non-perennial crops
Manure	A1.4Animal production
Slurry	A1.4Animal production
Fruits and vegetables press waste	A1.6Support activities to agriculture and post-harvest crop activities
Grass	A1.2Growing of perennial crops
Timber	A2.2Logging
Roots	A2.2Logging
Branches	A2.2Logging

T1.2_t

Q1 Answers	Key Word
Straw	Arable crops
Manure	Animal husbandry
Slurry	Animal husbandry
Fruits and vegetables press waste	Food security, safety, quality, processing and nutrition
Grass	Fodder and feed
Timber	Forestry
Roots	Forestry
Branches	Forestry

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T1.3_t

Q1 Answers	Categories
Straw	Crop residues and perennial plants F1
Manure	Waste or recycled material FC
Slurry	Waste or recycled material FC
Fruits and vegetables press waste	Waste or recycled material FC
Grass	Crop residues and perennial plants F1
Timber	Crop residues and perennial plants F1
Roots	Crop residues and perennial plants F1
Branches	Crop residues and perennial plants F1

T1.4_t

Q1 Answers	Feedstock
Straw	Biomass residues
Manure	Wastes
Slurry	Wastes
Fruits and vegetables pres	Biomass residues
Grass	Biomass
Timber	Biomass
Roots	Biomass residues
Branches	Biomass residues

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T1.5_t

Q1 Answers	Value chains
Straw	3 - High potential - Significant arisings of feedstocks available currently.
Manure	3 - High potential - Significant arisings of feedstocks available currently.
Slurry	3 - High potential - Significant arisings of feedstocks available currently.
Fruits and vegetables press waste	3 - High potential - Significant arisings of feedstocks available currently.
Grass	3 - High potential - Significant arisings of feedstocks available currently.
Timber	2 - Medium potential - Significant availability of feedstocks available by 2035.
Roots	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Branches	1- Low potential - Low to medium arisings of feedstock available between 2023-2035

T8.1_t T8.2_t T8.3_t

Q8.1 Answers: key stakeholders	Nature of collaboration	Type of collaboration	Type of partners
Farmers	Advisory	Open	Farmer
Scientific institutions	Cooperation in project implementation	Open	Researcher
Farmers, entrepreneurs, scientific institutions	Cooperation within the cluster	Open	Advisor
Local government administration	Cooperation in organizing local workshops and agricultural fairs	Open	Public Authority + LAG

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In these cells, we are interpreting the drop-down options are low, medium, or high potential of carbon sequestration as low, medium, or high potential of **carbon emissions**. The wording of the drop-down cells does not reflect this because of how the tool works.

T10.1_t

Q10 Answers	C Sink
Fertilization	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Expansion related to the development of construction. Occupying suburban areas that were previously used for agriculture or as suburban recreational areas for development	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
Extensive forest management	1 - Low potential - low potential for carbon sequestration

In these cells, we are interpreting the drop-down options are low, medium, or high potential of environmental benefits as low, medium, or high potential of **environmental impacts**. The wording of the drop-down cells does not reflect this because of how the tool works.

T10.2_t

Q10 Answers	Envi Sustainability
Fertilization	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Expansion related to the development of construction. Occupying suburban areas that were previously used for agriculture or as suburban recreational areas for development	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
Extensive forest management	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.

T11_t

Q11 Answers	Socio Sustainability
Youth education at school	2 - Medium potential -Expected to bring 2 or 1 social benefits.
Organization of workshops with presentation of success stories of specific farms, start-ups	1 - Low potential - doesn't bring any social benefits.
Open days for farmers	3 - High potential - Expected to bring at least 3 significant social benefits.
Promotion at Rural Housewives' Associations (KGW) are a representative example of social organisations shaped in the spirit of Polish tradition)	2 - Medium potential -Expected to bring 2 or 1 social benefits.

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T5.3_t

Check if the field "Processing capacity", colum AO, in the Inventory_copy sheet is in T/Day. If that is not the case, please convert the answer in the field to T/Day.

Q5.3 Answers. National statistics data, Average	Biomasses identified from Q1	Avg. yearly yield of biomasses per hectare (farm)	Estimated Avg. tonnes of biomass per farm per day	Source of information
11.30	Straw	1.42	0.0044	Dane Eurostat, suma (plon zbóż * wsp. Słoma/ziarno [SCIndex]) 2023
-	Manure	2.718090976	0.0084	Roczne dane sumy masy obornika i gnojowicy od bydła i trzody dla terenu Polski (tabela CiNURGi na podst. DJP_2020)
-	Slurry	1.750923836	0.0054	Roczne dane sumy masy obornika i gnojowicy od bydła i trzody dla terenu Polski (tabela CiNURGi na podst. DJP_2020)
-	Fruits and vegetables press waste		-	
-	Grass	0.12	0.0004	Dane referencyjne Biomasa_2023_baza
-	Timber		-	
-	Roots		-	
-	Branches		-	
-			-	
-			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	

	Check if the field "Processing capacity", colum AO, in the Inventory_copy sheet is in T/Day. If that is not the case, please convert the answer in the field to T/Day.			
T5.4_t				
Q5.4 Answers. National	Biomasses identified from (	Avg. yearly yield of biomasses perhectare(forest	Estimated Avg. tonnes of biomass per forest per da	Source of information
0.24	Straw		-	
-	Manure		-	
-	Slurry		-	
-	Fruits and vegetables press waste		-	
-	Grass		-	
-	Timber	4.609215625	0.00	GUS Leśnictwo 2022 w m3, strona 98, https://www.bdl.lasy.gov.pl/portal/Media/Default/Publikacje/GUS_lesnictwo_2023.pdf
-	Roots	8.63493E-05	0.00	GUS Leśnictwo 2022 w m3, strona 98, https://www.bdl.lasy.gov.pl/portal/Media/Default/Publikacje/GUS_lesnictwo_2023.pdf
-	Branches	0.209828705	0.00	GUS Leśnictwo 2022 w m3, strona 98, https://www.bdl.lasy.gov.pl/portal/Media/Default/Publikacje/GUS_lesnictwo_2023.pdf
-			-	
-			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	
			-	

SECTION 3 - TRANSLATION OF VALUES FROM NARRATIVE SYNTHESIS FIELDS IN THE BBIONETS INVENTORY

T2.1_t

Q2 Answers	Key word to find in "Description BBT"
Anaerobic digestion plants	Anaerobic
Manure separators	manure

T2.2_t

Q2 Answers	Key word to find in "Intended user / conditions of access"
Anaerobic digestion plants	Anaerobic
Manure separators	manure

DRAFT

T3_t

Q3 Answers	Key word to find in "Outcomes and final product"
Bio-fertiliser	fertilizer
Soil conditioner	soil
Compost	compost
Biogas	biogas
Digestate	digestate

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5.5.3 Information for the "Weight" sheet

AL	AM	AO	AP	AQ
Workshop answers regarding processing needs (as visual reference only)		Inventory answers to BBTs needs/problems statement		Manually add weight to BBTs after reading the workshop anwsers
ID	processing needs regarding primary and secondary resources? (identified needs should be ranked from high	BBT CODES	BBT NEEDS/PROBLEM STATEMENT	Weight
1	root harvesting equipment	IE10-Biorefinery Glas/GLAS	To improve the sustainability, value and resource efficiency of Ireland's livestock sector through farmer diversification into the bioeconomy and to assess the potential role of grass biorefinery in supporting sustainable and resilient communities in rural Ireland.	1
2	Biogas production from converting farm by-products with farm-scale anaerobic digesters	IT11-FABER/FABER	Forest biomass and its management to address climate change and GHG emissions.	1
3	Press cake and protein for cattle and pig feed, respectively, using green biorefineries processing grasses and other green leaves	FI12-ForestChip4Farm/FC4FH	Preventing climate change, increasing bioenergy in rural areas, decreasing CO2 emissions from farms and the food chain, promoting a sustainable food chain, and developing new innovations and products.	-1
4	Biochar production	DE13-Lignocellulosic Biorefinery/LIGNO	To valorize the lignocellulosic residues (meadow grass) from farms in a sustainable way.	-1
5	RENURE fertiliser production- Recovery Nitrogen from manure	EL14-BIO2CHP/B2CHP	bypasses technical limitations & allows the use of residual biomass for small-scale & on-site energy production	-1
6	0	IT15-Scarabeo/HMP2C	There is a need for sustainable and efficient methods in the hemp supply chain to increase quality, valorize and reduce energy consumption.	-1
7	0	HU16-REFERTIL/3RZRO	Recycling and valorization of un-exploited farm and animal by-products	-1
8	0	IT17-Mountain Carbon/MNTNC	to help improve the management of the organic matter (OM) from dairy cattle manure in the mountain areas	-1
9	0	EE18-Hay Biosyngas/HAYBG	a cost-effective and efficient way to produce bio-coal from late harvested hay pellets to benefit small and medium-sized entrepreneurs	-1
10	0	FI19-Wood2Biogas/Wd2BG	to produce and use the gasification gas to boost methane formation in the biogas process, and simultaneously produce biochar, and the use of woody materials in biogas energy production without increasing the amount of digestate from the biogas process	1
11	0	IT20-Clean-ER/CLINR	The accumulation of low economic value woody/shrub biomass in mountain areas poses a significant threat as it increases the	1
		FR21-SeCoPPA /ALFLF	challenges in efficiently drying alfalfa for animal feed, and a need to utilize manure and shredded wood from hedgerows	-1
		IE22-BBFB/CHAR	The unutilised biomass is left to decay which returns carbon dioxide to the atmosphere while also control of vegetation, by herb	1
		IE23-SBDP/BGAS	The intensification of Irish agriculture, particularly in dairying, has raised concerns about its environmental impact as it is a sign	-1
		DE24-GrassBiowert/BWERT	Displacement of fossil based products with bio-based alternatives, while offering rural diversification opportunities.	-1
		BE25-Grassification/GRSFY	Valorization of roadside grass clippings and improving its digestion with other feedstock, as monodigestion of grass can be tec	1
		FR26-Pyrogreen/PYROG	A bio-based technology that supports valorizing, recycling and recovering of resources by providing a versatile and easy to im	-1
		DE27-GO-GRASS/GOGRS	The grass from protected wetland areas in the polder meadows is heterogeneous, in parts strongly lignified (rigid) and its nutriti	1
		NL28-GO-GRASS/GOGRS	Low quality natural and roadside grass are used for low added value applications such as compost which also includes costs	-1
		DK29-GO-GRASS/GOGRS	The conversion of annualcrops such as maize, rapeseed and cereals into grassland can significantly reduce nitrate leaching	-1
		PT30-Spawnfoam/SPAWN	changing the paradigm of production and consumption of fossil-based composites and materials, such as plastics, by providi	-1
		DE31-MixBioPells/PLTIZ	Since nowadays wood is getting more scarce caused by the growing demand in material and the energetic use, alternative so	-1
		DE32-MixBioPells/PLTHP	in Europe small-scale combustion units (20 to 200 kW) are used almost only with high quality wood fuels, and nowadays wood	-1
		DE33-BIOlution/BIOLT	Agricultural waste such as tomato and wheat wastes are not used, which has an environmental impact and a management co	-1
		FR34-GRANUL'HAIE/WdPLT	To enhance the value of local raw materials to meet the increasing demand from consumers who are interested in buying local	-1
		ES35-Bioferti+/BFTZ+	Waste recovery of cattle manure and other organic waste, to increase the biological and physical-chemical quality of agricult	-1
		NL36-ManurePellet/MnPLT	a higher percentage of organic matter, a better soil structure and more binding of nutrients in the soil, a problem is formulated f	-1
		IT37-BIOECO_FLIES/W2BSF	to valorize agrifood biomass beyond the typical low added value applicaitons such as fertilizer or biomass for digesters	-1
		DK38-Macrofuels/CWEED	There is an undisputed and urgent need to decarbonise the European transport sector and seaweed can be a sustainable bio	-1
		IT39-Res4Carbon/RES4C	to define the best practices to guarantee maximum technical, economic and environmental efficiency in the processing, hand	1

IT37-BIOECO_FLIES/W2BSF	to valorize agrifood biomass beyond the typical low added value applicaitons such as fertilizer or biomass for digesters	-1
DK38-Macrofuels/CWEED	There is an undisputed and urgent need to decarbonise the European transport sector and seaweed can be a sustainable bio-based f	-1
IT39-Res4Carbon/RES4C	to define the best practices to guarantee maximum technical, economic and environmental efficiency in the processing, handling ar	1
FR40-SIVABA/WdPwr	The need to better articulate the various links in the wood energy sector in order to increase its visibility vis-à-vis potential consume	1
BE41-BierbeekCHIP/Wd2CN	to valorise the woody material coming from the municipal hollow roads and the wood edges after shredding on the local fields of Bi	-1
LT42-cogeneration residue/Res2F	a need to develop a production technology for a new type of fertilizer using wood ashes and digestate	-1
IT43-CAREGA/4COAL	a gradual abandonment of the forests and a progressive decrease in commercial relations between forest owners, forestry compani	-1
IT44-COBRAF/COBRA	develop an articulated system of biorefineries that allows maximum exploitation of the biomass of oil crops (hemp, safflower, flax	-1
IT45-Stabilized Litter/StbMn	the impact of stabilized litter obtained from the solid/liquid separation of slurry subjected to a process of sanitation and stabilizatio	-1
IT46-BIOACTAM/BIOAA	to develop and validate a new generation of products, based on the partial pyrolysis of ligno-cellulosic biomass deriving from forest	-1
PT47-GOEfluentes /GoEFt	increase the efficiency of water and nutrient utilization, reduce the environmental impact of farming and add value to agricultural w	-1
ES48-INCREdible/RESIN	addressing challenges faced by resin as a non-wood forest product	-1
LV49-WoodResidueLV/W2IHF	developing innovative technological solutions to reclamation of wood processing by-products, further processing and adding value t	-1
IT50-RBR-EAS/BCH4R	using different residual biomass with energy purposes (biofuel production), agricultural (production of fertilizer) and food (dietary s	-1
AT-Closing cycles/NTREC	Farms need a reasonably closed nutrient cycle to recover energy and resources	-1
PL-BIOGAL/BIOGL	Livestock sector has several challengesbecause of the management of theresources and wastes produced. Manure isone of the bigg	1
ES-LIFE Smart Fertirrigation/FRTGN	pig meat production generates large amounts of manure leading to important environmental problems and many anaerobic digestic	1
BE-DIGESMART /DIGST	Biogas production is efficient at reducing agricultural emission by converting the biomass into electricity and thermal energy (cogen	1
NL-VORTEX/VORTX	Manure stripping innovation for efficiency and cost	-1
NL-Manure Evaporation/EVAPR	Different manure processing techniques are already available and the thick fraction can be well tolerated. However, the reduction c	-1
DE-Manure Efficiency/MNURE	to develop a procedure for liquid slurry processing for agricultural enterprises, with which slurry and manure can be used to produce	-1
SE-Manure Refining/MNRRF	to produce concentrated, transport-efficient fertilizers from biogas plant that produces large amounts of digested manure, as well a	-1
BE-HIATUS/WATER	Almost every year, farmers face water shortages due to drought. Therefore, they are looking for alternatives for this valuable water,	-1
ES-GO IMECO/PgSLR	slurry management and treatment system for ensuring the product generated in pig farms is more competitive and has a lower envi	1
FI-LEX4BIO/BBFRT	reducing dependency on mineral and fossil-based fertilizers by optimizing the use of bio-based fertilizers (BBFs)	-1
IT-ProBEST/BARK	In the production of forest wood fuels, the presence of bark and twigs must be limited. these can be chipped and delivered, essenti	-1
IT-ProBEST/ASHES	In the production of forest wood fuels, the incombustible elements (ash) must be limited. these can be delivered, essentially at co:	-1
IT-FiLeProPri/WSC	Face the problem of the socio-economic marginality of wood production in private property.	-1
IT-ROSAEXTREM/NRH	Encourage the restructuring of farms with structural problems considerable	-1
IT-M.ER.LI.n/MERL	Analyze needs of partner companies to identify implementation opportunities innovative solutions that are energetically sustainab	-1
IT-INNOVABIOZOO/INZOO	The project consists of a series of actions divided into the following areas work: preparatory phase, coordination and animation, adc	-1
ES-AgriCarbón/AC	In Andalusia, agricultural activities play an important role in the socio-economic development which generates contamination in sup	-1
ES-AGUACAVALUE/BYPRO	Promotes possible alternatives for the valorisation of avocado by-products by studying the characterisation of their nutritional profi	-1
ES-AGUACAVALUE/AVOCA	Spain concentrates the 93% of the avocado production in Europe. Malaga and Granada (Andalusian provinces) have the 88% of the tc	-1
ES-CHERRY4FOOD/CHERR	There is a need for the processing industries of tomato products (gazpacho and salmorejo) to utilise the by-products generated in th	-1
ES-TOMATOGROUP/TOMAT	There is a need for valorisation of the tomato chopping which currently is a residue with no value.	-1
ES-BIOSUERO/WHEY	In Andalusia, it is produced a large quantity of milk whey every year. From 10 L of milk, it is obtained 1 kg of cheese and 9 L of whey	-1

ES-AGUACAVALUE/AVOCA	Spain concentrates the 93% of the avocado production in Europe. Malaga and Granada (Andalusian provinces) have the 88% of the tc	-1	
ES-CHERRY4FOOD/CHERR	There is a need for the processing industries of tomato products (gazpacho and salmorejo) to utilise the by-products generated in th	-1	
ES-TOMATOGROUP/TOMAT	There is a need for valorisation of the tomato chopping which currently is a residue with no value.	-1	
ES-BIOSUERO/WHEY	In Andalusia, it is produced a large quantity of milk whey every year. From 10 L of milk, it is obtained 1 kg of cheese and 9 L of whey.	-1	
ES-Biochar/BIOCH	The project is mainly focused on the Western Coast of Huelva (Ayamonte, Isla Cristina, Lepe, Cartaya, Gibraleón, Punta Umbría and A	-1	
ES-BIORUMIOLI/FEED	Need to increase the profitability of livestock farms and create an alternative for the olive oil industry by achieving a more efficient	-1	
ES-OleoValoriza/OLIVE	The olive-mill waterwaste constitute one of the most important environmental problems in olvie cooperatives, since they are chara	-1	
ES-OleoValoriza/OLIV2	The reuse and recovery of olive by-products are essential to reduce environmental pollution and contribute to increasing the efficie	-1	
CZ-TJ02000130/	Among the difficult tasks are the application of fugate (a by-product of biogas production) and the dependence on peat (a non-rene	-1	
CZ-QK1920328/	The progressive large-scale decay of spruce stands affecting many areas in the Czech Republic can hardly be prevented and we have	-1	
CZ-QK1920214/	The issue of protecting water resources while maintaining the competitiveness of agricultural production in their vicinity is quite co	-1	
CZ-TH03030319/	Efficient use of processed field by-products.	-1	
CZ-QK1710379/	Use of sewage sludge as a valuable waste raw material in agriculture.	-1	
CZ-TH02030681/	The establishment of field crops (maize) is currently carried out in the form of monoculture. This causes surface runoff of rainwater	-1	
CZ-TH02030925/	Increasing the composting rate, especially when processing bulky materials (urban green waste, sludge), which are increasingly proc	1	
CZ-SS06020282/	Conventional mechanical recycling of biopolymers is currently not a technologically feasible process, as their products often end up	-1	
CZ-TK04010166/	There is a need to update biomass potential in the light of changing factors affecting land use and biomass yields, including updating	-1	
CZ-FW06010358/	Reduction of the consumption of liquid substances (including liquid fertilisers) per unit area, in particular better use of these substa	-1	
EL11-HIPO-ENERGY/NUTRI	- management of Hippophae leaves, which are cultivated only for the harvesting of the fruit- existing studies highlight the nutritiona	-1	
EL12-ΑΕΙΦΟΡΙΚΑ ΚΗΠΕΥΤΙΚΑ/OREG	control of downy mildew (caused by soil fungi with negative effects in the production) in the context of the circular economy and th	-1	
EL13-OLIHERB/OLIVE	management of the significant quantities of olive leaves produced as by-products during cultivation (pruning), harvesting of olives a	-1	
EL14-BioAnimalChar/PIG	cost and quality of pig feed	1	
EL15-COMPOST-INNO/COMPO	- lack of sufficient amounts of organic waste in the cultivation sites - distance of the sources of organic matter from the places of pro	1	
EL16-Compo - Laventer/COLAV	increase of the production and the quality of lavender oil	-1	
EL17-AGROSCHOOLBUS.BIO/RESOL	Sustainable management of the residues (branches and leaves), pruning of the olive tree (and other productive trees).	-1	
EL18-SoilCircle/	Due to the negative effects on crop growth and the environment from the use of synthetic fertilisers, it is recommended to apply so	-1	
EL19-ΥΓΕΙΑΡΤΟΣ/YOGO	Exploitation of both goat milk and espresso coffee residues	-1	
EL20-Innovative Rice Residue Management Practic	Handling plant residues remaining in the rice fields after harvesting. Their burning was banned because of the reduction in organic r	-1	
EL21-ΕΛΑΙΩΝΑΣ/OLFER	Management of waste and wastewater generated during the olive farming and olive oil production processes	-1	
PL91-OrzechDębu/ACORN	Changing trends in consumer attitudes and food preferences towards reducing the consumption of meat and animal products. The v	-1	
PL93-GRIST/GRIST	Organic grain production and processing of brewery residues into meal, using an innovative dehydration method	-1	
pl94-Owoce 4.0/Owoce 4.0	Development of technology dedicated to currant plantations	-1	
0	0		

5.6 Spain

5.6.1 Information for the “Workshop Answers” sheet.

FAN Country:	Spain
FAN Region:	Andalusia

Q1_t

ID	Q1. What are the primary or secondary resources available in your representative region?
1	Forest pruning residues
2	Slurry
3	Wood
4	Olive stone
5	Olive pruning residues
6	Greenhouses plant debris
7	
8	
9	
10	
11	
12	
13	
14	

Q2_t

ID	Q2. What processing equipment is currently being used in your representative region?
1	Chopped
2	Crushed
3	Separation
4	Drying
5	Storage
6	Fermentation
7	
8	
9	
10	
11	

Q3_t

ID	Q3. What secondary products/by-products are currently being generated in your representative region?
1	Fuel
2	Compost
3	Biogas
4	Pellets
5	
6	
7	
8	
9	
10	
11	
12	

Q4_t

ID	Q4. What are your representative region's processing needs regarding primary and secondary resources? (identified needs should be ranked from high to low)
1	Absence of biorefineries or biomass management plants close to the production site for local biomass processing (compost, biogas, etc. both in agriculture and forestry sector). To produce valuable products that make it more profitable.
2	High cost of storage and transport of products with a high percentage of moisture
3	Bioproducts currently do not have enough added value to make the logistics cost profitable.
4	Available technologies with a bad efficiency cost ratio, mainly still at pilot phase, not available in the market. Large number of R&D projects but not all are scalable.
5	Weeding, storage, clutching of forest increase the biomass cost.
6	Logistics problems due to seasonal biomass generation. No guarantee of a stable prize of the bioproduct in the market (uncertainty that makes biomass valorisation not profitable) Lack of awareness about circular bioeconomy concept to the agricultural and forest producer (biomass supplier) and the society as a whole.
7	
8	
9	
10	
11	

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	Q5.1_t	
ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of farm size of the stakeholders which FAN members interact with (ha): e.g. 10 – 400 ha	
1	10.00 - 500.00	
2		
3		
4		
5		
6		
7		
8		
9		
10		

	Q5.2_t	
ID	Q5. What is the size/total area of the farm or forest in your representative region? Values provided by the FAN members: Range of forest size of the stakeholders which FAN members interact with (ha):	
1	50.00 - 500.00	
2		
3		
4		
5		
6		
7		
8		
9		
10		

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Q5.3_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average farm size (ha):
1	17.7
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.4_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Average forest size (ha):
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

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Q5.5_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total farmed area (ha):
1	4,380,000.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

Q5.6_t

ID	Q5. What is the size/total area of the farm or forest in your representative region? National statistics data: Region total forest area (ha):
1	4,460,000.00
2	
3	
4	
5	
6	
7	
8	
9	
10	

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	Q6.1_t	
	ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the short-term time (2 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €
1	1	€ 4,000.00
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	
10	10	

	Q6.2_t	
	ID	Q6. How much would the farmers/foresters in your representative region be willing to invest in the long-term time (5 years) to implement a technology or practice that would help them process their current resources into bio-products/by-products? Range €
1	1	€ 10,000.00
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	
10	10	

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Q7_t

ID	Q7. What return on investment period (number of years) is acceptable for investment in a bio-based technology? Please provide an average value of FAN and a range of values (years).
1	2
2	3
3	4
4	5
5	
6	
7	
8	
9	
10	

Q8.1_t

ID	Q8. What key stakeholders are you currently interacting/collaborating with?
1	Agricultural research centers.
2	Universities
3	Biotech companies
4	Agricultural and forestry organizations, cooperatives, and associations
5	Rural development groups
6	Technological centres
7	Pasture and forestry exploitations.
8	Cooperatives
9	Olive oil companies
10	Agricultural associations
11	CSIC

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Q8.2_t

ID	Q8. Nature of collaboration: e.g. advisory
1	Applied research projects.
2	Joint or pilot research projects for the application of innovative technologies.
3	Collaboration in R&D programs providing raw materials in search for innovative solutions for the valorisation, or production of biofuels, bioplastics.
4	Pilot projects, promotion actions, support for seeking opportunities, access to markets for bioproducts.
5	Technical support for fund raising
6	Collaboration for the promotion of forestry technologies.
7	Direct contact with owners
8	
9	
10	
11	

Q8.3_t

ID	Q8. Type of collaboration: open or closed to new members or partners.
1	Open
2	Open
3	Open
4	Open
5	Open
6	Open
7	Open
8	Open
9	Open
10	Open
11	Open

DRAFT

Q9_t

ID	Q9. Where do you go for information in your region?
1	Scientific and technical publications: JRC.
2	Platforms (https://observatoriobiomasa.es/, https://bioplat.org/, Red INtercamBIOM (https://intercambiom.org/practicas-innovadoras/), APPA Renovables- Biomasa (https://www.appa.es/appa-biomasa/).
3	Public administration portals + Reports (MITECO, CAPADR, AAE (Andalusian Energy Agency).
4	Technological and Agricultural Research Centers such as IFAPA, ceiA3.
5	Agricultural and forestry organizations and associations: Spanish Association of Biomass Energy Valorization (AVEBIOM), CLANER (Renewable Energy Association of Andalusia), AgroBioHeat.
6	Research Institutions and Universities (UCO, US, ceiA3, CIEMAT (Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas).
7	Collaboration networks / projects (BIC, ROBIN, SCALE-UP, BIOTRANSFORM, BIOREFINERY MAP).
8	Contacts with experts and technology suppliers through attendance at events in this field.
9	Consultants and industry professionals.
10	Internet.
11	Competitor companies.
12	Sectorial bibliography
13	

Q10_t

ID	Q10. What are the most significant environmental impacts in the region worrying your sector (forest/agriculture)?
1	Land degradation and deforestation.
2	Lack of forest cleanup.
3	CO_2 emissions – climate change.
4	The burning of pruning waste, both agricultural and gardening, and the destruction of fruit in warehouses.
5	Loss of biodiversity.
6	Water and soil contamination (use of fertilizers and pesticides).
7	Consumption of water resources.
8	Rapid depletion of natural resources.
9	Increase risk of fires if forestry biomass is not managed.
10	

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Q11_t

ID	Q11. What ideas do you have for involving women, the unemployed, and the youth in this area?
1	Create a strategy that makes examples visible, promotes cooperation and improves entry conditions in the sector.
2	Offer courses related to forestry training, especially practical ones.
3	Educational campaigns from an early age in schools.
4	Skills development programs for university students.
5	Specific training sessions aimed at specific segments of the population.
6	Outreach campaigns and initiatives to promote interest in issues related to biomass valorisation.
7	Support with public/private funding for the creation of startups, spinoffs, business incubators, etc.
8	Establish online platforms and digital tools so that this sector of the population can get involved.
9	Labour internships in agricultural exploitations and agri-food industries.
10	Investing in reuse plants to generate new job positions.
11	

Q12_t

ID	Thinking about the current resources and needs identified, what improvements could be implemented to make the process more circula
1	Promote new business models to manage biomass resources on-site to make profitable and cost effective the biomass management.
2	Raffia separation equipment to make greenhouses vegetables biomass usable.
3	Increase information to the producer about the available technologies and processes, and communicate opportunities offered by the bioeconomy. Increase social awareness for sustainability. Encourage funding for scaling up pilot technologies that is not yet available at market level
4	
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Q13_t

ID	Do you know of a more circular approach/technology that will help your RR work in a more circular way?
1	Generate circular bioeconomy microclimates with biomass management plants in forestry areas to incentivise employment and biomass valorisation.
2	Technology to reduce the size and density of the biomass transport in forest sector.
3	
4	
5	
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10	

5.6.2 Information for the “TranslateTables” sheet.

SECTION 1 - TRANSLATION OF VALUES FROM DROPDOWN FIELDS IN THE BBIONETS INVENTORY

T1.1_t

Q1 Answers	Reference sector
Forest pruning residues	A2.1Silviculture and other forestry activities
Slurry	A1.4Animal production
Wood	A2.1Silviculture and other forestry activities
Olive stone	A1.6Support activities to agriculture and post-harvest crop activities
Olive pruning residues	A1.2Growing of perennial crops
Greenhouses plant debris	A1.1Growing of non-perennial crops

T1.2_t

Q1 Answers	Key Word
Forest pruning residues	Forestry
Slurry	Animal husbandry
Wood	Forestry
Olive stone	Circular economy, incl. waste, by-products and residues
Olive pruning residues	Outdoor horticulture and woody crops (incl. viticulture,olives, fruit, ornamentals)
Greenhouses plant debris	Greenhouse crops

T1.3_t

Q1 Answers	Categories
Forest pruning residues	Crop residues and perennial plants F1
Slurry	Waste or recycled material FC
Wood	Crop residues and perennial plants F1
Olive stone	Waste or recycled material FC
Olive pruning residues	Crop residues and perennial plants F1
Greenhouses plant debris	Crop residues and perennial plants F1

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T1.4_t

Q1 Answers	Feedstock
Forest pruning residues	Biomass residues
Slurry	Wastes
Wood	Biomass
Olive stone	Wastes
Olive pruning residues	Biomass residues
Greenhouses plant debris	Biomass

T1.5_t

Q1 Answers	Value chains
Forest pruning residues	3 - High potential - Significant arisings of feedstocks available currently.
Slurry	2 - Medium potential - Significant availability of feedstocks available by 2035.
Wood	3 - High potential - Significant arisings of feedstocks available currently.
Olive stone	1- Low potential - Low to medium arisings of feedstock available between 2023-2035
Olive pruning residues	2 - Medium potential - Significant availability of feedstocks available by 2035.
Greenhouses plant debris	2 - Medium potential - Significant availability of feedstocks available by 2035.

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	T8.1_t	T8.2_t	T8.3_t	
	Q8.1 Answers: key stakeholders	Nature of collaboration	Type of collaboration	Type of partners
	Agricultural research centers.	Applied research projects.	Open	Researcher
	Universities	Joint or pilot research projects for the application of innovative technologies.	Open	Researcher
	Biotech companies	Collaboration in R&D programs providing raw materials in search for innovative solutions for the valorisation, or production of biofuels, bioplastics.	Open	Other
	Agricultural and forestry organizations, cooperatives, and associations	Pilot projects, promotion actions, support for seeking opportunities, access to markets for bioproducts.	Open	Advisor
	Rural development groups	Technical support for fund raising	Open	Other
	Technological centres	Collaboration for the promotion of forestry technologies.	Open	Researcher
	Pasture and forestry exploitations.	Direct contact with owners	Open	Forester
	Cooperatives		Open	Advisor
	Olive oil companies		Open	Processor or retailer
	Agricultural associations		Open	Farmer
	CSIC		Open	Researcher

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In these cells, we are interpreting the drop-down options are low, medium, or high potential of carbon sequestration as low, medium, or high potential of **carbon emissions**. The wording of the drop-down cells does not reflect this because of how the tool works.

T10.1_t

Q10 Answers	C Sink
Land degradation and deforestation.	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Lack of forest cleanup.	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
CO2 emissions – climate change.	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
The burning of pruning waste, both agricultural and gardening, and the destruction of fruit in warehouses.	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Loss of biodiversity.	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
Water and soil contamination (use of fertilizers and pesticides).	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
Consumption of water resources.	3 - High potential - strong potential for carbon sequestration at the feedstock and product level).
Rapid depletion of natural resources.	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.
Increase risk of fires if forestry biomass is not managed.	2 - Medium potential - strong potential for carbon sequestration at the feedstock or product level only.

In these cells, we are interpreting the drop-down options are low, medium, or high potential of environmental benefits as low, medium, or high potential of **environmental impacts**. The wording of the drop-down cells does not reflect this because of how the tool works.

T10.2_t

Q10 Answers	Envi Sustainability
Land degradation and deforestation.	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Lack of forest cleanup.	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
CO2 emissions – climate change.	3 - High potential - Expected to bring at least 3 significant environmental benefits.
The burning of pruning waste, both agricultural and gardening, and the destruction of fruit in warehouses.	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Loss of biodiversity.	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
Water and soil contamination (use of fertilizers and pesticides).	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.
Consumption of water resources.	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Rapid depletion of natural resources.	3 - High potential - Expected to bring at least 3 significant environmental benefits.
Increase risk of fires if forestry biomass is not managed.	2 - Medium potential - Expected to bring 2 or 1 environmental benefits.

Q11 Answers	Socio Sustainability
Create a strategy that makes examples visible, promotes cooperation and improves entry conditions in the sector.	3 - High potential - Expected to bring at least 3 significant social benefits.
Offer courses related to forestry training, especially practical ones.	1 - Low potential - doesn't bring any social benefits.
gns from an early age in schools.	1 - Low potential - doesn't bring any social benefits.
Skills development programs for university students.	1 - Low potential - doesn't bring any social benefits.
Specific training sessions aimed at specific segments of the population.	1 - Low potential - doesn't bring any social benefits.
Outreach campaigns and initiatives to promote interest in issues related to biomass valorisation.	2 - Medium potential -Expected to bring 2 or 1 social benefits.
Support with public/private funding for the creation of startups, spinoffs, business incubators, etc.	2 - Medium potential -Expected to bring 2 or 1 social benefits.
Establish online platforms and digital tools so that this sector of the population can get involved.	1 - Low potential - doesn't bring any social benefits.
Labour internships in agricultural exploitations and agri-food industries.	2 - Medium potential -Expected to bring 2 or 1 social benefits.
Investing in reuse plants to generate new job positions.	2 - Medium potential -Expected to bring 2 or 1 social benefits.

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SECTION 2 - ADDING EXTRA INFORMATION TO TRANSLATE VALUES FROM WORKSHOP AWNSERS

T5.3_t

Q5.3 Answers. National statistics data, Average fa	Biomasses identified from Q1	Avg. yearly yield of bic	Estimated Avg. tonnes	Source of information
17.70	Forest pruning residues		0	
-	Slurry	5,540,282	8,575.62	Consejería de Agricultura, Pesca, Agua y Desarrollo Rural. Junta de Andalucía, "Carcterización del Se
-	Wood		-	
-	Olive stone	408,074	631.64	Consejería de Agricultura, Pesca, Agua y Desarrollo Rural. Junta de Andalucía, "Carcterización del Se
-	Olive pruning residues	2,615,650	4,048.68	Consejería de Agricultura, Pesca, Agua y Desarrollo Rural. Junta de Andalucía, "Carcterización del Se
-	Greenhouses plant debris	1,434,883	2,221.01	Consejería de Agricultura, Pesca, Agua y Desarrollo Rural. Junta de Andalucía, "Carcterización del Se
-			-	
-			-	
-			-	
-			-	

", colum AO, in the Inventory copy sheet is in T/Day. If that is not the case, please con

T5.4_t

Q5.4 Answers. N	Biomasses identi	Avg. yearly yield of biomasses per forest	Estimated Avg. tonnes of biomass per for	Source of information
-	Forest pruning residues		-	
-	Slurry		-	
-	Wood		-	
-	Olive stone		-	
-	Olive pruning residues		-	
-	Greenhouses plant debris		-	
-			-	
-			-	
-			-	
-			-	

ity", colum AO, in the Inventory copy sheet is in T/Day. If that is not the case, please conve

SECTION 3 - TRANSLATION OF VALUES FROM NARRATIVE SYNTHESIS FIELDS IN THE BBIONETS INVENTORY

T2.1_t

Q2 Answers	Key word to find in "Description BBT"
Chopped	Chipping;pellet;fertilizer;chips
Crushed	Dryer;pelletizing;fertilizer;chips
Separation	Maceration;fibers;pyrolysis;separator;evaporation;olivepulp
Drying	Dryer;heat;molding;packaging;temperature
Storage	Residues;grain
Fermentation	Fertilizer;anaerobic;compost;biofertilizer;composting;descomposition

T2.2_t

Q2 Answers	Key word to find in "Intended user / conditions of access"
Chopped	industrial;forester;farmer;SME;processing;industries;producer
Crushed	industrial;forester;farmer;SME;processing;industries;producer
Separation	industrial;forester;farmer;SME;processing;industries;producer
Drying	industrial;forester;SME;processing;industries
Storage	forester;SME;farmer;landowner;producer
Fermentation	SME;biogas;industrial

T3_t

Q3 Answers	Key word to find in "Outcomes and final product"
Fuel	energy; power; combustible
Compost	fertilizer; nutritional
Biogas	energy; power; combustible; biogas
Pellets	combustible; energy; heat

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5.6.3 Information for the “Weight” sheet

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Workshop answers regarding processing needs (as visual reference only)			Inventory answers to BBTs needs/problems statement		Manually add weight to BBTs after reading the workshop anwsers
W4_t					
ID	processing needs regarding primary and secondary resources? (identified needs should be ranked from high		BBT CODES	BBT NEEDS/PROBLEM STATEMENT	Weight
1	Absence of biorefineries or biomass management plants close to the production site for local biomass processing (compost,		IE10-Biorefinery Glas/GLAS	To improve the sustainability, value and resource efficiency of Ireland's livestock sector through farmer diversification into the bioeconomy and to assess the potential role of grass biorefinery in supporting sustainable and resilient communities in rural Ireland.	-1
2	High cost of storage and transport of products		IT11-FABER/FABER	Forest biomass and its management to address climate change and GHG emissions.	1
3	Bioproducts currently do not have enough added value to make the logistics cost		FI12-ForestChip4Farm/FC4FH	Preventing climate change, increasing bioenergy in rural areas, decreasing CO2 emissions from farms and the food chain, promoting a sustainable food chain, and developing new innovations and products.	-1
4	Available technologies with a bad efficiency cost ratio, mainly still at pilot phase, not		DE13-Lignocellulosic Biorefinery/LIGNO	To valorize the lignocellulosic residues (meadow grass) from farms in a sustainable way.	-1
5	Weeding, storage, clutching of forest increase		EL14-BIO2CHP/B2CHP	bypasses technical limitations & allows the use of residual biomass for small-scale & on-site energy production	-1
6	Logistics problems due to seasonal biomass generation. No guarantee of a stable prize of the bioproduct in the market (uncertainty that		IT15-Scarabeo/HMP2C	There is a need for sustainable and efficient methods in the hemp supply chain to increase quality, valorize and reduce energy consumption.	-1
7	0		HU16-REFERTIL/3RZRO	Recycling and valorization of un-exploited farm and animal by-products	-1
8	0		IT17-Mountain Carbon/MNTNC	to help improve the management of the organic matter (OM) from dairy cattle manure in the mountain areas	-1
9	0		EE18-Hay Biosyngas/HAYBG	a cost-effective and efficient way to produce bio-coal from late harvested hay pellets to benefit small and medium-sized entrepreneurs	-1
10	0		FI19-Wood2Biogas/Wd2BG	to produce and use the gasification gas to boost methane formation in the biogas process, and simultaneously produce biochar, and the use of woody materials in biogas energy production without increasing the amount of digestate from the biogas process	-1
11	0		IT20-Clean-ER/CLINR	The accumulation of low economic value woody/shrub biomass in mountain areas poses a significant threat as it increases the risk o	1
			FR21-SeCoPPA /ALFLF	challenges in efficiently drying alfalfa for animal feed, and a need to utilize manure and shredded wood from hedgerows	-1
			IE22-BBFB/CHAR	The unutilised biomass is left to decay which returns carbon dioxide to the atmosphere while also control of vegetation, by herbicid	-1
			IE23-SBDP/BGAS	The intensification of Irish agriculture, particularly in dairying, has raised concerns about its environmental impact as it is a significan	-1
			DE24-GrassBiowert/BWERT	Displacement of fossil based products with bio-based alternatives, while offering rural diversification opportunities.	-1
			BE25-Grassification/GRSFY	Valorization of roadside grass clippings and improving its digestion with other feedstock, as monodigestion of grass can be technical	-1
			FR26-Pyrogreen/PYROG	A bio-based technology that supports valorizing, recycling and recovering of resources by providing a versatile and easy to implemer	1
			DE27-GO-GRASS/GOGRS	The grass from protected wetland areas in the polder meadows is heterogeneous, in parts strongly lignified (rigid) and its nutritiona	-1
			NL28-GO-GRASS/GOGRS	Low quality natural and roadside grass are used for low added value applications such as compost which also includes costs associate	-1

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DK29-GO-GRASS/GOGRS	The conversion of annualcrops such as maize, rapeseed and cereals into grassland can significantly reduce nitrate leaching under EU v	-1
PT30-Spawnfoam/SPAWN	changing the paradigm of production and consumption of fossil-based composites and materials, such as plastics, by providing an inr	-1
DE31-MixBioPells/PLTIZ	Since nowadays wood is getting more scarce caused by the growing demand in material and the energetic use, alternative solid biofu	-1
DE32-MixBioPells/PLTHP	in Europe small-scale combustion units (20 to 200 kW) are used almost only with high quality wood fuels, and nowadays wood is gett	-1
DE33-BIOlution/BIOLT	Agricultural waste such as tomato and wheat wastes are not used, which has an environmental impact and a management cost for th	-1
FR34-GRANUL'HAIE/WdPLT	To enhance the value of local raw materials to meet the increasing demand from consumers who are interested in buying local produ	1
ES35-Bioferti+/BFTZ+	Waste recovery of cattle manure and other organic waste, to increase the biological and physical-chemical quality of agricultural soil	-1
NL36-ManurePellet/MnPLT	a higher percentage of organic matter, a better soil structure and more binding of nutrients in the soil, a problem is formulated for a	-1
IT37-BIOECO_FLIES/W2BSF	to valorize agrifood biomass beyond the typical low added value applicaitons such as fertilizer or biomass for digesters	-1
DK38-MacrofuelS/CWEED	There is an undisputed and urgent need to decarbonise the European transport sector and seaweed can be a sustainable bio-based f	1
IT39-Res4Carbon/RES4C	to define the best practices to guarantee maximum technical, economic and environmental efficiency in the processing, handling an	1
FR40-SIVABA/WdPwr	The need to better articulate the various links in the wood energy sector in order to increase its visibility vis-à-vis potential consume	-1
BE41-BierbeekCHIP/Wd2CN	to valorise the woody material coming from the municipal hollow roads and the wood edges after shredding on the local fields of Bi	1
LT42-cogeneration residue/Res2F	a need to develop a production technology for a new type of fertilizer using wood ashes and digestate	-1
IT43-CAREGA/4COAL	a gradual abandonment of the forests and a progressive decrease in commercial relations between forest owners, forestry companie	1
IT44-COBRAF/COBRA	develop an articulated system of biorefineries that allows maximum exploitation of the biomass of oil crops (hemp, safflower, flax	-1
IT45-Stabilized Litter/StbMn	the impact of stabilized litter obtained from the solid/liquid separation of slurry subjected to a process of sanitation and stabilizatio	-1
IT46-BIOACTAM/BIOAA	to develop and validate a new generation of products, based on the partial pyrolysis of ligno-cellulosic biomass deriving from forest	1
PT47-GOEfluentes /GoEFt	increase the efficiency of water and nutrient utilization, reduce the environmental impact of farming and add value to agricultural w	-1
ES48-INCREdible/RESIN	addressing challenges faced by resin as a non-wood forest product	1
LV49-WoodResidueLV/W2IHF	developing innovative technological solutions to reclamation of wood processing by-products, further processing and adding value t	1
IT50-RBR-EAS/BCH4R	using different residual biomass with energy purposes (biofuel production), agricultural (production of fertilizer) and food (dietary s	-1
AT-Closing cycles/NTREC	Farms need a reasonably closed nutrient cycle to recover energy and resources	-1
PL-BIOGAL/BIOGL	Livestock sector has several challengesbecause of the management of theresources and wastes produced. Manure isone of the bigge	-1
ES-LIFE Smart Fertirrigation/FRTGN	pig meat production generates large amounts of manure leading to important environmental problems and many anaerobic digestio	-1
BE-DIGESMART /DIGST	Biogas production is efficient at reducing agricultural emission by converting the biomass into electricity and thermal energy (cogen	1
NL-VORTEX/VORTX	Manure stripping innovation for efficiency and cost	-1
NL-Manure Evaporation/EVAPR	Different manure processing techniques are already available and the thick fraction can be well tolerated. However, the reduction o	-1
DE-Manure Efficiency/MNURE	to develop a procedure for liquid slurry processing for agricultural enterprises, with which slurry and manure can be used to produce	1
SE-Manure Refining/MNRRF	to produce concentrated, transport-efficient fertilizers from biogas plant that produces large amounts of digested manure, as well as	1
BE-HIATUS/WATER	Almost every year, farmers face water shortages due to drought. Therefore, they are looking for alternatives for this valuable water,	-1
ES-GO IMECO/PgSLR	slurry management and treatment system for ensuring the product generated in pig farms is more competitive and has a lower envir	-1
FI-LEX4BIO/BBFRT	reducing dependency on mineral and fossil-based fertilizers by optimizing the use of bio-based fertilizers (BBFs)	-1
IT-ProBEST/BARK	In the production of forest wood fuels, the presence of bark and twigs must be limited. these can be chipped and delivered, essentia	1
IT-ProBEST/ASHES	In the production of forest wood fuels, the incombustible elements (ash) must be limited. these can be delivered, essentially at cos	-1
IT-FiLeProPri/WSC	Face the problem of the socio-economic marginality of wood production in private property.	-1
IT-ROSAEXTREM/NRH	Encourage the restructuring of farms with structural problems considerable	-1
IT-M.ER.LI.n/MERL	Analyze needs of partner companies to identify implementation opportunities innovative solutions that are energetically sustainabl	-1
IT-INNOVABIOZOO/INZOO	The project consists of a series of actions divided into the following areas work: preparatory phase, coordination and animation, ado	-1
ES-AgriCarbón/AC	In Andalusia, agricultural activities play an important role in the socio-economic development which generates contamination in sup	-1
ES-AGUACAVALUE/BYPRO	Promotes possible alternatives for the valorisation of avocado by-products by studying the characterisation of their nutritional profil	-1
ES-AGUACAVALUE/AVOCA	Spain concentrates the 93% of the avocado production in Europe. Malaga and Granada (Andalusian provinces) have the 88% of the to	-1
ES-CHERRY4FOOD/CHERR	There is a need for the processing industries of tomato products (gazpacho and salmorejo) to utilise the by-products generated in th	-1
ES-TOMATOGROUP/TOMAT	There is a need for valorisation of the tomato chopping which currently is a residue with no value.	-1
ES-BIOSUERO/WHEY	In Andalusia, it is produced a large quantity of milk whey every year. From 10 L of milk, it is obtained 1 kg of cheese and 9 L of whey. T	-1
ES-Biochar/BIOCH	The project is mainly focused on the Western Coast of Huelva (Ayamonte, Isla Cristina, Lepe, Cartaya, Gibraleón, Punta Umbría and A	-1
ES-BIORUMIOLI/FEED	Need to increase the profitability of livestock farms and create an alternative for the olive oil industry by achieving a more efficient	-1
ES-OleoValoriza/OLIVE	The olive-mill waterwaste constitute one of the most important environmental problems in olvie cooperatives, since they are chara	-1
ES-OleoValoriza/OLIV2	The reuse and recovery of olive by-products are essential to reduce environmental pollution and contribute to increasing the efficie	-1
CZ-TJ02000130/	Among the difficult tasks are the application of fugate (a by-product of biogas production) and the dependence on peat (a non-renev	-1
CZ-QK1920328/	The progressive large-scale decay of spruce stands affecting many areas in the Czech Republic can hardly be prevented and we have	-1
CZ-QK1920214/	The issue of protecting water resources while maintaining the competitiveness of agricultural production in their vicinity is quite cor	-1
CZ-TH03030319/	Efficient use of processed field by-products.	-1
CZ-QK1710379/	Use of sewage sludge as a valuable waste raw material in agriculture.	-1
CZ-TH02030681/	The establishment of field crops (maize) is currently carried out in the form of monoculture. This causes surface runoff of rainwater a	-1
CZ-TH02030925/	Increasing the composting rate, especially when processing bulky materials (urban green waste, sludge), which are increasingly proc	-1
CZ-SS06020282/	Conventional mechanical recycling of biopolymers is currently not a technologically feasible process, as their products often end up	-1
CZ-TK04010166/	There is a need to update biomass potential in the light of changing factors affecting land use and biomass yields, including updating	-1
CZ-FW06010358/	Reduction of the consumption of liquid substances (including liquid fertilisers) per unit area, in particular better use of these substa	-1
EL11-HIPO-ENERGY/NUTRI	- management of Hippophae leaves, which are cultivated only for the harvesting of the fruit- existing studies highlight the nutritiona	-1

EL12-ΑΕΙΦΟΡΙΚΑ ΚΗΠΕΥΤΙΚΑ/OREG	control of downy mildew (caused by soil fungi with negative effects in the production) in the context of the circular economy and th	-1
EL13-OLIHERB/OLIVE	management of the significant quantities of olive leaves produced as by-products during cultivation (pruning), harvesting of olives a	-1
EL14-BioAnimalChar/PIG	cost and quality of pig feed	-1
EL15-COMPOST-INNO/COMPO	- lack of sufficient amounts of organic waste in the cultivation sites - distance of the sources of organic matter from the places of proc	-1
EL16-Compo - Laventer/COLAV	increase of the production and the quality of lavender oil	-1
EL17-AGROSCHOOLBUS.BIO/RESOL	Sustainable management of the residues (branches and leaves), pruning of the olive tree (and other productive trees).	-1
EL18-SoilCircle/	Due to the negative effects on crop growth and the environment from the use of synthetic fertilisers, it is recommended to apply soi	-1
EL19-ΥΓΕΙΑΡΤΟΣ/YOGO	Exploitation of both goat milk and espresso coffee residues	-1
EL20-Innovative Rice Residue Management Practic	Handling plant residues remaining in the rice fields after harvesting. Their burning was banned because of the reduction in organic m	-1
EL21-ΕΛΑΙΩΝΑΣ/OLFER	Management of waste and wastewater generated during the olive farming and olive oil production processes	-1
PL91-OrzechDębu/ACORN	Changing trends in consumer attitudes and food preferences towards reducing the consumption of meat and animal products. The ve	-1
PL93-GRIST/GRIST	Organic grain production and processing of brewery residues into meal, using an innovative dehydration method	-1
pl94-Owoce 4.0/Owoce 4.0	Development of technology dedicated to currant plantations	-1
0	0	

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6 Conclusions and future works

The D2.2 "BBTs Assessment Tool - v1" represents a significant advancement in the evaluation and prioritization of Bio-Based Technologies for different regions. By integrating comprehensive data and providing a user-friendly interface, the tool enables stakeholders to make informed decisions based on regional needs and specific conditions. The methodology and data model ensure that the results are precise and relevant, fostering greater accuracy with detailed user inputs.

This initial version sets the foundation for future enhancements and wider adoption across various regions. The incorporation of feedback from ongoing and future workshops will further refine the tool, aligning it more closely with real-world applications and challenges. As more data is collected and incorporated, the BBTs Assessment Tool will evolve, offering increasingly robust and tailored recommendations.

Overall, the BBTs Assessment Tool is poised to become an essential resource for regional planners and decision-makers, facilitating the strategic implementation of bio-based technologies and promoting sustainable development. The guidelines provided ensure that partners can effectively utilize the tool, ensuring consistency and reliability in creating 'reference' scenarios. This deliverable marks an important milestone in the project's journey towards fostering innovation and sustainability through bio-based solutions.

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References

[1] "Difference Between Star and Snowflake Schema. https://techdifferences.com/difference-between-star-and-snowflake-schema.html." [Online]. Available: https://techdifferences.com/difference-between-star-and-snowflake-schema.html.

[2] D. J. Cohen and M. R. Reynolds, "Interpreting the results of cost-effectiveness studies," *J Am Coll Cardiol,* vol. 52, no. 25, pp. 2119-26, Dec 16 2008, doi: 10.1016/j.jacc.2008.09.018.

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Appendix I Guidelines for Reference Scenarios

Below there is a copy of the guidelines sent to partners to follow for the creation of the reference scenarios.

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BBioNets

www.bbionets.eu

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)
Start - end date	1/11/2023 – 31/10/2026 (36 months)
Project type	Coordination and Support Action
Programme	Horizon Europe – Cluster 6
Funding	1,998,636.20 €
Coordinator	Munster Technological University Ms. Carmen Girón Domínguez (carmen.dominguez@mtu.ie)
Project overview	**BBioNets** will constitute a thematic network that will rely on, promote, and further advance 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 will set up 6 regional Forest and Agriculture Networks - FANs (IE, ES, IT, GR, PL, CZ) that will 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.
Consortium	MTU Ollscoil Teicneolaíochta na Mumhan Munster Technological University cagasc iung Institute of Soil Science and Plant Cultivation State Research Institute TEPRO Consultores Agrícolas, S.L. CTA crea American Farm School Thessaloniki - Greece FOCUS BIO EAST HUB

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