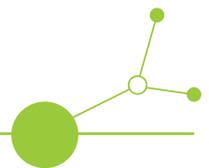


# Bioeconomy policy – Workshop summary and selected measures

Deliverable D.3.1.3 prepared for BIOECO-UP activity A.3.1  
Analysing circular bioeconomy measures



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|                                       |   |
|---------------------------------------|---|
| Project title                         | Circular BioEconomy Market Uptake and Policy Support in Central Europe (BIOECO-UP)  |
| Work package                          | WP 3 Mainstreaming of circular bioeconomy policies  |
| Activity                              | A.3.1 Analysing circular bioeconomy measures  |
| Deliverable                           | <b>D.3.1.3 Bioeconomy policy - Workshop summary and selected measures</b>   |
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| Abstract                              | This deliverable addresses (circular) bioeconomy in the context of the Common Agricultural Policy (CAP) of 8 Central European countries (AT, CZ, HR, HU, IT, PL, SI, SK). It includes key findings from a transnational policy workshop and lists of selected bioeconomy policy measures. The policy measures were proposed by experts in the fields of CAP and bioeconomy policy, or compiled from national documents, i.e. CAP strategic plans, bioeconomy action plans from AT and IT. Deliverable D.3.1.3 "Bioeconomy policy - Workshop summary and selected measures" is an excerpt of D.3.1.1 "Policy analysis of circular bioeconomy measures". D.3.1.1 is based on materials and inputs provided by the national BIOECO-UP teams. |
| Partner organisations, national teams | AT: BAB = Federal Institute of Agricultural Economics, Rural and Mountain Research; CZ: ART = Agricultural Research Ltd. Troubsko, CZU = Czech University of Life Sciences Prague; HR: HPK = Croatian Chamber of Agriculture; ICE = Institute for Circular Economy; HU: BZN = Bay Zoltán Nonprofit Ltd. for Applied Research, HuMA = Hungarian Ministry of Agriculture (lead partner); IT: UNIBO = University of Bologna; PL: IUNG = Institute of Soil Science and Plant Cultivation State Research Institute (activity A.3.2 lead partner); SI: ISD = Institute for Sustainable Development, UL = University of Ljubljana; SK: BEC = Bioeconomy Cluster.   |
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## Abbreviations

|     |                                 |
|-----|---------------------------------|
| AT  | Austria                         |
| BG  | Bulgaria                        |
| CAP | Common Agricultural Policy      |
| CE  | Central Europe                  |
| CZ  | Czechia                         |
| EC  | European Commission             |
| EE  | Estonia                         |
| EIP | European Innovation Partnership |
| EP  | European Parliament             |
| EU  | European Union                  |
| HR  | Croatia                         |
| HU  | Hungary                         |
| IT  | Italy                           |

|        |  |
|--------|--|
| LEADER | “Liaison Entre Actions de Développement de l’Économie Rurale”; / a bottom-up rural development approach implemented by Local Action Groups (LAGs). Since 2014, LEADER has extends under the term Community-Led Local Development (CLLD) to four EU funds, i.e. EAFRD, EMFF, ESF, ERDF [EC, s.a.] |
| LT     | Lithuania  |
| LV     | Latvia   |
| PL     | Poland   |
| RO     | Romania  |
| SI     | Slovenia   |
| SK     | Slovakia   |
| SME    | small and medium enterprises   |



# 1. Background

## Circular bioeconomy and the Common Agricultural Policy (CAP)

The bioeconomy is based on the use of biological resources, functions and principles [EC, 2018a] and subject to constraints (e.g. planetary boundaries, climate change impacts, sustainability of biomass) [EC, 2025]. The circular economy aims to extend the life cycle of materials and products for as long as possible, and reduce the generation of waste as much as possible [EU, 2024]. Combining these concepts to a sustainable circular bioeconomy is discussed as one approach to addressing global challenges like climate change, degradation of land and ecosystems and a growing demand for resources [EC-KCB, 2018]. The EU bioeconomy strategy claims “Circularity must become a core principle of the European bioeconomy” [EC, 2025: 14].

Agriculture and food are core bioeconomy sectors in the EU [see e.g. EC-JRC, 2024]. Measures to support a sustainable circular bioeconomy are not limited to bioeconomy action plans, but can also be defined in other policy frameworks, such as the Common Agricultural Policy (CAP). The CAP provides a policy framework and funding primarily dedicated to agriculture, food and the rural, but it also has an effect on forestry and fisheries. EU countries implement the CAP 2023-2027 through their national CAP strategic plans [EC, 2023].

Numerous actors from society, policy and the economy have been working to enable the transition to sustainable and/or circular bio-based systems, including the Interreg CE project “Circular BioEconomy Market Uptake and Policy Support in Central Europe” (BIOECO-UP). This report provides core results of BIOECO-UP activity A.3.1 “Analysing circular bioeconomy measures”: the bioeconomy policy workshop [Chapter 2] and lists of selected bioeconomy policy measures [Chapter 3].

## BIOECO-UP project

BIOECO-UP is implemented by 12 project partners from 8 Central European countries (AT, CZ, HR, HU, PL, IT, SI, SK) [BIOECO-UP project]. In 3 work packages (WP), BIOECO-UP seeks to: support economic actors in developing bio-based value chains (WP 1); support consumers in moving towards a more bio-based consumption (WP 2); support policy makers in advancing circular bioeconomy policy (WP 3). In 4 activities (A.3.x), WP 3 “Mainstreaming of circular bioeconomy policies” seeks to: analyse bioeconomy policy in Central Europe with special attention to CAP interventions (A.3.1); develop bioeconomy strategy and action plans (A.3.2); involve the BIOEAST initiative (A.3.3); address a circular bioeconomy vision for Central Europe (A.3.4). BIOEAST is a “Central and Eastern European Initiative for Knowledge-based Agriculture, Forestry and Aquaculture in the Bioeconomy” and involves 11 Eastern European ministries of agriculture and supporting institutes (from BG, CZ, EE, HR, HU, LT, LV, PL, RO, SI, SK) [BIOEAST Initiative].

# 2. Bioeconomy policy workshop

The transnational workshop “How to support a sustainable and/or circular bioeconomy through policy” was organised online on 1 February 2024 in BIOECO-UP activity A.3.1. Overall, 57 persons from 8 countries (AT, CZ, IT, HR, HU, PL, SI, SK) and the EU level participated, including the presenters and panellists.

The workshop’s **scope** included bioeconomy-related activities, information and experiences at the policy level with a focus on how to support the bioeconomy through national CAP strategies of BIOECO-UP countries. The main **objective** was to facilitate an exchange of information and experiences on the development, implementation and financing of bioeconomy measures in the CAP. Another objective was to provide an input for deliverable D.3.1.1 and other BIOECO-UP activities.

The main **target groups** were policy makers, advisors and others with an interest in the CAP and bioeconomy in the BIOECO-UP region. The speakers were selected based on their expertise in strategic and practical aspects of developing and implementing bioeconomy(-related) policy measures. The presentations focused



on the **topics** of bioeconomy and the CAP in EU, IT and AT. The panel comprised experts who contributed national perspectives of AT, IT, HR, HU, PL, SI, SK and addressed topics such as:

- How does the CAP strategic plan of your country address the bioeconomy?
- What types of CAP interventions are related to the topic of bioeconomy?
- What types of calls is your country considering (e.g. supporting cooperation, innovation, investment)?
- Who would be the target groups/beneficiaries of these calls?

For the **content analysis**, the authors generated an AI-assisted transcript from the workshop's audio recording (2 h 34 mins), checked it for accuracy and made corrections. The authors individually analysed the experts' statements based on the corrected transcript and jointly discussed and summarised contents and findings. Presenters and panellists had the opportunity to give feedback on the draft summary. The authors revised the workshop summary based on the experts' feedback.

**Key findings** were formulated by the authors based on statements of the workshop presenters and panellists. It should be noted that this list is incomplete and it does not necessarily reflect a consensus of all represented experts. It does however indicate observations, experiences and information which the policy experts deemed important to share with other experts in this transnational workshop. The key findings are:

- Bioeconomy concept:
  - There is no common understanding of the concept of bioeconomy.
  - Bioeconomy may contribute to solving societal problems.
  - Bioeconomy has its limitations (e.g. resource availability).
- Bioeconomy and the CAP:
  - CAP funding may be used for implementing bioeconomy policy measures.
- Bioeconomy, markets:
  - EU countries have integrated markets, so it is reasonable to coordinate activities and policies.
  - For adding value, involve more actors in value chains (beyond primary production).
  - Bioeconomy may be seen as an opportunity (e.g. for individual businesses, economy as a whole).
  - Cooperation is important (e.g. along the value chain, across sectors, across countries; e.g. for sharing best practices, exchanging knowledge).
- Policy, institutional framework and coordination:
  - Ideally, policy is based on national needs and potentials (e.g. what producers can contribute).
  - Developing bioeconomy policy is more sustainable if key positions in the managing authority remain the same over a longer period of time.
  - There is a need for coordinating and integrating experience and knowledge at the policy-making level (e.g. through involvement of practitioners, businesses, researchers, education).
  - There is a need for developing coordination mechanisms and capacities for the bioeconomy (e.g. value chains, sectors, transnational action).
- BIOECO-UP countries:
  - In the BIOECO-UP countries, the bioeconomy is developed to different stages.
  - Policy makers are interested in sharing knowledge and experiences transnationally.
  - BIOECO-UP countries are looking for financing options for bioeconomy measures.
  - All BIOECO-UP countries have an approved CAP strategic plan.
  - BIOECO-UP countries intend to or are already making use of CAP funding for bioeconomy measures.



## 3. Lists of selected bioeconomy policy measures

This chapter provides lists of selected bioeconomy policy measures from: the national CAP strategic plans [Chapter 3.1], the bioeconomy action plan for AT [Chapter 3.2] and the bioeconomy action plan for IT [Chapter 3.3].

As policies evolve, it should be noted that the available interventions and their implementation status may have changed since the compilation of these lists in February 2024.

### 3.1. CAP 2023-2027 strategic plans

The panel speakers of the policy workshop proposed bioeconomy-related CAP interventions which may be or which are already used in their own countries for advancing the (circular) bioeconomy.

#### Catalogue of CAP interventions

The EU countries implement the CAP 2023-2027 by means of their national CAP strategic plans [EC, 2023]. The catalogue of CAP interventions contains the interventions defined by the EU countries in their national CAP strategic plans, specifically 2,448 CAP interventions for the EU-27, of which 809 interventions are for the 8 BIOECO-UP countries [EC-DGAgri, 2024]. The catalogue provides additional information (22 columns): CAP plan version, Member State Code, Member State, Macro-type, Type of Intervention Code, Type of Intervention Description, National Intervention Code, Intervention Name - English, Intervention Name - Original, Sector, Form of Support, Green Intervention, Territorial Scope, Specific Objective, Result Indicator, Output Indicator Code, GAEC, Sectoral Objective, Area of Action (for Eco-schemes), Total EU expenditure (2023-2029), Total Public Expenditure (2023-2029), Additional National Financing (2023-2029).

#### Selection of CAP interventions

The CAP interventions, to a higher or lower degree, are related to the bioeconomy. In absence of a uniform understanding or definition of the concept of (circular) bioeconomy in general [BIOECO-UP A.3.2 report on EU Agri-food vision 2040: 4-5] and in BIOECO-UP activity A.3.1, policy experts were invited to name those CAP interventions which they deemed particularly relevant and interesting in the context of their national bioeconomies and based on their knowledge and experience.

The experts selected 69 (i.e. 9 % of 809) CAP 2023-2027 interventions in the BIOECO-UP countries, of which 50 are implemented at the national level, 12 at the national level with regional elements, 3 at the regional level and 4 at the transnational level. The most frequent form of support is grants (47 interventions). Most are of the type "Investments, including investments in irrigation" (35 interventions) and "Cooperation" (13 interventions). These 69 expert-selected interventions account for approx. 15.4 billion EUR (8.7 %) of total expenditure (EU + public + additional national financing) in the BIOECO-UP countries in CAP 2023-2029 period [Figure 1]. The selected CAP interventions are also clustered by country [Figure 2] and by intervention type [Figure 3].

Figure 1 gives an overview of the funding foreseen for selected bioeconomy-related CAP interventions in the BIOECO-UP countries by type of intervention and type of funding. This compilation of interventions is not necessarily complete, different experts may select different/more/fewer interventions and thus the identified expenditure would change.



Figure 1: Funding of selected CAP interventions in the BIOECO-UP countries

| Type of Int. Code                  | Type of Intervention Description   | Intervent. Count | Total EU expend. (a) million EUR | Total Public expend. (b) million EUR | Add. National financing (c) million EUR | Total =(a)+(b)+(c) million EUR |
|------------------------------------|--|------------------|----------------------------------|--------------------------------------|---|--------------------------------|
| ADVIBEEES                          | advisory services, technical assistance, training, information and exchange of best practices, including through networking, for beekeepers and beekeepers' organisations  | 1                | 0.7                              | 1.4                                  | -                                       | 2.2                            |
| BISS                               | Basic income support for sustainability  | 1                | 1,258.3                          | 1,258.3                              | -                                       | 2,516.6                        |
| COOP                               | Cooperation  | 13               | 776.4                            | 1,584.5                              | 33.0                                    | 2,393.9                        |
| Eco-scheme                         | Schemes for the climate, the environment and animal welfare  | 3                | 2,820.0                          | 2,820.0                              | -                                       | 5,639.9                        |
| ENVCLIM                            | Environmental, climate-related and other management commitments  | 3                | 10.4                             | 16.9                                 | -                                       | 27.4                           |
| INSTAL                             | Setting up of young farmers and new farmers and rural business start-up  | 3                | 25.3                             | 53.8                                 | 4.0                                     | 83.1                           |
| INVEST                             | Investments, including investments in irrigation   | 35               | 1,512.1                          | 3,078.6                              | 93.0                                    | 4,683.8                        |
| INVRE                              | investments in tangible and intangible assets, research and experimental and innovative production methods and other actions   | 2                | -                                | -                                    | -                                       | -                              |
| KNOW                               | Knowledge exchange and dissemination of information  | 4                | 11.6                             | 22.5                                 | -                                       | 34.1                           |
| ORGAN                              | organic or integrated production   | 1                | -                                | -                                    | -                                       | -                              |
| QUAL                               | implementation of Union and national quality schemes   | 1                | -                                | -                                    | -                                       | -                              |
| TRAINCO                            | training including coaching and exchange of best practices, in particular concerning sustainable pest and disease control techniques, sustainable use of plant protection and animal health products, and climate change adaptation and mitigation, as well as the use of organised trading platforms and commodity exchanges on the spot and futures market | 1                | -                                | -                                    | -                                       | -                              |
| TRANS                              | actions to increase the sustainability and efficiency of transport and of storage of products  | 1                | -                                | -                                    | -                                       | -                              |
| <b>CAP 2023-2027 interventions</b> |  |                  |                                  |                                      |   |                                |
|                                    | Interventions - total in BIOECO-UP countries   | 809              | 75,756                           | 95,697                               | 5,123                                   | 176,577                        |
|                                    | Interventions - other  | 740              | 69,341                           | 86,861                               | 4,993                                   | 161,196                        |
|                                    | Interventions - selected by experts  | 69               | 6,415                            | 8,836                                | 130                                     | 15,381                         |
|                                    | Interventions - selected by experts  | 8.5 %            | 8.5 %                            | 9.2 %                                | 2.5 %                                   | 8.7 %                          |

Notes: This compilation is not necessarily complete, different experts may select different/more/fewer interventions and thus the identified expenditure would change. Original names of columns in Catalogue of CAP interventions: "Type of Intervention Code", "Type of Intervention Description", Intervent. = "National Intervention Code", "Total EU Expenditure (2023-2029)", "Total Public Expenditure (2023-2029)", "Additional National Financing (2023-2029)". Original spelling.

Source: Own calculations and table based on interventions selected by CAP policy experts in A.3.1 policy workshop and personal communication [BIOECO-UP D.3.1.1] and the Catalogue of CAP interventions [EC-DGAgri, 2024].



Figure 2: Selected CAP 2023-2027 interventions, clustered by BIOECO-UP country

| MS        | Type   | Intervention  | Line   |   |     |
|-----------|--|---|--|---|-----|
| AT        | COOP   | 77-02   | Cooperation  | 1.  |     |
|           |  | 77-03   | Rural innovation systems in the framework of the European Innovation Partnership                     | 2.  |     |
|           | ENVCLIM  | 70-05   | Management of mountain mowings   | 3.  |     |
|           | INVEST   | 73-12   | Investment in renewable energy   | 4.  |     |
|           |  | 73-13   | Implementation of climate and energy projects at local level   | 5.  |     |
| CZ        | ADVICEES   | 57.55   | Apiculture sector – consultancy and training for beekeepers and their organisation                   | 6.  |     |
|           | BISS   | 01.21   | "Basic income support for sustainability   | 7.  |     |
|           | COOP   | 51.77   | Innovation in the processing of agricultural products  | 8.  |     |
|           | ENVCLIM  | 25.70   | Afforestation of agricultural land – management of the ground  | 9.  |     |
|           | INVEST   | 41.73   | Afforestation of agricultural land – establishment of stands   | 10.   |     |
|           |  | 44.73   | Conversion of stands of replacement tree species   | 11.   |     |
|           |  | 45.73   | Investments in non-agricultural activities   | 12.   |     |
|           | KNOW   | 55.78   | Support for training   | 13.   |     |
|           | ORGAN  | 67.47   | Interventions in the fruit and vegetables sector – Organic or integrated production                  | 14.   |     |
|           | QUAL   | 65.47   | Interventions in the fruit and vegetables sector – quality of production (quality schemes)           | 15.   |     |
|           | TRAINCO  | 76.47   | Interventions in the fruit and vegetables sector – training and training                             | 16.   |     |
|           | TRANS  | 66.47   | Interventions in the fruit and vegetables sector – marketing of production                           | 17.   |     |
| HR        | COOP   | 77.06.  | LEADER support (CLLD) to the approach  | 18.   |     |
|           | INVEST   | 73.03.  | Recovery of renewable energy sources   | 19.   |     |
| HU        | COOP   | RD52_R12_BIC_77   | Rural development cooperation for the development of a biomass-based economy                         | 20.   |     |
|           |  | RD61_A05_EIP_77   | European Innovation Partnership (EIP) cooperation  | 21.   |     |
| IT        | COOP   | SRG05   | preparatory support Leader- Support for the preparation of rural development strategies              | 22.   |     |
|           |  | SRG06   | Leader – implementation of local development strategies  | 23.   |     |
|           |  | SRG07   | cooperation for rural, local and smart villages  | 24.   |     |
|           | INSTAL   | SRE02   | setting up of new farmers  | 25.   |     |
|           |  | SRE03   | start-up of new businesses related to forestry   | 26.   |     |
|           |  | SRE04   | non-agricultural start-up  | 27.   |     |
|           | INVEST   | SRD07   | investment in agricultural infrastructure and in the socio-economic development of rural areas       | 28.   |     |
|           |  | SRD08   | investments in infrastructure with environmental objectives  | 29.   |     |
|           |  | SRD13   | investments in the processing and marketing of agricultural products                                 | 30.   |     |
|           |  | SRD14   | non-agricultural productive investment in rural areas  | 31.   |     |
|           |  | SRD15   | productive forestry investments  | 32.   |     |
|           |  | SRD16   | FVG FINANCIAL INSTRUMENT FOR PRODUCTIVE INVESTMENTS FOR THE COMPETITIVENESS OF AGRICULTURAL HOLDINGS | 33.   |     |
|           |  | SRD17   | FVG FINANCIAL INSTRUMENT INVESTMENTS FOR THE PROCESSING AND MARKETING OF AGRICULTURAL PRODUCTS       | 34.   |     |
| SRD19     | FINANCIAL INSTRUMENTS: REVOLVING FUND FOR INVESTMENTS, PROCESSING AND MARKETING OF AGRICULTURAL PRODUCTS | 35.   |  |   |     |
| PL        | COOP   | I 13.5.   | Cooperation of the EIP Operational Groups  | 36.   |     |
|           |  | Eco-scheme  | I 4.2  | "Eco-scheme - Carbon farming and nutrient management                        | 37. |
|           |  |   | I 4.3  | "Eco-scheme - Plant production under the Integrated Plant Production scheme | 38. |
|           |  |   | I 4.4  | "Eco-scheme - Organic crop protection                                       | 39. |
|           | ENVCLIM  | I 8.8   | Afforestation and woodland premiums and agroforestry systems   | 40.   |     |
|           | INVEST   | I 10.1.1  | Investments in agricultural holdings enhancing competitiveness (grants)                              | 41.   |     |
|           |  | I 10.1.2.   | Investments in agricultural holdings enhancing competitiveness (Financial instruments)               | 42.   |     |
|           |  | I 10.10.  | Infrastructure in rural areas and implementation of the Smart Villages concept                       | 43.   |     |
|           |  | I 10.13.  | Establishment of agroforestry systems  | 44.   |     |
|           |  | I 10.2.   | RES and energy efficiency investments in agricultural holdings                                       | 45.   |     |
|           |  | I 10.6.1  | Development of cooperation along the value chain (grants) – on the farm                              | 46.   |     |
| I 10.6.2. |  | Development of cooperation in the value chain (Financial Instruments) – on the farm | 47.  |   |     |



| MS  | Type   | Intervention   | Line |
|---|--|--|------|
|   |  | I 10.7.1 Development of value chain cooperation (grants) – off-farm  | 48.  |
|   |  | I 10.7.2. Development of value chain cooperation (Financial instruments) – off-farm  | 49.  |
|   | INVRE  | I.7.5. Action to protect the environment and mitigate climate change   | 50.  |
|   |  | I.7.6. Research and development  | 51.  |
| SI  | COOP   | IRP26 "LEADER  | 52.  |
|   |  | IRP31 Support for EIP projects   | 53.  |
|   | INVEST   | IRP02 Investments in productivity gains and technological development, including digitalisation of agricultural holdings   | 54.  |
|   |  | IRP03 Collective investment in agriculture to jointly prepare agricultural products for the market and develop strong and resilient food value chains                  | 55.  |
|   |  | IRP04 Investment in the development and improvement of competitiveness and market orientation of organic farms   | 56.  |
|   |  | IRP08 Investments in primary wood processing and digitalisation  | 57.  |
|   |  | IRP09 Investments in the establishment and development of forest tree nurseries  | 58.  |
|   |  | IRP15 Investments in forest rehabilitation and restoration following natural disasters and adverse climatic events   | 59.  |
|   |  | IRP16 Investment in adaptation to climate change in permanent crops  | 60.  |
|   |  | IRP25 Intervention Investment support for the establishment and development of non-agricultural activities, including bio-economy and heritage conservation            | 61.  |
|   |  | IRP35 Investments in the processing and marketing of agricultural products with a view to raising productivity and technological development, including digitalisation | 62.  |
| IRP36 Investments in renewable energy sources | 63.  |  |      |
| KNOW  | IRP32 Exchange of knowledge and transfer of information and training of advisers | 64.  |      |
| SK  | COOP   | 77.2 European Innovation Partnership Operational Groups  | 65.  |
|   | INVEST   | 73.19 Investing in the bioeconomy  | 66.  |
|   |  | 73.20 Improvement of up to 500 ha forest management practices and promotion of entrepreneurship in forestry (productive investments)                                   | 67.  |
|   | KNOW   | 78.1 Transfer of innovation and knowledge through education  | 68.  |
|   |  | 78.2 Transfer of innovation and knowledge through advice   | 69.  |

Notes: CAP = Common Agricultural Policy of the European Union. Original names of columns in the Catalogue of CAP interventions: Type = "Type of Intervention Code"; MS = "Member state code", "Member State": AT = Austria, CZ = Czechia, HR = Croatia, HU = Hungary, IT = Italy, PL = Poland, SI = Slovenia, SK = Slovakia; Intervention = "National Intervention Code", "Intervention name - English". Original spelling.

Source: Own calculations and table based on interventions selected by CAP policy experts in A.3.1 policy workshop and personal communication [BIOECO-UP D.3.1.1] and the Catalogue of CAP interventions [EC-DGAgri, 2024].



Figure 3: Selected CAP 2023-2027 interventions, clustered by type of intervention

| Type  | MS         | Intervention   | Line   |     |
|---|------------|--|--|-----|
| ADVIBEES  | CZ         | 57.55 Apiculture sector – consultancy and training for beekeepers and their organisation                       | 1.   |     |
| BISS  | CZ         | 01.21 "Basic income support for sustainability   | 2.   |     |
| COOP  | AT         | 77-02 Cooperation  | 3.   |     |
|   |            | 77-03 Rural innovation systems in the framework of the European Innovation Partnership                         | 4.   |     |
|   | CZ         | 51.77 Innovation in the processing of agricultural products  | 5.   |     |
|   | HR         | 77.06. LEADER support (CLLD) to the approach   | 6.   |     |
|   | HU         | RD52_R12_BIC_77 Rural development cooperation for the development of a biomass-based economy                   | 7.   |     |
|   |            | RD61_A05_EIP_77 European Innovation Partnership (EIP) cooperation  | 8.   |     |
|   | IT         | SRG05 preparatory support Leader- Support for the preparation of rural development strategies                  | 9.   |     |
|   |            | SRG06 Leader – implementation of local development strategies  | 10.  |     |
|   |            | SRG07 cooperation for rural, local and smart villages  | 11.  |     |
|   | PL         | I 13.5. Cooperation of the EIP Operational Groups  | 12.  |     |
|   | SI         | IRP26 LEADER   | 13.  |     |
|   |            | IRP31 Support for EIP projects   | 14.  |     |
|   | SK         | 77.2 European Innovation Partnership Operational Groups  | 15.  |     |
|   | Eco-scheme | PL   | I 4.2 Eco-scheme - Carbon farming and nutrient management                        | 16. |
|   |            |  | I 4.3 Eco-scheme - Plant production under the Integrated Plant Production scheme | 17. |
| I 4.4 Eco-scheme - Organic crop protection  |            |  | 18.  |     |
| ENVCLIM   | AT         | 70-05 Management of mountain mowings   | 19.  |     |
|   | CZ         | 25.70 Afforestation of agricultural land – management of the ground  | 20.  |     |
|   | PL         | I 8.8 Afforestation and woodland premiums and agroforestry systems   | 21.  |     |
| INSTAL  | IT         | SRE02 setting up of new farmers  | 22.  |     |
|   |            | SRE03 start-up of new businesses related to forestry   | 23.  |     |
|   |            | SRE04 non-agricultural start-up  | 24.  |     |
| INVEST  | AT         | 73-12 Investment in renewable energy   | 25.  |     |
|   |            | 73-13 Implementation of climate and energy projects at local level   | 26.  |     |
|   | CZ         | 41.73 Afforestation of agricultural land – establishment of stands   | 27.  |     |
|   |            | 44.73 Conversion of stands of replacement tree species   | 28.  |     |
|   |            | 45.73 Investments in non-agricultural activities   | 29.  |     |
|   | HR         | 73.03. Recovery of renewable energy sources  | 30.  |     |
|   | IT         | SRD07 investment in agricultural infrastructure and in the socio-economic development of rural areas           | 31.  |     |
|   |            | SRD08 investments in infrastructure with environmental objectives  | 32.  |     |
|   |            | SRD13 investments in the processing and marketing of agricultural products                                     | 33.  |     |
|   |            | SRD14 non-agricultural productive investment in rural areas  | 34.  |     |
|   |            | SRD15 productive forestry investments  | 35.  |     |
|   |            | SRD16 FVG FINANCIAL INSTRUMENT FOR PRODUCTIVE INVESTMENTS FOR THE COMPETITIVENESS OF AGRICULTURAL HOLDINGS     | 36.  |     |
|   |            | SRD17 FVG FINANCIAL INSTRUMENT INVESTMENTS FOR THE PROCESSING AND MARKETING OF AGRICULTURAL PRODUCTS           | 37.  |     |
|   |            | SRD19 FINANCIAL INSTRUMENTS: REVOLVING FUND FOR INVESTMENTS, PROCESSING AND MARKETING OF AGRICULTURAL PRODUCTS | 38.  |     |
|   | PL         | I 10.1.1 Investments in agricultural holdings enhancing competitiveness (grants)                               | 39.  |     |
|   |            | I 10.1.2. Investments in agricultural holdings enhancing competitiveness (Financial instruments)               | 40.  |     |
|   |            | I 10.10. Infrastructure in rural areas and implementation of the Smart Villages concept                        | 41.  |     |
|   |            | I 10.13. Establishment of agroforestry systems   | 42.  |     |
|   |            | I 10.2. RES and energy efficiency investments in agricultural holdings   | 43.  |     |
|   |            | I 10.6.1 Development of cooperation along the value chain (grants) – on the farm                               | 44.  |     |
| I 10.6.2. Development of cooperation in the value chain (Financial Instruments) – on the farm |            | 45.  |  |     |
| I 10.7.1 Development of value chain cooperation (grants) – off-farm                           |            | 46.  |  |     |
| I 10.7.2. Development of value chain cooperation (Financial instruments) – off-farm           | 47.        |  |  |     |



| Type    | MS | Intervention | Line   |     |
|---------|----|--------------|--|-----|
|         | SI | IRP02        | Investments in productivity gains and technological development, including digitalisation of agricultural holdings   | 48. |
|         |    | IRP03        | Collective investment in agriculture to jointly prepare agricultural products for the market and develop strong and resilient food value chains                  | 49. |
|         |    | IRP04        | Investment in the development and improvement of competitiveness and market orientation of organic farms   | 50. |
|         |    | IRP08        | Investments in primary wood processing and digitalisation  | 51. |
|         |    | IRP09        | Investments in the establishment and development of forest tree nurseries  | 52. |
|         |    | IRP15        | Investments in forest rehabilitation and restoration following natural disasters and adverse climatic events   | 53. |
|         |    | IRP16        | Investment in adaptation to climate change in permanent crops  | 54. |
|         |    | IRP25        | Intervention Investment support for the establishment and development of non-agricultural activities, including bio-economy and heritage conservation            | 55. |
|         |    | IRP35        | Investments in the processing and marketing of agricultural products with a view to raising productivity and technological development, including digitalisation | 56. |
|         |    | IRP36        | Investments in renewable energy sources  | 57. |
|         | SK | 73.19        | Investing in the bioeconomy  | 58. |
|         |    | 73.20        | Improvement of up to 500 ha forest management practices and promotion of entrepreneurship in forestry (productive investments)                                   | 59. |
| INVRE   | PL | I.7.5.       | Action to protect the environment and mitigate climate change  | 60. |
|         |    | I.7.6.       | Research and development   | 61. |
| KNOW    | CZ | 55.78        | Support for training   | 62. |
|         | SI | IRP32        | Exchange of knowledge and transfer of information and training of advisers   | 63. |
|         | SK | 78.1         | Transfer of innovation and knowledge through education   | 64. |
|         |    | 78.2         | Transfer of innovation and knowledge through advice  | 65. |
| ORGAN   | CZ | 67.47        | Interventions in the fruit and vegetables sector – Organic or integrated production  | 66. |
| QUAL    | CZ | 65.47        | Interventions in the fruit and vegetables sector – quality of production (quality schemes)   | 67. |
| TRAINCO | CZ | 76.47        | Interventions in the fruit and vegetables sector – training and training   | 68. |
| TRANS   | CZ | 66.47        | Interventions in the fruit and vegetables sector – marketing of production   | 69. |

Notes: CAP = Common Agricultural Policy of the European Union. Original names of columns in the Catalogue of CAP interventions: Type = "Type of Intervention Code"; MS = "Member state code", "Member State": AT = Austria, CZ = Czechia, HR = Croatia, HU = Hungary, IT = Italy, PL = Poland, SI = Slovenia, SK = Slovakia; Intervention = "National Intervention Code", "Intervention name - English". Original spelling.

Source: Own calculations and table based on interventions selected by CAP policy experts in A.3.1 policy workshop and personal communication [BIOECO-UP D.3.1.1] and the Catalogue of CAP interventions [EC-DGAgri, 2024].



### 3.2. Bioeconomy action plan AT

The Austrian bioeconomy action plan consists of 11 topics which are clustered into 40 fields of action and 113 measures (accessed 20.03.2024) [Figure 4]. It also indicates for each measure [Figure 5]: responsible and contributing bodies (mostly Austrian federal ministries), implementation instrument (e.g. CAP strategic plan 2023-2027) and implementation status (e.g. in planning, started, in implementation, completed). 14 (out of 113) measures are implemented through the CAP strategic plan 2023-2027 [Figure 6].

Figure 4: The Austrian bioeconomy action plan: topics and fields of action

| Topics                           | Fields of action   | M | Topics  | Fields of action  | M   |
|----------------------------------|--|---|---|---|---|
| Science, research and innovation | Basic research   | 2 |   | Further development of existing sustainability criteria and regional cycles in relation to the bioeconomy | 1   |
|                                  | Applied research   | 9 |   | Technology development  | Expansion of recycling systems for better sorting of biogenic waste |
|                                  | Research infrastructure  | 3 | Optimisation of processes                                       |   | 2   |
|                                  | Data availability and data management as well as framework conditions  | 1 | Expansion and development of comprehensive biorefinery concepts |   | 1   |
| Sustainable consumption          | Further development of utilisation concepts for bioeconomy-relevant products   | 3 | Material use of renewable raw materials                         |   | 6   |
|                                  | Avoiding food waste in primary production, processing, manufacturing and trade                                       | 3 | Bio-based applications in the building sector                   | 3   |   |
|                                  | Avoiding food waste in households and gastronomy   | 2 | Bio-based products in the chemical and fibre sector             | 3   |   |
|                                  | Food and nutrition systems   | 2 | Bioenergy   | Increasing the proportion of biogenic energy sources  | 2   |
| Agriculture                      | Adapting to climate change and increasing resilience   | 2 |   | Optimising the resource efficiency of bioenergy   | 2   |
|                                  | Optimising yields per hectare while preserving biodiversity  | 6 |   | Increasing the use of biofuels  | 1   |
|                                  | Strengthening regional food and animal feed production   | 1 | Awareness raising   | Sustainable trade through customer-friendly and uniform labelling   | 4   |
| Land use                         | Avoiding land loss for agriculture, securing land for the bioeconomy and biodiversity                                | 6 |   | Raising awareness, communication and demonstration of bioeconomy-relevant solutions 'at your fingertips'  | 7   |
|                                  | Spatial planning requirements  | 2 |   | Increasing the acceptance of bio-based circular economy concepts  | 1   |
|                                  | New areas for the production of biomass  | 2 |   | Increased use of operational consulting with a focus on the bioeconomy                                    | 3   |
| Forestry                         | Supporting the sustainable and continuous supply of wood, including through new methods of spatial forestry planning | 2 | Development of bio-based industry platforms                     | 2   |   |
|                                  | Strengthening the domestic timber market along the entire timber value chain   | 1 | Cross-cutting issues  | Valorisation of knowledge   | 7   |
|                                  | Increasing the vitality of stands and yields per hectare   | 3 |   | Support for services and digitalisation in sectors relevant to the bioeconomy                             | 4   |
| Circular economy                 | New utilisation concepts for by-products, residues and waste   | 5 |   | Regional bioeconomy concepts  | 3   |
|                                  | Material recycling even after energy recovery  | 1 |   | Sustainable public procurement that promotes innovation   | 4   |
|                                  | Energy generation before composting  | 1 |   | Compensation of additional costs through policy instruments   | 2   |
|                                  | Development of new raw material sources in closed production systems   | 2 |   |   |   |

Notes: AI-assisted translation. Column M = measures count. 11 topics, 40 fields of action, 113 measures.

Source: Own table based on the Austrian bioeconomy action plan [BMK, s.a., accessed: 20.03.2024].



Figure 5: The Austrian bioeconomy action plan: Measures, responsibility and implementation status

| Top                              | Fields of actions  | Measures   | Respon           | Status                                     | Line |
|----------------------------------|--|--|------------------|--|------|
| Science, research and innovation | Basic research   | Integration of humanities, social and cultural sciences expertise            | BMBWF            | started                                    | 1.   |
|                                  |  | Strengthening (competitive) basic research                                   | BMBWF            | in implementation                          | 2.   |
|                                  | Applied research   | Bio-based industry research project  | BMK              | started, medium-term in planning           | 3.   |
|                                  |  | Circular economy for textiles  | BMK              | started, long-term in planning             | 4.   |
|                                  |  | Demonstration plants for biorefinery processes                               | BMK              | started, medium-term in planning           | 5.   |
|                                  |  | National call for proposals for circular economy and production technologies | BMK              | started                                    | 6.   |
|                                  |  | New utilisation paths for biogenic residues                                  | BMK              | started, medium-term in planning           | 7.   |
|                                  |  | Replacement of fossil-based materials for packaging, textiles and fibres     | BMK              | started                                    | 8.   |
|                                  |  | Research and demonstration of optimised hardwood utilisation                 | BML              | started, short-term in planning            | 9.   |
|                                  |  | Research focus - Austrian Wood Initiative                                    | BML              | started                                    | 10.  |
|                                  |  | Research, technology and innovation initiative for circular economy          | BMK              | completed                                  | 11.  |
|                                  | Research infrastructure  | Expansion of cooperative and competitive research infrastructure             | BMK, BMBWF       | in implementation                          | 12.  |
|                                  |  | Support for participation in European research and innovation programs       | BMBWF, BMK       | started                                    | 13.  |
|                                  |  | Production of wood gas and biofuels - Austrian Wood Initiative               | BML              | started                                    | 14.  |
|                                  | Data availability and data management as well as framework conditions          | Evaluation of (ecological) effects of bioeconomy measures                    | BMK              | started, medium-term in planning           | 15.  |
| Sustainable consumption          | Further development of utilisation concepts for bioeconomy-relevant products   | Adapt service life catalogue of investment assets                            | BML              | started                                    | 16.  |
|                                  |  | Checking the applicability of the sharing economy                            | BMK              | started, medium-term in planning           | 17.  |
|                                  |  | Mushrooms as the basis for a bio-based circular economy                      | BMK              | started, long-term in planning             | 18.  |
|                                  | Avoiding food waste in primary production, processing, manufacturing and trade | Promote demand-oriented ordering in the food trade                           | BMK              | started, short-term in planning            | 19.  |
|                                  |  | Primary production   | BMK              | started, medium-term in planning           | 20.  |
|                                  |  | Processing and production  | BMK              | started, medium-term in planning           | 21.  |
|                                  | Avoiding food waste in households and gastronomy                               | Private households   | BMK              | started, long-term in planning             | 22.  |
|                                  |  | Out-of-home consumption or restaurants and catering services                 | BMK              | started, long-term in planning             | 23.  |
|                                  | Food and nutrition systems   | AGES service centre for sustainable food and nutrition systems               | BMK, BML, BMSGPK | started                                    | 24.  |
|                                  |  | Sustainable Food Systems Initiative of Austria Wirtschaftsservice GmbH (aws) | BMK              | in implementation                          | 25.  |
| Agriculture                      | Adapting to climate change and increasing resilience                           | Humus conservation and humus build-up in arable farming                      | BML              | started, short- to medium term in planning | 26.  |
|                                  |  | Preventing the spreading of invasive species                                 | BMK              | in implementation                          | 27.  |
|                                  | Optimising yields per hectare while preserving biodiversity                    | Increasing yields through precision farming                                  | BML              | started, short- to medium term in planning | 28.  |
|                                  |  | Optimisation of value creation and production concepts                       | BML              | started, short-term in planning            | 29.  |
|                                  |  | Increasing the cascading use of agricultural raw materials                   | BMK              | medium-term in planning                    | 30.  |
|                                  |  | Utilising the potential of catch crops                                       | BML              | started, short- to medium term in planning | 31.  |
|                                  |  | New cultivation concepts for renewable raw materials                         | BMK              | started, medium-term in planning           | 32.  |
|                                  |  | Ammonia reduction in agriculture   | BML              | in implementation                          | 33.  |
|                                  | Strengthening regional food and animal feed production                         | Regional feed for sustainable animal production                              | BML              | started                                    | 34.  |



| Top   | Fields of actions  | Measures   | Respon                                    | Status  | Line |
|---|--|--|---|---|------|
| Land use  | Avoiding land loss for agriculture, securing land for the bioeconomy and biodiversity                                | Settlement development on land that has already been used  | BML                                       | in implementation   | 35.  |
|   |  | Incentives for the revitalisation of town and city centres   | BMK, BML                                  | in implementation   | 36.  |
|   |  | Research into climate-intelligent cities and communities   | BMK                                       | started, medium-term in planning                          | 37.  |
|   |  | Combination of photovoltaics (PV) and agriculture  | BMK                                       | in implementation   | 38.  |
|   |  | Reuse of commercial and industrial wasteland   | BMK                                       | started, long-term in planning                            | 39.  |
|   |  | Renaturation of endangered ecosystems  | BMK                                       | in implementation, short-, medium-, long-term in planning | 40.  |
|   | Spatial planning requirements  | Compact settlement development   | BML                                       | started   | 41.  |
|   |  | New zoning only with energy planning   | BMK, BML                                  | long-term in planning                                     | 42.  |
|   | New areas for the production of biomass  | Reduction in the use of arable land and grassland as ecological compensation areas                 | BML                                       | medium-term in planning                                   | 43.  |
|   |  | Graduated grassland management   | BML                                       | short to medium-term in planning                          | 44.  |
| Forestry  | Supporting the sustainable and continuous supply of wood, including through new methods of spatial forestry planning | Sustainable exploitation of the wood utilisation potential of the forest                           | BML                                       | in implementation   | 45.  |
|   |  | Expansion and improvement of forestry infrastructure   | BML                                       | in implementation, short-term in planning                 | 46.  |
|   | Strengthening the domestic timber market along the entire timber value chain   | Processing damaged timber after catastrophic events  | BML                                       | started, medium-term in planning                          | 47.  |
|   | Increasing the vitality of stands and yields per hectare   | Supporting service offers for forest owners  | BML                                       | started, medium-term in planning                          | 48.  |
|   |  | Reduction and monitoring of airborne substance inputs into the soil                                | BMK, BML                                  | started, medium-term in planning                          | 49.  |
|   | Balanced forest-wildlife relationships - forestry & hunting dialog   | BML  | in implementation, short-term in planning | 50.   |      |
| Circular economy  | New utilisation concepts for by-products, residues and waste   | Recycling technologies in the textile sector   | BMK                                       | started   | 51.  |
|   |  | Phosphorus recovery from sewage sludge   | BMK                                       | started, medium-term in planning                          | 52.  |
|   |  | Fertiliser production from organic waste   | BMK                                       | long-term in planning                                     | 53.  |
|   |  | Enabling the recycling of wood as a building material  | BML                                       | started, medium-term in planning                          | 54.  |
|   |  | Assessment methods for biogenic waste  | BMK                                       | medium-term in planning                                   | 55.  |
|   | Material recycling even after energy recovery  | Definition of quality levels for fermentation residues   | BMK                                       | medium-term in planning                                   | 56.  |
|   | Energy generation before composting  | Prioritisation of biogas production from waste   | BMK                                       | started, medium-term in planning                          | 57.  |
|   | Development of new raw material sources in closed production systems   | Algae or insects in closed systems   | BML                                       | started, medium- to long-term in planning                 | 58.  |
| CO2 recycling through microorganisms, enzymes and algae   |  | BMK  | started, medium-term in planning          | 59.   |      |
| Further development of existing sustainability criteria and regional cycles in relation to the bioeconomy | Enable professional dismantling instructions for buildings   | BMK  | implemented, medium-term in planning      | 60.   |      |
| Technology development  | Expansion of recycling systems for better sorting of biogenic waste  | Fibres from organic waste for insulation materials   | BMK                                       | started, medium-term in planning                          | 61.  |
|   |  | Pure fractions through pre-sorting for higher quality recycling materials                          | BMK                                       | started   | 62.  |
|   | Optimisation of processes  | Energetic use of agricultural residues   | BMK                                       | medium-term in planning                                   | 63.  |
|   |  | Research and innovation for a bio-based circular economy   | BMK                                       | medium-term in planning                                   | 64.  |
|   | Expansion and development of comprehensive biorefinery concepts  | Promotion of starch as a raw material for the chemical industry                                    | BMK                                       | long-term in planning                                     | 65.  |
| Material use of renew. raw mat.   | Bio-based applications in the building sector  | Combining timber construction with other renewable products  | BML                                       | implemented, short-term in planning                       | 66.  |
|   |  | Cuttings from agricultural land as thermal insulation  | BMK                                       | medium-term in planning                                   | 67.  |
|   |  | Promotion of timber construction in the interests of climate protection - Austrian Wood Initiative | BML                                       | in implementation, long-term in planning                  | 68.  |



| Top   | Fields of actions  | Measures  | Respon                           | Status                                     | Line |
|---|--|---|----------------------------------|--|------|
|   | Bio-based products in the chemical and fibre sector  | Promotion of bio-based plastics   | BMK                              | started                                    | 69.  |
|   |  | Reducing the use of composite materials   | BMK                              | started, medium-term in planning           | 70.  |
|   |  | Promotion of renewable raw materials for the chemical industry                    | BMK                              | started, long-term in planning             | 71.  |
| Bioenergy   | Increasing the proportion of biogenic energy sources   | Bio-based energy sources for CO2-neutral industrial production                    | BMK                              | implemented                                | 72.  |
|   |  | Model projects for small-scale integrated system solutions                        | BMK                              | implemented, started                       | 73.  |
|   | Optimising the resource efficiency of bioenergy  | Resource efficiency in thermal recycling  | BMK                              | implemented                                | 74.  |
|   |  | Combined heat and power (CHP) increasing overall efficiency                       | BMK                              | started                                    | 75.  |
| Increasing the use of biofuels                            | Promoting the use of biogenic fuels and biogenic fuels from waste and residues                           | BMK   | implemented                      | 76.  |      |
| Awareness raising   | Sustainable trade through customer-friendly and uniform labelling  | Labelling the bioeconomy  | BMK                              | medium-term in planning                    | 77.  |
|   |  | Creating trustworthy labelling for bioeconomy products and services               | BMK                              | short-term in planning                     | 78.  |
|   |  | Establish sustainability aspects as funding criteria at EU level                  | BMK                              | long-term in planning                      | 79.  |
|   |  | Education for sustainable development with the Austrian Ecolabel                  | BMK                              | in implementation, medium-term in planning | 80.  |
|   | Raising awareness, communication and demonstration of bioeconomy-relevant solutions 'at your fingertips' | Public relations work for timber construction                                     | BML                              | in implementation                          | 81.  |
|   |  | Bringing the topic of the bioeconomy closer to the population                     | BMBWF                            | started, long-term in planning             | 82.  |
|   |  | Cooperation partnership - ZOOM Children's Museum                                  | BMK                              | implemented, long-term in planning         | 83.  |
|   |  | The ÖKOLOG school network as a contribution to raising awareness                  | BMBWF                            | started, long-term in planning             | 84.  |
|   |  | Creation of bioeconomy-relevant educational focuses                               | BML                              | in implementation, long-term in planning   | 85.  |
|   |  | Suitable rooms as a "third educator"  | BMBWF                            | started, long-term in planning             | 86.  |
|   | The "FORUM Environmental Education" (Fub) - raising awareness through multipliers                        | BMK, BMBWF  | started, long-term in planning   | 87.  |      |
|   | Increasing the acceptance of bio-based circular economy concepts   | Image campaigns for bioeconomy products   | BML                              | in implementation, short-term in planning  | 88.  |
|   | Increased use of operational consulting with a focus on the bioeconomy                                   | Bioeconomy technologies as part of the environmental technology export initiative | BMK                              | short-term in planning                     | 89.  |
|   |  | Information to increase energy and resource efficiency                            | BMK                              | started, short-term in planning            | 90.  |
|   |  | Strengthen forestry consulting  | BML                              | started, short-term in planning            | 91.  |
|   | Development of bio-based industry platforms  | Establishment of a bioeconomy cluster   | BML                              | in implementation                          | 92.  |
|   |  | Green chemistry as the basis of a bio-based circular economy                      | BMK                              | started                                    | 93.  |
| Cross-cutting issues                                      | Valorisation of knowledge  | Zero-emission small combustion plants   | BMK                              | started                                    | 94.  |
|   |  | Timber construction as a compulsory subject in architecture and civil engineering | BML                              | started, short-term in planning            | 95.  |
|   |  | Establish resource efficiency consulting as a new profession                      | BML                              | started, long-term in planning             | 96.  |
|   |  | Closing knowledge gaps  | Other                            | started, medium-term in planning           | 97.  |
|   |  | Target group-oriented training and further education - Austrian Wood Initiative   | BML                              | in implementation                          | 98.  |
|   |  | Raising awareness starting in elementary school                                   | BMBWF                            | started, long-term in planning             | 99.  |
|   |  | Anchoring the bioeconomy in education and training                                | BML                              | started, long-term in planning             | 100. |
|   | Support for services and digitalisation in sectors relevant to the bioeconomy                            | Digitalisation along the wood value chain   | BMF, BML                         | started, medium-term in planning           | 101. |
|   |  | Implementation of the digitalisation strategy                                     | BML                              | started, medium-term in planning           | 102. |
|   |  | Promotion of business ideas relevant to the bioeconomy (start-ups)                | BMK                              | started                                    | 103. |
| Priority for renewable energy sources in new construction |  | BMK   | started, long-term in planning   | 104.                                       |      |
| Regional bioeconomy concepts                              | Support the regional refinement of products  | BMK   | medium-term in planning          | 105.                                       |      |
|   | Bioeconomy regions   | BMK   | implemented                      | 106.                                       |      |
|   | Investments in inter-company collection and recycling infrastructures and their marketing                | BML   | started, medium-term in planning | 107.                                       |      |



| Top | Fields of actions   | Measures   | Respon | Status                             | Line |
|-----|---|--|--------|------------------------------------|------|
|     | Sustainable public procurement that promotes innovation     | Exemplary effect of the public sector in the area of nutrition             | BMK    | medium-term in planning            | 108. |
|     |   | Test the inclusion of substitution effects (CO2) as a criterion in tenders | BMK    | long-term in planning              | 109. |
|     |   | Life cycle costs as a basis for procurement                                | BMK    | medium-term in planning            | 110. |
|     |   | Use the exemplary effect of the public sector                              | BMK    | started, long-term in planning     | 111. |
|     | Compensation of additional costs through policy instruments | Reform of EU state aid law relating to companies                           | BMK    | implemented                        | 112. |
|     |   | Promoting climate protection   | BMK    | implemented, long-term in planning | 113. |

Notes: Column “Top” = Topics. Column “Respon” = Responsible, i.e. BMBWF = Austrian Federal Ministry of Education, Science and Research; BMF = Austrian Federal Ministry of Finance; BMK = Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology; BML = Austrian Federal Ministry of Agriculture, Forestry, Regions and Water Management; BMSGPK = Federal Ministry of Social Affairs, Health, Care and Consumer Protection. AI-assisted translation. Updates on [www.bioeco.at/](http://www.bioeco.at/).

Source: Own table based on the Austrian bioeconomy action plan [BMK, s.a., accessed: 20.03.2024].

Figure 6: The Austrian bioeconomy action plan: Measures connected to CAP strategic plan 2023-2027

| Topic                | Measure   | Respon   | Status  | Implementation   |
|----------------------|---|----------|---|--|
| Agri-culture         | Humus conservation and humus build-up in arable farming                                   | BML      | started, short- to medium term in planning                | GSP 23-27, Forschungsprogramm BML 2020-2025  |
|                      | Increasing yields through precision farming   | BML      | started, short- to medium term in planning                | GSP 23-27  |
|                      | Optimisation of value creation and production concepts                                    | BML      | started, short-term in planning                           | GSP 23-27, Waldfonds   |
|                      | Increasing the cascading use of agricultural raw materials                                | BMK      | medium-term in planning                                   | GSP 23-27, Waldfonds   |
|                      | Utilising the potential of catch crops  | BML      | started, short- to medium term in planning                | GSP 23-27, Beratungsprogramme  |
|                      | Ammonia reduction in agriculture  | BML      | in implementation   | GSP 23-27  |
| Land use             | Settlement development on land that has already been used                                 | BML      | in implementation   | ÖROK, Ordnungsrecht der Länder und Gemeinden, GSP 23-27, Regionen-Dialog Plattform, Bildungsmaterialien zum Bodenschutz, Fachgutachten/Studien |
|                      | Incentives for the revitalisation of town and city centres                                | BMK, BML | in implementation   | Altlastensanierung sowie ARP - Flächenrecycling, GSP 23-27, ÖROK   |
|                      | Renaturation of endangered ecosystems   | BMK      | in implementation, short-, medium-, long-term in planning | Biodiversitätsfonds, nicht produktive Investitionen im Rahmen des GSP 23-27, Waldfonds   |
|                      | Compact settlement development  | BML      | started   | Ordnungspolitische Maßnahme der Länder und Gemeinden, Regionen-Dialog-Plattform, ÖV-Güteklassen, GSP 23-27, ÖROK                               |
| Forestry             | Balanced forest-wildlife relationships - forestry & hunting dialog                        | BML      | in implementation, short-term in planning                 | Ordnungspolitische Maßnahme, GSP 23-27, Forschungsförderung  |
| Awareness raising    | Image campaigns for bioeconomy products   | BML      | in implementation, short-term in planning                 | Waldfonds, Klimafonds, Kreislaufwirtschaftsstrategie, GSP 23-27  |
|                      | Establishment of a bioeconomy cluster   | BML      | in implementation   | Waldfonds, GSP 23-27   |
| Cross-cutting issues | Investments in inter-company collection and recycling infrastructures and their marketing | BML      | started, medium-term in planning                          | GSP 23-27, LEADER  |

Notes: Column “Respon” = Responsible, i.e. BMK = Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology; BML = Austrian Federal Ministry of Agriculture, Forestry, Regions and Water Management. AI-assisted translation. Updates on [www.bioeco.at/](http://www.bioeco.at/).

Source: Own table based on the Austrian bioeconomy action plan [BMK, s.a., accessed: 20.03.2024].



### 3.3. Bioeconomy action plan IT

This chapter was contributed by Cavani [F. Cavani, personal communication, 25.03.2024].

The Italian Implementation action plan for the Bioeconomy strategy (BIT II) was published in 2021, and consists of 4 main actions, and 5 flagship investments.

Actions which have been planned for implementation are:

- **Action 1: promoting the development and adoption of a clear, stable regulatory framework**, rooted in adequate policies, supported by high quality standards and measures that allow innovative and sustainable products to compete with conventional ones and to increase market penetration. Coherently with the European and the national Green Deal and the related European strategies and instruments launched by the European Commission, promote the development/adoption of policies, standards, labels and emerging market-based actions and incentives for sustainable food production and healthy diets, forest maintenance and production of forest goods and services, maritime and bio-based products, on the basis of reliable scientific-based data on environmental and climate performance and socio-economic and environmental impacts.
- **Action 2: developing investments at local level to support the national rural and urban Circular Bioeconomy** in all the sectors, including agri-food, biotech and bio-based industry, forestry, marine and maritime sectors. Launch of **pilot actions** to support circular Bioeconomy in the domains of agri-food, biobased, wood and forest, marine and maritime and urban sectors.
- **Action 3: implementing circular and regenerative approaches** aimed at protecting ecosystems, reducing risks for biodiversity, and bringing clean organic matter back to the soil, closing the carbon cycle. Enhance the knowledge on national biodiversity and ecosystems and on their resilience/adaptation to climate changes, to deploy it in the primary production within safe ecological limits.
- **Action 4: promoting the integration between sectors** both vertically (supply chain) and horizontally (territory), the active involvement of primary producers and citizens, the improvement of skills, education, training and entrepreneurship throughout the Bioeconomy sectors.



Figure 7: The Italian implementation action plan for the bioeconomy strategy

| Fields of intervention (sub-actions)  | Line | Fields of intervention (sub-actions)  | Line |
|---|------|---|------|
| <b>Action 1</b>   | 1.   | Support and encourage sustainable forest management   | 20.  |
| Embed the Bioeconomy strategy into law framework to guarantee its recognition and application   | 2.   | Set up a trainer training Programme in the Bioeconomy field   | 21.  |
| Deploy the post-2020 CAP National Strategic Plan to enhance increased sustainable production and use of biomass and the development of innovative Bioeconomy  | 3.   | <b>Action 2: Agri-food</b>  | 22.  |
| Promote the adoption of standards, labels, market-based actions and incentives in support of the transition towards sustainable seafood production and value chain in line with the objectives of Farm to Fork strategy, Common Fisheries Policy, and Blue Growth initiatives | 4.   | Better identify/document scientifically the health and nutritional properties of the Italian regional products of the Mediterranean diet  | 23.  |
| Unfold Italian potential to balance C fluxes in resilient and productive sustainably managed forests  | 5.   | Develop tailored biorefinery schemes to fully valorize agri-food byproducts to obtain high value healthy ingredients for the formulation of ready-to-eat and other modern new food/feed products, along with biobased products (chemicals, materials and fuels, including Bio-H2)         | 24.  |
| Strength standard and label for low impact biobased products to improve public perception and market acceptance of biobased products  | 6.   | Standardize methods of assessing bioavailability and functionality of ingredients obtained from byproducts  | 25.  |
| Issue a decree, which fosters systematic use of bio-based products by official departments and agencies and in public-sector organizations, hospitals and schools through Green Public Procurements   | 7.   | Develop new food processing methodologies (including biobased food packaging) based on minimizing the technological damage to decrease food loss and food waste and increase productivity   | 26.  |
| Re-examine fossil fuel subsidies and strengthen environmental subsidies for low impact biobased products  | 8.   | <b>Action 2: Biobased industry</b>  | 27.  |
| Promote the use of products, including the biobased recyclable ones, able to biodegrade in different environments   | 9.   | Create circular Bioeconomy value chains based on the valorisation of dedicated non-food crops grown on marginal lands and/or local agri-food, forestry or marine biowaste to obtain different types of bioproducts, including bio H2, and biomaterials                                    | 28.  |
| Promote use of biobased H2  | 10.  | Regenerate some of the former oil refineries or chemical industrial areas, especially those located near populous and relevant urban centres, into biorefineries  | 29.  |
| Support waste prevention and sustainable waste management actions   | 11.  | <b>Action 2: Forestry</b>   | 30.  |
| Promote the use of compost, digestate and high-quality organic materials in agriculture   | 12.  | Recovery and the recycling of wood products along with the replacement of energy-intensive industrial materials with long lasting wood-based products to reduce carbon dioxide emissions  | 31.  |
| Encourage investors towards provision of finances in the Bioeconomy sectors   | 13.  | Recovery and the recycling of wood products to produce bio-H2 as competitive green H2   | 32.  |
| Promote a capillary digital innovation and transformation of sectors, with new business models reproducible and adaptable to different social and geographical contexts   | 14.  | Use of wooden products in the building and street furniture, in the furniture and toys production, by extending their life cycle and taking into account their carbon storage potential   | 33.  |
| Promote Bioeconomy priorities and actions in the frame of national and regional S3  | 15.  | <b>Action 2: Urban bioeconomy</b>   | 34.  |
| Promote Bioeconomy priorities and actions in the frame of national and regional ERDF Operational Programmes   | 16.  | Exploit the full potential of urban biowaste and wastewaters via a multi-products biorefinery approach, with the production of bio-based chemicals, materials and energy along with clean water, fertilizers, nutrients and critical materials such as nitrogen, phosphorus and potassium | 35.  |
| <b>Action 2: Rural bioeconomy</b>   | 17.  | <b>Action 2: Blue bioeconomy</b>  | 36.  |
| Develop and test "living labs" as place-based, local infrastructures  | 18.  |   |      |
| Promote the transition of agriculture, livestock husbandry, and aquaculture to climate neutrality, reducing the negative environmental impact of the food activity  | 19.  |   |      |



| Fields of intervention (sub-actions)  | Line | Fields of intervention (sub-actions)   | Line |
|---|------|--|------|
| Promote the development of sustainable fisheries, also through new fishing and market ICT based technologies  | 37.  | national biodiversity, ecosystems and ecosystem services   |      |
| Foster the resilience of the aquaculture sector and its integration In the Blue economy   | 38.  | Monitor degraded land areas or lands at risk of climate change impacts   | 54.  |
| Recognize aquaculture as a full-fledged part of marine spatial plans (co-existence) and allocate marine zones for aquaculture (AZA) at regional and municipalities level  | 39.  | Assess the national role of pollinators, microbiomes, and other ecosystem services as factors able to higher up the biomass production, to protect our crops, to restore and better manage soils | 55.  |
| Promote incentives for the cultivation of aquatic extractive species  | 40.  | Support innovation in the area of protocols and technologies, species identification and improvements for biomass production, harvesting and processing  | 56.  |
| Improve sustainability assessment and design performance-based food sustainability standard and labelling as well as trustful, cost-effective certification systems   | 41.  | Adopt /join climate policy measures at EU level in order to combat biodiversity loss and environmental changes   | 57.  |
| Develop smart solutions for the use of digital technologies for small and medium aquaculture farms  | 42.  | Activate the potential of forest sinks, carbon storage in forest soil and products and wood's substitution role for non-renewable and carbon-intensive materials                                 | 58.  |
| Increase in use of by-products from aquaculture by valorising both processed products and sludge  | 43.  | <b>Action 4</b>  | 59.  |
| Create a scientific network for applied blue biotechnology, involved in designing and testing new technologies for the remediation of marine contaminated sites, identifying new biobased products and biomaterials | 44.  | Promote citizens awareness and engagement through campaigns to showcase Bioeconomy products  | 60.  |
| Create a national vulnerability evaluation framework, improving disaster preparedness and farm and fisheries resilience to climate change   | 45.  | Promote awareness and provide information to enterprises   | 61.  |
| <b>Action 3</b>   | 46.  | Improve the level of training and education of personnel working in the Italian agricultural, forest and marine/maritime sectors   | 62.  |
| Protect and increase biodiversity   | 47.  | Include the Bioeconomy both in school education and specialist vocational courses  | 63.  |
| Boost sustainable forest management and restoration of forests ecosystems   | 48.  | Disseminate the Bioeconomy concept in initial and continuous training courses and school programs  | 64.  |
| Promote mechanisms accelerating the transition towards a resource-efficient, safe, circular and climate-neutral economy   | 49.  | Create new Bachelors and Masters' University degree programs in Bioeconomy and better promote the existing ones  | 65.  |
| Adopt a methodological framework and standardized indicators, endorsed by policy makers, to measure the value of ecosystem services provided  | 50.  | Intensify mobility between academia, authorities and industry to build the blue human capital and to attract cutting-edge professional skills  | 66.  |
| Strengthen the knowledge, resilience and status of biodiversity and terrestrial, coastal, and marine ecosystems   | 51.  | Promote an entrepreneurial mind-set and culture for the Bioeconomy   | 67.  |
| Improve the National Inventory of Forests and Forest Carbon Stocks  | 52.  | Promote Open Innovation initiatives to accelerate a scale-up of innovative solutions   | 68.  |
| Increase observation capacity and monitoring and reporting capabilities on the condition of   | 53.  | Act to increase the EU financial support to Bioeconomy projects  | 69.  |

Source: Own table based on the Implementation Action Plan (2021-2025) for the Italian Bioeconomy Strategy BIT II.



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