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D5.1 Plan for dissemination and exploitation, including communication activities - first version

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Executive summary

PRIMARY's plan for dissemination and exploitation, including communication activities (DEC plan) establishes a framework for maximising the impact of agricultural waste valorisation solutions developed in the project. Over the 48-month project duration, this plan targets five distinct stakeholder groups through nine strategic actions with the goal to raise awareness of and promote the adoption of the project's agricultural waste valorisation solutions, whilst supporting rural economic development and circular bioeconomy objectives.

The DEC plan operates through three coordinated phases: awareness-building (M1-M10), engagement and education (M11-M30), and impact demonstration and legacy (M31-M48). These phases support PRIMARY's multi-actor approach by connecting research and technology organizations, small and medium enterprises, cooperatives, primary producers, and non-governmental organizations.

The key dissemination and communication activities include establishing a comprehensive Stakeholder platform integrated with PRIMARY's sister projects reaching over 2,000 stakeholders, producing 10-15 Practice Abstracts, conducting more than four national workshops, organizing an EU-level policy workshop, and delivering over 15 scientific publications. The strategy emphasizes practical knowledge transfer through targeted communication channels including a professional social media presence, videos, policy briefs, and collaborative events designed to support technology adoption. The DEC plan ensures systematic progress monitoring through quarterly assessments, with updates delivered at months 36 and 48 to maintain alignment with project developments and stakeholder needs.

The exploitation strategy identifies specific opportunities for each consortium partner and describes potential collective approaches that leverage complementary expertise and market positions. Through coordinated intellectual property management and strategic partnership development, the DEC plan establishes foundations for sustained impact beyond project completion, supporting European leadership in agricultural waste valorisation and rural bioeconomy development.

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Table of abbreviations

Abbreviation	Definition
CARG	Compound annual growth rate
CERTH	Centre for Research and Technology Hellas
DEC	Dissemination, exploitation and communication
EC	European Commission
EIP-AGRI	European Innovation Partnership for Agricultural Productivity and Sustainability
ELGO	ELLINIKOS GEORGIKOS ORGANISMOS - DIMITRA
ERBN	European Rural Bioeconomy Network
ESEK	Energeiakh Koinothta Karditsas SYNPE
EU	European Union
FTO	Freedom to Operate
IP	Intellectual Property
IPR	Intellectual Property Rights
KER	Key Exploitable Results
KPI	Key Performance Indicator
LCA	Life Cycle Assessment
LCC	Life Cycle Costing
Luke	Luonnonvarakeskus (Natural Resources Institute Finland)
M	Month
MAA	Multi-actor approach
MINOA	MINOA ENERGEIAKI KOINOTITA POLITON SYN.P.E
MS	Milestone
MTK	Maa- ja metsätaloustuottajain Keskusliitto
NEA ENOSI	Agrotikos Synetairismos Karditsas
NGO	Non-governmental organization
OC	Open Call
RDI	Research, Development and Innovation
RFF	reframe.food
RTO	Research and technology organization
SEIA	Socio-Economic Impact Assessment

SME	Small and medium enterprises
TG	Target group
thERBN	thematic European Rural Bioeconomy Network
VTT	Teknologian tutkimuskeskus VTT Oy
WP	Work Package

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1. Introduction

Agricultural waste represents one of Europe's most underutilized resources, with millions of tons of valuable feedstocks currently discarded or underutilised. PRIMARY addresses this challenge by developing innovative technologies and business models that transform grass, greenhouse residues, cotton byproducts, and olive tree waste into profitable products, creating new revenue streams for farmers and supporting the circular economy objectives.

Agricultural sectors are characterized by diverse actors and complex value chains. PRIMARY's success depends on reaching the right stakeholders with the right messages at the right time, building trust through demonstrated results, and providing practical pathways for implementation.

This plan for dissemination and exploitation, including communication activities (DEC plan) is PRIMARY's roadmap for ensuring that its technical achievements get implemented into real world. It establishes systematic approaches for engaging five distinct stakeholder groups across Europe, from primary producers and SMEs to policymakers and research organizations, ensuring that PRIMARY's solutions reach those who can implement, scale, and benefit from them most effectively.

The DEC plan, executed under WP5, builds systematically upon the developments in WP1-WP4, with particularly strong integration with WP3 (Business model development, sustainability assessment and regulatory review), where WP5 disseminates and exploits WP3's business model blueprints and sustainability evidence while providing stakeholder feedback to validate and refine WP3 developments.

The plan encompasses digital communication strategies, scientific dissemination, educational materials development, Stakeholder platform creation, policy engagement, and systematic exploitation activities. It also establishes performance monitoring frameworks that ensure accountability and continuous improvement throughout the 48-month project duration.

The document progresses from strategic foundations (target groups and framework) through implementation approaches (communication and dissemination strategies) to operational details (platform development, exploitation planning, and performance monitoring), concluding with evaluation mechanisms that support effective project management.

2. Target groups and DEC strategic framework

Effective stakeholder engagement represents a cornerstone of PRIMARY's multi-actor approach (MAA), essential for mobilizing and implementing the project's solutions widely across European regions. This section provides an analysis of the

target groups and stakeholder networks that PRIMARY will engage throughout the 48-month project duration.

2.1 Target group definition and needs analysis

PRIMARY has identified five distinct target groups (TG1-TG5) (see Table 1) representing the key stakeholder categories essential for successful project implementation and long-term impact. These groups have been selected based on their potential to influence, adopt, or benefit from PRIMARY's work and results, as well as their capacity to contribute meaningfully to scaling solutions across European regions.

The project operates at both regional and EU levels, ensuring that innovations developed in our demonstration hubs in Finland and Greece gain broader recognition whilst informing European policy frameworks through practical implementation experiences. This dual-level approach allows locally developed solutions to be replicated and scaled across different European contexts. This approach is further strengthened through PRIMARY's Open Call (OC) mechanism (WP4), which engages additional European regions beyond Finland and Greece, validating and adapting PRIMARY solutions across diverse agricultural contexts whilst expanding the stakeholder network.

Table 1. PRIMARY target groups (TGs), their needs and tailored DEC engagement

Target group (TG)	Description	Key characteristics	What do they need?	Tailored engagement
TG1: Value chain actors	Local primary producers, cooperatives and SMEs directly involved in agricultural production, processing, and commercialisation. E.g. Närpes Grönsaker, Junkkari, Enifer, Agrigas, Geocycl, AXINAR	Direct implementers of PRIMARY solutions. Revenue generators from new value chains. Technology adopters and validators.	Practical, actionable information about new processes, economic feasibility evidence and business models.	Hands-on workshops, peer-to-peer learning, practical demonstrations, trusted agricultural networks.
TG2: Policy/decision-makers and regulators	EU-level actors and networks influencing agricultural and bioeconomy policies. E.g. EIP-AGRI, European	Policy framework developers and regulatory environment shapers. Funding	Evidence-based policy recommendations and demonstrations of scalability potential to inform	Policy briefs, expert workshops, conference presentations.

	Commission Knowledge Centre for Bioeconomy, Rural Bioeconomy Alliance, Copa-Cocega, ERBN network	decision influencers.	regulatory frameworks and funding priorities.	
TG3: Educational institutions and research organizations	Universities, research institutes, and educational entities involved in bioeconomy related research, development, and innovation. E.g. Helsinki University, Aarhus University, National Technical University of Athens, Agricultural University of Athens, Aristotel University of Thessaloniki, Wageningen University & Research	Knowledge creators and validators. Educators and innovation capacity builders. Scientific credibility providers.	Scientific publications and data, as well as collaboration opportunities to multiply knowledge through education and training activities.	Academic conferences, scientific publications, research partnerships, educational workshops.
TG4: General public and citizens	Broader community members who are end-users of bio-based products and influence market demand. E.g. consumer associations, local municipalities and community hubs	Social acceptance influencers and consumer demand creators. Environmental awareness drivers.	Communication about benefits and sustainability credentials to influence market acceptance and create demand.	Social media, accessible videos, public events, media coverage, community demonstrations.
TG5: Other initiatives and projects	Other actors, activities and projects focusing on similar	Knowledge sharers and collaboration enablers. Best	Joint activities and events, as well as collaborative publications to	Collaborative workshops, joint publications, shared platforms,

	agricultural and bioeconomy topics, particularly EU-funded initiatives. E.g. EMBEDDED, HarWASTing, HELLABIOM, BIOENERGY EUROPE	practices exchangers.	enable knowledge sharing, prevent duplication of efforts, and amplify impact.	coordinated events, network meetings.
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These target groups operate at different scales and have varying levels of influence. Regional stakeholders provide practical implementation context and local validation of solutions. EU-level stakeholders offer broader policy influence and scaling opportunities. PRIMARY maintains an internal stakeholder mapping database to ensure systematic engagement across all target groups throughout the project lifecycle.

2.2 DEC strategic actions framework

To address the diverse needs identified in the target group analysis (under section 2.1), PRIMARY has developed **nine strategic actions** (see Table 2) that form our dissemination, exploitation, and communication approach. These actions translate stakeholder needs into concrete implementation strategies, ensuring that each target group receives relevant information through appropriate channels and formats.

Table 2. PRIMARY's strategic actions and planned DEC approach

Strategic action	Target groups	Planned activities and approach
Action 1: Increase project awareness and visibility	All	Develop and widely communicate unique visual identity. Launch website and social media. Establish mailing list and newsletter distribution. Introduce project goals and expected impacts to primary producers, SMEs, and stakeholders through press releases and various outreach materials.
Action 2: Promote stakeholder engagement and networking	TG1, TG2	Activate Stakeholder platform through integration with sister projects via BioRural toolkit and thERBN. Leverage existing networks to promote PRIMARY goals. Organise collaborative events bringing together stakeholders and policymakers.
Action 3: Deliver specific messages to farmers and SMEs	TG1	Organise participatory and educational workshops in Finland and Greece. Develop targeted learning stories. Produce Practice Abstracts. Publish articles in farmers' journals.

Action 4: Communicate potential hurdles to increase credibility	All	Share detailed information (e.g. through policy briefs, Practice Abstracts and social media messages) on regulatory, safety, economic, and technological challenges and demonstrate how PRIMARY's innovations overcome identified barriers. Use real-life examples to illustrate project relevance.
Action 5: Inform and educate key value chain actors	TG1, TG2	Provide detailed, actionable information and best practices to improve operations and profitability. Organise webinars, workshops, and live demonstrations. Share knowledge with policymakers.
Action 6: Support the replicability of solutions	TG1, TG2, TG4, TG5	Validate knowledge and scale through systematic Open Call engagement (WP4), where external partners implement and adapt PRIMARY solutions, providing real-world feedback and generating additional evidence for business model refinement and technology validation. Host local workshops (>4) sharing new practices. Share and exchange practices through Stakeholder Platform. Present outcomes at events for broader reach and collaborate with other projects.
Action 7: Foster societal and consumer acceptance	TG4, TG1, TG2	Promote benefits and impacts through media and public channels. Share successful examples of processes and business models. Develop learning stories illustrating PRIMARY contributions at local and EU levels.
Action 8: Active and diverse publishing	TG5, TG1, TG2	Partner with other projects to co-author. Publish scientific papers as well as non-scientific articles. Communicate best practices to policymakers and share successful use-cases to promote future EU interventions.
Action 9: Legacy for exploitation and impact	All, especially TG1, TG2	Develop and implement strategy ensuring sustainable exploitation beyond project lifespan. Identify and establish future research and innovation opportunities.

These strategic actions are designed to work in combination, creating multiple connections with each target group while also aiming to build long-term adoption and scaling of PRIMARY's innovations. Knowledge validation and scaling occur through Open Call engagement (WP4) and Stakeholder platform, where external partners implement and adapt PRIMARY solutions, providing real-world feedback for continuous improvement. The strategic actions provide the framework for all subsequent DEC planning, from online communication strategies to workshop organisation and publication planning, creating a coherent approach that maximises impact and uses project resources effectively.

3. Communication strategy and activities

PRIMARY's communication strategy builds awareness, establishes credibility, and creates sustained engagement with stakeholders throughout the project lifecycle. This framework transforms the strategic actions outlined in Section 2.2 into practical communication initiatives that support project visibility and stakeholder relationship development.

Our communication strategy serves three primary objectives: establishing PRIMARY as a credible voice in agricultural waste valorisation, building sustained awareness across target groups, and creating engagement pathways that encourage active stakeholder participation. PRIMARY's communication channels work in a coordinated way to create multiple touchpoints with each target group.

PRIMARY's communication actions are planned in accordance with project phases: awareness-building during months 1-10, engagement and education during months 11-30, and impact demonstration and legacy during months 31-48. This approach ensures that communication efforts support the technical developments and piloting activities.

3.1 Project visual identity and branding

PRIMARY's visual identity was developed by M6, achieving milestone 2 (MS2), to establish consistent professional presentation across all project communications and support PRIMARY's credibility with stakeholders and the broader bioeconomy community. The guidelines and specifications are detailed in MS2 report. This visual identity development directly supports Strategic Action 1 (Increase project awareness and visibility) by establishing consistent professional presentation across all project communications.

The PRIMARY logo (Figure 1) features a growing leaf representing transformation of agricultural waste into valuable resources. A circular arrow highlights the commitment to circular economy principles. The colour palette employs green tones representing environmental aspects complemented by yellow for optimism and innovation.



Figure 1. PRIMARY logo

3.2 Media and digital communication channels

The goal of PRIMARY's media and digital communication is to reach diverse stakeholder groups through targeted posts and content formats to grow project's visibility, engagement and to ensure consistent messaging across all the project's channels.

PRIMARY's plan for press-releases involves producing over three strategic press releases targeting maximum media coverage at key project milestones. Table 3 below showcases the indicative plan for the press-releases with key messages. The first press release¹ was published in May 2025 with the announcement of the project's launch. It was spread through partners' homepages and social media as well as the project's social media (see Figure 2).

Table 3. PRIMARY press release plan

Press release	Timeline	Key messages	Target media
Project launch announcement	M3-M4 (Completed)	PRIMARY consortium formation, innovative multi-actor approach, ambitious waste valorisation goals	Social media and partners' networks
Open Call announcement	M11	Participation at Open Innovation Call - goals and guidelines.	Social media and partners' networks
Mid-project results	M24-M28	Demonstration successes, farmer testimonials	Sustainability media, bioeconomy publications, farming journals
Success cases, novel results	M36-M38	Significant technical achievements, economic impact validation, scaling potential, validated business models.	Industry media, policy publications
Final outcomes and impact	M44-M47	Proven economic benefits, policy recommendations, replication potential across EU	General media, policy publications, environmental press

¹ VTT, "Empowering farmers: PRIMARY project aims at upcycling underutilized agricultural feedstocks," VTT Research News, accessed [21.10.2025], https://www.vttresearch.com/en/project_news/empowering-farmers-primary-project-aims-upcycling-underutilized-agricultural.



Figure 2. PRIMARY launch announcement

PRIMARY’s website (www.primary-project.eu) serves as the central hub supporting multiple strategic actions, particularly Action 1 (Increase project awareness) and Action 2 (Promote stakeholder engagement). The website targets over 5,000 visits throughout the project duration, featuring redirections to relevant platforms: the Stakeholder platform and opencalls.fund platform that will be deployed for the implementation of the OC. The website’s content management ensures regular updates with project milestones, technical developments, and both academic and non-academic publications. These regular content updates support Action 8 (Active and diverse publishing) through publication hosting, while Action 5 (Inform and educate key value chain actors) benefits from downloadable resources and educational materials. The website maintains responsive design principles to ensure accessibility across devices and incorporates search engine optimization to enhance discoverability.

The project’s **social media presence** focuses mainly on LinkedIn (<https://www.linkedin.com/company/primary-project-eu>) as the primary professional platform, serving Actions 1, 2, 3 and 7 by targeting agricultural and bioeconomy professionals, policymakers, and researchers with content focused on technological

innovations, research findings, and industry impact. PRIMARY’s social media approach emphasizes technical expertise, research findings, policy implications, and success stories that resonate with professional audiences while also maintaining accessibility for general audience.

PRIMARY has developed a social media plan (see Table 4) that operationalises the LinkedIn strategy from M6 through systematic content creation with around 2-3 posts per month distributed across three themes: technical insights, partner spotlights, and project milestones. All content creation is coordinated by WP5 lead (CIVITTA) in collaboration with relevant project partners who provide input.

Table 4. PRIMARY’s social media content strategy

Phase	Timeline	Themes	Key content	In focus
Awareness building	M1-M10	Project kick off, project introductions, website launch	Partner stories, site preparations, website announcements, Stakeholder platform teasers	Website launch, farmer stories, newsletter signup
Engagement and education	M11-M30	Research and development, pilots, Stakeholder platform	Open Call promotion, piloting progress, workshop content, videos, Stakeholder platform launch	Open Call marketing, technical showcase, local workshop promotion
Impact and legacy	M30-M48	Open Call sub-projects implementation, publications, policy engagement, demonstrations, impact evidence, scaling, final results	Research findings, policy briefs, business cases, Practice Abstracts, workshop outcomes, environmental/economic benefits, replication cases, stakeholder testimonials	Policy impact, scientific credibility, videos, stakeholder advocacy, success stories

Video content development is an important part of the project’s communication plan, with production of over 15 short video clips published on YouTube (<https://www.youtube.com/@Primaryproject-eu>) to facilitate targeted communication campaigns. Each video targets over 100 views, with content designed for sharing across multiple platforms and integration into presentations and educational materials. Video content development represents a versatile tool supporting multiple strategic actions, like Action 4 (Communicate potential hurdles) by demonstrating how PRIMARY addresses real-world challenges, while also supporting Action 7 through accessible explanations of benefits for general audiences. Technical

demonstration videos advance Action 5 by providing visual education for value chain actors, and success story videos contribute to Action 6 by illustrating replication potential across different contexts.

Newsletter and direct mailing activities systematically support stakeholder engagement through newsletters distributed over the project duration. These tools primarily serve Action 2 by maintaining regular contact with subscribers and support Action 1 through project milestone communication. Newsletter content advances Action 8 by highlighting publications and collaborative opportunities and contributes to Action 9 (Legacy for exploitation and impact) by maintaining stakeholder networks beyond project completion.

Digital content integration ensures that all digital tools work together to support strategic actions. It is our aim to align the content calendars with strategic action timelines and project deliverables, to ensure that communication timing supports project objectives, milestones and results.

3.3 PRIMARY's value propositions and communication messages

This section outlines PRIMARY's core value propositions and key communication messages (see Table 5) for each target group, designed to translate our technical innovations into accessible benefits that motivate action. Building on our nine strategic actions established in Section 2.2, these value propositions provide the foundation for all PRIMARY communications across digital channels, workshops, and stakeholder engagement activities. Each message addresses the specific needs identified in our target group analysis.

Table 5. PRIMARY's value propositions and related communication messages for target groups

Target group	PRIMARY's unique value proposition	Key messages
TG1: Value chain actors	<p>Transform your agricultural feedstock and waste into profitable revenue streams using our 6 proven technologies tested in local conditions. We deliver ready-to-implement business models that can increase your operation's profitability while reducing waste disposal costs. Join our Open Call opportunities to expand and replicate successful approaches across new regions and feedstock types.</p>	<p>Implement PRIMARY's field-tested solutions to create new income sources from your agricultural waste and feedstock.</p> <p>Access proven technologies and business blueprints that work in your local conditions.</p> <p>Boost your farm's profitability while contributing to circular economy goals.</p>

<p>TG2: Policy/decision-makers and regulators</p>	<p>Accelerate EU bioeconomy targets with evidence-based policy recommendations from multi-regional demonstrations. Our data shows how agricultural waste and feedstock valorisation can create jobs and contribute to EU bioeconomy value while achieving climate neutrality goals by 2035.</p>	<p>Leverage PRIMARY's comprehensive data to develop effective agricultural waste and feedstock policies.</p> <p>Shape regulations that support rural economic development and environmental sustainability.</p> <p>Achieve measurable progress toward EU Green Deal objectives with proven interventions.</p>
<p>TG3: Educational institutions and research organisations</p>	<p>Discover new research opportunities through collaborative partnerships with PRIMARY's partners using knowhow on processes and business models tested across diverse rural conditions in the EU. Gain access to novel methodologies validated in real-world environments. Join our Open Call opportunities to expand and replicate successful approaches across new regions and feedstock types.</p>	<p>Collaborate with PRIMARY to advance agricultural feedstock valorisation research using validated methodologies.</p> <p>Publish high-impact research based on our comprehensive technology demonstrations.</p> <p>Launch next-generation bioeconomy solutions through our open innovation network.</p>
<p>TG4: General public and citizens</p>	<p>Discover how agricultural feedstock and waste can be turned into sustainable everyday products, from food, feed, packaging to clean energy. PRIMARY demonstrates the complete transformation journey, supporting rural communities and reducing environmental impact while creating local business opportunities.</p>	<p>Witness how farm waste becomes sustainable food, feed, packaging, and energy products that benefit your community.</p> <p>Contribute to environmental protection by choosing products from circular agriculture systems.</p>
<p>TG5: Other initiatives and projects</p>	<p>Increase your impact through PRIMARY's collaboration network spanning Europe's agricultural feedstock valorisation ecosystem.</p>	<p>Connect with PRIMARY's proven collaboration network to scale your agricultural innovation impact.</p> <p>Replicate our successful business models and</p>

		<p>technologies in your target regions.</p> <p>Accelerate your project success through shared knowledge, resources, and partnership opportunities.</p>
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These value propositions and key messages will be systematically used across all communication channels, ensuring that each target group receives relevant, action-oriented information regardless of format. As PRIMARY progresses through its phases, these core messages will be enriched based on concrete evidence and demonstration results.

3.4 Communication materials for targeted outreach

PRIMARY will develop a suite of targeted communication materials designed to reach specific audiences with tailored messaging. Professional leaflets and factsheets will be produced for key stakeholder groups, presenting PRIMARY's value propositions and preliminary results in accessible formats appropriate for industry conferences, policy meetings, and stakeholder events. These materials will be designed with strong visual identity elements and clear, compelling messaging that communicates complex technical concepts in language appropriate for each target audience.

Some communication materials will be produced in multiple languages to ensure accessibility across PRIMARY's target regions (like Finland and Greece) and will be made available through the project website and Stakeholder platform. Digital versions will be optimised for online sharing and printing, whilst branded templates will be provided to consortium partners for consistent messaging across all project communications.

4. Dissemination strategy and activities

PRIMARY's dissemination strategy focuses on strategic actions outlined in Section 2.2 that translate project findings into measurable impact through targeted sharing of validated solutions, evidence-based recommendations, and replicable innovations. Our dissemination approach operates on the principle that effective knowledge transfer requires strategic targeting of specific audiences with tailored content addressing their needs. PRIMARY's scientific dissemination approach directly implements Strategic Action 8 (Active and diverse publishing) through collaborative publications and high-impact journal targeting.

PRIMARY's dissemination follows a sequenced timeline respecting both technical milestones and stakeholder readiness. Early-stage dissemination focuses on methodology (M1-10), mid-stage shares preliminary findings (11-30), and final-stage provides (30-48) comprehensive validated solutions.

Dissemination activities support exploitation objectives, balancing open science commitments with intellectual property protection needs and creating lasting resources that continue providing value beyond project completion.

4.1 Scientific and technical dissemination

This subsection outlines our approach to sharing research findings, technical innovations, and methodological developments with the global scientific community. PRIMARY commits to producing over 15 open-access scientific publications throughout the 48-month project duration, targeting high-impact journals in agricultural science, biotechnology, environmental engineering, and bioeconomy research. Publications will cover the full spectrum of PRIMARY's technical innovations, where technical partners will lead publication efforts within their expertise areas. Beyond individual consortium publications, PRIMARY actively pursues collaborative publishing opportunities with sister projects and related initiatives to strengthen credibility and maximise research impact. The upcoming preliminary academic publications plan is showcased in Table 6.

Table 6. Upcoming PRIMARY's scientific publications

(Preliminary) title	Author(s)	Target journal	Estimated time of publishing
A dynamic simulation model to optimize regional grass production and delivery to green biorefinery (T1.2)	Ryynänen, M. Rinne, M., Pastell, M. et al.	Cleaner Logistics and Supply Chain	2027
Grass and greenhouse-based side streams as feedstock in SCP production (T2.2)	Viinikanoja T., Haajanen E., Juvonen R., Nordlund E., Ritala A. et al.	Biocatalysis and Agricultural Biotechnology	2027
Converting agricultural side streams into higher value-added biomaterials	Kiiskinen T., Pääkkönen E., Seppänen T.	BioResources	2027
Monitoring feedstock losses during cotton residues and olive tree prunings storage	Kougioumtzis M., Papazoglou M., Filippou V.	Biomass and Bioenergy	2027

Valorisation of olive tree prunings cotton residues and biochar to produce particleboards. Evaluation of the particleboard properties at different substitution levels	Kougioumtzis M., Papazoglou M., Filippou V.	Industrial Crops and Products	2028
From Olive Tree Prunings to Local Bioenergy under a Cooperative Scheme: Insights from the MINOA Case Study in Crete	Savvakis N., Tsekouras A., Katsparakakis D., Kougioumtzis M., Papazoglou M., Filippou V.	Biomass and Bioenerg	2028

Academic thesis supervision and development

PRIMARY supports the next generation of researchers with the goal to supervise over five Master's theses and three PhD theses focused on agricultural waste valorisation technologies and business model development. These academic works will be co-supervised by university partners and PRIMARY consortium members, ensuring that research questions align with project objectives whilst providing students with practical industry experience.

4.2 Practice Abstracts and educational materials

Practice Abstracts and educational materials represent PRIMARY's commitment to bridging the gap between scientific innovation and practical implementation, providing farmers, SMEs, and other value chain actors with accessible, actionable guidance on agricultural waste valorisation technologies. These activities represent a core component of Strategic Action 3 (Deliver specific messages to farmers and SMEs) while also supporting Strategic Action 5 (Inform and educate key value chain actors) through accessible, actionable guidance.

Practice Abstracts development framework

PRIMARY will produce 10-15 Practice Abstracts following the EIP-AGRI common format, specifically designed to provide easy-to-use descriptions of PRIMARY's process concepts and business models for practitioners. These abstracts will be developed collaboratively with WP1-3 technical inputs, ensuring that each document accurately reflects both scientific rigour and practical applicability. The abstracts will be developed in two phases, with initial versions drafted by M18 (D5.3) based on preliminary technical developments, and final versions updated in M47 (D5.7) (MS13) incorporating complete demonstration results and validation data from Finland and Greece pilots.

Practice Abstract development follows a multi-stakeholder validation approach that ensures content relevance and usability for target audiences. Technical partners (VTT, Luke, CERTH, ELGO) provide scientific and technical content within their expertise areas, while farmer organisations (MTK, NEA ENOSI) and SME partners review materials for practical applicability and clarity. This collaborative review process ensures that abstracts address real-world implementation challenges whilst maintaining technical accuracy. All Practice Abstracts will be submitted to the EIP-AGRI project database via the EU CAP Network website, ensuring broad dissemination to practitioners across the European Union. This integration provides PRIMARY's innovations with visibility within established agricultural advisory networks, enabling organic discovery by farmers and SMEs seeking waste valorisation solutions. The project profile will be uploaded to the EU CAP Network website, creating a foundation for ongoing Practice Abstract distribution.

All Practice Abstracts will also be uploaded to the PRIMARY Stakeholder platform (for direct engagement and accessibility to core user groups) as well as the EU-FarmBook as part of the Horizon Europe / EIP-AGRI system to ensure wider European dissemination and uptake.

Educational materials for diverse audiences

PRIMARY's educational material development extends beyond Practice Abstracts to include farmer journal articles and learning stories. Over four articles will be published in specialised farmers' journals, providing in-depth technical guidance tailored to specific agricultural sectors and regional contexts. These articles complement Practice Abstracts by offering more detailed implementation guidance and case study examples from PRIMARY's demonstration activities.

Learning stories (produced under T4.4) will document PRIMARY outcomes at local and EU levels, illustrating the contribution of project results to bioeconomy development. These learning stories will be developed through Open Call activities and will showcase good practices and lessons learnt from PRIMARY's implementation across different regions.

4.3 Policy engagement and recommendations

Policy engagement represents a cornerstone of PRIMARY's strategy to influence European and national agricultural policy frameworks, ensuring that project findings translate into regulatory support for agricultural waste valorisation across the EU. This subsection outlines PRIMARY's approach to engaging with policymakers and developing evidence-based policy recommendations that support the transition to circular bioeconomy practices in rural regions. Policy engagement activities implement Strategic Action 5 and support Action 4 by providing evidence-based recommendations to policymakers.

Policy brief development and dissemination

PRIMARY will produce two policy briefs targeting EU and national policymakers with actionable recommendations based on project findings. The first policy brief (D5.4, M24) will focus on the importance of multi-actor approaches in agricultural innovation, clarifying messages about bringing together key value chain actors including RTOs, SMEs, cooperatives, primary producers, and NGOs to boost innovation capacity and generate sustainable business opportunities for primary producers in the European agriculture sector.

The second, final policy brief (D5.6, M45) will summarise important project outcomes related to EU and national policymaking. This document will incorporate lessons learned from WP4 (Open Innovation) activities, demonstration results from Finland and Greece, and validated business models developed throughout the project duration. Both policy briefs will be developed collaboratively with PRIMARY's sister projects HarWASTing and EMBEDDED to deliver joint messages and recommendations that represent broader industry consensus rather than single-project perspectives.

Webinar for policy brief promotion

A dedicated webinar will be organised to introduce the first version of policy brief and learning stories to a broader audience of policymakers, stakeholders, and interested parties. This digital engagement format ensures maximum accessibility for participants across different time zones and institutional contexts, whilst providing an opportunity for real-time questions and dialogue about policy implications.

The webinar (planned for M26) will feature presentations from key PRIMARY partners, policy brief authors, and invited policymakers who can provide institutional perspectives on the recommendations.

EU-level workshop for policy makers

During the last year of the project, PRIMARY will organise one EU-level workshop specifically designed to share best practices and learning stories (in collaboration with T4.4 Promotion of learnings) with policymakers, researchers, and industry representatives across European institutions. The goal is to collaborate with the PRIMARY sister projects for this workshop, present our final policy brief and recommendations, to facilitate a dialogue between practitioners and policymakers as well as promoting understanding of regulatory barriers and opportunities for agricultural waste valorisation implementation.

Integration with broader policy networks

PRIMARY's policy engagement strategy leverages existing relationships with EU-level networks including EIP-AGRI, European Commission Knowledge Centre for Bioeconomy, Rural Bioeconomy Alliance, Copa-Cocega, ERBN network etc. These established channels provide credible platforms for policy recommendation dissemination whilst ensuring that PRIMARY's findings reach relevant decision-makers within European agricultural and bioeconomy policy frameworks.

Collaboration with sister projects enhances the credibility and impact of policy recommendations by demonstrating consensus across multiple research initiatives and providing policymakers with comprehensive evidence bases for regulatory decision-making.

4.4 Workshops, training and events strategy

PRIMARY's workshop, training and event strategy creates direct engagement opportunities with stakeholders whilst building practical capacity for agricultural waste valorisation implementation. This approach supports Strategic Actions 3, 5, and 6 by providing interactive platforms where stakeholders can develop hands-on skills, receive targeted training, and build implementation capabilities tailored to their specific operational contexts.

National workshop programme

PRIMARY will organise over four participatory workshops and training programmes across Finland and Greece, specifically targeting TG1 (value chain actors) including farmers, SMEs, companies and cooperatives. These workshops (see Table 7) function as training programmes designed to build local capacity for implementing PRIMARY's demonstrated technologies, validated business models, and sustainability practices.

Table 7. PRIMARY national workshop programme

Workshop theme (indicative)	Country	Time (month)	Lead organiser
Grass biorefinery technologies for advancing Nordic agriculture value chains – co-creating the processes and business models with local actors	Finland	M9-M10	MTK
Greenhouse byproduct valorisation and business models implementation – co-creating the processes and business models with local actors	Finland	M9-M10	Luke
Grass biorefinery technologies for advancing Nordic agriculture value chains – Lessons learnt	Finland	M38-M46	MTK
Greenhouse byproduct valorisation and business models implementation – Lessons learnt	Finland	M38-M46	Luke
Sustainable use of agricultural residues: cotton residues valorisation – co-creating the business models with local actors	Greece	M8-M18	NEA ENOSI/ ESEK

Sustainable use of agricultural residues: Community awareness event	Greece	M8-M18	MINOA
From cotton fields to new profits: valorising by-products for soil improvement, biomaterials and renewable energy – Lessons learnt	Greece	M38-46	NEA ENOSI/ ESEK
From Olive by-products in the circular economy: soil health, energy production, biomaterials and farmer income – Lessons learnt	Greece	M38-46	MINOA

Both Finland and Greece follow a two-phase collaborative methodology: early-stage co-creation or awareness workshops (M8-M18) to engage local stakeholders to provide input and feedback on PRIMARY's initial process concepts and business model plans. Later-stage workshops (M38-M46) focus on disseminating validated outcomes, demonstrated results, and lessons learned from pilot implementations.

The workshops combine technical aspects, hands-on demonstrations and peer-to-peer learning opportunities, ensuing that participants leave with actionable implementation plans rather than theoretical knowledge alone.

Conferences and networking

The consortium partners will actively participate in external conferences and events throughout the project life-circle, presenting PRIMARY's research findings at leading international venues such as: InnoDays 2025 (in Heraklion), 14th National Conference on Renewable Energy Sources, European Biomass Conference, International Conference on Biotechnology, World Congress on Industrial Biotechnology, III Cellular Agriculture Conference 2026, Cellulose Fibres Conference 2026/2027, LandTechnik Conference of Agriculture Engineering 2026, AgEng (Agriculture Engineering) Conference 2026, Bridge2Food events, EIT Food events, events organized by EC in Brussels and regional/national agricultural research symposiums.

Conference presentations serve dual purposes of disseminating technical findings and building collaborative networks that support project exploitation and future research opportunities.

Final conference

PRIMARY will organise a hybrid final conference targeting over 100 attendees, with potential for over 200 participants if organised jointly with sister projects. The event is planned for M46- 47. The conference serves as the culminating dissemination event, presenting results, demonstrating achieved impacts, and discussing future directions for agricultural waste valorisation across Europe. Hybrid delivery ensures maximum

accessibility for participants across different geographical locations and institutional contexts.

5. Stakeholder platform development

The Stakeholder platform represents the digital interface for engagement, knowledge exchange, and networking in the project. Its purpose is to provide a user-friendly, accessible, and continuously updated digital environment where diverse actors of the bioeconomy (farmers, cooperatives, SMEs, research organisations, policymakers, NGOs, and citizens) can interact, share practices, and co-develop solutions.

The platform is designed to:

- Facilitate multi-actor engagement
- Support and disseminate knowledge and tools generated by the project and its partners.
- Promote networking and matchmaking across sectors and territories.
- Enable policy dialogue by linking practice-based insights with policy processes.

The Stakeholder platform will be integrated into the already established BioRural Toolkit (<https://biorural-toolkit.eu>) developed by the Horizon Europe project BioRural (HORIZON-CL6-2021-CircBio-01-08) and taken over by the subsequent Horizon Europe project tHERBN (see Figure 3). It already hosts the European Rural Bioeconomy Network (ERBN) with >600 key stakeholders spanning primary producers, advisors, bio-based industries, policymakers, NGOs, and citizens across Europe as well as knowledge materials.

The PRIMARY Stakeholder platform will use the existing interface for knowledge exchange and stakeholder registration. This will directly support Strategic Action 2 (Promote stakeholder engagement and networking), while also serving as a dissemination multiplier for results, practices, and tools.

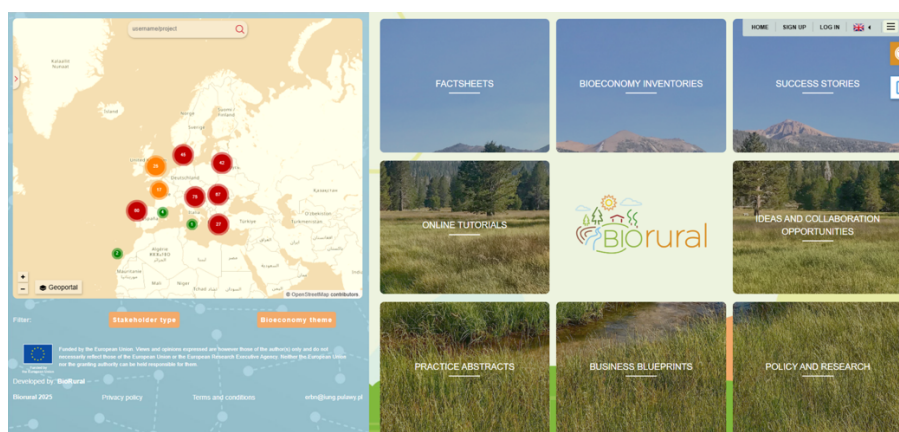


Figure 3. Current Status of theERBN Platform - depiction the network on the left and content types on the right

Collaboratively, BioRural, theERBN, PRIMARY and its sister projects will strive to expand registered stakeholders and the knowledge base to include:

- High-level stakeholders such as large biomass, bioenergy, and biomaterials associations
- Industry leaders and corporations active in bioproducts and bio-based value chains
- Policymakers from EU, national, regional, and municipal levels
- Research organisations, universities, and extension services
- Citizen representatives and NGOs

The Stakeholder platform will thus not only ensure dissemination and communication of PRIMARY results but also foster long-term partnerships and facilitate policy-relevant dialogues at EU and national levels. A milestone (MS6 Stakeholder platform launch) will track its initial deployment, with regular updates and increasing functionalities planned throughout the project.

5.1 Platform integration strategy

Technical implementation

The platform development follows a robust technical framework designed for interoperability and compliance. Platform set-up is subcontracted under CERTH's guidance, with the technical backend aligned with IUNG-PIB, the developer of the BioRural Toolkit and theERBN platforms. The system features API-enabled interoperability with EU-level platforms including EU-FarmBook ensuring broad connectivity within the European agricultural innovation ecosystem. All platform operations maintain GDPR compliance to protect user data and privacy.

Key actors and responsibilities

The stakeholder platform development involves several key actors with distinct roles and responsibilities. CERTH serves as the lead organization, responsible for coordination, platform oversight, subcontracting supervision, and overall integration strategy. CERTH also functions as the BioRural coordinator and is a key partner in theERBN project. CIVITTA will contribute through content curation and uploading of PRIMARY materials to the platform, including Practice Abstracts, success stories, and factsheets.

IUNG-PIB participates in the stakeholder platform development as the technical partner for ERBN/theERBN, ensuring system compatibility. Additionally, IUNG-PIB acts as the subcontracted IT provider, handling platform development, hosting, and interface design. The University of Ghent and AVEBIOM serve as the theERBN project coordinators, providing additional coordination and oversight for the broader network integration. All PRIMARY consortium partners will be expected to encourage key stakeholders in their networks to register and upload knowledge materials to the platform.

Timeline and milestones

The platform development follows a structured timeline aligned with project milestones. During M1-M9, activities focus on platform design and technical set-up, discussions with ERBN coordinators, and reaching out to sister projects for collaborative integration. M9 marks MS6, delivery of the first version of the Stakeholder platform with PRIMARY and sister projects visible within thERBN. From M10-M48, the platform undergoes continuous updates, feature expansion, stakeholder engagement activities, and uploading of knowledge materials. The final version is reported at M47 (D5.8), documenting the complete platform functionality and stakeholder engagement outcomes.

5.2 Platform content and functionality

The Stakeholder platform will be a dynamic collaboration space with the following features:

Core functionalities:

- Registration and stakeholder mapping: Unique user profiles visible on a European map, linked to thematic hubs (PRIMARY, sister projects, ERBN communities, other projects, etc).
- Knowledge repository: Access to and upload of project outputs (Practice Abstracts, guidelines, tutorials, success stories, blueprints, policy briefs).
- Collaboration and communication tools: Basic chat function and ability to reach out to other stakeholders.

Content types (see Figure 4):

- Factsheets – bioeconomy related factsheets
- Bioeconomy inventories – inventory of research results, commercially available solutions and funding opportunities
- Success stories – overview of identified success stories
- Online tutorials – educational materials and tutorials
- Ideas and collaboration opportunities – innovative solutions and potential collaboration opportunities
- Practice Abstracts – EIP-AGRI format practice abstracts
- Business model blueprints – practical business-oriented frameworks that support entrepreneurs and organisations in developing, testing, and scaling sustainable businesses
- Policy and research guidelines – evidence-based guidelines that inform and support policy development and research agendas for circular economy transformation

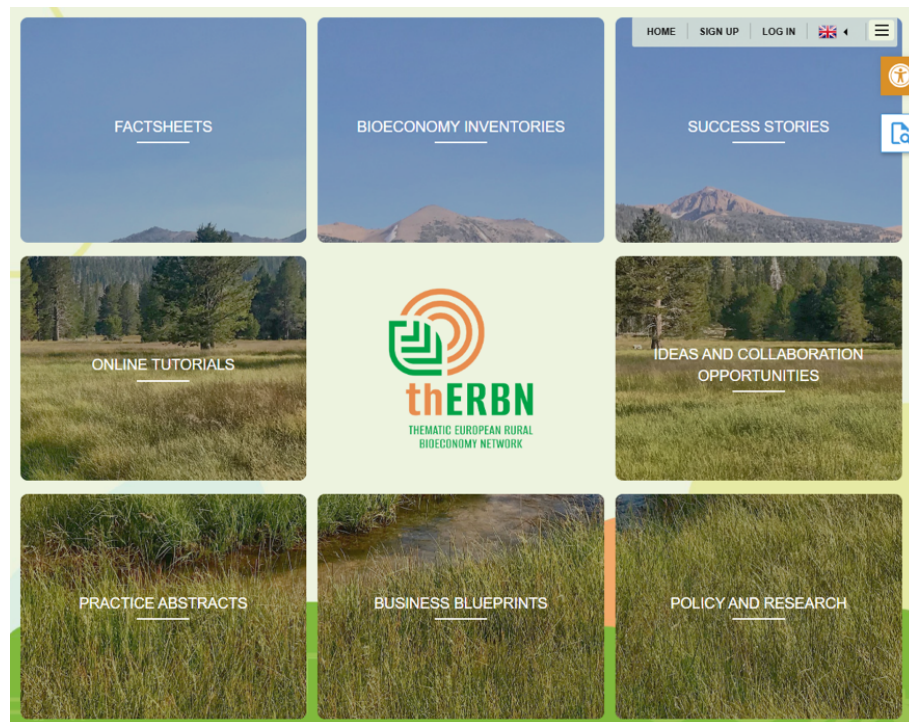


Figure 4. Overview of thERBN content tiles in August 2025.

Stakeholder reach:

- 50–100 new stakeholders registered annually, resulting in >300 PRIMARY/sister project stakeholders registered by project end.
- Through thERBN integration, PRIMARY content and stakeholders will be visible to >2000 bioeconomy actors, including associations, corporations, ministries, universities, and NGOs.
- Stakeholder groups engaged: primary producers, SMEs, NGOs, RTOs, policymakers at EU/national/local levels, ensuring quadruple-helix participation.

6. Exploitation strategy

6.1 Key Exploitable Results (KERs)

PRIMARY's Key Exploitable Results (KERs) presented in Table 8 represent the project's most valuable and commercially viable outputs that will drive long-term impact beyond the project completion. These eleven strategic results encompass technical innovations, business model developments, and stakeholder engagement tools that address real market needs and create sustainable value for European agricultural waste valorisation. The KERs directly implement Strategic Action

9 (Legacy for exploitation and impact) by establishing concrete foundations for sustained commercial exploitation and market adoption.

Each KER has been designed to address specific stakeholder needs, spanning the complete innovation ecosystem, from technical processes and digital tools to business models and sustainability evidence, providing solutions for agricultural waste valorisation across different feedstock types and regional contexts.

Table 8. List of PRIMARY KERs

KER #	Description & Expected Outcomes (EOs)	Related WPs	Target Groups/End Users
1	Grass biorefinery process (n=1) to produce food and feed protein products (n=2) → EO2, EO3, EO5	WPs 1, 2	Primary producers and processors, food & feed industry
2	Fermentation processes (n=2) based on submerged fermentation and solid-state fermentation to produce food and feed protein rich products (n=2) from agricultural feedstocks → EO2, EO3, EO5	WPs 1, 2	Value chain actors from primary producers, processors to end-product users
3	Foam forming process (n=1) to produce a bio-based packaging material product (n=1) from agricultural feedstocks → EO2, EO3, EO5	WPs 1, 2	Value chain actors from primary producers, processors to end-product users
4	Pelleting and gasification processes (n=2) to produce bioenergy/biofuel products (n=2) from cotton and olive tree byproducts → EO2, EO3, EO5	WPs 1, 2	Value chain actors from primary producers, processors to end-product users
5	Gasification composting processes to produce soil amendment products (n=2) and construction material product (n=1) from cotton and olive tree byproducts → EO2, EO3, EO5	WPs 1, 2	Value chain actors from primary producers, processors to end-product users
6	Integrated business models and farm-level concepts (n=4) for sustainable valorisation of agricultural feedstocks (grass, greenhouse, cotton, olive tree byproducts) in rural areas → EO3, EO6, EO7	WPs 1, 2, 3, 4	Value chain actors from primary producers to end-product users

7	A dynamic simulation model (n=1) for grass biomass availability → EO2	WP1	Primary producers and processors
8	Logistics services: logistics optimization models (n=4) for optimizing feedstock mobilization, and online monitoring tools for greenhouse and grass feedstocks (n=2) to predict feedstock availability and quality in the value chains → EO2	WP1	Primary producers and processors
9	Assessed sustainability of the new feedstock-specific value chains (n=4) in FI and GR, including techno-economic, environmental and socio-economic evaluation → EO5, EO6	WPs 1, 2, 3	Value chain actors and decision/policymakers (esp. EU level)
10	Policy enablement resources including evidence-based recommendations (policy briefs, n=2, best practice documentation (Practice Abstracts, n=10-15), and stakeholder engagement outcomes (workshops, n>4) to support decision makers in creating conducive policy environments for sustainable agricultural feedstock valorisation → EO7, EO8	WPs 4, 5	National/EU level decision makers
11	A joint Stakeholder platform established to widely share knowledge and collaborate with stakeholders, such as decision makers, value chain actors needed for implementation of the PRIMARY solutions in the EU, as well as educational and RDI actors → EO8	WP 5	National/EU level decision makers, commercialising and educational actors

To maintain systemized exploitation planning involving all project partners, the PRIMARY consortium will hold 4 internal exploitation workshops throughout the project lifetime (1 for each project year, final at M44 (MS14)). The first was held on the 1st of July 2025, where the management of exploitable results (background and foreground), IPR and stakeholder mapping was discussed and decided on.

These eleven KERs represent the specific valuable outputs that PRIMARY's DEC strategy will communicate and help partners to exploit effectively. Each DEC activity is designed to maximise awareness, adoption, and commercialisation of these concrete results through targeted dissemination channels, stakeholder engagement activities, and strategic communication campaigns. The KERs provide the foundation for all DEC activities, from Practice Abstracts and policy briefs to workshop content and partnership development, ensuring that PRIMARY's technical achievements translate into measurable commercial and societal impact.

6.2 Individual partner exploitation plans

Individual partner exploitation plans represent preliminary frameworks based on initial assessments of organisational capabilities and Key Exploitable Results (KERs) alignment. Each PRIMARY consortium partner has identified specific exploitation interests aligned with their market position and the project results most relevant to their operations.

These initial plans will be substantially developed and refined as enabling activities progress, ensuring that strategies remain aligned with project progress and market developments.

Research and technology organisations:

VTT focuses exploitation on grass biorefinery, fermentation, and foam forming technologies, targeting multiple commercialisation pathways. The organisation plans to establish start-ups (target >1) utilising generated intellectual property including patents, whilst providing contract research and licensing services to customers (target >2 customers annually). VTT will exploit business model co-development opportunities with value chain actors for new local business opportunities and apply findings to secure further RDI funding through new EU projects (target >2 projects). Sustainability and feasibility assessments will guide further technology development and inform national/regional policy contributions.

Luke will exploit intellectual property relating to software for simulation and optimisation of grass production, logistics solutions for greenhouse side stream transport, and methods for feedstock stabilisation and extraction processes. Commercial exploitation includes service provision to cooperatives and companies through contract research (target >2 customers). Luke will develop business models with value chain actors for local business opportunities and pursue further RDI development through new EU projects (target >2 projects) in focused technological areas.

CERTH plans to utilise knowledge and solutions from biomass valorisation processes for new scientific and business opportunities. The organisation will apply technical knowledge for further RDI in sustainable agriculture and renewable energy solutions through new EU projects (target >2 projects). CERTH will use accumulated knowledge and best practices to train local actors and advise national/regional policymakers in decision-making processes.

ELGO will exploit intellectual property from process and product development, particularly in feed applications, through licensing arrangements with local SMEs and technology providers. The organisation plans to pursue further RDI in sustainable agriculture and renewable energy solutions through new EU projects (target >2 projects), building on PRIMARY developments.

Industry and commercial partners:

Valio will utilise PRIMARY knowledge and intellectual property regarding techno-economic feasibility of grass biorefinery operations to build a roadmap for implementing the concept. The company plans to provide its owners (dairy farmers) with new solutions for feed self-sufficiency, decoupling the feed from food-grade sources, and possibly new income from excess grass. Farmer actions support Valio's climate programme targeting carbon-neutral milk chain by 2035, emission reduction trade being a developing business area for the company.

Fiberwood will leverage PRIMARY innovations to utilize and test new raw materials for bio-based products (CAGR 150%). They will also leverage PRIMARY's results and knowledge about valorisation of underutilized feedstocks and sustainability assessment for improved decision making and launching new bio-based products to the market, with the goal to accelerate business growth within the circular economy.

Cooperatives and farmer organisations:

NEA ENOSI will apply PRIMARY solutions to enhance biochar production and application for cotton field soil fertility improvement, targeting crop performance enhancement (>10% improvement). The cooperative will consult the developed logistics tools to optimise biomass collection and transportation efficiency (target >20% improvement) whilst implementing best practices for biomass storage and handling.

ESEK will apply PRIMARY solutions to improve process efficiency for converting agricultural biomass into solid biofuels, focusing on biomass handling and preservation optimization. The cooperative will utilize insights from best practices to improve biomass storage and handling whilst exploring additional uses of byproducts from cotton processing. ESEK plans to expand bioenergy operations and support sustainable agricultural practices in other regions, leveraging their experience in biomass collection, biochar production, and deployment of biomass boilers in public buildings.

MINOA will apply PRIMARY solutions to exploit sustainable and optimal utilization of olive tree byproducts, focusing on improving process efficiency for biomass handling and preservation. The cooperative will establish production capabilities for wood chips and pellets for biofuel applications as well as compost for soil fertilisation. MINOA will consult the developed logistics optimization models/tools to streamline collection, storage, and transportation of byproducts (target >20% improvement). MINOA will conduct storage trials and implementing biomass boiler trials at least in one public building in Crete.

MTK plans to exploit PRIMARY processes and business models with Finnish primary producers, establishing local bioeconomy value chain initiatives (target >2 initiatives). Through lessons learnt on improved innovation capacity and defined best practices, MTK will provide technical guidance to farmers and communicate findings to policymakers for broader sector development.

Service and support organisations:

CIVITTA will enhance its Socio-Economic Impact Assessment (SEIA) service line using inputs and learnings from PRIMARY. The organisation will refine and expand SEIA methodologies whilst utilising developed tools and strategies to strengthen service offerings in communication, dissemination, and exploitation activities for future projects.

RFF will enhance the exploitation of the business model blueprints on feedstock-specific value chains as well as replication of the processes to support rural stakeholders, boost rural economies, and align with EU sustainability goals. The organisation plans to replicate successful processes and business models in other EU regions through the launch and implementation of an open call (target 6-9 new sub-projects), promoting multi-actor partnerships and sharing insights across Europe.

These exploitation plans maintain strong bidirectional integration with WP3 business model development and sustainability assessment work. WP5 stakeholder engagement activities provide market validation and user feedback that inform WP3 business model refinement. At the same time WP3 validated business models and sustainability evidence become primary content for exploitation through Practice Abstracts, policy briefs, and educational workshops. This integration ensures that exploitation activities are grounded in evidence and WP3 developments remain market-informed and stakeholder-validated throughout the project duration.

Collective exploitation opportunities

Several partners have identified potential collective exploitation activities that leverage complementary expertise and market positions. VTT and CERTH collaboration in biorefinery technologies could support shared commercialisation strategies. The Finnish partners (VTT, Luke, Valio, MTK) represent a complete value chain that could facilitate integrated business model implementation. Similarly, the Greek partners (CERTH, ELGO, NEA ENOSI, ESEK, MINOA) provide comprehensive regional coverage for Mediterranean applications.

These collective opportunities will be further explored through the annual exploitation workshops, with detailed development plans included in the interim and final versions of this DEC plan. The Post-Project Exploitation Strategy (D5.4) will provide specific guidance for sustaining and scaling these collaborative approaches beyond the PRIMARY project timeline.

7. Intellectual property management plan

PRIMARY's intellectual property (IP) management strategy provides a framework for identifying, protecting, and exploiting IP assets generated throughout the project. The strategy balances protection requirements with knowledge sharing commitments, addressing both background IP brought by partners and foreground IP

generated during project implementation. The IP management procedures were established and approved during the DEC workshop on the 1st of July 2025.

7.1 Background IP foundation

PRIMARY's exploitation approach leverages strategic background IP and focuses primarily on newly generated foreground IP to create comprehensive commercialisation pathways.

CERTH contributes two key background IP assets that provide essential foundations for PRIMARY's exploitation strategy. First, LCA/LCC modules developed in commercial/custom made tools enable comprehensive sustainability modelling and provide credible evidence for market acceptance and regulatory compliance.

Second, the thERBN platform (formerly BioRural Toolkit) serves as a continuously updated knowledge repository and live network of bioeconomy stakeholders, directly supporting KER11 (Stakeholder platform) implementation accelerating PRIMARY's stakeholder engagement and providing immediate access to stakeholders across European rural areas.

7.2 Foreground IP development and exploitation

PRIMARY expects to generate significant foreground IP, particularly through patent applications (target >5) covering novel processes, business model innovations, and product developments across the four feedstock value chains. Foreground IP development focuses on:

- **Process innovations** (KERs 1, 2, 3, 4, 5): Valorisation technologies with strong patentability potential
- **Digital tools** (KERs 7, 8): Software and monitoring systems for logistics optimization and feedstock prediction
- **Business model innovations** (KER 6): Novel value chain configurations and farm-level implementation approaches

Supporting knowledge assets include sustainability assessment methodologies (KER 9), policy enablement resources (KER 10), and collaborative platforms (KER 11) that enable effective exploitation and scaling of the core technical innovations.

7.3 IP strategy and protection measures

PRIMARY's IP management operates through an approved organisational structure. The IP/Exploitation Manager role is filled by CIVITTA, with WP leaders responsible for monitoring their respective technical areas and VTT providing oversight to ensure Grant Agreement compliance.

PRIMARY's IP strategy encompasses identification, assessment, protection, and exploitation of intellectual property like patents, trade secrets, know-how, copyrights, trademarks, and data rights.

The IP strategy encompasses four core process components approved by the consortium:

- 1. Background registry** - establishes an inventory of existing partner IPs. This completed action ensures all relevant background intellectual property is properly documented and accessible for project implementation and exploitation planning.
- 2. Foreground IP monitoring** - operates through quarterly reporting procedures where partners report new intellectual property developments to CIVITTA using standardised inventory templates. This ongoing process ensures systematic capture of all project-generated IP throughout the 48-month duration.
- 3. Patent landscape monitoring** - involves annual Freedom to Operate (FTO) reviews with technical partners monitoring their specific areas and alerting CIVITTA when relevant developments arise. This distributed approach leverages partner expertise whilst maintaining coordinated oversight of potential IP conflicts.
- 4. Protection decisions** - follow joint evaluation procedures where partners collectively assess the protection value of new intellectual property, ensuring appropriate strategies for patents, know-how, trade secrets, and other IP categories relevant to agricultural feedstock valorisation.

All the monitoring and decision-making process related to IP will be held during regular WP Leaders meetings.

7.4 Freedom to operate (FTO) analysis

Freedom to operate (FTO) analysis ensures PRIMARY activities and commercialisation plans do not infringe existing third-party intellectual property rights. The analysis operates through continuous monitoring integrated with the approved IP management procedures.

Baseline FTO assessment conducted during project preparation identified relevant patent landscapes in agricultural feedstock processing, biorefinery technologies, fermentation processes, and bio-based product applications. Continuous monitoring operates through the approved annual FTO review process where technical partners monitor developments in their expertise areas and alert CIVITTA when relevant issues arise. Partners execute FTO analysis within their respective technical domains as part of the established IP management procedures. Updates align with the quarterly IP monitoring cycles and annual exploitation workshops, ensuring that any FTO considerations inform commercial planning.

8. Performance monitoring and evaluation

Effective performance monitoring and evaluation ensures that PRIMARY's DEC activities deliver measurable impact whilst providing evidence for continuous improvement throughout the 48-month project duration. This comprehensive monitoring framework enables systematic tracking of progress against established objectives, identification of successful approaches, and strategic adjustments based on real-world performance data to maximise stakeholder engagement and project effectiveness.

8.1 Key performance indicators (KPIs)

The DEC KPI framework balances quantitative metrics with qualitative assessments, recognizing that meaningful stakeholder engagement requires both reach and depth of interaction. The targets (see Table 9) reflect ambitious expectations based on consortium capacity, market conditions, and stakeholder engagement patterns.

Table 9. PRIMARY KPIs and evaluation framework

KPI name	Target value	Time when value should be met	Evaluation
Website visits	>5,000 visits	M48	Cumulative visitor count tracked monthly through analytics
Social media followers (LinkedIn)	>1,000 followers	M48	Total follower count tracked monthly
Newsletter distribution	8 newsletters	M48	Number of newsletters published and distributed according to planned schedule
Mailing list subscribers	1,000 subscribers	M48	Active subscriber count tracked monthly
Video content performance	>15 videos with >100 views each	M48	Individual video performance tracked, assessing view counts, engagement rates, and sharing metrics

Press release impact	>3 press releases	M48	Number of press releases published
Open access scientific publications	>15 publications	M48	Peer-reviewed publications published in indexed journals.
Non-scientific articles	>10 articles	M48	Articles published in trade publications, policy documents, and practitioner-focused outlets
Master's theses supervision	>5 theses	M48	Completed theses directly related to PRIMARY technologies and approaches
PhD theses supervision	>3 theses	M48	PhD research projects aligned with PRIMARY objectives and methodologies
Practice Abstracts	10-15 abstracts	M47	EIP-AGRI format abstracts completed and submitted to EU database
Stakeholder platform reach	>2,000 total stakeholders	M45	Combined registered users
National workshops	>4 workshops	M35	Participatory workshops completed in Finland and Greece with documented outcomes
Learning stories	≥6 stories	M45	Documented case studies illustrating PRIMARY outcomes at local and EU levels
Articles in farmers' journals	>4 articles	M45	Articles published in specialized agricultural publications targeting practitioners
Policy brief development	1 comprehensive brief	M45	Final policy brief completed and distributed to target policymaker networks

EU level workshop	1 workshop	M42	Policy-focused workshop completed with documented participant feedback and outcomes
Policy webinar	1 webinar	M46	Webinar conducted to introduce policy brief with recorded participation and engagement metrics
Conference presentations	>15 events	M48	PRIMARY presentations delivered at agricultural and bioeconomy conferences and events
Final conference attendance	>100 attendees (>200 if joint with sister projects)	M47	Hybrid conference completed with documented attendance and participant satisfaction

These KPIs provide wide coverage of PRIMARY's dissemination and communication activities whilst enabling systematic evaluation of progress and impact. The evaluation column will be populated with actual performance data in subsequent deliverable versions, providing evidence of achievement and identifying areas requiring strategic adjustment.

Regular monitoring of these indicators through quarterly assessments enables proactive management of performance gaps whilst documenting successful approaches that can be replicated and scaled. The KPI framework supports both internal project optimization and external reporting requirements, ensuring transparency and accountability throughout the PRIMARY project lifecycle.

8.2 Evaluation and update mechanisms

The WP5 leader (CIVITTA) conducts quarterly assessments of the KPI progress starting from M6 to ensure timely adjustments to communication approaches, channel effectiveness, and stakeholder engagement methods.

The DEC plan undergoes several updates aligned with deliverable submission requirements at months 36 (D5.5) and 48 (D5.8), incorporating evidence from regular KPI monitoring. These updates refine strategies based on demonstration results, market developments, and exploitation opportunities whilst ensuring continued alignment with PRIMARY's overall objectives.

9. Timeline and milestones

PRIMARY's timeline and milestones provide a structured roadmap for implementing the nine strategic actions outlined in Section 2.2. The implementation follows PRIMARY's established three-phase approach, where each phase represents areas of emphasis rather than exclusive periods. Awareness-building (M1-M10) establishes foundational elements through Strategic Actions 1 and 2, but awareness building (Action 1) and stakeholder engagement (Action 2) continue throughout all phases with evolving content and deepening relationships. Engagement and education (M11-M30) intensify Strategic Actions 3, 5, and 8 through workshops, publications, and educational content development, whilst maintaining awareness activities and beginning to communicate implementation challenges (Action 4) as they emerge from demonstration activities. Impact and legacy (M31-M48) prioritize Strategic Actions 4, 6, 7, and 9 through demonstrated results and replication support, but continues publishing activities (Action 8), stakeholder engagement (Action 2), and targeted education (Actions 3 and 5) with evidence-based content. The overview of the timeline and milestones is presented in Table 10.

This timeline ensures systematic progression from project launch through final impact demonstration, with each phase building on previous achievements whilst preparing for subsequent activities. All major DEC deliverables are aligned with project milestones to maximise coherence and stakeholder value throughout the 48-month duration.

Table 10. DEC timeline and milestones

Phase	Timeline	Key activities	WP5 deliverables	WP5 milestones
Awareness building	M1-M10	Visual identity development, website launch, stakeholder mapping, initial social media presence, partner coordination	D5.1 DEC Plan v1 (M6), D5.2 Stakeholder platform v1 (M10)	MS2 Visual identity (M5), MS5 Stakeholder platform ready (M9).
Engagement and education	M11-M30	First publications, Practice Abstracts v1, policy brief development, national workshops, videos, social media	D5.3 Practice Abstracts v1 (M18), D5.4 Policy Brief v1 (M24)	

<p>Impact and legacy</p>	<p>M31-M48</p>	<p>Interim evaluation, publications, Practice Abstracts v2, final conference, impact demonstration, post-project planning, final evaluation</p>	<p>D5.5 DEC Plan v2 (M36), D5.6 Final Policy Brief (M45), D4.5 Learning stories consolidated report (M45), D5.7 Practice Abstracts v2 (M47), D5.8 Final Stakeholder platform (M47), D5.9 DEC Plan final (M48),</p>	<p>MS13 Knowledge and data provided for creation of practice abstracts (M41), MS14 Final exploitation workshop (M44)</p>
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10. Conclusions

PRIMARY's dissemination, exploitation and communication plan establishes a comprehensive framework for maximising the impact of agricultural feedstock valorisation technologies across Europe. Through its systematic three-phase approach: awareness-building, engagement and education, and impact demonstration, the plan ensures that innovative solutions for transforming underutilised agricultural feedstocks reach the stakeholders who can implement, scale and benefit from them most effectively.

The strategy's strength lies in its targeted approach to five distinct stakeholder groups, from primary producers and SMEs to policymakers and research organisations, utilising tailored communication channels and engagement methods suited to each group's specific needs and preferences. The integration of digital platforms, scientific dissemination, practical demonstrations and policy engagement creates multiple pathways for knowledge transfer and technology adoption.

The success of the planned activities will be measured through concrete deliverables including a Stakeholder platform reaching over 2,000 stakeholders, 10-15 Practice Abstracts, multiple national and EU-level workshops, and over 15 scientific publications. The plan's systematic monitoring and evaluation framework ensures accountability whilst enabling adaptive management throughout the 48-month project duration.

Ultimately, this DEC plan positions PRIMARY to achieve its ambitious goal of supporting rural economic development and advancing European leadership in circular bioeconomy solutions, ensuring that technical achievements translate into real-world implementation and lasting impact beyond the project's completion. This plan will be iterated on M36 and M48 to provide updates and refinements based on stakeholder feedback and project's technical developments.



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New business for farmers and cooperatives in rural areas by local upcycling solutions using underutilized agricultural feedstocks

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