

REINWASTE

WP3

DELIVERABLE 3.3.2

PROFILING KPIs FOR THE DAIRY SECTOR (INDUSTRIAL SECTOR)



FEDERALIMENTARE

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INTRODUCTION

The scope of the Key Performance Indicators designed for the REINWASTE project is to measure the impact generated by the implementation of the pilot action upon specific parameters. This document provides a list of KPIs that have been defined by FEDSERV in collaboration with the external experts of University of Modena and Reggio Emilia in order to carry out a self-assessment of the quality of the services supplied to the industrial dairy companies supported throughout the implementation of the WP3 "Testing".

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1. BACKGROUND

The aim of the below tables is to present a method for identifying key performance indicators (KPIs), and to present and discuss a set of such indicators suitable for benchmarking on dairy company before and after the pilot actions. Data have been collected with the support of the available companies and the technical external experts of University of Modena and Reggio Emilia.

2. List of KPIs tailored to industrial sector for the evaluation of the impact of the “matchmaking phase”

Key Performance Indicators		Unit	2019	2020
1.1	Number of companies informed about the possibility to join one collaborative & open innovation environment for inorganic waste prevention	N.	50	n/a
1.2	Number of informative channels used by partners to inform companies about the possibility to join the REINWASTE collaborative & open innovation environment	N.	10	n/a
1.3	Number of companies participating to the “soft tender” scheme to select 15 pilot companies to be engaged in the technology transfer WPT3 testing	N.	10	n/a
1.4	Number of B2B meetings organized	N.	8	5
1.5	Number of people participating in the B2B meetings	N.	24	24
1.6	Number of interactions (phone calls, site visits, extra meetings) between the companies and the Expert Team (other than the B2B meetings)	N.	36	72
1.7	Number of light assessment elaborated	N.	10	n/a
1.8	Number of companies with a clear propensity to deepen the initial screening	N.	3	2
1.9	Number of companies positively rating the service provided by the Expert Team	%	100	n/a

3. Intermediate phase: selection of 5 companies participating in the full testing phase

At the end of Phase 1, 3 companies have been shortlisted by experts to implement the second part of the analysis, namely the Phase 2: Test application (from Dec-2019 to Sep-2020). Some criteria were proposed to shortlist the companies that will benefit of the full market intelligence advisory (technology audits).

With the support of the appointed technical experts, the next grid has to be filled out. The companies with the highest score will participate in the phase 2 “Test application”.

Evaluation grid

Eligibility Criteria (YES / NO)	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
The company has an ordinary balance sheet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
The company has one or more (internal or external) specialists (such as agronomist or agrofood expert) with a full knowledge of the company production system and able to cooperate with the Expert Group	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
The company has a sufficient historical dataset of information concerning the own production system	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
The company is available to disclose specific information on own production and availability of a suitable dataset / information layers	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
During the B2B meetings, the company proposed solutions to eliminate / reduce plastic waste deriving from silage nets, wires and films.	Yes	Yes	Yes	Yes	Yes	Yes	NO	NO	NO	NO
During B2B meetings the company has proposed solutions or has already implemented good practices to	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NO

eliminate / reduce plastic waste deriving from packaging in general or other types of inorganic waste.										
The company is available to dedicate further man/days to the project activities (predictable in 50 working hours)	Yes	Yes	Yes	Yes	NO	NO	NO	NO	NO	NO
Quality Criteria Poor = 1 pt Medium = 3 pt Good = 5 pt										
Level of cooperation expressed in Phase 1	4	4	4	4	3	2	2	2	2	2
Previous experience in projects financed by EU or National grants of any type related to technology transfer	2	2	4	2	2	2	2	2	2	2
Innovation propensity (€ already spent in innovation over the last x years, certifications, etc ...)	3	3	4	3	3	3	3	3	3	3
Programmed investment to reduce raw materials / recycling / optimization of the industrial / agronomic process (€ to be spent in productive model change / green-eco investments)	3	3	3	3	3	3	3	3	3	3
Level of business relationship in the supply chain	4	4	4	3	3	3	3	3	3	3
Potential of replicability to other dairy companies of the technological and/or managerial solutions screened during the light assessment (phase 1)	4	4	4	4	4	4	4	4	4	4
Others (add rows if you need more indicators)										
Total score	20	20	21	19	18	14	14	14	14	14

4. Ex-post evaluation of the impact of the “test application”

Phase 2: Test application (from Dec-2019 to Sep-2020) = TECHNOLOGY AUDITS					
Key Performance Indicators		Unit	2019 Baseline	2020 Project impact	2023 Midterm impact
2.1	Number of business and feasibility plans addressing site-specific solutions to reorganize its own industrial productive protocols in a logic of nearly-zero inorganic waste	N.	1	1	n/a
2.2	Cumulative number of technology solutions identified in the pilot actions	N.	3	5	n/a
2.3	Cumulative number of managerial / organizational solutions identified in the pilot actions	N.	3	5	n/a
2.4	Cumulative cost of innovative solution as indicated in the business and feasibility plans	€	n/a		n/a
2.5	Number of companies implementing (within the project duration) any technological and/or managerial / organizational solutions as figured out in the business and feasibility plan	N.	3	3	n/a
2.6	Number of companies willing to implement technological and/or managerial / organizational solutions as figured out in the business and feasibility plan	N.	3	3	n/a
2.7	Number of programmed investment to reduce raw materials / recycling /	N.			n/a

	optimization of the industrial / agronomic process (€ to be spent in productive model change / green eco investments)				
2.8	Investment costs to be likely mobilized by the companies to remanufacture their own productive system in the logic of inorganic waste minimization	€			n/a
2.9	Average RoI (Return of Investment) of the proposed solutions (unit: years)	Year			n/a
2.10	Increase of companies expenses in innovative solutions to minimize inorganic waste compared to the baseline (average)	%			n/a
2.11	Number of companies increasing the technical background of their own (internal or external) specialists (such as agronomist or agrofood expert) around the REINWASTE topics	N.	6	3	n/a
2.12	Number of identified technological and/or managerial / organizative solutions with a large potential of replication and exploitation across further companies operating within the same productive sector	N.	15	5	n/a
2.13	Number of interactions (phone calls, site visits, extra meetings) between the 3 companies and the Expert Team	N.	36	72	n/a
2.14	Number of companies positively rating the service provided by the Expert Team	%	70	100	n/a

2.15	Possible new business services based on the approach tested in WPT3	N.	3	2	n/a
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5. CONCLUSIONS

During the evolution of the experimentation phase almost all initial KPIs were maintained and used to monitor, on a qualitative way, the innovations tested at plant level.

The delays registered by FEDSERV for the recruitment of available dairy industrial companies caused a late beginning of the Matchmaking phase and, thus, also the starting of the testing phase which began in coincidence of Covid-19 pandemia.

With regards for the industrial dairy sector, most of the waste generated by dairy companies is inorganic: primarily packaging waste from both raw and secondary materials as well as the final product. The recycling and treatment of waste generated in a dairy firm begins with separation, which avoids they are being discarded with liquid waste and by mixing together that would prevent adequate treatment of each type of waste.

During the testing activities carried out in the dairy industry, companies it was clear that the packaging waste topic was considered an issue. However, during the audit it was remarked that the related costs were considered as fixed items (similar to the administrative expenses).

Thus, it was difficult to quantify amounts of waste, because its management is usually subcontracted and the company pays a fixed cost for the service, irrespective of the amounts.

With respect to the measures proposed, all of them could bring benefits in terms of sustainability of the food chain. In particular:

- Lowering plastic use by packaging lightweighting allows reducing fossil sources exploitation and waste streams.
- LCA studies on bioplastic packaging report environmental advantages compared to conventional systems
- The use of monomaterials improves recyclability levels. Environmental Contribution takes into account the potential environmental impact of packaging and fixes a fee, which is inversely related to recyclability.
- The adoption of non-destructive control systems prevents waste generation at the quality control level

However, any change in packaging systems needs feasibility assessment through comparative shelf life studies because food safeguard comes first. Innovative sustainable materials are available, the cost is expected to decrease in the next few years, as well as the waste management systems (specific composting and recycling) are expected to be implemented when the critical mass is reached.