Quest for sustainable solutions in the agroindustrial sector – A portuguese approach

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Introduction

- Agroindustrial sector is mainly composed by micro, small and medium enterprises (MSMEs).
- Lack of funds or technical human resources to deal or enhance with current and sustainability forthcoming challenges.
- Study shows one approach conducted in Portugal for the quest for sustainable solutions in this sector through the introduction of innovation in MSMEs:
  - circular economy,
  - ecological packaging,
  - active and/or intelligent packaging,
  - industry digitalization - Industry 4.0,
- Concerns are currently highlighted due to:
  - large increase in the purchase/sale of products on online platforms,
  - Requirements of stricter food security & safety measures.
- Aims help increasing productivity, efficacy and efficiency in terms of Industry 4.0 and circular economy to promote sustainability.

Methods

- International Benchmarking for technologies identification.
- Surveys and audits in MSMEs for evaluation of the current state of using these technological solutions.
- Analysis of critical factors.
- Best practices and innovative solutions proposals aiming production, process and environmental sustainability.

Ghobakhloo (2020)

Results

Primary packaging

- Best practices using sustainable (eco) packaging:
  - Plant-based fibers, biological waste and fungi, nanomaterials.
- Prepare companies to comply with future regulations arising from the environmental impact of packaging.

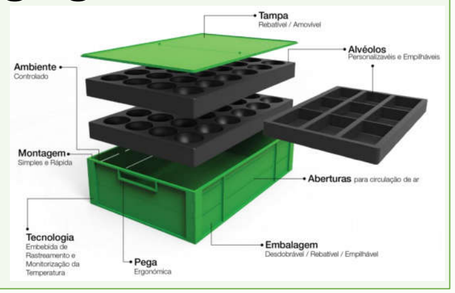
Sugarcane

PLA

Banana leaves…

Secondary packaging

- Best practices using sustainable secondary packaging:
  - Recyclable and/or,
  - Reusable.



Intelligent and/or active packaging

- Best practices using intelligent/active packaging to:
  - Help reduce food waste
  - Improve food safety.

Ghobakhloo (2020)

Cybersecurity

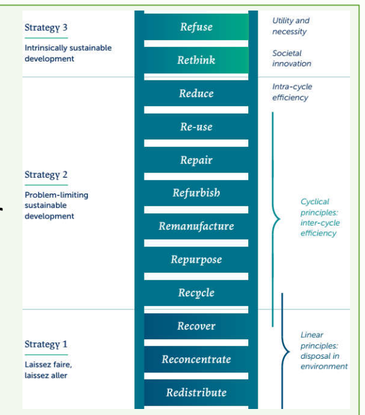
- Best practices using technologies both at software level and at the operator level.
- Increase the confidence of companies to:
  - Adopt Industry 4.0 technologies,
  - Use of digital environments.

Ghobakhloo (2020)

Results (cont.)

Waste

- Identification/characterization of waste sources.
- Development of innovative solutions that engage waste or subproducts reduction/reuse.
- Improvement of production efficiency and reduction of environmental impacts, in a circular economy strategy;



KIDV (2020)

Product and process development

- Enable more efficient and innovative MSMEs through access to training processes for scientific and technological innovation.
- Accelerate the adoption of Industry 4.0, linked to sustainability and preservation of ecosystems:
  - Eco-design of processes and products,
  - Eco-efficiency in a digital economy.

Conclusions

- Increase the global awareness and qualification of agroindustrial MSMEs to adopt innovative and sustainable solutions, fostering their productivity, effectiveness and efficiency in terms of Industry 4.0 and circular economy.

Aknowledgments

Cofinanciado por:

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