



Best practices in the production of sustainable flexible packaging for the agricultural industry

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The problem

Producing sustainable flexible packaging is often more challenging than producing fossil-based alternatives. More complex material structure and narrower temperature ranges can cause processing issues while the novelty of the materials and the variety of available options causes confusion among packaging manufacturers.

The solution

The following solutions can contribute to optimise the production of sustainable flexible packaging:

1. Clearly defined processing conditions and material properties can ease the transition from fossil-based materials to more sustainable alternatives.
2. Precise temperature control is required to reduce production costs and improve the final product quality.
3. Minor production equipment modifications can increase the production rate of sustainable flexible packaging to higher levels compared to fossil-based products.

Benefits



Lower processing temperatures decrease energy consumption during production.



Industrial waste can be mechanically recycled in the same way as fossil-based materials.



More efficient cooling configuration improves production rates.

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PRACTICAL RECOMMENDATIONS

- Drying and moisture control of biomaterials is crucial for the stability of the process. Moisture should be checked before extrusion and the material should be dried if above recommended moisture levels
- Keeping temperature profile low and within the recommended values will increase melt strength, bubble stability and mechanical properties of the end products.
- Biomaterials are mostly hygroscopic and degrade under high moisture levels and temperatures. Storing them in cold and dry places will prolong their lifespan.



About SISTERS and this Practice Abstract

This practice abstract was elaborated in the framework of the SISTERS project, based on the EIP AGRI practice abstract format. © 2024

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Goal: to systemically reduce food loss and waste in the main stages of the food value chain in Europe through innovations targeted to each stage of the chain.