PRESERVATION, COLD-CHAIN MANAGEMENT AND CIRCULAR-ECONOMY STRATEGIES FOR REDUCING FOOD WASTE IN THE REFRIGERATED MEAT SECTOR: A REVIEW

M. Arsene[1], G. V. Hoha[1], M.-A. Davidescu[1], I. M. Balmuș[2], A. Ciobanu[1*], R.-M. Radu-Rusu[1]

[1]"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania
[2]"Alexandru Ioan Cuza" University, Iasi, Bulevardul Carol I, Nr.11, 700506, Romania
**e-mail : andrei.ciobanu@iuls.ro*

Abstract

Meat is perishable and resource-intensive, so its loss and waste carry a disproportionate economic and environmental cost. This narrative review of the scientific and official literature (FAO, Eurostat, WOAH) examines how preservation and packaging, cold-chain management and circular-economy strategies reduce waste of refrigerated meat, and at what cost. Meat shows a global loss rate of 14.0% before retail, and in the EU about two-thirds of meat waste arises at consumption. Packaging extends chilled shelf life from 3–5 days to up to 25 days, but retail simulations indicate that it pays back only when its cost is lower than the waste it prevents, whereas cold-chain efficiency measures are repaid within 3–30 years. By-products (half to two-thirds of live weight) offer a circular route for the unavoidable fraction. The originality lies in linking technical performance to economic viability across these strategies, showing that stage-specific, cost-aware combinations are needed.

Key words: *refrigerated meat, food waste, cold chain, preservation, circular economy*