



# David vs Goliath: The challenges for plant-based meat companies competing with animal-based meat producers

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## ARTICLE INFO

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## 1. Introduction

An extensive body of literature has recently discussed how the transition from animal-based meat to alternative sources of proteins could help to reduce the environmental impacts of livestock chains, such as greenhouse gas (GHG) emissions (Sinke et al., 2023; Smetana et al., 2015; Takacs et al., 2022; Tuomisto and Teixeira de Mattos, 2011; Tuomisto et al., 2022). Alternative proteins are broadly characterized as being made with ingredients that replace traditional protein sources and have a lower environmental impact (Grossmann and Weiss, 2021), while the terms “meat analogs” and “meat substitutes” refer more specifically to alternative protein products that incorporate the nutritional and sensory characteristics of meat (McClements and Grossmann, 2021; Smetana et al., 2023). Plant-based meats are produced with vegetable proteins such as soy, pea or wheat to mimic the characteristics of animal meat products (Choudhury et al., 2020; He et al., 2020). These plant-based products can have 50% less GHG emissions than animal-based food (Xu et al., 2021; Smetana et al., 2023). Moreover, the dietary, nutritional, and health benefits of plant-based meats have also drawn the interest of consumers seeking meat substitutes (Michel et al.,

2021; Rizzo et al., 2023). For instance, plant-based meat consumption may be associated with a lower risk of developing chronic diseases (e.g., heart diseases) and can contribute to greater general well-being among consumers (Fehér et al., 2020).

Despite the expected benefits, potential bottlenecks to the development and expansion of the meat analogs sector have been discussed in the literature. Plant-based meat is already available but has challenges regarding product cost, the need to develop novel vegetable protein sources, and improving the sensory attributes of products (Choudhury et al., 2020; He et al., 2020).

Driven by the alleged environmental benefits of plant-based meats, the mainstream animal-based meat companies - associated with high levels of GHG emissions, extensive land use, animal suffering, and other negative externalities - have invested in alternative proteins. These plant-based meat products complement their existing portfolios. Examples include Tyson Food's Raised & Rooted, Jimmy Dean plant-based brands and JBS's Seara Incrível plant-based products. Thus, while keeping and promoting their animal-based products they also have branches in plant-based meat segments.

Tyson Foods, a major global food company, reported that 81.13% of

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