

**Economic valuation of the apiculture value chain in France. Identification of the potential impacts and diffusion conditions of an innovative traceability system within the industrial chains and territories in the Occitany region**

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The apiculture industry is a significant commercial sector in the European Union (EU). It offers a diverse range of products including honey, royal jelly, pollen, propolis, and beeswax worth €14.2 billion per year (European Commission, 2022), as well as crucial ecosystem services to the agriculture sector, given that 76% of European food crops (Lonsdorf et al., 2011) and 80% of European wild plants (Ollerton et al., 2011) depend on pollination. However, European bee populations have declined due to the spread of diseases, pesticides, loss of plant diversity, climate change, and wildfires (Goulson et al., 2015). If no action is taken, the European pollinator numbers may collapse with severe economic and environmental consequences on human welfare (European Commission, 2016). In France alone, the economic value of pollination services supplied by bees varies between €2.3 and €5.3 billion per year (Leonhardt et al., 2013). Regional data on the economic value of pollination services is currently unavailable despite national-level data being available. Therefore, there is a need to evaluate the economic value of pollination services on a regional level to develop effective local public policies. This leads us to the Occitania region, where we calculate the crop production value (CPV) and pollination service value (PSV) for seven regional crops (melon, tomato, apple, peach, cherry, sunflower, and strawberry) using accurate regionally sourced data from 2021, through the dependence ratio method. The combined CPV of the crops is 1132.13 million euros, while the PSV is 712.16 million euros, meaning that pollination contributes to 62% of the studied crop production. This ratio suggests that action is needed to support regional sustainable development, including pollinator conservation and ecologically intensified farming practices.

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