

Article

Evaluating the Perceptions of the Portuguese Population on the Economic Impacts of Biotechnology-Based Technologies

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Abstract: Biotechnology-based technologies have the potential to act as catalysts for economic development by fostering innovation, creating new job opportunities, stimulating industry growth, and promoting environmental sustainability. This study aims to evaluate the perceptions of the Portuguese population regarding the economic impacts of using these technologies in areas such as the environment, energy resources, agriculture, industry, and health. For this purpose, a questionnaire was developed and distributed in Portugal to a sample consisting of 559 individuals of both genders, aged between 16 and 82 years old. The findings suggest that, although there is a higher perception of the economic impact of these technologies, participants reveal difficulties in perceiving impacts on health, industry, and energy resources. Moreover, metrics for quantifying participants' overall perception and improvement potential are provided. These metrics are particularly important as they enable the formation of participant groups with similar characteristics, facilitating the development of tailored intervention strategies. Additionally, a model based on artificial neural networks was presented to predict the perceptions of the Portuguese population regarding the economic impacts of using the mentioned technologies. The proposed model performs well, achieving accuracy rates of 93.0% for the training set and 90.9% for the test set.

Keywords: economic impact; biotechnology; sustainability; artificial neural networks



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