

## **THE POTENTIAL IMPACT OF AGRICULTURAL PATENTS ON SUSTAINABLE DEVELOPMENT GOALS: A STUDY IN A BRAZILIAN ACADEMIC UNIT**

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### **Introdução**

Nowadays, humankind faces significant challenges related to environmental preservation, social welfare, and reducing inequalities. In the technological field, the existing technologies are insufficient to overcome these challenges. As such, it is necessary to develop new technologies that can pave the way for a more sustainable future. Despite these urgent challenges, the current study of the development and diffusion of technological innovations remains focused only on the role of free markets in their growth and diffusion.

### **Problema de Pesquisa e Objetivo**

This study evaluates the potential impact of patents on SDGs at a Brazilian academic unit that generates patents in the fields of agriculture, forestry, and veterinary. The research question that motivates this study is: What is the potential performance of patents related to the SDGs in an academic research unit?

### **Fundamentação Teórica**

The primary theoretical lens of this article is the impact of innovation on society. As such, it assumes the necessity of adopting a post-Schumpeterian perspective on innovation that goes beyond the traditional view, which is primarily driven by market forces (Antonelli & Scellato, 2011; Mendonça, 2013), and also, to some extent, by governments and ecosystem agents (Dosi, 1982). As such, this article presents a normative perspective grounded in sustainability that extends beyond the current perspective, which is limited to market forces.

### **Metodologia**

This study was based on a documentary analysis of 28 patents deposited by an academic unit dedicated to the teaching, research, and innovation of a top-ranked Brazilian university. For the analysis, a total of 24 patents were screened, and the researchers evaluated their positive performance in relation to the SDGs.

### **Análise e Discussão dos Resultados**

From the total of 17 SDGs, it was verified that the patents had a potential positive impact on 13 SDGs. However, there were considered differences of performance of patents on the SDGs benefitted, whereas the more prominent results are: 24 patents can contribute to the elimination of poverty (SDG1); 17 patents can contribute to the hunger elimination (SDG2); 24 patents can improve the creation of jobs and work conditions (SDG8); and 14 patents can contribute to improve the health (SDG 3); and 13 patents were created with the cooperation of multiple agents (SDG 17).

### **Considerações Finais**

As a primary contribution, this study highlights the importance of evaluating patents and other types of inventions related to the SDGs. Additionally, it emphasises the importance of universities generating inventions that can be integrated into markets and society to improve environmental, social, and economic conditions. Finally, it highlights the importance of a post-Schumpeterian view of innovation that considers innovation development beyond the market's incentives, presenting a guide for societal agents to promote the creation of innovations for a sustainable future.

### **Referências**

Antonelli, C., & Scellato, G. (2011). Out-of-equilibrium profit and innovation. *Economics of Innovation and New Technology*, 20(5), 405-421. <https://doi.org/10.1080/10438599.2011.562350> Dosi, G. (1982). Technological paradigms and technological trajectories. *Research Policy*, 11(3), 147-162. [https://doi.org/10.1016/0048-7333\(82\)90016-6](https://doi.org/10.1016/0048-7333(82)90016-6) Mendonça, S. (2013). The "sailing ship effect": Reassessing history as a source of insight on technical change. *Research Policy*, 42(10), 1724-1738. <https://doi.org/10.1016/j.respol.2012.12.009>

### **Palavras Chave**

green innovation, SDGs, sustainable development goals

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