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Technology and innovation in the service of agricultural adaptation: Towards sustainable resilience in the face of climate change

Bougunine Amine ; Hicham Elyousfi

Agriculture today faces major challenges related to climate change, the degradation of natural resources, and the need to increase food production to meet growing demand. In this context, technological innovation plays a key role in adapting agricultural systems by improving their resilience and sustainability. This article examines the various technological solutions implemented to address these challenges. Precision agriculture, thanks to the use of sensors, drones, and artificial intelligence, allows for the optimization of water and agricultural input resources, thereby reducing losses and improving productivity. Moreover, biotechnology offers crop varieties that are more resistant to extreme climatic conditions, thereby contributing to more stable agricultural production. Moreover, innovative systems such as smart irrigation and vertical farming provide effective alternatives for regions facing the scarcity of arable land and water resources.

However, the adoption of these innovations presents several challenges, particularly regarding their financial accessibility, farmer training, and ethical and regulatory issues. The article highlights these obstacles and proposes ways to facilitate the integration of technologies within agricultural operations, taking into account the disparities between different regions of the world.

Ultimately, technological advancements offer promising solutions for adapting agriculture to current and future challenges. A better dissemination of these innovations, accompanied by an adapted governance framework and support policies, is essential to ensure a transition towards more sustainable and resilient agriculture.

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Technology and innovation in the service of agricultural adaptation: Towards sustainable resilience in the face of climate change

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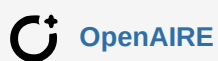
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