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Innovation and Technologies Synthesis of Various Components: A Contribution to the New Precision Irrigation Development for Open-Field Fruit Orchards

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Abstract : Precision irrigation (PI) technology has emerged as a solution to optimize water usage in agriculture, aiming to maximize crop yields while minimizing water waste. Developing a new PI for commercialization requires developers to research, synthesize, evaluate, and select appropriate technologies and make use of such information to produce innovative products. The objective of this review is to facilitate innovators by providing them with a summary of existing knowledge and the identification of gaps in research linking to the innovative development of PI. This paper reviews and synthesizes technologies and components relevant to precision irrigation, highlighting its potential benefits and challenges. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) framework is used for the review. The study is intended to contribute to innovators who apply for collaborative approach to problem-solving and idea generation that involves seeking external input and resources from a diverse range of individuals and organizations.

Keywords : innovation synthesis, technology assessment, precision irrigation technologies, precision irrigation components, new product development
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