AgroTec 4.0 system increased harvests by 15% using 20% less water while growing better berries (Abdo-Peralta et al., 2024). Remote monitoring systems also cut labor needs by over 30% while making production more reliable (Mubarakah et al., 2023; De Oliveira Bernardo et al., 2024; Jyoti et al., 2025).

8 Concluding Remarks

Growing top-quality strawberries year-round depends on carefully managing light, warmth, water and food for the plants. Modern indoor farms - like smart greenhouses, tunnel houses and vertical farms - use special equipment to control growing conditions. These systems combine climate control, special grow lights and soil-free methods to produce steady harvests all year. Even in tight city spaces, growing strawberries in water or stacked setups with adjustable lighting works well for continuous production.

While these indoor methods have improved greatly, some big problems remain. Crazy weather from climate change, tougher bugs and diseases, and the need to save resources are pushing farmers toward smarter systems. Networks of sensors connected to cloud computers help monitor and adjust growing conditions perfectly. Matching farm setups to local weather, plant types and what customers want makes the whole system work better and earn more money.

Looking ahead, work should focus on better smart tools and systems that handle weather changes well. Important areas include: using clean power, creating self-adjusting control systems, and adding natural pest control methods. Building earth-friendly farms that use resources wisely will help the strawberry business last long while cutting pollution and handling challenges better.

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Conflict of Interest Disclosure

The author affirms that this research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

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