

LEVERAGING ON SMART TECHNOLOGIES AND PRACTICES TO ENHANCE TROPICAL FRUIT DEVELOPMENT IN MALAYSIA

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The agricultural sector, particularly the tropical fruit industry, plays a crucial role in Malaysia's economy. The tropical fruit industry is experiencing continuous growth, with production reaching 1.54 million metric tons in 2013, up from around 1.43 million metric tons in 2006. This production trend continued to increase in 2021, reaching 1.69 million metric tons, reflecting a 9.7% increase. Underpinning, the agricultural industry in general, and the fruit sector in particular, the adoption of technology especially the Internet of Things (IoT) for improved productivity and efficiency. In recent years, there has been a growing recognition of the potential benefits of incorporating smart technologies and innovative practices to enhance productivity, sustainability, and competitiveness in the tropical fruit sector. The Malaysian government initially focused on using technology based on the Fourth Industrial Revolution (4IR) and Artificial Intelligence (AI) to explore smart farming for agricultural production. The application of smart technology, such as drones, sensors, robotics, and more, is making it easier for farmers to monitor and manage their fields through connected devices and smartphones.

IoT systems offer numerous benefits to farmers as they allow for efficient data collection, monitoring, and analysis of their fields. Furthermore, IoT systems can assist farmers in managing irrigation, tracking crop movement, and optimizing their supply chains. However, overall, the level of adoption of IoT technology among farmers in Malaysia remains relatively low, with crops like watermelon and durian being some of the preferred choices. Based on observations, approximately 11%, covering an area of 21,045 ha out of the total fruit cultivation area of 194,688 ha in Malaysia in 2021 have opted for smart farming utilizing IoT systems. There have been reports by some durian farmers that they have obtained 40 % yield increases and reduced labor costs by 30%. Efforts to raise awareness and educate farmers about the advantages of smart farming using IoT technology and its potential to enhance agricultural practices are crucial for the widespread adoption of these technologies across the entire agricultural sector in Malaysia.

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