**Abstract**

This study explores the development strategies for signature products through technology and innovation, using the case study of Chainat khaotangkwa pomelo. The objective is to examine and compare costs between Chainat khaotangkwa pomelo cultivation using a mini-sprinkler irrigation system and without using a mini-sprinkler irrigation system. It also investigates the development strategies for Chainat khaotangkwa pomelo using technology and innovation. Data was collected through interviews with 87 Chainat khaotangkwa pomelo farmers, with 40 using a mini-sprinkler irrigation system and 47 not using a mini-sprinkler irrigation system.

The data analysis is divided into two parts: 1) Analysis of costs and returns from Chainat khaotangkwa pomelo production using a mini-sprinkler irrigation system and without using a mini-sprinkler irrigation system, and 2) Analysis of internal and external environments using SWOT analysis and development of strategies using the TOWS Matrix.

The study found that the average variable cost of farmers using a mini-sprinkler irrigation system was 27,017.33 baht, which is 24.90% higher than farmers not using a mini-sprinkler irrigation system, whose average variable cost was 20,290.05 baht. The average fixed cost of farmers using a mini-sprinkler irrigation system was 4,756.71 baht, which is 22.34% higher than farmers not using a mini-sprinkler irrigation system, whose average fixed cost was 3,694.18 baht. As a result, the total average cost of farmers using a mini-sprinkler irrigation system was 31,774.04 baht, which is 24.52% higher than farmers not using a mini-sprinkler irrigation system, whose total average cost was 23,984.23 baht. The selling price per kilogram of farmers using a mini-sprinkler irrigation system was 40.67 baht, while the selling price per kilogram of farmers not using a mini-sprinkler irrigation system was 39.01 baht. The average net return per rai of farmers using a mini-sprinkler irrigation system was 17,036.87 baht, which is 11.18% higher than farmers not using a mini-sprinkler irrigation system, whose average net return per rai was 15,132.27 baht.

The development strategies for signature products through technology and innovation, using the case study of Chainat khaotangkwa pomelo, can be defined into 12 strategies: 1) Creating consumption trends, 2) Establishing agro-tourism destinations, 3) Promoting marketing, 4) Developing an integrated Chainat khaotangkwa pomelo production, 5) Online platform strategy, 6) Promoting product standardization, 7) Avoiding middlemen, 8) Applying technology, 9) Promoting marketing communication, 10) Developing farmer access to agricultural services, 11) Creating product uniqueness, and 12) Encouraging young farmers.

Recommendations from the study suggest that farmers should apply agricultural technology and innovation in their Chainat khaotangkwa pomelo orchards to increase production efficiency and replace human labor. Government agencies should provide knowledge and promote the use of agricultural technology and innovation and educate farmers about marketing, market connections, and online marketing to comprehensively elevate Chainat khaotangkwa pomelo production.