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THE RELIANCE OF MANGIFERA INDICA LINN YIELD
PRODUCTION BASED ON INSOLATION PATTERN IN PERLIS ,
MALAYSIA

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SCHOOL OF GEOMATICS SCIENCE AND NATURAL RESOURCES
COLLEGE OF BUILT ENVIRONMENT
UNIVERSITI TEKNOLOGI MARA MALAYSIA

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PATTERN IN PERLIS, MALAYSIA**

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**Thesis submitted to the Universiti Teknologi MARA Malaysia
in partial fulfilment for the award of the degree of the
Bachelor of Surveying Science and Geomatics (Honours)**

JULY 2024

DECLARATION

I declare that the work on this project/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA (UiTM). This project/dissertation is original and it is the result of my work, unless otherwise indicated or acknowledged as referenced work.

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ABSTRACT

This study examines the relationship between solar radiation (insolation) and Harumanis mango yield in Perlis, Malaysia, using GIS and spatial analysis techniques. The results show no significant correlation between insolation levels and mango yield. The linear model has an R^2 value of 0, indicating no relationship, while the exponential model has an R^2 value of -0.04, suggesting a very weak relationship where only 4% of yield variability is due to insolation levels. This highlights the complexity of the relationship between solar radiation and crop yield, which is influenced by many factors. While higher solar radiation can generally increase photosynthesis and yield, this relationship is not always straightforward. The study emphasizes the need for a comprehensive approach to understanding agricultural outcomes. Future recommendations include expanding datasets to consider more variables, conducting longitudinal studies to capture seasonal variations, and improving agricultural practices like integrated pest management and irrigation. These steps are essential for sustainable mango production in Perlis, enhancing resilience and productivity in tropical mango cultivation, and supporting agricultural sustainability in Malaysia.

Keywords: Solar Radiation, Insolation, Harumanis Mango, GIS, Spatial Analysis, Crop Yield, Perlis, Malaysia, Agricultural Sustainability

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