

**UNIVERSITI TEKNOLOGI MARA**



**A MULTI-CRITERIA DECISION MAKING FOR INTERCROP  
SELECTION IN RISDA RUBBER PLANTATION**

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**JULY 2019**

## **ABSTRACT**

Selecting the appropriate intercrop for the rubber field offers land usage with high efficiency. It can bring benefit during the waiting period for rubber to grow. Analytical Hierarchy Process (AHP) is an effective Multi-Criteria Decision Making Method (MCDM) which provides a rank of suitable intercrop. The objectives of this study are to determine the priority of intercropping criteria and to determine the most suitable intercrop in RISDA rubber plantation. In this research, the application of AHP was implemented in one of the RISDA rubber plantation in Kampung Kuala Sawah, Rantau, Negeri Sembilan. The decision problem was structured into a three-level hierarchy using the AHP. The criteria of the decision were arranged in hierarchical structures and the judgments were made by experts. There are four criteria that have been finalized in selecting the best intercrop in rubber plantation which are soil fertility, selling rate per kilogram, growth rate and weather adaption. Besides that, pair-wise comparisons allowed for accurate subjective criteria weighting. The result showed the suitability of each intercrop which are watermelon, banana, and pineapple. The result from the study showed that among the four criteria in selecting the intercrop, the most important criterion in RISDA is the growth rate. This is followed by soil fertility, weather adaption and selling rate per kilogram, respectively. Watermelon is recommended as the most suitable intercrop at RISDA rubber plantation.

## **ACKNOWLEDGEMENT**

IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL.

Alhamdulillah. Thanks to Allah SWT whom with His will, gives us the opportunity in completing our Final Year Project entitled A Multi-Criteria Decision Making for Intercrop Selection in Rubber Plantation.

We would like to dedicate our highest appreciation to our beloved supervisor, Puan Noorezatty Binti Mohd Yusop who never fails to provide us with beneficial advice, constructive comments, encouragements, and suggestions. In other words, she is the person who helped us the most in completing our final year project which is required in order to complete our studies.

A special thanks to our Coordinator of Final Year Project, Puan Che Norhalila Binti Che Mohamed who provides us with guidelines for our project. Thank you so much for providing us with the necessities which enable us to produce this project report.

Our appreciation to the faculty, Faculty of Computer and Mathematical Sciences (FSKM), for giving us the opportunity to accomplish the Final Year Project and also providing necessary facilities which are vital for completion of the project.

We would also like to extend our deepest thanks to our parents, special mates, RISDA officers and others who are related in our project which indirectly give us much needed support, opinion, and knowledge.

We would like to express our gratitude and appreciation to everyone who is directly or indirectly related in completing our Final Year Project. The great commitments, contributions, and cooperation give us encouragement in completing our final year project.

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