Decision Support System for Rice Fertilizer Selection Using Analytical Hierarchy Process and Weight Product Methods (AHP and WP)

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ABSTRACT

Fertilization is one of the factors that affect crop yields in rice plants. There are several factors that influence farmers in terms of selecting fertilizers for rice plants, such as the price of a product, government policies, social factors, and personal reasons. Based on these reasons, it will cause a problem, one of which is that the fertilizer used by farmers is not necessarily in accordance with other factors that affect rice productivity during harvest. So that it will affect the quality and quantity of rice produced at harvest time. Therefore, a decision support system is built using the Analytical Hierarchy Process and Weight Product methods that will provide fertilizer recommendations for farmers. The decision support system was developed using PHP programming language with Laravel framework and MySQL database. This system can display fertilizer recommendations for rice plants. System recommendations are based on the content of nitrogen (N), phosphate / phosphorus (P), potassium (K) and the price of inorganic solid fertilizer type NPK. The combined AHP and WP method used in this study resulted in an accuracy of 80% based on expert validation. For the average percentage of user acceptance testing results, it gets a value of 83.3%. Furthermore, based on the results of testing with the blackbox method, all functionality in the system can run well in accordance with the system design.

Keywords: Decision Support System, Analytical Hierarchy Process, Weight Product, Fertilizer, Rice