

Upgraded RRIM2000 Rubber Clones Identification Through Image and Statistical Analysis



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ABSTRACT

This paper studies the research work to identify the perimeter, area and radius for selected rubber seed RRIM2000 series with the aid of image processing using Sobel Edge Detection techniques. There are two groups of RRIM2000 family which are Group 2A and 2B. For this project, there are five types of rubber seed selected as a sample. Three types of group 2A which are RRIM2007, RRIM2009, RRIM2016 and the two types from Group 2B which are RRIM2012 and RRIM2025. RGB colour image for all selected seed are captured using a digital camera. Image processing involving converting RGB image to grayscale, edge detection, morphology conducted using the Matlab software to extract the shape features. 150 samples used for testing and final analysing using SPSS software to identify the clone. Data obtain from one-way ANOVA and error plot measurement shown that two of the clones series significantly different from each other in term of perimeter, area and radius classification. As a conclusion, perimeter, area and radius of rubber seed clone can be used to recognize selected RRIM2007 and RRIM2025 rubber seed clone only.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Rubber tree (*Hevea Brasiliensis*) has been discovered since fifteenth century when Christopher Columbus discovered the Americas. Rubber is one of the important agricultural products of Malaysia [1]. In order to ensure continuous supply of quality latex and heveawood to the manufacturers, replanting with higher yielding rubber tree clones is hence very important [2].

Cloning produces the precise same genetic for every seed which is maintained characteristic in a plant such as taste, colour, size and resistance to diseases. Clone seed will grow at the same rate so harvesting can become streamlined. There are about 33 types of clone in the RRIM2000 Series. Each type of seed is different in term of size, weight and pattern. It is important to differentiate actual seed and the clone. Only experienced worker that can differentiate the seed through naked eye but this old method consume time and higher accuracy. Due to the advance of video camera technology, people can take a digital picture or digital video stream in any place and any time with a very simple camera or mobile phone. A digital image is not only produced by using easy and inexpensive equipment but also convenient to process by a computer system. Therefore, this research employs a simple digital camera to capture a plant seed and applies a simple image processing technique to recognize rubber seed clone [1].