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## Adoption of fragrant rice farming: The case of paddy farmers in the East Coast Malaysia

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### Abstract

Annually, Malaysia has to import approximately 30% of rice, including fragrant rice (Basmati and Jasmine type) to meet the shortage of domestic demand. The import of this specialty rice shows an up surging trend every year with a value of RM500 million. Mas Wangi or MRQ74 that has special characteristics and 80% similar attributes to Basmati type has been officially released in year 2005. The special characteristics such as long and slender grain shape, non-sticky and aromatic rice makes it preferred by Malaysian consumers and enabling it to tap the higher-end rice market, compared to normal white rice. The fragrant rice farming is one of the government initiatives to produce fragrant rice in large areas and needs full commitment from the farmers in non-granary areas. This study seeks to determine factors that influence new rice variety, MRQ74 adoption among paddy farmers in East Coast, Malaysia including the adoption behaviour. The study involved 28 farmers in non-granary areas in two districts; Pasir Mas and Tanah Merah, Kelantan via an in-depth interview approach. The results revealed that apart from the technology characteristics, there are other significant aspects that influence the adoption decision-making of the farmers such as extension services, capital resources, social influences, and institutional factor.

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## 1. Introduction

Rice is the staple food of half the world's population that contributes to 20% of the total man caloric intake (Bhattacharjee *et al.*, 2002). Nevertheless, total caloric intake for the Asian population is around 40% to 80% where 95% of world rice production comes from Asian countries such as China, India, Indonesia, Bangladesh, Vietnam and India. World trade figures are very different to those for production, as only about 5% to 7% of rice produced is traded internationally. Due to the small volume, the price of rice can rise sharply when something happens to the major exporter countries such as the uncertainty of the climate conditions that will affect the rice production (Ghosh, 2008; Walker, 2008) and impose restricting export. Fragrant rice (Basmati and Jasmine type) shows the highest price in the world market and accounts for about 15% to 18% of world trade. According to Childs and Kiawu (2008), the rice price has hit nearly tripling price within November 2007 to May 2008. The world price for Basmati rice showed the highest value in year 2008 at USD1,077/metric ton (FAO, 2012).

Hence, Malaysia Agricultural Research and Development Institute (MARDI) as a statutory body is responsible to carry out extensive research and develop new rice varieties that give high yields and quality, including agronomic packaging to support the commercialization of the new products. Hitherto, MARDI has created 35 new rice varieties that have special characteristics such as high yields, as well as, resistant to pest and disease. One of the varieties that has been innovated by MARDI is Mas Wangi or MRQ74, which has special characteristics and 80% similar attributes to Basmati type. This variety has been officially released by former Prime Minister YAB Tun Abdullah Ahmad Badawi in 2005. In addition, MRQ74 also is one of the high-quality rice that good for health, which has less starch content and low glycemic index suitable for diabetics. The special characteristics such as long and slender grain shape, non-sticky and aromatic rice makes it preferred by Malaysian consumers (Hanis *et al.*, 2012) and enabling it to tap the higher-end rice market, compared to normal white rice. Annually, Malaysia has to import approximately 30% of rice including fragrant rice (Basmati and Jasmine type) to meet the shortage of domestic demand. The import of this specialty rice shows an up surging trend every year with a value of RM500 million. The price shows a significant price premium compared with other rice varieties because of the quality and special characteristics of the rice that can be identified by the appearance, aroma and taste. In addition, scarcity supply due to the increasing demand in the market is an important factor that affects the price of the fragrant rice. In year 2011, MRQ74 has been introduced under a new Entry Point Project (EPP) for non-granary areas. This initiative will help the country to reduce dependence on imported rice by 40% and foreign exchange about USD10 to USD27 million annually. Fragrant rice production requires a comprehensive workflow to guarantee the authenticity of the rice seeds as well as the quality of the fragrant rice during planting, harvesting and milling. Dedicated areas have to be identified for the farming of this variety to ensure no contamination by the normal white rice variety. Therefore, this study is generally to discover and determine factors that influence new rice variety, MRQ74 adoption among farmers in East Coast, Malaysia. Furthermore, this study seeks to investigate benefits that the farmers gain from MRQ74 cultivation and the adoption behaviour. The results of the study could provide information to ensure the sustainability of the fragrant rice industry in Malaysia.

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