

## **BUFFALO-DRAWN CART ASSIST OF INFIELD FFB EVACUATION – A CASE STUDY AT KOSMA PLANTATION BHD.**

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Malaysia is currently the world's leading producer of palm oil, with a total planted area of 4.3 million hectare. One of major problems faced by the oil palm industry is the shortage of labour to undertake the heavy and strenuous tasks in the plantation. This problem has affected the productivity of the industry. The most labour-intensive task in oil palm production is harvesting and for this industry to survive it is necessary to improve productivity by adopting new technology, improving cultural practises and quality of workforce and introducing mechanization. For the mechanization of in-field collection the industry has many choices such as mechanical buffaloes, mini tractor and tractor with grabber-loader depending on the land conditions. However, the mechanization effort has to contend with increases in the price of new machines, spare parts and fuel. The buffalo drawn cart for in-field ffb evacuation is the most "primitive" technique that is still in use. This technique was introduced in 1968 at Pamol Estate in Sabah and presently it is still used in TH Plantation, Pamol Estate and UP Plantation. In order to properly assess this technique a time-and-motion study was carried out at Block C, Kosma 7, Kosma Plantation Bhd at Muadzam Shah, Pahang to compare two systems of infield transportation of fresh fruits bunch using buffalo-drawn carts in terms of productivity and costs and to evaluate workers productivity. The total area for this case study was 352 ha with an average palm age of about 12 year and it has started using buffaloes for ffb evacuation since 2008. The productivity of buffalo system ranged from 5.37 tonne a day up to 7.73 tonne a day (only 32% below mechanical buffalo productivity). Harvester productivity increases of 2.57 tonne to 3.57 tonne were achieved, resulting in 27% reduction in labour requirement. Implementing buffalo system for ffb evacuation resulted in an increase of RM0.37 per tonne in harvesting cost but it can be covered by the increase in harvester productivity. The introduction of buffaloes to assist in daily work has been accepted by both management and workers and this has resulted in its successful implementation.

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