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## Investigating the Drop in Oil Extraction Rate during Peak Cropping Months

OOI, H S AND S KUMAR

SGT Konsult Sdn Bhd, E3303, 3 Two Square, 2 Jalan 19/1, 46300 Petaling Jaya, Selangor Darul Ehsan, Malaysia

*A study was undertaken to comprehend the technical reasons for a sudden drop in the oil extraction rate (OER) of a palm oil mill in Sabah from around 21 per cent to 18 per cent during the peak crop period in the months of June and July in 2016. Initial investigation was conducted by the mill by processing the fresh fruit bunches (FFB) from own plantation separately and an OER of 21 per cent and a free fatty acid (FFA) content of 2 per cent in the crude palm oil (CPO) were obtained. The FFB from the external sources (which constituted between 60 per cent and 70 per cent of the FFB processed by the mill) were then processed and an OER of 18 per cent and a FFA content of 5 per cent were recorded. The empirical correlation method was used to investigate the technical reasons for the drop in OER. Literature reviews were conducted to obtain the relationship between the various technical factors, such as, age of the palm tree, FFB ripeness, oil content in FFB and FFA content in FFB; and to understand the impact of labour shortages on harvesting and loose fruit collection. Literature reviews were also conducted on the sterilisation of FFB of different ripeness and on the technical factors affecting the mill OER and the FFA content in the CPO produced. Laboratory milling tests were carried out on ripe and under-ripe FFB to validate the correlations. The empirical correlations were then used to examine the impact of force-ripen FFB and the impact of uncollected loose fruitlets (LF) on the OER of the mill and on the FFA content of the CPO produced. The results of the analyses using the empirical correlations indicated that the two technical factors that had contributed to the drop in OER during the peak cropping months were the high percentage of force-ripen FFB in the FFB supplied by the external sources and the high percentage of half empty over-ripe FFB that were delivered to the mill without the loose fruitlets.*

**Keywords:** *Harvesting, grading, sterilisation, OER, FFA, force-ripen FFB, loose fruitlets.*

SENTIASA MAJU

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