

November

## Influence of Temperature and Grading of Fresh Fruit Bunches on Oil Content and Oil Extraction Ratio in Oil Palm

NASIM ALI\* AND T NAGENDRA RAO\*\*

*Cultivation of oil palm in India was started during the late 1980s under Government's initiative and the state of Andhra Pradesh has the largest hectareage cultivated with oil palm. So far, in India, an area of 0.372 million hectare is under oil palm and it is cultivated mostly as a smallholders' crop. Variations in oil extraction ratio (OER) at palm oil mills are often observed with seasons and grading standards. This study was undertaken to understand the effect of temperature and grading on oil content and OER. The study revealed that temperature had a negative correlation with OER and oil to bunch percentage. Fruit grading plays an important role in improving OER through enhanced oil to bunch percentage.*

**Keywords:** *Oil palm, oil extraction ratio, oil to bunch percentage, temperature, grading.*

In India, oil palm is a smallholders' crop grown since the 1980s and it is known to produce more oil per unit area compared to other oil-yielding crops (Rethinam, 2011). Various initiatives have been taken by the Government of India to encourage oil palm cultivation and Andhra Pradesh leads having the largest area under oil palm cultivation. The crop is grown by smallholders under a public private partnership (through the respective provincial Governments and processing entrepreneurs). The harvested fresh fruit bunches (FFB) are purchased from the smallholders through a price formula (Dass & Gulati, 2012) in which the oil extraction ratio (OER) is the most important parameter. OER at a mill is influenced by various factors such as processing conditions, FFB quality, processing technology, mill extraction efficiency and oil losses through various discharges (Raj & Menon, 2015). Additionally, seasonal variations in OER are a challenge in India. The

profitability of oil palm smallholders in India depends on FFB prices, which are highly volatile and uncertain. As OER is the key parameter that determines FFB prices for smallholders as well as dynamics of processors (mill owners) business in India, it has been subjected to discussions at various fora. The quality of FFB supplied to processing mills can play an important role in enhancing the mill OER. Understanding the right stage of harvest helps in streamlining the FFB grading process in the mills. Kamil and Omar (2016) have studied the effect of the El Nino and La Nina phenomenon on oil palm in Malaysia and reported that climatic variability (amount of rainfall) plays an important role in influencing crude palm oil production during El Nino – Southern Oscillation event. Mathur *et al.* (2019) have studied the seasonal variations of oil content and oil to bunch ratio in different sources of oil palm *tenera* hybrids (Malaysia, Deli x Ghana, Deli x Nigeria and Palode) in