

Use of Bitumen-Treated Fabric Mulch during First Year Replanting of Immature Oil Palms

ABDULLAH ABDUL RAHMAN, JAMALUDDIN NASIR AND NORHAZELA SHAHBUDIN

Plantation Research & Advisory, Sime Darby Plantation Research, R&D Centre Upstream, 42960 Carey Island, Selangor Darul Ehsan, Malaysia

The use of empty fruit bunch (EFB) mulching in oil palm replants has for decades been implemented as best practice across the industry. In this study, several trials were initiated to evaluate the effectiveness of bitumen-treated fabric mulch (BFM) as an alternative for EFB mulching on oil palm growth performance in replants. The trial was conducted in Jeleta Bumi Estate, Sabah for 12 months. The treatments evaluated were mulching using BFM with a total quantity of first-year fertiliser applied underneath (T1) and normal EFB mulching with the standard bi-monthly manuring programme (T2). The treatments were arranged using randomised complete block design (RCBD) with four replications. The palms' rachis length, petiole cross-section, and total fronds were measured 12 months after planting to calculate the relative leaf area (RLA), true leaf area (TLA), and leaf area index (LAI). Leaves from frond number nine were sampled for nutrient analysis. Concurrently, these treatments were replicated at a semi-commercial scale in five estates totalling 466.36 hectares under T1. Generally, there was no significant difference ($P>0.05$) in all parameters measured for both vegetative performance and leaf nutrients between T1 and T2. Additionally, box plot analysis indicated a uniform growth pattern across treatments from the calculated RLA, TLA, and LAI. Cost-benefit analysis indicated a saving of up to 62 per cent at 12 months after planting. This includes costs of EFB transportation, weeding and manuring rounds. Concomitantly, labour dependency could be further reduced, particularly of interest under current industry labour shortages. Response by users highlighted in reduced road maintenance, minimised rhinoceros beetle damage and lower frond scorching.

Keywords: *Mulching, bitumen, fabric, cost-saving, labour shortage, manuring round reduction, replanting, immature palms.*