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Enhancement of Land Preparation Techniques during Replanting Using GIS/UAV for Mechanisation and Optimum Planting Density+

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One of the major issues in the plantation industry (both oil palm and rubber) is how to optimize the planting densities in the steep (terraced) areas and correct density will influence yield and profitability. Another major issue is the lack of knowledge and experience in land preparations during new planting and replanting for mechanization. The writers exposure initially started with MPOB in Belaga, Sarawak in 2009 and then in Jerantut, Pahang in 2012 but due to several limitations, the highest benefits had yet to be achieved. The best opportunity came in 2014 when Kumpulan Fima Berhad gave the writers the task to duplicate and improve the techniques in its oil palm replanting in Kemaman, Terengganu. The techniques involved the use of Geographic Information Systems (GIS) to determine the elevation and slope meeting the basic requirement of Good A$_{gr}$icultural Practices (GAP) that areas exceeding 300 m elevation and 25° slope were taken out and retained as riparianlbio-diversity strips. Once done, the planters input came into being to determine the design incorporating the road and terrace densities. Preparations for mechanization included the construction ofter races with paths in the steeper areas and elevated paths in the low-lying areas. The "constant planting density technique" was used to determine the planting densities.

Keywords: Land preparation techniques, planting densities, mechanisation, GIS/UAV.