

Improving Genuine MATAG (MRD/MYD × TAGT) Percentage during Hybridization using Pollination Bags

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The MATAG coconut hybrid, a cross between Malayan Red Dwarf (MRD) or Malayan Yellow Dwarf (MYD) with Tagnanan Tall (TAGT), has shown significant promise in yield and fruit size, leading to high demand for genuine F1 MATAG seedlings in Malaysia. Controlled pollination is essential for producing these hybrids, with pollination bags commonly used to prevent contamination by unintended pollen. However, the high temperature within pollination bags can cause female flowers to shed, prompting some breeders to forgo bags, resulting in only 30% genuine MATAG seedlings in nurseries. Thus, this study aimed to identify the impact of bagging (with and without pollination bags) and to compare the micro-environment within and outside of different pollination bags (DuraWeb and Spun-bond+Melt-blown (SMP)) on successful fruit set using MRD and MYD coconut varieties. Emasculation was carried out on 45 selected inflorescences for MRD and MYD, respectively. The total number of female flowers was recorded, and the inflorescences were bagged with DuraWeb, SMP bags or left unbagged. Hand pollination with TAGT pollen was conducted daily. Results indicated that using pollination bags did not reduce the fruit set percentage (27 – 36% for both MRD and MYD) despite significant differences in the micro-environment created by the different bag types. To evaluate contamination risk, 90 bagged and non-bagged emasculated inflorescences were left undisturbed in an open field, and the percentage of remaining female flowers after three months was recorded. It was found that the use of pollination bags significantly reduced contamination risk from 51.9% to 3.7% in MYD and from 60.5% to 7.9% in MRD, thereby, indirectly increased percentage of genuine MATAG production. Thus, it is recommended to use pollination bags during coconut hybridization. Given the current situation, the DuraWeb bag is suggested due to its durability and specially designed features for pollination.

Keywords: Fruit set, hybridization, MATAG coconut, pollination bag, pollination frequency