

Selection of pisifera parents based on growth and yield performance of oil palm DxP hybrids

K. Sunil Kumar, R. K. Mathur and R.S.N. Pillai

Division of Crop Improvement, Directorate of Oil Palm Research, India

Oil palm (*Elaeis guineensis* Jacq.) is the richest source of vegetable oils and yields 5-6 tonnes of oil per hectare per annum which is five times higher than other annual oil seed crops. Cultivated oil palm is tenera which is a hybrid between thick shelled dura (female parent) and shell less pisifera (male parent). Hence, proper selection of dura and pisifera parents is very important in any oil palm improvement programme. Dura parents are selected based on various morphological and yield components. However, such criteria could not be used for pisifera mainly because pisifera parent is female sterile and its utility could be evaluated only through the performance of DxP progeny. Identification and evaluation of superior pisifera parent assumes more significance because pollen from a single male inflorescence (50-100g) would produce hybrid seeds required for raising 5000Ha of plantation or in other words a single pisifera can influence the plantation performance of such large extent. In the present study, six pisifera parents were employed in crossing several dura mother palms and the progenies were evaluated in order to identify better male parents. The hybrids were raised in RBD with supplementary irrigation at Lakshmipuram, West Godavari District of Andhra Pradesh, India. Comparison of DxP hybrids indicated that there is significant variation in performance of progenies depending on the pisifera parent used. The plant height of hybrids showed significant variation with the pisifera parent involved and the hybrids involving P-291 was having the lowest height (481.03 cm) followed by P-266 (495.03 cm). In case of annual height increment, it was lower with P-291 (34.35cm) followed by P-266 (35.36 cm) which were on par and significantly lower than those of other pollen parents. Dwarf or compact palms are preferred on account of less cost involved in harvesting as well as to prolong economic life of plantation. The highest sex ratio was observed in hybrids involving P-98 as male parent followed by P-111, P-32, P-266 and P-313 where as it was significantly lower in P-291. When the progenies were compared against Dura parents, no significant variation was observed which in turn indicated that sex ratio was mostly influenced by the pisifera parent. Among yield characters, the maximum number of bunches were recorded in DxP crosses involving P-266 as male parent. This was on par with P-291 and P-98. The highest bunch weight was in P-266 and was significantly higher than all other pisiferas. This was followed by P-291 and P-98 which were on par with P-111. P-266 recorded the highest bunch index of 0.28 which was followed by P-291 (0.24), P-111 (0.22) and P-8 (0.23) where as the values were the lowest with P-313 (.14) and P-32 (.17). Multivariate analysis for clustering of similar genotypes done considering the sex ratio, bunch number, bunch weight and bunch index indicated that P-111 was the best pisifera parent. This was grouped with P-98 and P-291 and then with P-266. Hence these could be considered better performing pisiferas in DxP hybrid production. Significantly, P-291 is showing low height increment and hence could be a potential pollen source in developing high yielding hybrid with short stem height.

sunilk.icar@gmail.com