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SEED PRODUCTION IN DIANTHUS
(Dianthus plumaris L.)

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NANDANA PUSHPAKUMARA HEWAGE

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ABSTRACT

Stigma receptivity, method of pollination and seed production under glass house and field conditions of ten Hammett Dianthus (*Dianthus plumaris* L.) cultivars were investigated in this study.

All of the cultivars had very low or nil receptivity to pollen at the time of flower opening. Stigma receptivity peaked on the third or fourth day after flower opening, and continued until the sixth day after flower opening before declining. However, the period of highest stigma receptivity was not affected by difference in pollen source (i.e. self or cross pollen).

All the cultivars produced highly viable pollen, suggesting that this was not a factor to causing low seed set. However, seed production potential was greatly affected by the pollen source; i.e. cultivars showed very high male selectivity. Cv. Crossover for example, produced 65 seeds per flower (57.8 % ovule fertility) in its best crossing combination (Crossover (♀) X Far North (♂), whereas the same cultivar produced only 16.6 seeds per flower (14.8 % ovule fertility) in its poorest crossing combination (Crossover (♀) X Spot On (♂) and 29 seeds per flower (26 % of ovule fertility) following self pollination.

Seed production of the ten cultivars under field conditions was very low, and no cultivar produced even a gram of seed per plant. However, hand pollination treatments (both cross and self) under glasshouse conditions produced significantly higher numbers of seeds than natural pollination. Although honey bees, bumble bees, and some flies were observed visiting the field trial, the accepted natural pollinators of *Dianthus* were not found. The implication of these variables in relation to the potential for commercial *Dianthus* seed production is discussed.

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