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QTL Analysis For Number Of Burrknots In Apple

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Apple (*Malus x domestica* Borkh.) does not easily propagate by cuttings because of its reduced rooting propensity from the upper vegetative parts. However, some apple cultivars and rootstocks form root primordials, known as 'burrknots', on the lower part of the trunk and main branches. Under specific conditions, burrknots can produce roots and enable vegetative propagation by cuttings or by stooling. Beside the obvious interest for the nursery industry, knowing the genetic control of burrknots is important as they have been associated with reduced or stunted plant vigour and susceptibility to pests such as woolly apple aphid. The genetic bases for the presence and number of burrknots in apple was investigated using QTL analyses in three experimental mapping populations ('Golden Delicious' x 'Scarlet', 'Golden Delicious' x 'Braeburn' and 'Royal Gala' x 'Rubinette'). Linkage maps were constructed using mainly SNP markers. Preliminary results suggested the presence of major QTLs for number of burrknots on chromosomes 4 and 6. A rooting test experiment on the same materials confirmed the correlation between number of burrknots and rooting propensity of cuttings.