BANKSIA FLORICULTURE
EXPORT MARKETING AND VEGETATIVE BIOLOGY
FUNDAMENTAL TO CLONAL PROPAGATION

RAELENE MIBUS

Bachelor of Agricultural Science, Melbourne University
Master of Biotechnology, Monash University

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University of Adelaide
Department of Horticulture, Viticulture and Oenology
Faculty of Agricultural and Natural Resource Sciences
Waite Agricultural Research Institute
South Australia

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Summary

A survey of retailers and conjoint analysis (card-sorting task), normally applied to general merchandise products, was applied to the floricultural product, Banksia, in the German market. The main market access points for Banksia (international wholesalers, dried flower importers, regional wholesalers and Dutch auctions), separate market channels and end-uses for dried and fresh Banksia were identified. Low levels of customer satisfaction for quality attributes (flower size to stem length, grading uniformity and the number of blooms packed per carton) and a lack of promotional information exits. Research showed a negative linear relationship between price and preference, a greater utility for lime and red blooms, and higher utilities for shorter stem lengths, (eg. 30 cm). The criticism of this lack of uniformity supports further research on the vegetative biology underlying clonal propagation.

Quantitative assessment of CSI (current season’s internode) and PSI (previous season’s internode) of Banksia stems using image analysis identified interspecific and seasonal differences in anatomy. Significant differences in parameters such as the percentage of cortex and the distance from the cambium to the stem surface were found between the CSI and PSI of stems collected in autumn, whereas fewer significant differences in tissues were found in spring. Microscopic observations of the CSI and PSI sections were useful in identifying anatomical features that may influence successful vegetative propagation. Structures observed in Banksia which are likely to impair vegetative propagation are the presence of cork and cell occlusions in aging stem internodes, and the fibrous nature of young wood: pericyclic phloem fibres and leaf traces surrounded by fibrous zones in the cortex.

Self-, intra- and interspecific whip grafts between five species of Banksia from across the genus were conducted using B. serrata and B. spinulosa, var. cunninghamii as rootstocks, and B. coccinea, B. ericifolia and B. menziesii as scions. Histological sections of graft unions of two, four and 12 weeks post-graft were examined to assess the key events occurring in unions of Banksia.

Serial sectioning through cotyledonary nodes of post-emergent seedlings of non-lignotuberous B. serrata and lignotuberous B. menziesii was undertaken. In B. serrata sampled at 15 weeks exogenous axillary buds are present in the cotyledon and leaf axils, the base of the cotyledons were not fused, and accessory and adventitious buds were not observed. In B. menziesii sampled at eight and 26 weeks the fused base of the cotyledons forms a thick sheath of parenchymatous tissue around the stem, creating a narrow encircling lumen between the protective sheath and the stem in which three types of buds arise. Exogenous axillary buds arise in the axils of the each cotyledon and first true leaves. Endogenous accessory buds arise in the cortical tissue at either side of the axillary buds. Exogenous adventitious buds develop on the adaxial surface of the protective sheath, along the fusion line of the bases of the cotyledons at either side of the stem axis. In addition, adventitious buds occur singly on the adaxial wall of the sheath.