A Survey of Chinese Chestnut Varieties

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A recent survey of commercial Chinese chestnut growing conducted in collaboration with the Northern Nut Growers Association covered, among other topics, a rather full treatment of varieties. Replies received from eleven commercial growers listed a total of 890 grafted trees of improved varieties from one to fifteen years of age, and 4,275 seedling trees from one to thirty years old.

The majority of growers, as well as scientific workers, prefer improved varieties because of uniformly higher yields, and uniformly better size and quality of the chestnuts. The standard varieties Nanking, Meiling, Abundance and Kuling were most frequently mentioned, with Nanking rating high in popularity. Other varieties that were considered promising for warm climates include Albany 7932, two Hemming selections, FP 685, FP 686, FP 688 and Bush No. 3.

More than one variety is required to provide for cross pollination, because all Chinese chestnuts are practically self-sterile. In the warm climate of the peach belt where Chinese chestnuts perform best, most of the above varieties may be expected to mature their crops before frost in the fall.

Although varieties are preferred to seedlings, a propagation problem exists which causes poor survival of grafted trees, apparently because of a little-understood weakness at the graft union. One of the most logical theories was that the graft union acts as a dam, or barrier, to slow down the free flow of nutrients between roots and top, especially during unfavorable growing conditions such as drouth. This theory is borne out by the fact that the oldest grafted trees are growing under favorable conditions where there is a large root zone and ample soil moisture. It was suggested also that chestnut grafts may not unite as completely and tightly as grafts of certain other kinds of plants. A known incompatibility exists where Chinese chestnut scions are grafted on Japanese chestnut rootstocks, in which swelling of the tissues at the union are readily noticeable.

Because of the uncertainty of survival, few grafted nursery trees are planted. The most favored procedure is to plant seedling trees, wait two or three years until they are well established, and then topwork to improved varieties. This method lessens mortality caused by the shock of transplanting. Another method sometimes followed allows the seedling trees to reach bearing age before topworking the unprofitable trees. This latter method is less popular because of the greater cost of topworking bearing age trees, and because many seedling populations contain a rather high percent of undesirables that require topworking.

Even though survival is better with trees that were topworked in the orchard than with nursery grafted trees, it is much less than with seedlings. This indicates a need for experimental studies of stock/scion relationships and grafting techniques. Interest in Chinese chestnuts is increasing. With this increased interest, solutions to such problems will possibly be found as they arise.

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