

SEED ORCHARDS

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ABSTRACT .--The objective of a seed orchard is to mass produce improved seed of the desired quality as economically as possible, and usually also as quickly as possible. The major steps involved are: (1) mass selection of desirable trees; (2) establishing the seed orchard; (3) progeny testing the seed orchards, and (4) roguing the seed orchards on the basis of results of the progeny tests. Seed orchard establishment includes the following major steps: site selection, site preparation, seed orchard design and graft establishment. Site fertility, drainage and location are all important considerations. Site preparation should be done thoroughly but usually presents no serious problems. Spacing should be such that the orchard will not require roguing before information from progeny tests is available, but close enough to give reasonable cone production at an early age. The design should consider such factors as providing a sufficient number of clones to form an adequate genetic base, optimizing cross pollination among clones, providing an adequate supply of improved pollen for the orchard, minimizing the proportion of contaminating pollen, and limiting the amount of inbreeding in the orchard. Three systems of handling grafts are in common use: pot grafting, bed grafting, and field grafting. Each of them is an acceptable method but has its own advantage and disadvantages. Seed orchard management practices are designed directly or indirectly to keep seed orchard trees healthy and to produce the maximum amount of seed. Increased flower production is secured by a combination of subsoiling, irrigation and fertilization. The seed orchard is protected and kept in a healthy condition by mulching, fire protection, protection from diseases and insects, and proper care of the orchard during harvesting.

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