

SEEDLING SEED ORCHARDS

Seedling seed orchards for breeding tropical trees, M. Varghese, A. Nicodemus, B. Nagarajan, K. R. Sasidharan Siddappa, S. S. R. Bennet, K. Subramanian. Institute of Forest Genetics and Tree Breeding, Coimbatore, 641002, India. 126 pages. ISBN 81-900346-1. The book is priced 40US\$ including postage.

Forest tree improvement grew important in the temperate developed world since about 1950 with a strong focus on conifer clonal seed orchards with grafts of selected plus trees. This concept has worked successful for many of the leading forest tree improvement programs, and it appears more futuristic to work with clones (it sounds modern biotech, even after half a century). Many efforts were made to copy the clonal seed orchard concept, some of these were not successful, and it was often overlooked that seedling seed orchards (SSO) can offer advantages for many situations (besides when they are the only realistic alternative). Now a book has been compiled focusing on the seedling seed orchards, which facilitates to consider and use this alternative when it is appropriate.

The book is a compilation of theoretical and practical aspects of SSOs with emphasis on tropical tree species. SSOs are useful in combining seed production, genetic test and breeding for new recombinations. As seedlings are cheap, dense planting followed by repeated thinning is an efficient tool for improving SSOs, and the appearance of the trees in the SSO can be a basis for thinning. SSOs are flexible, easy to establish and manage, cost-effective and popular in particular with short rotation trees like eucalyptus, acacias and casuarina. Where the breeding programmes have just begun and where resources are scarce SSOs often assure fairly improved seeds rather fast without the necessity of having a separate breeding and genetic test population. Use of SSOs at various levels of breeding tropical trees has increased in the recent past and much valuable information has been generated. The book draws most of its experience and cases from India, although with an influence in particular from CSIRO in Australia, but it seems to review the tropical work rather well. Though the focus is on SSO, the book is useful also for those who have clonal seed orchards in mind. Besides general aspects, some variants of clonal seed orchards may share some of the advantages with SSOs, eg. cheap cuttings of

many clones can offer a similar potential for improvement based on performance in a clonal seed orchard as in an SSO.

This book is intended to be a reference manual for those who have interest in seed production in general and SSOs in particular, and thus covers most aspects of seed orchards including practical. The book deals on the place of SSO in tree breeding (e.g. progeny test; selection; multiple populations, provenance mixtures, nucleus). This is especially useful for low-intensity breeding, and I guess some of these low intensity methods also are relevant for cases where mass multiplication is by clonal seed orchards or vegetative propagation. The book deals with SSO as seed production stands; lay-out; planting; thinning; methods to enhance reproductive output and other management aspects. Injuries to seed orchards and possibilities to control these are discussed.

The book constitutes a valuable addition to existing literature, and covers its field satisfactory. Pollen vectors and pollination techniques (most tropical trees are not wind pollinated, reproductive biology is often little known and - in particular when working with exotics - this may complicate matters) and height control (to keep seeds within reach becomes increasingly important, and there may be reasons to head for smaller trees for seed production) are examples of areas I think deserves more attention in future tropical SSO considerations, and it seems that more research needed on the basic theory for SSOs and their role in long term breeding. Tree breeders, practical foresters and students of forestry will find this book useful for planning, establishing and managing SSOs and using them as a tool in tree improvement.

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