

# Part 1: Principles and General Methods of Producing and Handling Seeds

## Chapter 1 **Seed Biology**

pp. 4-39

*Franklin Bonner*

- Introduction
- Flowering Plants
- Reproductive Cycles
- Flowering
- Fruit and Seed Development
- Dormancy
- Germination
- References

## Chapter 2 **Genetic Improvement of Trees**

pp. 40-57

*Clark Lantz*

- Introduction
- Concepts of Genetic Improvement
- Starting a Tree Improvement Program
- Deployment of Genetically Improved Methods
- Molecular Biology
- Tree Improvement Cooperatives
- The Future
- References

## Chapter 3 **Seed Harvesting and Conditioning**

pp. 58-85

*Robert Karrfalt*

- Introduction
- Harvesting
- Seed Cleaning and Conditioning
- Post-Harvest Storage
- Extraction
- Cleaning and Upgrading
- Quality Control
- References

## Chapter 4 **Storage of Seeds**

pp. 86-97

*Franklin Bonner*

- Introduction
- Factors Affecting Longevity of Seeds
- Storage Facilities
- Storage Recommendations
- Other Management Considerations
- References

## Chapter 5 **Seed Testing**

pp. 98-117

*Robert Karrfalt*

- Introduction
- Sampling
- Sample Identification
- Moisture Tests
- Purity, Noxious Weed Content, and Seed Weight Tests
- Sowing Rates
- Buying and Selling Seeds
- Test Limitations and Variation
- Scheduling Seed Tests
- Commercial Trade of Tree, Shrub and Native Plant Seeds
- References

## **Chapter 6 Certification of Tree Seeds and Other Woody Plant Materials**

pp. 118-125

*Robert Mangold and Franklin Bonner*

- Introduction
- Certification in Agriculture
- Certification in Forestry
- Native Shrubs and Grasses
- Federal Seed Act and Labeling Laws
- Outlook for Certification
- References

## **Chapter 7 Nursery Practices**

pp. 126-145

*Thomas Landis*

- Introduction
- Terminology
- The Target seedling
- Types of Nurseries
- Propagation Options
- Bareroot Nursery Cultural practices
- Container Nursery Cultural Practices
- Pest management
- Summary
- References

## Part 2: Specific Handling Methods and Data for 236 Genera (1,040 pages)

Each genera includes:

- Growth Habitat, Occurrence and Uses

- Flowering and Fruiting

- Collection, Cleaning and Storage

- Collection of Fruits

- Extraction and Storage of Seeds

- Pre-germination Treatments

- Germination Testing

- Nursery and Field Practices