APPENDIX 5. PROBABILITY DENSITY FUNCTIONS FOR THE TIMBER PROPERTIES OF PLANTATION BLACKBUTT TIMBER (WITHIN—TREE AND BETWEEN—TREES)

A5.1. Probability Density Functions: Plantation Blackbutt

a) Within—Tree Variability

![Experimental probability distribution, Fitted normal distribution, Fitted log normal distribution]

**Figure A5.1.** Probability density functions for the initial moisture content.
**Basic Density**

- Experimental probability distribution
- Fitted normal distribution
- Fitted log normal distribution

![Graph of Basic Density](image)

**Figure A5.2.** Probability density functions for the basic density.

**Diffusion Coefficient**

- Experimental probability distribution
- Fitted normal distribution
- Fitted log normal distribution

![Graph of Diffusion Coefficient](image)

**Figure A5.3.** Probability density functions for the diffusion coefficient.
Failure Stress (Green Samples)

Experimental probability distribution
Fitted normal distribution
Fitted log normal distribution

Figure A5.4. Probability density functions for the failure stress of the green samples.

Failure Stress (Dried Samples)

Experimental probability distribution
Fitted normal distribution
Fitted log normal distribution

Figure A5.5. Probability density functions for the failure stress of the dried samples.
Failure Strain (Green Samples)

- Experimental probability distribution
- Fitted normal distribution
- Fitted log normal distribution

Figure A5.6. Probability density functions for the failure strain of the green samples.

Failure Strain (Dried Samples)

- Experimental probability distribution
- Fitted normal distribution
- Fitted log normal distribution

Figure A5.7. Probability density functions for the failure strain of the dried samples.
Figure A5.8. Probability density functions for the modulus of elasticity of the green samples.

Figure A5.9. Probability density functions for the modulus of elasticity of the dried samples.
Tangential Shrinkage

Figure A5.10. Probability density functions for the tangential shrinkage.

Radial Shrinkage

Figure A5.11. Probability density functions for the radial shrinkage.
Differential Shrinkage

![Figure A5.12. Probability density functions for the differential shrinkage.](image)

- Experimental probability distribution
- Fitted normal distribution
- Fitted log normal distribution

Figure A5.12. Probability density functions for the differential shrinkage.

![Figure A5.13. Three-parameter lognormal probability plot for the initial moisture content (considering the threshold).](image)

Figure A5.13. Three-parameter lognormal probability plot for the initial moisture content (considering the threshold).
Figure A5.14. Weibull probability plot for the initial moisture content.

Figure A5.15. Three—parameter lognormal probability plot for the diffusion coefficient (considering the threshold).
Figure A5.16. Weibull probability plot for the diffusion coefficient.

Figure A5.17. Three—parameter lognormal probability plot for the green failure strain (considering the threshold).
**Figure A5.18.** Weibull probability plot for the green failure strain.

**Figure A5.19.** Three-parameter lognormal probability plot for the radial shrinkage (considering the threshold).
Figure A5.20. Weibull probability plot for the radial shrinkage.

b) Between—Trees Variability

![Initial Moisture Content](image)

Figure A5.21. Probability density functions for the initial moisture content.
**Basic Density**

![Graph showing probability density functions for basic density](image)

**Figure A5.22.** Probability density functions for the basic density.

**Diffusion Coefficient**

![Graph showing probability density functions for diffusion coefficient](image)

**Figure A5.23.** Probability density functions for the diffusion coefficient.
Probability Density Functions for the Timber Properties of Plantation Blackbutt Timber (Within—Tree and Between—Trees)

**Failure Stress (Green Samples)**

- Experimental probability distribution
- Fitted normal distribution
- Fitted log normal distribution

![Graph](image)

**Figure A5.24.** Probability density functions for the failure stress of the green samples.

**Failure Stress (Dried Samples)**

- Experimental probability distribution
- Fitted normal distribution
- Fitted log normal distribution

![Graph](image)

**Figure A5.25.** Probability density functions for the failure stress of the dried samples.
Failure Strain (Green Samples)

Figure A5.26. Probability density functions for the failure strain of the green samples.

Failure Strain (Dried Samples)

Figure A5.27. Probability density functions for the failure strain of the dried samples.
Green Modulus of Elasticity

Figure A5.28. Probability density functions for the modulus of elasticity of the green samples.

Modulus of Elasticity (Dried Samples)

Figure A5.29. Probability density functions for the modulus of elasticity of the dried samples.
Tangential Shrinkage

Figure A5.30. Probability density functions for the tangential shrinkage.

Radial Shrinkage

Figure A5.31. Probability density functions for the radial shrinkage.
Figure A5.32. Probability density functions for the differential shrinkage.

Figure A5.33. Three—parameter lognormal probability plot for the tangential shrinkage (considering the threshold).
Figure A5.34. Weibull probability plot for the tangential shrinkage.

Figure A5.35. Three—parameter lognormal probability plot for the differential shrinkage (considering the threshold).
Figure A5.36. Weibull probability plot for the differential shrinkage.