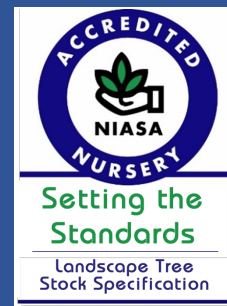


Australian Plant Production Standard (APPS)



Landscape Tree Stock Specification

Nursery production of high-quality landscape tree stock for planting and establishing an industry specification is recognised within Australia as playing an important role in supporting the Australian landscaping industry. Purchasers of landscape tree stock require assurance that the plant material meets an industry standard, is true-to-type, and that appropriate steps have been taken to reduce the chance of introduction of serious pests and diseases into the production environment.

Starting with high-quality tree stock provides the best opportunity for trees to become successfully established in the environment and helps to negate issues around poor tree performance. This is important due to trees representing a significant long-term investment into a landscape and helping avoid follow up actions post planting. Growing high-quality tree stock helps to ensure that the product is competitive in the marketplace and builds the reputation of the business. Landscape Tree Stock best practice production requirements have been included in the 8th edition of the NIASA BMP Guidelines in the new Landscape Tree Stock Specification Appendix 14.

Landscape Tree Stock Specification:

The stamp of assurance that provides businesses with:

- A systematic approach for producing 'superior' landscape planting material
- Consistent product quality meeting the industry standard
- Protection of the production environment from serious pests and pathogens
- Independent audits, guidance and technical support from GIA Auditors and Technical Officers

The Landscape Tree Stock Specification

The Landscape Tree Stock Specification (APPENDIX 14) in the 8th edition of the NIASA BMP Guidelines provide specialist guidance for tree stock production nurseries and allow an interested business to become NIASA accredited when meeting landscape tree stock production standards. The Tree Stock Specification details the broad quality requirements a NIASA production nursery should meet for the supply of high-quality landscape tree stock. There are instructions and a checklist for businesses to complete when producing tree stock for the landscape sector. These include:

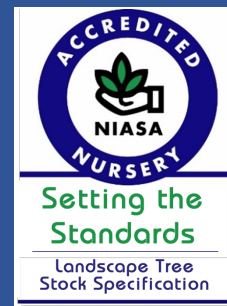
- General quality - true to type and tree stock health
- Above ground aspects - height and calliper, formative pruning, stem and branch structure, crown distribution, compatibility of graft unions and trunk position
- Below ground aspects - rootball diameter and depth, height of root crown, rootstock suckering, rootball occupancy, root direction, root division, self-supporting
- Record keeping - appropriate records completed and kept for tree stock assessment



**Hort
Innovation**
Strategic levy investment

**NURSERY
FUND**

Australian Plant Production Standard (APPS)



Landscape Tree Stock Specification

What is NIASA?

NIASA is the national nursery industry's Best Management Practice (BMP) program for production nurseries, growing media manufacturers and greenlife markets. It is supported by the NIASA BMP Guidelines. Businesses may use the Guidelines as a reference or guidance document to improve their cropping systems without formal accreditation. HOWEVER, a business may also consider formal, annually externally audited, NIASA accreditation to demonstrate to customers that they meet industry best practice standards.

ALL auditable requirements within the Specification (see the audit checklist included within Appendix 14) must be found to have been implemented to at least a satisfactory standard for a business to be considered eligible to be granted accreditation against the specification.

It is important to note the following:

1. NIASA is a continual improvement program under the national framework of the Australian Plant Production Standard (APPS) which includes EcoHort and BioSecure HACCP programs.
2. The NIASA BMP Guidelines are a large document; HOWEVER, it provides best management practice guidance across several industry categories (production nurseries, growing media manufacturers and greenlife markets). For this reason, it is important to note that not all the content of the NIASA BMP Guidelines may apply to you – only relevant areas.
3. For tree stock production, the key sections are **Chapters 1 to 4 of the Guidelines** - and its associated **APPENDIX 5** (the nursery production checklist), **APPENDIX 12** (Freight and logistics) and **APPENDIX 14** (the Landscape Tree Stock Specification and its attached audit checklist).
4. Although a business may not necessarily be fully compliant in every area, a business may still be successful in gaining NIASA accreditation – should it be able to demonstrate to an auditor that there are steps being taken to make improvements in those areas. **The exception to this** are criteria highlighted in grey in the audit checklist. For these criteria, a business must be found to comply to these requirements to a satisfactory standard before receiving formal NIASA accreditation.
5. Businesses are audited against each auditable criteria using the checklists in the NIASA BMP Guidelines.

Application for NIASA Landscape Tree Stock Specification:

Complete and submit an application for NIASA accreditation form to GIA. Tick the appropriate checkboxes and complete the form in accordance with the instructions provided. To apply for NIASA, or for further enquiries on NIASA Landscape Tree Stock Specification accreditation please contact:

- email: biosecure@greenlifeindustry.com.au Phone: (02) 8861 5100

Greenlife Industry Australia

Phone (02) 8861 5100

Email biosecure@greenlifeindustry.com.au

Web <https://www.greenlifeindustry.com.au/>



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**Extract from NIASA Best Management Practices
Guidelines**

APPENDIX 14 TREE STOCK SPECIFICATION

Users of tree stock for landscapes are increasingly specifying high-quality tree stock.

Starting with high quality tree stock provides the best opportunity for trees to become successfully established in the environment and helps to negate issues around poor tree performance. This is especially important as trees represent a significant long-term investment into a landscape and may require support in the environment post planting. For production nurseries, growing high quality tree stock helps to ensure that product can be competitive in the market place and builds the reputation of the business.

It is highly recommended that production nurseries supplying tree stock into the landscape market maintain a copy of AS2303 – 'Tree Stock for Landscape Use' and are familiar with its requirements.

It is worth noting that AS2303 is intended for informing the landscape market and not the retail market, however the quality principles noted are equally applicable and should in principle be applied to tree stock destined for retail channels.

The following sections of this Appendix detail the broad quality requirements a NIASA nursery should meet for tree stock, and certainly must meet if supplying tree stock to comply with AS2303. It is also worth noting that AS2303 is a product quality specification for individual trees and that production methods to achieve this specification may vary considerably.

A.14.1 True to type

Tree stock must be true to type. Individual trees, or batches of tree stock should be clearly labelled with correct botanical nomenclature in addition to any other labelling or naming (common or trade names).

Further information

- The GIA's [National Plant Labelling Guidelines](#) may assist in labelling requirements.

A.14.2 Tree stock health

Trees must exhibit good health considering the time of year, location and stage of growth. This is demonstrated by appropriate:

- Crown density.
- Crown cover.
- Crown form.
- Leaf colour and size.
- Absence of epicormic shoots.
- Absence of dieback.

Tree stock should also show no evidence of active pests or diseases which may impact upon the health of the tree. Additionally, trees must also be free from significant injury, apart from proper pruning cuts conducted in accordance with appropriate standards.

A.14.3 Height and calliper

The height and calliper must be recorded prior to dispatch and should be appropriate to the individual species.

The calliper at any given point on the stem should be less than the calliper at any lower point on the stem, i.e. the stem should exhibit a taper from the base.

A.14.4 Formative pruning

Formative pruning of tree stock must be conducted in accordance with appropriate standards.

All pruning cuts must be at the branch collar or a node, and the diameter of any pruning cut must not exceed 50 % of the stem diameter immediately above the point of pruning. If a clean stem is required, it should not exceed 40 % of the total stem height.

Included bark should not be present and the stem/branch bark ridge unions should be convex (outwardly curved). Included bark is where bark is folded into the union between branches or codominant stems. Because bark has less structural strength than wood it forms a potential weak point in the tree structure and hence there is increased risk of tree failure.

A.14.5 Structure of stem and branches

The diameter of the branch (at the point of attachment) must be less than the diameter of the stem above the branch union and should be less than half of the stem diameter.

For stock which has a clear central leader (excurrent), the apical bud should be intact and stem deviation from the vertical must not exceed 15°. For tree stock with a branch dominance (decurent) the terminal buds must be intact.

A.14.6 Crown distribution

The crown includes the branches, leaves and any part of the trunk from which the branches come from.

The distribution of the crown should be symmetrical (evenly balanced) with $\leq 20\%$ crown difference on opposite sides of the trunk's axis.

Further information

- Trees produced in crowded production conditions may give rise to asymmetrical crowns.

A.14.7 Compatibility of graft unions

In grafted tree stock, the graft union must be sound, with the scion and rootstock compatible for the entire perimeter of the graft.

The diameter of the scion immediately above the graft must be within 20 % of the diameter of the rootstock immediately below the graft, excluding bark and cleft grafts.

Further information

- A weak graft union can become a weak point in the tree structure. This may then become an entry point for bacterial or fungal infection. Rootstock should also be free of any suckers, as this will impact upon the growth performance of the tree.

A.14.8 Trunk position

The base of the trunk must be positioned within the centre of the rootball (and pot) with a 10 % allowance.

A.14.9 Rootball diameter and depth

Rootballs in containers 45L or greater and ex-ground tree stock should have a diameter greater than or equal to their depth.

The depth of rootballs in tubes and cells must exceed their diameter, whilst rootballs depth in containers must not exceed 660 mm.

A.14.10 Height of root crown

Trees in containers and ex-ground trees must have a root crown at the uppermost surface of the rootball.

Care should be taken to ensure that the root crown is not covered over by media during potting on as this increases the potential

A.14.11 Rootstock suckering

At the time of dispatch there must be no suckering on rootstock. Grafted tree stock should be supplied on non-suckering rootstock species/varieties.

A.14.12 Rootball occupancy

When removing the rootball from the container, at least 90 % of the growing media volume must remain intact in or around the rootball.

A.14.13 Root direction

Roots, from the point of initiation, must grow in an outwards and downwards direction. Circling roots, J-roots, girdled roots or kinked roots must not be present as these can result in a failure of the tree post planting. At each stage of production (e.g. when potted on), the root system should be inspected for non-conforming roots and pruned if required.

A.14.14 Root division

Tree in containers of 45L or less and ex-ground tree stock must have undergone primary division at least once within the rootball. For trees in containers greater than 45L, primary root division must have occurred at multiple intervals.

A.14.15 Self-supporting

Trees in containers 45L or greater and ex-ground tree stock must be self-supporting at the time of dispatch. Trees which are in containers less than 45L should be self-supporting at the time of dispatch.

CHECKLIST: Tree Stock Specifications

Applicable to businesses producing tree stock for the landscape sector

GENERAL QUALITY

True to Type

Tree stock is true to type
 Clear labelling with correct botanical nomenclature

Needs Attention	Being Upgraded	Satisfactory	Complies Fully	Doesn't Apply

Comments:

Tree Stock Health

Good general tree health including;
 Crown density
 Crown cover
 Crown form
 Leaf colour and size
 Absence of epicormic shoots
 Absence of dieback

Needs Attention	Being Upgraded	Satisfactory	Complies Fully	Doesn't Apply

Comments:

ABOVE GROUND ASPECTS

Height and Calliper

Height and calliper are typical of species
 Details recorded prior to dispatch

Needs Attention	Being Upgraded	Satisfactory	Complies Fully	Doesn't Apply

Comments:

CHECKLIST: Tree Stock Specifications *Continued*

Formative Pruning

Formative pruning is conducted in accordance with appropriate standards

Pruning cuts are made at branch collars or nodes

Diameter of pruning cuts do not exceed 50% of the stem diameter immediately above the point of pruning.

Stem/branch unions are convex i.e. no included bark.

Needs Attention	Being Upgraded	Satisfactory	Complies Fully	Doesn't Apply

Comments:

Stem and branch structure

Diameter of branch at point of attachment is less than the diameter of the stem above the branch union

Excurrent stock has apical bud intact and stem deviation from vertical does not exceed 15°

Decurrent stock has terminal buds intact

Needs Attention	Being Upgraded	Satisfactory	Complies Fully	Doesn't Apply

Comments:

Crown distribution

The distribution of the crown has no greater than 20% crown difference on opposite sides of the trunk

Needs Attention	Being Upgraded	Satisfactory	Complies Fully	Doesn't Apply

Comments:

CHECKLIST: Tree Stock Specifications *Continued*

Compatibility of graft unions

Graft unions are sound with the scion and rootstock compatible for the entire perimeter of the graft.

The diameter of the scion is within 20% of the diameter of the rootstock at the graft, excluding bark and cleft grafts.

Needs Attention	Being Upgraded	Satisfactory	Complies Fully	Doesn't Apply

Comments:

Trunk position

The base of the tree must be positioned within the centre of the pot $\pm 10\%$

Needs Attention	Being Upgraded	Satisfactory	Complies Fully	Doesn't Apply

Comments:

BELOW GROUND ASPECTS

Rootball diameter and depth

Rootballs in containers 45L or greater should have a diameter \geq their depth.

The depth of rootballs in tubes and cells must exceed their diameter

Rootball depth in containers does not exceed 660mm

Needs Attention	Being Upgraded	Satisfactory	Complies Fully	Doesn't Apply

Comments:
