



Nursery tree quality

When establishing new macadamia orchards, the quality of the young trees planted is crucial for future productivity. High-quality seedlings and clones directly impact the production potential of your orchard for the next 30 years or more. Given the significant costs of establishment and the delayed return on investment, it is essential to start with the best possible foundation by planting top-quality trees. Investing in superior trees will pay off in the long run, ensuring a productive and healthy orchard.

When selecting a nursery for purchasing macadamia trees, it's essential to consider several factors to ensure you receive high-quality trees that will thrive in your orchard.

Nursery selection criteria:

1. Is the nursery registered and accredited?

- Confirm that the nursery is registered with the Department of Agriculture: This registration aims to signify that the nursery adheres to national standards for plant production and biosecurity, indicating the nursery's commitment to adhere to regulations.



- SAMAC membership: Choose nurseries that are members of SAMAC. These nurseries provide data on tree volumes to SAMAC according to standardized measures, ensuring transparency and accountability in tree production.

- SGASA accreditation: SAMAC endorses nurseries accredited by the Seedlings Growers Association of South Africa (SGASA). These nurseries are audited annually to ensure compliance with fundamental good nursery practices. SGASA also has a formal framework for dispute resolution.

2. General nursery inspections:

- Visit the nursery for an inspection before placing your tree order. Take special note of trees in the hardening off section

that are about to be sold by looking at the size and wellbeing of these trees.

- Look for signs of pests, diseases, or physical damage on trees. Ensure the trees have strong, straight trunks and well-spread branches.
- Inspecting trees before purchase helps avoid potential problems and ensures you get the best quality trees for your orchard.
- Visit the nursery again at the time of dispatch to confirm the quality and size of the trees you will receive.
- Ensure that a sales agreement is in place.



3. Tree quality

- Young trees should meet the standards set by SGASA.
- These standards include criteria for tree health, root development, and overall vigour.
- Trees should be free from defects and diseases, with well-developed root systems and healthy, green foliage.
- If you encounter any issues with the quality of trees, SGASA has a formal complaint protocol in place. This protocol ensures that your concerns are addressed promptly and appropriately, providing a mechanism for resolving quality issues.
- Trees should be marked or labelled properly (for traceability and cultivar certainty).
- Ask the nursery about their methods and practices.
 - Do they cut the tap root during transplant?
 - Do they plant the seed straight in the bag and then graft on to that?
 - Do they use controlled release fertilisers and when was the last application?
 - How long with the fertiliser in the bag last once planted out in the field?

- Evaluations for clonal rooted cuttings:
 - Ensure there is visible uniformity of vigorous and healthy trees (indicates genetic uniformity based on phenotypic characteristics).
 - On clonal rooted cuttings, root system development should be inspected if possible.
 - Confirm mother blocks are well taken care of, and that a biosecurity framework is in place if pests or diseases are present.

4. Pest and disease screening and management

- Effective pest and disease management is crucial for maintaining the health of nursery trees and ensuring their successful establishment in an orchard.
- SGASA accredited nurseries follow guidelines for Phytophthora testing and remediation. Testing of irrigation water and planting medium is done regularly to prevent damage to the roots of the young trees if the pathogen is present.
- Regular inspections for the Macadamia Felted Coccid (MFC) in mother blocks are vital. Nurseries should conduct these

inspections to ensure that the mother plants, from which budwood is collected for propagation of new trees, are free from this quarantine pest. This practice helps prevent the spread of MFC to new orchards and different provinces.

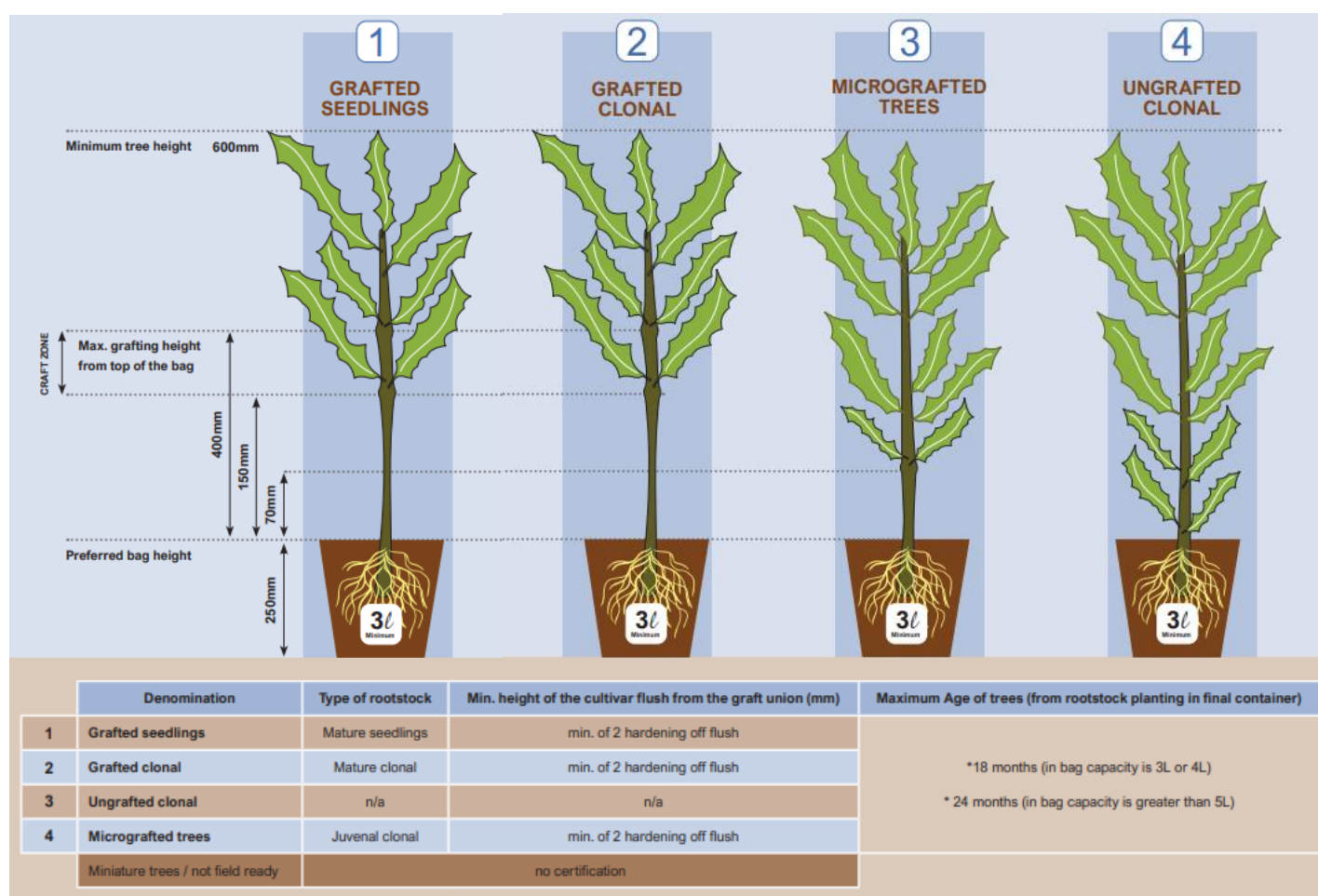
- Nurseries should have strict dispatch protocols for pest and disease management. These protocols include measures to prevent the spread of pests

such as MFC. Ensuring that the nursery follows these protocols when dispatching trees to your orchard minimizes the risk of introducing pests and diseases.

- SGASA, SAMAC and Cropwatch Africa have been instrumental in physically examining all propagated trees from these accredited nurseries as well as in-house traceability protocols to curb the spread of MFC in the long term.



Seedling Growers Association of South Africa Macadamia Minimum Tree Standards



Note: it has been observed that slightly bigger trees (6L bags) have an improved start and are more resilient when planted in an orchard.

Guidelines to store trees before planting out:

- Do not store trees in full shade upon receiving as this could reverse the full sun hardening process that they underwent in preparation for shipment at the nursery.
- Request a watering schedule from the nursery. This will depend on planting medium, size of the bag and tree age.

- Protect the black planting bags (root zones) from direct and harsh sun exposure as this can result in irreparable damage the root system of the trees. If needed, paint the exposed sides of the black bags with white PVA paint to reduce temperatures.

By adhering to these best practice steps, you can ensure that you receive high-quality macadamia trees from reputable nurseries, setting a strong foundation for a productive and healthy orchard.



A strong foundation the key to creating long-term success

When it comes to macadamia trees and establishing new orchards, what you put in is definitely what you will get out. The quality of young trees directly impact and determine production potential in the coming years. Considering that macadamia trees are a long-term investment which you will need to manage for 30 plus years, as well as the significant costs associated with establishment and the delayed return on investment, it is worth building on the strongest foundation possible by ensuring that you plant quality seedlings.

"If you don't have time to do it right, when will you have time to do it over?"-John Wooden

GENERAL

- Visit the nursery for an inspection before ordering trees
- If possible, visit the nursery again on dispatch to ensure you are satisfied with the quality of the trees you will receive
- Ensure that a sales agreement is in place
- SAMAC recommends buying from Seedling Growers Association of South Africa (SGASA)-accredited nurseries as these nurseries are audited annually, which ensures compliance to basic good nursery practices. SGASA also has a formal framework for dispute resolutions

TREES

- Trees should be younger than 2 years
- Trees should be of uniform height and at least 60-120 cm above the growing medium to maximize survival in the orchard
- Trees should be of uniform appearance (colour and thickness of the stems)
- Trees should be trained to a central leader
- Stems should be free of any kinks or damage
- Graft unions should not display any callousing, and should not be more than 40 cm above the growing medium to maximize branching and bearing wood
- Graft union tape should be removed to prevent restriction of stems as the trees grow



Central leader



Kinks or damage



Graft unions

LEAVES

- Leaves should be a uniform green colour (dark or lighter depending on the cultivar)
- Trees should have at least two hardened-off flushes
- Leaves should be free of any signs of insect damage
- No deficiency symptoms, spotting, fading or other imperfections should be visible



Hardened-off flushes



Insect damage



No deficiency

ROOTS

- Roots should be yellow under the bark, brown/black roots are a sign of root rot
- Trees should have well-developed root system with sufficient healthy feeder roots all around the seedling or cutting and throughout the potting mix and a good leaf to root ratio.



Brown roots



Pot-bound



Spiral

- Roots should not be pot-bound
- Roots should not be bent, kinked or spiralled