



SAMAC
Macadamias South Africa NPC



Cultivar Guide

*A Consolidation of Knowledge and Field Experience
in the South African Macadamia Industry*

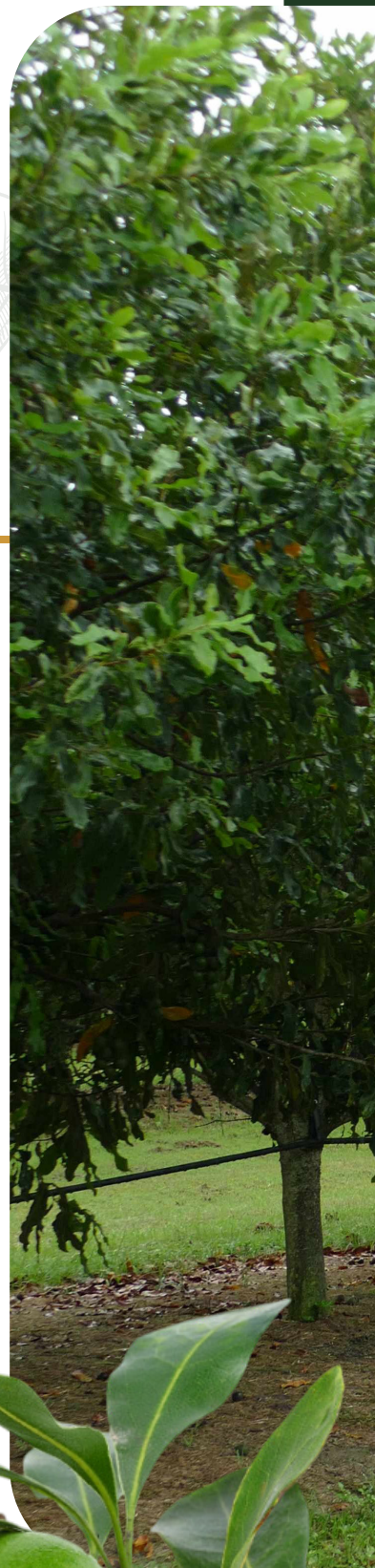


Introduction

This Cultivar Guide has been compiled by SAMAC (Macadamias South Africa NPC) to support growers, nurseries, and researchers in making informed decisions about cultivar selection and management. It brings together consolidated information from multiple sources, including industry reports, research findings, grower feedback, and technical field observations collected from trial sites and commercial orchards across diverse production regions.

The purpose of this guide is to provide a general overview of cultivar characteristics, such as growth habits, yield trends, and suitability to specific climatic or management conditions. While every effort has been made to ensure the accuracy and reliability of the information presented, performance outcomes can vary depending on a range of factors — including site-specific conditions, tree age, management practices, and environmental influences.

SAMAC encourages users to use this guide as a reference tool, rather than a definitive prescription. Ongoing research and industry collaboration continue to refine our collective understanding of macadamia cultivar performance, and this document will evolve accordingly as new insights become available.





Disclaimer

- *Varies based on management, environment and age.
 - **Leaf length:** Short <10 cm; Medium 15 cm — 20 cm; Long >20 cm.
 - **Leaf width:** Narrow <4 cm; Medium 4 cm — 5 cm; Wide >5 cm.
 - Leaf width varies with environment and tree age.
 - **The information provided on this pamphlet is based on consolidated information from research outcomes and does not constitute technical advice.**
- **Arrow bullet** = On-farm observations and experience.



References

1. Allan, P. (2006). Revised illustrated guide to identification of macadamia cultivars in South Africa. University of KwaZulu-Natal, Horticultural Science.
2. De Villiers, E A. The cultivation of macadamias. (2003). Page 23-37
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3. Vock, N. T., Bell, D., Gallagher, E., Bryen, L., McConachie, I., Firth, D., O'Hare, P., Jones, K., & Stephenson, R. (1998). Macadamia variety identifier (Agrilink Series No. 3; ISSN 1328-0457). Queensland Horticulture Institute, Department of Primary Industries, Queensland, in conjunction with NSW Agriculture and Australian Macadamia Society Ltd.
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* Twiddy, D., & Fourie, G. (2023). Final Project Report: Characterisation of macadamia nut diseases in South Africa.

† Jami, F., Bhiya, T., Botha, W., & Morey, L. (2024). Final Project Report: Identification of dieback causal agents on macadamia.

^ Twiddy, D., Fourie, G., de Beer, W., & Fell, S. (2019). Final Project Report: First report and screening for tolerance against PSHB-associated *Fusarium euwallaceae* in macadamia in South Africa.

◇ Penter, M., Nkwana, E., Ratlapane, I., Nxundu, Y., & Allsopp, M. (Ongoing). Selection and evaluation of new cultivars for the South African macadamia industry.

Δ Weldon, C., Sole, C., & Bekker, G. (2025). *Diversity, agroecology and management of thrips (Thysanoptera) in the Levubu region of Limpopo province, South Africa.*

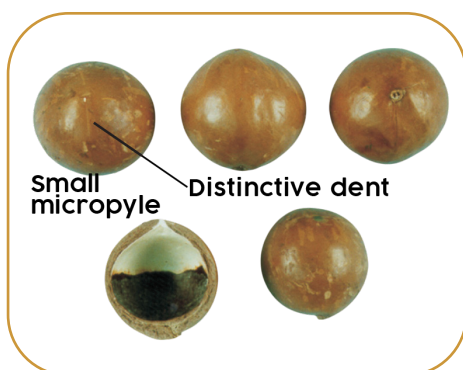
Characteristics	Details
Species	<i>M. integrofolia</i> x <i>M. tetraphylla</i> hybrid
DNA Fingerprint Consensus ⁴	Consensus
Tree Canopy	Open canopy
Tree Shape	Spreading to rounded
Size	Medium
Leaf Shape	Narrow; pointed tip; many spines; slightly wavy margin; long petiole; medium sized.
Precocity	Very precocious
Nut Drop	Mid-season
Bearing Age	3 - 5 years
Flowers and flowering period	Whitish-yellow flowers; late, short flowering; prone to a 2 nd flowering
Other characteristics ¹	Very large kernels of good appearance from ellipsoid slightly uneven shells with pronounced specks. There is a small micropyle and a distinctive dent. Smooth dark husk.

	Requirements
Climate	Cooler climates
Special Notes	Suitable for high density planting, alternate bearing, husk sticks to shells if not dry.
Pruning	Needs limb removal every 3–4 years once mature to avoid unproductive centres. Pruning stimulates vigour.

Pest and Diseases Susceptibility ranking (high to low)
Husk rot (<i>Diaporthe</i> spp.): 695 (Beaumont) > Nelmak 2 > A4*
Husk rot (<i>Colletotrichum</i> spp.): 695 (Beaumont) + Nelmak 2 > A4*
Dieback (<i>Lasiodiplodia theobromae</i>): 695 > Nelmak 2/ A4 †
Dieback/PSHB (<i>Fusarium euwallaceae</i> / <i>Euwallaceae fornicatus</i>): 741 > 791 > 695/ 816 > 788/ 800 /A16 > A4 > 344^
Thrips: 816 > 814 > A4 > 695^

Region	TKR (%)	Whole Kernel (%)
LIM	40,39	41,64
KZN	44,64	50,50
MPU	40,43	55,20

The TKR data was collected from 4 processors and represents 72.3 % of the South African macadamia crop between 2022 to 2025.



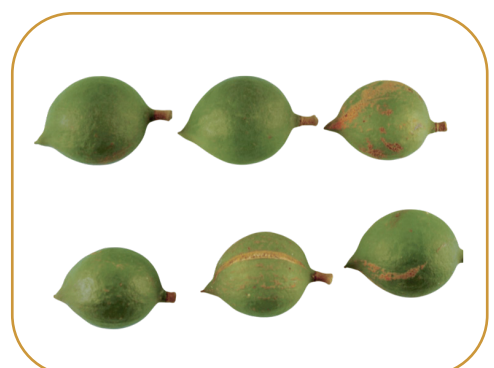
Characteristics	Details
Species	<i>M. integrifolia</i> x <i>M. tetraphylla</i> hybrid
DNA Fingerprint Consensus ⁴	Consensus
Tree Canopy	Moderate to dense canopy, which can become quite tangled. Branches become quite brittle once hardened. Spreading branches often leads to severe breakages.
Tree Shape	Upright slow grower
Size	Small
Leaf Shape	Short; wide; slightly pointed; moderate to many spines; medium petiole.
Precocity	Non-precocious
Nut Drop	Mid to late season → A16 ripens early (as observed: March–April in Limpopo and Mpumalanga).
Bearing Age	3 - 5 years
Flowers and flowering period	Cream flowers (white to yellow); late, condensed from medium inflorescence.
Other characteristics ¹	Large kernels of good appearance. Ellipsoid shaped seed smooth with specks. Fairly smooth husk.

	Requirements
Climate	Cooler climates
Special Notes	Prone to stick tights, alternate bearing. When harvested by shaking, nuts often leak at bruised spots. Sensitive to stem wounds.
Pruning	Benefits from periodic limb removal to open up the canopy center.

Pest and Diseases Susceptibility ranking (high to low)
Dieback/PSHB (<i>Fusarium euwallaceae</i> / <i>Euwallaceae fornicatus</i>): 741 > 791 > 695/ 816 > 788/ 800/ A16 > A4 > 344^
Root rot (<i>Phytophthora cinnamomi</i> .): A16 / 695 > H2 > Nelmak 2
→ Very sensitive to coccid and thrips.

Region	TKR (%)	Whole Kernel (%)
LIM	34,88	57,21
KZN	39,78	56,00
MPU	35,94	46,46

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Nelmak 2

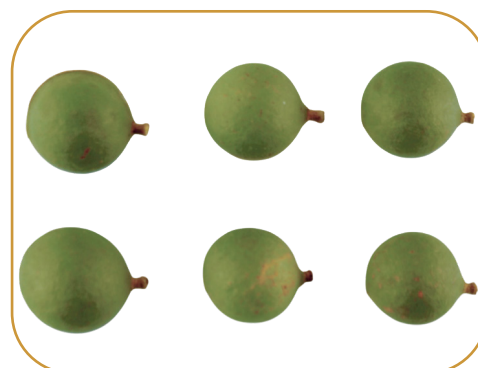
Characteristics	Details
Species	<i>M. tetraphylla</i>
DNA Fingerprint Consensus ⁴	Consensus
Tree Canopy	Open canopy
Tree Shape	Spreading
Size	Large
Leaf Shape	Spiny wavy margin, acute tip, medium petiole and 3 to 4 leaves per node, conspicuous secondary veins and light green young leaves.
Precocity	Fairly precocious but prone to alternate bearing.
Nut Drop	Early season
Bearing Age	4 years
Flowers and flowering period	White flowers; long inflorescence. Early or late flowering is common.
Other characteristics ¹	Very large kernels of good appearance. Oblate rough seed with long specks present. Flat round nut. - Nuts may crack on the tree if left hanging too long. - Leaves can turn yellow when major changes occur suddenly (e.g., heavy pruning, switching from dryland to irrigation) – proceed with caution. - Trees may overreact vegetatively after severe pruning.

	Requirements
Climate	Cooler climates, >100 m asl Sensitive to drought and temperature changes, with notable quality loss at higher altitudes.
Special Notes	Suited to high-density planting, early nut drop
Pruning	Easy to prune

Pest and Diseases Susceptibility ranking (high to low)
Husk rot (<i>Diaporthe</i> spp.): 695 (Beaumont) > Nelmak 2 > A4*
Husk rot (<i>Colletotrichum</i> spp.): 695 (Beaumont) + Nelmak 2 > A4*
Dieback (<i>Lasiodiplodia theobromae</i>): 695 > Nelmak 2/ A4 †
Root rot (<i>Phytophthora cinnamomi</i>): A16/ 695 > H2 > Nelmak 2 °

Region	TKR (%)	Whole Kernel (%)
LIM	34,11	26,27
KZN	36,98	37,60
MPU	34,54	35,59

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695 (Beaumont)

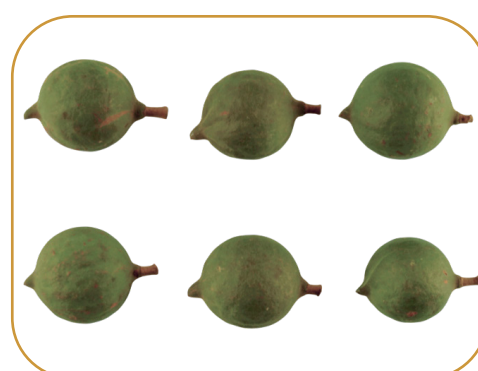
Characteristics	Details
Species	<i>M. integrifolia</i> x <i>M. tetraphylla</i> hybrid
DNA Fingerprint Consensus ⁴	Consensus
Tree Canopy	Very dense canopy
Tree Shape	Spreading (tree can be easily trained)
Size	Medium to large, grows vigorously
Leaf Shape	Long narrow leaves with many spines, a wavy margin and acute tip and medium petiole.
Precocity	Precocious
Nut Drop	Late-season
Bearing Age	3 years
Flowers and flowering period	Pink flowers; medium length inflorescence; late flowering (end of September).
Other characteristics ¹	Rough dark husk and high yields. Medium sized and cream colour often has a darker base.

	Requirements
Climate	Cool climates, > 100m asl (above sea level), drought tolerant.
Special Notes	Harvest with ethephon; suitable for close planting; popular as rootstock; high-yielding; higher water requirement than other cultivars; suffers in drought conditions; intolerant to salt spray; wind-tolerant.
Pruning	Requires pruning but can easily be trained.

Pest and Diseases Susceptibility ranking (high to low)
Husk rot (<i>Diaporthe</i> spp.): 695 > Nelmak 2 > A4*
Husk rot (<i>Colletotrichum</i> spp.): 695 + Nelmak 2 > A4*
Dieback (<i>Lasiodiplodia theobromae</i>): 695 > Nelmak 2/ A4*
Dieback/PSHB (<i>Fusarium euwallaceae</i> / <i>Euwallaceae fornicatus</i>): 741 > 791 > 695 / 816 > 788/ 800 /A16 > A4 > 344*
Root rot (<i>Phytophthora cinnamomi</i>): A16/ 695 > H2 > Nelmak 2*
Thrips: 816 > 814 > A4 > 695 ^a
Flower blight (<i>Neopestalotiopsis macadamiae</i>): 788 > 695

Region	TKR (%)	Whole Kernel (%)
LIM	31,33	23,95
KZN	35,44	30,12
MPU	32,23	24,02

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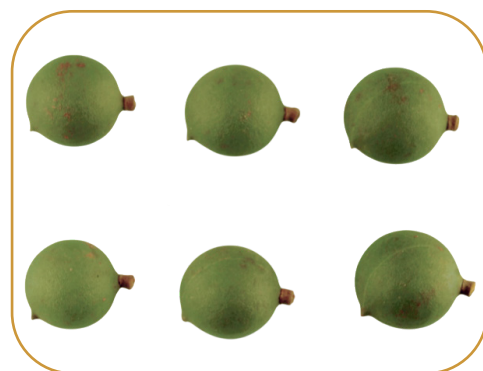
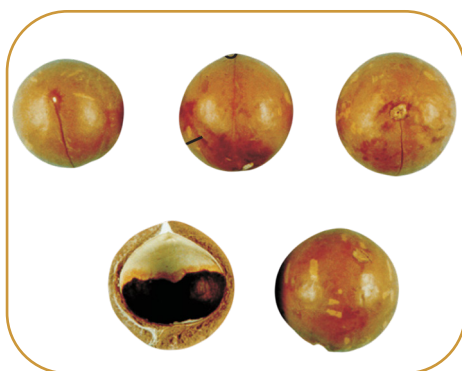
Characteristics	Details
Species	<i>Macadamia integrifolia</i>
DNA Fingerprint Consensus ⁴	Consensus
Tree Canopy	Open canopy
Tree Shape	Upright
Size	Small
Leaf Shape	Long; wide; moderately acute to rounded tip; few spines; long petiole.
Precocity	Precocious
Nut Drop	Early season
Bearing Age	5 years
Flowers and flowering period	Late, short periods, medium length inflorescence with white flowers.
Other characteristics ¹	Small nuts that are smooth and round with specks on the shells. Drops old leaves easily, often leaving trees quite bare.

	Requirements
Climate	Windburn susceptible, tolerant of higher altitudes and temperatures.
Special Notes	Requires irrigation and additional nitrogen Windburn susceptible. Sensitive to potassium-magnesium balance; often shows magnesium deficiency.
Pruning	Requires good pruning when young to avoid long bare branches.

Pest and Diseases Susceptibility ranking (high to low)
Thrips: 816 > 814 > A4 > 695 ^a
Sensitive to coccids and highly sensitive to thrips on flowers.

Region	TKR (%)	Whole Kernel (%)
LIM	34,89	43,29
KZN	35,29	51,50
MPU	35,74	48,70

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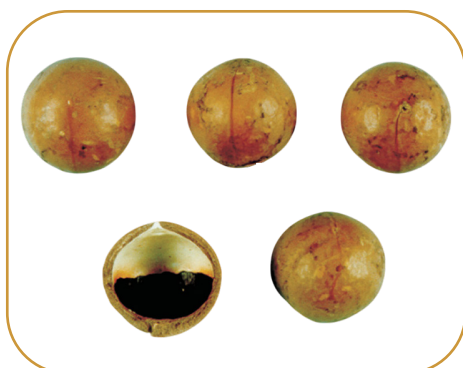
Characteristics	Details
Species	<i>Macadamia integrifolia</i>
DNA Fingerprint Consensus ⁴	Consensus
Tree Canopy	Moderately dense
Tree Shape	Moderately upright
Size	Medium to large
Leaf Shape	Broad; rounded tips; few spines; long petiole; short to medium sized.
Precocity	Non-precocious
Nut Drop	Early to mid-season, extended
Bearing Age	4 – 6 years
Flowers and flowering period	White flowers; late and light flowering
Other characteristics ¹	Excellent kernel appearance. Round smooth nuts with a suture line and specks on the shell. Light green mature leaves. • Harvests early. • Inconsistent performer. • Observed to have a lower yield potential in the industry.

	Requirements
Climate	Requires well drained soils, sensitive to adverse weather.
Special Notes	Stick tights (15-20%). A great early performer that tends to decline through disease later in its life.
Pruning	Needs pruning to control size and avoid unproductive centres.

Pest and Diseases
Susceptibility ranking (high to low)
Dieback/PSHB (<i>Fusarium euwallaceae</i> / <i>Euwallaceae fornicatus</i>): 741 > 791 > 695/ 816 > 788/ 800/ A16 > A4 > 344 ^Δ
Thrips: 816 > 814 > A4 > 695 ^Δ

Region	TKR (%)	Whole Kernel (%)
LIM	40,66	31,40
KZN	43,16	70,84
MPU	41,24	54,27

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MCT-1

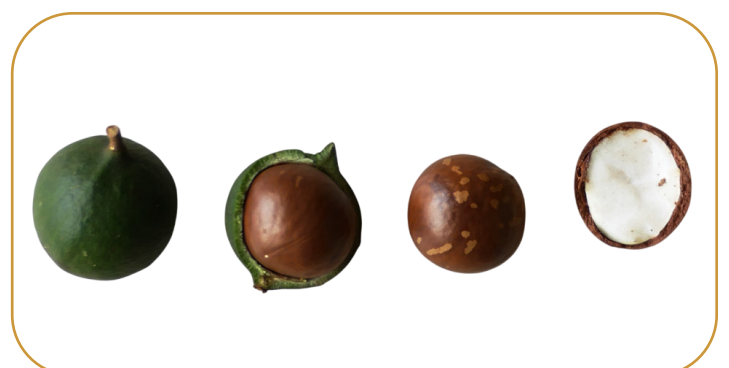
Characteristics	Details
Species	<i>Macadamia integrifolia</i>
DNA Fingerprint Consensus ⁴	Consensus
Tree Canopy	Open canopy
Tree Shape	Slightly spreading
Size	Small to medium
Leaf Shape	Spiny wavy margin, acute tip, with conspicuous secondary veins.
Precocity	Very precocious
Nut Drop	Mid to late season
Bearing Age	2 - 3 years
Flowers and flowering period	Cream-white flowers. Mid to late season; can flower out of season.
Other characteristics ¹	High-yielding with good canopy efficiency; moderately susceptible to some wind damage due to branch length- requires staking or supports. Performance in hotter, drier seasons is good due to large kernels and high TKR%.

	Requirements
Climate	Due to high crop loads, higher inputs are required. Irrigation is recommended in areas where rainfall is limited or unreliable.
Special Notes	New cultivar managed by TopNut in South Africa.
Pruning	Requires regular pruning.

Pest and Diseases Susceptibility ranking (high to low)	
Susceptible	Leaf diseases e.g. yellow halo leaf blight.
Tolerant	Husk rot

Region	TKR (%)	Whole Kernel (%)
LIM	34 %	29 %
KZN	43 %	50-60 %
MPU	-	-

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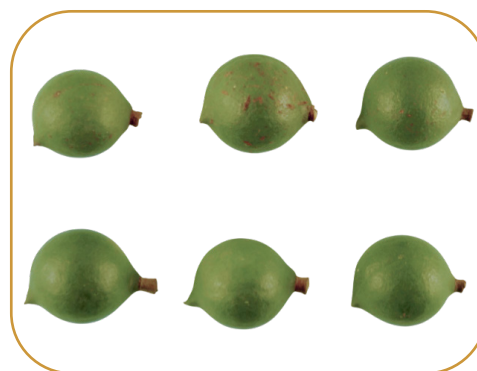
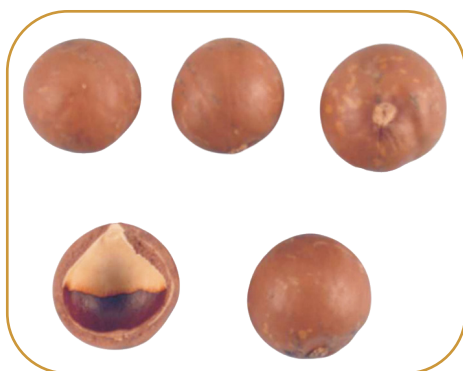
Characteristics	Details
Species	<i>Macadamia integrifolia</i>
DNA Fingerprint Consensus ⁴	Consensus
Tree Canopy	Open, becomes denser with age
Tree Shape	Moderately upright to spreading
Size	Medium to large
Leaf Shape	Long; wide; rounded tip; basal spines; long petiole, smooth and wavy.
Precocity	Precocious
Nut Drop	Early to mid-season
Bearing Age	4 – 5 years
Flowers and flowering period	Flowers intensely with medium length inflorescence and white flowers.
Other characteristics ¹	Good kernel appearance, large hilum, some specks and oblique depression.

	Requirements
Climate	Tolerates heat, suitable for multiple regions.
Special Notes	Nuts concentrated in middle of tree; hardy; grows well in a range of soil types; suited to warm areas; very susceptible to wind damage. The kernel is beige-brown (some growers harvest separately from whiter kernel cultivars). Magnesium deficiency is common.
Pruning	Responds well to different canopy management strategies as trees age.

Pest and Diseases Susceptibility ranking (high to low)	
Susceptible	Husk rot, root rot
Tolerant	Heat tolerant

Region	TKR (%)	Whole Kernel (%)
LIM	35,30	46,38
KZN	38,35	64,80
MPU	34,61	53,28

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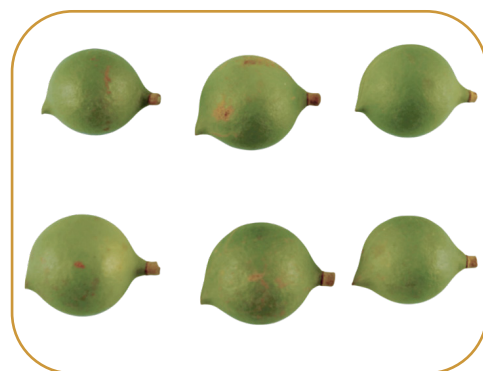
Characteristics	Details
Species	<i>Macadamia integrifolia</i>
DNA Fingerprint Consensus⁴	Consensus
Tree Canopy	Moderately dense
Tree Shape	Spreading
Size	Medium to large
Leaf Shape	Wide; club-shaped; rounded tip; long; moderate spines.
Precocity	Precocious
Nut Drop	Mid- to late season, extended
Bearing Age	4 – 5 years
Flowers and flowering period	Late season, light, short on a medium inflorescence, up to two flowering periods during July and August. White to yellow in colour.
Other characteristics¹	Good kernel appearance, pale specks and small distinct micropyle.

	Requirements
Climate	-
Special Notes	A consistent producer that continues to perform when older. It is prone to wind damage. The kernel can be affected by internal discolouration in rings.
Pruning	Does well with limb removal to keep the centre productive.

Pest and Diseases Susceptibility ranking (high to low)	
Susceptible	Root rot, dieback, husk rot and flower blights
Tolerant	-

Region	TKR (%)	Whole Kernel (%)
LIM	34,09	30,80
KZN	37,74	65,10
MPU	40,37	50,20

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Characteristics	Details
Species	<i>M. integrifolia x M. tetraphylla hybrid</i>
DNA Fingerprint Consensus⁴	Consensus
Tree Canopy	An open canopy which can become quite dense.
Tree Shape	Spreading
Size	Medium to large
Leaf Shape	Wide; long; pointed tip; many spines; short petiole.
Precocity	Precocious
Nut Drop	Mid- to late season
Bearing Age	2 years
Flowers and flowering period	Whiteish flowers; mid-season, short flowering.
Other characteristics¹	Originated in Australia

	Requirements
Climate	-
Special Notes	Low risk of sticktights but high germination risk, nuts are prone to quality loss if left on the ground for any time.
Pruning	-

Pest and Diseases Susceptibility ranking (high to low)	
Susceptible	-
Tolerant	Its thick shell plus husk (>10 mm) might reduce fruit spotting bug damage. Slightly tolerant to huskspot susceptibility.

Region	TKR (%)	Whole Kernel (%)
LIM	-	-
KZN	31,39	62,41
MPU	35,02	48,25

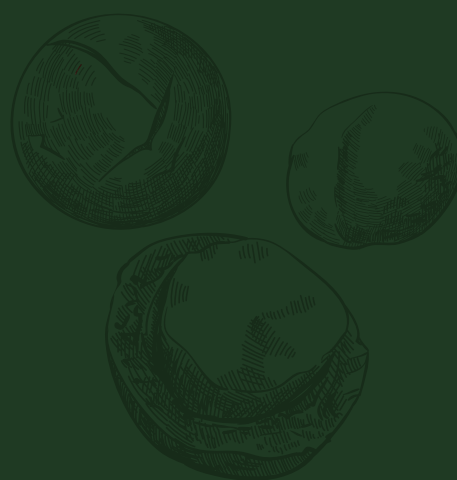
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