



MACADAMIA NUT

Welcome to the Detailed Presentation on
Macadamia Nut Lifecycle

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BOTANY OF MACADAMIA NUT

MACADAMIA TREE :

- Macadamia nut is a large spreading evergreen tree that grows to between 10 and 15 m .



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Leaves are linear- obovate, 4-6" long, sparsely dentate with sharp teeth, and thick; gives the overall impression of a large holly leaf



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INFLORESCENCE

- The inflorescence is a pendent raceme with 250-300 flowers.



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MACADAMIA NUT CLUSTER



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MACADAMIA FRUIT

- The fruit has very hard seed coat that is enclosed in green fibrous husk that splits open when the nut matures.



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- Two species cultivated for their nuts:

1. *Macadamia integrifolia*

2. *Macadamia tetraphylla*



- Native to the east coast of Australia, from rain forest-like climates



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- *Macadamia integrifolia* Commonly known as the Queensland nut or Australian nut integrifolia, from the Latin integer = whole, and folia = leaf



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Plant part	<i>Macadamia integrifolia</i>	<i>Macadamia tetraphylla</i>
Leaves	-3 leaves per node, colour of young leaves light green -leaves are 8-11 inches and have few spines 	-3 or 4 leaves per node -colour of young shoots is reddish/pink or green -leaves are 20 inches long 
Flowers	-creamy white borne in clusters 6-12 inches long 	-cream or pink borne in clusters up to 15 inches long 

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Fruit	seed coat is smooth	rough and pebbled seed coat
		
Kernels	80% oil; 4% sugar	65-75% oil; 6-8% sugar

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Scale: 10 x 10 mm

M. janseni



M. ternifolia



M. integrifolia



M. tetraphylla



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VARIETIES

Clones of *M.integrifolia*



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Macadamia integrifolia(MRG-20)



Macadamia integrifolia (MRG-20)



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Macadamia integrifolia(MRG-25)



Macadamia integrifolia (MRG-25) upcoming variety for the main coffee zone



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KRG -15



Macadamia integrifolia (KRG-15) (Source: Lucy Gitonga)

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KRG-3



Macadamia integrifolia (KRG-3)

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Climate

- It can be grown at an elevation of 1500-3500 feet MSL.
- Temperature ranges from 15-45 degree Celsius is ideal for plant growth
- At low temperature vegetative growth is seized and if the temp drops below 1.5 degree Celsius , the trees are killed by frost.
- Avoid planting in shady areas.



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Fig. 10. Macadamia nut seed-nuts ready for planting

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Step 1: soak seed in wet sand for one month



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Step 2: after one month seed will turn
into seedling



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Step 3: sow the seedling into soil



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Step 4: after four month seedling turns
into sapling



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Step 5: clear location to plant the sapling



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Step 6: This is one year old plant



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Step 7: This is macadamia tree with flower



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Step 8: This is 8-year old tree



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Cultivation

- Trees begin bearing in 4-5 years, and have productive lives of 75-100 yr
- Trees require spacing of 14 X 14 ft in the tropics to prevent crowding



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Pollination

- The pollen is compatible and can thus fertilise the ovules of same flower.
- But , pollen matures several days earlier than the time stigma is receptive , thus cross pollination is essential.
- Pollination is mostly carried out by insects and after the process , it takes 6 to 8 weeks for nuts to develop.
- Concentration of honeybee colonies during flowering would alleviate problem of poor fruit setting.



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Fig. 40. Macadamia nut racemes before, after pollination and nut set.

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Training and pruning

- The purpose of training is to develop strong and well – balanced low branching trees with only one trunk i.e. Central leader system.
- The trees must be trained within three years of transplanting.
- Macadamia requires little pruning which involves removing broken , split or dead branches.



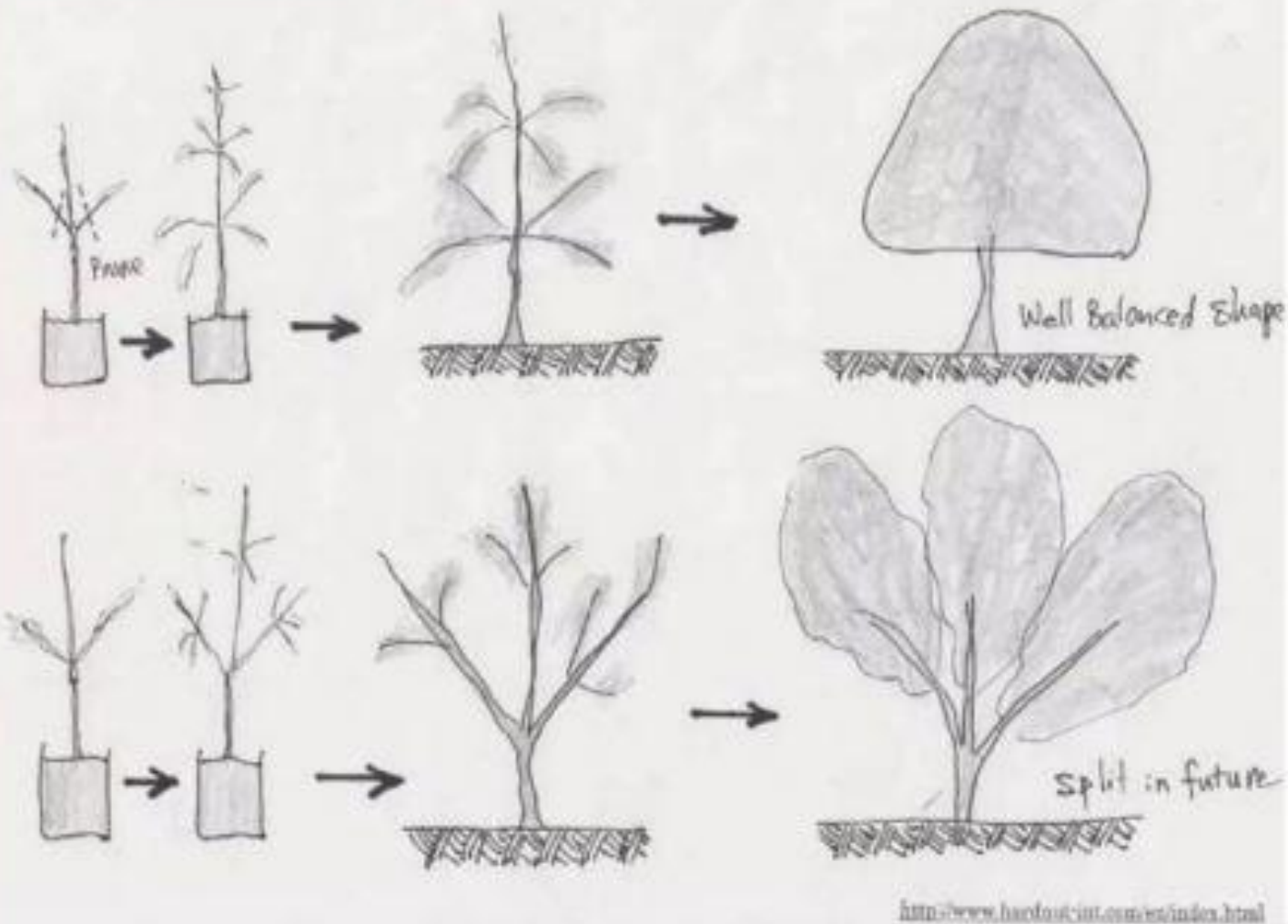
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Harvesting

Nuts harvested 7-8 months later (Jul-Nov). although some nuts mature more-or-less year round.

Nuts are round, with kernels enclosed in hard shells, with shelling percentages of 40%.

- The yield ranges from 3-5kg of nuts for first harvest after 3 years .and 75-100 kg of nuts after 15 years.



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Post harvest handling

- **DEHUSKING** : It is the removal of the green cover of nuts which is usually slightly open when nuts drop.
- It should be done within 2 days after harvesting.



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- **DRYING:** In-shell nuts can be air-dried in a shade as direct sun causes nuts shells to crack.

- The nuts should be dried to moisture level of 2%

- **STORAGE :** Dried nuts should be stored in a cool dry place free from odours as nut picks up smells from surroundings.



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Use baskets to harvest nuts



Simple method of dehusking is sack



Gently "pound" the with a stick



Pour out the nuts and sort husks from nuts



Macadamia nut husks can be dried and used as fuel for cooking



Macadamia nut after dehusking are "wet"



Sort out the nuts removing all damaged nuts



Place nuts into proper storage trays or bags that allow ease of air flow. They should be no more than 15 cm deep



Poor aeration as a result of improper storage results in rapid molding

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Immature macadamia nuts



Mould infested macadamia nuts



Insect damaged macadamia nuts



Good quality macadamia nuts

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