

HWE 103
INDUSTRIAL ATTACHMENT COMPONENT OF
HORTICULTURE WORK EXPERIENCE

GOVERNMENT NURSERY
KALADHUNGI
NAINITAL

PRESENTED TO :
ER. TEJAS A. BHOSALE

PRESENTED BY :
JYOTI KANWAL
13001

INDUSTRIAL ATTACHMENT

- ▶ Duration – 24th Dec 2016 to 24th Jan 2017.
- ▶ Place – Government Nursery, Kaladhungi, Nainital.
- ▶ This nursery is a two star nursery approved by National Horticulture Board.
- ▶ It is under the District Horticulture Officer of Nainital, currently Dr. Rameshwar Singh.
- ▶ The nursery is spread over an area of 14 acres.



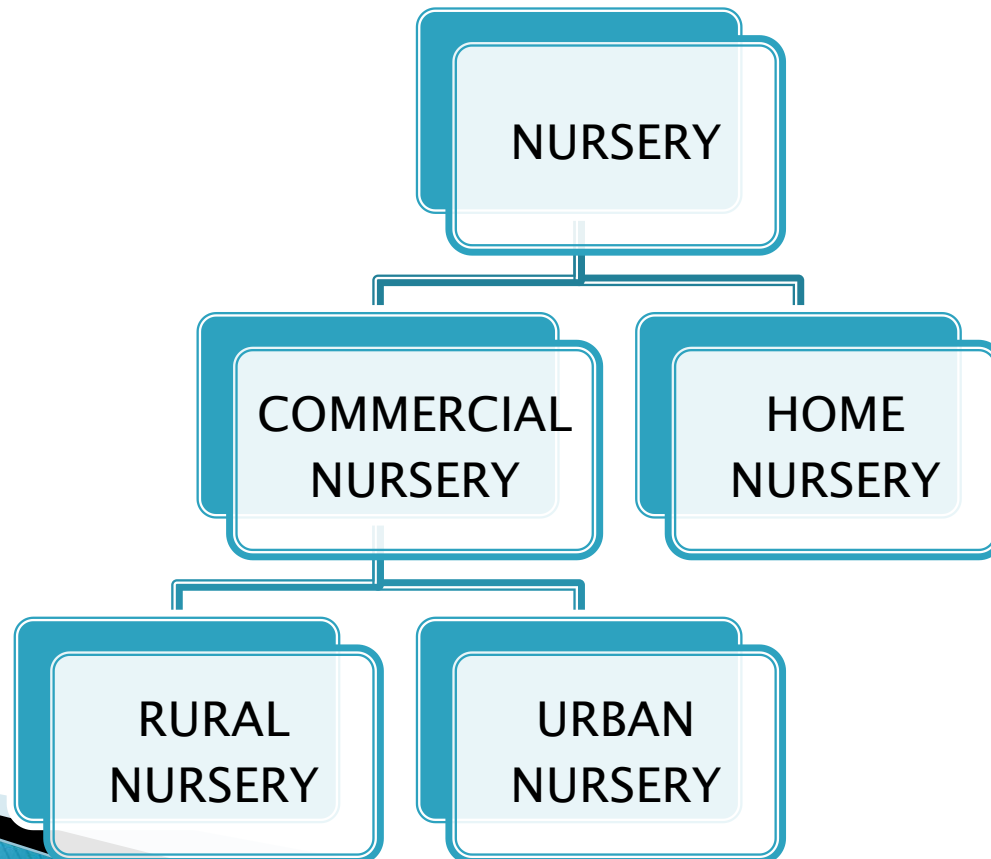
MAIN GATE OF
THE NURSERY

VIEW OF NURSERY
FROM THE ENTRANCE



WHAT IS A NURSERY?

- ▶ A place where seedling, sapling or any other planting materials are raised and sold out for transplanting in gardens and orchards.



PLANT GROWING STRUCTURES

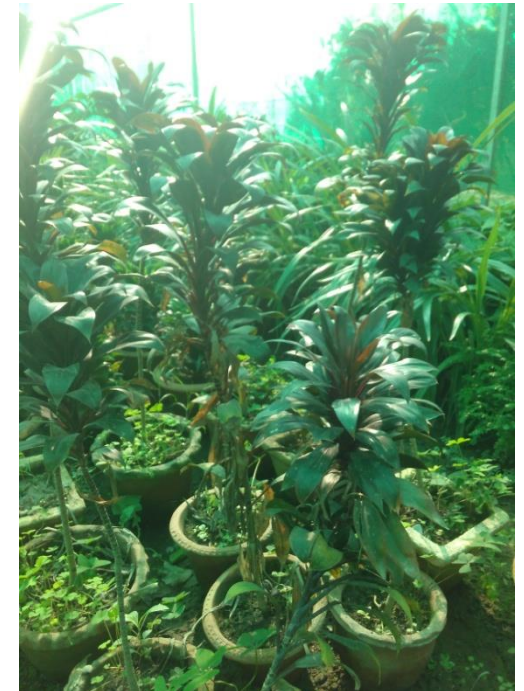
NET HOUSE :

- ▶ It resembles a green house where the roof as well as sides are made of wire nets fixed on iron or wooden frame.
- ▶ A net house is used for growing shade loving plants and also for raising seedlings.
- ▶ The inside atmosphere remain cool in summer and warm during winter.



NET HOUSE

PLANTS INSIDE
NET HOUSE



PROPAGATION METHODS

CUTTING :

- ▶ Softwood cutting is done in *Duranta*.
- ▶ The shoots of 2–3 months age are selected for softwood cutting.
- ▶ The length of cutting is kept to 10–15 cm.
- ▶ A slant cut is given to the upper portion of the cutting to check water stagnation which may cause fungal growth.
- ▶ 5–6 buds are retained on each cutting.
- ▶ The cutting is planted up to the height of 3 buds in the soil.



CUTTING DEMONSTRATION

AIR LAYERING :

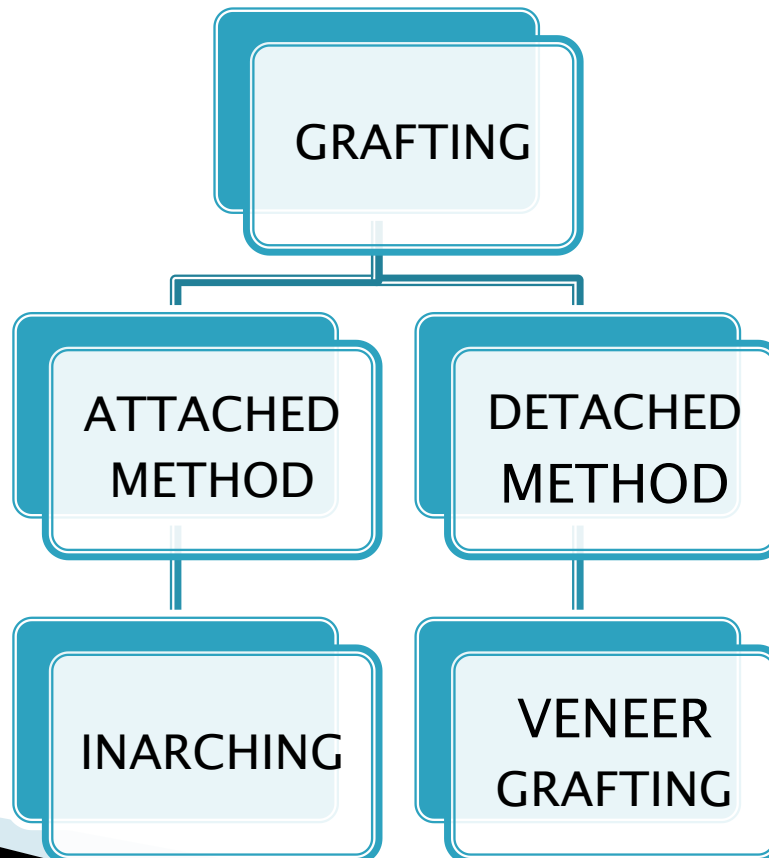
- ▶ This method is also known as Chinese layerage, pot layerage, circumportion, marcottage or gootee.
- ▶ It is commonly done in guava, litchi, sapota, etc.
- ▶ One or two year old shoots having pencil thickness are selected for air layering. Fully mature shoots should be avoided as they do not strike roots freely.
- ▶ Basal leaves of selected shoots are removed. The bark at the base is stripped off in the form of a ring to check the downward translocation of the food material from the leaves. The cambium layer is scrapped off from the exposed part without causing any injury to the wood, to prevent from healing.
- ▶ A ball of Sphagnum moss or moist soil is placed around the girdled section and wrapped carefully with transparent polythene sheet (200–300 gauze). The two end of sheet is then twisted and tied tightly.
- ▶ Ideal time is Feb–Mar and Jun–Jul.



AIR LAYERING PROCEDURE

GRAFTING :

- ▶ It is the process and operation of inserting a part of plant onto another plant in such a manner that they unite and continue their growth as one unit.
- ▶ It aims at cambial union of scion and root stock.
- ▶ The scion twig has always more than two buds on it in this method.



INARCHING :

- ▶ It is also called simple approach grafting.
- ▶ This method is commonly followed in guava, mango, sapota.
- ▶ For inarching operation, the stock is brought close to scion. A thin slice of bark about 6–8 cm long and about 8 mm in thickness at a height of about 20 cm above the ground level is removed with a sharp knife from the stock.
- ▶ A similar cut is made in scion. Thus the cambium layer of both stock and scion are exposed. These cuts are brought together and tied firmly with the help of polythene strip.
- ▶ Best time is last week of Jul or first week of Aug.



INARCHING PROCEDURE
www.anilrana13014.weebly.com

VENEER GRAFTING :

- ▶ For veneer grafting, 3–6 months old scion shoots with lush green leaves are selected. The terminal and next to terminal shoots are most ideal.
- ▶ The shoots are defoliated 5–10 days prior to grafting leaving the petiole attached. Prior defoliation may not be required under humid conditions.
- ▶ The root stock is prepared for veneer grafting by making slanting cut. An oblique cut is then made at the base of the first cut so that a piece of wood along with bark is removed.
- ▶ The base of scion wood is then fitted into the root stock in such a manner that the cut surfaces, including cambium layer of scion and root stock are facing each other.
- ▶ The root stock and scion are tied together with a polythene tape. When scion growth begins, the shoot of root stock is removed above the graft union.
- ▶ Jul–Sep is ideal time for veneer grafting.



T-BUDDING :

- ▶ This is also called shield budding.
- ▶ This type of budding is quick and common. The success with this type of budding is normally over 90%.
- ▶ This is commonly practised in aonla.
- ▶ In this method, boat shaped bud of 2.5–3.0 cm length is used for budding.
- ▶ If the bud is inserted by making vertical incision on root stock, it is termed as shield budding. If T-shaped incision is made to insert bud on root stock, it is termed as T-budding.



VARIETIES USED AS SCION

▶ SUBTROPICAL FRUITS :

FRUIT	VARIETIES
MANGO	Langra, Dasherri, Amrapali, Bombay Green
LITCHI	Rose Scented, Kalkatia, Early Large Red
GUAVA	Allahabad Safeda, Chittidar
AONLA	Chakaiya, Kanchan, Banarasi
GRAPES	Bedana, Parlet
POMEGRANATE	Kandhari, Tolka
PEACH	Early Alberta, Alexander, Florida king

SEEDLING PRODUCTION WORK

▶ SUBTROPICAL FRUITS :

CROP	MANGO	GUAVA	AONLA
NO. OF SEEDS PER KG	30	40,000	10,000
GERMINATION %	40	10	50
GERMINATED SEEDLINGS	12	4,000	5,000
SURVIVAL % AFTER GERMINATION	90	90	90
SURVIVED SEEDLINGS	11	3,600	4,500
% OF PLANTS AVAILABLE FOR ARTIFICIAL PROPAGATION	70	60	50
AVAILABLE PLANTS	8	2,160	2,250
SUCCESS %	50	50	50
SUCCESSFUL PLANTS	4	1,080	1,125

क्र.सं.	प्रजाति	₹.	₹.
1	आम कलमी (सामान्य प्रजातियां)	35	00
2	आम कलमी (बैनी/रंगीन प्रजातियां)	40	00
3	लीची (गूटी)	35	00
4	अमरूट कलमी	25	00
5	आंवला कलमी	25	00
6	चीकू (सपोटा)	20	00
7	यूरेका लैमन (नीबू प्रजाति कलमी)	15	00
8	अनार	20	00
9	अंगूर	20	00
10	नीबू प्रजाति बीजू	10	00
11	कटहल बीजू	10	00
12	पपीता (सामान्य)	10	00
13	पपीता (संकर प्रजाति)	20	00

**COST OF PLANTING MATERIALS AVAILABLE
IN THE NURSERY**

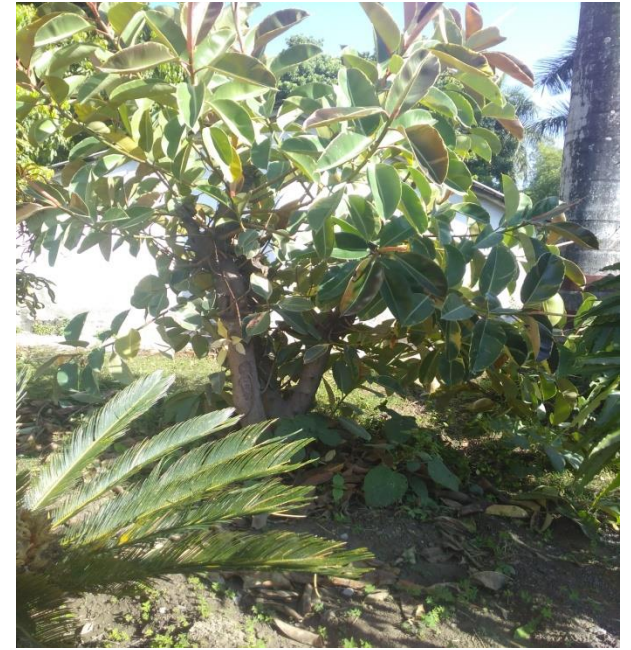


MANGO ORCHARD





SAPOTA



RUBBER



CYCAS



ONION SEEDLINGS READY FOR TRANSPLANTING





LITCHI GRAFTS



RADISH PLANTS



AONLA GRAFTS



MANGO GRAFTS



INFESTATION OF LITCHI MITES (*Aceria litchi*)

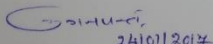
CERTIFICATE OF INDUSTRIAL ATTACHMENT

This is to certify that Km.

Jyoti Kanwal

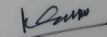
Id no. 13001 reported for Industrial Attachment Component as a part of her BSc Horticulture degree programme on 24th Dec 2016 and completed her attachment of minimum 30 working days in our organization on 24th Jan 2017. She was imparted training in Nursery practices including budding and grafting programme and production procedures in fruit crops.

Her performance during this period was satisfactory.


24/01/2017
Gagan pant

(JRA)

राजकीय पीछालय
कालाढूंगी (वेनीाह)


Dr. Rameshwar singh
Distt. Horticulture Officer
NA(DH.O.)

THANK YOU !



www.k8449r.weebly.com

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