443/3
AGRICULTURE PROJECT
Jan. - July 2025
(Declaration form)

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education

443/3 AGRICULTURE PROJECT REPORT

DECLARATION BY CANDIDATE

This is to certify that this is a true project report of my Agriculture Project and that it contains the details of the operations.

Name of the Candidate	Index No.	Signature
karanja Agnes Ng'endo	11241001184	

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Agriculture Teacher | 19

MARY LEAKEY GIRLS' SCHOOL
DEPUTY PRINCIPAL
24 JUL 2025
ACADEMIC

PROJECT REPORT

KARANJA AGNES NGENDO

'90

GRAFTING OF AVOCADO FRUIT TREES

(Persea Americana)

1124100184

INTRODUCTION

Grafting is a technique of uniting two woody parts of different plants for continous growth as one plant and the scion and the rootstock encouraging them to form one plant.

The rootstock forms the base having a rooting system while the scion is the upper part of the seedling. The scion and the rootstock should be from the same species for compatibility As an agricultural practise, grafting is beneficial as it is known to repair damaged trees, facilitate changing of the top of the tree from being undesirable to desirable, help propagate clones that cannot be propagated in only other way and many others.

IDENTIFICATION OF ISSUE

In the current trend the pressing problem we were able to identify through analysis and survey within the community was that avocado fruit trees (Persea Americana) takes a long time to mature into a fruit bearing adult plant. Through further research, we were able to know that grafted avocado fruit trees takes a shorter time to mature as compared to avocado fruit trees propaged from seed. This is for instance the ungrafted mango trees take 7years to mature while the grafted take 3½ years to mature. Therefore grafting solves our problem by shortening the period of avocado fruits in the community. In addition grafted trees also solve the issue of soil erosion as the main resolve of ~~two~~ lossing soil fertility by holding the soil particles by their roots reducing soil erosion.

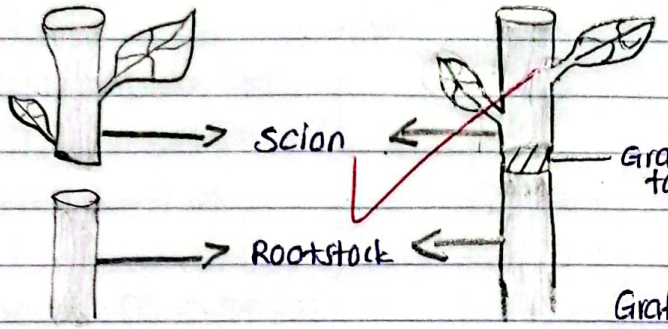
PROJECT OBJECTIVES

To acquire practical knowledge on how to carry out some of the routine management practise such as watering, weeding

To learn how grafting is done
To practically learn the various ~~grafting~~ grafting methods
To learn the precaution observed during grafting
To produce succefully grafted avocado fruit tree seedlings
Grafting of avocado fruit trees mature earlier than those propagated from seeds that why grafting shortens the maturity age to 2.5 years
This solves the problem of soil erosion

PROJECT DESCRIPTION

We started off by selecting the most suitable site where we should conduct our project. We decided to chose the school farm. We also decided to carry out whip ~~tongue~~ grafting since it was the easiest and it involved less risks. We then went into the selection of the scion and rootstock which had to have a similar pencil thick diameter for compatibility. The rootstock was also expected to have no physical deformities or any sign of pest and disease attack. ~~Their~~ This was important to ensure succeful grafting. The scion was expected to be healthy and from the Persea America. Species of avocado. This was to ensure that grafted plant will be high quality. The materials required for grafting were a sterilised scapel, rootstock, scion, disinfectant, watering cans, secateurs and a shade net. Each group was allocated 20 pairs of rootstocks and scions and a piece of land measuring about 1 m by 1m. As a group, each group member grafted three avocado fruit trees seedlings by making a vertical cut on the rootstock and fitting a wedge shaped scions on the cut made. To ensure compatibility, we used grafting tape which we tied round to articulating pars. We ensured the tie was tight in order to prevent moisture and secondary infection the graft.



Grafted avocado fruit tree seedling (whip grafting)

BUDGET

The budget plain prepared was as follows

Material	Quantity	unit cost	Total cost
Scapel	5	10	50
Watering can	1	400	400
Grafting tape	20	20	400
Root stock	20	100	2000
Scion	20	10	200
Steriliser	10ml	100	100
Shed net	5m x 10m	3000	3000
Rake	1	350	500
Trainer	1	1000	1000
		TOTAL COST	8200/=

PROJECT IMPLEMENTATION PLAN AND TIMELINE

ACTIVITY	January	February	March	April	May	June	July
INSTRUCTIONS OF THE PROJECT ISSUERANCE							
IDENTIFICATION OF THE ISSUE							
INDIVIDUAL PRESENTATION OF THE PROJECT							
PREPARATION OF BUDGET PLAN							
GROUP PRESENTATION OF THE PROJECT							
SITE SELECTION							
ARRIVAL OF AVOCADO FIRST TREE SEEDLINGS							
PREPARATION OF NURSERY PLOTS							
TRAINING SESSION WITH GRAFTING EXPERT							
FORTNIGHT REPORT							
EVALUATION OF THE PROJECT							
WATERING AND INSPECTION							
REPORT WRITING							

PROJECT IMPLEMENTATION AND PROCEDURE

Training session

This was done by a grafting expert (an external trainer) sourced by the school from an agricultural research centre.

Assembling tools

The necessary equipment that were needed for grafting were sourced from available source to prevent transmission of ~~detirable~~ disease e.g the rootstock and the scion.

Selection of site for planting

The requirement for the site grafting was that it was to be a well shaded place, slightly sloping and well secured area. The site had to also be near a water source that will ensure easy watering of the seedlings. We chose section of the school farm that suited all the requirements perfectly. The nursery plots were established and a shade net erected over the seedlings to protect the from drying up due to dehydration.

Performing grafts

We did the actual grafting in groups of five members per group. Each member grafted three avocado fruit trees taking guidance from the external trainer and the teachers as one of us took a short video of the activity.

Monituring growth progress (Post operation)

We conducted daily inspections as group members. We had formed a schedule to ensure that seedlings were well monitored and checked on everyday. This was to ensure good results

Caring for the plants

95% of our seedlings were able to survive. This was because of the continued watering and seedling that was done to provide the seedlings with best conditions for growth we also destroyed pest that were faund attacking ourseedlings.

The group members tried their best to give the best care to plants for optimum growth

EVALUATION

After careful evaluation, we identified that our project was successful since 95% of the grafted avocado fruit trees seedlings had sprouted. A tree had suffered from leaf blight which we suspected was because we had used over water method of irrigation from this, we learnt to take the procautionary measured more seriously. However, we were able to sell three grafted to embrace our project. We sold them to our school principal who later acknowledge our good efforts and looked forward to our good results.

CONCLUSIONS

Grafting as an effective cultural technique is used to solve many problems such as the ones stated earlier and also many more. As a projectly it has greatly helped us to expand our offrical knowledge by allowing us to implement it practically in the farm eg watering and weeding. Through grafting, we have also been taught how to use our knowledge in curbing our day to day issue in the society.

RECCOMMENDATIONS

Some of the reccommendations passed by the group members were construction of more nursery plants plots to prevent crowding in one nursery plot, which could lead to competition for resources e.g light

Proper Observation when performing grafting precautions

Use of drip method of irrigation instead of overhead irrigation to prevent disease attack.