

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
Nyambura Caroline Nyakonyu	11241001204	

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Agriculture Teacher

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925074

NAME: CAROLINE

NYAKONYU NYAMBURA

INDEX → 11241001204

PROJECT NAME:

GRAFTING

OF

AVOCADO
TREES

PERSEA AMERICANA

Persea

Amorica

INTRODUCTION

Grafting is a technique of uniting two woody separate parts of different plants to allow a continuous growth as one plant whereby one is a rootstock and another is a scion. The rootstock forms the base of the plant since of its rooting system while a scion is the upper part. The scion and rootstock should be from the same species in order to ensure compatibility.

IDENTIFICATION OF ISSUES

The main problem that my group and I saw that it was affecting our school community greatly is the scarcity of fruits. This is seen especially in avocado (*Persea Americana*) fruits. Through a deep and a thorough research, members of group 4 which is my group were able to discover that grafting of avocado trees takes $3\frac{1}{2}$ years before they mature but takes 7 years when not grafted. We saw this grafting technique as a solution to our problem. Since in our school diet we normally take fruit twice a week. This is very unhealthy since the students can suffer from malnutrition since of lack of a well balanced diet. The other problem noticed within the school vicinity is wind erosion. This is a problem, since the soil blown comes to our classes in form of dust. This affects the students with respiratory diseases to become more serious. Also it causes many cases of flu. Through grafting, we are able to increase the number of trees in the school which will bind the soil particles through the root therefore preventing wind erosion.

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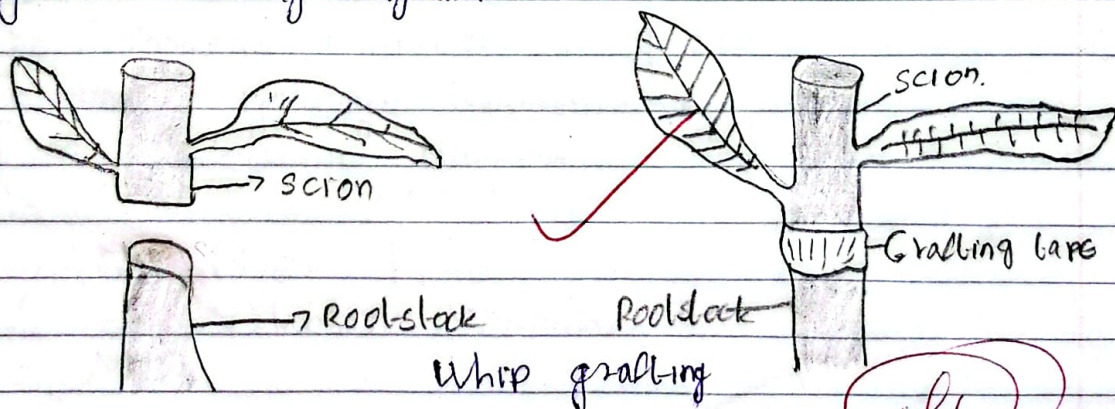
PROJECT OBJECTIVES

By the end of this project I should be able to:

1. To learn how grafting technique is carried out.
2. To learn the various precautions on the process of grafting.
3. To know the various practices and routine management practices observed and practised during and after grafting.
4. To produce successful grafted avocado fruit trees.

PROJECT DESCRIPTION

My group and I selected a suitable site which measured 1m by 1m. The area was full of weed and we later cleared the area. My group members and I decided to carry out splice or whip grafting. We later chose the rootstock and the scion of the same species and of the same diameter thick. The rootstock was to be suitable for adaptation of various ecological conditions. It was also expected to be healthy together with the scion. This was vital in order to ensure production of healthy fruits and quality fruits. The various materials used to ensure that the grafting practice is a success are: Sterilised scalpel, rootstock, scion, watering can, secateurs, 20 rootstocks, 20 scions and a shade net. The method used for grafting which is whip grafting can be illustrated by the following diagram.



BUDGET

The budget plan was as follows:

Material	Quantity	Unit cost	Total cost
Scapel	5	10	50
Watering can	1	400	400
Grabbing tape	20	20	400
Rootstock	20	100 100	2000
Scion	20	10	200
Shovel	10m	150	150
Shade net	5m x 10m	3000	3000
Rake	1	350	350
Thornor	1	1500	1500
Total cost			8,200/-

GROUP MEMBERS

The various members of group 4 are:

- 1 Caroline Nyakonyu Nyambura →
- 2 Joan Wamumu Njuguna
- 3 Tracy Mideva Mung'one
- 4 Cynthia Njeri Rimui
- 5 Maxron Valentine Wainuku

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PROJECT

IMPLEMENTATION PLAN AND TIMELINE

Activity	J	F	M	A	M	J	J
Instructions of the project given							
Identification of the issue							
Individual presentation of project							
Preparation of a budget plan							
Group presentations of the project							
Site selection							
Arrival of Avocado fruit tree seedling							
Preparation of tree nursery plots							
Training session with extension officer							
Fortnightly report on the project							
Evaluation of the project							
Watering and inspection							
Report writing							

PROJECT IMPLEMENTATION AND PROCEDURE

Assembling of tools - The necessary equipments that were necessary for grafting were bought and brought to the area of grafting.

Training Session - The external trainer who is good in grafting came to our school and took us through the grafting technique practically.

Site Selection - The site selected which measured 1m by 1m which was well secured and also the availability of water is not a problem. The area is fertile and also gently sloping. The nursery plots were established and a shade net was erected over the seedlings which were ungrafted to prevent dehydration.

Grafting Practice - We finally carried out the practiced grafting which the steps were:

- First cut the root stock at a 'pencil' thick diameter
- The same measure of diameter should be made on the scion.
- Join the scion to the rootstock.
- Wrap the joint with a grafting tape to make the scion and rootstock to be firmly attached.

Monitoring growth progress - We conducted a routine of each member daily to water the plants. This was to ensure that there was good results.

Post operation practices - Some of our plants were unable to survive but the majority survived. Watering and weeding was done to obtain optimum growth and development.

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Evaluation

After assessment and evaluation on the project, we discovered that the project was successful since the majority of the plants had sprouted. We also discovered that one of the defective tree seedlings had suffered from a secondary infection which was due to improper and poor tying of the grafting tape. From this we learnt to take precautionary measures and this has made the avocado fruit trees to be green.

Conclusion

In conclusion the grafting technique project has a potential impact on the school community since the fruits will be available and the students will eat a well balanced diet. The project has been a successful practice and a learning experience and I have acquired practical skills which will enable me to carry out grafting practice effectively.

Recommendations

- My group members recommended some suggestions which they think will help to improve the project.
- They recommended that this practice should be encouraged to the farmers to practice it which will enable the production of many trees as possible thus availability of fruits and also at a cheaper price.
 - The practice should be strongly supported by government which will enable to save foreign exchange since there will be no need for importation of fruits since it is already available to the farmers.