

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
MAINA SANDRA WANJIKU	11241001237	

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Agriculture Teacher

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PROJECT TITLE

: GRAFTING OF AVOCADO FRUIT TREES [*Persea americana*]

NAME: SANDRA
WANTIKU
MAINA

INDEX NUMBER:

1124100237

GROUP 5

Introduction

Grafting is a technique or practice of uniting two woody separate parts of different plants to allow a continuous growth as one plant. One part of this union is the scion which is the upper part and the rootstock which is the lower part. The scion and rootstock should be compatible, that is, they should be from the same species. Through grafting, it is possible to develop fruit trees that are resistant to harsh weather, pest and disease attack.

IDENTIFICATION OF ISSUES

The main problem that my group and I saw as we gathered information from the school community is the scarcity of fruits. This is especially seen in Avocado (*Persea Americana*) fruits. We observed that grafting of avocado trees takes three and a half years before they mature but takes seven years when not grafted. As group 5 members, we saw the practice of grafting a solution to our problem.

In school, our diet is mainly deprived of fruits as we eat fruits twice a week. This has made many of our students to suffer from malnutrition due to the eating of an imbalanced diet. Through our research, we also identified another problem. There have been rampant cases of erosion in our school. The main cause of this erosion is wind. The erosion has made many of the students suffer from the flu. Through grafting, the maturity rate of trees will be shortened. This will provide ground cover thus holding the soil firmly. Wind erosion will thus be controlled, hence reducing the build up of respiratory illnesses in the school.

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PROJECT OBJECTIVES

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

- 1) To learn to graft Avocado fruit tree
- 2) To learn the precautions when grafting
- 3) To know the various practices and routine management practices observed and practiced during and after grafting
- 4) To produce successful grafted avocado fruit trees

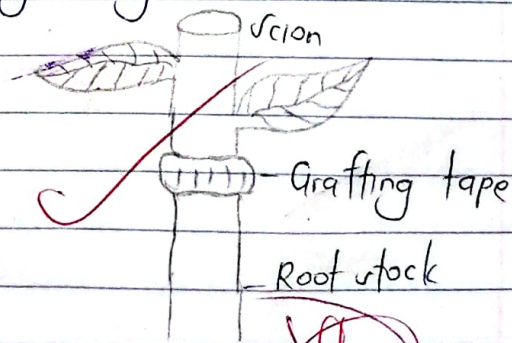
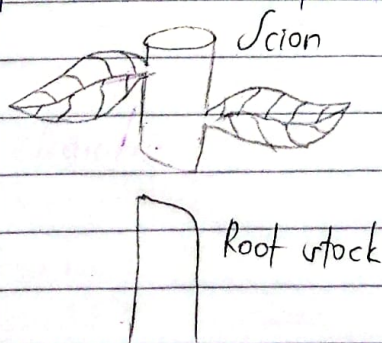
PROJECT DESCRIPTION

My group members and I selected a suitable site which measured 1 m by 1 m. We then cleared the site by removing weeds and trash around. My group members were as follows:

- Lucy Gathoni Kariuki
- Louren Chinyani Wilton
- Koome Clair Wanjia
- Joy Mumbi Njeri

We decided to carry out whip grafting. We then selected the rootstock and scion. They were to be of the same diameter. The rootstock and scion had to be compatible and able to adapt to change in weather conditions. It was also supposed to be pure to avoid transmission of undesirable characteristics to the emerging plant. On 17th May, we carried out our grafting.

The various materials that we used were as follows: a sterilized scalpel, a rootstock, scion, grafting tape, secateurs, and a watering can. The rootstocks were 20 in number and the scion were also 20 in number. A shade net was also used. The grafting practice we did, that is whip grafting is as shown below:



BUDGET

The budget was as follows:

Material	Quantity	Unit Cost	Total cost
Scapel	5	10	50
Watering can	1	400	400
Root stock	20	20 1000	400 2000
Grafting tape	20	20	400
Scion	20	10	200
Stem liner	10 ml	150	150
Shade net	5m x 10m	3000	3000
Rake	1	350	350
Trainer	1	1500	1500

Total cost = 8200 / =

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PROJECT IMPLEMENTATION PLAN AND TIMELINE

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

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PROJECT IMPLEMENTATION AND PROCEDURE

Assembling of tools - The materials that were required for grafting were bought and brought to the site where we carried out grafting.

Training session - We managed to get a trainer who taught us on the various precautions that are there during grafting. The trainer took us through the grafting process and we did it practically in our groups.

Site selection - We selected a suitable site and cleared all the weeds and trash around. The site measured 1 m by 1 m. The soil in the site was fertile. We established the nursery units and erected a shade over the seedlings. This was done so as to prevent dehydration of the tree seedlings.

Grafting practice - We finally carried out grafting, following the procedures given. They were as follows:

- First, cut the root stock at a 'pencil' thick diameter
- The scion was also cut at the same diameter as the root stock
- The rootstock and the scion are then joined together
- In order to make the union firm, wrap the joint with a grafting tape.

Monitoring growth progress - My group members and I realized that the seedlings began dying up. We thus created a routine where each group member waters the plants every day. Through this, our tree seedlings will have adequate water for growth.

Post operation practices - As the plants continued to grow, some weeds emerged. My group members and I created another routine to minimize the weeds so as to avoid competition. As this was going on, we still watered our crops and provided shade to them.

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EVALUATION

After we assessed and finally evaluated our project, we discovered that the project was successful. Many of the trees had begun to sprout about 2-3 buds. During our project, we encountered some hitcher since two tree seedlings had begun drying up. This is because they refused to form a union.

During our second milestone, we ensured that we carried out regular watering and ensured that the union was firm. The tree seedlings are now succulent and have a deep green colour and the buds have begun sprouting.

CONCLUSION

In conclusion, the practice of grafting has a very positive impact in our school community. We will thus have solved the problem of scarcity of fruits as avocado fruits will be available.

The project has also impacted a lot of potential in me as I have been able to know how to graft. I have also had deep knowledge on grafting as I have understood the precautions. I can now carry out grafting on other several fruit trees.

RECOMMENDATIONS

My group members recommended some ideas. This is what to improve the project. They were as follows:

- That this project be encouraged to farmers whose plants are delayed in maturity. This will enable them to produce a large amount of fruits hence constant fruit supply. This will also be a source of income to them as the fruits can be sold.
- That this project should be supported by the various Agricultural Commissions. Through this, the practice of grafting will be widespread and the country will not have to import food fruits.
- That this project be encouraged to other schools which are undergoing the same problem of fruit scarcity.