



COFFEE GRAFTING MADE EASY



*Project
Coffee+*



Implemented by





ABOUT THE COFFEE GRAFTING GUIDE

This publication is part of a series of printed materials developed by the partners, Nestlé and GIZ, under *Project Coffee+* to reach out to a wider audience of smallholder coffee farmers in the project areas of the provinces of Bukidnon and Sultan Kudarat; and to other parts of the country , in general.

We hope that this material, in combination with the training and other project interventions, shall facilitate the transfer of knowledge and skills, and shall encourage the adoption of the Good Agricultural Practices (GAP) in coffee production. At the end of the day, we look forward to the transformation of the smallholder coffee farmers to becoming “agripreneurs” who shall have the perspective of farming as a business and invest their time and resources on Good Agricultural Practices (GAP). The bottom line is that farmers increase their yields and living income, and eventually, we shall have contributed to the attainment of the sustainable development goal on poverty eradication.

ACKNOWLEDGMENT

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GRAFTING TECHNOLOGY ON COFFEE



Plant Grafting is a horticultural technique of propagation used to join parts from two or more plants to grow as a single plant.

Coffee trees that have well-developed root systems can be made highly productive by grafting scions from high-yielding coffee selections.

Grafting can be undertaken at **various stages or age of the plant:**

- **“Soldier” or cotyledon stage** in the nursery wherein the scion and the rootstock must be on the same size.
- **One (1) year old seedlings** in the nursery
- **Mature trees in the plantation** by grafting an improved scion on existing trees of inferior quality

Rejuvenation alone will not greatly improve the yield of these low-yielding trees; but **rejuvenation coupled with grafting** could.

Cleft grafting of selected spouts on newly-rejuvenated coffee trees is usually done when the **sprouts are more than 30 cm high** or when the **stems are about pencils size**.

Grafting is a complex technique which requires highly skilled practitioners hence, the need for skills training of farmers.



Features of Grafting

- Uses scion from high yielding trees and stocks with good rooting ability
- True to type genetics
- High uniformity in terms of pest and disease tolerance (e.g. Leaf rust)

Advantages of Grafting

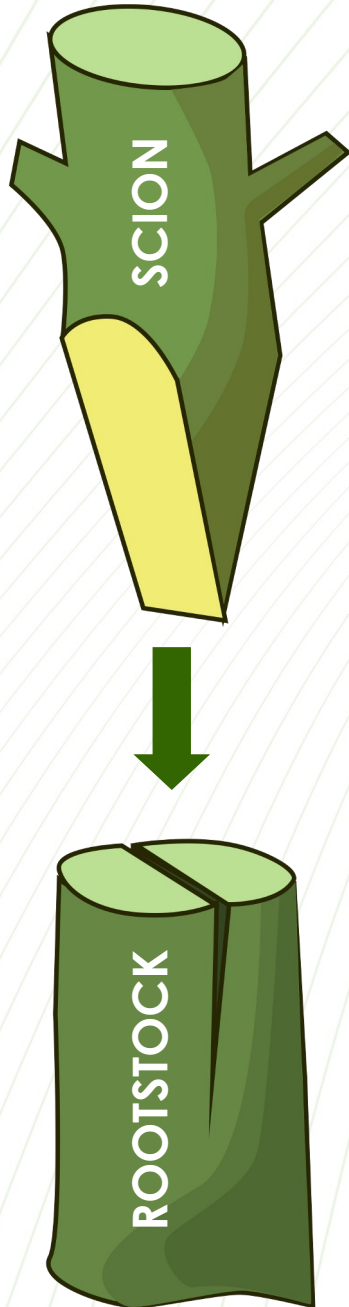
- Can be done any time of the year
- Can be undertaken in any stage/ age of the plants
- Plants grow well and faster
- Plant maturity is shorter
- High productivity and quality (e.g. Bean size)

Benefits of Grafting

- Cheap and efficient propagation method
- Harvest earlier



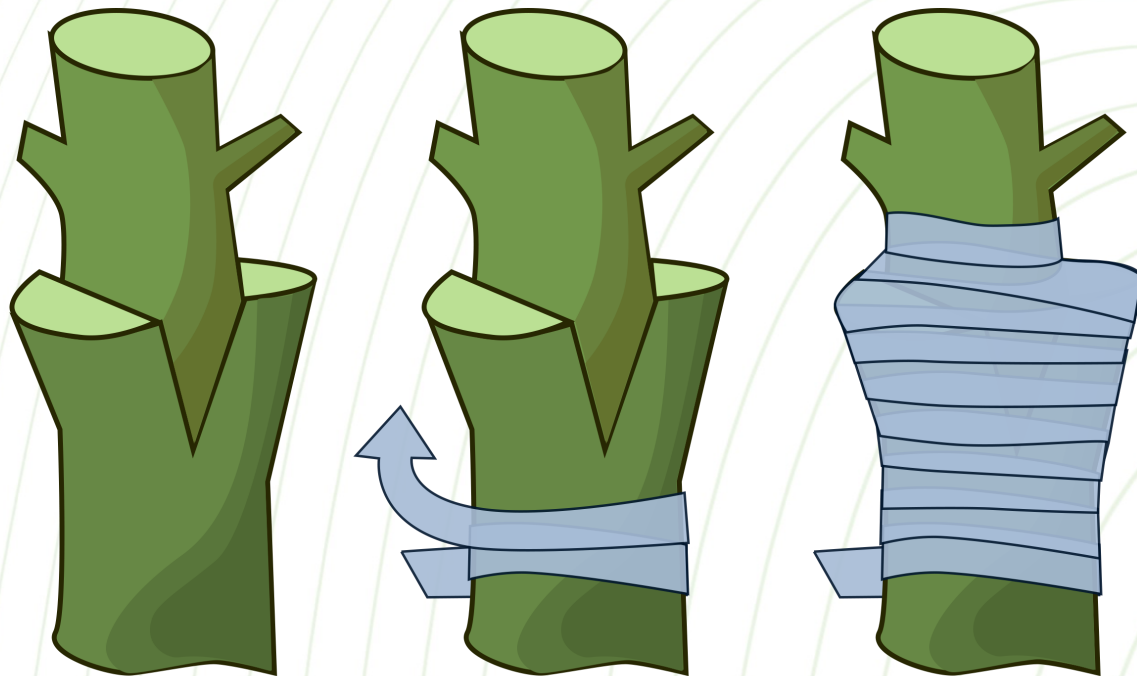
GRAFTING



Scion - the main component of the plant shoot when plant is fully developed.

Rootstock - the lower part of the plant, made up of the roots and some stems.

Tie the joint of the scion and the stock with a plastic strip or parafilm and make sure the sides of the stock and scion are in contact with each other.



SELECTION AND PREPARATION OF SCION

Scions are selected from newly growing vertical stems of proven productive or desirable coffee lines or varieties. *



1 Choose young twigs with at least 4 internodes.

2 Cut the upper part of a twig including 2-3 internodes with a sharp knife or pruning shear. Leave at least one internode on the tree to assure growth of new scions.

Use the top part of the twig (scion) only, having 2 internodes; one pair of fully developed leaves and one pair of young leaves on top.

3 Use pruning shears to cut 2/3 of each leaf

***Note:**

Scions should only be harvested 7 – 10 days after fertilizer application. Best to harvest before 10 A.M.

9 STEPS IN GRAFTING



1 Cut a wedge shaped (V shape) scion (about 2 cm) down to the base of the scion with the use of a sharp budding knife.

2 Cut the stocks after the first node from the base. Only vertical stems about 30 cm high and whose diameters are about pencil-size should be used for grafting.

3 Make a vertical cut (about 2 cm long) at the center of the stock's tip. Avoid totally splitting the stock to the base.

9 STEPS IN GRAFTING



4 Insert or fit the scion into the cleft of the rootstock tightly.



5 Use a plastic strip to hold the scion and rootstock tightly together.



6 Wrap the grafted area completely with plastic strip. The last wrapping roll should be completely over the whole roll.



7 Cover the grafted scion and stock with a small plastic bag. This will prevent drying up of the scion and rotting of the graft during rains.



- 8 Thirty (30) days from grafting, remove the plastic cover to allow new sprouts to grow.



- 9 Remove the plastic strip 1 to 2 months after grafting to avoid girdling.*

*Girdling (cutting of the bark all the way around) hampers plant growth and development resulting to stunted growth of the graft leading to mortality.

NOTE: Plastic strips should be disposed properly to align with sustainable practices.



FREQUENTLY ASKED QUESTIONS

Q: When is the best time of the day and season to graft?

A. It is best to graft early in the morning during the rainy season.

Q: How soon will grafted coffee bear fruits?

A: Grafted coffee can bear fruits 1.5 years from grafting.

Q: During harvest, farmers practice old harvesting protocol by bending the coffee stem for easier picking of cherries, is there a tendency for the grafted stem to break?

A: We do not encourage farmers to grow the coffee trees beyond 6 feet high. Any stem has the tendency to break if bent too hard.

Q: Is it better to graft or replant a new tree?

A: Grafting provides advantages as mentioned in this document especially if the objective is to improve existing coffee plantation with well-developed plant root systems.

Annex 1. GRAFTING TOOLS AND MATERIALS



REFERENCES

- Ministry of Agriculture and Rural Development. National Agricultural Center, Vietnam. February 2017. Good Agricultural Practices for Robusta Coffee Production Manual
- Jean Nicolas Wintgens. Switzerland. 2004. Coffee: Growing, Processing, Sustainable Production Guide for Growers, Processors, Traders and Researchers.
- PNS/BAFS 169:2015 Code of Good Agricultural Practices for Coffee
http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/2021-02-24-PNSBAFS169-2015CodeofGoodAgriculturalPracticesGAPforCoffee.pdf

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