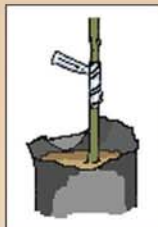
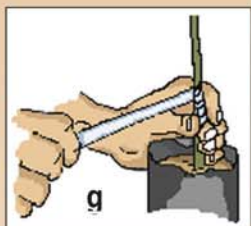


6. Tie the union securely using a plastic strip (g).



7. Remove the plastic strip when the union is successful (as soon as new shoots come out of the scion).

#### Care of Budded Plants

- ✓ Water the newly budded seedling especially during dry months.
- ✓ Remove all the lateral growth below the budded part.
- ✓ Transfer the budded seedling in a bigger plastic bag whenever necessary.

#### Selected Fruit Species Propagated by Budding

Crop	Scientific Name	Budding Method
Atemoya	<i>Annona cherimoya</i> x <i>A. squamosa</i>	Patch Budding
Avocado	<i>Persea americana</i>	Patch Budding
Calamansi	<i>x Citrusfortunela microcarpa</i>	Shield Budding
Citron	<i>Citrus medica</i>	Shield Budding
Durian	<i>Durio zibethinus</i>	Patch Budding
Kamias	<i>Averrhoa bilimbi</i>	Patch Budding
Lanzones	<i>Lansium domesticum</i>	Patch Budding
Lemon	<i>Citrus limon</i>	Shield Budding
Lime	<i>Citrus aurantifolia</i>	Shield Budding
Mandarin orange	<i>Citrus reticulata</i>	Shield Budding
Marang	<i>Artocarpus odoratissimus</i>	Patch Budding
Pili	<i>Canarium ovatum</i>	Patch Budding
Pumelo	<i>Citrus grandis</i>	Shield Budding
Rambutan	<i>Nephelium lappaceum</i>	Patch Budding
Santol	<i>Sandoricum koetjape</i>	Patch Budding
Sweet orange	<i>Citrus sinensis</i>	Shield Budding

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#### Reference:

Coronel, R.E. Propagating fruit crops in the home garden. College, Laguna, Philippines: UPLB-IPB, 1995.

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**Institute of Plant Breeding (IPB)**  
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# Plant Propagation Techniques BUDDING

Information Bulletin No. 303/2012



Budding is an asexual means of plant propagation

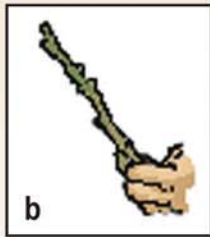
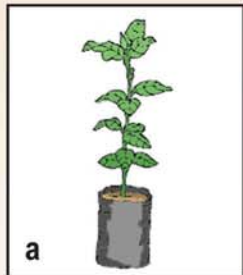
- Also known as bud grafting
- Most economical in the use of scion material since only a single bud is used as a propagule
- Rootstock is ready for budding when it is about 1.2 cm in diameter and the bark can easily be separated from the wood

### Types of Budding

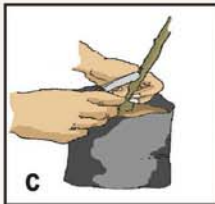
- **Shield or T-budding** – widely used because it is simple and efficient. This method is used in calamansi, pumelo, and lime.
- **Inverted T** – used during rainy season to prevent water from running into the union, which leads to the growth and development of microorganisms and infection.
- **Chip budding** – used when bark is not slipping and the bud is dormant. This method is used in grapes and mango.
- **Patch budding** – used for seedlings with thick bark and when bark easily separates from the wood. This method is used in santol, durian and rambutan.

### Steps in Patch Budding

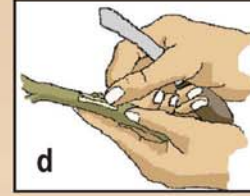
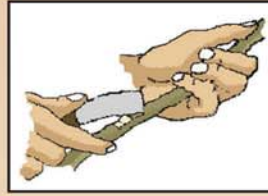
1. Choose an appropriate rootstock (a) and scion or budwood (b). It is important that the scion and stock are compatible. As a general rule, closely related plants (e.g., varieties within same species) are graft compatible. The scion should come from a tree with a desired trait (e.g. good quality, high yield) while the rootstock should possess good root characteristics (e.g., resistance to soil-borne diseases, good anchorage).



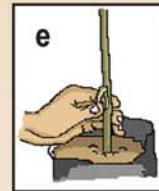
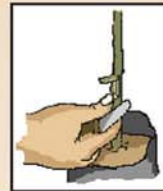
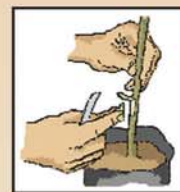
2. On the rootstock, about 30 cm above the ground, make two vertical cuts thru the bark about 1.5 cm apart and 2–3 cm long and a horizontal cut below (c). Lift the bark starting from the cut below.



3. From the scion, cut a rectangular patch of bark (d) with a prominent bud. Do not include the wood part.



4. Fit the scion bud into the cut on the rootstock (e).



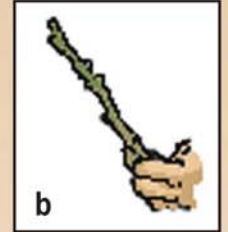
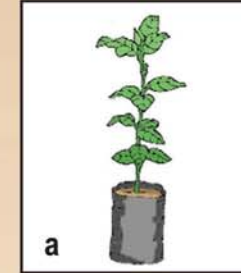
5. Tie the union securely using a thin plastic strip (f).



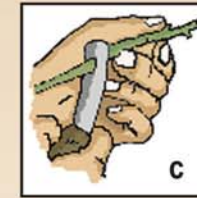
6. After 14–21 days, check if the bud is still alive. When alive, cut the bark covering the bud and untie the plastic strip to expose the developing bud.
7. Partially cut the stem above the union to initiate growth of the buds.
8. Remove the plastic strip after the union is successful (as soon as new shoots come out of the scion).
9. Cut the shoot above the union to sustain growth of shoots.

### Steps in Shield Budding

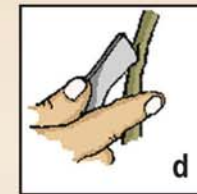
1. Choose an appropriate rootstock (a) and scion/budwood (b).



2. Get a bud from the scion including part of the wood (c).



3. Make a T-cut on the rootstock (d).



4. Insert the bud into the rootstock by sliding from the top of the cut (e).
5. The scion bud is fitted into the cut on the rootstock (f).

