



Introduction to Vegetable Grafting

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Why Graft Vegetables?

- Sweet bell peppers and tomatoes are difficult to grow during the hot-wet season in SE Asia
 - High rainfall
 - Waterlogged soils
 - Soil-borne diseases
 - High temps
- Reduced yields



Considerations

- More expensive than non-grafted tomatoes and peppers. Best used when:
 - High market price (hot-wet?)
 - Risk of Flooding
 - Risk of Root-knot nematode
 - Risk of soil-borne disease (Bacterial wilt, Fusarium, or Phytophthora)

Options

- Tomato scion (high yielding market variety) on eggplant rootstock; cherry tomatoes can be used
- Sweet pepper (desirable market variety) scions on chili pepper rootstock
- WHY? The eggplant and chili rootstocks are more resistant to diseases and waterlogging
- Local varieties can be used for rootstock

Methodology

- Begin scion and rootstock materials:
- ** Important to note that scion and rootstocks must be grafted when the same diameter- 1.6-1.8mm**
 - Tomatoes/Eggplants: can be grafted before peppers (as quickly as 19-25 DAP)
 - Sow eggplant seeds 5-6 days before tomato seeds
 - Sweet/Chili Peppers: typically grafted at 35-40 DAP)
 - Sow chili pepper seeds 5-6 days before sweet pepper seeds
- Easiest to sow both in flats, but AVRDC recommends starting rootstocks in 6cm pots

Methodology

- Can graft when plants have 2-3 true leaves (typically 1.6-1.8mm), and ensure both stems are same diameter



Methodology

- Cut rootstock at 30° angle 1.5cm above first true leaf
- Cut scion at 30° angle just above first true leaf



Methodology

- Slip a piece of 2mm diameter rubber tubing cut at 30° angle onto scion
- Push ½ way onto stem



Methodology

- Slide scion onto rootstock and press until firm contact (important to keep angles correct)



Methodology

- After grafting, place grafted plants into a shaded high-humidity place or chamber (best: 25-32° C and >85% RH)
- Plants may wilt, but should recuperate after 3 days
- Keep well-watered or use indirect watering



Methodology

- 4-5 days after grafting, begin to harden off by exposing to reduced RH
- 9 days after grafting, give plants a liquid fertilizer
- Continue to harden off for 9 more days
- Entire process should take 50-55 days from planting
- Plant transplants into the field (raised beds are best, esp during hot-wet season)

Methodology

- Transplant like normal, but be sure graft union is kept above soil line
- The closer graft union is to the soil, the more likely adventitious roots may form above graft and disease can bypass rootstock



For More Information

- AVRDC- Grafting Sweet Peppers for Production in the Hot-Wet Season- M. Palada and Deng-Lin Wu
- AVRDC- Grafting Tomatoes for Production in the Hot-Wet Season- L.L. Black, D. L. Wu, J. F. Wang, T. Kalb, D. Abbass, and J. H. Chen