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 Phytophtora)
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