SUMMARY: Cucurbit Grafting
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PLNT 310 – Plant Propagation

Goals

- Demonstrate all the steps involved in grafting three different cucurbit species by the tongued approach graft technique.
- Test for viability of the cucurbit graft union.

Cucurbit species and cultivars used
- Cucumber: *Cucumis sativus* `Talladega`
- Cucumber: *Cucumis sativus* `Burpless Beauty`
- Squash: *Cucurbita pepo* `Golden Zucchini`
**Grafting technique used - Tongued approach technique**

For grafting cucurbits, the ideal timing is when seedlings have developed at least one true leaf. Note that the tongued approach technique is a graft type that requires space and it must be done quite quickly. First of all, the true leaves of the healthy rootstock are removed. Then, make an incomplete cut with a razor blade at a slanted angle on the stem about 1 cm below the cotyledon (see Figure 1). Then, the healthy scion seedling is cut off above the ground surface. A matching but opposite cut into the rootstock is made to fit the scion (Figure 2). Then, the scion and rootstock are joined together at the slanted cut to favor good cambial contact. Finally, the two plant parts are fixed together with a grafting clip or grafting tape and a small stick is inserted beside the grafted plant to give support (Figure 3).

Recommendations to promote successful grafting are to let the grafted plants heal in a shaded chamber such as mist frame, where the relative humidity and temperature are controlled, to slow down the photosynthetic process and movement of photosynthates (University of Arizona, 2010). The plants should stay in the mist frame for about 1 week.

**Results:**

About only half of the plant grafts healed successfully. This is true for cucumber cultivars grafted on other cucumber cultivars but also for cucumber cultivars grafted on squash rootstocks. The main reason why the proportion of successful grafts is low is that the cotyledons of the rootstocks remained viable and continued to grow. In fact, the cotyledons and new leaves that formed on the rootstock after the grafting should have been taken out to give the scion a chance to recover. It is way easier for a plant to continue its flow of nutrients by the remaining healthy vascular cambiums than to put energy in healing processes to create new vasculatures.
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Figure 1: Steps 1 and 2 of the tongued approach grafting technique.

Figure 2. Steps 3 and 4 of the tongued approach grafting technique.

Figure 3. Steps 5 and 6 of the tongued approach grafting technique.
Reference: