

Trial by Fire! Plant Propagation from Seed and Spore to Cuttings

with Del Brummet – Head Gardener of Elisabeth Miller Botanical Garden

Seeds: recombination of the genetic material of parent plants (typically)

- **Pollination and fruiting**
- **Collection** – timing, cleaning, storage, Types (fleshy vs. dry)
- **Preparation**- cleaning, stratification (Physiological: cold/moist etc.), scarification (Physical: sandpaper boiling water etc.), other treatments like chemical dormancy
- **Sowing seed**- Germination and plant hormones, temperature, light, soil/medium, depth, using caging outdoors.
- **Monitoring**- watering, pest damage, weeds...
- **Dividing/Moving up:** Hardening off, Pricking out vs. moving up in clumps or cells vs. teasing apart
- **Fertilization:** It all depends on the species. As plants start to mature we use slow release fert in the nursery but you can also use liquid fertilizers.

Spore: Spore -> Gametophyte -> sporophyte -> spore (Alternation of generations)

- **Collection**-ripening and releasing of spore, cleaning of 'chaff', storage (in refrigerator)
- **Sowing spore**- Sterilizing potting medium (try Promix or Worm castings), Sterilize container, sow spore and mist. Make sure to spore different species at separate times.
- **Monitoring:** Watch out for fungus, algae, liverwort and moss.
- **Misting:** In a closed container you don't need much but once they start to grow misting helps fertilize the prothallii and in turn you get the juicy ferns we all want

- **Slowly moving ferns up:** This process I am still learning but it is best to be patient with ferns. Move up slowly over time as they get larger and only fertilize at half strength.

Cuttings: Vegetative clones

- **Types-** herbaceous, soft-wood, semi-hard, hard wood, root, leaf
- **Tools:** rooting hormone auxin (powder vs. liquid), razor or sharp clippers
- **Medium:** perlite, sand, vermiculite and many other materials
- **Methods:** time of year, reduce leaves, remove flowers, wounding, mist/humidity, heat mats.
- **Settling In cuttings:** protect from frost, don't overwater (or under) newly rooted plants!

Other propagation methods: division, grafting, layering, air layering, tissue culture.

Thanks so much for attending and feel free to send questions to delb@millergarden.org

EMBG Container mix which we use for outdoor seed prop

½ parts coarse compost or good potting soil

1 parts pumice

3 parts medium bark (aged preferred)