Perennial Container Production--finishing
Leonard P. Perry, Extension Professor

Fertility
- 20-10-20, 15-5-15, 14-0-45 (KNO₃), 15-0-15, 15-0-0 (CaNO₃), 23-0-23
- 150-200ppm slow growers and older plugs
- 100ppm for fast growers
- once/wk
- if shipping, nitrate based last week to “green”
- maximum growth vs minimum use
  --UVM nursery study with daylilies, salable growth at 100ppm N, maximum growth at 400ppm N
  --lower rates mean less fertilizer cost and runoff
  --often excess fertility may result in excess foliage and fewer flowers

CRF fertility
- Many use controlled release fertilizers (CRF) alone (especially nurseries), or half rate with liquid feed
  --often similar results with CRF or liquid
- Incorporate often better than top dress
  --easier at mixing, less chance of burn
  --often no growth differences (UVM study)
- half rate may produce salable plants in cool regions, seasons
- timed vs temperature release
  --timed may release when little growth
  --temperature ones may release too quickly or slowly depending on crop
  --new temperature release products by region

Organic Fertility
- UVM study found similar growth with organic granular fertilizer, and compost-based mix to synthetic fertilizer and peat-lite mix
- poor results with opposite combinations: organic fertilizer, peat lite mix; synthetic fertilizer, compost mix
- may vary with other media, fertilizers, regions, plants

Media
- Many media perform similarly
  --decisions often function of cost, availability, preferences for ingredients
  --UVM studies showed similar growth between bark-based media
  --UVM studies showed similar growth among peat-lite, and media containing coir (coconut husk) rockwool, compost
  --compost-based had similar growth, but poor water retention and rooting-- *look at roots, not just tops*
- greenhouse--often peatlite, same as plugs
- common nursery media--sand:peat (1:1 by volume), bark:peat:sand (1:1:1 or 3:2:1), bark:peat (1:1 or 3:1)
- some add soil for weight, microorganisms--different properties in pot than in field
  --weed seeds, diseases, needs pasteurizing
Media Amendments
• many, often based regionally
• UVM study found no differences with one species adding 10%sand or 10%clay loam
• use caution when adding, affect porosity--air and water spaces, easy to test
  --average 20-40% solids, rest air and water
• variable results with hydrophilic polymers
  --UVM study showed no improvement using, often less growth at higher levels

Keys to media success
• culture changes with medium
• consistency, test often even if purchased
• beware porosity changes with additions
• keep simple, maximum 3 components

Light
• HPS (high pressure sodium) or similar--especially for plugs in winter, or need to grow much longer
  --300-400ft-c, 16hrs
• Daylength for forcing
• Red light from poly filters as a growth regulator (Clemson Univ.)--end of day, 15min daily? 3 wks?

Height control
• water less for some species, to initial wilt
• cut back 3 weeks prior to shipping
• balance light, temperature, fertility--don’t overfeed, especially P may stretch
• roll out benches (from greenhouse)
• thigmotropism: plant response to mechanical touch--vibrate, shake, brush
  --results in more compact, often from just air movement as HAF (horizontal air flow)
• temperature--varies with crop, season, stage of growth, result desired, balance with other factors
• DIF (Mich. State Univ.)
  --night temperature = day temperature (65 ° avg.), sunrise, lower by 5-10° for 2 hours
  --may result in less fertility needed, works for many perennials
• growth regulators
  --generally no PGRs (plant growth regulators), use cultural instead
  --if use, effective on wide range of species, trial beginning at low rates as many species not listed
  --A-Rest 20-50ppm spray, 1-2ppm drench; Sumagic 5-40ppm spray, 0.1-1.0ppm drench
  --srench: between drench with runoff, and spray; directed spray; coarse spray

Forcing
• Manipulating environment, generally light and temperature, to force bloom out of season
• Pro: may help sales in other seasons, works well with greenhouse pot systems
• Con: some feel deceptive to consumers, takes away from normal summer sales
• Vernalization (cold)--35-45F, 6-12 wks ; often follow by 2-8 wks 60-65F before sale
• long day (LD) species--16 hours, incandescent, 20ft-c, “night break” 10pm-2am
• some need short days (SD), 14hrs dark
• in general: spring, early summer flowering often need cold; mid to late summer flowering often need LD; late summer to fall flowering often need SD
• specifics in resources, often complex, combinations, exceptions coh19, 7/06