



Perennial Container Production--finishing

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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
 - sprenc: 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