Perennial Growing Media Comparisons 2010-11

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Overview

A container study was undertaken during late summer 2010 through early summer 2011 at the Milton Ornamental Research Facility, Milton VT, comparing growth and overwintering of 11 choice and common perennials in 2 quite different media under development from Vermont Organics Reclamation (St. Albans, VT) with two standard media—one a commercial nursery product and one a home organic product. The developmental media are proposed for commercial or home growing, utilizing (recycling) waste products from coffee production and manure dehydration.

Materials and Methods

Plants were obtained as divisions and liners and potted in media in jumbo pots on Aug. 11, 2010. To each media was added 100day Nutricoat 13-13-13, 9Tbsp/cuft. Since plants were insufficiently established prior to winter, and to gauge overwintering in the various media, plants were overwintered under 3 layers of thermoblankets ("fleece") with one layer white polyethylene on top. Pot temperatures never dropped below 32degrees F. Plants were covered November 15 and uncovered April 2, 2011. Rating data and photos were taken June 6, 2011 when several cultivars were in full flower. For each treatment and cultivar there were 6 (pot) replicates. Where differences occurred, data were tested with ANOVA, with differences among means not significant except for daylily (means followed by the same letter are not significantly different at p=0.01 according to Tukey's test).

Media components (parts by volume where known):

1) VOR Organic: 1.5 cake (manure product from 2010), 1 coffee grounds, 3 pine nuggets, 1 pine bark, 1 hemlock bark, 1 silver skins (from coffee bean processing), 170grams gypsum/6cuft
2) 3 cake, 1 vermiculite, 1 perlite, 4oz gypsum/6cuft, 2oz lime/6cuft
3) Miracle Gro Organic Choice (Miracle Gro, Marysville, OH)
4) Fafard 52 nursery mix: 60% processed pine bark, Canadian sphagnum peat, perlite, vermiculite (Conrad Fafard, Agawam, MA)

Results

Perennial*	Media			
	VOR		Controls	
	Organic	3:1:1	Fafard 52	Miracle Gro
Acorus 'Ogon'	4.0	4.7	4.7	5.0
Agastache 'Black Adder'	4.8	3.0	4.2	4.5
Carex 'Ice Dance'	5.0	4.6	5.0	5.0
Chrysanthemum 'Brandywine Sunset'	5	5	5	5
Coreopsis 'Moonbeam'	5	5	5	5
Geranium 'Biokovo'	5	5	5	5

Geranium maculatum 'Album'	5	5	5	5
Hemerocallis 'Happy Returns'	4.2b	5.0a	4.7a	4.0b
Heuchera 'Caramel'	1.2	1.0	1.4	1.4
Salvia 'Rhapsody in Blue'	5	5	5	5
Tiarella 'Brandywine'	5	5	5	5
Overall means	**4.5**	**4.4**	**4.5**	**4.5**
Media shrinkage, inches**	3.25	3.5	4.0	3.75

*Ratings: 1=dead, 3=minimally salable, 5= excellent.
**Media shrinkage, measured (inches) from top to bottom of root mass.

Conclusions/observations:
1. Media for mature plants early the second season dried similarly, requiring similar watering, however the VOR organic and Miracle Gro tended to dry more quickly and showed wilting first for some plants (Coreopsis and Chrysanthemum in particular).
2. For long-term production, the 12% media shrinkage of the 3:1:1 over the Fafard might be an issue for some growers, and the almost 20% shrinkage of the VOR organic might be even more problematic.
3. Although there were some weeds, particularly with daylily and acorus, there were no differences among media.
4. Media generally and for all practical purposes resulted in similar growth and winter survival. Although there were statistical differences among means for daylily, these were not practically significant.
5. The only cultivar to not survive, uniformly across media, was Caramel coralbells. This could be due to winter temperatures or wetness from covering, and will be investigated in future hardiness studies.
6. Depending on the goals of VOR, it appears the 3:1:1 would use the most manure product, and should produce for perennials (based on the diversity used in this study during these growing seasons) comparable growth to non-locally sourced media (although of course the vermiculite and perlite are non-local components).