

Purdue Methods:



What soil mix worked the best in this study?

Short answer:

Pro-Mix PGX and MetroMix Redi-earth

Results:

After planting our study, it was determined by soil analysis that the Sunshine LA4 soilless mix we used was too low in iron for healthy growth of Arabidopsis, though the brand had been used successfully in the past. Also in our study, MetroMix 360 was hydrophobic; the peat component having dried too much due to being stored too long. So this was not a fair comparison of this brand. Fafard brand germination mix was not compared in this study, but was found to be inferior to Metro Mix 360 in earlier controlled studies (data not shown).

Discussion:

There are many suitable commercial soilless mixes that are being used with great success with Arabidopsis, including ones that we did not have success with in this study. Thus other factors—particularly temperature, watering and fertilizing—are a most likely a better determinant of success. It should also be noted that there have been many reports by greenhouse curators and managers of "bad lots" or "bad bags" of soilless mixes, across all manufacturers. Some universities mix two soilless mixes together to lessen the possibility of a problem with the mix. We examined augmenting the soilless mix with calcined clay granules for this and other reasons.

We examined alternatives to soilless mix: Turface MVP and Profile Greens calcined clay; Ecolite; and medium-grade vermiculite. Only the Profile Greens grew suitable plants.



Figure 1. Representative pots from six soilless mixes fertilized once per week, with water drained from trays following sub-irrigation. From left to right, top row: Sunshine Mix, Redi-earth, Metro Mix 360. From left to right, bottom row: Pro-Mix PGX, Pro-Mix BX, Pro-Mix HP.



Figure 2. Representative pots from four alternatives to soilless mixes fertilized once per week, with water drained from trays following sub-irrigation. From top to bottom: Ecolite, medium-grade vermiculite, Profile Greens, Turface MVP.