

Which Laboratory Method Do I Use for Horticulture Substrate Samples?

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People like to organize things into simple categories; sometimes, it works well, and in other cases, not so well. Thus is the situation with 'soil' or 'substrate' samples that Cooperative Extension Service (CES) offices submit for analysis. To get the best information out of the sample we need to analyze it with the most appropriate laboratory methods.

In a simple world, we have 'mineral' garden soils on one end of the spectrum and largely organic substrates for container-grown plants on the other. However, there are a lot of variations between those two extremes.

- 1. IF the sample is going to be used as a substrate to grow plants in containers AND is largely organic in composition** (e.g. peat moss, bark, etc.) then the Horticultural Growing Media Analysis ([AGRI-430](#)) is the 'best fit'. This laboratory method uses a water extract of the media sample that mimics the action of water flowing through the post and gives you an estimate of plant available nutrients, total soluble salts, and pH. The price for the Greenhouse Media SSE is \$20.
- 2. IF the sample is an organic amendment** (e.g. composts, mulches, manures, etc.) **that will eventually be MIXED INTO the garden soil**, then running analysis for fertilizer value might be best. This gives total nutrient values. How available those nutrients are will vary with the material and the lab does not provide that kind of information. The basic Routine Package includes % moisture, pH, EC, Total N, P, K, Ca for \$27. Carbon can be added to the nitrogen analysis for an extra \$8.50 if the C:N ratio is desired. Use the Information Sheet for Manure Analysis for Fertilizer Value ([AGRI-429](#)).
- 3. IF your sample is from your garden or landscape soil** and has NOT been amended with large amounts of organic matter, then a standard mineral soil test is recommended. Contact an Arkansas County Extension Office for information on submitting samples through the web portal. Routine package is free, but some extra options are fee based. Call the Marianna lab at 870-295-2851 for details.

- 4. If the native soil has been heavily amended** with composts, bagged garden soils, mulches, etc. then choosing an analysis can become difficult. If you can scrape off the mulch and get a mostly mineral soil sample from below, then you can send the soil to the Marianna lab without much issue. However, if the soil has been heavily amended to be much more organic than the native soil, then the results sometimes come back as "out of range" since the extraction they use was developed for mineral soils. Depending upon the material used, heavily amended soils may not need a nutrient analysis for a couple of years. A pH test to determine if the sample is in the desired range for the plants being grown could be helpful and pH can change as the amendment decomposes over time. The C:N ratio might also be useful if the amendments have been low in nitrogen, such as sawdust or wood chips. Both of these tests can be done in the Fayetteville lab; use AGRI-423 (link below), choose 'pH & Salts' for \$5, and write in C:N ratio for \$15. If the client strongly feels they need further nutrient analysis, one option would be to send the heavily amended samples to Fayetteville using the Plant & Soil Diagnostic Information Sheet ([AGRI-423](#)) and select the Soil Total Recoverable Metals package for \$10. This gives the same elements covered in Marianna, but on a total basis instead of a plant-available basis. Please be aware that you will not receive any fertilizer recommendations from Fayetteville.
- 5. IF your sample does not fit easily into one of these categories, call** (Fayetteville Lab at 479-575-3908 or Marianna Lab at 870-295-2851) before submitting the samples so the correct laboratory is matched with your sample. The fees listed are subject to change without notice.