

# Greenhouse Media Testing Methods

# Sampling for Commercial Lab Tests or 1:2 Method

- How?
  - Good - sample 1 pot to represent entire crop.
  - Better - sample 10 different pots, combine samples and analyze 1 sample.
  - Best - sample and analyze 10 different pots per crop.
- Take a composite or a root zone sample.
- Controlled-release fertilizers?
- Take samples 2 hr. after fertilizing.
- Be consistent when sampling.

# Nutrient Extraction

- Soil itself is not actually analyzed during a test.
- Plant available nutrients are extracted from the sample using an “extracting solution”.
- The extracting solution for greenhouse media is deionized water.

# Saturated Media Extract Method

- “The” method of greenhouse media testing.
- Used by most commercial and university labs including UMass.
- Sampling disturbs plants.
- Requires special skills and equipment.
- Not suitable for on-site testing.

# 1:2 Dilution Method

- Common method with good interpretative data.
- Sampling disturbs plants.
- Samples must be dried and screened.
- Easy for on-site testing.
- Good for occasional pH and EC testing.

# Supplies for 1:2 Dilution Method



Easy to obtain items from home or grocery store.

# Steps 1 & 2. 1:2 Dilution Method

Step 1.



Air-dry (24 hours)  
and sieve soil  
sample.

Prepare equal  
volumes of sieved  
soil and deionized  
or distilled water.

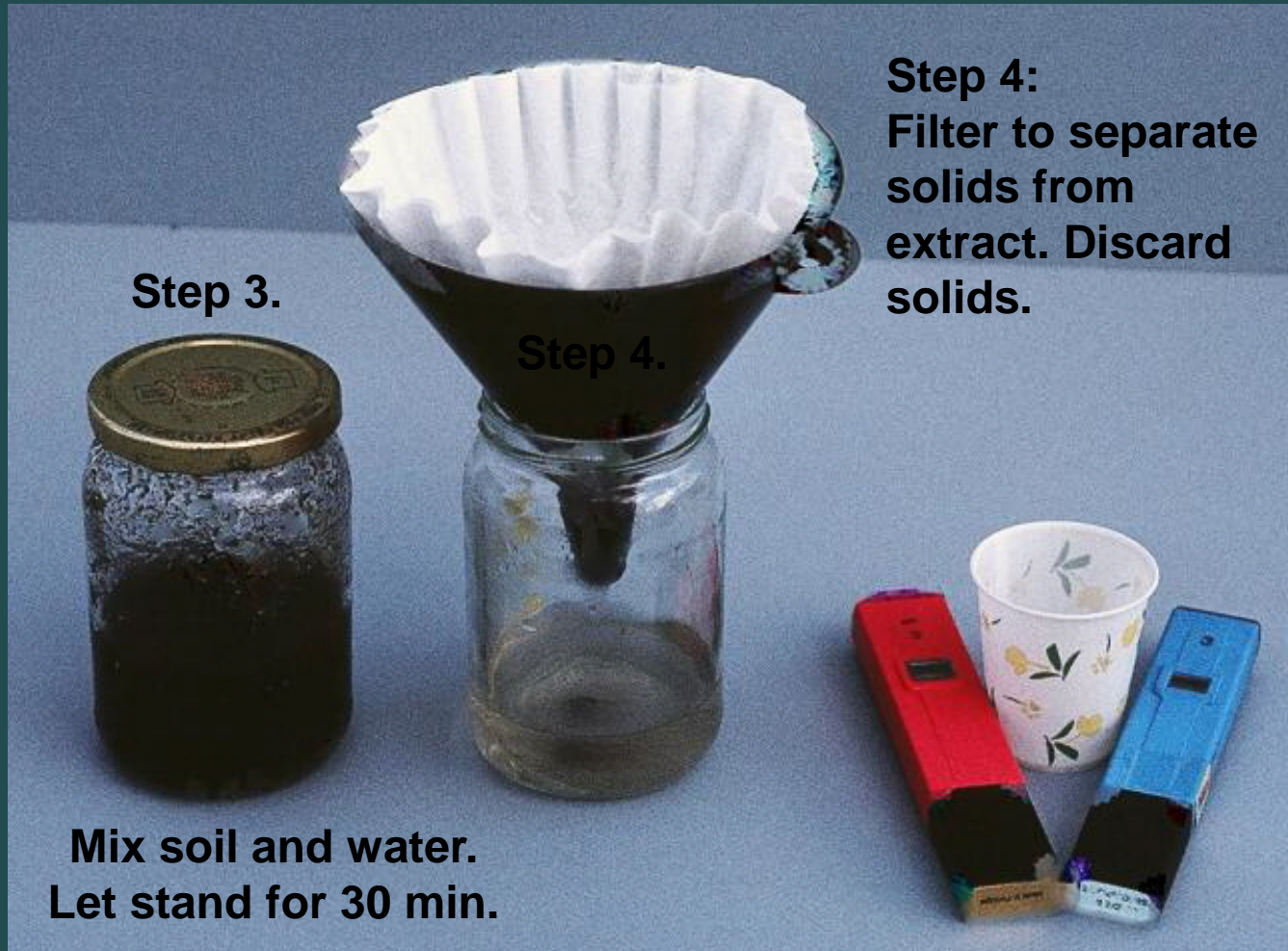
Step 2.



1 volume soil

2 volumes water

# Step 3 & 4. Extract and Filter





# Step 5. Test the Extract with Meter



- Remove cover from sensors.
- Turn “ON” properly calibrated meter.
- Immerse the sensor completely in the extract.
- Wait for a stable reading.
- Record reading for interpretation.
- Rinse sensor in water and blot dry.

# Leachate PourThru Method

- No media sampling or preparation.
- Collect container leachate, plants are not disturbed.
- An irrigation and leachate protocol must be followed.
- Best for continuous monitoring and graphical tracking.
- Poor for casual checks.

## Supplies for PourThru Method

1. One 6 or 8" saucer to collect leachate from each test plant **during the pourthru test** (leachate is NOT collected during routine watering).
2. Measuring cup or similar container capable of measuring minimum of 50 ml (1.5 fl. oz.).
3. Small specimen cups and plastic bottles.

## Collecting PourThru Extract for Testing

1. Select a minimum of 5 pots or cell packs and mark them with a large label or flag, sample at intervals during the crop.
2. Water the plants to saturation and do the test about an hour later.
3. Place a saucer under each pot and add enough water to the plant containers to collect 50 ml or (1.5 fl. oz.) of extract to test.
4. Transfer the extract from the saucer to a specimen cup and test the leachate for pH and soluble salts using your meter.

Amount of water to apply to various containers to produce 50 ml (1.5 fl. oz. extract).

Container	ml	fl. oz.
4-, 5-, 6-inch	75	2.5
6.5" azalea	100	3.5
1 quart	75	2.5
4 quart	150	5.0
12 quart	350	12.0
Flats (606.1203, 1204)	50	1.5

**Consistency is important!**

## Other Tests You Can Do

- No special sample preparations are necessary to make the following measurements:
- pH of pesticide and growth regulator spray solutions. Proper pH is an important factor in how well some chemicals work.
- pH of water and hydroponic solutions.
- EC of fertilizer solutions. Check the operation of fertilizer injectors.

