

12. Water Quality Tests

A. Estimation of Water Nitrate and Nitrite levels

Materials needed to determine water nitrate (NO_3^-) and nitrite (NO_2^-) levels:

- filter paper
- 120-mL plastic containers with lids
- eye dropper
- nitrate/nitrite test strips
- stopwatch or timer

Considerations: Water samples may be taken from drinking water, well water, tile drainage, drainage ditches, and ponds. Sample surface runoff from fields, which may be a contributing source of contaminants.

① Filter Water Sample (if cloudy)

- Collect water sample in the plastic container. Fill to about 1/3 full.
- Fold a piece of filter paper as described in Chapter 7--Soil Nitrate Test. Insert filter paper into the jar and allow the water to seep through the filter paper to the inside. **[If the water sample is clear (no cloudiness or suspended particles), the sample does not need to be filtered.]**

② Place Drops on Nitrate and Nitrite Strips

Using the eye dropper, collect a sample of the filtered water. Place 1 or 2 drops of the filtered solution on each of the strip's two pads. Note the time.

[One pad measures the amount of nitrite and the other measures the amount of nitrite and nitrate combined.]

③ Measure and Record Nitrate and Nitrite.

- **After 30 seconds**, measure and record nitrite. Estimate the nitrite amount according to the degree of color change. Enter the value on the Soil Data worksheet in ppm from the nitrite scale on the bottle.
- **After 60 seconds**, measure and record nitrate. Estimate the nitrate amount according to the degree of color change. Enter the value on the Soil Data worksheet in ppm from the nitrate scale on the bottle.

[Note: Estimate results if colors on test pads fall between two color patches.]

B. Estimated Water Salinity Levels

Materials needed to estimate water salinity levels:

- EC pocket meter
- 120-mL plastic containers and lids
- distilled water

Considerations: Water samples may be taken from drinking water, well water, tile drainage, ditches, irrigation water, and ponds.

① Collect Sample

Collect water sample in plastic container. Fill to about 1/3 full.

② Measure Electrical Conductivity

- Insert the EC pocket meter into the water sample. Allow the reading to stabilize (stays the same for about 10 seconds). Note the digital reading.
- Enter the EC reading on the Soil Data worksheet in decisiemens per meter (dS/m). The DiST WP 4 meter gives readings directly in dS/m. For the Microsensor 4 meter, divide the reading by 10, and for the Microsensor 3 meter, divide the reading by 100 to get readings in dS/m. Insert the EC pocket meter into the water sample until the reading stabilizes (stays the same for about 10 seconds). Note digital reading.

③ Rinse Pocket Meter

Turn off the meter. Thoroughly rinse the meter with distilled water, and replace cap.

Did You Know?

Healthy soil not only improves crop performance, it also cleans and stores water; and prevents runoff and erosion; and uses nutrients more efficiently, reducing the need for pesticides.