2. Collect the right amount of plant material. At the seedling stage, 30 individual plants is an adequate sample. As the crop develops and leaves enlarge, take enough MRMLs to represent field conditions accurately.

For a predictive sample, collect MRMLs from at least 8–12 areas and submit them as one sample. Collect a separate sample for each different soil type or growing condition in a field.

3. Place the appropriate plant sample in a paper bag or envelope (provided by the Agronomic Division). Plastic containers should not be used because heat build-up causes plant tissue to decompose and may affect results.

4. When submitting samples for diagnosis of growth or appearance problems, also submit matching soil samples from the problem area. Soil analysis combined with plant analysis provides a more complete picture of nutrient-related problems.

5. Complete Plant Sample Information form AD-4. For most accurate recommendations, describe plant appearance, fertilizer history and environmental conditions on the form.

6. Send tissue samples and any matching problem soil samples to the address given on this brochure. Enclose the appropriate processing fee for each sample.
To collect and submit a solution sample, follow these procedures:

1. Collect 8 ounces of solution in a clean plastic bottle. Small soda bottles are about the right size. Growers who use them, however, should remove or block out any original product labeling.

   Make sure the sample represents the total solution. For example, for a source water sample, let the tap run for a few minutes before collecting it. For a nutrient solution sample, mix the fertilizer thoroughly and combine samples from several areas to make one composite sample.

2. Complete Solution Sample Information form AD-7. Select the appropriate solution code from the bottom of the form. “ST” is the code for float bed source water. “NT” is the code for a nutrient solution (one that contains fertilizer).

3. Send samples to the address given on this brochure. Enclose the appropriate processing fee for each sample.

Solution analysis: other considerations

N.C. Cooperative Extension recommends the following nutrient concentrations for tobacco float beds within seven days of seeding: 100–150 ppm nitrogen and potassium, 35–50 ppm phosphorus and 1–2 ppm boron. To avoid overfertilization, it is important to know the nutrient content of your media. Check the label on the bag or contact the manufacturer for this information.

Some media are pre-mixed with fertilizers; others have practically no nutrients. If the media supplies all essential nutrients, growers should reduce or eliminate fertilizer in the float bed water. Doing so can prevent problems with soluble salts and nutrient toxicities as well as reduce production costs.

<table>
<thead>
<tr>
<th>Index</th>
<th>Letter Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;25</td>
<td>D</td>
<td>deficient</td>
</tr>
<tr>
<td>25–49</td>
<td>L</td>
<td>low</td>
</tr>
<tr>
<td>50–74</td>
<td>none</td>
<td>sufficient</td>
</tr>
<tr>
<td>75–99</td>
<td>H</td>
<td>high</td>
</tr>
<tr>
<td>100 +</td>
<td>E</td>
<td>excessive</td>
</tr>
</tbody>
</table>

In addition, interpretive indexes and letter codes make the status of a nutrient easy to understand (Table 1).

Plant tissue samples: how to collect them

Tissue samples can be collected at the seedling stage, after transplanting to the field, at bloom, and again at harvest. To collect and submit a plant tissue sample, follow these procedures:

1. In most cases, the appropriate part of the plant to collect is the most recent mature leaf (MRML). This is the 3rd to 5th leaf back from the growing point (Figure 1). Only when the leaves are small—such as during seedling stage—is it appropriate to submit the whole above-ground plant for analysis.

Table 1. Plant nutrient indices

![Figure 1. Most recently mature tobacco leaves](image)