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# Harvesting Tobacco Based on Tissue Analysis

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## Plant Tissue Nutrient Sufficiency Ranges for Ripe Tobacco\*

Nutrients	Stalk Position		
	Lower Leaves	Middle Leaves	Upper Leaves
<b>N (%)</b>	1.3 – 1.75	1.6 – 2.0	2.0 – 2.25
<b>P (%)</b>	0.12 – 0.3	0.13 – 0.3	0.14 – 0.3
<b>K (%)</b>	1.3 – 2.5	1.5 – 2.5	1.5 – 2.5
<b>Ca (%)</b>	1.0 – 2.5	1.0 – 2.0	0.75 – 1.5
<b>Mg (%)</b>	0.18 – 0.75	0.2 – 0.6	0.2 – 0.6
<b>S (%)</b>	0.15 – 0.4	0.15 – 0.4	0.15 – 0.4
<b>Fe (ppm)</b>	40 – 200	40 – 200	40 – 200
<b>Mn (ppm)</b>	18 – 350	20 – 350	20 – 350
<b>Zn (ppm)</b>	18 – 60	18 – 60	18 – 60
<b>Cu (ppm)</b>	3 – 10	4 – 10	5 – 10
<b>B (ppm)</b>	15 – 30	18 – 30	18 – 30

\* Campbell CR. 2000. Flue-cured tobacco. In: Campbell CR, editor. Reference sufficiency ranges for plant analysis in the southern region of the United States. Raleigh (NC): NC Dept of Agriculture & Consumer Services. Southern Cooperative Series Bulletin 394. [[www.ncagr.gov/agronomi/saaesd/scsb394.pdf](http://www.ncagr.gov/agronomi/saaesd/scsb394.pdf)]



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## Plant Tissue Analysis— Aid for Determining Tobacco Ripeness

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Tissue analysis is one of the best tools available when it comes to making decisions about timing of harvest. High quality cured tobacco leaf is the goal of all tobacco producers and is in demand by the buying companies. With producer contracts specifying as many as five stalk positions, analysis of harvestable leaves helps maximize yields and grades from desirable stalk positions.

Cured leaf quality depends largely on nitrogen content at the time of harvest. When tobacco receives more nitrogen than recommended, maturity can be significantly delayed, and leaf quality may suffer. This can be an issue for upper stalk tobacco where additional nitrogen has been added to account for leaching losses. Excess nitrogen can also foster insect problems, increase sucker growth and extend curing time.

Use tissue tests to measure leaf ripeness just before harvest. By knowing the nitrogen content within the leaf, you can schedule harvest for optimum leaf maturity. Refer to the table on the flip side of this page for optimal nitrogen levels in tissue at harvest.

To collect and submit tobacco tissue samples, follow these procedures.

- 1) Collect a leaf from the appropriate stalk position from each of 12 representative plants about one week before the intended harvest. Place the sample in a paper bag or in the envelope provided by the NCDA&CS Agronomic Division. Do not use plastic containers.
- 2) Complete the [Plant Sample Information](#) form. Describe the environmental conditions, fertilizer history and plant appearance on the form. When testing for ripeness and maturity, be sure to indicate stalk positions of the leaf samples (lower, middle, upper) and specify that the sample contains harvestable leaves (H) instead of most recent mature leaves. These designations make a big difference in how tissue analyses are evaluated. Nutrient content of leaves varies depending on stalk position.
- 3) Enclose the \$5 processing fee for each sample.

Laboratory analysis takes two days. The procedure measures nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, zinc, copper, boron and molybdenum. Results, along with agronomist's comments, are posted online [[www.ncagr.gov/agronomi](http://www.ncagr.gov/agronomi)] soon after completion.