

is not necessary to supply additional calcium in the form of fertilizer.

Since most tobacco fertilizers contain magnesium, and nearly all ground limestone contains some magnesium, this element will usually be supplied in adequate amounts through normal fertilizing and liming practices.

There is no evidence at this time to indicate that the application of micronutrients should become a general practice in the fertilization of burley tobacco. The soil types on which burley is produced contain these elements to some degree, and the pH level recommended favors their availability to the plant. Also, fertilizers contain varying quantities of these elements.

FERTILIZER APPLICATION

On a fertile soil, it makes little difference whether subsequent fertilizer applications are plowed-under or broadcast and disked-in after plowing. Row applications in excess of 500 pounds per acre of high-analysis mixed fertilizer should not be used because of the danger of fertilizer injury to the roots.

Sidedressing burley tobacco is not generally recommended. However, sidedressing will be beneficial when nitrogen or potassium deficiency symptoms appear early in the season because of excessive rainfall or lack of fertilization before planting.

Use about 50 pounds of nitrogen and/or 100 pounds of potash per acre incorporated into the soil by cultivation.

FERTILIZING TOBACCO PLANT BREEDS

Apply 50-75 pounds of 12-6-6 fertilizer per 100 sq yd and disk into the top 2 to 3" of soil. For further information on tobacco plant beds, contact your Extension agent.

ADDITIONAL INFORMATION

For more information, contact your local Virginia Cooperative Extension (VCE) office or access the Internet and connect to VCE's web site at <http://www.ext.vt.edu>.

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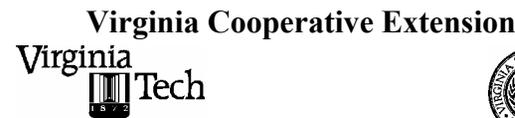
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SOIL TESTING LABORATORY

Soil Test Note 9: Burley Tobacco (Supplement to Soil Test Report)

FERTILIZER RECOMMENDATIONS

Your Soil Test Report contains information on the basic amounts of nitrogen, phosphorus, and potassium required for optimum growth of burley tobacco according to the information you provided on the soil sample information sheet and the results of the laboratory tests. In making the recommendations, average soil and weather conditions and the use of high-level management practices are assumed.

An example of the grade or grades of fertilizer that will furnish the nutrients recommended is contained on the report. Other grades or combinations of grades that are available locally may be used if desired in meeting the crop's nutrient needs.

It should be noted that your experience and past results should be a major consideration in arriving at the final fertilizer rates to use. If manure is to be applied, you will want to refer to Soil Test Note 5 to determine the necessary adjustment in your fertilizer recommendations.

Fertilizing the crop according to soil test results will provide for maximum yields of good quality tobacco under average soil and weather

conditions. Additional fertilizer may produce higher yields but probably no higher quality in years of ideal weather and with a high level of management. Yields may be reduced from causes other than lack of fertility, including poor weather conditions, disease and insect infestation, poorly adapted soils, etc. These factors should be considered before investing in fertilizer in excess of the rates suggested.

The nutrients (unit cost) in a high-analysis fertilizer generally cost less than they do in lower-analysis grades. It is also less expensive for growers to handle the higher-analysis grades since they are used at lower rates.

HIGH ANALYSIS FERTILIZERS

The analysis of fertilizer gives the percent of the different nutrients in the material or mixture. Two fertilizer grade ratios have been available for use on tobacco in Virginia--1:3:3 (3-9-9) and 1:2:3 (4-8-12, 5-10-15, 6-12-18, and 8-16-24). When used at comparable rates the 1:3:3 ratio will supply more phosphorus, but, since this extra phosphorus usually is not needed, there is seldom justification for using it over the 1:2:3 ratio mixtures.

SOIL ACIDITY LEVEL

Burley tobacco will grow satisfactorily over a wide range of soil acidity but other situations must be considered. The fungus which causes black root rot is favored by soil pH levels greater than 6.0. If the soil has a pH above 6.2, only a variety with good black root rot resistance should be grown and preferably only one year in four on the same land. If the acidity level is below pH 4.9, injury and reduced yield from manganese toxicity can be expected. This is

particularly true if the land is under intensive cultivation. Cultural methods that maintain pH in the range of 5.5 to 6.0 will minimize trouble with black root rot and manganese toxicity.

NITROGEN

The amount of available nitrogen in the soil cannot be routinely measured with present soil tests. In addition to the amount in the fertilizer, nitrogen supplied to the crop will be influenced by past cropping, amount of organic matter, soil texture, and weather conditions. The amount of nitrogen suggested will be adequate for high yields (2700 pounds or over) on adapted soils and good growing conditions. The nitrogen supply for burley tobacco should be almost depleted at topping time or shortly after to allow for normal maturity of the tobacco and proper curing. An excess of nitrogen adds to curing difficulties and produces a tobacco that is less useful to manufacturers.

PHOSPHORUS

Tobacco uses relatively small amounts of phosphorus and does not respond to high levels of phosphorus fertilization. However, phosphorus becomes available rather slowly in comparison to nitrogen and potash, and, for this reason, it is desirable to maintain high levels in the soil. Phosphorus does not move readily or leach from the soil particles and thus, for the most part, it remains in the soil until used by growing crops. If the soil test shows a high level of phosphorus, an additional amount will neither benefit nor harm the immediate tobacco crop, but will increase the available supply in the soil for future crops.

POTASSIUM

Potassium is necessary not only for good growth but also enhances the quality of the tobacco. Tobacco deficient in potassium is more subject to leaf diseases in the field.

Muriate of potash should not be used for tobacco because of its chlorine content. Cured tobacco high in chlorine remains wet and is difficult to burn when used in manufacturing. Suitable potassium-supplying fertilizers are sulfate of potash (0-0-50), potassium nitrate (13-0-44), nitrate of soda-potash (15-0-14), and sulfate of potash magnesia (0-0-22 with 18% MgO).

Increasing the rate of potash above the suggested rate will not affect yield but tends to increase quality. This effect is lost, however, unless additional care beyond that used by the average grower is used in housing, curing, and stripping.

SECONDARY ELEMENTS AND MICRONUTRIENTS

In addition to nitrogen, phosphorus, and potassium, burley tobacco requires the secondary elements of sulfur, calcium, and magnesium, and very minute amounts of the micronutrients boron, zinc, manganese, copper, iron, molybdenum, and chlorine.

Sulfur is amply supplied to tobacco as a naturally occurring element in the soil, as a constituent of rain water, and as a chemical compound used in the preparation of fertilizers.

Land which has been recently limed to reduce soil acidity, or has a pH above 5.5, should contain sufficient calcium for burley tobacco. It