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Department of Agronomy

Soil Science

News & Views



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DEVELOPING A FERTILIZER PROGRAM FOR TOBACCO

J. L. Sims

Use of adequate amounts of required fertilizer nutrients are necessary to increase both yield and quality of tobacco if they are lacking in a soil. However, to insure maximum profits from the tobacco crop, careful consideration must be given to fertilizer management (kinds, rates, and methods and times of fertilizer application), the chemical and physical characteristics of the soil, and the crops grown in rotation with tobacco. To develop a profitable fertilization program for tobacco requires thoughtful planning on the part of the grower. Late summer and early fall is a good time to make these plans for the future.

Selection of Tobacco Fields

It is desirable to select the field for tobacco 1 to 3 years prior to growing the crop. If possible, select a field in a grass or grass-legume mixture with soil that has good internal drainage characteristics. Growing tobacco after plowing under a good sod will provide soil with good granular structure that tobacco roots can readily penetrate. The continuous production of tobacco in one location often leads to deteriorated soil structure, increased danger of manganese toxicity, and increased risk for incidence of such diseases as black root rot and black shank. Ideally, a good plan is a crop rotation of 2 years grass-legume sod followed by 2 years tobacco, with a winter cover crop between crops of tobacco. Other factors to consider in selecting a field are its past history of pesticide use and the relation of the field to sites of known tobacco disease incidence. Do not transplant tobacco in fields treated the previous year with pesticides not compatible with tobacco. Similarly, don't locate a tobacco field downstream from a field containing black shank the previous year. After selection of a good field(s) for tobacco, samples of the soil should be tested (see your County Extension Agent) to determine whether lime and fertilizer is needed and if so, what kind and how much.

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Fall Application of Lime and Fertilizer

Soil pH should be 6.4 before transplanting. For best results, limestone should be applied 2 to 3 years ahead of the crop. If tobacco can be grown in the 2-year sod-tobacco rotation given above, apply any needed lime following harvest of the second tobacco crop just ahead of disking and seeding the grass-legume mixture. If lime can not be applied well in advance of the crop, the lime must be mixed more thoroughly with the soil. Consideration should be given to applying half of the lime in the fall and the remainder in the spring after plowing. Fall is also a good time to apply phosphorus and potassium fertilizer when needed as these elements are not readily leached from soil. It is vitally important, if muriate of potash is used, to apply it in the fall so that the chloride may leach below the root zone over winter. Recent research at the University of Kentucky has shown that spring applications of chloride containing fertilizers above 50 lb. of chloride per acre leads to excessive levels of chloride in the cured leaf of tobacco, increased curing and storage problems, decreased combustibility of leaf and ultimately reduced quality and usability of cured leaf. Consequently, sulfate of potash must be the major source of potassium for spring applications. Since nitrogen is readily lost from soil over winter in Kentucky, nitrogen fertilizers should not be applied in the fall.

Spring Application of Fertilizer

Currently, most fertilizer is applied broadcast within 4 weeks of transplanting. Since Kentucky usually has large rainfall amounts during April and May, applying the broadcast nitrogen as near to transplanting (10 days to 2 weeks before) as possible will significantly lessen the chances for losses of nitrogen. Apply the nitrogen after plowing and disc into the surface soil.

Further efficiencies in fertilizer use, decreased manganese toxicity, and increased early growth of tobacco may be obtained on most soils by banding all or part of the fertilizer (sidedress) after transplanting. These bands should be made 10 to 12 inches to the side of the row in either one or two bands, and at depths of 4 to 5 inches. All of the fertilizer should be banded within 10 days after transplanting or in two applications, half within 10 days and the remainder at 4 weeks after transplanting. Alternatively, good results have been obtained by applying one-third of the fertilizer broadcast before transplanting and two-thirds banded 1 to 4 weeks after transplanting. Molybdenum should be applied in the transplant water on soils testing less than pH of 6.4.

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