
 * Mimeograph Dec. 1942 *
 * Paper No. 16 GEORGIA COASTAL PLAIN EXPERIMENT STATION 1/ Revised: *
 * Tifton, Georgia July 1953 *
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 * Information based on results of practical experiments in *
 * agriculture for press release and distribution to farmers *
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FERTILIZING FLUE-CURED TOBACCO

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Flue-cured tobacco is exacting in its nutrient requirements, particularly of nitrogen and potash. The source and amount of either of these elements will greatly influence leaf quality and yield. On average Georgia soils, a 3-9-9 (N-P-K) formula is considered properly balanced, and 1000 to 1400 pounds per acre of this are usually sufficient.

Formula and Amount to Use per Acre

Flue-cured tobacco fertilizer should contain 3 percent nitrogen, 9 to 12 percent phosphoric acid (P_2O_5), 9 to 12 percent potash (K_2O), not over 2 percent chlorine, 2 percent magnesium (MgO), 6 to 10 percent calcium (CaO), and 6 to 10 percent sulphur (SO_3). The higher rates of potash and phosphorus may be required on soils deficient in these elements.

Amount for average Norfolk soils: From 1000 to 1400 pounds per acre of a 3-9-9, or similar formula, are satisfactory. Because of reduced drought hazard, low moist soils may be fertilized heavier than more rolling drier soils.

For sandy soils low in fertility: From 1200 to 1600 pounds are profitable on deep sandy soils. More than 1600 pounds are questionable for general use. When in doubt, it is better to use too little rather than too much fertilizer on any soil.

For average Tifton soils: - From 1000 to 1200 pounds per acre are usually sufficient.

For more productive soils: 800 to 1000 pounds may be sufficient. Greater amounts increase yield but delay ripening and cause low quality. Ripening may be hastened on such soils by raising the phosphorus and potash levels and holding down nitrogen. Where additional phosphorus and potash are required, the phosphorus may be supplied by high phosphorus mixture (3-12-8), or by pre-planting application of superphosphate. The potash may be supplied by side dressing with sulphate of potash or sulphate of potash magnesia at first cultivation or not later than 20 days after transplanting.

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Method of Application

Transplanting tobacco seedlings directly into, or immediately above, a band of fertilizer not mixed with the soil may result in losses up to 70 percent of the original transplants. Placing the fertilizer in bands 3 to 4 inches to the side of the row is considered a good practice but has little advantage over applying it directly in the row and thoroughly mixing with the soil before listing. Apply not more than 1000 pounds per acre in the row before planting. Amounts in excess of 1000 pounds per acre may be applied as a side dressing at the first cultivation or not later than 20 days after transplanting. Where additional nitrogen is considered necessary as a side dressing, application of a standard tobacco formula is believed to be safer than the use of a nitrogen source alone.

Source of Materials

Nitrogen: It is recommended that 20 percent of the nitrogen be derived from high-grade organic sources such as cottonseed meal, 20 percent from nitrate, and the remainder from other standard inorganic materials. High amounts of water-insoluble nitrogen in dry seasons invariably cause delayed development and low quality. On the other hand, readily available sources may leach out in wet weather, resulting in low yields. Stable and cow-lot manure are valuable sources of nitrogen and organic matter, and should be used wherever available. Two 2-horse wagon-loads per acre are advised in addition to 1000 pounds of commercial fertilizer.

Phosphorus: Standard and high analysis superphosphates have been suitable sources of this element. As high as 12 percent phosphorus is advised on new land and on old land low in phosphorus. Insufficient phosphorus lowers yield and quality and delays ripening.

Potash: Potassium may be derived from any available source, provided the resulting mixture does not contain more than 2 percent chlorine. A good procedure is to derive two units of potassium from muriate and the remainder from sulphate of potash and sulphate of potash magnesia. More than 2 percent chlorine in most soils reduces the fire-holding capacity of the cured leaf. In a 1000-pound application, less than 9 percent K_2O on most soils produces more low-grade leaf than mixtures containing 9 percent or more. Over 18 percent delays ripening and lowers quality. Sulphate of potash is suggested wherever side dressing with potash is required.

Magnesium may be supplied in the form of sulphate of potash magnesia or dolomite. Magnesium deficiency (sand drown) may be corrected in sandy soils, where it most often occurs, by using a fertilizer carrying 2 percent MgO , one-half of which should be water-soluble.

Plant-bed Fertilizers

Two pounds per square yard of a 4-9-3 are recommended for average beds, and this should be broadcast and worked uniformly into the soil not over 2 inches deep a few days before sowing. Where cyanamid or the urea-cyanamid combination treatment is used for weed and disease control, 1 pound of fertilizer per yard will be sufficient. Beds treated with these chemicals rarely need later top dressing with nitrate. Most of the nitrogen in plant-bed fertilizers should be slowly available, but excessive amounts of organic materials such as cottonseed meal are to be avoided. It is suggested that one-fourth the nitrogen be derived from organics, one-fourth from standard nitrates, and one-half from ammonia or other standard forms such as ammonium sulphate. All potash should be taken from materials that contain no chlorine such as sulphate of potash. The fertilizer should carry 1 percent water-soluble MgO .