CONSIDERABLE data (8, 10, 12, 13) have been published on the chemical composition of cotton plants, but little information is available concerning the fertilizing value of the burs and their ashes. Fraps (6) states that where yields of 1,000 to 1,200 pounds of seed cotton per acre are produced, the amount of burs for each 300 pounds of seed is about 160 pounds. McBryde (9) found that 14.21% of a mature dry cotton plant is burs. More than 50% of the cotton in western Oklahoma is harvested by snapping, consequently large quantities of burs accumulate at the gins during the ginning operations. The disposal of this material depends upon local conditions and many inquiries are received annually concerning the utilization of the ash. If the burs are not burned, they are usually scattered on fields near the gins and the rate of application in tons per acre is usually high.

EXPERIMENTAL PROCEDURE

The effect on the yield of seed cotton of applying cotton burs and their ashes to Kirkland soil has been studied since 1926 at Oklahoma Agricultural Experiment Station. This soil contains about 2,000 pounds of total nitrogen per acre in the surface 6½ inches which is higher than the average nitrogen content of the upland soils where cotton is usually planted. The burs were applied at intervals of 3 years on different plats at rates of 3 and 6 tons per acre, respectively, except during the first season, when the rate was 1 and 3 tons per acre. On one series of plats the treatments were applied before the land was plowed. In order to study the effect of different methods of application, burs were scattered over the surface of plowed land on adjacent plats and disked into the soil. Two plats were also treated in a similar manner with ashes equivalent to 3 and 6 tons of burs per acre.

Cotton burs were collected during the fall of 1937 from several counties in Oklahoma, and all seed, lint, and trash were removed. The samples were finely ground in a Wiley mill, oven dried at 105°C, and analyzed for total ash, nitrogen, phosphorus, and calcium by methods recommended by the Association of Official Agricultural Chemists. Magnesium was determined by a method recommended by Dean and Truog (3) and potassium by the sodium cobaltinitrite method (11).