THE number of leaves of vegetatively mature stalks of cultivated sorghum (Sorghum vulgare Pers.) frequently has been determined and is regarded as a varietal character. The number varies with date of planting, locality, and season as well as with variety, which demonstrates that it also is influenced by environment. As in all grasses, each node of a sorghum stalk produces a leaf, the number of leaves and nodes being identical. The leaves are counted more easily than are the nodes. It is commonly recognized that the first few small leaves die and dry up before the stalk reaches maturity, although in reporting leaf counts of mature stalks investigators usually ignore these first 10 leaves (more or less) borne on the nodes in the crown of the plant. It is obvious that such counts are lacking in exactness. The number of leaves and nodes is not definitely fixed in the embryo and variations in node number are observed between plantings on different dates from seed from the same selfed heads and between tillers and main stalks of the same plant. Consequently, it is not possible to obtain pure lines with a specific number of leaves under all environments.

Leafiness is an important character in sorghums used for forage. For some years sorghum workers have observed that early-maturing sorghums are characterized by fewer leaves, smaller leaves, and more slender stalks than are late-maturing varieties. The present investigation to determine the exact number of leaves produced by different sorghums under varying environments was undertaken to provide a better basis for future studies of the genetics and the physiological inter-relationships of leaf number.

The number of leaves on the main stem of maize varieties has been used as an index of length of growing period by Kuleshov, and Davidowicz found a correlation between leaf number and earliness in tobacco.

METHODS

The data reported here were obtained at the United States Southern Great Plains Field Station at Woodward, Okla. All final leaf counts were made after the top, or flag, leaf appeared or after heading, and the counts included all leaves produced by a stalk. In order to facilitate the counting, the fifth leaf was cut off at an angle close to the stem two or three weeks after the seedlings emerged and later the tenth leaf was punched near the base at one side of the mid-rib. If the tenth leaf died or the number of leaves exceeded 20, it usually was found advisable also to mark the fifteenth, twentieth, or even the twenty-fifth leaf.

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2Agronomist.