VARIATION IN BUFFALO GRASS

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If there is a typical perennial "short grass" of the western prairies, it is buffalo grass (*Buchloe dactyloides*). It is also a mat grass of very dense nature, so compact that its sod served in many instances in pioneer days on the plains as building blocks for houses of the early settlers. Dimorphic in structure, it provides opportunity for intensified shortness in the pistillate plant of this monotypic genus (Fig. 1 A). Seedlings of *B. dactyloides* are monoecious, developing in turn both staminate and pistillate branches, which multiply their own kind vegetatively and to considerable extent in area. Solid blocks of either sex may be removed for transplanting, and in this way lawns have been set entirely with the very short female plants, which do not require mowing. Hitchcock (4) uses *Buchloe* as the dioecious pattern in grasses.

The seed, or caryopsis-bearing spikelet, is thus borne so near or on the soil that it is impracticable to harvest it for seed with ordinary farm tools. On normal buffalo grass, the seed has been gathered by hand picking and by vacuum suction of the tough, coriaceous, seed-bearing spikes (Fig. 2 A). As high as 86% of the caryopses examined have been found ruined by fungi such as *Cercospora, Helminthosporium*, and *Ustilago*. In addition, many of the caryopses which appear healthy do not germinate readily and thus the actual viability of buffalo grass seed is usually low, so that until some way of producing viable seeds is found, as well as an economically successful method of harvesting it, vegetative propagation of this very interesting grass appears to be the most satisfactory method.

In the spring of 1935, some rank-growing female plants with elevated spikelets which appeared to be capable of seed harvesting with a common farm mowing machine were found on Arbuckle Mountain in southern Oklahoma (Fig. 3 A). Several rooted runners were propagated and in 16 months had produced a dense sward, during two record drought years, with gratifying results. Two mowings with a hand sickle on eight plots, each one ten-thousandth acre in size, averaged air-dry hay at the following rates per acre:

- First clip, Aug. 8, 1936 ................. 3.08 tons
- Aftermath, Nov. 2, 1936 .............. 2.40 tons

Total (in one season) .................... 5.48 tons

This plat (Fig. 3 B) is composed of all pistillate grass and a plat of staminate grass of this strain could be expected to produce greater returns by reason of its taller growth. The writer has found that pistillate spikelets shatter very decisively as soon as they are mature,

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