PECULIAR MORPHOLOGICAL CHARACTERISTICS OF THE STALKS OF BARREN CORN PLANTS

GILBEART H. COLLINGS

For some years, agronomists at the South Carolina experiment station have been studying the inheritance of barrenness in corn. During the earlier years of the experiment there was always a feeling among the workers that some environmentally barren plants were being unavoidably included in the counts of the supposedly true barren plants. During this period of the experiment there was no accurate method of separating all of the environmentally barren plants from the true barren plants. Of course, plants were never included in the counts of the barren plants if an embryonic or immature ear could be detected on the stalk. However, as will be explained in this article, under that system of distinguishing environmentally barren plants from true barren plants many which were environmentally barren must have been counted as true barren plants.

Close observation of the barren plants during recent years has revealed the fact that if the sheath of a leaf be stripped from the culm, a morphological difference that can be used to determine accurately the true status of plants as to barrenness may be noted.

Normally, there appears on every internode of the culm of the corn plant, just underneath the sheath, a groove in which the ear-producing bud originates. Of course, only a few of these buds grow to maturity. The grooves are more pronounced on the internodes located about half-way up the plant. On true barren corn plants, however, it has been noted that the grooves are entirely absent, and that the accompanying bud, which normally arises from the node at the base of each groove, is also absent. Thus, when a worker is in doubt as to the classification of the plant as to barrenness he may strip a

1 Contribution from the Division of Agronomy, Clemson Agricultural College, Clemson College, S. C. Received for publication July 1, 1925.
2 Assistant Professor.