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A Developmentally Unstable Character in Wheat Glume Fertility

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ABSTRACT

In some wheat cultivars the terminal spikelet of the ear may contain a flower or a rudimentary floret in the axil of the second (upper) glume (Fig. 1). The expression of this "glume fertility" depends on growing conditions, being more common when growth is vigorous. Examples have been found in all of the groups of *T. aestivum* and *T. durum* wheat examined, and hexaploid cultivars with a high level of expression include Arawa, Glenwari, Insignia, Marfed, Mentana, Orca, Ramona 50, and Stockade. It is more common in dense-eared wheats.

FIG. 1. Terminal spikelets of Arawa wheat with second glumes removed: range from "normal" to development of grain and palea in the axil.

Some information on the inheritance of the character is presented. Crosses with "normal" cultivars have shown either multifactorial control, with normality partly dominant in some, or a major dominant factor for normality, with modifiers. Intercrosses of cultivars with a high level of expression have produced some non-segregating normal lines, indicating complementary gene action.