Until the last few years awn inheritance in wheat has been regarded as extremely simple, that is, as being dependent on a single factor difference. The awns of the F1 plants have nearly always been intermediate in length between the awns of the two parents, with the F2 and F3 ratios most frequently 3:1 or 1:2:1. Recently, however, it has become apparent that the inheritance of awns is much more complex than the original data indicated. Several workers have found two independent factors and one has found two factors segregating in such a fashion as strongly to suggest linkage.

REVIEW OF LITERATURE

The first genetic study on awnedness inheritance in wheat hybrids was reported in 1905 by Biffen (1) who concluded that "the beardless condition is a dominant, the bearded a recessive character." Other early workers, particularly Tschermak (12) and Spillman (9), obtained similar results in the first generation and in the second generation also, when the awnless and awned plants occurred in a simple Mendelian ratio of 3:1.

Recent studies by Gaines and Singleton (3) show similar segregation, while Percival (7) has also reported F2 segregation in numerous crosses to approach a 1:2:1 ratio when intermediates occurred.

Saunders (8) questioned the idea that the first generation between an awnless and an awned wheat always is awnless and maintained that the character of awns in the F1 varied with the wheats used.

Howard and Howard (4) were the first to work with the true awnless wheat. They crossed a fully bearded wheat with one described as being really awnless, a fact they emphasized as important, inasmuch as many of the so-called awnless varieties really have short tip awns. In the F2, five awn classes were obtained, viz., (a) entirely awnless, (b) short tips, (c) long tips, (d) nearly full bearded, and (e) fully bearded. They grouped all awned and tip-awned classes together as awned which, in comparison with the awnless, gave a 15:1 ratio.