

6. Unpaired spikelet condition in lateral and terminal inflorescences.

Ears with an odd number of kernel rows due to unpaired spikelets were first reported by Hepperly (J. Hered. 1949). This material was studied further by Wilcox (M.S. Thesis, U. of Ill. 1951) and is very probably the source of material reported here. The specific stock used in this study was from an ear having an odd number of kernel rows and was obtained from Funk Brothers Seed Co. in 1958.

Relationship between the unpaired spikelet condition in the ear and tassel was studied by correlating tassel condensation (Anderson, Ann. Mo. Bot. Gard. 1944) with kernel row number for the unpaired pistillate spikelets. The tassel condensation procedure was modified by taking five times the average number of spikelets per node (Anderson used ten times the average number of spikelet pairs per node), since the unpaired spikelet material often had single or odd numbers of spikelets at a node. Spikelet counts were made on 20 nodes per tassel using 295 plants. The central spike rather than the lowermost tassel branch was used since much of the unpaired spikelet material had only a central spike.

A correlation value of 0.189 was obtained between actual and predicted row number. Although this correlation is significant, the modified tassel condensation formula does not appear to be a reliable predictor for kernel row number in this material on an individual plant basis. This essentially agrees with Wilcox who indicated that the ear and tassel do not show a correlation in the number of rudimentary or paired spikelets, but did not give any correlation values. Wilcox also stated that, every time unpaired spikelets were found in the tassel, the ear had unpaired spikelets. This was found to be generally true in the present study; however, several exceptions were found in that some plants had paired spikelets in the tassel and unpaired spikelets in the ear. Furthermore, plants were found that had unpaired spikelets in the tassel and paired spikelets in the ear.

The unpaired spikelet condition develops because one member of the spikelet pair is arrested in its development. Morphological studies on the lateral inflorescence are currently in progress to identify the stage at which this occurs.

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