EFFECT OF TILLERS ON THE DEVELOPMENT OF GRAIN SORGHUMS

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In most grain sorghum fields the plants are spaced sufficiently wide to allow the development of tillers. The highest yields of grain in freely-tillering varieties of milo and feterita usually have been obtained with plant spacings that produced considerable tillering (4, 5, 6, 8). The tillers often bear a considerable portion of the total grain yield, although under normal conditions the heads on the main stalks are larger than those on the tiller stalks. This investigation was undertaken to determine the effect of tillers and their removal upon the development of the main stalk and upon the total grain yield of Dwarf hegari.

REVIEW OF LITERATURE

Tillers have frequently been regarded as detrimental in grain sorghums and the selection of seed heads from plants without tillers has been recommended (1, 7). More recent and complete investigations (5, 6), however, have suggested the undesirability and futility of these early recommendations.

Hastings (3) recommended a rate of planting sufficiently heavy to prevent tillering in milo at San Antonio, Tex., finding that attacks of the sorghum midge could be reduced by early and uniform flowering. Plants with a lesser number of tillers resulted in a larger number of erect heads, more uniformity, and higher grain yields under these special conditions.

Tillers, or suckers as they are often called, have been a problem in many crop plants, especially corn. As early as 1909, Williams (10) removed the suckers in corn to determine if they were injurious to the yields. Reductions in the weight of grain per stalk, percentage grain to cob, and yield of stover were obtained by removing the suckers from the plants. Dungan (2) defoliated the main stalks of corn at the early milk stage, removing the suckers from some plants and allowing them to remain on others. Significant increases in weights were obtained from the plants having suckers over those from which the suckers had been removed. Nourishment for the main stalks was received from the suckers when they were left on the plants.

The physiological relations between the tillers and the main stalk of wheat have been worked out by Smith (9). He observed but slight translocation between different tillers of a plant after flowering. His results indicate that considerable photosynthesis can take place on the surface of the culms when the leaves have been removed. Any water taken up by the roots is distributed evenly to all of the tillers of a plant.

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3Reference by numbers in parenthesis is to "Literature Cited," p. 714.