Pearl millet and sorghum yield and water use efficiency in eastern Nebraska. (C03-mason161917-Poster)

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Abstract:

Pearl millet and sorghum are drought tolerant crops, but both crops yield higher when rainfall is evenly distributed throughout the growing season. A 2-year study was conducted on a Sharpsburg silty clay loam soil near Mead, NE. The objectives of the study were to determine the adaptation of early season pearl millet and grain sorghum to the conditions of eastern Nebraska, and to compare yield response of pearl millet and sorghum under rainfed, partial, and full irrigation. Average grain yields were 5.1 and 6.1 Mg ha-1 for pearl millet and sorghum. Sorghum had a greater response to supplemental irrigation than pearl millet. Under rainfed conditions, grain yields were 4.8 and 5.3 Mg ha-1 for pearl millet and sorghum. Supplemental irrigation did not affect the number of panicle m-2, but increased the kernel weight. Pearl millet yield increases were 10.0, 10.9, and 3.0 % with full irrigation, irrigation at grain fill, and boot stages, respectively. For sorghum, these increases were 27.2, 18.9, and 13.0 % respectively. These results indicate that supplemental irrigation at grain fill, when necessary, will be enough to increase the yield for pearl millet, but grain sorghum will response more to irrigation. Sorghum is better adapted to this region than pearl millet.

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