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MICROCLIMATE OF DRY COTTON PRODUCTION SYSTEMS

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Abstract

Solid and skip row planted cotton are two main cropping systems used on the High Plains of Texas. This study was conducted to determine if there was a measurable difference in energy balance (EB) between the systems, and if that difference leads to a difference in yield. The Eddy Correlation (EC) method was used to measure the terms in the EB. The Campbell Scientific CS 7500 was the EC system used to measure the fluxes associated with each term in the EB. Water use efficiency, on carbon assimilation basis, calculated for both area and yield was also used to compare each cropping system. In the 2001 growing season, no differences were measured in the EB or WUE per area. The skip row crop out yielded the solid crop; therefore the skip row crop was better at partitioning carbon for seed and fiber production. The WUE of the skip row cropping system, on a yield basis, was better than the solid cropping system. If this one-year study is representative of a typical growing season, farmers on the Texas High Plains should use the skip row pattern over the solid.