

عنوان مقاله:

Effect of Center Pivot System Lateral Configuration on Water Application Uniformity in an Arid Area

محل انتشار:

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خلاصه مقاله:

System evaluations were performed on ۴۸ center pivots in different parts of Saudi Arabia. These systems, located on different farms in four different regions of the country, namely: Riyadh, Jouf, Qassim and Eastern regions, were evaluated to study the effect of lateral configuration on water application uniformity as regards the original vs. modified laterals. Lateral configuration modifications have been made by the local farmers through a change of the position of the lateral and spray nozzles from the original design. Depths of water distribution along the lateral, Coefficient of uniformity (Cu) and Distribution uniformity of the low quarter (Du) were determined and compared for the original and modified laterals under field conditions. The average values of Cu for original systems ranged between ۷۱.۸۱ and ۸۹.۴۶% with an overall average of ۸۲.۶۹%, whereas the average values of Cu for modified systems ranging between ۶۱.۳۵ and ۸۴.۳۳% with an overall average of ۷۸.۰۵%. Also, the values of Du ranged between ۵۴.۱۴ and ۸۱.۸۱% with an overall average of ۷۳.۲۴% for the original systems, while these values for the modified systems ranging between ۳۱.۴۵ and ۷۷.۰۷% with an overall average of ۶۶.۸۷%. The results finally indicated that the values of uniformity for original vs. modified laterals were significantly different indicating that there existed a noticeable adverse effect of center pivot lateral configuration on the uniformity of water application.

کلمات کلیدی:

Application uniformity, Center pivot, Lateral configuration, Sprinkler irrigation

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