Effect of fully and limited irrigation on forage production and irrigation water use of alfalfa (Medicago sativa L.) and blue panic (Panicum antidotale Retz) under different irrigation methods in Saudi Arabia.

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Abstract:

Field experiment was conducted to optimize forage production and water use efficiency (WUE) under dry land condition at the Agriculture Research Station of King Abdulaziz University located at Hada Al-Sham, Jeddah. Aim of the research was to produce the optimum forage production with the least amount of irrigation water in alfalfa and blue panic forage crops. To fulfill the above mentioned objective three irrigation systems (sprinkler, drip and sub-surface drip) were investigated using three water regimes namely: 100% water requirement (WR), 75%WR and 50 % WR. Under these treatments alfalfa and blue panic crops were investigated. Results revealed that, total water supply was increased along the growing season to reach its maximum in June, then decreased. Sub-surface drip produced the highest forage yield under fully water requirement (100% WR). Surface drip increased yield production under stress treatments (75% WR and 50% WR) while sprinkler system produced the least forage yield. Under fully and stress treatments, blue panic produced higher forage yield than alfalfa. WUE was the best under subsurface drip followed by surface drip while the least was recorded in sprinkler irrigation.

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