

A study was conducted in Hada Al-Sham Research Station , King A/Aziz University in Jeddah, Saudi Arabia for two consecutive years (2009-2010) to evaluate the effect of some chemical fertilizers (N, P, K, and NPK) on yield and nutritive value of alfalfa grown under stress environment of irrigation water salinity and poor soil. The treatments consisted of N in the form of urea, P in form of superphosphate , K in form of  $KNO_3$  and NPK, all applied at a rate of 50 kg/ha. Significant differences ( $P < 0.05$ ) for the fertilizer treatments compared to the control were reported for dry matter production.

Nitrogen

in form of urea increased dry yield over the control by 18 % in year 1 and by 26 % in year 2. Significant differences for CP, CF, and P were reported for year2 when NPK produced significantly higher CP and lower CF compared to other treatments. In year 1, though no significant differences were reported, NPK and K treatments improved forage quality compared to other treatments.