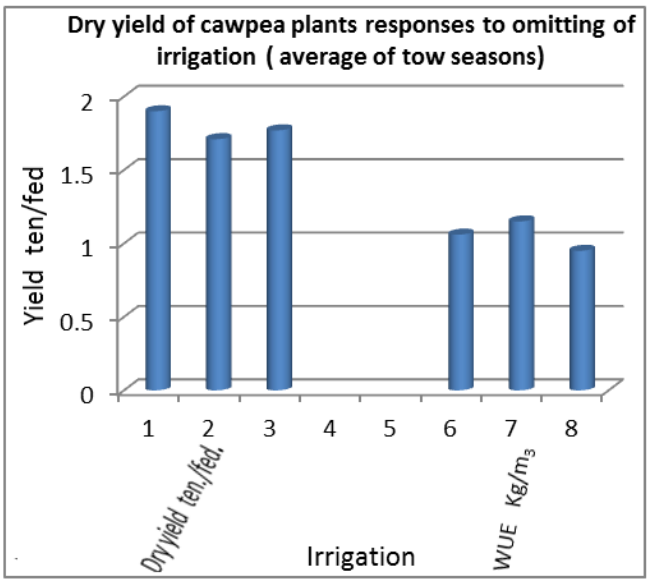

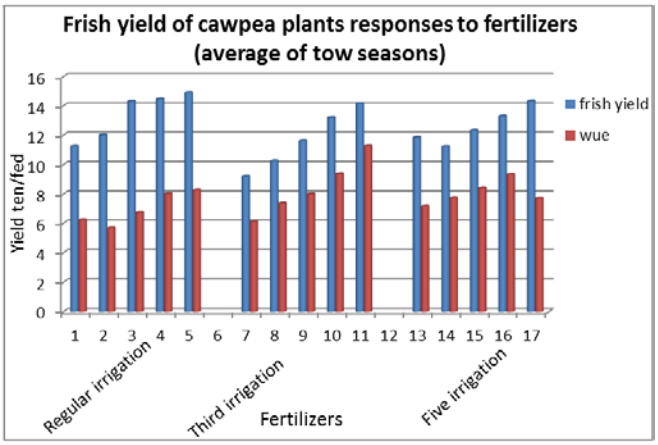

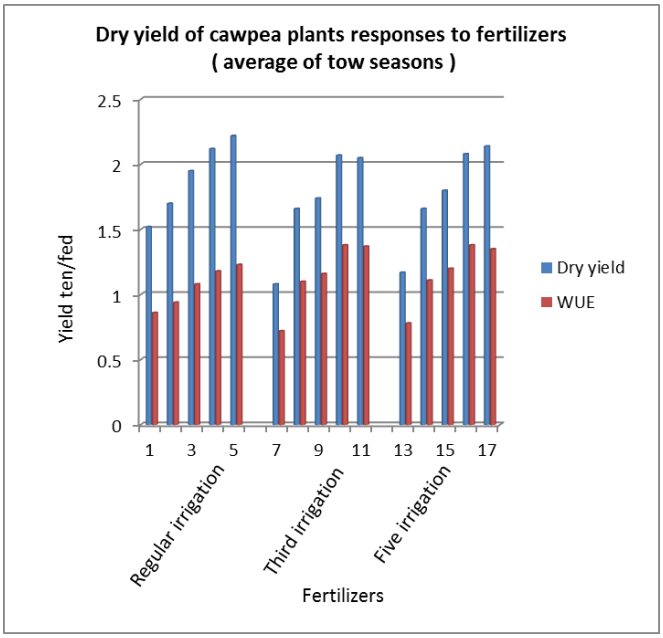

Figure 2: Yield of cowpea plants responses to PK fertilizers and omitting of irrigation (average of two seasons).

Fapohunda and Adekalu (1995) found that yields increased with increasing fertilizer and applied water, but became depressed at 240 kg/ha of fertilizer application. Multiple regression showed that the optimum combination of fertilizer and water for the maximum cowpea seed yield of 1.58 t/ha was found to be 120 kg/ha and 340 mm; respectively. The highest dry matter yield of 6.12 t/ha was produced with 235 kg/ha of fertilizer and 205 mm of water. Substantial reductions of fertilizer input from the optimum to minimum requirements did not appreciably decrease cowpea yields. However, only minor reductions of applied water could be made without adversely affecting yields. **Li, *et al.* (2004**) emphasized that fertilizer improved yield and water use efficiency of maize grown and subjected to dry-period, also reported that missing of irrigation decreased the fresh or dry mass of millet. The depression with missing the 4th irrigation exceeded those obtained by missing the 2nd irrigation. It can be seen from this data a continuous increase in growth traits as a results of the increase in the rate of N, P and K fertilizers up to $N_2P_2K_2$. The leaves area/plant markedly increased by addition of $N_3P_3K_3$, however, the all other characters did not show any significant differences with the higher fertilizer treatment used. Slight increases were shown in Water Use Efficiency (WUE) with drought treatment as omitting of the 2nd or 4th irrigation compare to the treatment irrigated regularly as a control. Also, there is a positive relationship between fertilizer treatment and WUE. Moreover, regardless the NPK effects, this parameter increased slightly by drought treatments. However, NPK application induced gradual increase in this phenomenon as the level of these fertilizers increased, and addition of NPK improved the WUE under different water regimes (**Hussein, *et al.* 2008, 2011 & 2014**). In addition, **Hussein, *et al.* (2013)** concluded that foliar fertilizer act positively to ameliorate drought negative effects. This phenomenon was very clear when irrigation omitted at heading stage. Furthermore, the enhancement of foliar fertilizer lowered when plant subjected to drought at dough stage to be less than the control plants (Regular irrigation). This effect may be related to the disturbance in nutrient stations (**Hussein, *et al.* 2006** on barley) and/or in photosynthesis (**Hussein, *et al.* 2013**) on jatropha

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