Foliar potassium nitrate application increased yield, yield components and lint quality of cotton

A field experiment was conducted to evaluate the effect of potassium nitrate on yield and fiber quality of cotton (

Gossypium hirsutum

L.). The experiment was laid out in a randomized complete block design with split plot arrangement and three replications at the University of Agriculture in Faisalabad, Pakistan. In one block, only one KNO_3 spray at 0,5%, 1,0%, 1,5% or 2,0% was applied during flowering and in the other block three foliar sprays were applied: first at flowering, second and third at 14 days interval. Together with the four different levels of potassium nitrate (0,5%, 1,0%, 1,5%, 2,0%) a control (no spray) and a water spray were used as treatments.

The treatment with three potassium nitrate sprays showed a statistically significant higher number of bolls (61,2) compared to one KNO_3 spray (54,1). The maximum number of bolls and yield per plant was obtained when 2% potassium nitrate was sprayed, followed by 1,5% potassium nitrate (Table 1). Maximum values of fibre length, fibre strength and fibre uniformity were observed when 2% KNO_3 was sprayed. The effect of time of sprays was non-significant in its effect on fibre quality parameters. The 2% KNO_3 spray statistically significantly outperformed all the other treatments in terms of fibre length (Figure 1).

Table 1. The average effect of number of sprays and concentrations of foliar

potassium nitrate application on seed cotton yield and its components.

Treatments	Number of bolls	Boll weight (g)	Yield/plant (g)
Number of sprays			
1	54,1 b	3,31	168
3	61,2 a	3,24	201
Concentrations of KNO_3 sprayed			
Control	42,0 f	2,97 d	124 e
Water	50,0 e	3,02 d	151 d
0,5% KNO_3	56,5 d	3,21 c	181 c
1,0% KNO_3	61,8 c	3,37 b	208 b
1,5% KNO_3	66,1 b	3,57 a	235 a
2,0% KNO_3	69,6 a	3,53 ab	246 a
Interaction			
CxN	Significant	NS	Significant

Data within columns followed by different letters are significantly different at P<0,5

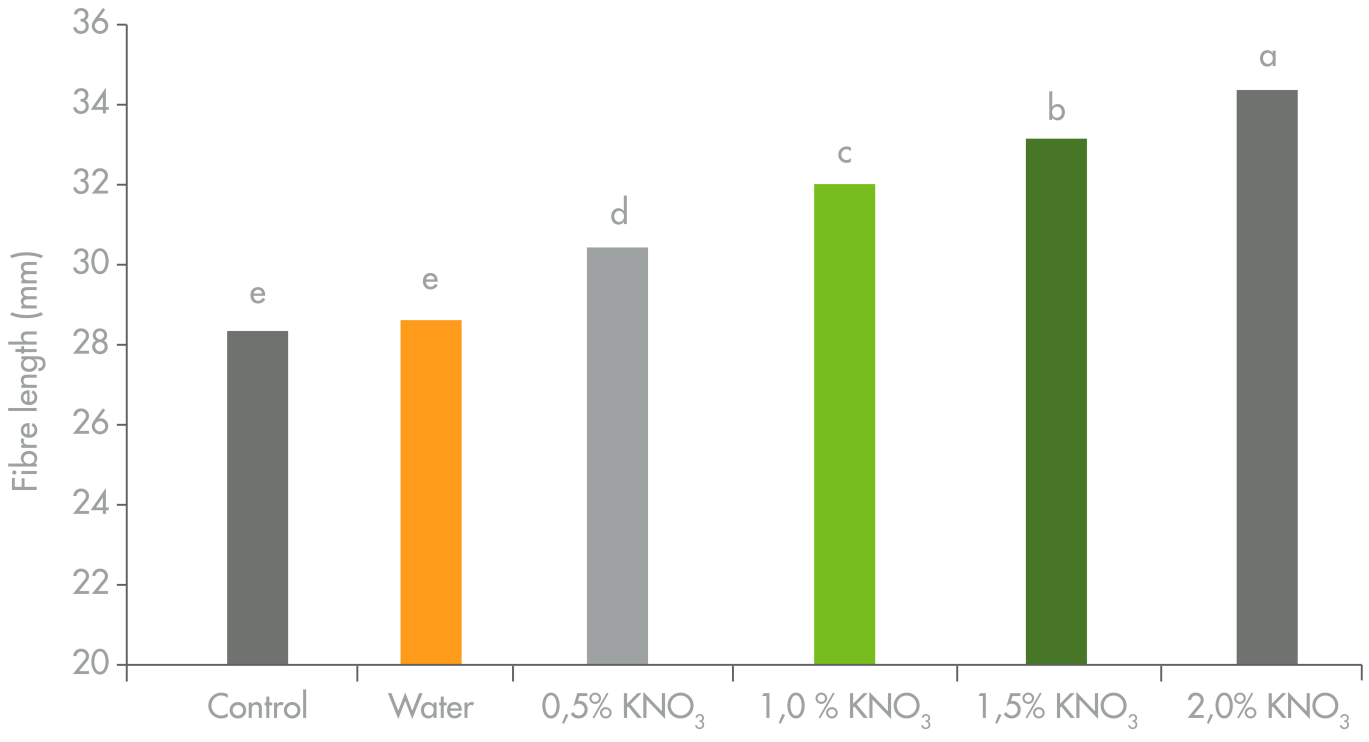

Figure 1.The effect of foliar treatments on fibre length of cotton.