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Effect of sulfur rates and carriers on yield and quality of radish

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ABSTRACT
Field experiment was conducted in sandy clay loam soil deficient in sulfur in two seasons to study the influence of sulfur on yield and quality of radish var. Pusa Chetki . the treatments consisted of four levels of S (0,25,50 and 100 Kg ha^{-1}) applied through four sources viz., ammonium sulfate, single super phosphate, gypsum and potassium sulfate. The results revealed that 100 Kg S ha^{-1} recorded the highest root length (24.9, 23 cm), root diameter (4.20,4.20 cm), riot weight (185.5, 206.2 g) and root yield(33.45, 36.75 t ha^{-1}) in first and second season respectively. Among sources, gypsum recorded the highest root yield (25.15, 27.18 t ha^{-1}) and yield attributes compared to other sources. Similarly addition of 100 Kg S ha^{-1} through gypsum recorded the highest fiber content (3.26, 3.31 mg 100 g^{-1}), ascorbic acid (27.6,28.6 mg 100g^{-1}) and calcium content (54.7, 55.7 mg 100 g^{-1}).

Key words: Radish, Yield, Sulfur rates, Sources, Quality.

INTRODUCTION

Sulfur is an essential input to sustain yield in many Indian soils due to widespread deficiency of s reported in many districts (Tandon,1995). Sulfur has been known for its role in the synthesis of carbohydrates, proteins, vitamins, oils and flavor compounds. It has been reported that cruciferous crops have shown improvement in the yield and quality through application of sulfur under field conditions (Messick,1997). Therefore a study was initiated to find out the effect of sulfur on yield and quality of radish.

MATERIALS AND METHODS

Field experiments was conducted in sandy clay loam (Padugai-Typic Ustifluvents) deficient in sulfur in two seasons (August-September 2002, Feb- march-2003) to study the influence of sulfur on yield and quality of radish. The experimental soil had pH-7.1, EC-0.65 dSm^{-1}, OC- 5.1 g Kg^{-1}, available N, P, K and S being 238, 16, 347 and 14.4 Kg ha^{-1} respectively. The treatments consisted of four levels of S (0,25, 50 and 100 Kg ha^{-1}) applied through four sources viz., gypsum, ammonium sulfate , single super phosphate and potassium sulfate. The test crop was radish var. Pusa chetki. All the plots received uniform dose of 50: 100: 50 N, P_2O_5, K_2O applied through urea, DAP and MOP respectively. At the time of harvest root length, root diameter, root weight per plant and root yield was recorded plot wise and expressed as t ha^{-1}. The root crop of radish was analyzed for ascorbic acid, fiber content and calcium content following standard procedure.

RESULTS AND DISCUSSION

Addition of graded dose of sulfur applied through various sources significantly improved yield and yield attributes over control in both seasons (Table 1). Addition of 100 Kg S ha^{-1} registered the highest root length (24085, 23.01 cm), root diameter (4.20,4.20 cm), individual root weight (185.5, 206.2 g) and root yield (33.45, 36.75 t ha^{-1}). The percent increase in root yield due to best treatment over control was 241 and 177 for first and second seasons respectively. The increase in root length and diameter of radish in sulfur applied plots might be due to the higher production of metabolites and increase in meristamatic activity as suggested by Sumantrakar and Tiwari

Table1: Effect of sources and rates on yield attributes and yield of radish var. Pusa Chetki

Treatments	First season				Second season			
	Root Length (cm)	Root diameter (cm)	Individual Root weight (g)	Root yield (t ha^{-1})	Root Length (cm)	Root diameter (cm)	Individual Root weight (g)	Root yield (t ha^{-1})
S sources								
Ammonium sulfate	14.72	2.69	147.7	2.45	14.40	3.29	161.2	23.84
Super phosphate	12.55	2.86	135.5	17.20	11.93	2.87	158.2	20.25
Gypsum	17.92	3.42	157.8	25.15	18.14	3.48	175	27.18
Potassium sulfate	16.86	3.17	15.4	22.11	17.30	3.31	166.9	25.48
CD at 5 %	0.81	0.24	1.15	1.05	0.51	0.34	1.36	1.50
S levels (Kg ha^{-1})								
0	6.84	1.37	110.5	9.81	9.75	2.13	120.9	13.25
25	10.92	2.91	131.9	15.60	11.42	2.90	151.1	17.81
50	19.44	2.65	163.4	26.04	17.67	3.72	183.3	28.95
100	24.85	4.20	185.5	33.45	23.01	4.20	206.2	36.75
CD at 5 %	0.81	0.24	1.15	1.05	0.51	0.34	1.36	1.50

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