



Original Research Article

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Effect of Soluble Fertilizer in Coriander (Var. Super Midori)

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An experiment entitled “Integrated nutrient management of Coriander variety Super Midori” of Tokita seed was conducted in the Department of Vegetable Science, College of Agriculture, OUAT, Bhubaneswar during Rabi2013 - 2014 to assess the effect of nitrogen (50, 60 and 70 kg/ha), potash (50 and 60 kg/ha) in combination with FYM (20 t/ha), phosphorous (40 kg/ha) and foliar spray of soluble fertilizer (13: 0: 45) on growth, growth attributing characters and yield of coriander leaves under two sets of experiment i.e. line sowing and broadcasting. In interaction effect a highest yield of 20.19 t/ha was recorded in N3K2 and the lowest 16.12 t/ha in N1K1 in line showing whereas highest yield of 19.77 t/ha was recorded in N3K2 and the lowest 14.33 t/ha in N1K1 in board casting method.

Introduction

The farmers of Orissa are growing coriander crop in rabi season for leaf & seed purpose. As most of the released variety of coriander are not easily available they used to grow the local coriander seed from the market along with the improved varieties of seed available from different private companies and get a handsome return due to quick growth of the plant. The rise in prices of farm inputs, ecological and climatic fluctuation and existing monoculture pattern has forced the farmers to think of an alternative for crop diversification. Various agronomic practices such as application of FYM, INM, IPM, bio-fertilizers and different level of nutrients are more deciding factors along with agronomic

manipulation of the existing practices for success of a crop to make it more remunerative. Crop geometry is an import factor for optimizes crop growth and production. The performance of coriander varieties greatly depending upon the spacing, method of cultivation, nutrient management and over all the genetic potentiality of the crop.

Materials and Methods

The field experimental entitled “Integrated nutrient management in coriander Variety super Midori” was carried out in the experiment plot of the Department of Vegetable Science, OUAT during 2013-14. The present experiment constitutes six

treatments with four replications in Randomized Block design (Factorial). The coriander variety "Super Midori" was sown in the trial field. The detail of the experiment conducted is given below.

Design Layout- Complete Randomized block design (factorial).

Number of Treatment - 6

Number of replications - 4

Number of Trials-2 (line sowing and broadcasting)

Total of number of plots - 24

Plot Size - 1mtx1.5 mt

Spacing - row to row -10 cm

Line to line - continuous thinly sowing of seeds

Number of rows per plot - 14

Length of the experimental field - 10.5 mt

Width of the experimental field - 5 mt

Area of the experimental field - 52.5 m²

Two trial were conducted, one for line showing & other for broadcasting.

Levels of chemical fertilizers

N1 - 50 kg of Nitrogen/ha.

N2 - 60 kg of Nitrogen/ha.

N3 - 70 kg of Nitrogen/ha.

K1 - 50 kg of Potassium/ha.

K2 - 60 kg of potassium /ha.

FYM- @ 20 t/ha.

Foliar Sprays of 13:0:45 soluble fertilizer

Details of treatments

T1 - N1PK1-50:40:50

T2 - N1PK2-50:40: 60

T3 - N2PK1 - 60:40:50

T4 - N2PK2 - 60:40:60
T5 - N3PK1 - 70:40:50
T6 - N3PK2 - 70:40:60

Yield of leaves with spray of soluble fertilizer (13:0:45)

After 18th day of germination 13:0:45 soluble fertilizer was applied @ 7g/liter and the yield per plot was recorded at the time of harvesting.

Yield of leaves (tones/ha) due to spray of soluble fertilizer (13:0:45)

Soluble fertilizer (13:0:45) was applied in selected lines on 18th days of germination and at harvest the yield per plot was calculated and from that data the yield of leaves in tones per hectare was obtained.

Results and Discussion

The yield of coriander leaves due to foliar application of 13:0:45 soluble fertilizer is presented in Table 1. It was found that N3 recorded a yield of 4.40 kg/plot followed by 3.91 kg in N2 and 3.68 kg in N1. Due to a yield of 4.04 kg/plot was recorded in K2 followed by 3.92 kg/plot in K1.

Due to interaction effect a highest yield of 4.49 kg/plot was recorded in N3K2 and the lowest 3.58 kg/plot in N1K1.

The yield of coriander leaves due to foliar application of 13:0:45 soluble fertilizer is presented in Table 2. It was observed that highest yield of 4.21 kg/plot was recorded in N3 followed by 3.82 kg in N2 and 3.38 kg in N1. A yield of 3.98 kg/plot was recorded in K2 followed by 3.65 kg/plot in K1.

Due to interaction effect a highest yield of 4.39 kg/plot was recorded in N3K2 and the lowest 3.19 kg/plot in N1K1.

Table.1 Yield of coriander leaves (kg/plot) due to spraying of soluble fertilizers (13:0:45) (line sowing)

Mean table (kg/plot)			
	K1	K2	Mean
N1	3.58	3.77	3.68
N2	3.87	3.96	3.99
N3	4.31	4.49	4.40
Mean	3.92	4.04	

		N	K	N x K
	Sem	0.120	0.085	0.147
NS	CD 5%	0.362	0.256	0.443
S	CV %	9.81		

Table.2 Yield of coriander leaves (kg/plot) due to spraying of soluble fertilizers (13:0:45) (broadcasting)

Mean table (kg/plot)			
	K1	K2	Mean
N1	3.19	3.56	3.38
N2	3.75	3.90	3.82
N3	4.02	4.39	4.21
Mean	3.65	3.98	

		N	K	N x K
	Sem	0.134	0.045	0.164
NS	CD 5%	0.404	0.286	0.495
S	CV %	11.52		

Table.3 Yield of coriander leaves (tonns/ha) due to foliar spraying of 13:0:45 (line sowing)

Mean table (tons/ha)			
	K1	K2	Mean
N1	16.12	16.96	16.54
N2	17.40	17.81	17.61
N3	19.40	20.19	19.79
Mean	17.64	18.32	

		N	K	N x K
	Sem	0.54	0.38	0.66
NS	CD 5%	9.82		
S	CV %			

Table.4 Yield of coriander leaves tons/ha due to foliar spraying of 13:0:45 (broadcasting)

Mean table (tons/ha)			
	K1	K2	Mean
N1	14.33	16.03	15.18
N2	16.86	17.54	17.20
N3	17.97	19.77	18.87
Mean	16.39	17.78	

		N	K	N x K
	Sem	0.60	0.42	0.734
NS	CD 5%	1.80	1.27	2.21
S	CV %	11.46		

The yield of coriander leaves/ha due to foliar application of 13:0:45 soluble fertilizer is presented in Table 3. It is seen that highest yield of 19.79 t/ha was recorded in N3 followed by 17.61 t/ha in N2 and 16.54 t/ha in N1. In K2 a yield of 18.32 t/ha was recorded followed by 17.64 t/ha in K1. In interaction effect a highest yield of 20.19 t/ha was recorded in N3K2 and the lowest 16.12 t/ha in N1K1.

The yield of coriander leaves due to foliar application of 13:0:45 soluble fertilizer is presented in Table 4. From the tabulated value it was found that a highest yield of 18.87 t/ha was obtained in N3 followed by 17.20 t/ha in N2 and 15.18 t/ha in N1. Due to effect of Potassium a yield of 17.78 t/ha was recorded in K2 followed by 16.39 t/ha in K1. Due to interaction effect a highest yield of 19.77 t/ha was recorded in N3K2 and the lowest 14.33 t/ha in N1K1.

Application of water soluble fertilizers (13:0:45) has great impact due to higher amount of soluble potash which help for translocation of starch and impact resistance thereby increase the weight along with other desirable character. Due to application of soluble fertilizers significant increase in plot yield of 4.39 kg in N3K2 in line sowing & 4.49 kg/plot in broadcasting was recorded with 20.19 t/ha in N3K2 and 19.77 t/ha in N3K2 in line sowing and broadcasting

respectively. Present finding of increase in yield due to soluble fertilizers application with higher amount of soluble potash is an in vogue among the farmers and the increase in yield due to foliar application was also reported by Sharangi *et al.*, in 2011.

It was concluded that in both the sets of experiment i.e. line and broadcasting the height yield was obtained in N3K2. Hence it may be recommended to farmers.

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