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Effect of soluble fertilizer (19:19:19) in coriander (Var. Super Midori)

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Abstract

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 *Rabi* 2013 - 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 soluble fertilizers (19:19:19) on growth, growth attributing characters and yield of coriander leaves under two sets of experiment i.e. line sowing and broad casting. In interaction effect a highest yield of 18.17 t/ha was recorded in line sowing in N3K2 treatment whereas 18.53 t/ha was recorded in N3K2 in broadcasting practice.

Keywords: Soluble fertilizer (19:19:19), coriander, Var. Super Midori

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 varies 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.

1. Design Layout- Complete Randomized block design (factorial).
2. Number of Treatment - 6
3. Number of replications - 4
4. Number of Trials-2 (line sowing and broadcasting)
5. Total of number of plots - 24
6. Plot Size - 1mtx1.5 mt
7. Spacing - row to row -10 cm

Line to line - continuous thinly sowing of seeds

1. Number of rows per plot - 14
2. Length of the experimental field - 10.5 mt
3. Width of the experimental field - 5 mt
4. Area of the experimental field - 52.5 m²
5. 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 19:19:19 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 per plot with water soluble fertilizers (19:19:19)

After 18th day of germination 19:19:19 soluble fertilizer @ 7g/liter was sprayed in the selected line and the yield per plot in kg was recorded at harvest and used for statistical analysis.

Yield of leaves (tonnes/ha) due to spray of soluble fertilizer (19:19:19)

The water soluble fertilizer (19:19:19) was applied at the rate of 7 gm per liter on 18th day of germination and the yield per plot was calculated. From the yield per plot data the yield per hectare in tonnes was obtained.

Discussion

The yield of coriander leaves due to foliar application of 19:19:19 soluble fertilizer is presented in Table-1. It is observed that N3 recorded a yield of 3.99 kg/plot followed by 3.60 kg in N2 and 3.39 kg in N1. However, in K2 a yield of 3.69 kg/plot was recorded followed by 3.60 kg in K1. Due to interaction effect a highest yield of 4.04 kg/plot was recorded in N3K2 and the lowest 3.33 kg/plot in N1K1.

The yield of coriander leaves due to foliar application of 19:19:19 soluble fertilizer is presented in Table-2. It is observed that N3 recorded a yield of 3.99 kg/plot followed by 3.55 kg in N2 and 3.09 kg in N1. However, in K2 f yield of 3.71 kg/plot was recorded followed by 3.35 kg in K1. Due to interaction effect a highest yield of 4.12 kg/plot was recorded in N3K2 and the lowest 2.89 kg/plot in N1K1.

The yield of coriander leaves/ha due to foliar application of 19:19:19 soluble fertilizer is presented in Table-3. It is observed that highest yield of 17.93 t/ha was recorded in N3 followed by 16.18 t/ha in N2 and 15.25 t/ha in N1. K2 recorded a yield of 16.62 t/ha was followed by 16.29 t/ha in K1. In interaction effect a highest yield of 18.17 t/ha was recorded in N3K2 and the lowest 15.07 t/ha in N1K1.

The yield of coriander leaves/ha due to foliar application of 19:19:19 soluble fertilizer is presented in Table-4. It is observed that highest yield of 17.81 t/ha was recorded in N3 followed by 15.8 t/ha in N2 and 13.9 t/ha in N1. A yield of 16.69 t/ha was recorded in K2 followed by 14.99 t/ha in K1. In interaction effect a highest yield of 18.53 t/ha was recorded in N3K2 and the lowest 13.00 t/ha in N1K1.

Application of soluble fertilizers for quick response and to increase the yield in vegetable is now a day very popular among the farmers. Application of nitrogen, Phosphorus & Potash in soluble form as foliar spray has tremendous effect in increasing the leaf yield of Coriander. Per plot yield & yield in tonnes per hectare showed increasing trend due to foliar application of 19:19:19 soluble fertilizers. The yield per plot

was highest (4.12 kg) in N3K2 in line sowing as compared to 3.69 kg/plot in broadcasting. Likewise the yield was highest (18.5 t/ha) in broadcasting as compared to 15.44 t/ha in line sowing the highest yield due to N3 and 15.90 t/ha due to N3K2 in line sowing. The present result of the experiment agrees with the findings of Balaji and Keshwa (2011) and Sharangi *et al.* (2011) [1] in coriander.

Table 1: Yield of coriander leaves (kg/plot) due to spraying of soluble fertilizers (19:19:19) (line sowing)

Mean table (kg/plot)			
	K1	K2	Mean
N1	3.33	3.45	3.39
N2	3.59	3.60	3.60
N3	3.93	4.04	3.99
Mean	3.62	3.69	

		N	K	N x K
	S em	0.126	0.089	0.155
NS	CD 5%	0.038	0.269	0.466
S	CV %	11.27		

Table 2: Yield of coriander leaves (kg/plot) due to spraying of soluble fertilizers (19:19:19) (broadcasting)

Mean table (kg/plot)			
	K1	K2	Mean
N1	2.89	3.29	3.09
N2	3.37	3.72	3.55
N3	3.80	4.12	3.96
Mean	3.35	3.71	

		N	K	N x K
	S em	0.148	0.105	0.181
NS	CD 5%	0.446	0.316	0.547
S	CV %	13.7		

Table 3: Yield of coriander leaves (tonnes/ha) due to foliar spraying of 19:19:19 (line sowing)

Mean table (tonnes/ha)			
	K1	K2	Mean
N1	15.0	15.5	15.25
N2	16.17	16.19	16.18
N3	17.70	18.17	17.93
Mean	16.29	16.62	

		N	K	N x K
	S em	0.568	0.401	0.695
NS	CD 5%	1.710	1.209	2.095
S	CV %			

Table 4: Yield of coriander leaves (tonnes/ha) due to foliar spraying of 19:19:19 (broadcasting)

Mean table (tonnes/ha)			
	K1	K2	Mean
N1	13.00	14.79	13.9
N2	14.88	16.75	15.8
N3	17.09	18.53	17.81
Mean	14.99	16.69	

		N	K	N x K
	S em	0.72	0.509	0.882
NS	CD 5%	2.17	1.53	2.65
S	CV %	14.84		

Conclusion

It was concluded that in both the sets of experiment. Line and broadcasting the height yield was obtained in N3K2. hence it may be recommended to farmers.

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