Journal of Pharmacognosy and Phytochemistry

Available online at www.phytojournal.com

E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2018; SP1: 601-602

Katar S Barman
Department of Horticulture, Naini Agricultural Institute, Sam Higginbottom University of Agriculture, Technology & Sciences, Allahabad, Utter Pradesh, India

JP Collis
Department of Horticulture, Naini Agricultural Institute, Sam Higginbottom University of Agriculture, Technology & Sciences, Allahabad, Utter Pradesh, India

Muralidharan B
Department of Horticulture, Naini Agricultural Institute, Sam Higginbottom University of Agriculture, Technology & Sciences, Allahabad, Utter Pradesh, India

Devi Singh
Department of Horticulture, Naini Agricultural Institute, Sam Higginbottom University of Agriculture, Technology & Sciences, Allahabad, Utter Pradesh, India

Correspondence
Katar S Barman
Department of Horticulture, Naini Agricultural Institute, Sam Higginbottom University of Agriculture, Technology & Sciences, Allahabad, Utter Pradesh, India

Effect of integrated nutrient management on yield of Brinjal (*Solanum Melongena* L.)

Katar S Barman, JP Collis, Muralidharan B and Devi Singh

Abstract
The present investigation entitled "Effect of integrated nutrient management on yield of brinjal (*Solanum melongena* L.)" was laid out in randomized block design in factorial concept with three replications during the winter season of 2013 and 2014. The Eleven treatment combinations on two varieties allocated randomly in each plot during both the year of experimentation. The yield parameters *viz,* length of fruit (cm) at first picking (V_1 and T_3), width of fruit (cm) at first picking (V_2 and T_3), and girth of fruit (cm) at first picking (V_2 and T_5) was found maximum significant and interaction (V x T) was found significant during 2013-14 and 2014-15, whereas that an application of (75% recommended dose of nitrogen through inorganic fertilizer + 25% nitrogen through poultry manure) in V_1 T_3 treatment.

Keywords: INM, yield and brinjal

Introduction
Brinjal or Eggplant (*Solanum Melongena* L.), a member of solanacea family, is one of the most common vegetable crops grown in India**.** Brinjal is a staple vegetable. Its nutritive value varies among varieties. It contains vitamin A and B. It has been under cultivation in the sub-continent since ancient times and is available in the market year-around in these days (Malik, 1994). The basic concept underlying the principles is the maintenance and improvement of soil fertility for sustaining crop productivity on a long –term basis, which can be achieved through the combined use of various sources of nutrients and by managing them scientifically along with optimum growth, yield and quality of crop. The efficiency of cultivars, in regards to nutrients (NPK) uptake in the form of organic and inorganic fertilizers, varies with respect to location. Hence before the recommendation of a variety for commercial cultivation and for organic farming, determination of nutrients (NPK) requirement of the varieties for particular agro-ecological zone is of prime importance. Considering the above facts, the present study was therefore under taken to investigate the intergraded management on yield and yield contributing characters of brinjal and on soil properties.

Materials and Methods
The field experiment was conducted at Main Experiment Station, Department of Horticulture, Sam Higginbottom University of Agriculture, Technology and Sciences Allahabad, (U.P) India. Two varieties (Pusa Shyamala and KS-224), eleven treatments *viz*., T_1 (Control) (Recommended dose of NPK 100:50:50), T_2 (75% recommended dose of nitrogen through in organic fertilizers + 25% nitrogen through FYM), T_3 (75% recommended dose of nitrogen through inorganic fertilizer + 25% nitrogen through poultry manure), T_4 (50% recommended dose of nitrogen through inorganic fertilizer + 50% nitrogen through FYM), T_5 (50% recommended dose of nitrogen through inorganic fertilizer + 50% nitrogen through poultry manure), T_6 (50% recommended dose of nitrogen through inorganic fertilizer + 25% nitrogen through FYM + 25% nitrogen through poultry manure), T_7 (25% recommended dose of nitrogen through inorganic fertilizer + 50% nitrogen through FYM + 25% nitrogen through poultry manure), T_8 (25% recommended dose of nitrogen through inorganic fertilizer + 25% nitrogen through FYM + 50% nitrogen through poultry manure), T_9 (75% recommended dose of nitrogen through FYM + 25% nitrogen through poultry manure), T_{10} (75% recommended dose of nitrogen through poultry manure + 25% FYM), T_{11} (50% recommended dose of nitrogen through FYM + 50% nitrogen through poultry manure) were allocated randomly in each plot in factorial randomized block design with three replications. The observation was recorded that Length of fruit (cm) at first picking, Width of fruit (cm) at first picking, Girth of fruit (cm) at first picking, Total number of fruit per plant, Fruit weight (g), Fruit yield per plant (kg), Fruit yield per plot (kg) and Fruit yield (q//ha) the treatments were compared with the help of critical difference, following the techniques described by Panse and Sukhatme

(1967) and results were evaluated at 5% level of significance.

Results and Discussion

Maximum length of fruit (13.29 and 13.69 cm), width of fruit (1.58 and 1.61 cm) and girth of fruit (6.72 and 6.92 cm) at first picking was recorded in treatment T_9 (75% recommended dose of nitrogen through FYM + 25% nitrogen through poultry manure), but variety V_1 fruit length was superior to V_2, while it was the minimum in treatment T_5 (50% recommended dose of nitrogen through inorganic fertilizer + 50% nitrogen through poultry manure) in both the varieties Pusa Shyamala and KS-224 during 2013-2014.

The flower opening from appearance of bud was generally early in variety with more number of branches, leaves and higher leaf area in the findings of Naidu *et al.* (2002) as compared to this, similar result found with minimum days taken to 50% flowering (51.00 and 52.53 days) noticed in treatment T_9 (75% recommended dose of nitrogen through FYM + 25% nitrogen through poultry manure), while it was maximum in treatment T_3 (50% recommended dose of nitrogen through inorganic fertilizer + 50% nitrogen through poultry manure) in both varieties Pusa Shyamala and KS-224.

Maximum total number of fruit per plant (14.70 and 15.14 fruits/plant), fruit weight (128.88 and 132.74g), fruit yield per plant (1.85 and 1.91 kg/plant), fruit yield per plot (26.68 and 27.44 kg/plot) and fruit yield (493.43 and 508.23 q/ha) was founded in treatment T_9 (75% recommended dose of nitrogen through FYM + 25% nitrogen through poultry manure), while it was minimum in treatment T_2 (75% recommended dose of nitrogen through in organic fertilizers + 25% nitrogen through FYM) in both the varieties Pusa Shyamala and KS-224 but variety V_2 was superior production to V_1 during both the years of investigation. Similar results in brinjal were obtained by Nair and Peter (1990) and Gurpukar *et al.* (2006).

Conclusion

From the above discussion it may be concluded that in production of brinjal on yield integrated nutrient application of (75% recommended dose of nitrogen through inorganic fertilizer + 25% nitrogen through poultry manure) in V_1 T_3 treatment.

Table 1: Effect of integrated nutrient management on yield of Brinjal (*Solanum melongena L.*)

	2013								2014							
Treatments	**Length of fruit**	**Width of fruit**	**Girth of fruit**	**Maximum total number of fruit per plant**	**fruit weight**	**fruit yield per plant**	**fruit yield per plot**	**Fruit yield**	**Length of fruit**	**Width of fruit**	**Girth of fruit**	**Maximum total number of fruit per plant**	**fruit weight**	**fruit yield per plant**	**fruit yield per plot**	**Fruit yield**
	Mean	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**
T_1	10.86	1.31	5.84	11.90	120.45	1.37	18.81	348.34	11.17	1.35	6.01	12.26	124.06	1.41	19.27	358.79
T_2	8.44	1.13	4.07	6.35	101.89	0.60	8.68	160.65	8.69	1.16	4.19	6.50	104.94	0.61	8.94	165.46
T_3	8.77	1.15	3.97	8.80	106.69	0.88	11.50	212.96	9.05	1.18	4.09	9.06	109.89	0.91	11.85	219.35
T_4	9.24	1.04	4.78	9.70	107.47	1.01	13.01	240.92	9.48	1.07	4.92	9.99	110.69	1.04	13.40	248.15
T_5	8.06	1.06	3.94	8.35	104.97	0.82	10.60	196.30	8.30	1.09	4.05	8.60	107.91	0.84	10.92	202.19
T_6	10.41	1.30	5.35	11.25	114.57	1.24	16.70	309.26	10.72	1.34	5.51	11.59	118.00	1.28	17.20	318.53
T_7	12.85	1.50	6.52	14.30	124.96	1.73	24.96	462.22	13.23	1.55	6.71	14.73	128.88	1.78	25.71	476.09
T_8	9.96	1.29	5.03	9.75	111.20	1.05	14.02	259.54	10.26	1.33	5.18	10.04	113.84	1.08	14.44	267.32
T_9	13.29	1.58	6.72	14.70	128.88	1.85	26.68	493.43	13.69	1.61	6.92	15.14	132.74	1.91	27.44	508.23
T_{10}	11.23	1.37	5.70	11.75	115.57	1.29	17.96	334.26	11.56	1.41	5.87	12.10	119.03	1.33	18.59	344.29
T_{11}	11.93	1.38	6.29	12.78	120.84	1.50	21.32	394.72	12.29	1.42	6.47	13.24	124.47	1.55	21.95	406.56
Average	10.46	1.28	5.29	10.88	114.31	1.21	16.75	310.23	10.77	1.32	5.45	11.20	117.68	1.25	17.25	319.54
	V x t	V x t	V x t	V x t	V x t	V x t	V x t	V x t	V x t	V x t	V x t	V x t	V x t	V x t	V x t	V x t
SEm±	0.360	0.044	0.178	0.407	4.346	0.52	0.793	14.310	0.443	0.058	0.209	0.388	5.211	0.049	0.627	11.654
C.D.(P =0.05)	1.028	0.125	0.509	1.161	NS	0.150	2.264	40.840	1.263	0.167	0.596	1.108	NS	0.138	1.790	33.260
CV	5.96	5.91	5.84	6.47	6.58	7.49	8.20	7.98	7.12	7.66	6.64	6.00	7.67	6.73	6.30	6.31

Reference

1. Nair M, Peter KV. Organic, inorganic fertilizer and their combination on yield and storage of life of hot chilli. Veg. Sci. 1990; 17:7-10.
2. Naidu AK, Kushwah SS, Dwivedi YC. Influence of organic manures, chemical and biofertilizer on growth, yield and economics of brinjal. South Indian Hort. 2002; 50(4/6):370-376.
3. Barman JC, Rahman MM, Pramanik MEA, Alam MA, Uddin MZ. Effect of lac cultivation on the yield of jujube of different ber (Zizyphus jujube) varieties. J Subtrop *Agril. Res.* and Dev Gurpukar, Bangladesh. 2007; 5(3):286-290.
4. Panse VG, Sukhatme PV. Statistical methods for Agricultural. Indian Council of *Agril. Res*., New Delhi, 1967, 357-358.
5. Malik NM. A text book of horticulture. Islamabad. National Book Foundation, 1994, 510.