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Knowledge level of recommended Brinjal production technologies among the farmers field in BAMER District Rajasthan

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Abstract

Brinjal or eggplant (*Solanum melongena L.*) of the family *Solanaceae* is one of the important and popular vegetable crops grown in India and other parts of the world. In India it is cultivated in approximately 7.22 lakh hectare area with the annual production of 12.63 mt with productivity of 18 t/ha. The present study was designed to know the extent of Knowledge level of farmers about improved production technology of brinjal crops in Barmer District of Rajasthan. The overall level of knowledge of brinjal production technology was medium. Maximum knowledge was noticed in the practice of field preparation, transplanting of nursery and irrigation management. Knowledge level of farmers should be increased in various aspects of brinjal production technology *i.e.*, selection of suitable variety, post-harvest management, nutrient management, weed management, plant protection and nursery management through systematic training programme as well as field demonstration which could be more effective in future brinjal production.

Keywords: Brinjal, production, Nursery, Demonstration etc.

Introduction

Brinjal or eggplant (*Solanum melongena L.*) of the family *Solanaceae* is one of the important and popular vegetable crops grown in India and other parts of the world. India is the second largest producer of Brinjal in the World next to China with production of 12801 thousand MT from an area of 730 thousand hectares (Anonymous, 2018) [1]. Presently, in India it is cultivated in approximately 7.22 lakh hectare area with the annual production of 12.63 mt with productivity of 18 t/ha. In terms of area, West Bengal ranks first and maximum production has been reported from West Bengal followed by Orissa, Andhra Pradesh, Bihar and Uttar Pradesh in the country.

Various sizes, shapes, colours and forms of cultivated as well as wild type of brinjal are found in India, white type brinjal fruits is said to be good for diabetic patients. Brinjal fruits have medicinal properties (Rajan and Markose, 2002) [2]. Some medicinal use of eggplant tissues and extract include treatment of diabetes, asthma, cholera, bronchitis and diarrhea, its fruit and leaves are reported to lower certain levels of blood cholesterol.

The farmers could increase their benefit through adoption of new technologies. The adoption of improved technologies requires high level of technical knowledge in areas package of practices and synchronized with needs and requirement of farmers like proper post harvest handling, selection of suitable variety, proper nutrient management, insect-pest and diseases management, etc. Due to technological advancement in brinjal cultivation, there is a strong need to train the growers to keep them abreast about improved technologies for improving their knowledge and increasing income.

Materials and Methods

Several studies have been conducted on vegetable crops to know the knowledge and adoption of recommended cultivation practices but very few research studies have been conducted on brinjal crop in Rajasthan state. Hence, the present study was designed to know the extent of Knowledge level of farmers about improved production technology of brinjal crops in Barmer District of Rajasthan.

The study was conducted in Barmer and Sheo blocks of Barmer district in Rajasthan. In the district there were 17 blocks. Out of which Barmer and Sheo blocks were selected purposively and only 10 villages (7 villages of Barmer block and 3 village of Sheo) *viz.*, Shivkar, Balera, Radwa, Antti, Danta, Junaprasar&Langra from Barmer and Khudal, Bhiyand&UndufromSheo were selected. From each selected village, 8 brinjal growers were selected on the basis of

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Randomsampling method. Thus the total sample size was 80 respondents for the purpose of investigation. A well-structured and pre-tested schedule was used to collect the information from the brinjal growers. In this study, an interview schedule, having 29 statements, regarding different constraints normally faced by the farmer were asked on different aspect of brinjal cultivation practice viz., field preparation, selection of variety, nursery management, transplanting of nursery in main field, nutrient management, weed management, irrigation management, plant protection, post-harvest management. The responses observed from the different farmers were divided into two categories i.e., correct and wrong. The statement having “wrong” responses was given zero mark and the statement having “correct” was given one mark. So, individual brinjal grower can get maximum marks of 23 and thus a minimum mark was zero. The scores obtained under various practices were summed up with both respondent wise and as well as component wise and computed in to low, medium and high knowledge level on the basis of socio economic status. The collected data were analyzed with suitable statistical tools.

Results and Discussion

Background information of the Brinjal growers

The respondents were categorized into different groups on the basis of their some of the important characteristics like age, education, occupation, size of land holding and animal possession were selected for the study and the findings of which have been presented in [Table-1]. These all result; similar results were reported by Choudhary, M.K., Patel P.C., Sharma, P.K. and Patel, J.B. (2016)& Singh, B (2010)^[4].

Age: The data presented in [Table-1] shows that nearly half (48.75per cent) of the Brinjal growers were belonged to young age followed by 36.25per cent and 15 had middle age and old age, respectively.

Education: The data presented in [Table-1] shows that slightly more than two fifth (45 per cent) of the growers were having primary level of education followed by 31.25per cent illiterate, 17.5per cent had education up to higher secondary and 6.25 per cent were had above higher secondary level, respectively.

Occupation: The data presented in [Table-1] shows that vast majority (65.00 per cent) of the brinjal growers were engaged in the farming and animal husbandry, whereas only 7.50 per cent of them were engaged in farming only and none of the growers were found to have engaged in job.

Size of land holding(Type of farmer): The data presented in [Table-1] shows that nearly half (50.00 per cent) of the growers had small size of land holding followed by 25.00 per cent, 15.00 per cent and 10.00 per cent had, medium,marginal and large size of land holding, respectively.

Experience of Brinjal cultivation:-The data presented in [Table-1] shows that vast majority (55.00 per cent) farmers, in case of experience of brinjal cultivation the data revealed that highest brinjal growers had low medium experience.35 16.25

Mass media exposure:- The data presented in [Table-1] out of total 80 respondents under study, 48.75 per cent had a medium exposure to the mass media followed by 35 per cent

and 16.25 per cent had low and high exposure to the mass media, respectively, Singh *et al.* (2014)also lending support to the present findings shows that nearly half (47.00 per cent) of the growers had marginal size of land holding followed by 28.00 per cent, 19.00 per cent and 06.00 per cent had small, medium and large size of land holding, respectively.

Animal possession: The data revealed that slightly more than two fifth (41.00 per cent) of the growers had up to 2 animals followed by 30.00 per cent and 21.00 per cent had 3 to 5 animals and more than 5 animals, respectively. Only 08.00 per cent of them had no animal.

Table 1: Distribution of farmers according to their characteristics n=80

No	Category	Frequency	Percent (%)
1	Age		
	Young (Up to 30 years)	39	48.75
	Middle age (31 to 55 years)	29	36.25
	Old age (above 55 years)	12	15
2	Education		
	Illiterate	25	31.25
	Primary level	36	45
	High school and Higher secondary	14	17.5
	Above Higher secondary	5	6.25
3	Occupation		
	Farming	13	16.25
	Farming + Animal husbandry	52	65
	Business	9	11.25
	Farming + service	6	7.5
4	Type of farmer (land holding)		
	Marginal (up to 1.00 ha)	8	10
	Small (1.1 ha to 2.00 ha)	40	50
	Medium (2.1 ha to 4.00 ha)	20	25
	Large (above to 4.00 ha)	12	15
5	Experience of Brinjal cultivation		
	Low (1-5 yr)	24	30
	Medium (5-10 yr)	44	55
	High (above 10 yr)	12	15
6	Mass media exposure		
	Low	28	35
	Medium	39	48.75
	High	13	16.25
7	Animal possession		
	No animal	5	6.25
	Up to 2 animal	34	42.5
	3 to 5 animal	23	28.75
	Above 5 animal	18	22.5

Practice wise level of knowledge of the respondents regarding recommended brinjal production technology

The respondents were categorized into different 9 groups were divided 23 sub group on the basis of recommended brinjal production technologies i.e. Field preparation (Selection of Soil, Soil testing, Application of manure FYM & Land preparation), selection of varieties (Name of Kharif season variety & Selection of variety according to season), Nursery Management (Preparation of nursery bed, Soil treatment and seed treatment, seed rate, sowing method, sowing Method & mulching in Nursey), Transplanting of nursery in main field (Age of Seedling, Plant spacing & Transplanting time and method), Nutrient management (Recommended dose of NPK application, Application of micro nutrients & Time & Method of fertilizer application), Weed identification and management, Irrigation management

(Appropriate irrigation interval & Adoption of irrigation method), Plant Protection (Identification of major insect pest & management & Identification of major disease & management) and harvest (Time & method of harvesting & Method of storing) were selected for the study and the findings of which have been presented in table 3. Similar results were reported by Choudhary, Mahesh, Asiwal, B L and Dular R K (2018).

Table 2: Distribution of the brinjal growers according to their knowledge level.

Sr. No	Parameter	Knowledge level (N=80)	
		Frequency	Percentage
A	Field Preparation		
1	Selection of Soil	65	81.25
2	Soil testing	31	38.75
3	Land preparation & Application of manure (FYM)	55	68.78
B	Selection of Variety		0
5	Name of hybrid season variety	14	17.5
6	Selection of variety according to season	23	28.75
C	Nursery raising (Management)		
7	Preparation of nursery bed	50	62.5
8	Soil treatment and seed treatment	29	36.25
9	Seed rate	56	70
10	Sowing method	39	48.75
11	Sowing time	64	80
12	Mulching in Nursery	23	28.75
D	Transplanting of seedling in main field		0
13	Age of Seedling	59	73.75
14	Plant spacing	66	82.5
15	time and method of transplanting	46	57.5
E	Culture operation of brinjal production		
E (i)	Nutrient management		
16	Recommended dose of NPK application	31	38.75
17	Application of micro nutrients	26	32.5
18	Time & Method of fertilizer application	21	26.25
E (ii)	Weed identification and management	25	31.25
E (iii)	Irrigation management		
20	Appropriate irrigation interval	42	52.5
21	Adoption of irrigation method	58	72.5
H	Plant Protection		
22	Identification of major insect pest & management	53	66.25
23	Identification of major Disease & management	26	32.5
I	Harvesting		
24	Time & Method of harvesting	17	21.25
25	storing and gardening	18	22.5

Socio-Economic Status of Respondents

It was evident from the table 1 that the majorities (41.11%) of the respondents were middleaged ranging from 35 to 50 year age group and belongs to backward caste (77.78%). The frequency distribution was highly skewed towards the younger respondents. While, looking at the educational status of respondent, results revealed that majority (36.67%) of respondents were secondary passed. Majority of the farmers had main occupation as agriculture (70.00%) followed by business (8.89%), labour (7.78%), independent profession (7.78%) and service (5.56%). It is evident from the data that maximum 61.11% brinjal growers had medium income from

brinjal cultivation. Results on land holding demonstrated that nearly 76.66% of respondents were small (20.00%) to medium (34.44%) farmers. In case of experience of brinjal cultivation the data revealed that highest (52.22%) brinjal growers had low medium experience. Out of total 90 respondents under study, 46.67% had a medium exposure to the mass media followed by 36.67% and 16.67% had low and high exposure to the mass media, respectively, Singh *et al.* (2018) also lending support to the present findings, Similarly findings were also reported by Choudhary, Mahesh, Asiwal, B L and Dular R K (2018).

Practice wise level of knowledge of the respondents regarding recommended brinjal production technology

It is obvious that good knowledgeable Brinjal growers are more oriented towards maximization of profit from Brinjal cultivation as they place relatively more value on economic ends. The data in regards of knowledge of brinjal growers shown in (Table-3). The respondents were categorized into different groups and sub group on the basis of recommended production technology of brinjal i.e. main group like Field Preparation in sub group like age, education, occupation, size of land holding and animal possession were selected for the study and the findings of which have been presented in (Table- 3).

Field preparation

It was evident from the data (Table 2) that the highest level of knowledge was observed in selection of soil (81.25%) and land preparation & application of manure such as FYM (68.75%), and Very low extent of knowledge regarding improved production technology was found in case of soil sampling (soil testing) (38.75%), Similarly findings were also reported by Choudhary, Mahesh, Asiwal, B L and Dular R K (2018), Bhise and Kale (2014)^[5] in brinjal, Poonia and Dhaka (2011) in other vegetable crops.

Nursery raising management:- The data presented in table 2 reveals that the respondents had high level of Nursery Management brinjal production technology i.e sowing time (80), seed rate (70), preparation of nursery bed (61.25) sowing method (48.75) soil treatment and seed treatment (47.5) mulching of nursery bed 28.75

Transplanting of brinjal seedling in main field:- It was evident from the data (Table 2) that the highest level of knowledge was observed in age of seedling (73.75), plant spacing (82.5) and time and method of transplanting (57.5) respectively, Similar results were reported by Choudhary, Mahesh, Asiwal, B L and Dular R K (2018) & Jat J.R., Singh, Sangram, H. Lal and Choudhary L. R. (2011).

Culture operation of brinjal production:- It was evident from the data (Table 2) that the highest level of knowledge was observed in recommended doses of manure and fertilizer (38), application of micronutrient (26), time and method of fertilizer application (26.25), weed identification and management (31.25), appropriate irrigation interval (56) and use of irrigation methods (33.75) Similar results were reported by Choudhary, Mahesh, Asiwal, B L and Dular R K (2018), & Jat J.R., Singh, Sangram, H. Lal and Choudhary L. R. (2011)^[6].

Plant Protection:- The data presented in [Table 2] shows that the highest level of Plant Protection knowledge was observed

in identification of major insect and Management and identification of major disease of brinjal and management.

Harvesting: It was evident from the data (Table 2) that the highest level of knowledge was observed in Time & Method of harvesting (21.25) storing and gardening (22.50), Similar results were reported by Choudhary, Mahesh, Asiwal, B L and Dular R K (2018), & Jat J.R., Singh, Sangram, H. Lal and Choudhary L. R.(2011)^[6].

The level of knowledge of the respondents regarding recommended brinjal production technology:-

The data presented in table 3 indicate that out of total respondents most (40.00%) of them had medium level of knowledge regarding recommended brinjal production technology. Whereas 30.84 per cent and 29.16 per cent of the respondents were having low and high level of knowledge, respectively.

It can be concluded that most of the respondents had medium to high level of knowledge and about twenty nine per cent of the respondents had low level of knowledge regarding recommended brinjal production technology. Similar findings were reported by Verma, Sushil Kumar, D.P. Rai and Verma, Lekh Ram, (2015). It was observed (Table 3) that majority of the respondents (65.56%) possess medium level of knowledge, followed by 20.00 per cent respondents having low level and 14.14 per cent having high level of knowledge. A few of the respondents were having low knowledge which might be attributed due to the fear among them about the new innovations. Respondents and lack of specialized trainings about improved production technology of brinjal crop in the area. Similar findings were reported by Jat *et al.* (2011)^[6], Singh and Hansra (2018)^[12].

Table 3: Distribution of the brinjal growers under different knowledge levels categories (N=80)

Sr. No.	Knowledge level category	No. of respondent	Percentage of Respondent
1.	Low Knowledge (Score below 6.62)	16	20.00
2.	Medium Knowledge (Score from 6.63 to 14.13)	51	63.75
3.	High Knowledge (Score above 14.13)	13	16.25
	Total	80	100

The data (Table 4) revealed that 62.93 percent respondents had good knowledge about field preparation and hence this practice was ranked first. The second highest per cent of respondents 62.50 per cent were having knowledge about transplanting of nursery in main field which was given second rank followed by 55.38 per cent respondents had knowledge about irrigation management and given third rank. 49.00 per cent respondents had knowledge about the nursery management and this practice was placed at rank fourth, followed by plant protection, nutrient management, weed management and post-harvest management with 31.25 MPS, 23.13 MPS, 21.88 MPS, and as such these were ranked at 5th, 6th, and 7th, Only 19.25 & 14.66 per cent respondents had knowledge about post- Harvest management and selection of suitable variety which was ranked last because most of the respondents had minimum knowledge about this practice. Similar findings were reported by Choudhary, Mahesh, Asiwal, B. L. and R K Dular (2018) & Sushil Kumar Verma, D.P. Rai and Lekh Ram Verma (2015).

Table 4: Knowledge levels of respondents about improved production technology of brinjal. (N=80)

Sr. No.	Knowledge level about different practices	MPS	Rank
1.	Field preparation	62.93	I.
2.	Transplanting of seeding in main field	62.50	II.
3.	Nutrient management	54.38	III.
4.	Nursery raising (Management)	49.38	IV.
5.	Irrigation management	31.25	V.
6.	Plant Protection	23.13	VI.
7.	Weed identification and management	21.88	VII.
8.	Post – Harvest Management (Harvest)	19.25	VIII.
9.	Selection of Variety	14.66	IX.

Conclusion

Knowledge is one of the basic components that greatly affect the extent of adoption of scientific practices. By enhancing farmers knowledge and capabilities for applying new scientific techniques in farm sector will help them to maximization of profit. For up-gradation farmers knowledge training is one of the important aspects. Transfer of technology holds key to rapid development and transformation of rural society. Farm science center or Krishi Vigyan Kendras having district as jurisdiction, are playing crucial role in training and thereby enhancing productivity and income of the farming community. Thus, for organizing effective kvk activities i.e. training programme, FLD, OFT, Farmer field visit by kvk scientist etc. the present study was conducted in Barmer district of Rajasthan to know the extent of Knowledge level of farmers about improved production technology of Brinjal. The overall level of knowledge of brinjal production technology was medium. Maximum knowledge was noticed in the practice of field preparation, transplanting of nursery and irrigation management. Knowledge level of farmers should be increased in various aspects of brinjal production technology i.e., selection of suitable variety, post-harvest management, nutrient management, weed management, plant protection and nursery management through systematic training programme as well as field demonstration which could be more effective in future brinjal production.

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