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KNOWLEDGE OF THE RESPONDENTS ABOUT VEGETABLE CULTIVATION PRACTICES

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Abstract: *Vegetables provide a good source of income to the growers and play an important role in human nutrition by forming the most important component of a balanced diet. They are quick growing and yield immediate returns to the growers. Component-wise knowledge indicates that in both the crops (okra and cucumber) the respondents had good knowledge only in one component i.e. harvesting (75-76 MPS) however, in rest of the components the mean score was less than 33 percent. The respondents scored lowest in the component plant protection measures (7.53- 9.06 MPS) followed by irrigation (18.2 – 21.5 MPS), weeding (21.66 – 22 MPS), manure and fertilizer application (21.46 – 30.4 MPS), seed and sowing (25.3 – 26.54 MPS) and soil and field preparation (30.5-32 MPS).*

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INTRODUCTION

Today vegetable cultivation has emerged as an important enterprise for the farming community and many farmers have adopted it as a main source of the family income. Vegetables supply and quantities of vitamins, minerals, protein, carbohydrate, etc. which are essential for the maintenance of good health. India is the second largest producer of vegetables after China. It has produced 129 Million Tons of Vegetables year 2008-09. Rural women are the backbone of the village economy. About 70 percent of the total working population and 84 percent of all economically active women are involved in agriculture and make up 46 per cent of the agricultural work force (Maheshwari, 2001). It has been observed that due to lack of knowledge, women are still using traditional practices in vegetable cultivation which adversely affect the yield of different crops. Therefore, it is important to educate women regarding improved vegetable cultivation practices to enable them to adopt required technologies for increasing vegetable production.

MATERIALS AND METHODS

The study was conducted in Guntur district of Andhra Pradesh, as the District is second highest with respect to area under vegetable cultivation (2870 ha) and Guntur district consists of 57 Mandals out of which, Machavaram Mandal having highest area under vegetable cultivation (124 ha) was selected. In Machavaram Mandal there are total 18 villages. From these, 4 villages i.e. Machavaram, Pinnelli, Pillutla and Akuraju Palli were selected again on the basis of highest area under vegetable cultivation. From each village a list of all the farm women involved in vegetable cultivation was prepared and from the list 25 women were selected on random basis. Thus, the total sample for the present study consisted of 100 farm women. Keeping in view the nature of sample and objectives of the study interview technique was selected for data collection.

The knowledge test consisted of seven major components of okra and cucumber cultivation practices viz, soil and field preparation, seed and sowing, manure and fertilizer application, weeding, irrigation, plant protection measures and harvesting. The tool so developed for this study was pre tested for its clarity and understanding with respondents, other than those who were not included in the sample and necessary modifications were made accordingly. The reliability of research instrument was measured by using split half method. The value of correlation so obtained for knowledge test was 0.91 and 0.94.

RESULTS AND DISCUSSION

Knowledge is the most important component of behavior and it plays a major role in the covert and overt behavior of human beings. The quality and adequacy of performing any task depends upon the level of knowledge of an individual. Once knowledge is acquired, it helps to develop favourable attitude to take certain action in accepting an innovation. In order to know knowledge of the respondents about improved cultivation practices of okra and cucumber crops seven components have been identified and knowledge of the respondents was judged in light of these. The results are presented in the following heads:

1. Knowledge of the respondents about okra cultivation practices.
2. Knowledge of the respondents about cucumber cultivation practices

1. Knowledge of the respondents about improved okra cultivation practices

(a) Overall Knowledge:

To know level of knowledge of the respondents about okra cultivation practices, they were grouped into three categories of knowledge namely poor, average and good on the basis of their Mean Percent Scores.

Table 1. Distribution of respondents by their overall knowledge about Okra cultivation practices

S.No	Knowledge category	F / %
1.	Poor	65
2.	Average	35
3.	Good	0

MPS of Knowledge: 23.32

Perusal of table 1 reveals that the respondents had poor knowledge of improved Okra cultivation practices as overall MPS of knowledge was found to be 23.32. Distribution of the respondents in different categories of knowledge highlights that majority of them (65%) were in the category of poor knowledge whereas only 35 percent respondents belonged to average knowledge category and none of them fell in the category of good knowledge.

(b) Component – wise Knowledge:

Critical examination of the knowledge score highlights that the respondents had very good knowledge about the harvesting aspect however, their knowledge was found to be poor in rest of the components as the mean score was less than 33 percent in all the components. Critical examination of the table further reveals that respondents scored lowest in the

component plant protection measures (9.06 MPS) followed by irrigation (18.2 MPS), weeding (22 MPS), seed and sowing (25.3 MPS), manure and fertilizer application (30.4 MPS) and soil and field preparation (32 MPS).

The study of Solanki (2001) concluded that the farm women had poor knowledge regarding soil treatment, improved seeds, chemical weed control, plant protection measures, manure and fertilizer application and irrigation.

Table 2. Component wise knowledge of the respondents about improved okra cultivation practices

S. No	Components	MPS
1.	Soil and field preparation	32
2.	Seed and Sowing	25.3
3.	Manure and Fertilizer application	27.2
4.	Weeding	22
5.	Irrigation	18.2
6.	Plant Protection measures	9.06
7.	Harvesting	75

In depth enquiry into knowledge of the respondents in different components of okra cultivation was made to find out specific deficiencies in the knowledge and to identify important need items for education and training.

1. Soil and Field preparation: for successful vegetable production the type of soil used and preparation of land is very important as it leads to proper tilth of the soil. It is also important that land is prepared timely and required number of ploughings are done in the field. Therefore, farm women should have knowledge about soil and field preparation. Table 3 depicts that majority of the respondents (86%) knew about the type of soil required for okra cultivation. This might be due to the reason that 75 percent of the respondents were involved in the activity layout of the field.

It was found that though majority of the respondents (90%) were not involved in ploughing, however, they had correct knowledge about the number of ploughings necessary for field preparation this might be due to their experience of working in the field with the male members. With regard to soil borne diseases and their control, majority of the respondents (95%) were unable to tell the names of various soil borne diseases and chemicals used for control of the same.

Table. 3 Distribution of respondents by their knowledge regarding soil and field preparation in okra

S.No	Items	F / %
1.	Type of soil	86
2.	Number of ploughings	86
3.	Name of soil born diseases	5
4.	Name and dose of chemical used for control of soil born diseases	5

2. Seed and Sowing: The productivity of any crop can be increased up to reasonable level by adoption of improved agronomical practices. In spite of all the efforts, if due attention is not given at the initial stage of selection of seed and time of sowing, then the expected results in terms of desired productivity cannot be achieved. Hence, the women should have knowledge regarding these aspects.

When knowledge of the respondents was judged in detail about various aspects of seed and sowing, it was found that majority of the respondents (65%) had no knowledge about recommended seed varieties of okra whereas, 35 percent respondents knew about the recommended varieties viz., Pusa Sawani, Parbhani Kranti and Arka Anamika. Since majority of the respondents (65%) did not have knowledge of improved varieties of okra they were also unaware about its maturity period. This was due to the reason that majority of the vegetable growers were still using the local varieties. In the families where improved varieties were used women have awareness regarding this aspect.

When the respondents were asked regarding advantages of high yielding varieties, it was also found that nearly half of the respondents (49%) knew that they had short maturity period, have more yield potential and are resistant to diseases and pests.

Before sowing the seeds in the field, it should be treated in order to ensure good germination problem and to avoid emergence of soil borne diseases. This fact was known to 58 percent respondents. However, none of them knew about the name and dose of chemicals used for seed treatment as well as method of seed treatment. On enquiry from the women, it was reported that the practice of seed treatment in okra was not followed by them.

In Okra seed rate of 10-12 kg/ha is recommended for maintaining the required plant population. As shown in table 4 correct seed rate was known to 61 percent respondents. In

case of sowing, 77 percent respondents had knowledge about best suited period for sowing i.e Oct.- Nov. Similarly, 69 percent respondents knew that timely sowing of the crop results in more yield, good crop growth and less insect-pest attack.

With regard to knowledge regarding row to row and plant to plant spacing, it was found that 64 percent respondents had correct knowledge of the aspect. This was due to the reason that majority of the respondents (86%) were predominantly involved in the activity of sowing.

Table. 4: Distribution of respondents by their knowledge regarding seed and sowing in Okra

(N=100)

S.No	Items	F / %
1.	Seed	35
	a. Name of recommended seed varieties	49
	b. Advantages of high yielding varieties	35
	c. Maturity period of recommended varieties	
	d. Seed treatment	
	• Importance of seed treatment	58
	• Name and dose of chemicals used for seed treatment	0
	• Method of seed treatment	0
	e. Seed rate	61
2.	Sowing	
	a. Recommended time of sowing	77
	b. Advantages of timely sowing	69
	c. Required spacing for sowing	64

3. Manure and fertilizer application: To meet out requirement of nutrients of the vegetable crops, it is necessary to apply recommended dose of manure and fertilizer at appropriate time in the field.

Table. 5 Distribution of respondents by their knowledge regarding manure and fertilizer application in Okra

(N=100)

S.No	Items	F / %
1.	Name of manure and fertilizers	62
2.	Advantages of manure and fertilizer application	61
3.	Recommended dose of manure and fertilizers	32
4.	Time / stage of application of manure and fertilizers	59
5.	Method of application of fertilizers	23

Data presented in the table indicate that 62 percent respondents knew the name of different manure and fertilizers viz. Farm Yard Manure, nitrogen, potassium and phosphorus. Similarly, they also have knowledge about advantages of application of manure and fertilizers in the crops. The correct time of application of manure and fertilizers i.e. at the time of last ploughing, sowing and one month after sowing was known to nearly 60 percent respondents. It was found that though majority of the respondents (68%) were involved in the activity application of manure and fertilizers in the field however, they had poor knowledge regarding recommended dose of these in the crop. This might be due to the reason that the women were mechanically involved in the activity and the decision regarding quantity of manure and fertilizers to be applied in the crop was generally taken by the male members. Similarly the respondents also had poor knowledge about method of application of fertilizers as only 23 percent subjects could able to tell the correct method of fertilizer application i.e. pocketing. The possible reason for this might be that most of them were following the traditional method of fertilizer application i.e. broadcasting and hence were unaware about the correct method.

4. Weeding and irrigation: For optimum return from vegetable crops timely weeding is very important which is mainly the women dominated activity.

Perusal of Table 6 depicts that majority of the respondents (66%) had knowledge that weeding operation in okra crop should be performed one month after sowing. However, they were unaware about the chemical method of weed control and the name of weedicides. This was due to the reason that majority of the respondents were performing weeding operation manually, though which is time consuming and labour intensive.

With regard to irrigation aspect, it was found that 58 percent respondents had knowledge about the recommended number of irrigations in okra, but they were unaware about the critical stages of irrigation as only 15 percent women could be able to reply correctly that irrigation in okra is required at the three stages i.e. before sowing, at germination and fruiting stage. The possible reason for this was that majority of the women were not involved in the irrigation activity and it was mainly performed by the male members of the family.

Table. 6 Distribution of respondents by their knowledge regarding weeding and irrigation in okra

(N=100)

S.No.	Items	F / %
1.	Weeding	
	a. Time of weeding	66
	b. Name and dose of weedicides	0
2.	Irrigation	
	a. Recommended number of irrigations	58
	b. Critical stages of irrigation	15

5. Plant Protection Measures and Harvesting: Plant Protection is an important activity for successful vegetable production. For controlling various pests and diseases, suitable pesticides and fungicides have to be sprayed at number of times. Therefore, the growers should have sufficient knowledge about control measures of pest and diseases.

Table 7 depicts that the respondents had poor knowledge in all the aspects of plant protection measures. When the respondents were asked about the name of common insect pests and diseases of okra, only 28-35 percent respondents could tell the local name which were verified by the scientists and found that their knowledge about the aspect was correct.

It was further found that majority of the respondents (92-95%) were totally unaware about the name and dose of insecticides/pesticides as only 5-8 percent women could tell the correct name and dose of the chemicals. This might be due to the reason that majority of the respondents (78%) were either illiterate or can only read and write and it is really very difficult for them to remember the technical name of the chemicals. Few respondents, who could tell the name and dose of insecticides and pesticides correctly, had their formal education up to middle level.

Regarding harvesting of the crop, it was found that since majority of the women (80%) were involved in the activity either independently or jointly with family members, they had good knowledge about the recommended time of harvesting of okra crop.

Table.7 Distribution of respondents by their knowledge regarding plant protection measures and harvesting in okra

(N=100)

S.No	Items	F / %
1.	Plant Protection Measures	
	a. Name of Insect- pests	35
	b. Name and dose of chemicals for insect-pests	8
	c. Name of plant diseases	28
	d. Name and dose of chemicals used for control of diseases	5
2.	Harvesting	
	a. Time of harvesting	75

Based on the findings it could be concluded that respondents had poor knowledge in all the aspects of okra cultivation except harvesting viz. plant protection measures, irrigation, weeding, seed and sowing, manure and fertilizer application and soil and field preparation which needs to be emphasized in the training courses meant for them.

2. Knowledge of the respondents about cucumber cultivation practices:

The results related to respondents' knowledge about cucumber practices have been presented as under:

a) Overall Knowledge :

To know level of knowledge of the respondents about cucumber cultivation practices they were grouped into three knowledge categories viz., poor, average and good on the basis of their Mean Percent Scores.

Perusal of Table 8 reveals that the respondents had poor knowledge of improved cucumber cultivation practices as overall MPS of knowledge was found to be 22.11. Distribution of the respondents in different categories of knowledge depicts that 66 percent respondents belonged to the poor knowledge category whereas, 34 percent respondents belonged to the category of average knowledge. It was distressing to note that none of the respondent was found in the category of good knowledge.

In consideration with these things Solanki reported that majority of the farm women (82.50%) had either poor or very poor knowledge of improved horticultural practices.

Table. 8 Distribution of respondents by their overall knowledge about cucumber cultivation practices

(N=100)

S.No	Knowledge category	F /%
1.	Poor	66
2.	Average	34
3.	Good	0

MPS of knowledge: 22.11

b) Component – wise Knowledge:

Table 9 presents component wise knowledge of the respondents in cucumber cultivation practices. Critical examination of the knowledge scores highlight that the respondents had very good knowledge about the harvesting aspect however, their knowledge was found to be poor in rest of the component as their mean score was less than 33 percent in all the components. The table further reveals that respondents scored lowest in the component plant protection measures (7.53 MPS) followed by manure and fertilizer application (21.46 MPS), irrigation (21.5 MPS) weeding (21.66MPS), seed and sowing (26.54MPS) and soil and field preparation (30.5 MPS).

Table. 9 Component wise knowledge of the respondents about improved cucumber cultivation practices

(N=100)

S.No	Components	MPS
1.	Soil and field preparation	30.5
2.	Seed and sowing	26.54
3.	Manure and fertilizer application	21.46
4.	Weeding	21.66
5.	Irrigation	21.5
6.	Plant Protection measures	7.53
7.	Harvesting	76

1. Soil and field preparation: In depth assessment of Table 10 divulges that majority of the respondents (84%) knew that light soil is suitable for cucumber cultivation. The respondents had good knowledge about type of soil because majority of them (75%) were involved in the activity layout of the field. The respondents (85%) also had good knowledge about the required number of ploughings (three times) necessary for field preparation in cucumber.

The study supported by the findings of Meena as it was revealed that the respondents possessed maximum knowledge about soil and soil preparation. With regard to the soil borne diseases and their control, only 8 percent respondents could able to tell the name of various soil borne diseases and chemicals used for control of the same.

Table. 10 Distribution of respondents by their knowledge regarding soil and field preparation in cucumber

(N=100)

S.No	Items	F / %
1.	Type of soil	84
2.	Number of ploughings	86
3.	Name of soil born diseases	5
4.	Name and dose of chemical used for control of soil born diseases	5

2. Seed and Sowing: It was found that though 98 percent respondents had vegetable cultivation as their main occupation and were cultivating cucumber on commercial basis however, they were still using the local varieties and majority of the women (61%) had no knowledge about improved varieties of cucumber and its maturity period viz., Japanese green, curry cucumber, fruit cucumber, etc.

When the respondents were asked regarding advantages of high yielding varieties, it was found that half of the respondents (50%) knew that they are short duration, have more yield potential and are resistant to diseases and pests.

Regarding seed treatment it was found that necessity of seed treatment before sowing was not known to any of the respondent. Similarly they were also unaware about name and dose of chemicals as well as method of seed treatment.

In cucumber, seed rate of 2.5 to 3.7 kg/ha is recommended for maintaining the required plant population. This was known to 60 percent respondents. Incase of sowing 77 percent respondents had knowledge about recommended time of sowing i.e. June- July. Similarly 69 percent respondents knew that timely sowing of the crop results in good crop growth, less insect-pest attack and more yield.

With regard to knowledge of the respondents regarding row to row and hill to hill spacing, it was found that 62 percent respondents had correct knowledge of the aspect.

Table. 11 Distribution of respondents by their knowledge regarding seed and sowing in cucumber

(N=100)

S.No	Items	F / %
1.	Seed	
	a. Name of recommended seed varieties	39
	b. Advantages of High Yielding Varieties	50
	c. Maturity period of recommended varieties	39
	d. Seed treatment	
	• Importance of seed treatment	56
	• Name and dose of chemicals for seed treatment	0
	• Method of seed treatment	0
	e. Seed rate	60
2.	Sowing	
	a. Recommended time for sowing	77
	b. Advantages of timely sowing	69
	c. Required spacing for sowing	62

3. Manure and fertilizer application: Data presented in the table indicate that around 60 percent respondents knew about the name of different manure and fertilizers and their advantages. The correct time of application of FYM, nitrogenous, potassic and phosphatic fertilizers was known to only 37 percent respondents. Similarly only 22 percent respondents knew about the method of application of fertilizer i.e. forrowing and broadcasting.

Table. 12 Distribution of respondents by their knowledge regarding manure and fertilizer application in cucumber

(N=100)

S.No	Items	F / %
1.	Name of manure and fertilizers	60
2.	Advantages of manure and fertilizer application	61
3.	Recommended dose of manure and fertilizers	31
4.	Time / stage of application of manure and fertilizers	37
5.	Method of application of fertilizers	22

4. Weeding and irrigation: Cursory of Table 13 depicts that majority of the respondents (65%) had knowledge that weeding operation in cucumber crop should be performed one month after sowing. However, they were unaware about the chemical method of weed control and were unable to tell the name of weedicides. This might be due to the reason that as in case of okra, majority of the cucumber growers were also performing weeding operation manually.

With regard to irrigation aspect, it was found that 62 percent of the respondents had knowledge about the recommended number of irrigations required for cucumber crop, but they were unaware about the critical stages of irrigation as only 18 percent women could be able to reply correctly that irrigation in cucumber is required at the three stages i.e. before sowing, at germination and flowering stage.

Table. 13 Distribution of respondents by their knowledge regarding weeding and irrigation in cucumber

(N=100)

S.No	Items	F / %
1.	Weeding	
	a. Time of weeding	65
	b. Name and dose of weedicides	0
2.	Irrigation	
	a. Recommended number of irrigations	62
	b. Critical stages of irrigation	18

5. Plant Protection measures and Harvesting: Data presented in the table reveal that respondents had poor knowledge of plant protection measure. When the respondents were asked about the name of common insect- pests and diseases only 27-34 percent respondents could tell the local names of common insect-pests and diseases in cucumber. It was further found that more than 90 percent respondents were totally unaware about the name and dose of insecticides / pesticides recommended for control of insect-pests and disease in the crop.

Regarding harvesting of the crop, it was encouraging to note that 76 percent respondents had knowledge about recommended time of harvesting of the cucumber i.e. 30-35 days after sowing.

Table. 14 Distribution of respondents by their knowledge regarding plant protection measures and harvesting in cucumber

(N=100)

S.No	Item	F / %
1.	Plant Protection measures	
	a. Nam eof Insect-pests	34
	b. Name and dose of insecticides/ pesticides	8
	c. Name of plant diseases	27
	d. Name and dose of chemicals used for control of diseases.	5
2.	Harvesting	

	a. Time of harvesting	76

On the basis of findings it could be concluded that the respondents had poor knowledge in different aspects of cucumber cultivation viz. name and dose of chemicals used for soil borne diseases and seed treatment, method of seed treatment, name and dose of weedicides, time/ stage of application of fertilizers, method of application of fertilizers and name of insect-pest and diseases. While their knowledge found to be good regarding time of harvesting and weeding, recommended number of irrigation, name and advantages of manure and fertilizer application, seed rate, recommended time for sowing, type of soil and number of ploughing.

SUMMARY AND CONCLUSION

The knowledge profile of the respondents clearly revealed that they had poor knowledge regarding improved cultivation practices of okra and cucumber. The poor knowledge of the women might be due to lack of exposure to different information sources as apparent from the findings (Table 1) that majority of the respondents were not using any of the sources of the information viz. radio, T.V., film, exhibition, agriculture literature, etc. for acquiring technical knowledge related to agriculture. Similarly, the women also reported that they have limited access to the extension services. They expressed that though Village Development Officer (V.D.O) of the State Department of Agriculture is being posted in their village however, he used to contact farmers only. Further though training programmes for the farmers are organized regularly but till now no separate training programme has been organized for farm women with the result that till now none of the respondent had attended any training programme related to agriculture or vegetable cultivation. Hence, there is a diring need to educate women regarding improved vegetable cultivation practices. For these specialized training programmes should be organized for them at village level.

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