

RESEARCH ARTICLE :

Extent of knowledge level of farmers about post-harvest management practices and their use in pigeonpea

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SUMMARY : The study was conducted in Gulbarga district of NorthKarnataka during 2013-14 to know the knowledge level of farmers about post-harvest management in pigeonpea by selecting 120 farmers as respondents for the study. The data were elicited by administering interview method and analyzed using mean, standard deviation, frequency and percentage. The major findings of the study were majority (79.17%) of the respondents had medium to high level of knowledge about post-harvest management practices. Whereas cent per cent of pigeonpea growers had knowledge about harvesting by sickle, sun drying, cleaning by hand picking, house hold storage, transportation, *Dal* making and as animal feed. A large majority of the respondents had knowledge about bagging in jute bag (97.50%), beating with sticks (91.66%), management of storage pest *i.e.*, *Bruchids* (83.33%) and its management through *Neem* botanicals (80.83%) and godown storage of produce (80.00%). However, one third (64.17%) of the respondents belonged to middle age, of which 30.00per cent of them illiterates, while 72.50 per cent had bigfamily size 42.50% of them had medium annual income, 40.83 per cent of the respondents had semi-medium land holding (5.1-10 acres), more than half (55.83%) of the respondents belonged to medium farming experience but maximum number of them used to seek information from mass media, nearly half of the respondents (41.14%) had extension participation, half of the respondents belonged to medium achievement motivation, 38.33 per cent of the respondents belonged to medium economic motivation and 49.17per cent of them belonged to medium risk orientation category.

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BACKGROUND AND OBJECTIVES

Pigeonpea or redgram (*Cajanus cajan* L.) is most important pulse crop of tropics and sub tropical region of the world. It ranks second important pulse crop next to the Bengalgram. Pigeonpea is considered to be origin of peninsular India. It is a perennial

shrub and a short annual crop in India and as a perennial in many other countries, where the pods are harvested at regular interval. The crop has deep root system and hence highly drought tolerant. More than 350 vernacular names of red gram have been recorded, however, it is commonly known as Tur. The name pigeonpea was first reported from

Barbados, where the seeds were once considered very useful as feed for pigeons. Agricultural development has to major aspects, one is production and another one is post-harvest processing. Until now we have concentrated our efforts on agricultural production and neglected post-harvest processing of farm and animal products. Technology of post-harvest processing of agricultural products refers to the processes and treatments carried out on agricultural products after it is harvested and, hence, they farm post-harvest process technology or post-harvest technology. It starts from the selection of proper harvest and ends with marketing. All processes such as harvesting, threshing, drying, storage, parboiling, milling, sorting, grading, packing, transport, marketing etc., are included under this term.

A post-harvest loss of fruits and vegetable is 22 to 40 per cent, pulses, oilseeds and cereals is 10 to 30 per cent. These losses mainly arise because of improper harvesting methods, problems of threshing, storing, transportation and processing leads to large-scale losses in food grains. Thus, the post-harvest losses obviously have an impact on the economy. In Karnataka, there is thinking that, there is a considerable loss of pigeonpea in post production operations. There are no specific recommendations made as those of improved varieties of crops and their production technology. Farmers based on their experience do adopt post-harvest technology. Some innovative farmers might have adopted the scientific post-harvest technologies.

RESOURCES AND METHODS

The research study was conducted in Gulbarga district of North Karnataka. This district was purposively selected as it ranks first in area and production of pigeonpea. Gulbarga district consists of seven taluks, and pigeonpea is grown in all seven taluks. Two taluks namely Gulbarga and Jewargi were selected for the study. Since they occupied first and second place in area under pigeonpea cultivation, respectively. The lists of villages

was prepared from the selected taluks and from this list, four villages in each taluks were selected by simple random sampling method from each selected villages 15 respondents were selected randomly. Thus, total sample size constituted 120 respondents. Based on the objectives of the study, an interview schedule was prepared. The information was elucidated from respondents with the help of structured schedule. The interview schedule was per tested in non sample area for its practicability and relevancy. The information was collected by personally interviewing respondents using per structured interview schedule.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads:

Knowledge level of farmers about post-harvest management practices in pigeonpea :

Overall knowledge level of farmers about post-harvest management practices :

The data in Table 1 (Fig. 1), indicate that one forth (44.17%) of the respondents had medium level of knowledge about post-harvest management practices, followed by high (35.00%) and low level of knowledge (20.83%). While, administering the knowledge test questions to respondents about post-harvest management practice, it was noticed that, majority of the farmers had knowledge, with respect to post-harvest management practices when compared to improved technologies. The findings are in accordance with the results reported by Raghavendra (2004); Sunil Kumar (2004) and Ravikumar (2010).

Individual practice wise knowledge level of farmers about post-harvest management practices :

The Table 2 (Fig. 2), indicated that, cent per cent of the respondent had knowledge with respect to various

Table 1 : Overall knowledge level of farmers about post-harvest management practices in pigeonpea				(n=120)	
Sr. No.	Particulars	Categories	Frequency	Percentage	
1.	Low	Less than Mean - 0.425*SD	25	20.83	
2.	Medium	Between Mean \pm 0.425*SD	53	44.17	
3.	High	More than Mean + 0.425*SD	42	35.00	
			Total	120	100
			Mean=18.89	SD=3.48	

post-harvest management practices like harvesting by using sickle, drying by sun drying method, threshing by beating with sticks, cleaning by hand picking, bagging by using Jute (gunny) bag, house hold storage, transportation by bullock cart and tractor, TATA ace, value addition by

dhal making and husk used as animal feed, grading by manual winnowing at the time of cleaning (75.00%) and management of storage pest through ITK's by using different botanicals (80.83%). In case of source of marketing APMC (79.16%), commission agents

Table 2 : Individual practice wise knowledge level of farmers about post-harvest management practices in pigeonpea (n=120)

Sr. No.	PHM** Components	Particulars	Frequency	Percentage	
1.	Harvesting	By sickle	120	100.00	
		Combined harvester	63	52.50	
		Plant uprooting	00	0.00	
2.	Drying	Sun drying	120	100.00	
3.	Threshing	Beating with sticks	110	91.66	
		Pigeonpea thresher	88	73.33	
4.	Cleaning	Hand picking	120	100.00	
5.	Grading	Manual winnowing at the time of cleaning	90	75.00	
		Manual grading with bigger hole sieves	67	55.83	
6.	Bagging	Jute (gunny) bag	117	97.50	
7.	Storage	Godown	96	80.00	
		House hold/domestic store room	120	100.00	
8.	Management of storage pests	Bruchids (buraburi)	100	83.33	
		Rats	83	69.16	
		Pulse beetles	79	65.83	
		8.1 Through chemicals	Aluminium phosphate	50	41.66
			Malathion	52	43.33
		8.2 Through ITK's	Mixing grains with wood ash	90	75.00
Uses of Different botanicals	97		80.83		
9.	Transportation	Bullock cart	120	100.00	
		Tractor	120	100.00	
		Tata ace	120	100.00	
10.	Marketing	APMC	95	79.16	
		Commission agents	84	70.00	
		Retailers	21	17.50	
11.	Value addition	Dhal making	120	100.00	
		Husk as animal feed	120	100.00	
12.	Utilization pattern of pigeonpea stalks	Pigeonpea stalk used as fuel	94	78.33	
		Incorporation near bunds	50	41.66	
		Compost/Vermicompost preparation	26	21.66	
		The respondents had low knowledge and their usage			
		Use of combined harvester	08	6.66	
		Cleaning the produce by using electric fan	20	16.66	
		Grading by using sieves	26	21.66	
		Polythene bag	33	27.50	
		Mud bin	23	19.16	
		Treating the produce EDB Empules	38	31.66	
		Smearing of castor oil on the storage grains	18	15.00	
		Value addition (preparation of Numkin)	12	10.00	
		Flour (papad making)	21	17.50	

Note: Multiple responses possible* PHM**-Post-harvest management

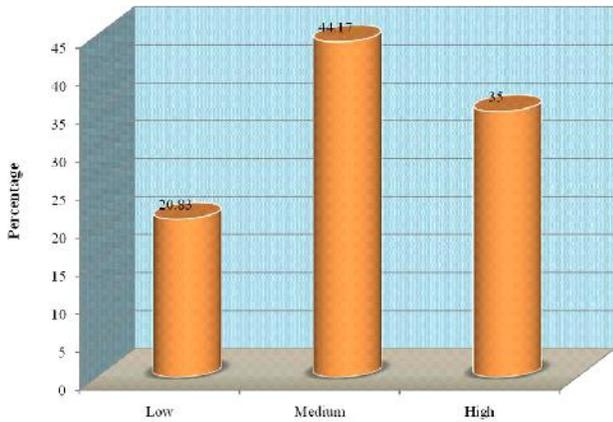


Fig. 1 : Overall knowledge level of farmers about post-harvest management practices in pigeonpea

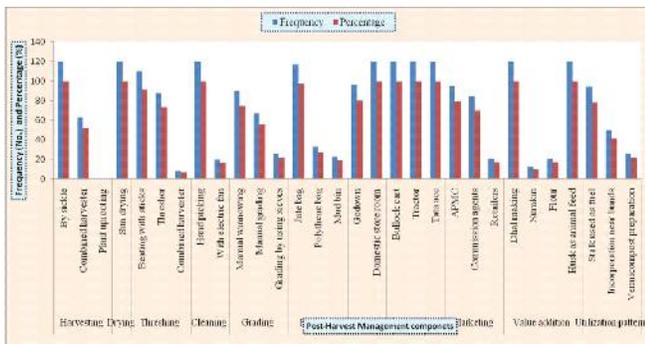


Fig. 2 : Individual practice wise knowledge level of farmers about post-harvest management practices in pigeonpea

(70.00%), in case of utilization pattern of pigeonpea stalks (78.33%) used as fuel. And (80.00%) store their produce in godown. Majority (83.33%) of the respondent had knowledge of managing bruchids followed by rats (69.16%) and pulse beetles (65.83%), respectively. However, majority of the pigeonpea growers did not know the usage and importance of grading by using sieves, storage of pigeonpea in mud bin/polithin bag and treating them with EDB empules, use of ITKs and value addition to the produce. The possible reason for this type of results may be due to fact that pigeonpea is grown as sole crop and in order to reduce the post-harvest losses at various stages the respondents might have acquired the knowledge. It is disheartening to note that, respondent had no knowledge with respect to modern post-harvest management practices, like harvesting by combined harvester, threshing by combined harvester (harvester cum thresher), pigeonpea thresher, cleaning by using

electric fan, grading by using hand sieve with bigger holes, grading by using sieves, bagging by polythene bag, storage by godown, management of storage pests through chemicals, value addition aspects like numkin, papad making and utilization pattern of pigeonpea stalks as raw materials for compost/ vermicompost preparation. The possible reason for this could be the respondents might not have been educated in these aspects. The results are in accordance with the findings of Raghavendra (2004) and Ravikumar (2010).

Though the Gulbarga district is recognized as ‘pulse bowl’ of Karnataka, however, still more number of farmers did not possess the knowledge about grading, proper storage and value addition of the produce which needs to be addressed and in this lines farmers are to be appraised which helps them to reap the harvest to the fullest extent.

Conclusion :

It can be concluded for the above results that, less than half of respondents belonged to medium level of overall knowledge about post-harvest management practices. With respect to individual post harvest management practices, cent per cent of the respondent had knowledge with respect to various post-harvest management practices like harvesting by using sickle, drying by sun drying method, threshing by beating with sticks, cleaning by hand picking, bagging by using Jute (gunny) bag, house hold storage, transportation by bullock cart and tractor, TATA ace, value addition by dhal making and husk used as animal feed. However, majority of the pigeonpea growers did not know the usage and importance of grading by using sieves, storage of pigeonpea in mud bin/polithin bag and treating them with EDB empules, use of ITKs and value addition to the produce. Half of the respondents belonged to medium knowledge category in respect of post-harvest management practice in pigeonpea. Hence, it is imperative that the State Department of Agriculture, Government of Karnataka and Tur board to make integrated efforts in providing the recent techniques and In order to improve knowledge of post-harvest management practice of pigeonpea growers, there is a need to organise educational activities like training programmes, demonstrations, educational tours to create awareness and develop confidence among farmers.

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