

Received : 20.07.2022 | Accepted : 01.11.2022 | Online published : 15.12.2022

[https://doi.org/10.54986/irjee/2022/dec\\_spl/44-49](https://doi.org/10.54986/irjee/2022/dec_spl/44-49)I  
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EXTENSION  
EDUCATION

## RESEARCH ARTICLE

## Knowledge of Women Labourers Involved in Post-harvest Activities of Dry Chilli - A Comparative Study

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## ABSTRACT

*India is the largest agricultural dependent country wherein; the culturally diverse population still depends on 'agriculture' and for them it is not merely a business but is the "True Culture of India". In Indian agriculture, women play multiple roles right from sowing to harvesting. She also plays crucial role in post-harvesting operations. Women are therefore key contributors in agricultural production. A comparative study to know the Knowledge of field level women labourers involved in post-harvest activities of dry chilli- A comparative study in Karnataka and Andhra Pradesh. Study was undertaken in Haveri district of Karnataka and Guntur district of Andhra Pradesh. A total of 120 respondents were selected for the study (60 respondents from Karnataka and 60 respondents from Andhra Pradesh). The data was collected through personal interview method with the help of pre-structured interview schedule. Statistical tools viz., frequency, percentages, class interval and t-test were used to analyze the data. The overall knowledge index of field level labourers knowledge index was 63.48 in Haveri and 63.61 in Guntur districts respectively. Regarding field level women labourers knowledge there was no significant difference between Byadgi and Guntur district field level women labourers.*

**Keywords:** Knowledge; Women labourers; Dry chilli; Post-harvest activities.

India is the largest agricultural dependent country wherein; the culturally diverse population still depends on 'agriculture' and for them it is not merely a business but is the "True Culture of India". Demographically, agriculture is the largest economic field and plays a significant role in India's entire socio-economic structure. For marginal and small farmers agriculture is not just an enterprise, but a way of life in which all family members including children contribute in one or the other way. Nearly 70 – 75 per cent of the rural household, directly or indirectly depends on agriculture for their livelihood. In Indian agriculture, women play multiple roles right from sowing to harvesting. She also plays crucial role in post-harvesting operations. Women are therefore key contributors in agricultural production. They work as paid & unpaid labourers, cultivators, managers of certain aspects of agricultural production by way of labour supervision and participation in post-harvest operations.

**Role of women in post-harvest activities:** In majority of the developing nations including India women play a vital role in post-harvest activities which varies with the different crops and regions. Women are more concentrated in certain phases or activities of the supply chain. They play numerous intensive jobs in post-harvesting operations especially in threshing, dehusking, cleaning, drying, storage, grading, processing and marketing as reported by Sidhu, (2007). **Dry chilli production in Andhra Pradesh and Karnataka :** Chilli is one of India's most popular commercial crops and it is being cultivated in almost all states and in union territories. Andhra Pradesh stands first and Karnataka stands second in position in area of chilli cultivation. These two states together contribute 14.00 per cent of the country's production (Patil and Nagnur 2015). Hence an effort was made to study knowledge of women labourers involved in post-harvest activities of dry chilli with following objectives.

- To study the knowledge of women labourers doing post-harvest activities of dry chilli at fields
- Suggestions to improve knowledge of women regarding post-harvest activities.

## METHODOLOGY

The present study was conducted in Haveri district of Karnataka and Guntur district of Andhra Pradesh. For this study three chilli cultivating villages namely Guthla, Agadi and Devihosur from Haveri taluka of Haveri district and three villages namely Rytunagar, Nadigadda and Dondapadu were selected from Vinukonda taluka of Guntur district were selected. From each selected village 20 women labourers involved in post-harvest activities of dry chilli at field level were randomly selected. Thus, a total of 120 respondents were selected for the study (60 respondents from Karnataka and 60 respondents from Andhra Pradesh). The data was collected through personal interview method with the help of pre-structured interview schedule. Statistical tools viz., frequency, percentages, class interval and t-test were used to analyze the data.

## RESULTS AND DISCUSSION

The results in Table 1 pertains to the knowledge of Haveri and Guntur districts women labourers in various activities of post-harvesting at field level. It could be seen that knowledge index is 100.00 for Haveri and Guntur district field level women labourers about recommended varieties of dry chilli. Regarding harvesting of dry chilli index was 94.99 for Haveri and 97.49 for Guntur was the knowledge at field level. With respect to different methods of harvesting of dry chilli Haveri women labourers at field level scored 42.22 and Guntur women labourers at field level scored 46.66. While in drying methods of dry chilli 36.66 was the knowledge index for Haveri and 38.88 for Guntur women labourers at field level. The knowledge indices regarding criteria for grading and sorting of dry chilli were 66.66 and 64.99 for Haveri and Guntur women labourers at field level respectively. While different methods of grading dry chilli Haveri and Guntur field level women labourers' knowledge index was 56.66 and 60.00 respectively. Different packaging materials index was also quite high for both Haveri 67.50 and Guntur 65.83 field level women labourers. Regarding storage 49.99 of Haveri and 48.66 Guntur and about marketing 56.66

and 50.00 were the knowledge indices for both Haveri and Guntur field level women labourers respectively.

*Harvesting* : With regard to harvesting Table 1 indicates that a very high percentage of women labourers from both the districts ranging from 93-100 per cent know about best season for growing dry chilli 93.33 per cent from Haveri and 96.66 per cent from Guntur districts followed by appropriate time of harvesting of dry chilli with 90.00 per cent from Haveri and 93.33 per cent from Guntur districts had knowledge. Cent percent of both districts had knowledge about number of pickings. Whereas cent per cent of Guntur district field labourers and 96.66 per cent from Haveri district know about interval of picking. Cent per cent of the women labourers from both the districts had knowledge about recommended dry chilli varieties., the reason may be both Bydagi and Guntur chilli are very popular throughout India and majority of labourers were native from these two districts and so they knew.

*Methods of harvesting dry chilli* : Cent per cent of respondents from both districts know about manual harvesting. Very low percentage of women ranging from 10-24 per cent know about mechanical harvesting and standard moisture content in dry chilli from both the districts. Large majority of the respondents from both the districts had knowledge about harvesting. Women have largely been involved in harvesting activities since ages. This is truer among women of small landholding were grown in small quantities and family labour is employed. Long years of experience gave them knowledge about the season of harvesting, number pickings and interval between pickings which they learnt from their older family members.

*Different methods of drying chilli for dry chilli* : Cent percent of women labourers at field level in both the districts know about traditional sun drying method. Very few know about solar drying viz., 06.66 per cent from Haveri and 10.00 per cent from Guntur districts. Mechanical drying was known by 03.33 per cent at Haveri and 06.66 per cent from Guntur district.

Cent per cent of the women labourers in both the districts were following manual harvesting and none of them were doing mechanical harvesting. This might be because the farms are mostly small in size and it is not feasible to employ machines. There is also no dearth for human resources /labourers in villages, where hand picking of chilli by women is preferred. Moreover, farmers pay less labour wages to

**Table 1. Knowledge of field level women labourers on post-harvest activities of dry chilli (N = 120)**

Statements	Haveri (n <sub>1</sub> =60)	Guntur (n <sub>2</sub> =60)	Total (n=120)
	No. (%)	No. (%)	No. (%)
<i>Recommended variety for dry chili</i>			
Mention the variety recommended for Haveri/Guntur district under dry chilli?	60 (100)	60 (100)	120(100)
Knowledge index of recommended variety of dry chilli	100	100	100
<i>Harvesting</i>			
Mention the best season for growing dry chilli?	56 (93.33)	58 (96.66)	114(95.00)
Do you know the appropriate time of harvesting of dry chilli?	54 (90.00)	56 (93.33)	110(91.66)
Do you know number of pickings while harvesting dry chilli	60(100)	60(100)	120(100)
Do you know the interval of picking while harvesting dry chilli	58 (96.66)	60(100)	120(100)
Knowledge index of harvesting	94.99	97.49	96.66
<i>Different methods of harvesting of dry chilli</i>			
Manual harvesting	60(100)	60(100)	120(100)
Mechanical harvesting	06(10.00)	10(16.67)	16(13.33)
Mention the standard moisture content in dry chilli?	10(16.66)	14(23.33)	24(20.00)
Knowledge index of methods of harvesting	42.22	46.66	44.44
<i>Different drying methods of dry chilli</i>			
Traditional sun drying	60(100)	60(100)	120(100)
Solar drying	04(06.66)	06(10.00)	10(8.33)
Mechanical drying	02(03.33)	04(06.66)	06(05.00)
Knowledge index of different drying methods	36.66	38.88	37.77
<i>Criteria for grading/sorting of dry chilli</i>			
Based on color, size, moisture and stalk of the pods	60 (100)	58(96.66)	118(98.33)
Seed and fruit (pod) ratio	38(63.33)	34(56.66)	72(60.00)
Seed size and hardness	18(30.00)	16(26.66)	34(28.33)
Pungency	44(73.33)	48(80.00)	92(76.66)
Knowledge index of criteria of grading/sorting dry chilli	66.66	64.99	65.83
<i>Different methods of grading for dry chilli?</i>			
Manual grading	60(100)	60(100)	120 (100)
Mechanical grading	08(13.33)	12(20.00)	20(16.66)
Knowledge index of grading methods	56.66	60.00	58.33
<i>Different packaging materials used for packing</i>			
Gunny bags	60(100)	60(100)	120(100)
Bamboo baskets	36(60.00)	30(50.00)	66(55.00)
Polyethylene film pouches	12(20.00)	18(30.00)	30(25.00)
What are the standard measurements for packaging?	54(90.00)	50 (83.33)	104(86.66)
Knowledge index of packaging materials	67.50	65.83	66.66
<i>Storage</i>			
Do you have any ideas of different storage structures?	48(80.00)	52(86.66)	100(83.33)
Community storage(Rural Godowns/ Mandi Godowns)	36(60.00)	32(53.33)	68(56.66)
Commercial storage (cold storage/central warehousing/state warehousing)	38(63.33)	32(53.33)	70(58.33)
Do you know the major storage pests in dry chilli?	20(33.33)	14(23.33)	34(28.33)
Do you know the control measures for diseases and pests in dry chilli?	08(13.33)	16(26.66)	24(20.00)
Knowledge index of storage	49.99	48.66	49.33
<i>Marketing</i>			
Do you know the cost of one quintal of dry chill bag in both wholesale and retail markets?	34(56.66)	30(50.00)	64(53.33)
Knowledge index of marketing	56.66	50.00	53.33
Overall knowledge indices	63.48	63.61	63.59

women than men and so prefer to employ them. They therefore do not know about the advanced harvesting methods of chilli.

*Criteria for grading/sorting dry chilli* : Cent per cent of respondents from Haveri districts and 96.66 per cent from Guntur districts know that grading of dry chilli was done based on color, size, moisture content and stalk of the pods. More than half (63.33%) of the Haveri and Guntur district (56.66%) women labourers at field know that grading was done based on seed and fruit ratio. One third of the (30.00%) Haveri and 26.66 per cent of Guntur district women labourers at field level know that grading was done based on seed size and hardness. Majority (73.33%) of Haveri district and 80.00 per cent Guntur district field level women labourers know that grading was done based on pungency of dry chilli.

*Different methods of grading* : Cent per cent of Haveri district and Guntur district field labourers had knowledge about manual grading, whereas very few (13.33%) from Haveri and Guntur (20.00%) field level women laborouers know about mechanical grading. Cent per cent of women labourers in both the districts were performing manual grading and none of them were involved in mechanical grading. This is because there was no mechanical grading unit at field level in both the districts. This might be reason why none of the respondents had knowledge about mechanical grading.

*Different packing materials used for packing* : With respect to packing materials, it is indicated that, a very high percentage of women ranging from 84-100 per cent know about gunny bags and standard measurements for packaging. More than half (60.00%) of the Haveri and half (50.00%) of the Guntur district field labourers know about bamboo baskets and low percentage of women ranging from 20-30 per cent know about polyethylene film pouches.

In this study it was seen that cent per cent of both the women labourers know that gunny bags are used for packaging. Gunny bags are used not only for chilli packaging but also for other agricultural produce as it is more convenient, low cost, easily available and is the traditional practice. Few respondents know about polyethylene film pouches and none of them had knowledge about vacuum packaging. This is because polyethylene film pouches are costly as compared to gunny bags and so are rarely used. Regarding vacuum packaging, none of them are aware of it because it is a recent technology and is not used at field level.

*Storage of dry chilli at field level* : Majority (80.00%) of Haveri district and Guntur district (86.66%) field labourers had knowledge of different storage structures. More than half of women of Haveri district (60.00%) and 53.33 per cent of Guntur district labourers know about community storage. Whereas, 63.33 per cent of Haveri district labourers and 53.33 per cent of Guntur district know about commercial storage respectively. Very low percentage of women ranging from 13-34 per cent know about storage pests and control measures for diseases and pests in dry chilli in both the districts.

More than half of the respondents had knowledge of rural godowns storage/community storage and commercial storage such as cold storage, central ware housing and state warehousing. Across both the districts, the godowns/ community storage/ cold storage units have been established and women are involved with men in storing the chilli in these units. During their informal discussions with the male counterparts and other chilli growers they might have learnt about the different storage structures.

*Marketing* : With regard to marketing of dry chilli more than half (56.67%) of Haveri district filed labourers and half (50.00%) of Guntur district field labourers had knowledge about cost of one quintal dry chilli bag in both wholesale and retail markets.

*Knowledge level of field level women labourers* : The results on overall knowledge index shows (Table 2) that, more than half (66.67%) of Haveri district field labourers and (63.33%) of Guntur district field labourers belonged to medium knowledge category, equal per cent (33.33%) of field labourers from both districts had high knowledge and only 03.33 per cent of Guntur field labourers belonged to low knowledge category.

Overall knowledge index of Haveri and Guntur district women labourers was almost same showing no significant difference between Haveri district and

**Table 2. Overall knowledge indices of field level women labourers chilli (N = 120)**

Category	Haveri district (n <sub>1</sub> =60)		Guntur district (n <sub>2</sub> =60)	
	No.	%	No.	%
High	20	33.33	20	33.33
Medium	40	66.67	38	63.33
Low	-	-	02	03.33



Guntur district women labourers. This may be due to the fact that irrespective of where chilli is grown, people involved in the harvesting activities have similar knowledge on the various aspects.

When categorized based on their knowledge level it could be seen that, 66.67 per cent of Haveri district women labourers and 63.33 per cent Guntur district women labourers belonged to medium knowledge level. While, the remaining in both districts belonged to high knowledge level category. Medium to high knowledge level was seen because the main occupation of the respondents was farming and from labour. All of them are involved in dry chilli post-harvest activities. However, they were not aware about some of the advanced methods of post-harvesting of dry chilli like solar drying, mechanical drying, polythene packaging and vacuum packaging. A small per cent of women labourers had low level of knowledge which could be because they were involved only in removing chilli stalk and other and not in other activities. They do not have access to mass media. Moreover, they were illiterates. The above-mentioned findings were in consonance with the findings of *Chamandeep (2017)*, *Hada and Bansal (2017)*, *Jadhav et al (2010)*, *Swetha et al. (2006)*, *Priya et al. (2006)* and *Humayera et al. (2003)* who found most of the women respondents belonged to medium knowledge category.

*“t- test” on knowledge and participation of field level women labourers* : It was observed from the Table 3 that, there was no significant difference in knowledge of Haveri district and Guntur district field labourers (0.513<sup>NS</sup>). The reasons might be, due to the involvement of women in similar type of activities in both the districts.

Results from Table 4 indicated that majority 76.66 of the respondents from Haveri district and 60.00 per cent of Guntur district labourers suggested

**Table 3. t- test on knowledge of field level women labourers' chilli (N = 120)**

Knowledge	Mean	SD	Sig.
Haveri district field labours	17.766	3.607	0.513 <sup>NS</sup>
Guntur district field labours	18.300	4.411	

\*Significant at the 0.05 level

\*\*Significant at the 0.01 level

<sup>NS</sup>Non-significant

**Table 4. Suggestions by women labourers (N = 120)**

Suggestions	Haveri district (n <sub>1</sub> =60)		Guntur district (n <sub>2</sub> =60)	
	No.	%	No.	%
Conduct training programmes regarding post-harvest activities	46.	76.66	36.	60.00
To have female extension worker for technical guidance on different activities	40	66.67	38	63.33
Financial support by the government to start income generating activities	48	80.00	42	70.00
To get medical facilities to labourers	32	53.33	36	60.00
Improve cold storages nearby villages	26	43.33	22	36.66
To enhance marketing facilities near villages	42	70.00	46	76.66

that, conducting training programmes regarding post-harvest activities will enhance knowledge. Whereas, majority 66.67 per cent of Guntur district labourers and 63.33 per cent Haveri district labourers suggested to have female extension workers for technical guidance on different activities. High majority of Guntur district labourers and 70.00 per cent of Haveri district labourers had suggested financial support by the government to start income generating activities will improve labourers' economic status. Majority 53.33 Guntur district labourers and 60.00 Haveri district labourers had suggested to get medical facilities to labourers at village level. Whereas, 43.33 of Guntur district labourers and 36.66 of Haveri district labourers had suggested to improve cold storages nearby villages. With respect to Guntur district labourers 70.00 per cent and 76.66 per cent of Haveri district labourers had suggested to enhance marketing facilities near villages

## CONCLUSION

In Indian agriculture, women play multiple roles right from sowing to harvesting. She also plays crucial role in post-harvesting operations. Women are therefore key contributors in agricultural production. Based on the findings majority of field level women labourers belongs to medium level of knowledge category both in Haveri district and Guntur district respectively. It was observed that, there was no

significant difference in knowledge of Haveri district and Guntur district field labourers (0.513<sup>NS</sup>). Hence, it is utmost important to educate and train the field level women labourers regarding dry chilli post-harvest activities. So that improvement in the knowledge of field level women labourers for all these aspects can be made as follows-

The findings revealed that women labourers participated in most of dry chilli post-harvest activities. Their knowledge regarding post-harvest activities is medium. Therefore, it is important to have more women extension agents to cater the needs of women labourers.

It was observed that more than half of the field level women labourers have medium level of knowledge regarding post-harvest activities of dry chilli. KVKs and developmental departments need to educate the women labourers on these aspects to improve their knowledge level.

There is a need to train field level women labourers in management of post-harvest activities in their respective domains. Off campus extension activities should be designed to improve their knowledge and participation in post-harvest activities.

### CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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