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KNOWLEDGE OF RURAL WOMEN IN BIHAR ABOUT HOMESTEAD TECHNOLOGIES OF RAJENDRA AGRICULTURAL UNIVERSITY (RAU)

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ABSTRACT

The present study was conducted in three districts of Bihar *viz.,* Samastipur, Muzaffarpur and Vaishali with 225 rural women from nine villages. A knowledge test was developed and standardized to assess the knowledge level of the respondents about homestead technologies of RAU (Presently Dr. Rajendra Prasad Central Agricultural University). Data was collected during April, 2013 to October, 2013 through the developed knowledge schedule to assess the overall knowledge level of the respondents with regard to the selected homestead technologies and also with respect to the individual homestead technology. Majority (65.78%) of the respondents possessed medium level of knowledge on homestead technologies of RAU. Majority of the respondents had low knowledge level with respect to fruit and vegetable preservation, value addition to garments, art and craft making and value added mushroom products, where as for rest of the technologies majority of them had medium knowledge level. None of them were found to possess high level of knowledge in any of these technologies.

INTRODUCTION

Knowledge is the pre-requisite for acceptability and adoption of any technology. It is influenced by a number of socio-personal and economic, psychological and situational variables that impinge upon rural women. In the present study knowledge was operationalized as the awareness or familiarity gained by rural women on specific information about homestead technologies of RAU. The empirical studies showed that although women farmers play a vital role in agricultural development in a country, they are comparatively less informative than male farmers due to certain socio-economic and cultural constraints. Educating rural women and creating awareness about modern homestead technologies can go a long way in enhancing their knowledge and skill and ultimately, the productivity of the system and farm incomes. Rani and Reddy (2002) in their study on knowledge and adoption level of communicators of farm technology *(i.e.* rice production) and home technology (*i.e.* nutrition) in Warangal district indicated that though there were significant differences in knowledge and adoption levels, the women respondents of both villages were acquainted with rice production and nutrition technology through their own pattern of inter personal communication.

Homestead technologies have been generated through researches to improve the quality of life of urban and rural families. In the present era of scientific explosion, homestead knowledge is a must to bridge the gap between what is generated by the Home Science researchers and what is known and practiced by the rural women. There are a number of Home Science researchers engaged in generating new and appropriate homestead technologies and there are several agencies, institutions and programmes entrusted with the responsibility of delivering their useful knowledge and technology to the rural women. However, still the women folk remain less informed than their male counterparts. Thus, the present study was undertaken to assess the knowledge level of rural women about homestead technologies of RAU with the following specific objectives- to develop knowledge test on homestead technologies of RAU and to find out the knowledge level of rural women of Bihar about homestead technologies of RAU.

MATERIAL AND METHODS

The study was conducted in Samastipur district of Bihar covering three blocks selected randomly, with a sample of 225 rural women from nine villages who were exposed to all the nine homestead technologies of RAU selected under

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study. A knowledge test was developed using standardised method. The developed schedule was administered to the final respondents and their response was recorded. A score of 'one' was given for each correct response and a score of 'zero' for each incorrect response for 37 objective questions. For remaining 10 open ended questions, a score of 1 was given for each correct response and as such the total score for that particular question was the sum of the total number of response or entries made by the respondent. Based on the total score of the respondents, Mean and S.D were calculated and respondents were grouped into the following three knowledge categories

S. No.	Category	Score
1	Low	Mean- S.D
2	Medium	Mean ±S.D
3	High	Mean +S.D

In addition to these, results were also presented on knowledge level of the respondents on the nine selected homestead technologies individually.

RESULTS AND DISCUSSION

1.0 The knowledge test of the respondents was measured using the test developed for the study as detailed below

The purpose of construction of knowledge test was to identify the level of knowledge of rural women about homestead technologies of RAU. The items of knowledge test were administered in the non-sampled area *i.e.* Birauli Khurd village of Pusa block, Samastipur district to 60 respondents who were aware of all selected Homestead technologies.

A. Collection of Items

An item pool of knowledge test was prepared by thoroughly referring various published literature of the University and text books written by the Scientists on the subject matter. Additional information was also obtained through discussion and interaction with the experts of the concerned Homestead technologies. Finally a pool of items for all the ten selected Homestead technologies was prepared.

B. Framing of test items

The knowledge test comprised of objective/ closed ended questions in the form of true-false, multiple choice, fill up the blanks and open ended questions. The ten selected homestead technologies were- fruit and vegetable preservation, value added quality protein maize products, stitching and embroidery, value addition to garments, arts and craft making, value added products from cereals and pulses, mushroom production, value added mushroom products, vermicompost technology and apiculture. The knowledge test comprised of 72 closed and open ended questions from all the ten selected Homestead technologies.

C. Selection of items for item analysis

The criteria used for selection of items were- response to items should promote thinking rather than memorisation. They should differentiate the well informed respondents from the poorly informed respondents and should have some difficulty level. The items included should cover all areas of knowledge about Homestead technologies of RAU.

D. Pre-testing

Keeping in mind the criterion provided for selection of items, one of the homestead technology *i.e.* value added products from quality protein maize was completely eliminated from the knowledge test as none of the rural women was aware about this technology. Two components of value added mushroom products *i.e.* mushroom sauce and mushroom *murrabba* were also eliminated from the knowledge test for the same reason. Thus, the 68 test items included for knowledge test were pre-tested by administering it to 60 respondents who were outside the main sample selected for this study.

E. **Item Analysis**

Item analysis was carried out to yield two types of information *viz.*, indices of 'item difficulty' and 'item discrimination'. The index of item difficulty indicates the extent to which an item was difficult. The latter provides information on how well an item measures or discriminates a well-informed respondent from a poorly informed respondent. Pre-testing of the items was done by administering the questions to 60 respondents who were outside the main sample. All the 68 items were administered to each of the respondent. The scoring pattern was '1' for each correct answer and '0' for each incorrect answer. After computing the total scores of all the 60 respondents on 68 items, they were arranged in descending order. Afterwards, the respondents were divided into six equal groups of 10 members each and were labelled as G1, G2, G3, G4, G5 and G6. For the purpose of item analysis, the middle two groups G3 and G4 were eliminated, keeping only four extreme groups with high and low scores.

F. **Item Difficulty Index (P)**

The item difficulty index was worked out as the percentage of respondents answering an item correctly. The assumption of the item statistic of difficulty index was that the difficulty is linearly related to the level of respondent's knowledge about Homestead technologies of RAU. The items with 'p' values ranging from 20 to 80 were considered for the final selection of the knowledge test battery.

$$D.I. = \frac{\text{No.of respondents answering correctly}}{\text{Total no.of respondents}} \times 100$$

G. **Discrimination Index (E 1/3)**

An item discrimination index (E 1/3), which indicates the level of discrimination between well informed and poorly informed respondents, was computed using the given formula -

$$E\ 1/3 = \frac{(S1+S2)-(S5+S6)}{(N/3)}$$

Where,

S1, S2, S5 and S6= Frequencies of correct answers in the groups G1, G2, G5 and G6.

N= Total no. of respondents of the sample selected for the item analysis *i.e.* 60.

Values of discrimination index ranges from 0 to 1. The items with discrimination index ranging from 0.20 to 0.80 were selected for the final test. These are the items that can discriminate between the well informed and the poorly informed respondents.

H. **Point Biserial Correlation (r_p bis)**

The main aim of calculating point biserial correlation was to work out the internal consistency of the items *i.e.*, the relationship of the total score to a dichotomized answer to any given item. In a way, the validity power of the item was computed by the correlation of the individual item of preliminary knowledge test calculated by using the formula suggested by Garret (1966).

$$r_p \text{ bis} = \frac{M_p - M_q}{\sigma} \times \sqrt{pq}$$

Where,

r_p **bis** = Point biserial correlation

M_p = Mean of the total scores of the respondents who answered the item correctly or

$$M_p = \frac{\text{Sum of total of xy}}{\text{Total no.of correct answers}}$$

M_q = Mean of the total scores of the respondents who answered the item incorrectly

$$\text{or } M_q = \frac{\text{Sum total of x} - \text{Sum total of y}}{\text{Total no.of incorrect answers}}$$

σ = Standard deviation of the entire sample (60 respondents)

p= Proportion of the respondents giving correct answer to an item or

$$p = \frac{\text{Total no.of correct answers}}{\text{Total no.of respondents}}$$

q= Proportion of respondents giving incorrect answer to an item or

q= 1-p

x= Total score of the respondent for all items

y= Response of the individual for specific items (correct-2, incorrect-1)

Items having significant point biserial correlation either at 1 percent or 5 per cent level were selected for the final test of the knowledge.

I. **Final selection of items**

Out of 68 items, 47 items were finally selected based on the following criteria: Items with difficulty level indices ranging from 20 to 80; Items with discrimination indices ranging from 0.20 to 0.80; Items having significant point biserial correlation either at 1% or at 5% level. The final selected knowledge test items consisted of 47 objective/closed ended and open ended questions.

J. **Reliability of the test**

Test and Re-test method

The test was administered twice to 60 respondents who were aware of all the nine homestead technologies separately at an interval of two weeks. The two sets of knowledge scores were obtained and put to correlation analysis. The correlation co-efficient (r=0.908) was highly significant indicating a high degree of dependability of the instrument for measuring knowledge of rural women about homestead technologies of RAU.

K. **Validity of the test**

Content Validity

The test included an exhaustive list of test items representing all the major areas on homestead technologies of RAU, collected from literatures and in consultation with the Scientists of RAU. The items were collected from various sources as mentioned earlier and in consultation with the Scientists of RAU. Hence, it was assumed that the scores obtained by the respondents by administering the knowledge test under study, measures what it is supposed to measure. Thus, the knowledge test developed in the present study measures knowledge about homestead technologies of RAU. It showed a greater degree of reliability and validity. The developed test was administered to the final respondents under study to assess their knowledge level.

2.0 Overall knowledge level of the respondents on homestead technologies

The knowledge level of the respondents on homestead technologies of RAU was studied to ascertain the degree of awareness and understanding of the selected technologies by the rural women. The extent of adoption of various homestead technologies largely depends on the knowledge level possessed by the respondents.

The data in Table 1 represented knowledge level of the respondents on homestead technologies of RAU from which it was clear that majority (65.78%) of the respondents possessed medium level of knowledge on homestead technologies of RAU. It was followed by 17.33% and 16.89% of the respondents under high and low knowledge level categories.

Table 1. Distribution of respondents based on their overall knowledge level (N=225)

S. No.	Category	Frequ-ency (f)	Perce-ntage (%)
1	Low	38	16.89
2	Medium	148	65.78
3	High	39	17.33
Total	**225**	**100.00**	

Mean= 119.35; Standard Deviation=10.89

2.1 Technology – wise knowledge level of the respondents

Distribution of respondents on the basis of their knowledge about the nine selected homestead technologies is presented in Table 2. The data in this table provides in-depth information on the knowledge level of the respondents with respect to each of the homestead technologies.

Fruit and vegetable preservation- It is evident from the data that majority (75.11%) of the respondents had low level of knowledge which was followed by medium (17.33%) and high (7.56%) level of knowledge on fruit & vegetable preservation.

Stitching and Embroidery- The distribution of respondents revealed that majority (45.34%) of the respondents possessed medium level of knowledge, followed by low (37.33%) and high (17.33%) level of knowledge. Value addition to garments- The data revealed that majority (70.22%) of the respondents had low level of knowledge on value addition to garments. 15.56 per cent of the respondents had high level and 14.22 per cent had medium level of knowledge about this technology. Art and craft making- The findings of Table 2 inferred that majority (72.44%) of the respondents had low level of knowledge on art & craft making. It was followed by medium (24.0%) and high (3.56%) level of knowledge.

Table 2. Distribution of respondents (technology–wise) based on their knowledge level (N=225)

S.No.	Homestead technology	Category		
		Low	Medium	High
1	Fruit and vegetable preservation	169(75.11)	39(17.33)	17(7.56)
2	Stitching & embroidery	84(37.33)	102(45.34)	39(17.33)
3	Value addition to garments	158(70.22)	32(14.22)	35(15.56)
4	Art & craft making	163(72.44)	54(24.00)	8(3.56)
5	Value added products from cereals & pulses	54(24.00)	114(50.67)	57(25.33)
6	Mushroom production	98(43.56)	124(55.11)	03(1.33)
7	Value added mushroom products	106(47.11)	62(27.56)	57(25.33)
8	Vermicompost technology	77(34.22)	133(59.11)	15(6.67)
9	Apiculture	97(43.11)	99(44.00)	29(12.89)

*** The figures in parenthesis indicate percentages**

Value added products from cereals and pulses- It was observed from the Table 2 that majority (50.67%) of the respondents possessed medium level of knowledge about this technology, followed by 25.33 per cent of the respondents with high level of knowledge, while 24.0 per cent of the respondents with low level of knowledge about this technology. Mushroom production- Majority (55.11%) of the respondents had medium level of knowledge on mushroom production whereas 43.56 per cent and 1.33 per cent of them had low and high level of knowledge, respectively.

Value added mushroom products –The percentage of respondents with low, medium and high knowledge level was 47.11, 27.56 and 25.33, respectively. Vermicompost technology- The data of the above table highlighted that majority (59.11%) of the respondents had medium level of knowledge about vermicompost technology. It was followed by respondents in low (34.22%) and high (6.67%) category of knowledge. Apiculture- It is noted that majority (44.0%) of the respondents had medium level of knowledge about apiculture, followed by 43.11% of the respondents having low level of knowledge and

12.89% of them having high level of knowledge about apiculture. It is clearly evident from Table 2 that with respect to four technologies *i.e.* fruit & vegetable preservation, value addition to garments, art & craft making and value added mushroom products, majority of the respondents had low knowledge level where as for rest of the technologies majority of them had medium knowledge. None of them were found to possess high knowledge in any of these technologies. The result shows that majority (65.78%) of the respondents had medium level of knowledge about homestead technologies of RAU. Though all the respondents were aware of all the selected homestead technologies, majority of them had medium knowledge. Technology-wise knowledge analysis revealed that knowledge level of majority of the respondents in case of stitching and embroidery, mushroom production vermicompost technology and apiculture were medium to low. Whereas, knowledge level were low to medium among majority of the respondents on technologies such as fruit and vegetable preservation, art and craft making and value added products from mushroom. Hence, KVK scientists, officials of ATMA (Department of Agriculture) and NGOs should focus on these areas by intensive trainings, exposure visits and demonstrations. Narayanaswamy *et al.* (2005) in their study revealed that majority (54.0%) of the farmers had medium level of knowledge about organic sericulture practices. Jayalakshmi and Santha (2008) revealed that overall knowledge level of farm women on sustainable plant protection technologies was found to be low in paddy.

CONCLUSION

It is concluded from the findings of this study that the knowledge level of the respondents ranged from low to medium level for all the nine selected homestead technologies. Hence, there is a strong need for the research scientists and the extension personnel to create wide awareness of these technologies and to see that the developed technologies get disseminated throughout the length and width of the State. These technologies need to be popularized through formal and informal channels.

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