

Diffusion of homestead technologies of Rajendra Agricultural University (RAU) among rural women of Bihar, India

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ABSTRACT

Diffusion is the process through which technologies from the research stations reach to its end users. But the rate at which it is diffused in a social system is governed by a host of factors. In order to unearth these factors that affect diffusion of homestead technologies among rural women, a study was conducted in three districts of Bihar with a sample of 225 respondents who were exposed to the nine selected homestead technologies over a period of time. Data was collected through a structured interview schedule. The study highlighted that though cent per cent of the respondents were aware about these technologies but still percentage of adoption of these technologies ranged from nearly 5 per cent in case of value addition to garments to approximately 65 per cent in vermicompost technology. The percentage of discontinuance, who had adopted these technologies in the past, was upto the extent of 12.0 per cent.

Key words : Diffusion, Homestead technologies, Rajendra Agricultural University, Bihar, Rural women, Bihar

Introduction

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. It is a theory that seeks to explain how, why and at what rate new ideas and technology spread through cultures (Rogers, 1962).

Diffusion manifests itself in different ways in various cultures and fields and is highly subject to the type of adopters and innovation-decision process. The technologies must be widely adopted in order to self-sustain. Potential adopters evaluate an innovation on its relative advantage, its compatibility with the pre-existing system, its complexity or difficulty to learn, its triability or testability, its po-

tential for reinvention and its observed effects.

The success and failure of a technology depends to a considerable extent on how far the technology is diffused. Hence, it becomes imperative to know the diffusion of any technology generated. Keeping this point in view, the study was conducted with the objective to study diffusion of homestead technologies of Rajendra Agricultural University among rural women of Bihar.

Material and Methods

In this study an attempt was made to find out the diffusion of RAU Homestead technologies among the respondents. A structured interview schedule consisting of list of homestead technologies or prac-

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tices was prepared under each of the nine selected technologies viz. fruit & vegetable preservation, stitching & embroidery, value addition to garments, arts & craft making, value added products from cereals & pulses, mushroom production, value added mushroom products, vermicompost technology and apiculture. The respondents (225 rural women who were exposed to the nine selected homestead technologies) were randomly selected from nine villages, covering three villages from each randomly selected block, from the three randomly selected districts viz. Samastipur, Muzaffarpur and Vaishali. Data was collected on each and every technology on extent of spread of homestead technologies, measured in terms of no. of respondents who were aware, no. of respondents who had adopted and no. of respondents who had discontinued from the year of first awareness till 2013. The data was tabulated separately and depicted graphically.

Results and Discussion

Diffusion i.e. the extent of spread of homestead technologies over a period of time, in a social system was studied here in terms of no. of respondents who were aware of Homestead technologies and no. of respondents who had adopted and discontinued over a period of time.

Diffusion of fruit and vegetable preservation technology

The result showed that majority (46.22%) of the respondents became aware of Fruit & vegetable preservation technology during the period 2004-2008.

The percentage of respondents who became aware about this technology increased by 27.55 per cent from the period 1999-2003 to 2004-2008 and then decreased by 11.11 per cent during the period 2009-2013. It can be inferred that maximum diffusion of technology took place during the period 2004-2008.

The percentage of adoption of this technology increased by 12.45 per cent during the period 1999-2003 to 2004-2008 and then decreased by 7.12 per cent during the period 2009-2013. The increased rate of adoption signifies that the respondents had perceived the technology useful for them and had the requisite skill to adopt it. The technology most popularly adopted by the respondents was 'sun drying of green vegetables' but lacked skill for rest of the technologies. Due to the increased demand for green vegetables and financial scarcity, the rate of adoption of the technology 'sun drying of green vegetables' decreased during the period 2009-2013.

The percentage of complete discontinuance during the period 1999-2003 to 2004-2008 remained the same, i.e. 1.33 but increased by 7.56 per cent during

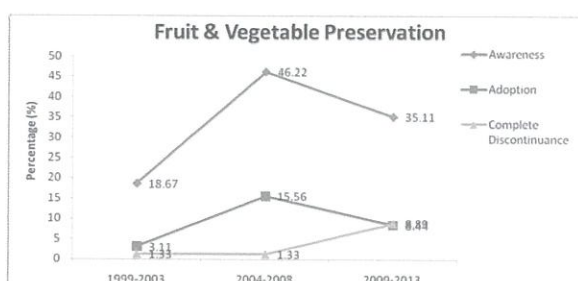


Fig. 1. Distribution of respondents based on diffusion of fruit & vegetable preservation technology.

Table 1. Distribution of respondents based on diffusion of fruit & vegetable preservation technology (N=225)

Sl. No.	Year of	1999-2003		2004-2008		2009-2013		Total	
		f	%	f	%	f	%	f	%
1	Awareness	42	18.67	104	46.22	79	35.11	225	100.00
2	Adoption	7	3.11	35	15.56	19	8.44	61	27.11
3	Complete discontinuance	3	1.33	3	1.33	20	8.89	26	11.56

Table 2. Distribution of respondents based on diffusion of Stitching & Embroidery technology (N=225)

Sl. No.	Year of	1999-2003		2004-2008		2009-2012		Total	
		f	%	f	%	f	%	f	%
1	Awareness	61	27.11	132	58.67	32	14.22	225	100.00
2	Adoption	14	6.22	69	30.67	42	18.67	125	55.56
3	Complete discontinuance	0	0.00	3	1.33	1	0.44	04	1.77

the period 2009-2013. The reasons for increased rate of complete discontinuance are the same as explained for decrease in the adoption rate.

Diffusion of stitching & embroidery technology

The data revealed that majority (58.67%) of the respondents became aware of Stitching and embroidery technology of RAU during the period 2004-2008. Percentage of respondents who were aware about this technology increased by 31.56 per cent from the period 1999-2003 to 2004-2008 and then decreased by 44.45 per cent during the period 2009-2012. It can be inferred that maximum diffusion of technology took place during the period 2004-2008.

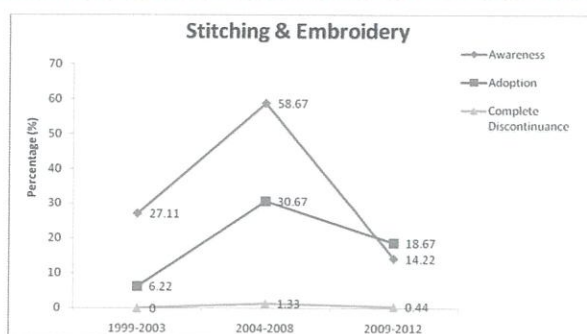


Fig. 2. Distribution of respondents based on diffusion of stitching & embroidery technology.

The percentage of adoption of this technology increased by 24.45 per cent during the period 1999-2003 to 2004-2008 and then decreased by 12.0 per cent during the period 2009-2012. An increased rate of adoption was noticed during the period 2004-2008. This explains that the respondents had benefited from this technology and had helped them to earn income from it. It was observed that a significant percentage of the respondents had taken it up as subsidiary occupation from their homes. But then there was a decrease in the adoption during 2009-2012. The reason for this was expressed by the respondents that training programs organised during this period were of short duration which was not sufficient for the respondents to learn the skill and

also the stitches and embroideries taught by them were not professional. Hence adoption was found to be less for which they suggested that duration of training should be increased and quality of training in terms of teaching creative stitches should be given.

The percentage of complete discontinuance during the period 1999-2003 to 2004-2008 increased to 1.33 but then decreased by 0.89 per cent during the period 2009-2013. The rate of complete discontinuance was negligible in comparison to the rate of adoption.

Diffusion of value addition to garments technology

The result highlighted that majority (81.33%) of the respondents became aware about this technology during the period 2008-2012. There was considerable increase in the percentage of awareness among the respondents from the period 2003-2007 to 2008-2012 but there was very low percentage of adoption of this technology i.e. 0.89 per cent increase during this period but no case of complete discontinuance. It can be inferred that there was very poor adoption of the technology in comparison to its awareness. The respondents had only adopted 'fabric painting technology' while none of them had adopted 'Tie & Dye', 'Batik painting' and 'Madhubani painting' technologies; hence there was low rate of adoption although there was awareness about these technologies.

The reason for it was- less number and infrequent training programs, costly raw materials, difficulties in procuring raw materials and low knowledge about these technologies. It can be inferred that maximum diffusion of technology took place during the period 2008-2012.

Diffusion of arts and craft technology

The result highlighted that majority (53.78%) of the respondents became aware about this technology during the period 2008-2012. There was an increase of 7.56 per cent of awareness among the respondents

Table 3. Distribution of respondents based on diffusion of value addition to garments technology (N=225)

Sl. No.	Year	2003-2007		2008-2012		Total	
		f	%	f	%	f	%
1	Awareness	42	18.67	183	81.33	225	100.00
2	Adoption	5	2.22	7	3.11	12	5.33
3	Complete discontinuance	0	0.00	0	0.00	0	0.00

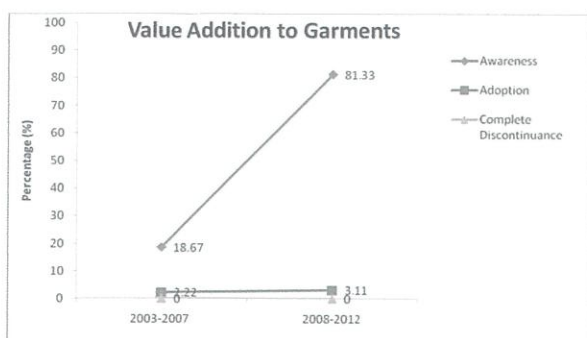


Fig 3. Distribution of respondents based on diffusion of value addition to garments technology.

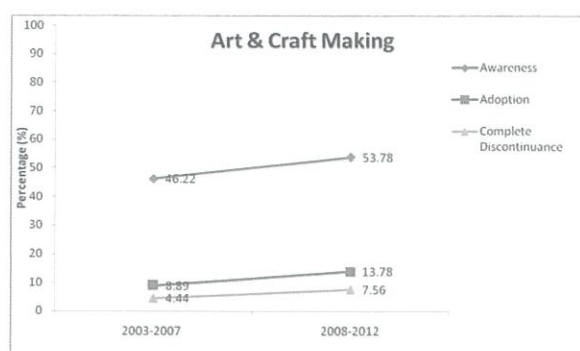


Fig. 4. Distribution of respondents based on diffusion of art & craft making technology.

about this technology from the period 2003-2007 to 2008-2012 but there was very low percentage of adoption of this technology i.e. 4.89 per cent increase during this period and 3.12 per cent complete discontinuance. It can be inferred that there was very poor adoption of the technology.

In Art & Craft making technology, the main items that were adopted by the respondents were 'artificial flower making', 'soft toys making' and 'bamboo products'. Out of these, 'artificial flower making' and 'soft toys making' were gradually discontinued by the respondents because of certain difficulties such as difficulty in selling, high production costs, less demand, high price etc.

These problems can be solved by imparting skills on preparation of other low cost products from waste materials and clothes available at home such as floor mats, table mats etc. and pot painting which fetch very good price in the market while its cost of

production is less. The rural women could be linked with small scale industries through the KVKs, NGOs who would provide raw materials and take back the finished products from their homes.

It can be inferred that maximum diffusion of technology took place during the period 2008-2012.

Diffusion of value added products from cereals & pulses

The data revealed that majority (64.89%) of the respondents became aware about this technology during the period 2004-2008. Percentage of respondents who were aware about this technology increased by 49.78 per cent from the period 1999-2003 to 2004-2008 and then decreased by 44.89 per cent during the period 2009-2012. It can be inferred that maximum diffusion of technology took place during the period 2004-2008.

Table 4. Distribution of respondents based on diffusion of art & craft making technology (N=225)

Sl. No.	Year of	2003-2007		2008-2012		Total	
		f	%	f	%	f	%
1	Awareness	104	46.22	121	53.78	225	100.00
2	Adoption	20	8.89	31	13.78	51	22.67
3	Complete discontinuance	10	4.44	17	7.56	27	12.00

Table 5. Distribution of respondents based on diffusion of value added products from cereals & pulses technology (N=225)

Sl. No.	Year of	1999-2003		2004-2008		2009-2012		Total	
		f	%	f	%	f	%	f	%
1	Awareness	34	15.11	146	64.89	45	20.00	225	100.0
2	Adoption	19	8.44	34	15.11	47	20.89	100	44.44
3	Complete discontinuance	4	1.78	5	2.22	9	4.00	18	8.00

The percentage of adoption of this technology increased by 6.67 per cent from the period 1999-2003 to 2004-2008 and then decreased by 5.78 per cent during the period 2009-2012. An increased rate of adoption was noticed during the period 2004-2008. This explained that the respondents found this technology to be useful for them. But then there was a decrease in the adoption during 2009-2012. The reasons for this were less no. of training program conducted, complicated nature of extruded products technology and difficulty to locate market for the products.

The ATIC of RAU can provide a selling outlet to the rural women entrepreneurs to sell their products through the University. The KVK scientists should organise more no. of training on extruded products so that they become familiar with the technology and refine their skill.

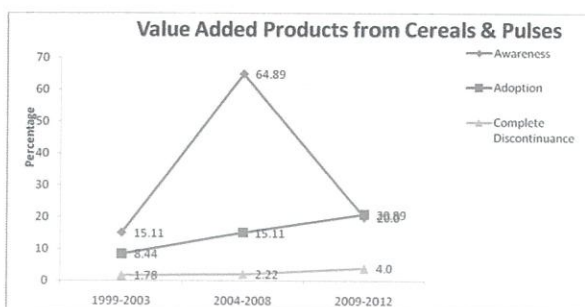


Fig. 5. Distribution of respondents based on diffusion of value added products from cereals & pulses technology.

Percentage of complete discontinuance from the period 1999-2003 to 2004-2008 increased by 1.33 but then decreased by 0.89 per cent during the period 2009-2013. The rate of complete discontinuance was negligible in comparison to the rate of adoption. It can be inferred that maximum diffusion of technology took place during the period 2004-2008.

Diffusion of mushroom production technology

The result revealed that cent per cent of the respondents became aware about this technology during the period 2008-2013 and the percentage of adoption during this period was 52.89 whereas percentage of complete discontinuance was 4.0. It signifies that diffusion of mushroom production technology took place during 2008-2013 and had gained much importance as is evident from percentage of adoption of this technology.

It is inferred that this technology is being per-

Table 6. Distribution of respondents based on diffusion of mushroom production technology (N=225)

Sl. No.	Year of	2008-2013	
		Frequency (f)	Percentage (%)
1	Awareness	225	100.00
2	Adoption	119	52.89
3	Complete Discontinuation	09	4.00

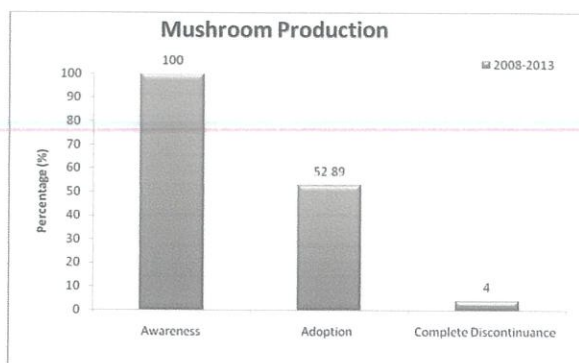


Fig. 6. Distribution of respondents based on diffusion of mushroom production technology.

ceived as useful for rural women as they can carry it out from their homes and does not require costly inputs. It is low cost and gives regular income to them.

Diffusion of value added products from mushroom

The result revealed that cent per cent of the respondents became aware about this technology during the period 2009-2013 and the percentage of adoption during this period was 24.0 while there was no discontinuance. It signifies that diffusion of mushroom production technology took place during 2009-2013 but adoption percentage was not encouraging. The chief reasons were low mushroom production, low public demand and lack of knowledge and skill.

Table 7. Distribution of respondents based on diffusion of value added mushroom products technology (N=225)

Sl. No.	Year of	2009-2013	
		Frequency (f)	Percentage (%)
1	Awareness	225	100.00
2	Adoption	54	24.00
3	Complete Discontinuation	0	0.00

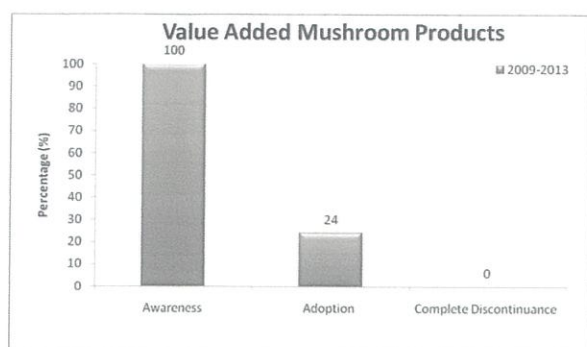


Fig. 7. Distribution of respondents based on diffusion of value added mushroom products technology.

Diffusion of vermicompost technology

The findings revealed that majority (59.56%) of the respondents became aware about this technology during the period 2005-2009. Percentage of awareness rose by 48.90 per cent from 2000-2004 to 2005-2009 and then decreased by 29.78 per cent. The percentage of adoption increased by 42.22 from 2000-2004 to 2005-2009 and then decreased to 18.67 per cent during 2010-2013. Surprisingly there was only one respondent (0.44%) who discontinued the technology because of lack of space. 62.67 per cent of the respondents had adopted this technology while there was negligible percentage of complete discontinuance.

It signifies that there was quite good diffusion of this technology among the respondents. It can be inferred that maximum diffusion of technology took place during the period 2005-2009.

The reasons for better adoption of vermicompost

technology were low cost of the technology, growing demand of vermicompost in the market and it is simple and easy to prepare. The inputs needed for it is agricultural wastes and organic matters which is easily available and it can be carried out in the available space at home by different methods like wind-rows method, low cost bamboo pit, mound method.

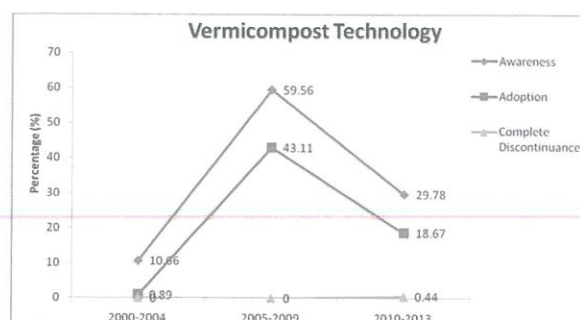


Fig. 8. Distribution of respondents based on diffusion of vermicompost technology.

Diffusion of apiculture technology

The result revealed that majority (58.22%) of the respondents became aware about this technology during the period 2010-2013. The percentage of awareness increased by 16.44 per cent from 2005-2009 to 2010-2013. Percentage of adoption increased by 20.45 during this period while those who discontinued the technology during the same period was 9.33.

The reasons for low adoption but considerable discontinuance of the technology were- risk of bee attack due to the traditional attire of the respon-

Table 8. Distribution of respondents based on diffusion of vermicompost technology

(N=225)

Sl. No.	Year of	2000-2004		2005-2009		2010-2013		Total	
		f	%	f	%	f	%	f	%
1	Awareness	24	10.66	134	59.56	67	29.78	225	100.0
2	Adoption	2	0.89	97	43.11	42	18.67	141	62.67
3	Complete discontinuance	0	0.00	0	0.00	1	0.44	1	0.44

Table 9. Distribution of respondents based on diffusion of apiculture technology

(N=225)

Sl. No.	Year of	2005-2009		2010-2013		Total	
		f	%	f	%	f	%
1	Awareness	94	41.78	131	58.22	225	100.00
2	Adoption	16	7.11	62	27.56	78	34.67
3	Complete discontinuance	0	0.0	21	9.33	21	9.33

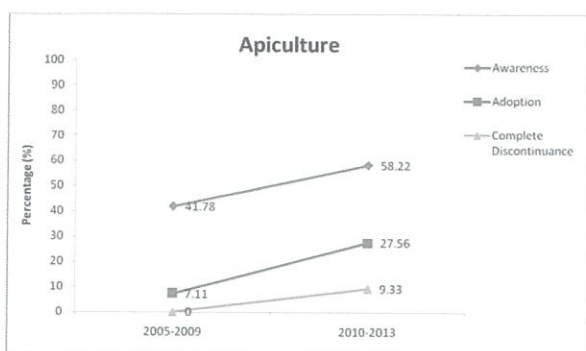


Fig. 9. Distribution of respondents based on diffusion of apiculture technology.

dents, not a suitable enterprise for women, difficulty in selling the produce and exploitation by middle men.

The rural women can sell their produce through a community based hub such as cooperatives to bypass the middlemen and overcome the problem of selling the produce.

Conclusion

The findings of this study clearly indicate that the rate as well as the percentage of diffusion of home-stead technologies was far less as compared to the awareness level of rural women. Diffusion being a process, which involves a series of channels between the research scientists, extension personnel and the rural women, hence a strategy based approach is required to strengthen the linkage between the research scientists, extension personnel and the rural women so that diffusion of technologies occur at a faster rate. A strong follow-up mechanism needs to be in place to ensure that the technologies get adopted by them and also to ensure that the percentage of discontinuance comes down over a period of time.

Reference

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