International Journal of Science, Environment and Technology, Vol. 5, No 5, 2016, 3381 – 3386

ISSN 2278-3687 (O)
2277-663X (P)

CHARACTERISTICS OF ADOPTER CATEGORIES OF 'T&D' PIG BREED INNOVATION IN EASTERN INDIA

Pankaj Seth[1], Mahesh Chander[2], Navab Singh[3] and Rita Kumari[4]

[1]Scientist, Krishi Vigyan Kendra, Saraikela-Kharsawan, Jharkhand

[2]Head, Division of Extension Education, Indian veterinary Research Institute, Bareilly (UP), India

[3]Assistant Professor, Agricultural Extension, College of Horticulture and Forestry, Jhalawar, Rajasthan, India

[4]Touring Veterinary Officer, Nawada, Bihar

E-mail: psethext@gmail.com (**Corresponding Author*)

Abstract: The adoption of livestock innovations in developing countries including India has attracted considerable attention because it can provide the basis for increased production and income. The attention paid to the development, diffusion and adoption of improved pig breed till date is minimal. The authors studied the characteristics of adopter categories of 'T&D' pig breed innovation. Survey was conducted over 240 pig farmers' purposively selected from four states, viz., Jharkhand, Bihar, Chhattisgarh and West Bengal and one district was selected from each state, based on the concentration of pig farmers with the assistance of Krishi Vigyan Kendras (KVKs) in these states. As such, 240 pig farmers @ 60 pig farmers from each district were selected randomly across 4 states. Research paper highlights the characteristics of adopter categories of 'T&D' pig innovation. The 'T&D' pig adopters were categorized into five adopter categories by using mean and standard deviation, viz. innovators (2.50%), early adopters (13.75%), early majority (33.7%), late majority (31.70%) and laggards (18.30%).

Keywords: Innovation, Adopter, Category, Pig, 'T&D' breed.

Introduction

Technological progress is a means of 'transforming society and its value systems' (Juma and Yee-Cheong 2005). There is a general consensus that the application of new technologies and practices is largely based on the desire of farmers to maximize economic returns (Birkhaeser et al. 1991; Blak 2000; Huffman and Evenson 2006). Increased income depends on higher degree of adoption. The extent of adoption of dairy technology is higher (Singh *et al*. 2014) with less constraints (Singh *et al.* 2015). The first in India, in order to make pig farming more popular and profitable, the scientists of the Department of Animal Genetics & Breeding, Birsa Agricultural University, Kanke, Ranchi, Jharkhand (India) evolved a new breed of black colour pig named 'T & D' by crossing exotic pig "Tamworth" a British pig and "Local Pig" in 1989, which is more remunerative due to its black colour (auspicious), faster growth,

*Received Sep 18, 2016 * Published Oct 2, 2016 * www.ijset.net*

better reproductive performance, disease resistance and better adaptability at farmers' door (Verma 2003, Mahto 2006 and Singh 2009). This is considered as most suitable breed of pig for rearing in villages of Jharkhand. In an attempt to increase livestock productivity and improved food security at both national and household level, efforts have been underway to generate and disseminate improved livestock technologies among small holder farmers. 'T&D' pig is widely spread in Jharkhand, Bihar, West Bengal, Madhya Pradesh, Orissa, Chhatishgarh and North Eastern states viz Assam, Meghalaya, Arunachal Pradesh and Manipur. Especially, in recent past, its adoption is growing at fastest rate throughout Jharkhand as its benefit is observable over the years (Singh 2009 and Seth et al. 2015). The genesis of an innovation and being diffused for adoption by the farmers, attributes of farmers play a vital role. To analysis the characteristics of Adopter Categories of 'T&D' Pig Breed Innovation in Eastern India was conducted.

Material and methodology

The study employed purposive and multistage random sampling technique to select the ultimate sampling units. 'T&D' pig was developed at Birsa Agricultural University, Ranchi, Jharkhand in 1989 and gradually spread within Jharkhand state (23° 23' N and 85° 23' E) and in its adjoining states, viz. West Bengal (23° 14' N and 87° 07' E), Bihar (42° 49' N and 85° 01' E) and Chhattisgarh (22° 53' N and 84° 12' E) were selected for the study. The latitude and longitude depicted districts were selected based on highest concentration of pig farmers. Most of the farmers in the selected regions were tribal and pork consumption was comparably very high among these communities. Surveys for the study purposely targeted farmers who were engaged in pig husbandry for a minimum period of 5 years so as to have proper and reliable response on different variables. A semi-structured interview schedule was administered to 60 randomly selected farmers in each state, thus, making a sample size of 240 farmers.

Results and discussion

Characteristics of adopter categories of 'T&D' pig innovation

Innovators: The innovator adopters were found young to middle aged group and had high education level. The majority of the innovators had small family size (1.70%), small herds (1.70%) and had marginal to small land size. Most of the innovators were found to be having high social participation (1.70%), high extension contact (2.50%), high innovation proneness (2.50%), high localiteness - cosmopoliteness (2.50%) high economic motivation (1.70%) and high risk orientation (1.70%).

Early adopters: Majority of the early adopters (7.92%) were middle aged and had high school (10.00%) level of education. The early adopters belonged to small sized families and owned small herd size (6.70%). Majority of early adopters were landless (6.70%) followed by marginal (4.16%), small (1.70%) and large (1.25%) size of land holding and high (5.83%) level of social participation. Majority of the early adopters were found to be having medium cosmopoliteness (7.50%), medium innovation pronness (8.33%), medium extension contact (9.16%), medium economic motivation (7.50%) and medium risk orientation (6.66%).

Early majority: The early majority adopters were found middle aged (20.42%), had good education level (16.25%), belonged to medium family size (23.75%) and owned marginal land holding (23.75%). However, most of the early majority adopters were found to be having medium social participation (17.50%), medium extension contact (21.25%) and medium to high localiteness- cosmopoliteness (19.16% and 10.41%), medium to high innovation proneness (18.75% and 12.50%) was found in early majority adopters.

Table: 1 Characteristics of adopter categories in 'T&D' pig innovation

Characteristics	category	Innovators	Early adopters	Early majority	Late majority	Laggards
		(n=6)	(n=33)	(n=81)	(n=76)	(n=44)
1	2	3	4	5	6	7
Age	Young	3(1.25)	14(5.83)	30(12.50)	22(9.20)	4(1.70)
	Middle	3(1.25)	19(7.92)	49(20.42)	48(20.00)	31(12.92)
	Old	0(0.0)	0(0.0)	2(0.83)	3(1.25)	9(3.75)
Education	Upto middle	0(0.00)	5(2.08)	37(15.42)	32(13.33)	17(7.08)
	High school	2(0.83)	24(10.00)	39(16.25)	40(16.70)	24(10.00)
	Above high school	4(1.70)	4(1.70)	5(2.08)	4(1.70)	3(1.25)
Family size	Small	4(1.70)	17(7.08)	19(7.92)	13(5.41)	5(2.08)
	Medium	2(0.83)	13(5.41)	57(23.75)	57(23.75)	35(14.58)
	Large	0(0.00)	3(1.25)	5(2.08)	6(2.50)	4(1.70)
Herd size	Small	4(1.70)	16(6.70)	51(21.25)	41(17.08)	44(18.33)
	Medium	2(0.83)	11(4.58)	20(8.33)	25(10.41)	0(0.00)

	Large	0(0.00)	6(2.50)	10(4.16)	10(4.16)	0(0.00)
Land size	Landless	0(0.00)	16(6.70)	12(5.00)	8(3.33)	4(1.70)
	Marginal	3(1.25)	10(4.16)	57(23.75)	58(24.16)	40(16.66)
	Small	3(1.25)	4(1.70)	8(3.33)	7(2.91)	0(0.00)
	Large	0(0.00)	3(1.25)	4(1.70)	3(1.25)	0(0.00)
Social participation	Nil	0(0.00)	0(0.00)	9(3.75)	15(6.25)	21(8.75)
	Low	0(0.00)	7(2.91)	20(8.33)	29(10.41)	37(15.42)
	Medium	2(0.83)	12(5.00)	42(17.5)	28(11.66)	12(5.00)
	High	4(1.70)	14(5.83)	10(4.16)	8(3.33)	0(0.00)
1	**2**	**3**	**4**	**5**	**6**	**7**
Extension contact	Low	0(0.00)	0(0.00)	23(9.58)	27(11.25)	32(13.3)
	Medium	0(0.00)	22(9.16)	51(21.25)	44(18.33)	12(5.0)
	High	6(2.50)	11(4.58)	7(2.91)	5(2.08)	0(0.00)
Cosmo-politeness	Low	0(0.00)	0(0.00)	10(4.16)	15(6.25)	22(9.16)
	Medium	0(0.00)	18(7.50)	46(19.16)	39(16.25)	14(5.83)
	High	6(2.50)	15(6.25)	25(10.41)	22(9.16)	8(3.33)
Innovation proneness	Low	0(0.00)	0(0.00)	6(2.50)	10(4.16)	20(8.33)
	Medium	0(0.00)	20(8.33)	45(18.75)	49(20.4)	24(10.00)
	High	6(2.50)	13(5.41)	30(12.5)	17(7.08)	0(0.00)
Economic motivation	Low	0(0.00)	0(0.00)	2(0.83)	3(1.25)	4(1.7)
	Medium	2(0.83)	18(7.50)	44(18.33)	31(12.92)	40(16.7)
	High	4(1.70)	15(6.25)	35(14.58)	42(17.50)	0(0.00)
Risk orientation	Low	0(0.00)	0(0.00)	8(3.33)	10(4.20)	29(12.09)
	Medium	2(0.83)	16(6.66)	53(22.08)	59(24.58)	15(6.25)
	High	4(1.70)	17(7.08)	20(8.33)	7(2.91)	0(0.00)

Figures in parenthesis indicate percentage

Late adopters: The late adopters were found to be middle aged (20.00%), had education level upto middle (13.33%), belonged to medium sized families (23.75%), possessed medium herd size (17.08%), owned marginal land size (24.16%), had medium localiteness-cosmopoliteness (16.25%), medium innovation proneness (20.41%) and medium risk orientation (24.58%). Majority of late adopters were found to be having low to medium social

participation (10.41% and 11.66%) and nil social participation (6.25%) and low to medium extension contact (11.25% and 18.33%).

Laggards: Majority of laggards were middle aged (12.52%) and old aged (3.75%) and had low education level i.e. upto middle (7.08%), medium family size (14.58%), owned small herd size (18.53%), nil (8.75%) and low (15.42%), social participation, low extension contact (13.3%), low localiteness-cosmopoliteness (8.33%), low risk orientation (12.00%) characteristics among laggards in the study area. These findings are in line with Seth et al. (2013) and Singh et al. (2016) who reported that majority of the respondents were of middle age, high education, marginal land holding, and medium herd size.

Conclusion

It can be concluded from the above discussion that the innovations that are generated locally are not just more likely to be culturally-appropriate, but also more likely to be owned by the potential adopters. The 'T&D' pig innovator adopters were mostly young to middle aged, better educated with high level of social participation and high innovativeness having higher extension contacts and mass media exposure, higher innovation proneness, higher economic motivation and higher risk orientation. Whereas, the laggards were middle aged or old aged, had low education i.e upto middle, had medium sized families, owned small herd size, had nil or low social participation, low extension contact, low localiteness-cosmopoliteness, low risk orientation as the typical characteristics of the laggards.

References

[1] Birkhaeser, D., Evenson, R. and Feder, C., 1991. The economic impact of agricultural extension. *Economic Development and Cultural Change*, 39 : 607-50.

[2] Black, A.W., 2000. Extension theory and practice: a review. *Australian journal of Experimental Agriculture*, 40: 493-502.

[3] Huffman, W.E. and Evenson, R.E., 2006. Science for agriculture: a long term perspective. Blackwell Publishing, Oxford.

[4] Juma, C. and Yee-Cheong, L., 2005. Innovation: applying knowledge in development. *A report for the UN Millennium Project Task Force on Science, Technology and Innovation 2005.* Earthscan , London, UK.

[5] Mahto,V.K., 2006. Economic Evaluation of Pig farming in organised and unorganised farm in Ranchi district of Jharkhand. M.V.Sc. Thesis, Birsa Agricultural University, Ranchi.

[6] Seth P., Chander M., and Rathod P.K., 2013. Application of Logit model in adoption of 'T&D' pig breed in eastern states of India. *Veterinary Practitioner*, 14(2):585-587.

[7] Seth P., Chander M., Pandey H.K. and Kumari R., 2015. Motivation to convert from traditional to improved livestock breed innovation: A case of 'T&D' pig breed farming in eastern region of India. *Annals of Plant and Soil Research* 17 (Special Issue):91-93.

[8] Singh N., Sharma F.L., and Verma S.R., 2014. Impact of dairy union on dairy entrepreneurs. *Indian Journal of Extension Education & Rural Development*, 22:118-123.

[9] Singh N., Sharma F.L., Chaudhary J.L. and Dhakar S.D., 2015. Technological constraints perceived by dairy entrepreneurs. *Indian Journal of Extension Education,* 51(3&4):104-107.

[10] Singh N., Verma A.K., Verma T.C., Meena B.S., Sharma F.L. and Chaudhary J.L., 2016. An analytical study on attributes of dairy entrepreneurs in southern Rajasthan. *International Journal of Science, Environment and Technology,* 5(4):2269 – 2274.

[11] Singh, S.K., 2009. Farmer reap pig profit. *The Telegraph*, Calcutta, India. Monday, July 13.

[12] Verma, M.K., 2003. Pig farming practices of Tribal pig farmers of Ranchi district. M.V.Sc. Thesis, Birsa Agricultural University, Ranchi.