

## PERCEIVED ATTRIBUTES OF LIVESTOCK INNOVATION: A CASE OF 'T&D' PIG BREED IN EASTERN REGION OF INDIA

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**Abstract:** The genesis of an innovation and being diffused for adoption by the farmers, attributes of innovation play a vital role. 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 horizontal analysis, vertical analysis and differential level of perception of attributes of 'T&D' pig innovation. The vertical analysis revealed that the 'T&D' pig innovation was perceived to be very advantageous (90.00%), very compatible (84.20%), very simple (78.75%), very trialable (82.08%) and very observable (75.40%) by pig farmers of all the four states. Co-efficiency of concordance was applied and it was found significant at 0.05 level of significance.

**Keywords:** Innovation, Attributes, 'T&D' Pig, India.

### Introduction

Innovation attributes are most often measured as the perceptions by potential adopters of the characteristics associated with a particular innovation. Technological innovation has been linked to economic success and progress, livestock breeding technologies are attributed a critical social, as well as, productive role. 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; Black 2000; Huffman and Evenson 2006). The first in India, in order to make pig farming more popular and profitable, the scientists of the Birsa Agricultural University, 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" which is more remunerative due to its black colour (auspicious), faster

growth, 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. 'T&D' pig is widely spread in Jharkhand, Bihar, West Bengal, Madhya Pradesh, Orissa, Chhatisgarh 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 innovation play a vital role. Hence, this paper analysis the perceived attributes 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 ( $23^{\circ} 23' N$  and  $85^{\circ} 23' E$ ) and in its adjoining states, viz. West Bengal ( $23^{\circ} 14' N$  and  $87^{\circ} 07' E$ ), Bihar ( $42^{\circ} 49' N$  and  $85^{\circ} 01' E$ ) and Chhattisgarh ( $22^{\circ} 53' N$  and  $84^{\circ} 12' E$ ) 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.

### **Result and Discussions**

The horizontal analysis of the data given in Table 1 reveals that under relative advantage; a majority of farmers in Jharkhand (95.00%) and Chhattisgarh state (91.70%) perceived 'T&D' pig innovation as very advantageous, while, the respondents of West Bengal (88.30%) and Bihar (85.00%) also perceived it as very advantageous technology innovation. A close examination reveals that respondents of Jharkhand (05.00%), West Bengal (11.70%), Chhattisgarh (08.30%) and Bihar (15.00%) perceived the innovation as advantageous. Under the attribute of 'Compatibility', 90.00 per cent of farmers were found to be very compatible with the 'T&D' pig innovation in Jharkhand state, while 81.70 per cent, 86.70 per cent and 80.00 per cent of respondents in West Bengal, Chhattisgarh and Bihar, respectively were found to be very compatible. It is obvious from Table 1 that 83.30 per cent

of the farmers in Jharkhand and 80.00 per cent of farmers in Chhattisgarh perceived the innovation as very simple. Whereas, farmers of West Bengal and Bihar found almost a matching respondents (76.70% and 75.00%, respectively) perceiving the innovation as very simple. It is interesting to note that with respect to the simplicity dimension of attribute, 78.75 per cent and 21.25 per cent of farmers perceived the 'T&D' pig innovation as very simple and simple, respectively. The 'trialability' of innovation reveals that the respondents of Jharkhand (86.70%), West Bengal (80.00%), Chhattisgarh (83.30%) and Bihar (78.30%) perceived it as very triable, while some farmers observed the innovation as triable. A view of pooled value i.e 82.08 per cent and 17.92 per cent respondents perceived the T&D innovation very triable and triable, respectively. For 'observability', the innovation was perceived to be very observable by pig farmers of Jharkhand (80.00%), West Bengal (75.00%), Chhattisgarh (76.70%) and Bihar (70.00%), while almost one fourth of respondents from all the four states perceived innovation as observable.

The vertical analysis of the data in Table 1 reveals that 'T&D' pig innovation was perceived to be very advantageous (90.00%), very compatible (84.58%), very simple (78.75%), very triable (82.08%) and very observable (75.40%) by pig farmers across the four states under study.

### **Differential level of perception of attributes of 'T&D' pig innovation**

The rank analysis given in Table 2 shows that among all the attributes of 'T&D' pig innovation, relative advantage ranked first, followed by compatibility, trialability, simplicity and observability. It is evident from Table 2 that there was no variation in the ranking of attributes for the innovation. To test the significance of correlation in ranking, co-efficient of concordance was applied and it was found significant at 0.05 level of significance. This leads to accept that no differences existed in the ranking of attributes for the innovation. The 'T&D' pig innovation was developed in Jharkhand state and over the time period was adopted by different categories of farmers in adjoining states also considering attributes of innovation. It can be concluded that relative advantage occupied the top of ladder followed by compatibility, trialability simplicity, observability ranked fifth for the innovation. The findings were in line with the study of Singh and Singh (1980), Seth (2012) and Seth *et al.* (2014) who revealed that relative advantage was the most influencing attribute of innovation. Jain (1981) revealed that cost, profitability and free availability of resources were other attributes for adoption of innovations. Compatibility of innovations with traditional practices enhanced adoption process of farm practices (Ogunfiditimi, 1981 and Jain, 1981). Seth

(2012) and Seth *et al.* (2013) reported that compatibility with social values leads to higher rate of adoption of livestock innovation. The plethora of studies (Ogunfeditimi 1981; Jain 1981 and Rogers 1983) revealed that simplicity was positively related to adoption of farm innovations.

### **Conclusions**

The T&D pig innovation was largely perceived superior over local pigs and other crossbreeds due to its high relative advantage and cultural compatibility. The larger litter size, meat quality and its black colour were appealing features for the pig farmers explaining the higher observability of the innovation among the farmers. The rank analysis showed that among all the attributes of 'T&D' pig innovation, relative advantage ranked first, followed by compatibility, trialability simplicity and observability.

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**Table 2: Analysis of differential Perception of Attributes of 'T&D' pig Innovation**

Perceived Attributes	Jharkhand (n=60)		West Bengal (n=60)		Chhattisgarh (n=60)		Bihar (n=60)	
	Average score	Rank	Average score	Rank	Average score	Rank	Average score	Rank
Relative advantage	1.127	I	1.083	I	1.105	I	1.061	I
Compatibility	1.094	II	1.039	II	1.072	II	1.028	II
Simplicity	1.050	IV	1.006	IV	1.028	IV	0.995	IV
Trialability	1.072	III	1.028	III	1.050	III	1.017	III
Observability	1.028	V	0.995	V	1.006	V	0.962	V

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**W=1\*\***

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\*\*Significant at 0.05 level of significance