

Knowledge Level of Dairy Farmers on Adoption of Dairy Innovations in Andhra Pradesh - An Analysis

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ABSTRACT

The present investigation was conducted with 360 dairy farmers hailing from three districts i.e., Visakhapatnam, Krishna and Chittoor which were selected purposively based on their highest livestock population from North-coastal, Coastal and Rayalaseema regions of Andhra Pradesh respectively. The study revealed that more than half (56.64%) of the dairy farmers possessed medium level of knowledge followed by farmers with low (30.28%) and high (14.08%) level of knowledge respectively. The knowledge level of the dairy farmers was positively and significantly related with herd size, income, innovativeness, decision making ability, risk bearing ability, economic orientation, scientific orientation, information seeking behaviour and communication channels at 0.01 level of probability while the variables land holding and experience were related significantly at 0.05 level of probability.

Key words: Knowledge; Dairy farmer; Dairy innovation;

Dairy farming is a crucial component of rural economy which has the highest potential of generating income and employment through augmenting productivity of milch animals. It is an effective instrument of social and economic change. The implementation of various dairy development programmes/technologies by Government of India has changed dairy farming scenario tremendously and helped the dairy farmers to obtain higher profits. Sustainability of dairy enterprise however largely depends on the knowledge levels of the dairy farmers on new technologies or innovations developed by various organizations time to time. The poor knowledge level of the farmers is making them risk averse towards new technologies while the linear top-down approach of technology development and transfer (*Andrew Hall et al., 2003*) is not taking into consideration their knowledge levels while framing the policies.

A clear understanding of all those factors influencing the knowledge levels of the dairy farmers on dairy innovations recommended by the state Veterinary University's/ State Animal Husbandry Department's is

of paramount importance in augmenting productivity of milch animals and generating employment and income. Therefore, the study was framed with an objective of measuring the knowledge levels of dairy farmers on dairy innovations implemented in the State of Andhra Pradesh.

METHODOLOGY

Taking into consideration the highest cattle population and best rank in adoption of recommended dairy innovations, three districts namely Visakhapatnam, Krishna and Chittoor were selected from the North coastal, Coastal and Rayalaseema regions of Andhra Pradesh respectively. Three mandals from each district and two villages from each mandal, i.e., 6 villages from each district totaling to 18 villages were finally selected for the study using simple random sampling technique. Among the selected 18 villages, a list of dairy farmers adopting recommended dairy innovations was prepared respectively in consultation with local Veterinary Assistant Surgeons, Heads of dairy co-operatives and

supervisors of milk collection centers. From the list prepared, 20 dairy farmers were selected from each village through random sampling technique, thus forming a sample size of 360 respondents for the study.

The knowledge test was developed by administering 62 items/questions to 30 non-sample respondents of the study area. Their responses were then quantified by assigning a score of one to correct answer and zero to incorrect answer. A respondent's total score was obtained by summation of their score for all questions. Out of the 62 items, 27 items were finally selected based on-

- i. Items with item difficulty level indices ranging from 20 to 80 per cent.
- ii. The items with discrimination indices ranging from 0.20 to 0.80 and
- iii. Items having significant point bi-serial correlation either at 1 per cent or 5 per cent level of probability.

Thus, the finally selected knowledge test items comprised of 27 test items with 9 items of multiple choice type, 9 items of fill in the blanks type and 9 items of yes/no type on knowledge of dairy production technologies.

RESULTS AND DISCUSSION

Relational analysis on knowledge of recommended dairy innovations and profile characteristics of dairy farmers indicated that eight variables, i.e., herd size, income, innovativeness, decision making ability, risk bearing ability, economic orientation, scientific orientation, information seeking behaviour and communication channels were related significantly at 0.01 level of probability while the variables land holding and experience were related significantly at 0.05 level of probability. The remaining independent variables incorporated in the study like age, gender, education, perception and attitude showed non-significant relationship with knowledge level of dairy farmers (Table 1).

The variable herd size was found to have a positive and highly significant relationship with knowledge levels of dairy farmers. This relationship portrays that as the herd size increases the dairy farmers gain exposure to various phenomena involved in dairy farming, significantly increasing their knowledge levels. The key role played by the dairy sector and its financial resourcefulness has opened avenues for acquiring knowledge on new technologies and hence exerted a significant correlation with income. The above observations are similar to the findings reported by *Rathod et al., (2011)*.

Table 1. Relationship between knowledge on dairy innovations and profile characteristics of dairy farmers

Independent variables	Correlation coefficient r-value
Age	0.147 ^{NS}
Gender	0.189 ^{NS}
Education	0.193 ^{NS}
Land holding	0.332*
Experience	0.346*
Herd size	0.455**
Milk production	0.192 ^{NS}
Income	0.365**
Innovativeness	0.432**
Decision making ability	0.463**
Risk bearing ability	0.456**
Economic orientation	0.477**
Scientific orientation	0.391**
Perception	0.210 ^{NS}
Attitude	0.208 ^{NS}
Information seeking behaviour	0.459**
Communication channels	0.345**

** Correlation is significant at 0.01 level of probability

* Correlation is significant at 0.05 level of probability.

The inter-twining relationship between innovativeness and knowledge has a competitive advantage when applied to economic ends. The farmers are viewing dairying as a commercial enterprise and moving towards innovative strides and hence the above correlation. Positive and highly significant relation of decision making ability and knowledge levels of dairy farmers denoted that the farmers are able to take wise decisions on feeding, health and marketing aspects which is desirable for betterment of dairy enterprise. The findings gain support from *Loganandhan and Singh (2003)* and *Seth (2014)*.

Risk bearing ability is a cognitive aspect of change, which reflects the preparedness of an individual to accept innovations with an element of risk in discharging his responsibilities. Positive correlation with knowledge reveals that the farmers are cautious in taking risks which is required for betterment of dairy farming. It is a good sign that knowledge of the dairy farmers is significantly and positively correlated with economic orientation since the respondents realized the importance of commercial nature of the enterprise. Dairy farmer's exposure to new technologies might have resulted in correlation with scientific orientation.

Table 2. Multiple linear regression analysis of independent variables with knowledge of dairy farmers

Variables	Regression coefficient (b)	SE	t - Value
Age	3.572	1.343	0.531
Gender	2.284	1.464	1.52
Education	0.622	0.686	1.920
Land holding	3.441	1.456	1.935
Experience	10.69	2.702	5.221**
Herd size	2.822	1.845	6.118**
Milk production	3.441	1.324	-1.935
Income	7.478	1.864	1.796
Innovativeness	1.866	0.724	2.662
Decision making ability	-3.151	1.216	2.685*
Risk bearing ability	-11.78	2.012	-1.110
Economic orientation	1.882	0.744	0.587
Scientific orientation	5.664	2.082	1.924
Perception	1.989	0.782	3.506**
Attitude	2.190	1.318	1.426
Information behaviour	3.687	1.126	2.617
Communication channels	6.274	1.925	3.206**

* Significant at 0.05 level of probability; $R^2 = 0.684$

** Significant at 0.01 level of probability, $F \text{ value} = 8.920^{**}$

Profit maximization by handling live animals is always a challenge. Farmers need to keep themselves abreast of latest technologies to make rapid strides in expansion and earn more profits. The farmers also had greater access and frequent regular contact with extension personnel and local veterinary assistant surgeons which resulted in significant positive correlation with information seeking behavior of the respondents. The above observations were similar to the findings reported by *Kavithaa N.V. (2014)*. Knowledge and communication channels had exerted a highly significant and positive correlation with each other. Of late, the communication channels especially the mass media i.e., radio, television, social media, ICT gadgets, mobile apps have made tremendous impact on the flow of information into the social system. The dairy farmers have utilized the channels successfully for flow of information and increased their knowledge levels which resulted in the above trend.

The direct influence of land holding on knowledge is attributed to the fact that, sufficient land holdings provide economic security and also helps the farmers to meet the feeding requirements of their cattle either through grazing/by products/by growing fodder units.

Table 3. Step down multiple regression analysis for predicting the influence of selected profile characteristics with knowledge of dairy farmers

Variables	Regression coefficient (b)	SER	t-value
Land holding	2.105	2.532	3.987**
Experience	2.524	0.970	3.602*
Herd size	2.263	0.981	2.898**
Income	7.390	0.786	2.992**
Risk bearing ability	6.114	2.624	2.853*
Perception	2.671	1.478	NS
Communication channels	8.042	2.877	3.135**

$R^2 = 0.677$ $F \text{ value} = 7.688^{**}$

* Significant at 0.05 level of probability

** Significant at 0.01 level of probability

As the feeding cost is reduced the farmer invariably concentrates on other practices which improve production for which he continuously updates his knowledge which might have resulted in the above trend. The farmers in the study area had about 15 years of experience in dairying and their rich experience contributed for significant knowledge levels on dairy innovations. The findings were in concurrence with *Musaba E.C (2010)* and *Nehete N.C (2010)*.

Prediction of the contribution of the selected profile characteristics of the dairy farmers on their Knowledge levels : Step down multiple regression analysis was done at last step, Table 3, for prediction of influence of independent variables on knowledge levels of dairy farmers. The results revealed that land holding, herd size, income and communication channels were significant ($P \leq 0.01$) in positive direction. Experience and risk bearing ability were significant at 5% level of probability while perception showed non-significant relation in positive direction. All these variables explained 67.7 per cent variation who's F-value (7.68) was significant at 1 per cent level of probability. It could be inferred that all these 7 variables should be given importance in upgrading the knowledge levels of the dairy farmers.

CONCLUSION

Land holding, experience, herd size, income and communication channels exercised highest direct effect on knowledge levels of dairy farmers regarding dairy innovations recommended by State Veterinary universities/Animal Husbandry department while the variables age, gender, education, perception and attitude

showed a non-significant relationship. This necessitates formulation and implementation of suitable strategies to increase the knowledge levels among the dairy farmers which in turn influences on productivity of milch animals. Similarly situational, personal and psychological factors

should be given due consideration while formulating and implementing suitable extension and training strategies for improving the knowledge levels of the farmers on dairy innovations which further improves the productivity of the dairy animals.

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