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Study of the relationship between the profile of the horse owners and their knowledge about scientific horse-rearing practices

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Abstract

As India is a primarily agricultural country, animal farming is a major shareholder of the agricultural economy. One of the primitive domesticated animals is horse, which is basically used for draught purpose and transportation. This study basically focuses on the relationship between the profile of the horse rearers and their knowledge of scientific horse rearing.

Keywords: Horse rearing, correlation, knowledge

Introduction

Animal Husbandry plays an important role in the national economy as it supplements the family income and generates gainful employment in the rural sector, particularly among the landless labourers, small and marginal farmers and women, besides providing cheap nutritious food to millions of people. The development of the livestock sector has a significant beneficial impact on generating employment and reducing poverty in rural areas. About 7 percent of the GDP of Gujarat has been contributed by the livestock sector alone. Therefore, livestock development is a critical pathway to rural prosperity.

The horse (*Equus ferus caballus*) is an odd-toed ungulate mammal belonging to the taxonomic family Equidae. Horses are highly social herd animals that prefer to live in a group. They have long been in the group of economically important domesticated animals; however, their importance has declined with the introduction of mechanization. Although machinery has replaced horses in many parts of the world an estimated 100 million horses, donkeys and mules are still used for agriculture and transportation in less developed areas. This number includes around 27 million working animals in Africa alone [1]. Some land management practices such as cultivating and logging can be efficiently performed with horses. In agriculture, less fossil fuel is used and increased environmental conservation occurs over time with the use of draft animals such as horses [2].

In Gujarat, three horse breeds are found viz. Marwari, Kathiawari and Kachchhi-Sindhi. Among these, the Kachchhi-Sindhi breed of horse is newly registered in the National Bureau of Animal Genetic Resources (NBAGR). Kathiawar and Kachchi-Sindhi breeds have originated from Gujarat but they are also found in some areas of Rajasthan. The Marwari breed of horse originated from Rajasthan but it is also found in some parts of Gujarat.

Despite the huge usefulness and benefits of horse rearing, there is a lack of detailed information on existing breeding, feeding, housing and other managerial practices adopted for horse rearing and thus, it is not been possible for the policy planners to give full attention to these important aspects of horse management.

Efficient management needs a strong database. This study was aimed towards studying the relationship between the profile of the horse owners and their knowledge of scientific horse-rearing practices. The findings of the study will provide a feasible and relevant package of horse husbandry practices traditionally adopted by the horse keepers of Gujarat so that the horse keepers of other parts of the country with similar geo-climatic conditions will also be benefited. It will be useful by providing information on the gap in existing practices and scientific practices of feeding, breeding, housing and health care of the horse.

Materials and Methods

Location of research

The investigation was carried out in all districts of middle Gujarat which falls under the jurisdiction of Anand Agricultural University.

Table 1: District-wise distribution of horse owners selected and interviewed

Sr. no.	District	No of horse	Respondent size
1	Anand	244	09
2	Ahmedabad	1270	47
3	Botad	980	38
4	Chota Udaipur	112	04
5	Dahod	37	02
6	Kheda	339	13
7	Mahisagar	380	14
8	Panchmahal	162	06
9	Vadodara	475	17
	Total	3999	150

Selection of respondent

The number of samples from each district was selected to the proportion of the population of each district. Horse owners were randomly selected from each district. The total respondent size was 150.

Research design

This study was concerned with identifying the characteristics of horse owners that influence their knowledge level about scientific horse-rearing practices. The "Ex-post Facto" research design was applied to this study.

Measurement of variables

The variables under study were selected on the basis of an extensive review of the literature on the subject in consultation with experts. Only those variables, which were found most relevant to the present investigation, were finally selected for the study.

Age

It is operationally defined as the chronological age of horse owners in completed years at the time of investigation that was recorded by asking them. The horse owners were classified into the following three standard categories.

Table 2: Score distribution based on age

Sr. No.	Age group	Year	Score
1	Young age group	Up to 35	1
2	Middle age group	36 to 50	2
3	Old age group	Above 50	3

Education

Education was operationalized here as the number of years of formal education attained by the horse owners and on that basis, they were classified into six categories. The scoring system followed was as below.

Table 3: Score distribution based on the level of education

Sr. No.	Educational level	Score
1	Illiterate	1
2	Primary education (1 st to 8 th std)	2
3	Secondary education (9 th to 10 th std)	3
4	Higher secondary education (11 th and 12 th std)	4
5	Graduate	5
6	Post Graduate	6

Experience of a horse rearing

It refers to the number of years of experience in horse rearing by the horse owners at the time of the investigation. According to their experience, they were classified into five groups.

Table 4: Score distribution based on experience of rearing

Sr. No.	Experience of a horse rearing in year	Score
1	Very low (Up to 5 years)	1
2	Low (6 to 10 years)	2
3	Medium (11 to 15 years)	3
4	High (16 to 20 years)	4
5	Very high (More than 20 years)	5

Size of family

The size of the family refers to the total number of members in the family, including husband, wife, children and any other dependent members living together. Horse owners were categorized into three categories according to the size of their families.

Table 5: Score distribution based on family size

Sr. No.	Size of family	Score
1	Small (up to 4 members)	1
2	Medium (5 to 8 members)	2
3	Large (above 8 members)	3

Social participation

Social participation in the present study was operationalized as the degree to which an individual was associated with different formal social organizations. The information in this regard with the participation of the horse owners in the social organizations as a member or as position holders was collected and, on that basis, they were categorized into different levels of social participation.

Table 6: Score distribution based on social participation

Sr. No.	Social participation	Score
1.	No membership	1
2.	Membership in one organization	2
3.	Membership in more than one organization	3
4.	Membership along with position holding in the organization	4

Landholding

Landholding in the present study indicates the number of hectares of land possessed by the family of horse owners. Accordingly, the horse owners were categorized as below.

Table 7: Score distribution based on landholding

Sr. No.	Category	Landholding (ha)
1	Without land	00
2	Marginal	Up to 1.00 ha
3	Small	1.01 ha to 2.00 ha
4	Medium	2.01 ha to 4.00 ha
5	Large	Above 4.00 ha

Annual income

It refers to the total income, obtained annually by the family of selected horse owners from horse and other sources. The data were collected from the horse owners about their annual family income and based on that, they were categorized into five groups.

Table 8: Score distribution based on annual income

Sr. No.	Category
1	Very low (Rs. Upto 2,50,000)
2	Low (Rs. 2,50,001 to 5,00,000)
3	Medium (Rs. 5,00,001 to 7,50,000)
4	High (Rs. 7,50,001 to 10,00,000)
5	Very high (Above Rs.10,00,000)

Occupation

It is operationally defined as a means of lively hood or profession of the horse owner and/or his family. The data in this regard were sought from horse owners and on that basis; they were grouped into different occupational categories and assigned scores as shown below.

Table 9: Score distribution based on occupation

Sr. No.	Occupation	Score
1	Only horse keeping	1
2	Horse keeping + Agriculture	2
3	Horse keeping + job	3
4	Horse keeping + business	4
5	Horse keeping + animal husbandry	5

Pake size

Pake size refers to the possession of a number of horses by the horse owners. The horse owners were grouped into the following five categories:

Table 10: Score distribution based on pake size

Sr. No.	Range	Score
1	keeping 1 horse	1
2	keeping 2 horses	2
3	keeping 3 horses	3
4	keeping 4 horses	4
5	keeping 5 to 10 horses	5
6	keeping 11 to 15 horses	6

Purpose of a horse rearing

People were keeping the horse for different purposes in this mostly for hobbies, marriage ceremonies, horse carts and breeding. The purpose of horse keeping can give some idea about the knowledge level of the horse owner.

Table 11: Different purposes of horse rearing

Sr. No.	Purpose of a horse rearing
1	Hobbies
2	Transportation
3	Marriage Ceremony
4	Horse Cart
5	Breeding

Extension contacts

This referred to the frequency of contact of different persons related to horse owners. The arbiter scoring technique was followed as under.

Table 12: Frequency score for the contacts

Sr. No.	Category	Frequency score
1	Very low	Up to 12.6
2	Low	12.7 to 18.2
3	Medium	18.3 to 23.8
4	High	23.9 to 29.4
5	Very high	29.5 to 35

Source of information

This referred to the frequency of use of different mass media for the information and knowledge regarding horse rearing practices i.e., radio, television, newspaper, internet, mobile phone, agricultural fair, agricultural exhibition, farm magazines/leaflets, etc. The scoring technique was followed as under.

Table 13: Source of information

Sr. No.	Source of information
1	Horse society
2	Friends
3	Magazine
4	Internet
5	Newspaper
6	Television

Method of data collection

A pre-tested interview schedule was developed for data collection in Gujarati. The horse owners were interviewed personally at their homes or workplaces. Before conducting an interview, the aim and objectives of the study were explained to the horse owners in order to get whole-hearted responses and correct information from them.

Construction of an interview schedule

The interview schedule was so constructed that all pertinent aspects in light of the objectives get covered. In preparing the interview schedule, the investigator used available literature and also secured guidance from the major guide, advisory committee, and professors of the department of extension education, extension education institute, department of veterinary medicine, department of livestock production management, and other experts. It was pretested in a non-sampling area to check its applicability and to remove any ambiguity if any.

Statistical procedure used

Frequency and percentage

Simple comparisons were made on the basis of frequency and percentage.

Arithmetic mean

The estimates were used for the classification of the horse owners into different categories. The mean was obtained by dividing the total score by the number of horse owners. The mean was calculated by using the following formula:

$$\bar{X} = \frac{\sum Xi}{n}$$

Where,

\bar{X} = Mean

n = Number of respondents

X_i = Value of the i^{th} respondent

Coefficient of correlation (r)

The coefficient of correlation was calculated to find out the relationship between each of the independent variables and the dependent variable. The correlation coefficient gives two kinds of information (i) an indication of the magnitude of the relationship and (ii) information about the direction of the relationship (whether positive or negative). It can be denoted by:

$$r = \frac{\sum XY - \frac{\sum X \sum Y}{n}}{\sqrt{\left[\sum X^2 - \frac{(\sum X)^2}{n} \right] \left[\sum Y^2 - \frac{(\sum Y)^2}{n} \right]}}$$

Where,

r = Correlation coefficient

Σ = Summation

X = Independent variable

Y = Dependent variable

n = Total number of respondents

Result

Table 14: Relationship between the profile of the horse owners and their level of knowledge about scientific horse-rearing practices

n=150

Sr. No.	Independent variables	Correlation coefficient
1	Age	0.066
2	Education	0.008
3	Experience in horse rearing	0.528**
4	Family size	-0.128
5	Social participation in horse-related organization	0.232**
6	Landholding	0.202*
7	Annual income	0.241**
8	Occupation	-0.005
9	Pack size	-0.018
10	Purpose of a horse rearing	-0.002
11	Extension contact	-0.007
12	Source of information	0.401**

*= significant at a 5% level of probability

**= significant at a 1% level of probability

Age and knowledge

It is apparent from the data presented in Table 14 that the age of the horse owners had a positive and non-significant correlation ($r=0.066$) with their knowledge level of scientific horse-rearing practices. The result indicated that knowledge of scientific horse-rearing practices was observed almost similar with the irrespective level of the age of the horse owners. It showed that any age group of horse owners had not yet understood the significance of scientific horse-rearing practices. This finding is similarly confined to the findings of Thakkar (2013) [3].

Education and knowledge

The data presented in Table 14 reflected that level of knowledge of the horse owners regarding scientific horse-rearing practices had positive and non-significant ($r=0.008$) correlation with their level of education. The result signifies that level of education did not play any role in increasing the knowledge of the horse owners. It depended on the experience of the horse owners in scientific horse-rearing practices. It means that level of knowledge about scientific horse rearing practices was found identical amongst the horse owners with their irrespective level of education. This finding is in concurrence with the findings reported by Thakkar (2013) [3].

Experience in horse rearing and knowledge

The data illustrated in Table 14 clearly indicated that the experience of horse owners had a positive and highly significant correlation ($r = 0.528^{**}$) with their knowledge

level about scientific horse-rearing practices. The probable reason for such a situation might be a person is having more experience, he also gets a chance to improve their knowledge through experience and expertise in problem-solving. Increasing experience also increases knowledge about scientific horse-rearing practices. So, there is a saying that experience is the best teacher. This finding is in agreement with the findings of Patel *et al.* (2015) [4].

Size of family and knowledge

It is apparent from the data presented in Table 14 that the size of the family of the horse owners had a negative and non-significant correlation ($r=-0.128$) with their level of knowledge about scientific horse-rearing practices. It can be concluded that the size of the family did not play any role in increasing the knowledge of the horse owners. The researchers found that when family size increase, the knowledge level of horse owners decreases due to more numbers of the family member involved in horse rearing so no particular member is involved in horse rearing. It means that level of knowledge about scientific horse-rearing practices was found identical amongst the horse owners with their irrespective size of the family. This finding is similarly confined to the findings of Sai (2000) [5].

Social participation in horse-related organization and knowledge

The data presented in Table 14 clearly indicated that the social participation of the horse owners had a positive and highly significant correlation ($r = 0.232^{**}$) with their level of knowledge about scientific horse-rearing practices. The probable reason might be that active participation in the social organization provided a platform for the horse owners to interact with the other members as well as some of the expert horse owners of society and helped them to share their idea and information regarding the benefit obtained through the adoption of scientific horse rearing practices which influence to increase the knowledge level of horse owners. In another way, more participation in various organizations might have led to improving contact with various sources of information which might have helped them to get exposure and share knowledge regarding the science of horse-rearing practices with other members. This finding is in line with the finding of Kumar (2013) [6], Patel (2015) [7] and Shaktigopal (2016) [8].

Size of land holding and knowledge

Data shown in above Table 14 revealed that the size of land holding of the horse owners had a positive and significant correlation ($r = 0.202^{*}$) with their level of knowledge about scientific horse-rearing practices. The reason might be due to the large size of land holding, horse owners might have taken more risk as compared to the marginal size of landholder farmers. This may be due to the fact that the individual belonging to large-sized land holdings and comparatively large pack sizes of the horse had higher annual income and thus they were actively involved in horse-rearing practices. This finding is in contrast with the finding of Shaktigopal (2016) [8] and Gohil (2005) [9].

Annual income and knowledge

Data shown in Table 14 revealed that the annual income of the horse owners had a positive and highly significant correlation ($r = 0.241^{**}$) with their level of knowledge about

scientific horse-rearing practices. The result indicated that horse owners with a high annual income had a high level of knowledge about scientific horse-rearing practices compared to horse owners with a low annual income. In another way, it can be said that considerable annual income played a vital role in establishing encouraging in making them be more vigorous, competent and practical to utilize scientific horse-rearing practices. Generally, the person with high annual incomes has more social participation and more sources of information which helps them to convert it into useful knowledge for the improvement of their profession. This might be seen in this case. This finding is similar to the finding of Patel (2015)^[7] and Shaktigopal (2016)^[8].

Occupation and knowledge

The data reflected in Table 14 indicated that involvement in various occupations by the horse owners was observed negatively and non-significantly correlated ($r=-0.005$) with their level of knowledge. It means that positivism towards horse rearing was seen as little favourable among those horse owners, who have been involved only in horse rearing but the statistical value indicated that such positivism was not noteworthy. It can be thus, concluded that there was a negative and non-significant relationship between the occupation of horse owners and their level of knowledge of scientific horse-rearing practices due to a greater number of different occupations involved them so they were unable to focus on horse rearing.

Pack size and knowledge

The data presented in Table 14 clearly indicated that the pack size of horse owners had a negative and non-significant correlation ($r=-0.018$) relationship with their knowledge of scientific horse-rearing practices. It means that the pack size of the horse owner had no effect on the level of knowledge of horse owners. In other words, it can be said that knowledge of horse rearing practices of the horse owners was observed same with the irrespective level of pack size. When the number of horses increased and then horse owners decrease the direct contact with horse owners was also decreased with the horse because most of the work done by the labour so knowledge of the horse owners decreases. This finding contrasts with the findings of Thakkar (2013)^[3].

Purpose of horse rearing and knowledge

The data in Table 14 highlighted that purpose of horse rearing of the horse owners had a negative and non-significant correlation ($r = -0.002$) with their level of knowledge about scientific horse-rearing practices. It means that the purpose of horse rearing of horse owners had no effect on the level of knowledge of horse owners. In other words, it can be said that the knowledge level of scientific horse-rearing practices of the horse owners was observed same with any purpose of horse keeping.

Extension contacts and knowledge

The data in Table 14 highlighted that extension contact of the horse owners had a negative and non-significant correlation ($r = -0.007$) with their level of knowledge about scientific horse-rearing practices. The knowledge about scientific horse-rearing practices was observed almost similar irrespective level of their extension contacts. Generally, extension persons available in the rural area are from an agricultural background

with the capacity to perform agricultural extension work and with limited knowledge to perform veterinary-related extension, in this situation degree of extension contact might not have played a significant role in increasing knowledge of the horse owners regarding scientific horse rearing practices. This finding is related to the finding of Gohil (2005)^[9].

Sources of information and knowledge

It can be observed from the data presented in Table 14 that the social participation of the horse owners had a positive and highly significant correlation ($r= 0.401^{**}$) with their level of knowledge about scientific horse-rearing practices. This indicated that more use of information sources improves the knowledge level of horse owners. The probable reason might be that those horse owners spent more time getting information that had more knowledge about scientific horse-rearing practices. This finding is in agreement with the findings of Shekhawat (2013)^[10].

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