

Original Research Article

A Study of Socio-Economic Aspects of Equine Farmers in Haryana (India)

Abstract

Keeping in view the research gap and non-availability of data on selected topic, current study was aimed to study socio-economic aspects of equine farmers in Haryana (India), and it was conducted in four districts of Haryana; Hisar, Bhiwani, Jind, Rohtak. The study was descriptive and exploratory in nature and data were collected during January 2022 to March 2022. A specially structured interview schedule was adopted for data collection and selection of respondents was done by simple random sampling method at sampling site. Statistical Package for Social Sciences (SPSS) version was adopted for analysis of data. It was found that majority of respondents 155 (51.2%) were of middle age group and majority of them 131 (43.2%) were illiterate, 170 (56.1%) respondents belong to other backward class, majority of respondents 261 (86.1%) were landless, 139 (45.9%) respondents live in nuclear family, monthly household total income of majority of respondents 104 (34.3%) is 20001 to 30000 INR (Indian Rupee), majority of respondents 197 (65%) rear single equine and majority of them 148 (48.8%) get monthly income 5000 to 15000 INR from per equine rearing. The study revealed that socio-economic profile of equine farmers is not satisfactory in study area, equine population is declining rapidly and equine farmers are migrating from equine rearing to other profession and exploring new source of income due to constraints faced by them in equine rearing. This study is very significant to visualize and address the socio-economic issues of equine farmers in changed scenario.

1. Introduction:

Present study was aimed to conduct study of socio-economic aspects of equine farmers in Haryana (India) and it was conducted in four districts of Haryana; Hisar, Bhiwani, Jind, Rohtak. There are total 28 states in India and Haryana is one of these and it is situated in northern part of India [11]. Haryana is surrounded by National Capital New Delhi from three sides. Contribution of Haryana is significant in national GDP. There are 22 districts and as per national census –2011, population of the state is approximately 25.3 million and per capita income is 163992 INR (2,095.69 \$) per annum [7].

Respondents are equines farmers engaged in equine rearing profession since ages; their livelihood depend on equine rearing; equine rearing is a part and partial of their life style and integral part of farming sector in Haryana (India). Equines help in generating direct and indirect income of their keepers; they are major components of livestock and play important roles in

socio-economic aspects of households engaged in their rearing in Haryana [15]. In India, multiple tasks are taken from equines and generally reared by every group of farmers, especially landless and marginalized farmers and livelihood of these farmers are dependent on earning of these animals [16]. They are considered as a symbol of speed, courage, power, leadership and success and their roles have been duly acknowledged in history of China [18]. Equines are used worldwide for transportation of agricultural products, water, fuel and dairy products [20]. Equines are essential parts in agriculture and transportation in urban and peri-urban area in developing countries and are power source for these countries [22]. Globally there are approximately 100–112 million equines and they effect lives of 600 million people [Upjohn et al. 2014].

Materials and methods:

2.1 Study area:

The study was conducted in four districts of Haryana (India); Hisar, Bhiwani, Jind and Rohtak and it was conducted in rural and urban area as well and data collection was done during January 2022 to March 2022.

2.2 Methods of data collection:

The study was descriptive in nature and survey based. A structured interview schedule was adopted for data collection containing questions designed specially as per the requirement of the study. Personal interview method was adopted for data collection.

2.3 Selection of respondents:

Selection of respondents was done by simple random sampling method at sampling site. Prior to start interviews, respondents were explained about the study. Each interview lasted on an average timing of 15 minutes. Photographs were taken and some interviews were video recorded.

2.4 Data management and analysis:

All filled interview schedules were examined thoroughly and collected data were post-coded and entered in Microsoft office excel worksheet. IBM Special Package for Social Sciences (SPSS) version was adopted for data analysis.

2. Results:

2.1 Sociological profile:

Table 1: Classification of respondents on the basis of their sociological profile:

Sociological Profile	Variables	Frequency (percentage)				
		Hisar n-88	Bhiwani n-77	Jind n-73	Rohtak n-65	Overall n-303
Age Profile	Young age (up to 35 years)	27 (30.7%)	27 (35.1%)	25 (34.2%)	14 (21.5%)	94 (31%)
	Middle age (36 to 55 years)	43 (48.9%)	40 (51.9%)	35 (47.9%)	38 (58.5%)	155 (51.2%)
	Old age (above 55 years)	18 (20.5%)	10 (13%)	13 (17.8%)	13 (20%)	54 (17.8%)
Gender Profile	Male	87 (98.9%)	76 (98.7%)	73 (100%)	65 (100%)	301 (99.3%)
	Female	01 (1.1%)	01 (1.3%)	00 (0.0%)	00 (0.0%)	02 (0.7%)
	Transgender	00 (0.0%)	00 (0.0%)	00 (0.0%)	00 (0.0%)	00 (0.0%)
Educational profile	Illiterate.	40 (45.5%)	33 (42.9%)	38 (52.1%)	20 (38.8%)	131 (43.2%)
	Below 10 th standard	27 (30.7%)	29 (37.7%)	28 (38.4%)	34 (52.3%)	118 (38.9%)
	10 th pass	12 (13.6%)	8 (10.4%)	5 (6.8%)	9 (13.8%)	34 (11.2%)
	12 th pass	6 (6.8%)	2 (2.6%)	1 (1.4%)	1 (1.5%)	10 (3.3%)
	Graduate and above	3 (3.4%)	5 (6.5%)	1 (1.4%)	1 (1.5%)	10 (3.3%)
Family profile	Nuclear	39 (44.3%)	28 (36.4%)	28 (38.4%)	40 (61.5%)	139 (45.9%)
	Joint	36 (40.9%)	41 (53.2%)	32 (43.8%)	25 (38.5%)	133 (43.9%)
	Extended	13 (14%)	7 (9.1%)	12 (16.4%)	00 (0.0%)	29 (9.6%)
	Women headed	00 (0.0%)	1 (1.3%)	1 (1.4%)	00 (0.0%)	02 (0.7%)
Marital	Married	81 (92%)	68 (88.3%)	70 (95.9%)	65 (100%)	284 (93.7%)
	Unmarried	5 (5.7%)	6 (7.8%)	3 (4.1%)	00 (0.0%)	14 (4.6%)

Community profile	Widow	2 (2.3%)	2 (2.6%)	00 (0.0%)	00 (0.0%)	4 (1.3%)
	Other	00 (0.0%)	1 (1.3%)	00 (0.0%)	00 (0.0%)	1 (0.3%)
	Scheduled Caste (SC)	20 (22.7%)	24 (31.2%)	28 (38.4%)	14 (21.5%)	86 (28.4%)
	Other Backward Category (OBC)	52 (59.1%)	31 (40.3%)	41 (56.2%)	46 (70.8%)	170 (56.1%)
	Minority Category	03 (3.4%)	02 (2.6%)	2 (2.7%)	5 (7.7%)	7 (2.3%)
	General Category	13 (14.8%)	20 (26%)	2 (2.7%)	00 (0.0%)	40 (13.2%)
Location profile	Urban	7 (08%)	18 (23.4%)	13 (17.8%)	18 (27.7%)	56 (18.5%)
	Rural	64 (72.7%)	38 (49.4%)	55 (75.3%)	26 (40%)	183 (60.4%)
	Semi-urban	17 (19.3%)	21 (27.3%)	5 (6.8%)	21 (32.3%)	64 (21.2%)
Housing profile	Kucha	1 (1.1%)	1 (1.3%)	00 (0.0%)	2 (3.1%)	4 (1.3%)
	Pucha	73 (83%)	51 (66.2%)	69 (94.5%)	56 (86.2%)	249 (82.2%)
	Semi	13 (14.8%)	24 (31.2%)	3 (4.1%)	5 (7.7%)	45 (14.9%)
	Rented	1 (1.1%)	1 (1.3%)	1 (1.4%)	2 (3.1%)	5 (1.7%)

3.1.1 Age Profile:

Out of total 303 respondents, 94 (31%) were of young age group, 155 (51.2%) of middle age group and 54 (17.8%) were of old age group. In Hisar district, out of 88, 27 (30.7%) respondents were of young age group, 43 (48.9%) of middle age group, 18 (20.5%) were of old age group. In Bhiwani district, out of 77, 27 (35.1%) respondents were of young age group, 40 (51.4%) of middle age group, 10 (13%) were of old age group. In Jind district, out of 73, 25 (34.2%) respondents were of young age group, 35 (47.9%) of middle age group, 13 (17.8%) were of old age group. In Rohtak district, out of 65, 25 (34.2%) respondents were of young age group, 38 (58.5%) of middle age group, 13 (20%) were of old age group (Table 1).

3.1.2 Gender profile:

Out of total 303 respondents, 301 (99.3%) were male, only 2 (0.7%) were female and none was found transgender. In Hisar district, out of 88, majority of respondents 87 (98.9%) were male, 1 (1.1%) were female and none was found transgender. In Bhiwani district, out of 77, majority of respondents 76 (98.7%) were male, 1 (1.3%) were female and none was found transgender. In

Jind district, out of 73, 100% were male and none was found female and transgender. In Rohtak district, out of 65, 100% were male and none was found female and transgender (Table 1).

3.1.3 Educational profile:

Out of total 303 respondents, 131 (43.2%) were illiterate, 118 (38.9%) below 10th standard, 34 (11.2%) 10th standard pass, 10 (3.3%) 12th pass and only 10 (3.3%) were graduate and above. In Hisar district, out of 88, 40 (45.5%) respondents were illiterate, 27 (30.7%) below 10th standard, 12 (13.6%) 10th standard pass, 6 (6.8%) 12th pass and only 3 (3.4%) were graduate and above. In Bhiwani district, out of 77, 33 (42.9%) respondents were illiterate, 29 (37.7%) below 10th standard, 8 (10.4%) 10th standard pass, 2 (2.6%) 12th pass and only 5 (6.5%) were graduate and above. In Jind district, out of 73, 38 (52.1%) respondents were illiterate, 28 (38.4%) below 10th standard, 5 (6.8%) 10th standard pass, 1 (1.4%) 12th pass and only 1 (1.4%) were graduate and above. In Rohtak district, out of 65, 20 (30.8%) respondents were illiterate, 34 (52.3%) below 10th standard, 9 (13.8%) 10th standard pass, 1 (1.5%) 12th pass and only 1 (1.5%) were graduate and above (Table-1).

3.1.4 Family Profile:

In overall, out of 303, 139 (45.9%) respondents live in nuclear family, 133 (43.9%) in joint family, 29 (9.6%) in extended family and only 2 (0.7%) respondents live in women headed family. In Hisar district, out of 88, 39 (44.3%) respondents live in nuclear family, 36 (40.9%) in joint family, 13 (14%) in extended family and no respondents live in women headed family. In Bhiwani district, out of 77, 28 (36.4%) respondents live in nuclear family, majority of respondents 41 (53.2%) live in joint family, 7 (9.1%) live in extended family and 1 (1.3%) respondent lives in women headed family. In Jind district, out of 73, 28 (38.4%) respondents live in nuclear family, 32 (43.8%) respondents live in joint family, 12 (16.4%) in extended family and 1 (1.4%) respondent lives in women headed family. In Rohtak district, out of 65, 40 (61.5%) of respondents live in nuclear family, 25 (38.5%) respondents live in joint family and none respondent lives in extended and women headed family (Table-1).

3.1.5 Marital profile:

Out of 303 respondents, 284 (93.7%) were married, 14 (4.6%) unmarried, 4 (1.3%) widow/divorcee and 1 (0.3%) respondents were in others. In Hisar district, out of 88

respondents, 81 (92%) were married, 5 (5.7%) unmarried, 2 (2.3%) widow/divorcee and no respondents was in others. In Bhiwani district, out of 77 respondents, 68 (88.3%) were married, 6 (7.8%) unmarried, 2 (2.6%) widow/divorcee and 1 (1.3%) respondents was in others. In Jind district, out of 73 respondents, 65 (100%) respondents were married, 3 (4.1%) unmarried and none respondent was widow/divorcee and others. In Rohtak district, out of 65 respondents, 65 (100%) were married and none respondent was unmarried, widow/divorcee and others (Table-1).

3.1.6 Community profile:

Out of total 303 respondents, 86 (28.4%) respondents belong to SC community, majority 170 (56.1%) respondents belongs to OBC community, 03 (3.4%) belongs to minority (all Muslim), 13 (14.8%) belong to general community and no respondent was from ST community. In Hisar district, out of 88 respondents, 20 (22.7%) respondents belong to SC community, majority 52 (59.1%) respondents belongs to OBC community, 7 (2.3%) belongs to minority (all Muslim) and 40 (13.2%) belong to general community. In Bhiwani district, out of 77 respondents, 24 (31.2%) respondents belong to SC community, 31 (40.3%) respondents belongs to OBC community, 02 (2.6%) belongs to minority (all Muslim) and 20 (26%) belong to general community. In Jind district, out of 73 respondents, 28 (38.4%) respondents belong to SC community, majority 41 (56.2%) respondents belongs to OBC community, 2 (2.7%) belongs to minority (all Muslim) and 2 (2.7%) belong to general community. In Rohtak district, out of 65 respondents, 14 (21.5%) respondents belong to SC community, majority 46 (70.8%) respondents belongs to OBC community, 5 (7.7%) belongs to minority (all Muslim) and none respondent belongs to general community (Table-1).

3.1.7 Location profile:

Out of total 303 respondents, 56 (18.5%) respondents were from urban area, majority 183 (60.4%) respondents were from rural area and 64 (21.2%) were from sub-urban area. In Hisar district, out of 88 respondents, 7 (08%) respondents were from urban area, majority 64 (72.7%) respondents were from rural area and 17 (19.3%) were from sub-urban area. In Bhiwani district, out of 77 respondents, 18 (23.4%) respondents were from urban area, 38 (49.4%) respondents were from rural area and 21 (27.3%) were from sub-urban area. In Jind district,

out of 73 respondents, 13 (17.8%) respondents were from urban area, majority 55 (75.3%) respondents were from rural area and 5 (6.8%) were from sub-urban area. In Rohtak district, out of 65 respondents, 18 (27.7%) respondents were from urban area, 26 (40%) respondents were from rural area and 21 (32.3%) were from sub-urban area (Table-1)

3.1.8 Housing profile:

Out of total 303 respondents, 4 (1.3%) respondents have kuchha houses, majority of respondents 249 (82.2%) have pukka houses, 45 (14.9%) respondents have semi kuchha-pukka houses and only 5 (1.7%) respondents lives in rented houses. In Hisar district, out of 88 respondents, 1 (1.1%) respondents have kuchha houses, majority of respondents 73 (83%) have pukka houses, 13 (14.8%) respondents have semi kuchha-pukka houses and only 1 (1.1%) respondents lives in rented houses. In Bhiwani district, out of 77 respondents, only 1 (1.3%) respondents have kuchha houses, majority of respondents 51 (66.2%) have pukka houses, 24 (31.2%) respondents have semi kuchha-pukka houses and only 1 (1.3%) respondents lives in rented houses. In Jind district, out of 73 respondents, it emerged out that housing profile is better in Jind district and no respondent lives in kuchha houses, majority of respondents 69 (94.5%) have their own pukka houses, 3 (4.1%) respondents have semi kuchha-pukka houses and only 1 (1.4%) respondents lives in rented houses. In Rohtak district, out of 65 respondents, 2 (3.1%) respondents lives in kuchha houses, majority of respondents 56 (86.2%) have their own pukka houses, 5 (7.7%) respondents have semi kuchha-pukka houses and only 2 (3.1%) respondents lives in rented houses (Table-1).

2.2 Economic profile:

Table 2: Classification of respondents on the basis of their economical profile:

Economic Profile	Frequency (percentage)					Overall n-303
	Variables	Hisar n-88	Bhiwani n-77	Jind n-73	Rohtak n-65	
Agricultural land holding profile	Landless	69 (78.4%)	60 (77.9%)	69 (94.5%)	61 (93.8%)	261 (86.1%)
	Up to 5 bigha	4 (4.5%)	3 (3.9%)	2 (2.7%)	1 (1.5%)	9 (3%)
	6 to 20 bigha	9 (10.2%)	7 (9.1%)	0 (0.0%)	2 (3.1%)	18 (5.9%)
	>20 bigha	6 (6.8%)	7 (9.1%)	2 (2.7%)	1 (1.5%)	15 (5%)

Monthly income from per equine rearing (INR)	Nil	22 (25%)	14 (18.2%)	06 (8.2%)	6 (9.2%)	48 (15.8%)
	Up to 5000	05 (5.7%)	13 (16.9%)	03 (4.1%)	2 (3.1%)	23 (7.6%)
	5001 to 15000	39 (44.3%)	34 (44.2%)	36 (49.3%)	39 (60%)	148 (48.8%)
	15001 to 25000	14 (15.9%)	12 (15.2%)	17 (23.3%)	14 (21.5%)	57 (18.8%)
	> 25000	08 (9.1%)	4 (15.2%)	11 (15.1%)	4 (6.2%)	27 (8.9%)
Monthly maintenance expenses on per equine (INR)	Nil	7 (8%)	5 (6.5%)	4 (5.5%)	5 (7.7%)	21 (6.9%)
	Up to 2000	18 (20.5%)	25 (32.5%)	26 (35.6%)	36 (55.4%)	105 (34.7%)
	2001 to 4000	34 (38.6%)	23 (29.9%)	28 (38.4%)	15 (23.1%)	100 (33.0%)
	4001 to 6000	19 (21.6%)	16 (20.8%)	7 (9.6%)	8 (12.3%)	50 (16.5%)
Household total monthly income (INR)	Up to 10000	10 (11.4%)	9 (11.7%)	1 (1.4%)	1 (1.5%)	21 (6.9%)
	10001 to 20000	22 (25%)	30 (39%)	24 (32.9%)	21 (32.3%)	97 (32%)
	20001 to 30000	31 (35.2%)	16 (20.8%)	26 (35.6%)	31 (47.7%)	104 (34.3%)
	> 30000	25 (28.4%)	21 (27.3%)	22 (30.1%)	12 (18.5%)	80 (26.4%)
Household total monthly expenses (INR)	Up to 5000	8 (9.1%)	13 (16.9%)	2 (2.7%)	2 (3.1%)	25 (8.3%)
	5001 to 10000	19 (21.6%)	32 (41.6%)	41 (56.2%)	43 (66.2%)	135 (44.6%)
	10001 to 20000	41 (46.6%)	18 (23.4%)	19 (26%)	18 (27.7%)	96 (31.7%)
	> 20000	20 (22.7%)	14 (18.2%)	11 (15.1%)	2 (3.1%)	47 (15.5%)

3.2.1 Agricultural land holding profile:

Overall total 303 respondents took part in study and it emerged out that majority of respondents 261 (86.1%) were landless, 9 (3%) respondents were having agricultural land up to 05 bigha, 18 (5.9%) respondents having agricultural land 6 to 20 bigha and 15 (5%) having agricultural land more than 20 bigha. In Hisar district, total 88 respondents took part in study and it emerged out that majority of respondents 69 (78.4%) were landless, 4 (4.5%) respondents were having agricultural land up to 05 bigha, 9 (10.2%) respondents having agricultural land 6 to 20 bigha and 6 (6.8%) having agricultural land more than 20 bigha. In Bhiwani district, total 77 respondents took part in study and it emerged out that majority of respondents 60 (77.9%) were landless, 3 (3.9%) respondents were having agricultural land up to 05 bigha, 7 (9.1%) respondents having agricultural land 6 to 20 bigha and 7 (9.1%) having

agricultural land more than 20 bigha. In Jind district, total 73 respondents took part in study and it emerged out that majority of respondents 69 (94.5%) were landless, 2 (2.7%) respondents were having agricultural land up to 05 bigha, none respondents having agricultural land 6 to 20 bigha and 2 (2.7%) having agricultural land more than 20 bigha. In Rohtak district, total 65 respondents took part in study and it emerged out that majority of respondents 61 (93.8%) were landless, 1 (1.5%) respondents were having agricultural land up to 05 bigha, 2 (2.3%) respondents having agricultural land 6 to 20 bigha and 1 (1.5%) having agricultural land more than 20 bigha (Table-2).

3.2.2 Monthly income from per equine rearing (INR):

Overall total 303 respondents took part in study and it find out that 48 (15.8%) respondents were getting no income from their equines, 23 (7.6%) were getting monthly income up to 5001 (INR), 148 (48.8%) earning between 5001 to 15000 (INR) and maximum respondents falls under this category, 57 (18.8%) getting monthly income 15001 to 25000 (INR) and 27 (8.9%) were earning above 25000 (INR) monthly from per equine rearing. In Hisar district, total 88 respondents took part in study and it emerged out that 22 (25%) respondents were getting no income from their equines, 5 (5.7%) were getting monthly income up to 5001 (INR), 39 (44.3%) earning between 5001 to 15000 (INR) and majority of respondents falls under this category, 14 (15.9%) getting monthly income 15001 to 25000 (INR) and only 8 (9.1%) were getting above 25000 (INR) monthly income from per equine rearing. In Bhiwani district, total 77 respondents took part in study and is emerged out that 14 (18.2%) respondents were getting no income from their equines, 13 (16.9%) were getting monthly income up to 5001 (INR), 34 (44.2%) earning between 5001 to 15000 (INR) and majority of respondents falls under this category,, 12 (15.2%) getting monthly income 15001 to 25000 (INR) and only 4 (5.2%) were getting above 25000 (INR) monthly income from per equine rearing. In Jind district, total 73 respondents took part in study and it emerged out that 6 (8.2%) respondents were getting no income from their equines, 3 (4.1%) were getting monthly income up to 5001 (INR), 36 (49.3%) earning between 5001 to 15000 (INR) and majority of respondents falls under this category,, 17 (23.3%) getting monthly income 15001 to 25000 (INR) and only 11 (15.1%) were getting above 25000 (INR) monthly income from per equine rearing. In Rohtak district, total 65 respondents took part is

study and it emerged out that 6 (8.2%) respondents were getting no income from their equines, 2 (3.1%) were getting monthly income up to 5001 (INR), 39 (60%) earning between 5001 to 15000 (INR) and majority of respondents falls under this category, 14 (21.5%) getting monthly income 15001 to 25000 (INR) and only 4 (6.2%) were getting above 25000 (INR) monthly income from per equine rearing (Table-2).

3.2.3 Monthly maintenance expenses on per equine rearing (INR):

Overall total 303 respondents took part in study and it emerged out that 21 (6.9%) respondents incur nil monthly maintenance expenses on per equine rearing, 105 (34.7%) respondents incur up to 2000 (INR) monthly maintenance expenses on per equine rearing and maximum respondents falls under this category, 100 (33.0%) respondents incur 20001 to 4000 (INR) monthly maintenance expenses on per equine rearing, 50 (16.5%) respondents incur 4001 to 6000 (INR) monthly maintenance expenses on per equine rearing and 27 (8.9%) respondents incur above 6000 (INR) monthly maintenance expenses on per equine rearing . In Hisar district, total 88 respondents took part in study and it emerged out that 7 (8%) respondents incur nil monthly maintenance expenses on per equine rearing, 18 (20.5%) respondents incur up to 2000 (INR) monthly maintenance expenses on per equine rearing, 34 (38.6%) respondents incur 20001 to 4000 (INR) monthly maintenance expenses on per equine rearing and maximum respondents falls under this category, 19 (21.6%) respondents incur 4001 to 6000 (INR) monthly maintenance expenses on per equine rearing and 10 (11.4%) respondents incur above 6000 (INR) monthly maintenance expenses on per equine rearing . In Bhiwani district, total 77 respondents took part in study and it emerged out that 5 (6.5%) respondents incur nil monthly maintenance expenses on per equine rearing, 25 (32.5%) respondents incur up to 2000 (INR) monthly maintenance expenses on per equine rearing and maximum respondents falls under this category, 23 (29.9%) respondents incur 20001 to 4000 (INR) monthly maintenance expenses on per equine rearing, 16 (20.8%) respondents incur 4001 to 6000 (INR) monthly maintenance expenses on per equine rearing and 8 (10.4%) respondents incur above 6000 (INR) monthly maintenance expenses on per equine rearing. In Jind district, total 73 respondents took part in study and it emerged out that 4 (5.5%) respondents incur nil monthly maintenance expenses on per equine rearing, 26 (35.6%) respondents incur up to 2000 (INR) monthly maintenance expenses on per equine rearing and maximum respondents falls under

this category, 28 (38.4%) respondents incur 20001 to 4000 (INR) monthly maintenance expenses on per equine rearing, 7 (9.6%) respondents incur 4001 to 6000 (INR) monthly maintenance expenses on per equine rearing and 8 (11%) respondents incur above 6000 (INR) monthly maintenance expenses on per equine rearing. In Rohtak district, total 65 respondents took part in study and it emerged out that 5 (7.7%) respondents incur nil monthly maintenance expenses on per equine rearing, 36 (55.4%) respondents incur up to 2000 (INR) monthly maintenance expenses on per equine rearing and maximum respondents falls under this category, 15 (23.1%) respondents incur 20001 to 4000 (INR) monthly maintenance expenses on per equine rearing, 8 (12.3%) respondents incur 4001 to 6000 (INR) monthly maintenance expenses on per equine rearing and only 1 (1.5%) respondents incur above 6000 (INR) monthly maintenance expenses on per equine rearing (Table-2).

3.2.4 Household total monthly income (INR):

Overall total 303 respondents took part in study and it was find out that household total monthly income of 21 (6.9%) respondents is up to 10000 (INR), household total monthly income of 97 (32%) is 10001 to 20000 (INR), household total monthly income of 104 (34.3%) is 20001 to 30000 (INR) and maximum respondents falls under this category and household total monthly income of 80 (26.4%) is above 30000 (INR). In Hisar district, total 88 respondents took part in study and it emerged out that household total monthly income of 10 (11.4%) respondents is up to 10000 (INR), household total monthly income of 22 (25%) is 10001 to 20000 (INR), household total monthly income of 31 (35.2%) is 20001 to 30000 (INR) and maximum respondents falls under this category and household total monthly income of 25 (28.4%) is above 30000 (INR). In Bhiwani district, total 77 respondents took part in study and it emerged out that household total monthly income of 9 (11.7%) respondents is up to 10000 (INR), household total monthly income of 30 (39%) is 10001 to 20000 (INR) and maximum respondents falls under this category and, household total monthly income of 16 (20.8%) is 20001 to 30000 (INR) household total monthly income of 21 (27.3%) is above 30000 (INR). In Jind district, total 73 respondents took part in study and it emerged out that household total monthly income of 1 (1.4%) respondents is up to 10000 (INR), household total monthly income of 24 (32.9%) is 10001 to 20000 (INR), household total monthly income of 26 (35.6%) is 20001

to 30000 (INR) and maximum respondents falls under this category and household total monthly income of 21 (27.3%) is above 30000 (INR). In Rohtak district, total 65 respondents took part in study and it emerged out that household total monthly income of 1 (1.5%) respondents is up to 10000 (INR), household total monthly income of 21 (32.3%) is 10001 to 20000 (INR), household total monthly income of 31 (47.7%) is 20001 to 30000 (INR) and maximum respondents falls under this category and household total monthly income of 12 (18.5%) is above 30000 (INR) (Table-2).

3.2.5 Household total monthly expenses (INR):

Overall total 303 respondents took part in study and it emerged out that household total monthly expenses of 25 (8.3%) respondents are up to 5000 (INR), household total monthly expenses of 135(44.6%) are 5001 to 10000 (INR), household total monthly expenses of 96 (31.7%) are 10001 to 20000 (INR) and maximum respondents falls under this category and household total monthly expenses of 47(15.5%) are above 30000 (INR). In Hisar district, total 88 respondents took part in study and it emerged out that household total monthly expenses of 8 (9.1%) respondents are up to 5000 (INR), household total monthly expenses of 19 (21.6%) are 5001 to 10000 (INR), household total monthly expenses of 41 (46.6%) are 10001 to 20000 (INR) and maximum respondents falls under this category and household total monthly expenses of 20 (22.7%) are above 30000 (INR). In Bhiwani district, total 77 respondents took part in study and it emerged out that household total monthly expenses of 32 (41.6%) respondents are up to 5000 (INR) and maximum respondents falls under this category, household total monthly expenses of 18 (23.4%) is 5001 to 10000 (INR), household total monthly expenses of 14 (18.2%) are 10001 to 20000 (INR) and household total monthly expenses of 20 (22.7%) are above 30000 (INR). In Jind district, total 73 respondents took part in study and it emerged out that household total monthly expenses of 2 (2.7%) respondents are up to 5000 (INR), household total monthly expenses of 41 (56.2%) is 5001 to 10000 (INR) and maximum respondents falls under this category, household total monthly expenses of 19 (26%) are 10001 to 20000 (INR) and household total monthly expenses of 11 (15.1%) are above 30000 (INR). In Rohtak district, total 65 respondents took part in study and it emerged out that household total monthly expenses of 2 (3.1%) respondents are up to 5000 (INR), household total monthly expenses of 43 (66.2%) is 5001 to 10000 (INR) and maximum respondents falls under this category, household total

monthly expenses of 18 (27.7%) are 10001 to 20000 (INR) and household total monthly expenses of 2 (3.1%) respondents are above 30000 (INR) (Table-2).

3. Discussion:

The study was conducted on socio-economic aspects of equine farmers in Haryana. Overall total 303 respondents took part in study and it revealed out that majority of respondents 51.2 were of old age, literacy rate was very low and of respondents 43.2% were illiterate, 45.9% live in nuclear family and majority of them 93.7% were married. The study agrees with study of Pal and Legha-[15, 16] who found that majority of equine farmers are of middle age group and literacy rate is very low in Rajasthan. On community, it emerged out that in overall majority of respondents 56.1% belong to other backward class and equine rearing is ancestral profession of 56.1% respondents, 86.1% respondents were landless. However, it has variation with Chauhan-[6] who found that majority of households are engaged in equine rearing more than 10 years in Himachal Pradesh (India) and Alam [2] who said that equine farmers are in 0.2 to 40 years in experience in Bangladesh. In current study, overall it emerged out that majority of respondents 82.2% have their own pucca houses and majority of them 18.5% live in rural area, equine rearing is the prime occupation of majority of respondents 64%. It has variation with Bhatt [3] Bhat [4] in which they found that in Kashmir (India) equines are reared by marginal farmers and mostly live in kucha houses. In current study, it emerged out that equines are reliable sources of direct income for majority of households and monthly income of 48.8% respondents from per equine rearing is 5000 to 15000 (INR). However, this study agrees with www.thebrooke.org, Invisible Worker [23] in which it was found that equines are the reliable source of production chain of several industries. It emerged out in current study that 34.7% respondents incur up to 2000 (INR) per month on maintenance of per equine; household total monthly income from all sources of 34% respondents is 10000 to 20000 (INR), household total monthly income from all sources of 34.3% respondents is 20000 to 30000 (INR) and total household monthly expenses of majority of respondents are very low.

Conclusion:

During the study, it was found that equines are still source of earning for millions of households; they play a significant role in generating livelihood for millions of households, in employment generation, women empowerment and poverty eradication. Socio-economic profiles of respondents are not so satisfactory and they are facing illiteracy, input cost is more in comparison of output cost from equine rearing and they don't have any other source of income. Respondents are very enthusiastic and majority of respondents still willing to continue with their equine rearing business and their contribution cannot be denied in the society; but they are invisible in developmental policies in the state of Haryana and facing constraints in equine rearing. If these challenges are not addressed in due time, such type of enthusiastic farmers will be forced to quit the profession of equine rearing. The current study is very significant in current situation, when equine farmers are migrating from equine rearing and exploring new source of income. This study will be helpful for policy makers in addressing socio-economic issues of equine farmer's community in Haryana.

Ethical Statement:

Present study was a survey-based study and did not require any ethics committee approval. However, prior to start interview, respondents were explained about the study and their consents were taken to conduct interviews and subsequently interviews were performed.

References:

1. Abaynew G., Haben F. (2008). Assessment of Socio-economic Importance and Major Constraints of Working Equines in and around Dabre Behran Town, Central Ethiopia. *Veterinary Journal Open Journal*. 5, 30-38.
2. Alam M.P., Bhuiyan M.S.A. and Bhuiyan A.K.F.H. (2015). Socio-Economic Status of Horse Owners in Rural Areas of Bangladesh. *The Agriculturists* 13(1), 46-52.
3. Bhatt M.A., Ganai A.M., Farooq J., Sheikh G.G., Haq Z. (2018). Socio-economic status of Equine Owners, Shelter Management Practices and Morphology of Equines in District of Anantnag of Kashmir Valley. *International journal of current Microbiology and Applied Sciences*. 7, 2873-2881.

4. Bhat, A.H., Rasool, S., Hamdani, S.A., Ayman, N., Akand, A. and 9 others (2021). The Impact of Natural Disasters on Livestock Sector: A Review. DOI: [10.37871/jbres1295](https://doi.org/10.37871/jbres1295).
5. Brains G.S. and Franks I. (2002). Prospects for Developments in the Use of Equines for Crop Production. Fourth International Conference on Working Equines, Hama, Syria.
6. Chauhan S.K. (2008). Socio-economic Dimensions of Equine-rearing in Himachal Pradesh. *Agricultural Economics Research Review*. 211-220.
7. Economic survey Haryana- 2020-21.
8. Fazili M.R and Kirmani M.A. (2011). Equine: The ignored working animal of Kashmir; Status, Constrains, Research Areas and Ways for Improvement. *Asian Journal of Animal Sciences*. 5, 91-101.
9. Hassan M.R., Steenstra F.A. and Udo H.M.J. (2013). Benefit of Donkeys in Rural and Urban Areas in Northwest Nigeria. *African Journal of Agricultural Research*. 48, 602-612.
10. Hassan S., Ganai A.M., Beigh Y.A., Shiekh G.G. and Ahmad H.A. (2016). A study on socio-economic status of equine owners, shelter pattern and morphometric of horses in district Baramulla of Kashmir valley. In: Proceedings of X Biennial Animal Nutrition Association Conference on "Newer perspectives in Animal Nutrition research for augmenting animal productivity" held at Tirupati, India. <https://www.researchgate.net/publication/343499769>.
11. Inderjeet. (2015). Economic Status of Farmers: A Case Study of Haryana State. *International Journal of Applied Research*. 1(7) 215-218.
12. Priyanthi F. and Paul S. (2004). Donkey and Development: Socio-economic Aspects of Donkey Use in Africa, International Forum for Rural Transport and Development. IFRTD, 2 Spitfire Studios. 63-71.
13. Pal Y. and Legha R.A. (2008). Socio-economic status of mule producers and management practices of mule production in rural areas. *Indian Journal of Animal Sciences*. 78 1281-84.

14. Pal, Y., Legha, R.A., Dader, R.K., Bala, P.A. **(2013)** Socio-Economic Status of Horse Owner's vis-à-vis, Horse Feeding and Management in Rajasthan, Veterinary world. 6 470-475.
15. Singh, A., Kumar, R., Kumar, S and Pal Y. **(2021 (a))**. Socio-Economic Contribution of Donkey and Mule Rearing in Haryana (India). Asian Journal of Agricultural Extension, Economics and Sociology. 39 (9)) 198-203. DOI: [10.9734/ajaees/2021/v39i930657](https://doi.org/10.9734/ajaees/2021/v39i930657).
16. Singh, A., Pal, Y., Kumar, R., Kumar, S., Rani, K., & Prasad, J. **(2021 (b))**. Working Equids: Their Conditions, Invisible Earning and Challenges- A Review. Asian Journal of Agricultural Extension, Economics & Sociology. 39(11) **(2021)**357-364. <https://doi.org/10.9734/ajaees/2021/v39i113076>.
17. Upjohn M.M., Pfeiffer D.U. and Verheyen K.L. **(2014)**. Helping working Equid and their Owners in developing countries: Monitoring and evaluation of evidence-based interventions. Veterinary. Journal. 199. 210–216. doi: 10.1016/j.tvjl.2013.09.065.
18. Qingbin, W., Yang, Z. China"s Equine Industries in a Traditional Economy: Development, Trends, Challenges, and Opportunities. Sustainability **(2020)** 12125135.
19. Upjohn, M.M., Pfeiffer, D.U. and Verheyen, K.L. Helping working Equid and their Owners in developing countries: Monitoring and evaluation of evidence-based interventions. Veterinary. Journal. **(2014)**. 199. 210–216. doi: 10.1016/j.tvjl.2013.09.065..
20. Williams, J.M., Randle, H. and Marlin, D. **(2020)**. COVID-19: Impact on United Kingdom Horse Owners. MDPI, Basel, Switzerland. DOI: [10.3390/ani10101862](https://doi.org/10.3390/ani10101862).
21. William S.J. Improving the Welfare of working equine animals in developing countries. Applied Animal Behavior Science 100 **(2006)** 148-151. doi www.sciencedirect.com.
22. Zakarias, T. and Tasfaye, S. **(2019)**. The Welfare of Working Equines in Ethiopia. European Journal of Biological Sciences 11 (3) 82-90
Doi:10.5829/iodosi.ejbs.2019.82.90.
23. www.thebrooke.org. Invisible Worker. October-**2015**.

UNDER PEER REVIEW