



Usage pattern and work profile in dung collection among rural women

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Abstract

The rural women play an important role in all types of household, farm and allied activities but were deprived from most of the privileges of life. There is no change in involvement pattern of women in household and animal husbandry activities in respect to change in season. Dung is the property of women by a complicated scheme of shares depending on who owns the animals. Cow dung is deposited in a circular shape because of soft texture and which gives dung patches their alternate names of cow pies and cow pats. The study was conducted in randomly selected one block I of Hisar district of Haryana state. From the selected block I, Dabra village was randomly selected as the locale of the study. Ninety households were selected randomly and female head of the household was the sample of the study. Mostly women belonged to middle age belonged to general category were illiterate and maximum of them farming was family occupation having nuclear family with medium size family. They collected dung twice a day. Majority of respondents were having buffalo which was kept *bada* of size upto 100sq.m.dung was collected by home maker and other female twice a day. They prepared dung cake to save money and were using *Tasla & Indi* for dung collection, they carried 10-20 kg dung per trip distance around 750 mt for dung transportation and spending 1-2 hr in dung collection activity.

Keywords: socio economic condition rural women, knowledge gain, work profile and pattern

Introduction

In Indian almost two-third population lives in the rural area and depend on agriculture and other related occupations for their livelihood. They live a poor life inspite of very hard work, because of number of constraints, such as poor village community facilities and resources. The rural women is actively involved in all types of household, farm and allied activities but are dispossessed from most of the privileges of life. The population of India is more than 1.21 billion and out of it 72.20% population belongs to the rural area. Women constitute nearly 50 per cent of population, perform two-thirds of the work and produce 50 per cent of food commodities consumed by the country (Census of India, 2011) ^[1, 2].

Dung is the property of women by a complicated scheme of shares depending on who owns the animals. Dung is also used as an efficient fuel and biogas producer and dung cakes are used to provide heat and a flame for cooking and also the heat for the *hukka* of the elders in the home. The obnoxious odour of dung is lost during the drying process. Clearly, dung should be taken seriously into account in economic analyses of developmental alternatives, such as the relative viability of biogas and social forestry (Jeffery *et al*, 1989) ^[5].

Except grazing, all other livestock management activities are predominantly performed by females. It is evident that the women are playing a dominant role in the livestock production and management activities (Lal and Khurana, 2011) ^[6]. Among different animal rearing activities cleaning shed and gathering dung, milking, collecting fodder and chaffing of it are the tedious activities performed by women are drudgery prone. They carry head load for disposal of dung, fodder and feed material.

The most drudgery prone activity was dung transportation in animal husbandry activity and in farm sector wheat harvesting and bundling (Shraddha, 2005) ^[9]. A gathering and disposal of dung were such activities which were performed by 75.6 and 74.6 per cent women (Nayak *et al*, 2012) ^[8]. The main aim of this study was to know the usage pattern and work profile in dung collection among rural women.

In light of the above facts, the present study was formulated with the following specific objectives

Objective

1. Socio-economic profile of rural women
2. Practices adopted for livestock management of rural women
3. Work profile of rural women in dung collection

Materials and Methods

The study was conducted in randomly selected one block of Hisar district of Haryana state. Block I was randomly selected from the Hisar district. From the selected block I, Dabra village was randomly selected as the locale of the study. The Sample was comprised of households, who were having cattle and were involved in the dung collection activity for minimum of last two years.

A list of households with number of cattle possessed by them was prepared and from the list, three categories were made on the basis of number of cattle i.e. households having 1-2, 3-4 and 5-6 cattle in the households. Out of this list, 30 household were randomly selected from each category thus making a total sample of 90 household. Female head of the household was the sample of the study.

Results

Socio-economic characteristics of the respondents

Age: Table 1 reveals that maximum number of respondents (56.7%) in pooled sample belonged to 41-60 years of age group and similar trend was also observed in three categories i.e. majority 53.3%, 46.7% and 70.0% respectively were from households with 1-2 animals, 3-4 animals and 5-6 animals. Out of the total sample surveyed 40.0% of the respondents and 36.7%, 53.3% and 30.0% respondents with households with 1-2 animals, 3-4 animals and 5-6 animals respectively belonged to 20-40 years of age group. In the age group above 60 years only 3.33% respondents were in total sample and 10% were from households with 1-2 animals.

Caste: Findings in Table 1 depicts that a huge majority of the respondents (91.1%) in total sample belonged to general category and 83.3%, 93.3% and 96.7% from household with 1-2 animals, 3-4 animals and 5-6 animal respectively were in general category. In aggregate sample only 5.55% of the respondents were from to backward caste, 10.0% and 6.66% respectively were from households with 1-2 animals and 3-4 animals. Only few (3.33%) in entire sample and 6.66% and 3.33% from households having 1-2 animals and 5-6 animals respectively belonged to schedule caste.

Education of respondents: Majority of the respondents were illiterate (62.2%) in entire sample and 63.3%, 56.7% and 66.7% respectively from households with 1-2 animals, 3-4 animals and 5-6 animals. In total sample 16.6% were educated up to high school and also 10.0%, 16.7%, and 23.3% respectively in households having 1-2 animals, 3-4 animals and 5-6 animals. Only few were educated up to 10+2 (10.0%) in totality and 16.7%, 10.0% and 3.33% respondents were from households with 1-2, 3-4 & 5-6 animals respectively. Least number of respondent were educated up to primary level (7.77%) and were graduate (3.33%) in total sample (Table 4.1 and Fig. 2).

Family occupation: Further results in table 1 revealed that family occupation of households with 1-2 animals, 3-4 animals and 5-6 animals was farming for 46.7%, 73.4% and 66.7% respondents respectively, followed by service for 33.3%, 23.3% and 16.7% respectively and business for 20.0%, 3.33% and 16.7% respectively. Overall the family occupation of the respondents was farming (62.2%), service (24.4%) and business (13.3%).

Family education status: The table 1 further presents the family education status and, 60.0% (3-4 animals), 46.7% (5-6 animals) and 33.3% (1-2 animals) of the respondents were having low family education status followed by medium (43.3%, 30.0%, 30.0% respectively for households with 1-2 animals, 3-4 animals & 5-6 animals) and high education status (23.4%, 10.0%, 23.3% respectively for households with 1-2 animals, 3-4 animals & 5-6 animals). Collectively family education status was low (46.7%), medium (34.4%) and high (18.9%).

Family type: Regarding family type the results in Table 1 unfold that a large number of the respondents 66.7% (1-2 animals), 53.3% (3-4 animals) and 53.3% (5-6 animals)

were having nuclear family rest 33.3% (1-2 animals), 46.7% (3-4 & 5-6 animals each) were having joint family. In total sample family type was nuclear (57.8%) and joint (42.2%).

Family size: Most of the respondents 50.0% (each in household with 3-4 animals & 5-6 animals), 40.0% (1-2 animals) were having 5-6 members in family followed by those having up to 4 members 53.3% (1-2 animals), 40.0% (5-6 animals) and 36.7% (3-4 animals) whereas, family with 7 & above members was 13.3% (3-4 animals), 10.0% (5-6 animals) and 6.66% (1-2 animals). Family size was medium (46.7%), small (43.3%) and large (10.0%) in total sample (Table 4.1 and Fig. 2).

Type of house: A vast majority of respondents 73.3% (3-4 animals), 66.7% (1-2 & 5-6 animals each) possessed *pakka* house followed by mixed 33.3% (each in household with 1-2 & 5-6 animals) and 26.7% (3-4 animals). In total sample *pakka* house was possessed by 68.9% and mixed by 31.1% respondents (Table 4.1 and Fig. 2).

Type of kitchen: Table 1 further indicates that 73.3% (households with 1-2 animals), 63.3% (both households with 3-4 & 5-6 animals) respondents were having covered kitchen followed by the semi type of kitchen 20.0% (households with 1-2 & 3-4 animals), 16.7% (households with 5-6 animals) and open kitchen in 20.0% (households with 5-6 animals), 16.7% (households with 3-4 animals), 6.66% (households with 1-2 animals) respectively. In total sample 66.7% households had covered kitchen followed by semi (18.9%) and open kitchen (14.4%).

Land holding: Most of the respondents 43.4% (households with 1-2 animals), 40.0% (households with 3-4 animals), and 36.7% (households with 5-6 animals) had less than 2.5 acres of land, whereas 40.0% (households with 5-6 animals), 36.7% (households with 3-4 animals) and 30.0% (households with 1-2 animals) had 2.5-5 acres of land. Only 16.7% (households with 3-4 & 5-6 animals each) and 13.3% (households with 1-2 animals) were medium land holder (5-10 acre) and 13.3% (households with 1-2 animals), 6.66% (households with 3-4 & 5-6 animals each) were landless. In entire samples 40.0% respondents had less than 2.5 acre, 35.6% had 2.5-5 acre, 15.6% had 5-10 acre and 8.88% were landless (Table 4.1 and Fig. 2).

Total monthly family income: The monthly family income of the respondents had been presented in table 4.1 and Fig. 2. Majority of respondents (73.3%) having 3-4 animals, 70.0% in households with 1-2 animals and 63.3% in households with 5-6 animals earned Rs.10,000-30,000. Thirty percent of (households with 1-2 animals), 26.7% (households with 3-4 animals) and 23.3% (households with 5-6 animals) had total monthly income of Rs.30,001-50,000 whereas, only 13.3% respondent having 5-6 animals had income above Rs.50,000.

In total samples 68.9% households had total monthly income Rs.10,000-30,000, 26.7% had Rs.30,001-50,000 and only 4.44% had above Rs. 50,000.

Table 1: Socio-economic profile of the respondents

Sr. No.	Variables	1-2 Animals n=(30)	3-4 Animals n=(30)	5-6 Animals n=(30)	Total n=90
1.	Age (years)				
	20-40 (young)	11 (36.7)	16 (53.3)	9 (30.0)	36 (40.0)
	41-60 (middle)	16 (53.3)	14 (46.7)	21 (70.0)	51 (56.7)
	Above 60 (old)	3 (10.0)	-	-	3 (3.33)
2.	Caste				
	General	25 (83.3)	28 (93.3)	29 (96.7)	82 (91.1)
	BC	3 (10.0)	2 (6.66)	-	5 (5.65)
	SC/ST	2 (6.66)	-	1 (3.33)	3 (3.33)
3.	Education				
	Illiterate	19 (63.3)	17 (56.7)	20 (66.7)	56 (62.2)
	Primary	2 (6.66)	4 (13.3)	1 (3.33)	7 (7.77)
	High school	3 (10.0)	5 (16.7)	7 (23.3)	15 (16.6)
	10+2	5(16.7)	3 (10.0)	1 (3.33)	9 (10.0)
	Graduate	1 (3.33)	1 (3.33)	1 (3.33)	3 (3.33)
4.	Family occupation				
	Service	10 (33.3)	7 (23.3)	5 (16.7)	22 (24.4)
	Farming	14 (46.7)	22 (73.4)	20 (66.7)	56 (62.2)
	Business	6 (20.0)	1 (3.33)	5 (16.7)	12 (13.3)
5.	Family education status				
	Low(1-4)	10 (33.3)	18 (60.0)	14 (46.7)	42 (46.7)
	Medium (4-8)	13 (43.3)	9 (30.0)	9 (30.0)	31 (34.4)
	High (above 8)	7 (23.4)	3 (10.0)	7 (23.3)	17 (18.9)
6.	Family type				
	Nuclear	20 (66.7)	16 (53.3)	16 (53.3)	52 (57.8)
	Joint	10 (33.3)	14(46.7)	14(46.7)	38 (42.2)
7.	Family size				
	Small (upto 4 members)	16 (53.3)	11 (36.7)	12 (40.0)	39 (43.3)
	Medium (5-6 members)	12 (40.0)	15 (50.0)	15 (50.0)	42 (46.7)
	Large (7 & above members)	2 (6.66)	4 (13.3)	3 (10.0)	9 (10.0)
8.	Type of house				
	<i>Pakka</i>	20 (66.7)	22 (73.3)	20 (66.7)	62 (68.9)
	Mixed	10 (33.3)	8 (26.7)	10 (33.3)	28 (31.1)
9.	Type of kitchen				
	Open kitchen	2 (6.66)	5 (16.7)	6 (20.0)	13 (14.4)
	Covered	22 (73.3)	19 (63.3)	19 (63.3)	60 (66.7)
	Semi	6 (20.0)	6 (20.0)	5 (16.7)	17 (18.9)
10.	Land holding				
	Landless (no land)	4 (13.3)	2 (6.66)	2 (6.66)	8 (8.88)
	Marginal (<2.5 acre)	13 (43.4)	12 (40)	11 (36.7)	36 (40.0)
	Small (2.5-5 acre)	9 (30.0)	11 (36.7)	12 (40.0)	32 (35.6)
	Medium (5-10 acre)	4 (13.3)	5 (16.7)	5 (16.7)	14 (15.6)
11.	Total monthly family income				
	Rs.10,000-30,000	21 (70.0)	22 (73.3)	19 (63.3)	62 (68.9)
	Rs.30,001-50,000	9 (30.0)	8 (26.7)	7 (23.3)	24 (26.7)
	Above Rs. 50,000	-	-	4 (13.3)	4 (4.44)

Table 2: Practices adopted for livestock management

Sr. No.	Variables	1-2 Animals n=(30)	3-4 Animals n=(30)	5-6 Animals n=(30)	Total n=90
1.	Type of animal				
	Cow	5 (16.7)	1 (3.33)	4 (13.3)	10 (11.1)
	Buffalo	22 (73.3)	17 (56.7)	10 (33.4)	49 (54.5)
	Cow, Buffalo & Ox	3 (10.0)	12 (40.0)	16 (53.3)	31 (34.4)
2.	Place of keeping animals				
	<i>Bada</i>	20 (66.7)	19 (63.3)	25 (83.3)	64 (71.1)
	Open area	10 (33.3)	11 (36.7)	5 (16.7)	26 (28.9)
3.A	Area of <i>Bada</i>	(n=20)	(n=19)	(n=25)	
	Up to 100sq.mt.	12 (60.0)	15 (78.9)	22 (88.0)	49 (76.6)
	100-200sq.mt.	8 (40.0)	3 (15.8)	2 (8.00)	13 (20.3)
	Above 200sq.mt.	-	1 (5.26)	1 (4.00)	2 (3.12)
B	Area of open area	(n=10)	(n=11)	(n=5)	
	Up to 100sq.mt.	6 (60.0)	9 (81.8)	4 (80.0)	19 (73.1)
	100-200sq.mt.	4 (40.0)	-	1 (20.0)	5 (19.2)
	Above 200sq.mt.	-	2 (18.2)	-	2 (7.69)

Type of animal: Finding in Table 2 illustrate that majority of the respondents (54.5%) in total sample and 73.3%, 56.7% & 33.4% respectively in the household with 1-2, 3-4 & 5-6 animals were having only buffalo whereas, 34.4% respondents in entire sample and 10.0%, 40.0% & 53.3% respectively in the household with 1-2, 3-4 & 5-6 animals had cow, buffalo & ox. Whereas few (11.1%) respondents in total sample and 16.7%, 3.33% & 13.3% respectively in the household with 1-2, 3-4 & 5-6 animals possessed cow.

Place of keeping animals: The data revealed that in aggregate sample majority of respondents 71.1% (66.7%, 63.3% and 83.3% respectively in the households with 1-2, 3-4 & 5-6 animals) were keeping animals in *bada*, followed by open area in 28.9%, 33.3%, 36.7% and 16.7% respectively in totality and households with 1-2, 3-4 & 5-6 animals.

Area of Bada: *Bada* size was up to 100sq.m.in 76.6% households and 60.0%, 78.9% & 88.0% respectively in the households with 1-2, 3-4 & 5-6 animals and 100-200 sq.m in 20.3% of entire sample and sample 40.0% in household with 1-2 animals and 20.0% in households with 5-6 animals. The area of *bada* above 200sq.m.was in 3.12% of households 5.33% in households with 3-4 animals and 4.00% in households with 5-6 animals.

Open area size: Size of open area in majority of the houses (73.1%) in aggregate and 60.0%, 81.8% & 80.0% respectively in the households with 1-2, 3-4 & 5-6 animals was up to 100sq.m. and 100-200sq.mt.in 19.2% composite sample and 40.0% in households with 1-2 animals & 20.0% in households with 5-6 animals) followed by above 200sq.m.in 7.69% of total sample and 18.2% in households having 3-4 animals.

Table 3: Work profile of respondent in dung collection

Sr. No.	Variables	1-2 Animals (n=30)	3-4 Animals (n=30)	5-6 Animals (n=30)	Total n=90
1.	Person involved in dung collection				
	Self and other female	29 (96.7)	27 (90.0)	25 (83.3)	81 (90.0)
	Others	1 (3.33)	3 (10.0)	5 (16.7)	9 (10.0)
2.	Number of times dung collected in a day				
	Once a day	—	—	3 (10.0)	3 (3.33)
	Twice	28 (93.3)	25 (83.3)	21 (70.0)	74 (82.2)
	Three and more	2 (6.66)	5 (16.7)	6 (20.0)	13 (14.5)
3.	Other person's help taken during activity				
	Yes	10 (33.3)	14 (46.7)	24 (80.0)	48 (53.3)
	No	20 (66.7)	16 (53.3)	6 (20.0)	42 (46.7)
4.	How many persons	(n=10)	(n=14)	(n=24)	
	One	9 (90.0)	11 (78.6)	11 (45.9)	31 (64.6)
	Two	1 (10.0)	3 (21.4)	8 (33.3)	12 (25.0)
	Three	—	—	5 (20.8)	5 (10.4)

Person involved in dung collection: Table 3 and Fig. 3 depict the frequency of person involved in dung collection activity. Inordinately majority of households in totality (90.0%) and also 96.7%, 90.0% & 83.3% in households with 1-2, 3-4 & 5-6 animals respectively dung collection activity was done by self and other female whereas in 10.0% households in entire sample and in 3.33%, 10.0% & 16.7% households with 1-2, 3-4 & 5-6 animals respectively dung collection activity was done by others.

Other person's help taken during activity: As per Table 3 and Fig. 3 majority of the respondents 53.3% in composite sample and 33.3%, 46.7% & 80.0% respectively in households with 1-2, 3-4 and 5-6 animals were taking help of other person during dung collection activity. However, remaining 46.7% in merged sample and 66.7%, 53.3% & 20.0% respectively in households with 1-2, 3-4 and 5-6 animal's respondent were not taking help of others during the activity.

Number of times dung collected in a day: Table 3 and Fig. 3 further depict the number of times dung collected in a day. Finding illustrate that majority of respondents 93.3%, 83.3% & 70.0% respectively in the households with 1-2, 3-4 & 5-6 animals and 82.2% in totally were collecting dung twice in a day and remaining 6.66% (1-2 animals), 16.7% (3-4 animals), 20.0% (5-6 animals) and (14.5% total) were collecting dung more than three times. Results further indicated that 10.0% households with 5-6 animals and 3.33% in aggregate were collecting once a day.

Number of persons: The Table 3 and Fig. 3 further indicate the other person's help taken during activity. Most of the respondents 64.6% in totality and 90.0%, 78.6% & 45.9% respectively in households with 1-2, 3-4 and 5-6 animals were taking help of only one person. While 25.0%, 10.0%, 21.4% & 33.3% respectively in whole sample and households with 1-2, 3-4 and 5-6 animals were taking help of two persons and rest of 10.4% in overall sample and 20.8% in households with 5-6 animals category required the help of three person's during dung collection activity.

Table 4: Use of dung by the respondents

Sr. No.	Variables	1-2 Animals (n=30)	3-4 Animals (n=30)	5-6 Animals (n=30)	Total n=90
1.	Use of collected dung				
	Preparation of dung cake	29 (96.7)	29 (96.7)	24 (80.0)	82 (91.1)
	Dung cake and vermicomposting	1 (3.33)	1 (3.33)	6 (20.0)	8 (8.88)
2.	Reasons of dung collection				
	Save money	30 (100)	30 (100)	30 (100)	90 (100)
	No other choice	23 (76.7)	12 (40.0)	26 (86.7)	61 (67.8)
	Technological barrier	15 (50.0)	18 (60.0)	19 (63.3)	52 (57.8)
	Family need	6 (20.0)	5 (16.7)	7 (23.3)	18 (20.0)

Use of collected dung: Table 4 presents the information pertaining to use of dung. The maximum respondents 96.7 % (each in households with 1-2 & 3-4 animals category), 80.0% in households with 5-6 animals were using dung for making dung cake. Whereas, dung was used for making dung cake and vermicomposting by 20.0% of household with 5-6 animals, 3.33% (each in household 1-2 & 3-4 animals). In total samples 91.1% were using dung for preparation of dung cake and 8.88% respondents for dung cake and vermicomposting.

Reasons of dung collection: Table 4 presents the reason of dung collection activity by the respondents. Cent percent of

them reported that main reason for dung collection activity was to save money.

Majority of them were involved in dung collection as they have no other choice 67.8% in total sample (76.7%, 40.0% & 86.7% respectively in households with 1-2, 3-4 and 5-6 animals) and the deep rooted, technological barrier was reported as the reason of dung collection by 57.8% of respondents in total sample (50.0%, 60.0% & 63.3% respectively in households with 1-2, 3-4 and 5-6 animals). Family need was the reason for dung collection in 20.0% of aggregate sample and 20.0%, 16.7% & 23.3% of the respondents with 1-2, 3-4 & 5-6 animals respectively.

Table 5: Practices adopted in dung collection

Sr. No.	Variables	1-2 Animals (n=30)	3-4 Animals (n=30)	5-6 Animals (n=30)	Total n=90
1.	Tool used for dung collection				
	<i>Tasla & Indi</i>	30 (100)	30 (100)	30 (100)	90 (100)
	<i>Jhadu</i>	28 (93.3)	29 (96.7)	27 (90.0)	84 (93.3)
	<i>Faura</i>	2 (6.66)	1 (3.33)	3 (10.0)	6 (6.66)
2.	Distance covered for dung transportation two way				
	Less than 750 meter	20 (66.7)	24 (80.0)	20 (66.7)	64 (71.1)
	750-1500 meter	7 (23.3)	1 (3.33)	7 (23.3)	15 (16.7)
	Above 1500 meter	3 (10.0)	5 (16.7)	3 (10.0)	11 (12.2)
	Mean	406.6m.	531.3m.	506m.	573.88m.
3.	No. of trips taken for dung collection				
	One	—	1 (3.33)	—	1 (1.11)
	Two	25 (83.3)	3 (10.0)	2 (6.66)	30 (33.3)
	Three and more	5 (16.7)	26 (86.7)	30 (93.3)	59 (65.6)
4.	Weight carried per trip				
	10-20 kg	20 (66.7)	16 (53.3)	3 (10.0)	39 (43.3)
	21-30 kg	10 (33.3)	5 (16.7)	23 (76.7)	38 (42.2)
	Above 30 kg	—	9 (30.0)	4 (13.3)	13 (14.5)
	Mean	15.8 kg	18.5 kg	18.7 kg	17.6 kg
5.	Time spent during the collection of dung				
	Less than 1 hour	25 (83.3)	7 (23.3)	—	32 (35.6)
	1-2 hour	5 (16.7)	16 (53.3)	23 (76.7)	44 (48.9)
	Above 2 hour	—	7 (23.3)	7 (23.3)	14 (15.5)
	Mean	74 min.	82.8min.	123.6min.	93.6min.
6.	Type of footwear				
	Bare footed	2 (6.66)	1 (3.33)	1 (3.33)	4 (4.44)
	Slipper	7 (23.3)	10 (33.3)	14 (46.6)	31 (34.4)
	Boots/Shoes	21 (70.0)	19 (63.3)	15 (50.0)	55 (61.1)

Tool used for dung collection: Data in Table 5 reveals that in dung collection activity, *tasla & indi* was used by cent percent of respondents. *Jhadu* was used by 93.3% of respondent in total sample and 93.3%, 96.7% & 90.0% respectively in households with 1-2, 3-4 and 5-6 animals, followed by *Faura* by 6.66% in composite sample and 6.66%, 3.33% & 10.0% respectively in households with 1-2, 3-4 and 5-6 animals.

Distance covered for dung transportation two ways: Results in Table 5 revealed that majority of respondents 71.1%, 66.7%, 80.0% & 66.7% respectively in totality and in households with 1-2, 3-4 and 5-6 animals and covered distance of 750 meter for dung transportation. Distance of 750-1500 meter was covered by 16.7% (total sample) 23.3% (each by respondents having of 1-2 & 5-6 animals) and 3.33% (respondent with 3-4 animals). The distance of above 1500 meter was covered by 12.2% of respondent in composite sample and 10.0% each by respondents having of 1-2 & 5-6 animals and 16.7% of respondents having 3-4 animal. Average of distance travelled was 573.88m.

Number of trips taken for dung collection: Table 5 also discloses that most of respondents 93.3% in household with 5-6 animals, 86.7% in household with 3-4 animals and 16.7% in household with 1-2 animals were conducting three and more trips and in composite sample 65.6% were carrying out 3 and more trips. While, 83.3%, 10.0% & 6.66% respectively in the households with 1-2, 3-4 and 5-6 animals and 33.3% in total sample were carrying two trips. Only 3.33% household with 3-4 animals was carrying one trip in a day.

Weight carried out per trip: Table 5 shows that most of the respondents 43.3% in aggregate and (66.7%, 53.3% & 10.0% respectively in households with 1-2, 3-4 and 5-6 animals) carried out 10-20 kg of dungs per trip and 21-30 kg of weight was carried out by 42.2% in aggregate and 33.3%, 16.7% & 76.7% respectively in households with 1-2, 3-4 and 5-6 animals. Whereas, 14.5% of respondents in total sample and 30.0% & 13.3% respondents having 3-4 & 5-6 animal respectively carried more than 30 kg of dung per trip. Average 17.6 kg of dung was carried by them.



Fig 1



Fig 2

Time spends during the collection of dung: Table 5 describes the average time spent by rural women for dung collection activity. Maximum time spent was 1-2 hour by 48.9% of respondents in total sample and 16.7%, 53.3% & 76.7% of the respondents having 1-2, 3-4 & 5-6 animals respectively. Less than 1 hour was spent by 35.6% respondents in aggregate sample and 83.3% & 23.3% of the respondents having 1-2 & 3-4 animals respectively. Whereas, 15.5% of total respondents and 23.3% each in household with 3-4 & 5-6 animals were spending above 2

hour during the collection of dung. The average time spent in dung collection activity was 93.6 min.

Type of footwear: Majority of the respondents, 61.1% of amassed sample and 70.0%, 63.3% & 50.0% respectively in households with 1-2, 3-4 and 5-6 animals were wearing boots/shoes while collecting dung. Whereas, 34.4% in composite sample and 23.3%, 33.3% & 46.6% respondents respectively in households with 1-2, 3-4 and 5-6 animals wore slipper during dung collection activity. Only few respondents, 4.44% of total sample and 6.66% & 3.33% in households with 3-4 and 5-6 animals were bare footed while doing dung collection activity.

Conclusion

Nearly two-third of Indian population lives in the villages and depends mainly on agriculture and other related occupations for their livelihood. They work very hard, but live a poor life due to number of constraints, such as poor village community facilities and resources. Dung is acknowledged as a resource in rural scenario. Cattle dung has a significant place in everyday life in rural India, thus is managed daily. The major finding of socio-economic characteristics of the respondents reveals that maximum of them were in the age group of 41-60 yr (56.7%), belonged to general category (91.1%), were illiterate (62.2%), farming was family occupation (62.2%), had low family education status (46.7%) and nuclear families (57.8%) with medium size family (46.7%). They had *pakka* house (68.9%) with covered kitchen (66.7%). Most of them had less than 2.5 acre of land (40.0%) and earned between Rs.10,000-30,000 (68.9%). Sowjanya (2014) ^[10] remarked that, maximum of the respondents (65.00%) were, 30-50 years of age group, 47.50% of the respondents were illiterates, nearly fifty three per cent of the respondents had 5-8 family members and majority (64.17%) of the respondents had low experience in dairy farming. Majority of respondents were having buffalo (54.5%) which was kept *bada* (71.1%) of size upto 100sq.m. dung was collected by 90% of home maker and other female twice a day (82.2%) Findings of Gandhi et.al (2012) were also in line which revealed that maximum number of women were involved in collecting dung (73.0%) followed by cleaning cattle shed (72.5%), feeding animals (71.0%) Respondents spending maximum time in a day on fodder collection (118 min.) feeding animals (54 min.) and collecting dung and making dung cakes (42 min.). Majority of respondents were prepared dung cake (91.1%) to save money and were using *Tasla & Indi* for dung collection, respondents covered distance around 750 mt for dung transportation. Mande and Thombre (2009) ^[7] revealed that 50.00 per cent of cattle owners possessed small herd size (up to 4 animals), followed by medium herd size (31.67%) i.e., 5 to 10 animals and big herd size (18.00%) i.e., above 10 animals. About three fourth (71.1%) were having *bada* followed by open area (28.9%) for keeping animals and size of *bada* was up to 100sq.m. the findings were in line with Gandhi, et.al. 2014 who reported that maximum respondents kept their animals in home and its periphery (63.3%) and dumps the dung in *bada* (63.3%) an open place where they dump the dung and make the dung cakes and its storage. Result further found that 43.3% of women carried 10-20 kg dung per trip and about half of them, (48.9%) were spending 1-2 hour in dung collection activity and 61.1% were wearing boots/shoes

during the dung collection. Alike to the findings Gite *et al* (2009) ^[4] found that at 5th & 95th percentile, average weight of Madhya Pradesh farmwomen was 33.3 and 45.9 kg, respectively, thus, were able to carry load of 10 to 17 kg.

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