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Work environment related issues in Indian dairy farms

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Abstract

Milk and milk products are daily essentials of life and an important part of a balanced diet. It is brought home to us through the efforts of people working in dairy farms who work in difficult conditions to make this possible. In India, dairying is one of the oldest occupations providing a means of livelihood to many, yet the work conditions of the dairy farmers in commercial setups is poor as this falls in the unorganized sector. They work long and hard every day of the year in unsuitable work environment, exposing them to various health problems, accidents and injuries. The present study was undertaken to assess various issues related to work environment in the dairy farms in terms of workplace layout, noise levels, ventilation, lighting, thermal factors, odour and cleanliness. Six dairy farms were chosen for the investigation. Purposive sampling technique was used to select sixty dairy workers (10 from each dairy) and six dairy owners to gain insight into the facilities provided to the employees. The activities performed by the dairy workers ranged from fodder collection, milking, chaffing the fodder, mixing green fodder with roughage, feeding the animals, providing water to animals to cleaning of animal shed, washing and grooming animals. Dairy farming involved strenuous activities as the workers adopted postures like bending and squatting for milking animals, collecting dung and cleaning animal sheds for long hours which increased the static muscular effort resulting in physiological cost and low productivity. It is the responsibility of the employer to provide a safe workplace and duty of the employee to follow the safety rules. A safe and healthy work environment will not only enhance productivity of the employees but also improve goodwill and profit.

Keywords: Dairy workers, ergonomics, work environment, MSDs

1. Introduction

Indian dairy sector is dominated by millions of rural smallholder milk producers, contributing to 62% of the total milk production in the country. The dairy sector today provides 80 million farm households with the benefits of nutritive food, supplementary income and productive employment for family labour (FAO, 2007). There are some organized dairies under government and non-government organizations but most of them are covered under unorganized sectors (Joseph, 2012; Chaturvedi, 2014).

The most desirable economic feature of India's small-scale dairy industry in the present era is low energy consumption in milk production compared to developed countries. This is due to:

- The use of animal and human power in producing fodder and feed;
- Feeding of crop by-products such as straw, rice bran, cottonseed and oilseed cakes whose production does not require any additional energy;
- The predominance of grazing over stall-feeding;
- the use of human power for milking, tending and disposal of animal wastes including dung;
- Keeping animals in low-cost sheds or in the open;
- Relatively low consumption of concentrated feeds.

However, the forces of economy have pushed increased efficiency in animal production. In their efforts to lower per unit production cost, small scale operations are becoming fewer in number, and more cost effective large scale operations are increasing so that there are fewer but larger dairies. At the same time, when the concentration of animals is increasing, there has been a decrease in the number of workers employed. Increasing the number of animals per worker may increase the worker's risk of injury and illness, which are costly on the job and damaging – both for the individual employees as well as for the dairy (Western Centre for Agricultural Health and Safety, 2010).

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Dairy farming is physically demanding and associated with various risk factors. Dairy farm activities includes taking animals for grazing, milking, cleaning animal shed, storage of fodder, transportation, disposal of cow dung, etc.

Major determinants of the farmer's exposure to hazards in a dairy farm are herd size, labour force, geography and degree of automation. A dairy farm may be a small family business milking 20 or fewer cattle per day, or it may be a corporate operation using three shifts of workers to feed and milk thousands of cattle around the clock. In regions of the world where the climate is quite mild, the cattle may be housed in open sheds with roofs and minimum walls. Alternatively, in some regions, barns must be tightly closed to preserve sufficient heat to protect the cattle and the watering and milking systems. All of these factors contribute variably to the risk profile of the dairy farmer (Chauhan and Dayal, 2008).

It is well known that dairy farming is associated with demanding and hazardous risk factors, such as difficult working postures and movements and repetitive and monotonous work tasks giving rise to musculoskeletal disorders. In addition to being exposed to risk factors for musculoskeletal disorders, the dairy workers are exposed to other ergonomic risk factors such as work space layout, thermal factors, noise levels, cleanliness and odour (Cecchini *et al.*, 2005).

Several studies have been conducted on dairy farmers focusing on MSDs. But productivity of workers is a combined factor of work, worker and workplace as a whole. One has to look into the environmental factors as well aspects influencing worker productivity.

Certain laws and rules have been framed by the Indian government to ensure the safety of workers at their workplace. Some general laws covering issues of wages, working hours are being practiced in India. However, no specific laws addressing the occupational health and safety of the workers involved in unorganized sectors have been specifically framed. The workers in the unorganized sector constitute about 93% of the total work force in the country.

The government has been implementing some social security measures for certain occupational groups but the coverage is miniscule. Majority of the workers are still without any social security coverage (Ministry of Labour and Employment).

2. Methodology

This study was a purposive research conducted in the dairy farms of Gazipur district of Uttar Pradesh. The locale of study is marked by mass poverty, unemployment, lack of diversification of economic activities and lack of enterprise. Most of the people reside in rural areas and are associated directly or indirectly with dairy farming. Six dairy farms of Gazipur district, Uttar Pradesh were selected where two categories of people formed part of the study. The first category included ten dairy workers from each unit involved in various dairy farm activities, making it a total of 60 workers. The second category consisted of owners of the dairy farms to gain insight into the work conditions and the safety related provisions made by them for the dairy workers. Interview schedule were prepared for the workers to obtain information about how they perceived the work environment in terms of work space layout, noise levels, lighting, ventilation, odour, thermal factors and cleanliness of the animal sheds. The existing work conditions of the dairy farmers in terms of workplace layout of the dairy farm, work environment of the workers and the equipment used by them were also closely observed. Chi-square was administered to find out the relationship between the work environment as perceived by the workers with their age as well as the number of activities performed.

3. Results

Work environment should be such that it enhances the indoor comfort of the occupants to improve their work efficiency. It includes factors like the air quality, access to daylight, pleasant acoustic conditions, illumination and good thermal comfort. The following table (Table 3.1) shows the level of lighting and ventilation provided in the dairies.

Table 3.1: Aspects related to Indoor Comfort

S. No.	Information	Frequency (N=6)
Ventilation		
1	Natural ventilation	0
2	Exhaust fans	2
3	Mechanical ventilation	4
Type of lighting fixture*		
1	LED	0
2	CFL	3
3	Incandescent bulbs	6
	Tube-lights	0
No. of Lighting fixtures		
1	<5	5
2	5-10	1
3	>10	0

*multiple options obtained

Observations revealed that the lighting and ventilation levels were very poor in the selected dairy farms. None of the units had any source of natural ventilation. Forced ventilation was provided through exhaust fans and ceiling fans. The dairies had bad odour and high levels of humidity. Lighting in all the six farms was through incandescent lamps which increased temperature levels. Only three had supplemented their lighting with CFL lamps. The dairy owners themselves felt a

need to improve lighting and ventilation in their units. Such improvements will also result in better productivity. Informal discussions with dairy owners also revealed that they were dissatisfied with the layout of the farms but expressed helplessness to improve it due to paucity of space.

The workers were also unhappy with the working conditions within the dairies as revealed in Table 3.2 though the remuneration and perks were satisfactory.

Table 3.2: Physical environment of the dairies as perceived by the employees

Information		5	4	3	2	1	Av.Score	
Physical conditions	Workplace Environment	Workplace layout	0	0	19 (31.67)	36 (60)	5 (8.33)	2.2
		Spaciousness	0	0	21 (35)	35 (58.33)	4 (6.67)	2.3
	Noise levels	Due to People/cattle	0	0	22 (36.67)	32 (53.33)	6 (10)	2.3
		Due to Equipment	0	10 (16.67)	38 (63.33)	12 (20)	0	3
	Ventilation		0	0	0	18 (30)	42 (70)	1.3
	Lighting	Daylight	0	0	0	13 (21.67)	47 (78.33)	1.2
		Artificial light	0	0	0	26 (43.33)	34 (56.67)	1.4
	Thermal Factors	Heat	0	0	0	33 (55)	27 (45)	1.5
		Cold	0	0	2 (3.33)	36 (60)	22 (36.67)	2.3
		Draughts	0	0	2 (3.33)	34 (56.67)	24 (40)	1.6
	Smell/odour		0	0	0	1 (1.67)	59 (98.33)	1
	Cleanliness of animal-shed		0	0	0	13 (21.67)	47 (78.33)	1.2
	Total							21.3
Maximum marks obtainable							60	
5- Very good; 4- Good; 3- Moderate; 2- Poor; 1- Very poor								

Note: Figures given in parentheses denote percentages

Most of the respondents rated the workplace layout and spaciousness of workplace from moderate (31.7% and 35% respectively) to poor (60% and 58.3% respectively). Observations revealed that workplace layout and spaciousness of the workplace were not satisfactory. Workers had to walk a lot while storing the fodder sacs and carrying milk cans for loading resulting in various injuries and MSDs. The workflow within the dairies was also not appropriate.

The noise levels due to people and/ or cattle was rated poor (53.3%). However, nearly 63% of the respondents were not very disturbed by noise caused by equipments, reason being that the selected dairies were not mechanized and hence the tasks were performed manually; the equipments in question were only containers which did not make much sound.

Ventilation and daylight were rated as very poor (70% and 78.3% respectively). Artificial lighting was rated as poor (43.3%) to very poor (56.7%). According to the observations made, there was no provision of window or ventilator in the dairies. Forced ventilation was not sufficient as per the requirement of the occupants; out of six dairies, only two had exhaust fans while the rest of them had mechanized ventilation. Incandescent bulbs and CFLs were installed for artificial lighting.

Most of the workers rated the thermal factors (heat, cold and draught) from poor to very poor which shows that it was very hot in summers and very cold in winters. Majority of the respondents (>95%) rated the odour as very poor. Cleanliness of the shed was rated from poor (21.7%) to very poor (78.3%). All the parameters received very low scores, maximum being 3 for noise due to equipments which was least disturbing. Average score obtained for physical work environment was 21.3 out of 60 which only 35.5% is.

Workers employed in dairy farms worked in adverse conditions such as insufficient lighting and ventilation levels, bad odour, high noise levels, poor sanitary conditions, high humidity levels. However, no association was found between work environment as perceived by the workers vis-à-vis their age as well as the number of activities performed by them.

The findings were highly insignificant at 5% level.

The workers were not greatly affected by layout and spaciousness of the workplace probably because they had not given it enough consideration, though it was rated poor by some. Noise levels by people/cattle and equipment was also not a factor disturbing them to a great extent. However, lighting, ventilation, thermal factors, odour and cleanliness were rated poorly indicating a vast scope for improvement in work conditions in these dairies.

4. Conclusion

Dairying is an integral component of Indian rural households. It represents one of the largest and fastest growing sectors. Dairying activities includes milking, cleaning animal shed, feeding the cattle, carrying and loading milk containers, bathing the animals etc. These activities are repetitive and carried out in awkward postures which results in the development of MSDs. Dairy workers have to work in unfavourable working conditions. Low lighting and ventilation levels, thermal factors, bad odour, noise, high humidity levels are some of the attributes affecting the workers' productivity. Prevalence of pests in the dairy farms is also a matter of concern. Ignorance of factors causing health problems and indifference to matters affecting productivity and safety of workers needs to be addressed effectively. This will not only improve work conditions but also worker output in a safe environment.

5. References

1. Cecchini M, Monarca D, Porceddu P. Workers' safety in milking premises. *Journal of Agriculture Safety and Health*, 2005; 11: 293-300.
2. Chauhan D, Dayal R. An Ergonomic Assessment of Work Stress of Dairy Workers in terms of Musculo-Skeletal Problems during Cleaning of Cattle-Shed. *Asian Journal of Home Science*. 2008; 3(1): 1-3.
3. FAO. *Agro-Industries Characterization and Appraisal: Dairy in India*. Retrieved on 25th December, 2015 from

2007. <http://www.fao.org/docrep/016/ap299e/ap299e.pdf>
4. <http://www.labour.nic.in/labour-welfare>, 24 December, 2015
 5. Joseph MK. Village Milk Cooperatives in Kerala; Kalamassery 2012, 2.
 6. Western Centre for Agricultural Health and Safety. (2010), Dairy Safety Training Guide. Retrieved on 21st December, 2015 from <https://www.dir.ca.gov/chswc/WOSHTEP/Publications/DairyTrainingGuide.pdf>