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Rameswar Panda
Phd Scholar,
Department of Livestock Production Management,
West Bengal University of Animal and Fishery Sciences University, Kolkata, India

Rajashree Samanta
Professor, Department of Livestock Production Management, West Bengal University of Animal and Fishery Sciences University, Kolkata, India

Correspondence
Rameswar Panda
Phd Scholar, Department of Livestock Production Management, West Bengal University of Animal and Fishery Sciences University, Kolkata, India

A brief description on labour requirement in a dairy farm

Rameswar Panda and Rajashree Samanta

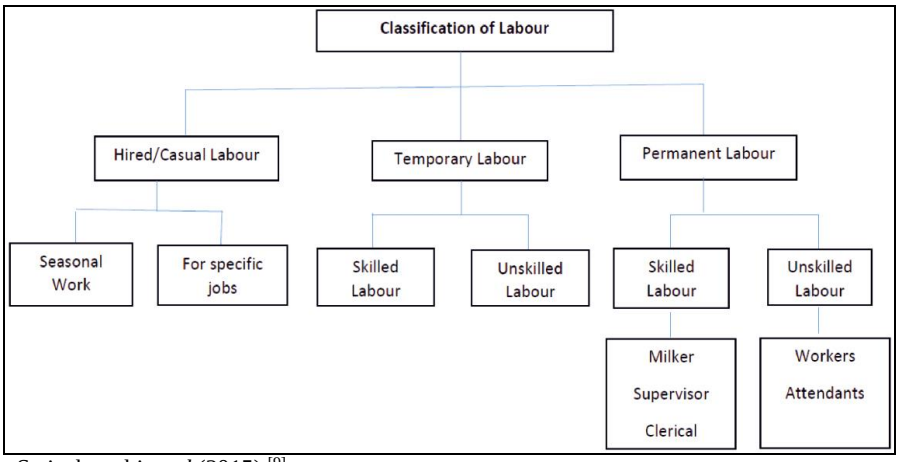
Abstract
Labour management in a dairy farm is an essential tool for optimizing overall performance of the animals. In autonomous milking system, labour utilization is efficient and demand for physical work force is less. As far as labour requirement for drinking and watering is concerned, pregnant and milch animals receive higher volume of labour efforts compared to other category in a dairy farm.

Keywords: Labour management, drinking and watering, milch animals

Introduction
Land, labour and capital are the three primary resources in a dairy farm. Livestock sector provides on an average 35 million human employment per year ((http://www.agriinfo.in). Labor management practices in agriculture are a marginally and fragmentally researched subject with limited theoretical background in agricultural economics (Mugera and Bitsch, 2005) [7]. Labour is the most critical resource and cost of the labour is second to the cost of feeding. Estimation of labour required for different dairy farm activities reduces the wastage of labour force. Labour requirement of a dairy farm depends upon various factors viz. the efficiency of labourers, species, type and number of animals maintained, feeding practices, the design of animal housing, the degree of mechanization etc. Growing competition has led to continuing consolidation and increasing reliance on hired labor. Availability of employees is the most common pre-expansion labor management challenge for dairy farmers. Problems after expansion include evaluating employees, achieving performance goals for employees, finding qualified employees, and training (Hadley, Harsh, and Wolf). After expansion, dairy farmers spent less time on farm work and more time managing employees, which they perceive as a key challenge (Bewley, Palmer, and Jackson-Smith). The average total labour requirement was lower in loose cow sheds than in tie-stalls. The dairy farming is a labour intensive enterprise as compared to crop production and other allied enterprises. It has been estimated that on an average one person can look after all activities of 10 milking animals along with their followers excluding the work of harvesting of fodder. Therefore in case one decides to set up a new farm about:

a. A half of the workers should have earlier experience of working at a dairy farm.
b. Two or three workers have to be trained for the specialized jobs at the dairy farm such as AI, first aid, identification, de-worming etc. (http://www.dairyfarmguide.com)

Labour requirement for milking operation
In milk-production system, one labour can look after 11 milch animals or 27 dry cows or heifers under stall feeding conditions (Devarajulu and Naidu. 1989) [4]. One milker might be required for milking about 16 buffaloes yielding 8 to 8.5 kg milk per day. The total time spent for milking operation was 14.26 ± 0.56 man-minutes per milch animal per day (Sreedhar and Ranganadham, 2009) [10]. Total labour required for milking and related activities for machine milking is 17.29 minutes. Annual labour input per cow for the milking process tasks on small (<50 cows), medium (50 – 80 cows) and 14.8 seconds/cow, respectively (Bishist, 2006) [3]. The farms with automatic milking systems used on an average 3.0 Minutes per cow per day, whereas the farms under conventional milking system used on an average 5.3 minutes per cow per day, with a saving of 2.3 minutes per cow per day (Oudshoorn *et al.*, 2012) [8].



Satiyabarathi *et al* (2015) [9]

Table 1: Labour requirement for drinking and watering of the animals

Category of animals	Feeding (man mints/animal/day)	Watering(man mints/animal/day)
Milch	8.31	1.92
Pregnanant	4.02	1.87
Dry	3.74	1.84
Calves	2.86	3.80
Heifers	1.31	1.89
Bulls	3.88	2.50
Bullocks	6.33	2.22

(Sreedhar and Ranganatham, 2009) [10]

Table 2: Labour requirement of feeding in AFS and CFS

Activity	Conventional Feeding System (CFS)	Automatic Feeding System (AFS)
Feeding (man minutes/120 cows)	202.3	65.2
Feeding distribution (times/day)	3.5	7.8

Table 3: labour requirement for cleaning and washing of animals and animal shed

Category	Time taken (man minutes/animal/day)
Cleaning milch animal shed	3.70±0.55
Cleaning pregnant animal shed	3.95±0.72
Cleaning dry animal shed	3.88±0.47
Washing of milch animals	6.12±0.54
Washing of pregnant animals	4.52±0.88
Washing of dry animals	4.86±0.49
Washing of calves	3.83±0.48
Washing of heifers	4.82±0.35
Cleaning of calf shed	2.95±0.33
Cleaning of heifer shed	3.99±0.35
Cleaning of bull shed	4.25± 0.92
Cleaning of bullocks shed	3.83±0.92
Washing of bulls shed	5.50±1.01
Washing of bullocks shed	4.17±0.87

Labour requirement in various operations and miscellaneous works in a dairy farm

It includes labour power required on a farm for treatment, vaccination, deworming, dehorning, branding, and artificial insemination etc. The total time taken for various operations in milch, pregnant and dry animals is 38.64±0.73, 27.00±1.04 and 17.90±0.44 man-minutes per animal per day respectively. The time spent on miscellaneous works of calves and heifers was 0.29±0.30 and 1.22±0.34 man-minutes per animal per day respectively. The total time taken for various operations in calves and heifers was 11.67±0.99 and 20.10±0.37 man-minutes per animal per day respectively. The total time taken for various operations in bulls and bullocks was 32.96±1.19 and 22.56±0.79 man-minutes per animal per day respectively (Sreedhar and Ranganatham, 2009) [10].

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