Indian Journal of Agriculture Business
Volume 8 Number 2, July - December 2022
DOI: http://dx.doi.org/10.21088/ijab.2454.7964.8222.1

Orignal Article

Manpower Utilization in New Born Management Activities in Organized Swine Farm

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How to cite this article:
Mamta, Mukesh Singh, Manav Singh, *et al.*/Manpower Utilization in New Born Management Activities in Organized Swine Farm/Indian Journal of Agriculture Business 2022;8(2):49–52.

Abstract

Rearing of pigs in India is predominantly occupied by marginal, small and semi-medium farmers which are mostly following unorganized system of pig production. Intensive pig production has been grown all around the world and also have quite a potential in India as well. Labour in an organized farm is the most critical resources which influences the profitability of it. Information about the manpower utilization for various pig farm operations is essential for the viewpoint of manpower deployment and management. A Time motion study was conducted at Swine Production Farm, IVRI, Izatnagar, Bareilly, Uttar Pradesh to find out the existing manpower utilization in new born management activities for litters belonging to Desi, Landrace, and Crossbred breed dams. Three litters consisting of 7 piglets each were utilized to record the time spent in different management activities in each group of dam. The time spent in cleaning of farrowing pen was significantly higher ($p<0.05$) for Desi dam than the landrace and Crossbred dams. Time spent in attending new borne activities was also significantly higher ($p<0.05$) for Desi dam than the landrace and Crossbred dams.

Keyword: pigs; manpower; new born management; Desi; Landrace; and Crossbred dams.

INTRODUCTION

In India pig rearing and pork industry are in the hands of traditional pig keepers belonging to the lowest socio-economic stratum.[2] Rearing of pigs in India is predominantly occupied by marginal (52.36%), small (20.9%) and semi-medium (15.42%) farmers[1] and mostly they are following unorganized system of pig production as simple backyard pigs, pigs living on garbage belts to family operated farms. Intensive pig production has been grown all around the world and has increased with greater pace in Asian countries in more recent years.[3] Restructuring of farms and agribusinesses is constantly occurring through mergers, consolidations and reorganization.[4] Growth in pig production industry has been accompanied by a shift to confinement farms and farms with multiple sites and by the use of many cost saving technologies.[5] Labour is an important resource in the seven day-a-week piggery business

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Received on: 11.05.2022 **Accepted on:** 14.06.2022

in an organized farm. Manpower is the most critical sources which influences the profitability of pig farm. Efficient use of labour is an indicator of productivity and key to profitability. Hired labour account for a large share of production cost for hog production 10%.[7] Labour cost has the distinction of being somewhat more flexible within the operator's management strategy. Types of labour activities included also influences the total amount of labour required i.e, labour demand is different for different systems of practices involved in pig production. Thus a research is needed to examine the labour requirement in these systems of production. For this purpose we first need the basic labour information in the present existing system. Labour has not been optimized as much as animal productivity, feeding and housings. Limited studies has been done in the field of manpower utilization in pigs farms in other (developed) countries where the pig farms are well organized and mechanized so their recommendations cannot be validated in Indian conditions. To get some idea of efficiency, we must have basic information about the minimum time required to finish a task. Present study is an effort to give information about the time required to clean the farrowing pen after farrowing and manage mental activities related to attending new born by a full efficient labour in presence of a supervisor.

MATERIALS AND METHODS

The present study was conducted at Swine Production Farm, IVRI, Izatnagar to find out the manpower requirement in different new born related activities under contractual labourers. The farm is well organized, and maintained animals of Landrace, Desi and Crossbred (50% and 85%) breeds. The study was done with three litters consisting of 7 piglets in each litter belonging to Desi, Landrace, and Crossbred breed dams to record the time spent in different sub activities involved in cleaning of farrowing pen after farrowing and attending new born piglets. Two labours and one technical person as supervisor were engaged in these activities. Stopwatch was used to record the Man sec consumed in removing piglets, removing bedding material, sweeping of the covered and open area, washing of the covered and open area of the pen, and putting the piglets back. For activities related to attending the newborns, time spent in removing piglets, naval cord cutting and its disinfection by swabbing with tincture iodine, Needle Teeth cutting, temporary identification by marking specific number over the body with silver nitrate dye, and finally putting the piglets back was recorded. The data was analyzed by standard statistical methods as per Snedecor and Cochran, (1989).[6] Significance was declared at P≤0.05.

RESULTS AND DISCUSSION

Cleaning of farrowing pen after parturition

The results (Table1 and Fig. 1) shows the time required in different activities in newborn management viz; collecting, removal of bedding material, sweeping of covered area, sweeping of open area, washing of the floor area and putting the piglets back to the dam pen for 7 piglets. Manpower required in this unit operation was found 685±11.88 man-sec/dam, 550.50±12.87 man-sec/dam, and 550.00±8.22 man-sec/dam, for Desi, Landrace and Crossbred dams respectively. This operation required 2 labours at a time for efficient working.

Time required in different activities in cleaning operation of farrowing pen after farrowing except collecting piglets at dam did not differ for the Desi, Landrace, and Crossbred dams. Time required for collecting the piglets was found significantly higher for Desi dam than other two breeds of dams. This was because the Desi breed has more maternal instinct, and it becomes more furious when the newborns were approached by labourers for taking out of the pen.

Attending new borne

Total manpower required in attending new born involving two labours thus calculated was found 279.14±7.15 man-sec/piglet, 251.43±9.12 man-sec/piglet, and 289±6.89 man-sec/piglet for the piglet of Desi, Landrace and Crossbred dams respectively.

Time required in different activities of needle teeth cutting, naval cord cutting and application of tincture iodine, temporary tattooing did not differ for the piglets of Desi, Landrace, and Crossbred dams. Total manpower required in attending new born was found significantly higher for piglets of Desi dam than other two breeds of dams. This was because the time required for collecting the piglets was found significantly higher for Desi dam. Time required in all activities did not differ significantly for Crossbred and Landrace litters.

Table 1: Manpower utilization in *Cleaning of Farrowing* pen after farrowing.

Breed of dam	Time req. in piglet collection (man-Sec)	Time req. in bedding removal (man-Sec)	Time required in SCA (man-Sec)	Time required in SOA (man-Sec)	Time req. in WCA (man-Sec)	Time req. in WOA (man-Sec)	Time req. in putting piglet back to pen(man-Sec)	Man-powerreq. in operation (man-Sec/dam)	Total Manpower req. in operation (man-Sec/ dam)
Total Man-power req. in operation (man-Sec /dam)	181.25± 5.62a	258.00± 14.26a	42.25± 3.47a	65.75± 5.39a	23.50± 0.65a	71.25± 5.59a	43.25± 2.14a	685.25± 11.88a	1370.5± 23.76a
Landrace	61.00± 4.53b	229.50± 6.99b	38.75± 3.97a	56.00± 1.73a	22.25± 0.75a	96.75± 2.78a	46.25± 3.75a	550.50± 12.87b	1101± 25.74b
Crossbred	59.75± 3.25b	233.50± 6.30b	41.00± 2.74a	60.00± 6.54a	22.25± 1.49a	85.75± 3.15a	47.75± 1.75a	550.00± 8.22b	1100± 16.44b
Overall Mean	100.67± 17.35	240.33± 6.40	40.67± 1.84	60.58± 2.87	22.67± 0.57	84.58± 3.79	45.75± 1.51	595.25± 20.06	1190.5± 40.12

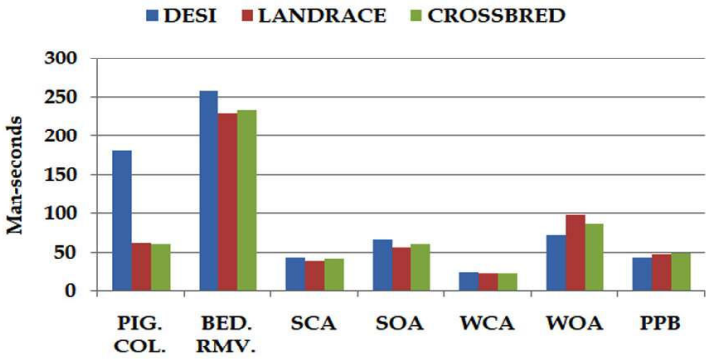

Fig. 1: Overall manpower utilization pattern in cleaning of farrowing pen after farrowing

Table 2: Manpower required in *New Born Management* activities of different breeds per piglet (n= 21)

Dam breed	Time req. in pigletz collection (man-Sec)	Time req. in needle teeth cutting (man-Sec)	Time req. in naval cord cutting (man-Sec)	Time req. in temp. tattooing (man-Sec)	Time req. in putting piglet back (man-Sec)	Manpower req. in NBM activities (man-Sec/ piglet)	Man-sec required per piglet (man-Sec/ piglet)
Desi	25.14± 0.90	29.00± 1.56	31.38± 1.98	44.43± 2.56	9.62± 0.32	139.57± 3.58	279.14± 7.15
Landrace	13.33± 0.60	29.52± 1.69	31.52± 1.54	41.95± 2.69	9.38± 0.37	125.71± 4.56	251.43± 9.12
Cross bred	19.05± 0.69	32.62± 1.64	33.24± 1.39	49.52± 2.52	10.19± 0.51	144.62± 3.45	289.24± 6.89
Overall Mean±SE	19.17± 0.74	30.38± 0.95	32.05± 0.95	45.30± 1.53	9.73± 0.24	136.63± 2.43	273.27± 4.87

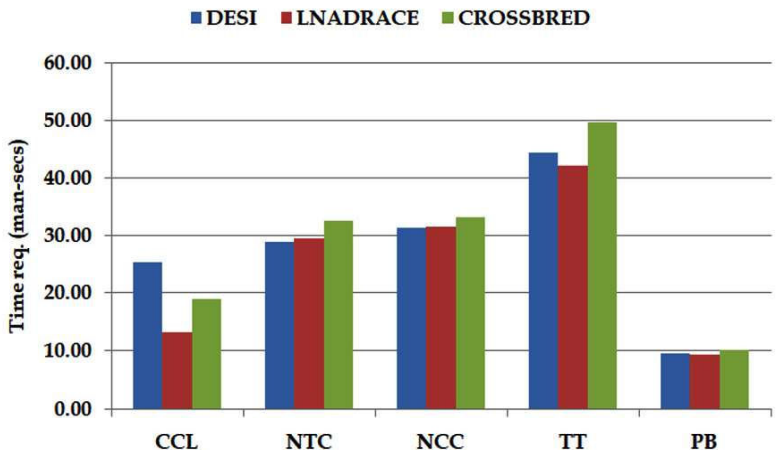

Fig. 2: Comparison of manpower utilization pattern in new born management activities for piglets of different breed dams.

CONCLUSION

This study was an effort to find out the minimum time required to finish the different task of new born management activities in an organized farm. However, the labourer deployed in these activities were considered to be working with their full efficiency and were well skilled in different activities, however to decide the manpower requirement for farm operations the working efficiency and skilfulness of labourers should be considered first.

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