

RESEARCH ARTICLE

Studies on physiological responses for non-descript working bullocks of tribal districts of Odisha

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ABSTRACT..... The present study was conducted to find out suitable work-rest cycles for small sized Mottu (non-descript breed of bullocks of tribal districts of Odisha) bullocks during summer, rainy and winter season. The experiments were carried out at Orissa University of Agriculture and Technology, Bhubaneswar, Odisha during the year 2009 with the help of CIAE loading car at the sustainable draft loads of 8, 9 and 11 per cent of body weight of the pair of bullocks (Pair weight-450 kg) in summer, rainy and winter season, respectively. The work-rest cycles were considered as per the convenience of the farmers' practice of that region by keeping the total hours of work and total duration of interim rest be same as followed by them while performing various farm operations. Three work-rest cycles *i.e.* (i) 2h work + 1h rest + 2h work (Farmers' practice): Wr_1 ; (ii) 1.5 h work + 30 min rest + 1.5 h work + 30 min rest + 1h work: Wr_2 and (iii) 2 h work + 40 min rest + 1 h work + 20 min rest + 1 h work: Wr_3 were tried in each season. While comparing the power output, it was found that the percentage increase of power output in Wr_2 and Wr_3 compared to Wr_1 are 18.46 and 9.74, respectively in summer season and 16.96 and 10.71, respectively in rainy season. However, the reverse trend was observed in the winter season. The percentage decrease of power output in Wr_2 and Wr_3 compared to Wr_1 were 17.64 and 20.40 respectively in winter season. Considering the physiological responses and their recovery pattern during the interim rest, fatigue score and power output, the work-rest cycle Wr_2 may be adopted both for summer and rainy season and Wr_1 for winter season.

KEY WORDS..... Work-rest cycle, Draftability, Non-descript bullock, Physiological responses, Fatigue score

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INTRODUCTION.....

The work output of animals is a combination of draft, speed and the duration of work, which depend on several factors including those related to animal themselves, harnesses, equipment and working conditions. For best output, the animal should be able to develop maximum possible draft at maximum possible speed for the longest possible duration. However, animals should not be overworked or strained excessively, so as to adversely affect their health and longevity and should not also be underworked leading to under

utilization of bullock power. Sometimes animals are put to work for long hours to finish a particular work in a limited time. An experienced and careful operator may be able to judge as to when to stop animals from work so as to avoid excessive fatigue. But most of the operators may fail to assess the situation and may overstep the threshold level, causing serious health hazards to the animals. To overcome this problem, it is necessary to develop suitable schedules of work-rest cycle for work animals to safeguard them against excessive fatigue.

A preliminary study was done in different villages of the