



# Elephants and work

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**I**n Kerala out of the estimated 600 captive animals about 200 are with temple trusts and others are with private elephant owners. Most of these private owners make up the cost of maintaining the animal by lending them for festivals and interestingly this season is over by the first quarter of every year. Another lucrative source of income is leasing the animals for work in forest for tree felling operations and also for timber hauling operations in timber mills. Presently due to environmental protection strictures, tree felling and auction in forest have almost come to a standstill. Hence elephants are mainly put to work in timber mills.

The department of livestock and production management, College of Veterinary and Animal sciences took up some studies to access the work efficiency of elephants in timber mills. The working period in timber mills is from 8.30 A.M to 4.30 P.M. Maximum work (34%) occurred during 8.30 to 9.30 A.M and minimum work during 12.30 to 2.30 P.M. Types of work in timber mills can be classified as hauling, carrying and moving. Hauling is the method of dragging timber using 'vakka' attached to the log by means of a chain on one end and the other end of which is held by the elephant between its upper and lower

molars. During carrying, logs of smaller magnitude were carried on the tusks or by the trunk and at no point the log touched the ground. While moving, the elephants used its forehead, trunk and limbs to move the log for short distances especially during stalking. An animal in work was found to spend 55% of its working time for hauling, 41% for carrying and the rest in stalking.

The elephants were carrying only smaller logs on their tusks. Mean weight of the log carried was 450 kg, which worked out to be 9.6 % animals body weight. Average of the maximum weight carried by the elephants was estimated as 1100 kg equivalent to 23% of its body weight. The average weight of log during stalking was less when compared to carrying.

Draught developed by the animal during hauling was measured by a special instrument called elephant draught power monitor. The average draught developed during hauling was 1,800 kg (38%). Maximum weight hauled by the animal ranged between 9,000 to 10,000 kg which comes to 188% of the body weight. Average horsepower developed during carrying and hauling was 7 - 7.5. The speed of the animal during work was 1.2 mps, which gradually declined as the work progressed.

Physiological parameters like body temperature, pulse rate and respiration rate showed definite changes during work. The change was also influenced by the environmental factors like solar radiation and ambient temperature. Scrupulous monitoring of physiological parameters during rest days revealed that there was an average 0.84 degree Fahrenheit increase in body temperature from 8.30 - 1.30 P.M even when the elephants were kept in shady places with out work. Corresponding increase in respiration and pulse were also recorded.

Increases in physiological parameters are in congruence with the duration of work and amount of work done. In a simulating type of work 10%, 20% and 30% of the bodyweight was made to haul by the animal. At 10% of the body weight even after 3 hours of continuous work the animal did not exhibit any stress signs. Where as for 20% and 30% draft the fatigue signs were shown by the end of 2 hours of work onwards.

Signs of stress includes reluctance to move, refusal to obey mahouts commands and in later stages in

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