

EVALUATION OF TRANSPORT STRESS ON GROWER PIG AND ITS MANAGEMENT

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ABSTRACT

An investigation was carried out to evaluate the effect of transport stress in pigs. Twenty five Large White Yorkshire grower pigs of 60-70 days age were transported from Haringhata Farm, Mohanpur, West Bengal to National Research Centre on Pig, Guwahati, Assam (1185 Kms). The body weight and blood samples of animals were taken at the time of loading the animals, unloading of animals, 3 days after unloading and 10 days after unloading without exerting any stress on the animals. There was significant loss in body weight of the transported pigs which can be attributed to stress and also reduced feed intake (0.75 versus 1.04 Kg). By 10 days rest in the quarantine shed, animals were able to recoup its normal feed intake. Similar trend was observed with the stress biomolecules, like Lactate Dehydrogenase, SGOT and SGPT which was increased significantly during the period of stress. This study showed that the transportation of pigs over longer durations results in increased physiological stress on pigs and as longer durations (24-36 hours) of transport generally produced more significant results.

Keyword: Transport stress, Pig, enzymes

Transport (moving, loading, transporting, unloading) is one of the most stressful condition farm animals experience in their lifetime. Vibration and unfamiliar movements of vehicle may illicit the stress response^{1,2}. The cardio-vascular system is influenced by vibration, resulting in increased heart rate, blood pressure and peripheral vasoconstriction⁴. Stress and incidences of transport losses are two economically important considerations for swine producers when transporting pigs from farmer's field to breeding farm or to the market. Transport loss is described as both deaths and injuries that lead to the inability of the animal to walk. Besides the economic losses to the farmer from transport, the

death or injury of pigs during transit is an animal welfare issue. Therefore, it is important to understand the factors during transport of pigs that lead to an increase in transit loss. Present investigation was carried out to document the effect of transport stress and possible remedies to reduce it.

MATERIALS AND METHODS

Twenty five Large White Yorkshire (8 males and 17 females) grower pigs of 60-70 days age were purchased from Haringhata Farm, Mohanpur, Directorate of Animal Resource and Animal Health, Government of West Bengal to National Research Centre on Pig, Guwahati, Assam. The animals

were transported in a truck of dimension 14 ft. X 7.5 ft. at 2:00 PM on 20th March 2013 and the vehicle reached its destination at NRC on Pig, which is approximately 1185 Kms away, at 8:30 AM on 22nd March 2013. The animals were offered *ad libitum* concentrate feed and water during transport. Occasional sprinkling of water over the animals was done in every 2 hours during day time to reduce heat stress as it was a summer season. Bedding material at floor and side walls was provided with gunny bag and straw.

The body weight of animals were taken and blood samples collected at the time of loading the animals, unloading, 3 days after unloading and 10 days after unloading without exerting any stress. Blood samples were centrifuged and plasma was kept at 4°C. After 12 hrs, these blood samples were transferred to minus 20°C for further analysis. Indicators of physiological stress i.e., enzymes like Lactate Dehydrogenase (LDH), Acetate Cholinesterase, SGOT and SGPT were estimated by using diagnostic kits (Merck pvt. Ltd) by *uv* spectrophotometer. Feed consumption per day per pig was calculated on the basis of left over feed weight. Data was statistically analysed using descriptive statistic and Analysis of Variance⁷.

RESULTS AND DISCUSSION

Pigs were exposed to many stressful factors related to transportation, like high ambient temperature, lack of timely food, water and straw, herd mixing, noise, shake, vibration, crowding, slippery floor, road conditions and transportation time. The body weight changes at different intervals suggested a significant loss in body weight of the transported pigs. This was attributed to stress and also reduced feed intake (0.75 versus 1.04 Kg). By 10 days rest in the quarantine shed, animals were able to recoup its normal feed intake. The shipping effect was clearly visible in terms of body weight decline after unloading ($p < 0.01$) and positive weight gain was noted on 3rd day and 10th day after unloading. However, rate of

gain is significantly more in male than female ($p < 0.05$) indicating that males recouped faster from the transport stress than female.

Similar observations were noticeable when blood bio-molecules were estimated. Lactate dehydrogenase, SGPT and SGOT levels were found to be significantly increased in the blood samples collected immediately after reaching the destination over the basal level which started declining from 3rd days when they were unloaded. Earlier few workers^{1,2} also reported that after prolonged transportation of pigs, considerable increase occurred in the activity of aspartate aminotransferase, alanine aminotransferase and aldolase. The concentration of glucose, creatine kinase, and lactate dehydrogenase increased after loading and declined to the resting level after lairage⁴.

There were also reports that more death losses occurred in pigs transported in summer months⁶. Levels of lactate increase in individuals experiencing physical exertion and stress, leading to increased anaerobic glycolysis for the release of energy³. Lactate and LDH concentration thus provides a good measure of acute physical stress⁵.

CONCLUSION

Evidence from this study shows that the transportation of pigs over longer durations (24-36 hrs) results in increased physiological stress which produced more significant results. The critical time for heat stress to occur is just after loading. Therefore, loading in hot season should be done either very early or very late in the day. Loading documents should be prepared well before loading to ensure speedy departure, as air flow is needed to cool the pigs. Low stress handling, with minimal prod use, is also necessary to minimize heat stress. Loading density should also be considered, and reductions made in high temperatures. Showering of pigs before transport helps to alleviate heat stress. Adequate boarding and bedding must be provided. Future works to improve transport conditions are recommended.

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