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Training Stockmen in Animal Welfare-Based Slaughter Techniques to Reduce Bruising in Beef Carcasses

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Abstrak. Animal welfare-based training on livestock handling techniques during sacrificial animal slaughtering is a crucial effort to reduce stress levels and bruising in cattle carcasses post-slaughter. This training, conducted at Al-Ma'ruf Mosque in Samarinda Ulu District, Samarinda City, involved 40 sacrificial animal handlers (stockmen) from various local mosques and prayer rooms. Participants were trained using the Rope Squeeze and Burley methods to enhance their technical skills in livestock handling, particularly in reducing the risk of animal injury and work-related accidents. The training results demonstrated an increased understanding of livestock behavior and psychology among the participants and the application of the flight zone concept, which contributed to safer and more effective livestock handling. The evaluation indicated the training's success in reducing livestock injuries and improving meat quality. Additionally, the training positively impacted the sacrificial animal slaughtering practices in the local area, setting a new standard for animal welfare and efficiency. This program serves as a model that can be adopted in other regions to improve animal welfare standards and the quality of meat production, demonstrating the importance of skill development in sacrificial practices

Introduction

Animal welfare, often referred to as Animal Welfare, refers to animals' physical and psychological condition in their efforts to adapt to their environment (Birhanu, 2020). Based on Law No. 18 of 2009, Animal Welfare covers all matters related to animals' physical and mental condition by their natural behavior. This principle must be applied and enforced to protect animals from inappropriate treatment by humans (Sullivan et al., 2022; Temple & Manteca, 2020). Animal welfare encompasses an animal's feelings and emotions, including negative aspects such as anxiety, stress, pain, and fear, as well as positive aspects such as happiness and enjoyment. Animal welfare is an essential component in modern meat production, based on the ethical consideration that animals are living creatures that can feel suffering and have emotions. (Ferguson and Warner 2008; Hultgren et al. 2014; Said et al. 2014). Animal welfare has three main perspectives: biological

function, emotional state, and naturalness (Temple & Manteca, 2020).

Animal welfare can be measured objectively and independently of moral considerations, ranging from very poor to good. According to one of the most widely accepted scientific definitions of animal welfare, the welfare of an individual animal is the condition of that animal and its efforts to adapt to its environment. (Barrasso et al. 2020; Birhanu 2020). An in-depth discussion of these definitions is beyond the scope of this paper, and suffice it to say that welfare depends on whether the animal can cope with its environment and the extent of effort required to adapt to environmental challenges. (Davis et al. 2022; Gavojdian et al. 2024). Because feelings are part of the adaptive mechanisms used by animals, they are essential to animal welfare (Stockman et al., 2012).

Handling sacrificial animals includes a series of actions and treatments for sacrificial animals, including welfare aspects, from the shelter until before slaughter (Wibowo et al., 2023a). Slaughtering animals outside the RPH (Slaughterhouse) risks causing environmental contamination by disease agents from slaughtered animals, the spread of diseases transmitted through food, as well as reducing the quality and cleanliness of meat if welfare aspects are not adequately maintained. (Wibowo et al. 2023a). All stressful operations before slaughter can lead to defects in the carcass and decreased meat quality. Among these defects are death, carcass damage, weight loss, contamination by pathogens, and pale, soft, watery (PSE) and dark, hard, dry (DFD) meat.(Diaz et al. 2014; King et al. 2006; Mach et al. 2008; Wibowo et al. 2023a). The untimely death of an animal is considered the worst situation from a financial aspect as it results in the complete loss of the carcass. Pre-slaughter handling includes all activities and processes livestock must undergo before being slaughtered (Wibowo et al., 2023a; b). These activities and processes occur in various places, including in cages, vehicles, and slaughterhouses. Mistakes in pre-slaughter handling can result in bruises appearing on the livestock's body (Birhanu, 2020; Wibowo et al., 2023a). These bruises result from muscle trauma, and bruise characteristics such as size, shape, and color can indicate low levels of animal welfare (Wibowo et al., 2023a). Carcass damage such as bruising, bleeding, skin spots, and blood spatter are clear signs of improper handling procedures (Wibowo et al., 2023a; b). All this damage causes the accumulation of blood outside the blood vessels, which can become a potential medium for microbial growth, thereby accelerating meat deterioration (Verbrugghe et al., 2012). A study reported that 377 cattle carcasses were examined and observed at the Tanah Merah slaughterhouse, Samarinda (Wibowo et al., 2023a). Of this number, 169 carcasses, or 44.8%, had bruising, while 208 carcasses, or 55.2%, did not show any bruising. (Wibowo et al. 2023a). The results of observations regarding bruising on cattle carcasses at the Tanah Merah Samarinda slaughterhouse can be seen in (Table 1).

Table 1. Percentage of Bruising

No	Unit	Frequency	Percent (%)
1	There is	169	44,8
2	There is not any	208	55,2
	Total	377	100,0

Source: (Wibowo et al. 2023a)

Based on the background that has been explained and described in a comprehensive and detailed manner, training on handling sacrificial animals before slaughter (Pre-Slaughter) in breaking down animals using the Rope Squeez and Burley method is carried out for officers handling sacrificial animals (Stockmen) at mosques and prayer rooms located in the Samarinda Ulu District-Samarinda City area to reduce cases of stress levels and bruising (Bruishing) on sacrificial animal carcasses, where the training stages start from the livestock handling process (handling) or pre-slaughter at the resting location to the slaughter stage, with an approach based on animal behavior and welfare.

Training Methods

The training method for beef cattle breaking, which was held at the Al-Ma'ruf Mosque, Samarinda Ulu District, Samarinda City, involved 40 (40) people handling sacrificial animals from local mosques and prayer rooms, which was carried out from June to July 2024. This training begins with a briefing session or theoretical lecture designed to provide an in-depth understanding of beef

cattle-breaking techniques that are safe and by animal welfare principles using the Rope Squeez (Figure 1) and Burley (Figure 2) methods. In this session, participants have explained the importance of proper shredding techniques to reduce animal stress and pain, which is an integral part of ensuring animal welfare during slaughter. The training also discusses the effects of handling and breaking down the appearance of bruising or bruising on cattle carcasses. Participants are trained to understand how inappropriate breaking techniques can cause injury to beef muscle tissue, which impacts carcass and meat quality after slaughter. Bruising that occurs not only affects the physical appearance of the carcass but can also reduce the meat's quality, ultimately impacting economic value and consumer acceptance.

After the theoretical session, the training continues with hands-on practice, where participants can apply the techniques they have learned under controlled conditions. In these practical sessions, participants are guided by experienced instructors to ensure that the knockdown technique is carried out correctly and by animal welfare standards. With a combination of theoretical understanding and practical experience, it is hoped that sacrificial animal handling officers will be able to break down beef cattles better, thereby minimizing the risk of bruising on the carcass and improving the quality of the meat produced.

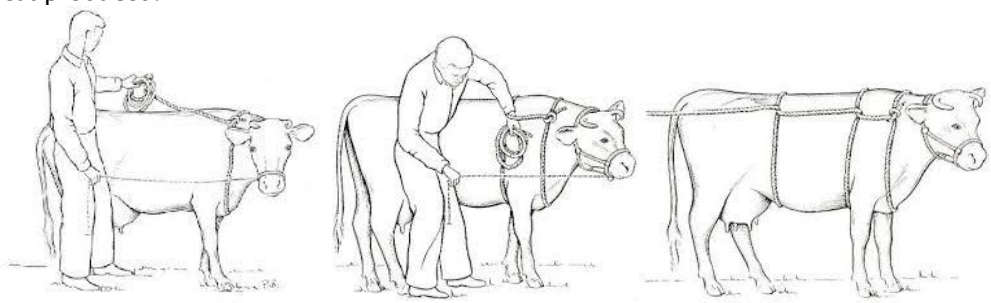

Figure 1. Beef cattle Overthrow Method Using the Rope Squeeze Method

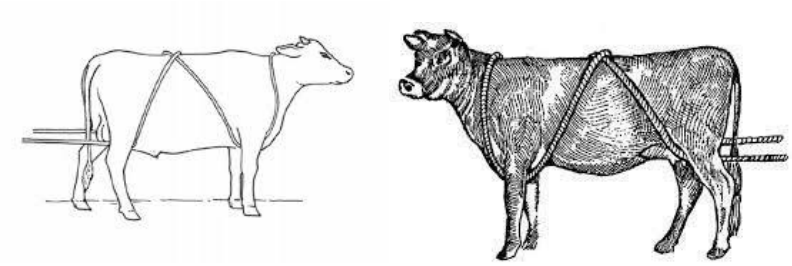

Figure 2. Beef cattle Overthrow Method Using the Burley Method

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Result and Discussion

Implementation of training on breaking down sacrificial animals using the rope squeeze and burley method at the Al-Ma'ruf Mosque, Samarinda City, which was initiated by the Animal Husbandry Department of Mulawarman University, the Food Security and Agriculture Service of Samarinda City, as well as the DSH (Halal Slaughter Da'wah) mass organization with several participants as many as 40 (forty) people (Figure 3), showing significant results in increasing the understanding and skills of the participants. This training covers various essential materials related to handling sacrificial animals, including studying livestock behavior and psychology and applying the flight zone concept in handling livestock before the breaking down process is carried out.

Figure 3. Implementation of training activities at the AL-Ma'ruf Mosque, Samarinda Ulu District, Samarinda City

The first material provided in this training is about livestock behavior and psychology. This understanding is fundamental because livestock behavior directly impacts the effectiveness of handling and breaking down. This material teaches participants to recognize signs of stress in livestock, such as restless movements, unusual sounds, or a tendency to avoid. By understanding livestock psychology, participants are expected to be able to reduce the stress level of animals during the handling process, which, in the end, can improve animal welfare and the quality of the meat produced. Applying the flight zone concept (Figure 4) is one of the critical points in this training. The flight zone is a private area of livestock, which, if violated, will make the livestock feel threatened and try to move away. By effectively understanding and utilizing flight zones, participants can direct livestock more efficiently and safely without force. This reduces the risk of injury to livestock and minimizes the potential for work accidents that could occur during the handling process.

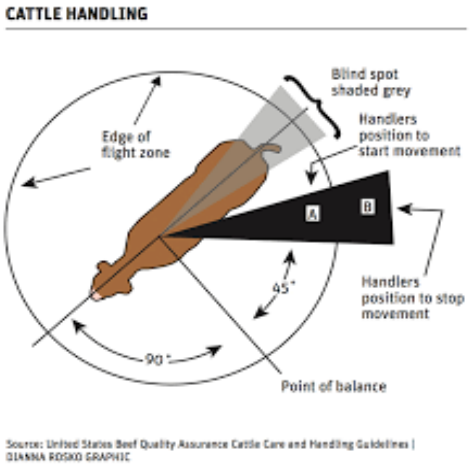

Figure 4. Flight Zone for Large Ruminants.
Source: (Handling 2010)

The rope squeeze and burley methods taught in this training are tearing techniques designed to reduce the risk of injury to livestock and personnel. In this session, participants were given a detailed explanation regarding the correct rope installation techniques and the steps that must be taken to ensure demolition runs safely and efficiently. The rope squeeze method uses a rope wrapped around the cattle's body to lower it to the ground slowly. In contrast, the burley method

focuses more on using a rope arranged in such a way as to control the movement of the cattle's head and body simultaneously. Applying these two methods not only aims to minimize the risk of bruising in livestock but also to ensure that breaking down is carried out effectively without causing excessive pain to the animal. In practice, participants are allowed to practice this technique directly in the field under the guidance of an experienced instructor. Observation results showed that most participants could apply this technique well, which was indicated by minimal injuries to livestock and reduced work accidents during the breaking down process.

Another part of this training discusses the impact of less-than-optimal handling of beef cattle breaking on work safety and meat quality. Inappropriate handling, such as using force or incorrect techniques, can increase the risk of work accidents, such as being trapped or injured by uncontrolled livestock. Apart from that, suboptimal handling can also cause stress in livestock, which results in bruising on the carcass and a decrease in meat quality. Training participants are taught to identify signs of suboptimal treatment and how to overcome them. In this way, they can reduce the risk of personal injury and ensure that the meat produced is high quality and free from bruises or other defects that could reduce its economic value. The results of this session showed an increase in participants' awareness of the importance of proper handling, which was reflected in more careful and planned practices when carrying out demolition work.

Evaluation of the success rate of this training shows that most participants succeeded in understanding and applying the material that was taught. After a lecture or lecture session regarding animal knockdown methods, participants can immediately practice their learned techniques. The practical results showed that the participants were not only able to apply the felling technique correctly but were also able to do it more quickly and efficiently than before taking part in the training. Several indicators of success recorded included reduced time required to carry out the felling, minimal livestock injuries, and reduced work accidents during the training process.

Overall, the training on breaking down sacrificial animals using the rope squeeze and burley method, held at the Al-Ma'ruf Mosque in Samarinda City, can be a success. This training improved the participants' technical skills and increased their awareness of the importance of animal welfare and work safety in the demolition process. It is hoped that this success can contribute positively to the practice of slaughtering sacrificial animals in the future, especially in mosques and prayer rooms in the Samarinda Ulu District, Samarinda City, with better standards in handling and destroying sacrificial animals

Conclusion

The conclusion of the training on breaking down sacrificial animals based on animal welfare for cattle handling officers (stockmen) shows that this training has succeeded in increasing the participants' understanding and technical skills, especially in applying the rope squeeze and burley methods. This training emphasizes the importance of correct techniques in breaking down to reduce the risk of bruising on the carcass. It highlights the impact of less-than-optimal handling on work safety and meat quality. With a better understanding of livestock behavior and psychology and applying the flight zone concept in livestock handling, participants can carry out shedding more safely and effectively. The success of this training can be seen from the minimum injuries to livestock and reduced work accidents during direct practice, as well as increased speed and efficiency in the breaking down process.

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organization of Samarinda City for their support and cooperation resulting in training in Welfare-Based Sacrificial Animal Demolition Techniques. Animals for Cattle Handling Officers (Stockmen) can be carried out well. Through this training, we have jointly attempted to reduce cases of bruising on cattle carcasses post-slaughter, which is an essential step in improving the quality of meat and the welfare of sacrificial animals in the Samarinda City area.

Referensi

1. Barrasso, R., Bonerba, E., Ceci, E., Roma, R., Alò, A., Mottola, A., Marchetti, P., Celano, G. V., and Bozzo, G. 2020. Evaluation of the animal welfare during religious slaughtering. Italian Journal of Food Safety 9(1): 39–43. DOI: 10.4081/ijfs.2020.8387
2. Birhanu, A. F. (2020). Pre-Slaughter Stress, Management of Stress and Its Effect on Meat and Carcass Quality. International Journal of Food Science and Agriculture 4(1): 30–37. DOI: 10.26855/ijfsa.2020.03.006
3. Davis, M., Sullivan, P., Bretón, J., Dean, L., & Edwards-Callaway, L. (2022). Investigating the impact of pre-slaughter management factors on indicators of fed beef cattle welfare – a scoping review. Frontiers in Animal Science 3(December): pp. 1–21. DOI: 10.3389/fanim.2022.1073849
4. Diaz, M. T., Vieira, C., Perez, C., Lauzurica, S., de Chavarri, E. G., Sanchez, M., and De la Fuente, J. 2014. Effect of lairage time (0h, three h, six h or 12h) on glycogen content and meat quality parameters in suckling lambs. Meat Science Elsevier Ltd 96(1): 653–660. DOI: 10.1016/j.meatsci.2013.10.013
5. Ferguson, D. M., & Warner, R. D. (2008). Have we underestimated the impact of pre-slaughter stress on meat quality in ruminants? Meat Science 80(1): 12–19. DOI: 10.1016/j.meatsci.2008.05.004
6. Gavojdian, D., Mincu, M., Lazebnik, T., Oren, A., Nicolae, I., and Zamansky, A. 2024. BovineTalk: machine learning for vocalization analysis of dairy cattle under the negative affective state of isolation. Frontiers in Veterinary Science 11(February). DOI: 10.3389/fvets.2024.1357109
7. Handling, R. A. 2010. EDITION Recommended Animal Handling Guidelines & Audit Guide : A Systematic Approach to Animal Welfare. (June).
8. Hultgren, J., Wiberg, S., Berg, C., Cvek, K., and Lunner, C. 2014. Cattle behaviors and stockperson actions related to impaired animal welfare at Swedish slaughter plants. Applied Animal Behaviour Science Elsevier B.V. 152: 23–37. DOI: 10.1016/j.applanim.2013.12.005
9. King, D. A., Pfeiffer, C. E. S., Randel, R. D., Jr, T. H. W., Oliphint, R. A., Baird, B. E., Jr, K. O. C., Vann, R. C., Hale, D. S., and Savell, J. W. 2006. MEAT Influence of animal temperament and stress responsiveness on the carcass quality and beef tenderness of feedlot cattle. 74: 546–556. DOI: 10.1016/j.meatsci.2006.05.004
10. Mach, N., Bach, A., Velarde, A., and Devant, M. 2008. Association between animal, transportation, slaughterhouse practices, and meat pH in beef. Meat Science 78(3): 232–8. DOI: 10.1016/j.meatsci.2007.06.021
11. Said, M., Hassan, F., Musa, R., and Rahman, N. A. A. 2014. Assessing Consumers' Perception, Knowledge and Religiosity on Malaysia's Halal Food Products. Procedia - Social and Behavioral Sciences Elsevier B.V. 130: 120–128. DOI: 10.1016/j.sbspro.2014.04.015
12. Stockman, C. A., Mcgilchrist, P., Collins, T., Barnes, A. L., Miller, D., Wickham, S. L., Greenwood, P. L., Cafe, L. M., Blache, D., Wemelsfelder, F., and Fleming, P. A. 2012. Qualitative Behavioural Assessment of Angus steers during pre-slaughter handling and relationship with temperament and physiological responses. Applied Animal Behaviour Science Elsevier B.V. 142(3–4): 125–133. DOI: 10.1016/j.applanim.2012.10.016
13. Sullivan, P., Davis, M., Bretón, J., and Edwards-Callaway, L. (2022). Investigating the impact of pre-slaughter management factors on meat quality outcomes in cattle raised for beef: A scoping review. Frontiers in Animal Science 3(December): 1–18. DOI: 10.3389/fanim.2022.1065002
14. Temple, D., and Manteca, X. 2020. Animal Welfare in Extensive Production Systems Is Still an Area of Concern—frontiers in Sustainable Food Systems 4(September). DOI: 10.3389/fsufs.2020.545902

15. Verbrugghe, E., Boyen, F., Gaastra, W., Bekhuis, L., Leyman, B., Parys, A. Van, Haesebrouck, F., and Pasmans, F. 2012. The complex interplay between stress and bacterial infections in animals. Veterinary Microbiology Elsevier B.V. 155(2–4): 115–127. DOI: 10.1016/j.vetmic.2011.09.012
16. Wibowo, A., Suhardi, and Rahman, M. A. 2023a. Identifikasi Kasus Insidensi Memar (Bruising) pada Karkas Sapi di Rumah Potong Hewan Tanah Merah Samarinda. Jurnal Sains Peternakan 11(1): 20–30. DOI: 10.21067/jsp.v11i1.8251
17. Wibowo, A., Suhardi, S., Fanani, A. F., Wanniatie, V., and Hanum, Z. 2023b. Measurement of Stress Levels in Pre- and Post-Slaughter Cattle at Tanah Merah Slaughterhouse Samarinda, East Kalimantan Province, Indonesia. Jurnal Agripet 23(2): 205–213. DOI: 10.17969/agripet.v23i2.31183