‘Carving up the problem of meat delivery – a review of best practice solutions in vehicle and export container loading’.

Peter McCubbery,

Ergonomics Unit, WorkSafe Victoria, Melbourne, Victoria, AUSTRALIA

Manually handling beef carcase sections within delivery trucks and into export containers are common tasks involving risk of musculoskeletal disorders to employees. The workplace health and safety regulator has identified two workplaces which have implemented solutions to control this risk that are seen as ‘best practice’. The risk control solutions are presented here for discussion and dissemination to other workplaces where employees still undertake these tasks manually.

Keywords: meat carcase, load out, vehicle loading, cross rails, container stacking, musculoskeletal disorder risk, MSD, WorkSafe Victoria, mechanical loading arm, forklift container loading.

1. Background

The supply of processed meat to a hungry market is a challenge but remains an on-going source of risk. In particular, the growth of the export market for processed meat has been exponential with Victorian producers competing with overseas suppliers to feed the demand. Whilst under-reported in terms of claim numbers, the risk of musculoskeletal disorders associated with the manual loading of vehicles and stacking of containers remains a cause of concern for the industry, health and safety inspectors and consultants.

Historically, many employers have relied on larger stature employees to manually load trucks and export containers. The physical demands involved in handling heavy loads, together with changes in the parameters of what is considered acceptable work by the industrial population (which indicate a reduced tolerance for this work) have provided incentives for workplaces to implement mechanical solutions to many tasks. The design approach of the employer, the duty holder, is quite separate from the role of WorkSafe Victoria (the WHS regulator).

1.1 The regulatory approach

Worksafe Victoria uses a constructive compliance model that seeks to adopt an appropriate balance between enforcement (to deter poor performance and breaches of OHS Law) and encouragement (to assist improved maturity in health and safety risk management). This includes the capturing and dissemination of industry ‘best practice’ solutions via industry guidance which helps inform the ‘state of knowledge’.

Operating within this legal framework, regulatory intervention in workplaces necessarily looks at musculoskeletal disorder prevention through elimination of the risk at the source. Where that is not possible then reduction of the risk, as far as is reasonably practicable, is required. Recent interventions by the regulator within the red meat processing industry have witnessed innovative controls to reduce the risk of musculoskeletal disorders during the loading of trucks and shipping containers. With the co-operation of the workplaces, two ‘best practice’ solutions are presented here for discussion.

2. Vehicle loading

One regional Victorian abattoir has implemented a mechanical loading arm to assist during the process of moving carcasses from cool rooms into delivery vehicles. This is called the ‘load out’. Whilst mechanical loading arms are not new, it is the first time one is being used for this application. It is used specifically for the sub-task of transferring carcase sections from the ceiling mounted longitudinal (North-South) rail to the cross rails (East-West). A representative of the workplace reported that the use of cross-rails within vehicles means the difference between sending a truck with 25 tonne instead of 16 tonne to Sydney. In recently
commissioned industry advice, this hazardous sub-task was not a focus of attention but it continues every day in many trucks with cross rails.

Beef carcase sections can weigh up to 65 kg for a forequarter and 85 kg for a hindquarter. From the cool rooms inside the processing facility at the abattoir, employees use overhead rail systems to push the sections into trucks. This specific manual task then requires manually handling the carcase sections from the longitudinal rail to the cross rail. Employees lift and then hold the load with one arm against the body, remove the carcase from the roller hook attached to the North-South rail, extend their back and head backwards to locate the above head cross rail whilst attaching the string to another hook on the cross rail with their free hand.

The risk of musculoskeletal disorder as a result of undertaking this task has long been recognised. The ‘double handling’ has been addressed by the move away from cross rails in preference to longitudinal rails within trucks but it is not widespread.

The ‘load out’ task was identified as having a risk of musculoskeletal disorder in previous guidance produced by the regulator in 2006. It contains risk reduction measures such as diverters within the vehicle that allow employees to push carcasses onto parallel North-South rails inside the truck. For those remaining vehicles with cross rails, the use of a mechanical loading arm could be used in this transfer from the North-South rail.

Photograph 1 above shows the railing system used by employees to push carcase sections from the chiller area to the truck. Photograph 2 shows the rails inside the truck ‘pan’.
Photographs 3 and 4 above show employees using the mechanical loading arm to move carcase sections to the over-head cross rails.

The benefits of this mechanical aid extend beyond controlling the risk of musculoskeletal disorders occurring to the employees. Widening the available ‘pool’ of employees now capable of undertaking this task is evident. Productivity improvements reportedly include reduced vehicle loading times as well as increased employee retention. The potential use and benefits of the loading arm at the delivery end of the journey cannot be ignored.

3. **Export container loading**

Boxed meat for the export market is increasingly being loaded mechanically by forklift trucks, push attachments and slip sheets, effectively eliminating musculoskeletal disorder risk at those workplaces loading in this way.

However, the export market is now developing a preference for carcase sections. Export containers do not contain railing systems. The stability of loads within containers on the ‘high seas’ demands certain stacking patterns which, together with the need to fill them to the roof, increases the challenge of loading them safely.

One large Victorian abattoir has developed and implemented a system of mechanically loading carcase sections inside export containers that eliminates the risk of musculoskeletal disorders to employees. Fork lift trucks and push attachments are used instead of manual labour.
Photographs 5 and 6 above show the fork lift attachment and the stacking pattern.

Photograph 7 shows the forklift loading the container ‘to the roof’ and photograph 8 shows the forklift attachment and pushing mechanism used to load the carcase sections into place.

WorkSafe Victoria continues to work with workplaces in controlling risks to their employees undertaking tasks such as vehicle and container loading. Disseminating information about solutions such as the two presented here can result in both increased productivity and safer tasks within workplaces.

Acknowledgements
Swan Hill Abattoirs, Victoria, Australia
JBS Southern, Victoria, Australia

References