

Catching, handling and loading of poultry for road transportation*

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Manual catching, handling and loading of poultry prior to transportation to slaughter have been identified as major sources of stress and trauma to the birds. Whilst extensive but generalized legislation and advice pertaining to the design and maintenance of containers exist in some countries, the complex logistics and demands of modern intensive poultry production exacerbate many of the fundamental difficulties associated with animal handling. Methods of removal of laying hens from cages of current design are often associated with overt injuries including fractures and dislocations - problems addressed in new UK guidelines. Modifications of cage structure and the mechanical conveying of birds may additionally prove beneficial in this context. Depopulation of broiler houses involving manual catching at rates of up to 1500 birds per man hour may also have a negative effect on bird welfare. Current practices require significant improvement, including operative education. Mechanized broiler harvesting offers an important and viable alternative procedure and its potential benefits are discussed.

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The annual production of poultry within the UK during 1991 approached 600 million birds. This figure includes 522 million broiler chickens, 21 million hens and 33 million turkeys. Although birds will be transported at least twice during their life, once for delivery to the farm and once prior to slaughter, this paper will concentrate on the latter.

Legislation exists within the UK to ensure that containers used for the transport of live poultry meet specific requirements. The containers must be so designed and used that they:

- protect the birds from injury or unnecessary suffering,
- provide adequate ventilation,
- are easy to clean,
- are escape proof,
- permit inspection of the birds,

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- have no sharp edges or protrusions,
- are labelled or marked with the upright position, and indicate that they contain live poultry,
- are constructed to prevent any protrusion of heads, legs or wings, and
- are maintained in a good state of repair.

The legislation also stipulates that poultry which are unfit may not be transported if such transport is likely to cause unnecessary suffering.

In recent years there have been improvements not only in the design of transport containers, but also in the training of catching crews to improve their attitude to what can be an unpleasant and physically demanding task. During the depopulation of commercial battery houses, a team of eight handlers will be expected to remove and crate 4000 end-of-lay hens an hour. Manual handling has been identified as a potential source of injury and stress to the birds and one report has stated that 29% of battery hens have broken bones immediately prior to slaughter. Guidelines have now been produced to enable better handling of birds when being removed from battery cages. The guidelines recommend that birds should be removed singly from cages and that each bird should be held by both legs. It is also advised that the breast of the bird is supported during removal to prevent contact with the feed trough.

The collection of broiler chickens is also covered by guidelines which are intended to improve manual handling. In this case it is not only bird welfare which is a consideration, but also the effects that bad handling can have on product quality (bruising etc.). It is difficult to obtain reliable figures for injury and downgrading since these depend on many factors, not least the type of transport container which is used. A catch team may be expected to load between 1000 and 1500 birds per man hour and, if catching takes place over a 5 hour period, it is difficult to maintain concentration and exercise care throughout such an arduous task.

Point-of-lay and end-of-lay hens are usually transported in loose or fixed crates, where the birds are manually carried out from the house to the containers which remain on the vehicle. In contrast, the broiler industry has moved to modular systems where the containers can be taken into the house for loading with birds. Modules offer an improvement in bird welfare and a reduction in the labour requirement.

The loose plastic drawer module (Easyload), developed by Anglia Autoflow Limited, is now being used in 40 systems, accounting for about 90% of chicken production, 25% of turkey production and 90% of duck production in the UK. It is also widely used in other countries, with about 150 complete handling systems operating worldwide.

The improvements in container design have prompted the development of mechanical catching machines in an attempt to further reduce the injury and downgrading ascribed to manual handling. A variety of approaches have been tested for the lifting of birds from the litter floor and subsequent placement in transport containers. Some have used soft foam paddles or rotating rubber fingers to encourage birds onto conveyors, whilst others have relied on pneumatics to 'suck' birds off the floor, but none have been adopted commercially. Some machines were too slow in lifting birds off the floor, some did not handle the birds gently enough, and some were too large to be operated within broiler houses.

The rotating rubber finger system, developed and patented by Silsoe Research Institute, has now been adopted by two commercial companies who are

independently developing harvesting machines.

In Italy, Cattaruzzi International are using a three rotor head attached to a radial sweep arm to lift birds off the floor. In one version of the machine the birds pass from the lifting head onto an inclined belt conveyor and then onto a series of telescopic conveyors which move the birds out of the house.

In the USA the same lifting approach has been embodied in a pick-up head with three pairs of counter-rotating rotors. The machine operates in a straight line, collecting birds between each pair of rotors as it moves forward. The birds are thus drawn onto an inclined conveyor in three separate columns, where they are counted, passed onto a secondary conveyor, through the caging mechanism and into the transport container. Initial effort is being directed at filling the 'coop-dump' type of module which is commonplace in the USA. At a later stage the company intend addressing the Anglia Autoflow type of module.

Further research is still needed to ensure that such catching machines not only meet the commercial requirements, but maintain or improve the welfare of the bird during this process. If this can be demonstrated then the industry can expect to be using catching machines in the not too distant future.