

# *Livestock handling*



*Good practices in agriculture: social partners participation  
in the prevention of musculoskeletal disorders.*

# Table of contents

<i>Introduction</i> .....	3
<i>1. Restraining systems</i> .....	4
<i>2. Easy access</i> .....	9
<i>3. Smooth transport of animals</i> .....	11
<i>4. Transport of dead animals</i> .....	14
<i>5. Use of tools and equipment</i> .....	16
<i>6. Working techniques</i> .....	18
<i>General information</i> .....	19

*project coordinator: Veerle Hermans*

*project partners: David O'Neill, Peter Lundqvist, Christina Kolstrup, Stefan Pinzke, Leny Bette, Ad de Rooij, Claire Baukens, Steven Amandels, Ludmilla Todorova*

# Introduction

*This brochure focuses on improving the handling of livestock. During husbandry care, awkward postures and movements are often necessary and it may be difficult to perform external assistance. These postures and movements may lead to the development of musculoskeletal disorders (MSDs): the back and upper limbs may be particularly vulnerable.*

*Moreover, unnecessary or avoidable stress whilst they are being handled may also lower livestock productivity. Gentle quiet handling can reduce stress and should help to keep the animals calm. Calm animals are easier to manage and move than excited animals. For more information on understanding animal behaviour and the reduction of stresses and injuries, refer to Grandin<sup>1</sup>, 2001, or consult advisory documents from the (UK) HSE (e.g. <http://www.hse.gov.uk/pubns/ais35.pdf>)*

*This brochure on livestock handling is divided into several separate activities:*

- *Restraining systems*
- *Easy access*
- *Smooth transport of animals*
- *Transport of dead animals*
- *Use of tools and equipment*
- *Working techniques*

*This brochure is based on farm visits across Sweden, Belgium, the Netherlands, Bulgaria and UK. These visits resulted in several good practices being observed to prevent or reduce the incidence of MSDs when handling livestock.*

*The brochure doesn't claim to cover all possible good practices to guard against MSDs during livestock handling, but is the result of farm visits and meetings with farmers. There is no affiliation to commercial organizations or products in presenting these good practices.*

*We would like to thank all farmers that collaborated to this study and we hope that all other farmers might learn from their practices to prevent musculoskeletal disorders in the future!*

<sup>1</sup> Reference: Grandin T, 2001, *Livestock handling guide: management practices that reduce livestock bruise and injuries and improve handling efficiently*, National Institute for Animal Agriculture: Kentucky.

# 1. Restraining systems

*The care and treatment of animals in loose housing systems can be very difficult. Poor postures are often observed, especially forward bending and rotation of the back. Treating a specific animal is particularly difficult when other animals surround it. There is also a risk of being attacked, mainly by being bitten, stepped on, or kicked.*



## Solution

### Individual head / neck restraint



*Possible problem: The barriers shown in the above photographs are continuous, without gates or entry points, so the farmworker has to somehow get across it, over it or through it.*

### **Solutions**

#### ***Human access***

*When installing these barriers or feeding troughs, devise a means of incorporating human access. This access should be wide enough to allow the farmer to pass through but not the cows (or other animals).*

*In addition, the security is improved as the access / gate makes it possible to leave the stall quickly if there is a problem. Note also that the farmer has installed a tool-rack near the gate so that his tools are always nearby.*



#### ***Individual boxes***



*There also is the option to incorporate individual separation into loose housing systems.*



*But even with individual boxes, forward bending can still occur.*

### **Solution**

#### ***Raised calf cages***



*The example above represents individual calf cages that have been raised (above floor level) so that calves are at a better height for receiving attention.*

*During calving, and especially if a caesarean section is necessary, the cow has to be held in an upright position. This is a physically demanding work task.*

### **Solution**

#### ***Calving crate***



*A specifically designed crate for calving may help. Of course this must not add to the stress that the cow would already be experiencing.*

Also outdoors, collection and treatment of animals is necessary.

## Solutions

### Outdoor individual boxes



Individual restraining systems such as crushes, crates, races (walk-through) can facilitate the work.



Mobil Cattle Crate: a hydraulically operated pen for gathering and treatment of cattle

### Hoof treatment

When lameness is a problem in dairy cows, the infection in the hoof that causes it has to be cut away. When the animal remains upright, stooping and working in an awkward posture at ground or floor level is often observed. Also there is the risk of being kicked by an unrestrained animal. Also trimming sheep hoofs requires considerable strength and involves bending forward.





## Solution

### Rotation crush

*Installation of a crush that can rotate while holding a cow securely (and comfortably) and allow easy access to treat the hoof.*



*Cattle crush with a cow held in an upright position*



*Cattle crush with a cow held in a lying position*

*This crush was made on the farm but proprietary products are also available:*



*Also for sheep:*





## 2. Easy access

*It is desirable to have quick access to housed animals, especially in cases of emergency. Without this, high levels of agility and awkward postures are often needed to climb over the barriers / fences.*



### *Solutions*



*Install barriers designed for easy human access*

*Create passage openings such as a man gate so no climbing is necessary and awkward postures can be avoided.*



### *Fences / barriers with wheels*

*Opening and closing the fences have to be done several times a day. These fences can be rather heavy to move, so by putting (lockable) wheels at both ends of the fences, the task is made much easier.*



### 3. Smooth transport of animals

When animals have to be moved, the workload may be quite heavy: much pushing and pulling may be required when the flow of animals does not go smoothly or fluently. Furthermore, the risk of injuries from being attacked by an animal when it is psychologically stressed is increased.



#### Solutions

*Paddle for driving*



*Drive board*



Good tools for moving cattle or pigs are plastic paddles or drive boards. These devices can also be used to turn the animals smoothly by blocking their vision on one side of their head.

Remember that animals are reluctant to walk towards things they do not recognise or locations where they may feel they could be trapped.

## *Trolley*

*Because the ewe sees her lambs right in front of her nose, while the shepherd walks behind, she has no other choice than to follow her lambs. Ewes and lambs arrive at their destination in a controlled manner, reducing the stress on sheep, lambs and shepherd.*

*(reference: <http://www.fwi.co.uk/articles/27/01/2012/131113/ewe-trolley-aids-movement-at-lambing.htm#.UZ9iDXHz40k>)*



*Corral, or pen, for gathering dairy cows before milking*



*Gate systems for gathering cattle*

## 4. Transport of dead animals

Moving a cow (500 – 600 kg) is impossible and moving an adult pig (80 – 100 kg) is almost impossible alone. Not only does the weight to be moved present difficulties, awkward postures (bending and rotation of the spine) are also likely to occur.

### Solutions

#### Dead sled



#### Transport wagon / barrow



### *Use of a mini-crane*



*There is a mini-crane specifically designed to carry the corpse of a pig. An advantage of this mini-crane is that the worker can move the corpse without requiring the help of colleagues.*

# 5. Use of tools and equipment

## Solutions

### Calving aid

A useful aid for calving is a calf-puller, also known as a calf-jack.

This tool makes it impossible to slip away from the cow, only one single hand is necessary and it facilitates pulling tension.



### Shearing bracket



Shearing sheep involves a lot of straining movements for the sheep shearer.

By using a shearing bracket, the upper body of the shearer is supported during shearing.





### **Wheelbarrow**

*After a calving, the calf has to be moved to a cell or to an individual cage.*

*The barrow is fitted with a hoisting-grab in order to draw the calf into the barrow without lifting it.*

*Various interventions can take place when an animal is being held in the crate or crush. It may, therefore, be necessary to have several tools near at hand. Rather than leaving them lying on the floor, as often happens, install a shelf or toolbox on the structure.*



### **Tools shelf**

*By putting a tools shelf at the gate, the worker doesn't have to bend and twist his back when reaching for the tools on the ground. He will be able to work in an upright posture and will have easy access to the tools.*



### *Treatment trolley*

*Using this type of trolley, keeps all the tools and materials together, so again easy access to the tools and better postures.*



### *Note: Building lay-out*

*For several livestock producers, housing only becomes relevant during relatively short periods. But although stock may be kept inside for only a short period, adhering to the basics is no less relevant.*

*Most flocks are in buildings not well designed, so many farmers are faced with less-than-ideal arrangements. When designing or erecting a new farm building, more emphasis can go to an ideal lay-out, equipment and tools.*

## 6. Working techniques

Livestock handling can be physically demanding and is often associated with difficult working postures and movements, strenuous and static muscle loads. It is important to prepare for the physically demanding work and to help prevent musculoskeletal disorders by being physically fit, well-trained and knowing how to practise correct working techniques. Further, it is important to learn how to practise correct working techniques so they become natural for you.

- Keep your body in good trim by regular physical exercise
- Use supports, tools, machinery when possible



- Do not use more muscle strength than the task requires
- Lifting a load – put your feet around the load, keep the load close to your body, bend your knees AND keep your back straight



- Carrying a load – if possible divide the weight equally between your hands or carry the load symmetrically
- Turning with a load - move your feet instead of twisting your back
- Avoid lifting above shoulder height
- Work near your body, use both hands or alternate, and avoid extending your joints to more distal positions

# General information

*This brochure is part of the project “Good practices in agriculture: social partners participation in the prevention of musculoskeletal disorders 2”, funded by the European Commission, DG Employment, social affairs and equal opportunities, call for proposal VP/2012/0421. The Commission is not responsible for any use that may be made of the information contained in this brochure.*

*Ownership of the results of the action, including industrial and intellectual property rights, and of the reports and other documents relation to it shall be vested in the beneficiary (IDEWE non-profit).*

*Goal of the project is to further implement the European social partners’ agreement of GEOPA-COPA and EFFAT by developing prevention policies and good practices to reduce musculoskeletal disorders in agriculture and to disseminate the results. For the following tasks good practices are presented:*

- *Livestock handling*
- *Working with machinery*
- *Manual stable work*
- *Greenhouses*
- *Dairy small ruminants*
- *Milking cows*
- *Tractor driving*
- *Ground level manual crops*
- *Pruning*
- *Sorting and packaging*
- *Harvesting*

*For more information on the project: [www.agri-ergonomics.eu](http://www.agri-ergonomics.eu).*

Funded by:

---



European Commission  
DG Employment, Social Affairs  
and Equal Opportunities  
1049 Brussels  
Belgium  
<http://ec.europa.eu/social>

Project coordinator:

---



IDEWE (non-profit)  
Exteral Service for Prevention and  
Protection at Work  
Interleuvenlaan 58  
3001 Leuven  
Belgium  
[www.idewe.be](http://www.idewe.be)

Project partners:

---



Institute of Ergonomics & Human Factors  
Elms Court, Elms Grove  
Loughborough LE11 1RG  
[www.ergonomics.org.uk](http://www.ergonomics.org.uk)



Council of the Bulgarian Agricultural  
Organisations (CBAO)



Swedish University of  
Agricultural Sciences

Swedish University of Agricultural Sciences  
Department of Work Science, Business Economics  
and Environmental Psychology  
PO Box 88  
SE-230 53 Alnarp  
Sweden  
[www.slu.se](http://www.slu.se)



Stigas  
Dellaertweg 1  
2316 WZ Leiden  
The Netherlands  
[www.stigas.nl](http://www.stigas.nl)

Supported by:

---



GEOPA - COPA  
Rue de Trèves 61  
1040 Brussel  
Belgium  
[www.copa-cogeca.eu](http://www.copa-cogeca.eu)



Preventagri  
Rue de la Station 47  
7800 Ath  
Belgium  
[www.secteursverts.be](http://www.secteursverts.be)