Dairy production with small ruminants

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

Table of contents

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Introduction

This brochure focuses on the many tasks that have to be performed during dairy production with small ruminants. During several tasks, awkward postures and movements are often necessary and may be difficult to perform without external assistance. These awkward 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 handling animals may also lower dairy production. Gentle quiet handling can reduce stress and should help to keep the animals calm. Calm animals are easier to manage than excited animals.

This brochure on dairy production is divided into several separate activities:

- *Releasing and restraining of small ruminants*
- *Milking small ruminants*
- *Handling of feed*
- *Handling of water*
- *Mixing feed for small ruminants*
- *Shearing sheep*
- *Working techniques*

For good practices regarding husbandry care and improving the handling of livestock, we refer to brochure "Livestock handling". When highly repetitive milking of small ruminants is performed, please consult also the brochure "Milking cows" for automatized systems and specific tasks (e.g. udder cleaning).

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 performing tasks related to dairy production.
The brochure doesn't claim to cover all possible good practices to guard against MSDs during the work tasks, but is the result from 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 and agricultural workers that collaborated to this study and we hope that all other farmers might learn from their practices to prevent musculoskeletal disorders in the future!

1. Releasing and restraining of small dairy ruminants

Before milking, the goats must enter the parlour and have to be individually restrained. The restraining is often done in a traditional parlour with a loop that locks when the goat puts her head to the eating trough. When the goat has finished milking, each loop has to be detached individually; this implies undoing 60 loops twice a day in the example shown.

Solution

Locking loops

Special loops can be fitted to the interior so an entire group of animals can be released at the same time. This would result in only one or two movements in order to loosen/detach and release all the animals instead of the existing system where the goats are loosened/detached and released individually.

Individual boxes

The farmer opens the gate, so the animals enter the stall and take an individual place while the rear doors are closed.

2. Milking small ruminants

When milker and animals are at the same level, a lot of bending and rotation of the back occurs.

Solution

Different floor levels

The floor is divided in different sections (fixed with hinges) and can be removed partly or totally. However, this is quite heavy and also difficult when lifting the sections each day.

Solution

2 Level floor

A milking parlour with an existing lowered floor would result in less physical work load and a better working posture.

All the necessary equipment is close to the worker, so unnecessary movements or awkward postures are avoided during the preparation and the milking process.

3. Handling of feed

The distribution of the feed is often done manually using a wheel barrow and a fork or a shovel. This manual task can often be hard work and require awkward working postures which constitute a risk factor for the development of MSDs.

When the (concentrate) feed has been mixed, it is scooped up in buckets and carried by hand to the animals. It is heavy work to carry the buckets several times for manually feeding the animals every day.

A lot of repetitive work has to be done when a long row of animals is lined up.

Also roughage has to be carried in buckets and distributed to the animals

Solutions

Feed cart

Use a feed cart filled with feed from a silo. Then the feed could be transported and distributed to the animals with cart and a scoop instead of carrying the buckets. The cart must be loaded in balance.

Elevated bin

A bin is placed on a self-made elevated rolling platform or cart (trolley / dolly).

Solutions

Feeders

Feeders could be installed that have to be refilled only once a week. It remains repetitive work, but it is only once a week.

Automatic feeding system

In the case of a large number of lambs or young animals, it is advised to use an automatic, computerised feeding system.

Solutions

Wagon

A solution could be to invest in a wagon, mixing concentrate and roughage and introduce complete ration feed.

Automatic distribution of roughage

The roughage is pushed over the rails and falls partly down.

4. Handling of water

When water troughs have to be filled manually, this is heavy manual handling. If the water has to be lifted over a fence or barrier to access the drinking trough or bucket, the postural demands are made worse.

Solutions

Use a hose when possible

Automatically filled troughs

(Heated) water troughs that are filled automatically.

5. Mixing feed for small dairy ruminants

At first, the feed is collected in a bag. Then feed of different kinds and in different proportions is poured into buckets and mixed by hand. This causes several awkward postures: back bending forward, bending and rotation of wrists, etc.

Solutions

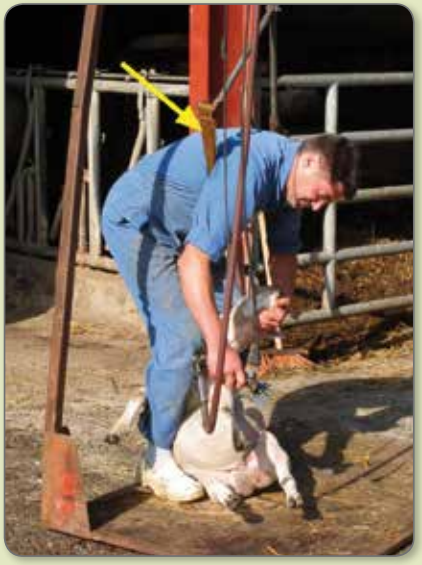
Buy already pre-mixed feed, keep it in a silo and fill a cart with feed from the silo.

Another alternative could be to use a wagon that automatically mixes concentrate and roughage. Also the distribution is facilitated. Both solutions would save a lot of time and reduce the work load for the person mixing the feed.

6. Shearing sheep

Shearers move the sheep to an area where they are sheared. The wool is collected from the floor and placed in bags. The sheared sheep are brought back to the pens.
Sheep shearing is classified as heavy work where shearers flex their spine and hips for long periods of time, handle awkward loads and expend high amounts of energy.

Solution



The shearer is using a "sling" for back support. This sling reduces the forces on the back.

7. Working techniques

The many tasks that have to be performed during dairy production by small ruminants can be physically strenuous since difficult postures for sustained periods may occur.

Thererfore, 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. Learn how to practise correct working techniques so they become the natural course of action 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

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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*
- *Working in glasshouses*
- *Dairy production with 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.

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