Research on Ergonomics in Animal Production in Sweden

Lundqvist P.

Swedish University of Agricultural Sciences
Department of Work Science, Business Economics and Environmental Psychology
Box 88. S - 230 53 Alnarp, SWEDEN
Tel 0046 40415495, e-mail: Peter.Lundqvist@ltj.slu.se

Abstract
Ergonomics in animal production involves not only the working environment legislation, but also the human welfare legislation. As an example: in the car manufacturing industry you can handle a car in an optimal way to create ergonomically good solutions for the worker. This is not possible when you are working with animals. Swedish research on ergonomics in animal production are trying in collaboration with farmers and the industry to develop and evaluate ergonomic solutions which benefits production as well as animal and human welfare. Active research involves milk production, pig production, poultry production, as well as work with horses and the involvement of children in agriculture.

Keywords: ergonomics, animal production, milking, horses, pigs, children, Sweden

Introduction

Research on ergonomics in agriculture is active in Sweden, with a focus on ergonomics and animal production. A recent PhD dissertation presented studies on the employee perspectives on ergonomics in milk- and pig- production (Kolstrup, 2008, Kolstrup et al 2006, 2008). Among her findings it was concluded that the livestock workers assessed their psychosocial work environment and mental health as good, although the quality of leadership, feedback and social support was experienced as being slightly poorer on dairy farms compared to pig farms. No psychosocial risk factors were identified for musculoskeletal disorders (MSD). Dairy farm workers working with healthy cows had poorer physical and mental health than those working with less healthy dairy cows. The livestock workers were contented with their psychosocial work environment; however, they reported high frequencies of MSD. The prevalence of MSD seemed to be associated with the physical rather than the psychosocial work environment.

The above mentioned thesis and a number of studies are performed by a research group at the Agricultural University in Alnarp (in the very south of Sweden) with a focus on ergonomics, injury prevention and leadership in agriculture, with a special focus on animal production.

Milk production

Several studies over the years have involved epidemiological, clinical and ergonomic studies in different types of milking parlours, technical and housing solutions

Figure 1. Ergonomics in milking is an essential part of the working conditions. All milking solutions have their positive and negative factors – still there is no perfect solution.

Working with horses

There are also a number of ongoing studies in Sweden involving ergonomics during work with horses, one is focusing on riding instructors (Löfqvist et al, 2009), and another one on hand held tools for manual work operations.

Figure 2. Working with horses involves a number of ergonomic challenges.
**Pig and poultry production**

Ergonomic studies on work with pigs has been quite rare until recent years, but now a number of studies have shown the frequency of musculoskeletal disorders together with in-depth studies of different manual work operations (Gustafsson & Lundqvist 2003, Stål & Englund 2005, Kolstrup 2008).

The changes of the animal welfare legislation which banned small cages for poultry production led to a number of scientific studies of ergonomics and injuries in alternative housing systems (Lundqvist, 1995, 1997).

![Figure 3. Working with pigs still involves a lot of manual lifting and handling](image)

**Guidelines for farm children on animal farms**

Another Swedish initiative have been the development of guidelines for children and adolescents on farms (Alwall Svennefelt, & Lundqvist, 2006) giving the family directions on what work operations could be suitable for children to be involved in and what considerations need to be taken, such as age, strength, body postures and other issues of importance.
Figure 4. Guidelines have been developed for farm families in order to find the right work operations for their children with a special focus on ergonomics and safety on animal farms

Discussion and conclusions

Ergonomics is a key issue for the future of animal production. Improving ergonomical working conditions often also leads to a reduction of injuries. Working conditions on farms which includes safety, a good leadership and well designed ergonomical solutions makes the farm an attractive work place which makes it easier to find and keep skilled employees.

The interest for ergonomics in agriculture goes international and the International Association of Ergonomics (IEA) has an agricultural section (http://www.iea.cc/). Also the European Union supports more and more efforts in order to improve ergonomics in agriculture. A joint project in this field has just been reported “Musculoskeletal problems in Agriculture” and has a home page with useful information (http://www.agri-ergonomics.eu/). Further collaboration and wider networks are needed on the road to good ergonomics in agriculture – on all farms!
References


http://www.agri-ergonomics.eu/good_practices/good_practices/milking_cows.html


