

International Labour Office

Geneva



International Ergonomics Association

ERGONOMIC CHECKPOINTS IN AGRICULTURE



Prepared by the International Labour Office in collaboration with the International Ergonomics Association **Ergonomic checkpoints in agriculture**

Ergonomic checkpoints in agriculture

Practical and easy-to-implement solutions for improving safety, health and working conditions in agriculture

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International Labour Office • Geneva

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International Labour Office, in collaboration with International Ergonomics Association Ergonomic checkpoints in agriculture: Practical and easy-to-implement solutions for improving safety, health and working conditions in agriculture Geneva, International Labour Office, 2012

occupational safety / occupational health / working conditions / work environment / ergonomics / agricultural worker / agricultural equipment / toxic substances / environmental protection /

family / community participation / hours of work / work organization / agriculture

13.04.2 1 v

ISBN 978-92-2-125448-5 (print) ISBN 978-92-2-125449-2 (web pdf)

ILO Cataloguing in Publication Data

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Foreword

Agriculture is one of the most hazardous sectors in both the developing and the developed worlds. Increasing attention is being drawn to the application of practical actions in rural and agricultural settings to help reduce work-related accidents and illness, improve living conditions and increase productivity. Many effective and feasible ergonomic modifications in improving living and working conditions have been introduced in many countries. The International Labour Office (ILO) and the International Ergonomics Association (IEA) have collaborated over the years in the collection of typical practical improvements reflecting basic ergonomic principles achieved in agricultural and rural settings, particularly in developing countries. A group of ergonomics experts from both developed and developing countries convened by the ILO and the IEA compiled and reviewed examples of practical improvements and produced this manual. The know-how embodied in these examples, based on locally achieved ergonomic applications, will be extremely useful in increasing productivity and in reducing injuries and illness.

The checkpoints in this manual focus on ergonomically designed tools, on materials-handling techniques and on arrangements of workstations, the physical environment, welfare facilities, teamwork methods and community cooperation. The validity of these practical solutions has been confirmed through ILO activities in many developing countries in Africa, Asia, Central Asia and Latin America. It is encouraging that the use of action-oriented tools such as checklists referring to readily applicable ergonomic checkpoints can lead to concrete improvements in agricultural workplace and rural settings.

The design and layout of this practical manual are based on experience gained in the production

of *Ergonomic checkpoints*, previously published by the ILO, and on the expertise of the contributing experts and collaborators. The manual covers the most fundamental ergonomic principles in agriculture and rural settings, which can easily be adapted to different situations. The 100 checkpoints here are examples of practical ergonomic interventions that can be achieved at low or no cost in agricultural and rural settings and are particularly applicable in developing countries. Practical examples are provided in the illustrations attached to each checkpoint.

The publication of this manual is intended to make these effective, locally achieved improvements known globally, so that others can learn from them. It is expected that they will be used as training tools, or as practical solutions to address common problems in the agricultural workplaces and rural settings of today's world. The concrete and practical guidance on easy-toimplement ergonomic improvements presented here will help people to adopt good work practices in agricultural and rural settings in a systematic manner. Participatory approaches directly involving farmers are the key for application of the ergonomic solutions in this manual. I believe that it will be a valuable tool for people in many countries to improve productivity and reduce injuries and illness in the agricultural workplace and in rural settings.

> Seiji Machida Director Programme on Safety and Health at Work and the Environment (SafeWork) International Labour Office

Preface

This manual, compiled jointly by a group of international experts assembled by the International Ergonomics Association (IEA) and the International Labour Office (ILO), presents practical solutions for improvements in agricultural work and rural life from an ergonomics point of view. The checkpoints it lists are intended to be used as a means to improve existing working and living conditions, for better safety, health and efficiency in agricultural and rural settings.

The "Ergonomic checklist for agriculture" summarizes the core actions, and can be used as a starting point for designing a checklist adapted to a particular workplace. The contents and use of such a checklist are described in "Suggestions for using the manual". Examples of the application of selected items from the checkpoints are described in the annexes to this manual.

It is recommended that this manual be used for assessing existing working conditions from an ergonomics viewpoint, and for implementing effective improvements in different situations.

Ergonomic checkpoints in agriculture was initially applied in Viet Nam to promote a participatory, actionoriented training approach for farmers which takes account of the methodology promoted by the ILO training programme Work Improvement in Neighbourhood Development (WIND). This methodology was first used in farms in Cantho, Viet Nam, by the Centre for Occupational Health and Environment of the Health Department of Cantho Province, Viet Nam, and the Institute for Science of Labour in Kawasaki, Japan. The basic principles of the WIND methods reflect the ILO training approach known as Work Improvement in Small Enterprises (WISE). The ILO WISE approach has led to numerous workplace settings in both developing and developed countries, consisted of the following:

- David Caple, International Ergonomics Association, Australia (co-coordinator);
- Kazutaka Kogi, Institute for Science of Labour, Japan (co-coordinator);
- Sara Arphorn, Mahidol University, Thailand;
- Tsuyoshi Kawakami, ILO Subregional Office for East Asia, Thailand;
- Ton That Khai, Cantho Medical College, Viet Nam;
- Yutaka Kikuchi, Bio-oriented Technology Research Advancement Institution, Japan;
- Kurt Landau, Darmstadt University of Technology, Germany;
- Adnyana Manuaba, Udayana University, Indonesia.

The initial manuscripts for this manual were drafted by Kazutaka Kogi, Tsuyoshi Kawakami and Ton That Khai in consultation with the other members of the group. Illustrations showing examples of improvements achieved by applying the ergonomic principles corresponding to each of the compiled checkpoints were drawn by Nguyen Thi Sam in Viet Nam in collaboration with Ton Thai Khai and his collaborators.

A working group on *Ergonomic checkpoints in agriculture* was organized in 2007 to examine the preliminary draft and make necessary improvements. This working group consisted of:

- Nyoman Adiputra, Udayana University, Indonesia;
- Masum Ahmad, Bangladesh Agricultural University, Bangladesh;

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