

## **Tropical Agricultural Research and Extension**

An International Journal on Agricultural Research and Extension in the Tropical and Subtropical Areas, Published by the Faculty of Agriculture, University of Ruhuna, Sri Lanka

### **Editor-in-Chief**

Professor Ranjith Pathirana

### **Co-editors**

Professor Ranjith Senaratne

Professor K.D.N. Weerasinghe

### **Faculty Editorial Board**

Dr. G.A. Dayatilake  
Professor K.K. Pathirana  
Professor R. H.S. Rajapakse  
Dr. S.D. Wanniarachchi  
Dr. Mangala de Zoysa

### **National Editorial Board**

Professor I.A.U.N. Gunatilleke (Peradeniya)  
Professor T. Jogaratnam (Peradeniya)  
Dr. C. Kudagamage (Peradeniya)  
Dr. R. Mahindapala (Colombo)  
Dr. D.A. Nethsinghe (Colombo)  
Dr. C.R. Panabokke (Rajagiriya)  
Dr. B.M.K. Perera (Peradeniya)  
Dr. N. Ranaweera (Battaramulla)  
Professor U. Samarakajeewa (Peradeniya)  
Professor Y.D.A. Senanayake (Peradeniya)  
Dr. J.A. de S. Siriwardene (Kandy)  
Prof. C. Sivayoganathan (Peradeniya)  
Dr. S.H. Upasena (Makandura)  
Dr. I. Jinadari de Zoysa (Peradeniya)

### **International Editorial Advisory Board**

Professor Dr. Etsuo Amano (Japan)  
Professor Amram Ashri (Israel)  
Professor T. Attananda (Thailand)  
Professor Dennis A. Baker (United Kingdom)  
Dr. C.R. Bhatia (India)  
Dr. C. Devendra (Malaysia)  
Dr. M.L. Deadman (United Kingdom)  
Professor Johanna Dobereiner (Brazil)  
Professor H.F. van Emden (United Kingdom)  
Dr. D.K. Friesen (Colombia)  
Professor C.J. Garforth (United Kingdom)  
Dr. J.P. Gustafson (United States of America)  
Professor Francis Halle (France)  
Dr. Nazmul Haq (United Kingdom)  
Dr. Ismail Khan (Pakistan)  
Professor Masao Kikuchi (Japan)  
Dr. R.R. Ørskov (United Kingdom)  
Professor R.S. Pathak (Kenya)  
Dr. B.M.A.O. Perera (Austria)  
Professor J.-Ph. Plateau (Belgium)  
Professor Leif Poll (Denmark)  
Professor K.P. Poulsen (Denmark)  
Professor N.G. Roling (the Netherlands)  
Dr. M.N. Salleh (Malaysia)  
Dr. H.B. So (Australia)  
Professor P. Van Damme (Belgium)  
Dr. S.M. Virmani (India)  
Professor K. Vlassak (Belgium)  
Professor Dr. D. Werner (Germany)

**Editorial Assistant:** Hemamali Ganewatta

**Computer type setting and graphical work:** Chitra Gunaratne and M.K.D.K. Piyarathna

**Digital Image Editing and Printing:** Ariyadasa Printers, Galle. (+94) (09) 34684, (+94) (074) 384210

**Scope of the Journal:** *Tropical Agricultural Research and Extension* publishes research results of broad practical significance for tropical and subtropical agriculture. The subject areas covered include crop genetics, resources, agronomy, crop improvement, crop physiology, plant protection, weed science, ecology, sustainable management of tropical and subtropical agricultural environments, restoration of degraded environments, agro-forestry, utilization and domestication of under-exploited plant and animal resources, technological applications, horticulture, perennial crops, animal science including fisheries, food science, post-harvest technology, farming systems, agricultural economics, extension and education.

Subscription rates, editorial policies and instructions for contributors are given at the end of the Journal. For advertisements and rates for distributors and agents, please write to the Editor-in-Chief at the following address: Editorial Office, Faculty of Agriculture, University of Ruhuna, Kamburupitiya, Sri Lanka. Fax: 94 92384, Phone: 94 41 92383, E-mail: [tare@itmin.com](mailto:tare@itmin.com), [tropicalagriculture@hotmail.com](mailto:tropicalagriculture@hotmail.com)