

## Foreword

This is the second edition of the manual written by Dr T.R. Preston and published by FAO in 1986, as Animal Production and Health Paper No 50/2: " Better utilization of crop residues and by-products in animal feeding: research guidelines. 2.: A practical manual for research workers" FAO, Rome, 154 pages. This manual has proven to be a very useful tool for research workers in developing countries and has been in great demand since its publication. After 9 years, it was necessary to update it taking into account the large experience gained in the meantime and the changes which have occurred during this period of time in the developing countries.

In fact, this manual has been completely rewritten and greatly extended. The new version contains twice the number of pages compared to the first one. Its scope is no longer limited to crop residues and by-products, but considers also other feeds. More attention has also been given to monogastric animals, because "modern" feeding systems imported from developed countries have in many countries led to the import of feeds, thus increasing the external debt of developing countries. Imports of feed by developing countries represent several billion dollars a year! The multipurpose role of livestock as a provider of food, but also of income, energy, fertilizer and its implications on feeding systems are considered. Environmental issues linked to livestock production systems are also taken into account. In this context, research constitutes a **big challenge** for animal nutrition scientists in developing countries: to promote feeding sustainable systems which make greater and better use of local resources for the benefit of small farmers.

The manual is not a list of recipes for making laboratory analyses or preparing experiments. Half of its contents is devoted to describing the essential principles which should assist the research worker in conducting useful and cost effective research. This includes: the importance of managing natural resources for sustainable development and of identifying priority areas for research aimed at solving practical problems and improving the lot of small farmers in developing countries, the basic principles of animal nutrition, the identification of important feed resources and of some appropriate technologies to better use them..

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The final editing of this publication was undertaken by Andrew Speedy, Department of Plant Sciences, University of Oxford, England, and René Sansoucy, FAO, Rome, and formatting by A.W. Speedy.