



# Industrial Utilization of Sorghum



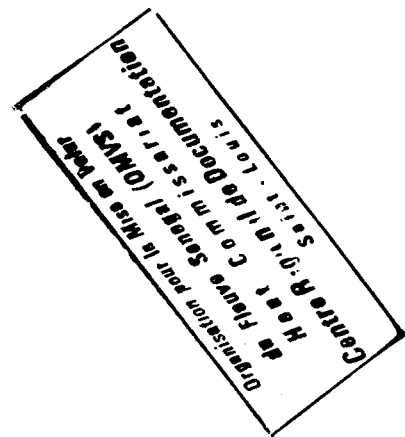
**International Crops Research Institute for the Semi-Arid Tropics**

09783

# Industrial Utilization of Sorghum

## Summary Proceedings of a Symposium on the Current Status and Potential of Industrial Uses of Sorghum in Nigeria

4-6 Dec 1989  
Kano, Nigeria



ICRISAT

International Crops Research Institute for the Semi-Arid Tropics  
West African Sorghum Improvement Program (WASIP), Kano Nigeria



IAR

Institute for Agricultural Research, Samaru,  
Ahmadu Bello University, Zaria, Nigeria

1990

28700

Symposium Organizers

D.S. Murty  
O. Ajayi  
R. Tabo  
L.B. Olugbemi  
C.C. Nwasike  
S.M. Misari

Scientific Editor

D.S. Murty

Publication Editor

B.B. Sahni

Cover Design  
G.K. Guglani

Cover Artwork  
A.A. Majid

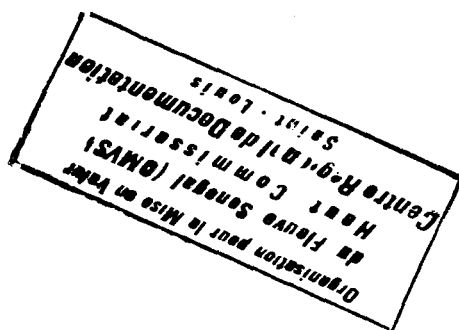
The International Crops Research Institute for the Semi-Arid Tropics is a nonprofit, scientific, research and training institute receiving support from donors through the Consultative Group on International Agricultural Research. Donors to ICRISAT include governments and agencies of Australia, Belgium, Canada, People's Republic of China, Federal Republic of Germany, Finland, France, India, Italy, Japan, Netherlands, Norway, Sweden, Switzerland, United Kingdom, United States of America, and the following international and private organizations: African Development Bank, Asian Development Bank, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), International Board for Plant Genetic Resources, International Development Research Centre, International Fertilizer Development Center, International Fund for Agricultural Development, The European Economic Community, The Opec Fund for International Development, The Rockefeller Foundation, The World Bank, United Nations Development Programme, University of Georgia, and University of Hohenheim. Information and conclusions in this publication do not necessarily reflect the position of the aforementioned governments, agencies, and international and private organizations.

The opinions in this publication are those of the authors and not necessarily those of ICRISAT. The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of ICRISAT concerning the legal status of any country, territory, city, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries. Where trade names are used this does not constitute endorsement of or discrimination against any product by the Institute.

ISBN 92-9066-188-7

## Contents

Preface	R.W. Gibbons	v
Welcome Address	Idris Garba	1
Welcome Address	Adamu Nayaya Mohammed	3
Objectives of the Symposium	R.W. Gibbons	5
Opening Address	E.U. Emovon	7
<b>Grain Economics and Milling</b>		<b>11</b>
<b>Composite Flour Products</b>		<b>19</b>
<b>Malting and Brewing</b>		<b>27</b>
<b>Nonalcoholic Beverages and Weaning Foods</b>		<b>35</b>
<b>Forage and Feeds</b>		<b>41</b>
<b>Recommendations</b>		<b>47</b>
<b>Participants</b>		<b>53</b>



## Preface

**R.W. Gibbons**

Executive Director, ICRISAT Sahelian Center and West African Programs, Niamey, Niger.

The ICRISAT West African Sorghum Improvement Program (WASIP), Kano, Nigeria organized jointly with the Institute for Agricultural Research (IAR), Samaru, Ahmadu Bello University (ABU), Zaria, a national symposium on the "Industrial Utilization of Sorghum" from 4 to 6 December in Kano. In the Semi-Arid Tropics (SAT), where sorghum is used mainly for direct consumption in the form of traditional foods, Nigeria is emerging as a pioneer in the industrial utilization of sorghum. This development is highly encouraging and has far reaching implications on the program objectives of the concerned national and international research institutes and the various government agencies involved in policy decision, development, and promotion of sorghum crop utilization activities. Therefore, it was timely and appropriate for the symposium to have focussed on problems and prospects related to the production of various sorghum products from the farmer to the consumer stage. Twenty-nine research papers were presented at the symposium in the following sessions: Grain Economics and Milling, Composite Flour Products, Malting and Brewing, Nonalcoholic Beverages and Weaning Foods, and Forage and Feeds. Fifty-one delegates representing various disciplines, research institutes, industries, government, private and public agencies participated in the symposium.

This summary proceedings of the symposium includes: addresses given by the dignitaries during the inaugural session, abstracts of 29 papers that contributed to discussions, summaries of discussions that took place after each session, the final recommendations of the symposium and a list of the participants. This volume will, hopefully, be a valuable addition to the literature on sorghum utilization and provide a good reference to the recent developments of industrialization of sorghum products in Nigeria. The recommendations will serve as useful guidelines to those involved in the improvement of sorghum production and utilization in the SAT.