Publications Catalogue
January 1999
CIMMYT (www.cimmyt.mx or www.cimmyt.cgiar.org) is an internationally funded, nonprofit scientific research and training organization. Headquartered in Mexico, the Center works with agricultural research institutions worldwide to improve the productivity, profitability, and sustainability of maize and wheat systems for poor farmers in developing countries. It is one of 16 similar centers supported by the Consultative Group on International Agricultural Research (CGIAR). The CGIAR comprises over 55 partner countries, international and regional organizations, and private foundations. It is co-sponsored by the Food and Agriculture Organization (FAO) of the United Nations, the International Bank for Reconstruction and Development (World Bank), the United Nations Development Programme (UNDP), and the United Nations Environment Programme (UNEP). Financial support for CIMMYT's research agenda also comes from many other sources, including foundations, development banks, and public and private agencies.

FUTURE HARVEST CIMMYT supports Future Harvest, a public awareness campaign that builds understanding about the importance of agricultural issues and international agricultural research. Future Harvest links respected research institutions, influential public figures, and leading agricultural scientists to underscore the wider social benefits of improved agriculture—peace, prosperity, environmental renewal, health, and the alleviation of human suffering (www.futureharvest.org).

© International Maize and Wheat Improvement Center (CIMMYT) 1999. Responsibility for this publication rests solely with CIMMYT. The designations employed in the presentation of material in this publication do not imply the expressions of any opinion whatsoever on the part of CIMMYT or contributory organizations concerning the legal status of any country, territory, city, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Printed in Mexico.
Contents

About This Catalogue iv

New and Forthcoming Publications 1
  General Interest 1
  Maize 7
  Wheat 9
  Economics 11
  Natural Resources Management 16
  Applied Biotechnology 20

Recent Publications from CIMMYT’s Regional Offices 21

Reprints of Journal Articles 29
  Document Delivery Coupon 31

Backlist 32
  General Interest 32
  Maize 33
  Wheat 35
  Economics 40
  Natural Resources Group 42
  Applied Biotechnology 43
  CIMMYT’s Regional Offices 43
About This Catalogue

This catalogue is intended to provide readers with the information they need to order our publications. The catalog is organized into several sections. The first section lists new and forthcoming publications of general interest and by research area (maize, wheat, economics, natural resources management, and applied biotechnology research). The second section lists recent publications that are available from our regional offices in Asia, Africa, and Latin America. We also include lists of recent journal articles by CIMMYT staff. The final section, our backlist, provides information on all other publications available from CIMMYT.

An order form and a coupon for obtaining journal reprints are included as well.

This catalogue is also available on the internet at www.cimmyt.cgiar.org or www.cimmyt.mx. If your institution would prefer to view the catalogue on the internet rather than receive a printed version, please inform us. If you know of an institution that should receive a copy of this catalogue and has not received one, please let us know.
New and Forthcoming Publications

General Interest

**Annual Report**
CIMMYT in 1997-98: Change for the Better

This report reviews several facets of CIMMYT's changing environment, especially in the regions where we work, and reviews our role as an agent of change in the fields of developing country farmers. “From the Ground Up” gives readers detailed accounts of field-based research on soil fertility in sub-Saharan Africa, new methods for curbing the harmful effects of excessive nitrogen use in Latin America, and tillage systems to foster food security in South Asia. The next few stories, “Secrets in the Seed,” highlight new networking and training opportunities in biotechnology, innovative research into the economics of searching for useful genetic resources in germplasm banks, and promising advances in raising wheat yields. In “Technology and the Test of Time,” we look at past and potential impacts of CIMMYT research in West Africa and Asia. We conclude with stories on our newest research efforts.


**CIMMYT Brochures**

These brochures provide an overview of the primary goals, products, impacts, and research partners for CIMMYT; for our Maize, Wheat, and Economics Programs; our Natural Resources Group; and our Applied Biotechnology Center. Other brochures present information on selected subjects, such as...
apomixis research; the Wellhausen-Anderson Genetic Resources Center; and the International Wheat Information System.


✓ 3061. CIMMYT Today. [3070. CIMMYT Hoy.] (No charge.)

✓ 3089. The CIMMYT Maize Program. [3098. Programa de Maíz del CIMMYT.] (No charge.)

✓ 3106. The CIMMYT Wheat Program. [3115. Programa de Trigo del CIMMYT.] (No charge.)

✓ 3124. The CIMMYT Economics Program. [3133. Programa de Economía del CIMMYT.] (No charge.)

✓ 3142. The CIMMYT Natural Resources Group. [3151. El Grupo de Recursos Naturales del CIMMYT.] (No charge.)

✓ 4411. The CIMMYT Applied Biotechnology Center: Reaching Inside the Genome, Reaching Out to Farmers. [2675. Centro de Biotecnología Aplicada: Exploramos el genoma para llegar a los agricultores.] (No charge.)

✓ 3160. The International Wheat Information System. [3179. El Sistema Internacional de Información sobre el Trigo.] (No charge.)

✓ 3188. Wellhausen-Anderson Genetic Resources Center. [4430. Centro de Recursos Fitogenéticos Wellhausen-Anderson.] (No charge.)

✓ 3197. True or False: Some Facts about Wheat Genetic Diversity in Farmers’ Fields. [3205. ¿Ciento o Falso? Algunos datos acerca de la diversidad genética de trigo presente en los campos de los agricultores.] (No charge.)


CIMMYT in 1997-98: Staff Publications

Publishing activity of CIMMYT staff is documented in this bibliography, which lists CIMMYT imprimatur publications as well as journal articles, book chapters, proceedings and research reports, abstract, newsletters, and presentations. Author index provided.

✓ 3962. 1997. 8 pp. (No charge.)

Food Security and the Role of Agricultural Research: Keynote Presentation, The Genetics and Exploitation of Heterosis in Crops

T. Reeves, P. Pinstrup-Andersen, and R. Pandya-Lorch

This keynote presentation for the international symposium on heterosis in crops describes the many compelling reasons for redoubling efforts in agricultural research in developing countries—especially food security, poverty alleviation, and protection of the environment.
Good News from Africa: Farmers, Agricultural Research, and Food in the Pantry
E. Schioler

This book describes how, with the support of the international community, agricultural research is achieving valuable results in sub-Saharan Africa. It introduces the reader to several farmers whom researchers have helped to a better and more secure way of life. The book was produced by the International Food Policy Research Institute in collaboration with the International Center for Tropical Agriculture; the International Potato Center; CIMMYT; International Centre for Research in Agroforestry; International Centre of Insect Physiology and Ecology; International Crops Research Institute for the Semi-Arid Tropics; International Institute of Tropical Agriculture; International Livestock Research Institute; and the West Africa Rice Development Association.

Norman Borlaug on World Hunger
N.E. Borlaug and A. Dil, Editor

This volume contains selected speeches and writings of Dr. Norman E. Borlaug for the series, "On This Earth Together." These essays present a thoughtful, challenging discussion of key issues facing the human family today. They also offer insights into the world view of a man recognized by many around the world as "one of the greatest benefactors of the human race in modern times," "a man who has pushed back the frontiers of hunger" and contributed to the creation of a climate in which peace is possible.

Research Briefs
CIMMYT

Recent research achievements and new projects are featured in this series, issued throughout the year. Every issue contains two-page briefs highlighting the latest impacts of CIMMYT's work with collaborating institutions in maize, wheat, economics, natural resources management, and applied biotechnology. A cover page summarizes the main points in each story.
A Sampling of CIMMYT Impacts, 1998: Ten Case Studies

This pamphlet highlights ten examples of CIMMYT research impacts, including synthetic hexaploid wheats, the role of disease resistant wheat cultivars, research to help maize farmers face drought; acid tolerant maize; wheat in West Asia and North Africa; the Regional Maize Program for Central America and the Caribbean; cooperation to rescue seed of Latin American maize landraces; participatory plant breeding in southern Mexico; participatory research on tillage and crop establishment in South Asia; and closing the wheat yield gap in Mexico’s Yaqui Valley.

Sustainable Intensification of Agriculture
T.G. Reeves

This paper outlines important principles of sustainable agriculture and then examines practical approaches for making sustainable systems a reality in farmers’ fields. These approaches are based on a new research paradigm that blends research disciplines in teams of scientists seeking collective outcomes that are appropriate and have an immediate impact in farmers’ fields.

White Maize: A Traditional Food Grain in Developing Countries
Basic Foodstuffs Service (FAO Commodities and Trade Division) and CIMMYT Economics Program

This report reviews the current structure of the white maize economies in developing countries and analyzes the current and projected supply and demand for white maize. Several trends emerging from this analysis are discussed, along with possible implications for research. The report also examines the major constraints to
white maize production and describes policy options that could help increase the output and quality of this crop throughout developing countries.


**Video**

CIMMYT: The Next 30 Years

CIMMYT

This video presents an overview of CIMMYT’s global outreach efforts as seen through the kaleidoscope of sub-Saharan Africa, which exhibits, in microcosm, the constraints CIMMYT addresses on a worldwide basis: poverty, lack of infrastructure, biotic and abiotic stresses, and evolving economic policies. A timely view of how an international agricultural research center approaches the serious constraints to global food security.

3214. Video. 1996. 30 minutes. ($20.00)

**Facts and Trends Series**


CIMMYT

In this report, the debate over the relative allocation of resources to agricultural research in the developing world’s favorable and marginal areas is explored using the example of maize in drought-stressed environments. The report examines several key issues of the debate; these include: 1) How much maize production is needed from marginal areas to ensure food security at the local and national levels?; 2) What is the impact of maize production in marginal areas on poverty?; 3) What technological options are available for increasing production in drought-stressed areas?; and 4) Do research resources need to be reallocated toward drought-stressed and marginal environments? Considerations in formulating policy on research resource allocations to marginal areas are also presented. The report concludes with a brief overview of the world maize situation in 1997-98, followed by selected statistics on production, consumption, and trade for all regions of the world.

This report describes wheat’s origins and the flows of germplasm between various regions of the world. It summarizes some of the tools biological and social scientists use to measure genetic diversity. It examines patterns of bread wheat diversity in farmers’ fields and evidence of genetic variation from breeding programs. Findings suggest that the often-invoked dichotomy between gene-poor North and gene-rich South has little validity for wheat. Findings also suggest that yield stability, resistance to rusts, pedigree complexity, and the number of modern cultivars in farmers’ fields have all increased since the early years of the Green Revolution. Also included is a description of how economists approach the valuation of genetic diversity. Key policy issues for future research are identified. The report concludes with a brief overview of the world wheat situation in 1995-96, followed by selected statistics on production, consumption, and trade for all regions of the world.
describing original research or synoptic reviews of original research). Part A covers research at CIMMYT and with advanced institutions. Part B covers research with national agricultural research systems.

ISBN: 968-6923-86-1. (No charge.)

A Checklist of Magazine Articles from CIMMYT, 1967-1996
J.E. Woolston

This updated reference identifies articles published by CIMMYT authors in magazines (i.e., periodicals publishing articles for a larger audience than those with a specialized knowledge of the subject) from 1967 to 1996.

ISBN: 968-6923-87-X. (No charge.)

Literature Update on Maize
CIMMYT, AGRIS, ISI

Literature Update on Wheat, Barley, and Triticale
CIMMYT, ICARDA, AGRIS, ISI

These series contain abstracts of articles from current issues of the most influential scientific journals, published by special arrangement with the Institute for Scientific Information (producers of Current Contents: Agriculture, Biology, Environmental Sciences). Additional abstracts of journal articles, reports, conference proceedings, and other publications are supplied by AGRIS (the International Information System for the Agricultural Sciences and Technology), which is managed by FAO and provides access to many developing world publications not available from other sources. The Updates are published six times a year and available only to institutions in developing countries. CIMMYT and ICARDA also provide a limited document delivery service in conjunction with these publications.

√ 0073. Literature Update on Maize.
Paperback. ISSN: 140R-16G4. Available only to institutions in developing countries. (No charge.)
√ 0082. Literature Update on Wheat, Barley, and Triticale. Abstracts. Each issue approx. 100 pp. ISSN: 140R-1672. Available only to institutions in developing countries. (No charge.)

Maize

CIMMYT

This publication provides two-page descriptions — including materials, methods, results, and relevant data and conclusions — of nearly 200 scientific presentations dealing with recent
research on heterosis and presented at the “International Symposium on the Genetics and Exploitation of Heterosis in Crops,” organized by CIMMYT and held during 17-22 August, 1997. Among other topics, the abstracts cover the genetic, physiological, biochemical, and molecular mechanisms underlying hybrid vigor; appropriate germplasm and breeding methodologies; and commercial strategies and methodologies for maximum and sustainable utilization of heterosis. Includes the accompanying volume, Supplement to the Book of Abstracts and Author Index.

A Complete Listing of Improved Maize Germplasm from CIMMYT CIMMYT Maize Program

Targeted to maize breeders and other research partners, this compilation features tabular listings of the genetic pools, populations, inbred lines, and special purpose germplasm developed by the CIMMYT Maize Program through more than three decades of collaborative breeding research with national maize programs in developing countries, private entities, and other leading scientific institutes worldwide.

These germplasm types are subdivided by adaptation to the major maize production ecologies of the developing world — lowland tropics, subtropics, midaltitude zones, and tropical highlands — and detailed information is provided on origin, pedigree, source materials, yield potential, stress tolerance, disease and pest resistance, and other relevant characteristics. For user convenience, contact information is included and seed request procedures and policies described.


Development, Maintenance, and Seed Multiplication of Open-Pollinated Maize Varieties CIMMYT Maize Program

Of the maize farmers in developing countries who grow improved cultivars, relatively few purchase and sow hybrid seed — most use open-pollinated varieties. To help our partners in those countries produce and deliver quality commercial seed of such maize to farmers in a timely fashion, CIMMYT produced a bulletin in 1984 describing variety development procedures, evaluation, variety release systems, types of open-pollinated varieties, maintenance and seed production, isolation standards for seed production, standards for maintaining
varietal uniformity, and various other considerations in planning seed production. The new edition updates these guidelines with current information and features an attractive, user friendly format.

0451. Technical Bulletin. 1998. Paperback. ($3.00, $1.00)

**Developing Drought and Low-N Tolerant Maize**


Proceedings of a symposium hosted at CIMMYT in 1995, this publication describes the incidence and intensity of the two stresses for maize in the tropics, the physiology of drought tolerance and the identification of secondary traits, breeding for drought tolerance, the performance of maize under low nitrogen conditions and breeding for tolerance, general considerations for stress breeding, designs and software for experiments in stressed environments, germplasm sources of drought tolerance, and modeling and geographic information system studies.


**Insect Resistant Maize: Recent Advances and Utilization**

J.A. Mihm, Technical Editor

Proceedings of an international symposium hosted by CIMMYT in 1994, this publication reports advances in worldwide research on the mechanisms and bases of insect resistance in maize; the genetics of resistance; on the biotechnological manipulation of resistance; on techniques for the mass rearing of pests, for scoring damage, for conducting bioassays, and for detecting resistance mechanisms; and on the verification and use of resistance. It also describes maize insect pests and related research in specific countries and regions.


**Wheat**

**The Adoption of Bed Planting of Wheat in the Yaqui Valley, Sonora, Mexico**

P. Aquino and E. Rice

This paper summarizes results of a recent survey of wheat farmers in the Yaqui Valley of northwestern Mexico. The data confirm a growing trend among farmers to plant wheat in raised beds, which, compared to traditional planting methods, permits better weed control and employs lower quantities of inputs, including fertilizer,
pesticides, seed, and water. The combination of improved weed control and reduced input use makes bed planting considerably more profitable than the alternatives. Limitations of the technology, as well as implications for future research and extension, are discussed.

4394. Wheat Program Special Report No. 17A. 1998. Also available in Spanish [4709. Informe Especial de Trigo No. 17b. La adopción del método de siembra de trigo en surcos en el Valle del Yaqui, Sonora, México.] (No charge.)

The Bacterial Diseases of Wheat: Concepts and Methods of Disease Management
E. Duveiller, L. Fucikovsky, and K. Rudolph, Technical Editors

Correctly identifying and diagnosing bacterial diseases is not particularly difficult if the researcher has some knowledge of the basic principles and techniques involved. This manual provides background information, concepts, and methods to help researchers, even those with limited lab facilities, identify bacterial pathogens causing wheat diseases. It also gives the general principles and guidelines of disease management as an aid in controlling bacterial diseases and selecting for disease resistance.

10

Fusarium Head Scab: Global Status and Future Prospects
H.J. Dubin, L. Gilchrist, J. Reeves, and A. McNab, Editors

Fusarium head scab is an important wheat disease in warm, humid areas, where it significantly reduces yield and quality and provokes toxicoses in animals and humans. Concerns about this disease and its effects are increasing, partly because the incidence of head scab has grown in several areas of the world, along with toxin-related illnesses caused by fusarium. In 1996, CIMMYT organized its third international workshop related to scab and the effects of Fusarium toxins. This workshop proceedings provides an overview of the incidence of small grains scab and its impact on food-feed production and health throughout the world, documents recent research on disease control strategies, and discusses the impact of those strategies. The proceedings is an essential reference for researchers working to achieve economical and environmentally safe control of this disease.


Helminthosporium Blights of Wheat: Spot Blotch and Tan Spot
E. Duveiller, H.J. Dubin, J. Reeves, and A. McNab, Editors

As wheat has been introduced into warmer areas where it was not previously planted, or as it has been grown in increasingly complex, intensive farming systems in the developing world’s traditional wheat growing areas, the incidence of helminthosporium blights of wheat (spot blotch, caused by Bipolaris sorokiniana, and tan spot, caused by Pyrenophora tritici-repentis) has increased. This proceedings of the international workshop on helminthosporium blights of wheat, organized by CIMMYT in 1997, contains updates on the incidence of these diseases throughout the world and reviews recent advances in pathology and breeding for disease resistance.


The International Wheat Information System (IWIS)
P.N. Fox, C. López, B. Skovmand, H. Sánchez, R. Herrera, J.W. White, E. Duveiller, and M. van Ginkel

The International Wheat Information System (IWIS) manages and integrates diverse information pertaining to bread wheat, durum wheat, and triticale. By providing each wheat and triticale with a unique identifier, IWIS can bring together varied information from many different sources. IWIS includes five CD applications and is an invaluable tool for all types of wheat researchers, especially breeders, who will be better able to identify and access the germplasm they need to do their work.

√ 3575. CD-ROM. 2nd ed. 1997. ($4.00, $1.00)

Economics

Africa’s Emerging Maize Revolution
D. Byerlee and C.K. Eicher, Editors

Although relatively new to Africa, maize recently replaced cassava as the continent’s most important food crop, and increased maize production has the potential to help reverse Africa’s food crisis. This book presents results of field research on the maize economy in six African countries, as well as broader-based studies of maize research and extension, soil fertility, seed distribution, fertilizer, and marketing and processing. The main finding of the research is that research and extension and associated input and marketing interventions have, as intended, produced rapid increases in maize production. Nevertheless, this success must be viewed in
perspective: crop yields are still low, yield gains are threatened by a loss of soil fertility, and many farmer support services require government subsidies. The authors outline the technical, institutional, and policy reforms needed for accelerating maize production in Africa.

Cereal Crop Productivity in Developing Countries: Past Trends and Future Prospects
P.L. Pingali and P.W. Heisey

This paper synthesizes evidence on cereal crop productivity in developing countries, beginning with a survey of trends in cereal crop productivity in those countries over the past 30 years. Evidence presented includes yield and other partial factor productivity trends and a summary of the few existing studies on multifactor productivity. Next, the authors discuss the sources of this growth in productivity and prospects for future growth, especially in areas that are already intensively cultivated. Future productivity gains are likely to be driven primarily by increasing land scarcity and/or by market infrastructure. The authors highlight measurement and data quality problems associated with estimating productivity trends and present implications for continued investment in agricultural research and education.

An Economic Analysis of the Abonera Maize Production System in the Atlantic Coast of Honduras
G. Sain and D. Buckles

This paper compares the economics of the abonera maize production system, in which maize is grown in rotation with a green manure crop (velvetbean, Mucuna deeringiana), with traditional bush-fallow cultivation of maize in the Atlantic Coast area of Honduras. A probabilistic cost-benefit analysis of introducing velvetbean into the maize cropping pattern is done for the field, farm, and regional level. The probabilistic approach allows for a more comprehensive assessment of economic profitability, one which recognizes that farmers are interested in reducing production risk as well as obtaining increases in average net benefits. The analysis reveals that the abonera is more profitable than the bush-fallow system and also makes second-season maize a less risky production alternative.

Economics Working Paper 98-02
Paperback. ISSN: 0258-8587. (No charge.)
By presenting the results of initial economic investigations of genetic diversity in the three major food crops (wheat, maize, and rice) in developing countries, this volume furthers the understanding of the economic context in which crop breeders make use of genetic resources and their diversity. It provides an annotated catalog of the tools used to measure and value genetic diversity. The book also explores fundamental questions related to the value and efficiency of conserving seed ex situ, in gene banks. Several chapters analyze farmers' objectives and incentives for conserving crop genetic resources in centers of crop diversity (in situ), offering procedures for monitoring, predicting, and developing potential mechanisms to encourage the conservation of crop genetic resources in farmers' fields. In addition, the book presents methodological issues that are important for studying the economics of crop species diversity in farmers' fields, and it examines how diversity is mediated by policies and institutions.

This publication, based on a study by the authors, examines smallholder farmers' seed selection practices in a Mexican community and their effects on local maize varieties. Study results indicate that farmers' seed selection practices protect the phenological integrity of their traditional maize varieties as they define them, despite numerous factors contributing to genetic instability. However, because the effects of farmers' selection practices are confined largely to ear characteristics, their practices appear to offer only limited scope for improving varieties. Thus, farmers' expectations of what they can achieve through seed selection are similarly limited. The authors conclude with detailed implications of their work, notably that there are potentially complementary roles for professional breeders and Mexican farmers in developing methods to improve maize landraces on farms, if the farmers themselves perceive benefits from the collaboration.
Feeding China, the world's most populous nation with more than 1.2 billion people, presents challenges and issues that can be instructive for other developing countries and of consequence to the global community through its impact on world grain stocks and availability. This publication, based on J.Y. Lin's Distinguished Economist lecture, looks to China's past and current policies to formulate proposals on what steps will be necessary for the country to feed itself in the future. The author explores and makes recommendations in four key areas: technological potential for yield improvement; agricultural research for yield improvement; investment in agricultural infrastructure; and incentives for farmers to adopt new technologies, maintain soil fertility, and apply inputs.

In research on the adoption of seed-fertilizer technologies in developing countries, it is rarely possible to observe input use among small-scale farmers over time. This study provides that kind of historical perspective. It records smallholders' use of hybrid maize seed and fertilizer in Malawi, as well as their opinions about the inputs, from the 1989/90 crop cycle through 1996/97. The study examines whether the chief constraint to smallholders' use of maize hybrids is the characteristics of the hybrids or the institutional reforms and policies affecting their use. The authors also present data on a practice that has implications for seed industries and seed technologies — farmers' re-use of hybrid seed, cycle after cycle. The findings contribute to the policy debate over prospects for increasing food production in sub-Saharan Africa under structural adjustment programs.

In research on the adoption of seed-fertilizer technologies in developing countries, it is rarely possible to observe input use among small-scale farmers over time. This study provides that kind of historical perspective. It records smallholders' use of hybrid maize seed and fertilizer in Malawi, as well as their opinions about the inputs, from the 1989/90 crop cycle through 1996/97. The study examines whether the chief constraint to smallholders' use of maize hybrids is the characteristics of the hybrids or the institutional reforms and policies affecting their use. The authors also present data on a practice that has implications for seed industries and seed technologies — farmers' re-use of hybrid seed, cycle after cycle. The findings contribute to the policy debate over prospects for increasing food production in sub-Saharan Africa under structural adjustment programs.

Maize Seed Industries in Developing Countries
M.L. Morris, Editor

Unless more effective ways can be found to deliver high-yielding seed to farmers in developing countries, the hoped-for "Green Revolution" in maize production will remain elusive. This comprehensive reference examines the spectrum of technical, economic, and
institutional issues that will have
to be resolved if maize seed
industries are to reach greater
numbers of farmers in
developing countries. Ten
thematic chapters on various
aspects of maize seed industries
are followed by nine case studies
illustrating the range of
developmental paths taken by
national maize seed industries
and indicating which
institutional arrangements
appear to be most effective at
fostering rapid and equitable
growth in maize production.

Maize Technology Development and
Transfer: A GIS Application for
Research Planning in Kenya
R.M. Hassan, Editor

Scientists at the Kenya
Agricultural Research Institute
(KARI) have developed powerful
new tools to improve the
effectiveness of their maize
research. The Kenya Maize Data
Base Project (MDBP), established
with the help of the Rockefeller
Foundation, CIMMYT, and with
partial support from the US
Agency for International
Development, enabled scientists
to use advanced technology to
prioritize and evaluate maize
research options more effectively,
by taking into account such
variables as climatic effects and
farmers' socioeconomic
conditions. This book recounts
the development and application
of the MDBP, which uses spatial
analysis to integrate data from
Geographical Information
Systems (GIS) with the results of
biological experiments,
socioeconomic statistics
(including interviews with
farmers), and agroclimatic
information. This provides a
powerful planning tool for
targeting new technology to the
needs of farmers.

Optimal Search in Ex situ
Collections of Wheat Genetic
Resources
D. Gollin, M. Smale, and B.
Skovmand

In this publication, the authors
develop a theoretical model for
analyzing gene bank
management decisions regarding
the search for traits of economic
value in ex situ collections of
wheat. Though applied here to
data on insect and disease
resistance, the model can be
adapted to search decisions for
other types of traits and crops.
Three specific questions are
posed and answered: 1) What is
the optimal size of search among
genetic resources of a given type
for a trait of economic value?; 2)
What is the value of specialized
knowledge about which genetic resources are most likely to display resistance?; and 3) How should search resources be allocated across types of genetic resources?


Natural Resources Management

An Agroclimatological Overview of Wheat Production Regions of Bolivia
D. Hodson, J.D. Corbett, P.C. Wall, and J. W. White

This report describes use of the Spatial Characterization Tool (SCT) developed by Texas A&M University to analyze the similarity of the climates of research sites in the major wheat production areas in Bolivia (the highland intermountain valleys and the lowland plains) to those of other regions. For highland environments, zones of similarity were found only in scattered regions of Bolivia and Peru, and the complex topography of the Andean region and the relatively large SCT grid cells (9 km x 9 km) hampered climate characterization. For lowland sites, combined results of analyses of the favorable season plus the coolest or driest quarters of the year (when wheat is actually grown in lowland Bolivia) identified the environments of adjacent areas of Bolivia, two regions in Brazil, small regions in Venezuela, plus areas in Mexico, Central America, and Africa as similar to those of the target sites in Bolivia. Site similarity analysis appears to be a valuable method for understanding relations among crop production environments, allowing prediction of crop responses to agronomic practices, assessments of genetic diversity or sustainability, and other types of studies. Current applications, however, are limited by a lack of quality data.


Conservation Tillage or Residue Conservation? An Evaluation of Residue Management in Mexico
O. Erenstein

The key to conservation tillage is the use of crop residues as mulch. Since tillage is only one of many factors that affect residue availability in the tropics, "residue conservation" would seem a more appropriate term in those environments. In Mexico, the emphasis of conservation tillage campaigns has been on eliminating or reducing burning and plowing. This paper summarizes the implications of residue conservation for crop production systems in Mexico. It
focuses mainly on maize-based systems, and includes discussions of the role of crop residues in soil and water conservation.

4349. NRG Reprint Series 97-02. 8 pp. Paperback. ISSN: 1405-3748. (No charge.) Also available in Spanish [4150. ¿Labranza de conservación o conservación de residuos? Una evaluación del manejo de los residuos en México. ISSN: 1405-3748.]

Cover Crops in Hillside Agriculture: Farmer Innovation with Mucuna
D. Buckles, B. Triomphe, and G. Sain

This book provides a comprehensive evaluation of a cover crop for hillside agriculture and an analysis of the socioeconomic and biophysical factors influencing farmers’ investments in resource-conserving practices. It looks at both the opportunities and constraints presented by cover crops in hillside agriculture, and, perhaps most importantly, tells the story of successful farmer innovation in Honduras.


Farmer Assessment of Velvetbean as a Green Manure in Veracruz, Mexico: Experimentation and Expected Profits
Meredith J. Soule

This study explores factors associated with farmers’ decision to experiment with the green manure velvetbean (Mucuna spp.) as a maize intercrop in three villages of Veracruz, Mexico. To assess whether velvetbean might be adopted on a wide scale in the region, the paper also examines variation in farmers’ perception of profits obtained through use of the velvetbean intercrop, compared with their common practices. A stratified random sample of 92 households from the three villages was used. The results show that, among other things, farmer’s perceptions of profitability depended on the common practice to which the green manure intercrop was compared and suggest the potential viability of combined green manure-inorganic fertilizer approaches to enhancing system productivity and sustainability.

The main farming systems of the Texizapan watershed in southern Veracruz, Mexico (200-1,640 meters above sea level) were characterized through a formal survey in 1995. Farm-level data included an inventory of resources (human, land, and capital), their use, and resource flows (both intra- and inter-household). Field-level data, particularly on input use and production, were gathered for the two major crops, maize and coffee. Given the low yields, high labor input, and limited external input use, returns to maize cultivation were low. Even so, maize cultivation was expected to continue in the study area, in view of the households’ consumption needs and limited alternative income opportunities. In view of the limited number of other food sources available locally and constraints on disposable income, the nutritional status of the households warrants closer attention. The major challenge facing producers was that of sustainably raising productivity to provide for consumption and other needs.

Increasing Wheat Yields Sustainably through Agronomic Means
P.R. Hobbs, K.D. Sayre, and J.I. Ortiz-Monasterio

New agronomic practices offer exciting opportunities for increasing wheat yields sustainably by overcoming some of the most common yield-limiting constraints without depleting the natural resource base. This paper examines common factors that constrain wheat yields: insufficient nutrients (using nitrogen as an example); problems of late planting and poor crop establishment; suboptimal water management; lodging; and weeds. The authors suggest agronomic practices, including tillage practices, rotations, and input management options that can ameliorate important constraints and sustainably improve yields. Examples are drawn largely from rice-wheat systems in the Indo-Gangetic Plains and from wheat systems in northwestern Mexico. These examples indicate that there is still considerable potential for raising wheat yields in a sustainable manner and meeting rapidly expanding demand for wheat in developing countries.
Reduced and Zero-Tillage Options for the Establishment of Wheat after Rice in South Asia
P.R. Hobbs, G.S. Giri, and P. Grace

Changes in tillage and crop establishment practices offer considerable potential for sustainably improving the productivity of wheat in the rice-wheat systems of South Asia, which are critical to regional food security. New tillage options being evaluated can raise yields and input efficiency, reduce machinery use, and cut costs by overcoming problems of late wheat planting. Results of research conducted on reduced and zero tillage systems to date is summarized. These systems are discussed in light of issues that warrant additional research, such as interactions between tillage and fertilizer use (methods and timing of application), pest management strategies, variety, and tillage and crop establishment practices for rice. Additional research is needed on the medium or longer term effects of alternative tillage practices. Research management strategies for encouraging the development and adoption of alternative tillage and crop establishment practices are discussed as well.

Research on Soil Fertility in Southern Africa: Ten Awkward Questions
L. Harrington and P. Grace

By raising important, sometimes ignored questions about research on soil fertility management in the subsistence, risk-prone maize-based cropping systems of sub-Saharan Africa, this paper seeks to improve the quality of problem definition, spatial and temporal extrapolation, and farmer participation, as well as to promote careful consideration of the factors governing adoption, links with policies, and longer-term and off-site consequences of changes in management practices. The article is targeted to Southern Africa, but the issues and their treatment are relevant to smallholder maize cropping and related research throughout the developing world.

Paperback. (No charge.)
Applied Biotechnology

Apomixis Newsletter No. 10 (August 1998)

This newsletter presents research results and information of interest to apomixis researchers worldwide. Full text is also available at:
http://www.cimmyt.mx/Research/ABC/ApomixisNewsletter10.htm


The Apomixis Project: IRD-CIMMYT

This brochure provides a general explanation of the IRD-CIMMYT apomixis project and its potential benefits for crop breeders, seed producers, and developing world farmers. Apomixis is the asexual reproduction of plants through seed. Full text is also available at:
http://www.cimmyt.mx/Research/ABC/Apomixisbroch-engl.htm


Laboratory Protocols, Applied Genetic Engineering Laboratory: Tissue Culture

Natasha Bohorova

This manual describes techniques involved in excising immature embryos from maize and wheat seed, the development of somatic embryogenesis and plant regeneration from callus, procedures for sterilizing plant materials, and media preparation for callus initiation, maintenance, and regeneration. It also lists the equipment and chemicals needed to initiate tissue culture work for maize and wheat.

√ 2684. Manual. 1997. 50 pp. Spiral bound. ($3.00, $1.00)
Ordering Information

Publications in this catalogue are distributed and priced according to the following guidelines:

- CIMMYT employs a two-tiered pricing structure. The price for citizens of high income countries is listed first; it is higher than the price for citizens of developing countries, reflecting a 50-60% discount on the high income country price.

- Prices are listed in US dollars. CIMMYT can accept payment (by check or money order) only in US dollars or Mexican pesos.

- Unless otherwise indicated, the cost of shipping is included in the price of the publication.

- All bona fide scientists/cooperators and graduate students residing in developing countries are entitled to a maximum of FIVE different publications (i.e., publications for which we normally charge) free of charge. CIMMYT must charge for multiple copies of individual titles.

- The order number for each publication (with the exception of reprints) is listed in boldface type.

- Note that we cannot offer refunds on videos.

- To obtain reprints of journal articles, see the Document Delivery form on page 31.

Mail to: CIMMYT
Publications Office
Apdo. Postal 6-641
06600 Mexico, D.F.
MEXICO

or Fax to: CIMMYT Publications
Office (5) 726 7558

or email: m.delgadillo@cgiar.org
**Order Form**

Please send me the following publications:

<table>
<thead>
<tr>
<th>Order number</th>
<th>Title</th>
<th>Quantity</th>
<th>Check here if publication is free</th>
<th>Price each</th>
<th>Total price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total**

Ordered by:

Name: ________________________________  Telephone: ________________________________

Organization: ______________________  Fax: ________________________________

Email: ________________________________

Address: ________________________________
Información para hacer pedidos

Los precios y la distribución de las publicaciones que aparecen en este catálogo se establecen de acuerdo con los siguientes criterios:

- El CIMMYT emplea una estructura de precios en dos niveles. El precio para los ciudadanos de países desarrollados aparece primero y es mayor que el que deberán pagar los ciudadanos de los países en desarrollo. El segundo representa un descuento del 50 a 60% sobre el primero.

- Los precios se dan en dólares EUA. El CIMMYT sólo acepta pagos (cheque o giro) en dólares o pesos mexicanos.

- A menos que se indique lo contrario, el costo del envío está incluido en el precio de la publicación.

- Todos los científicos y cooperadores, así como los estudiantes de postgrado que residen en países en desarrollo, tienen derecho como máximo a un ejemplar gratis de CINCO publicaciones distintas (por las que generalmente se cobra). Si desea adquirir varios ejemplares de la misma publicación, es necesario pagarlos.

- El número de pedido de cada publicación (con la excepción de los reimpresos) aparece en negritas.

- Nótese que no nos es posible reembolsar el costo de los videos.

Enviar por correo a: Oficina de Publicaciones del CIMMYT
Apdo. Postal 6-641
06600 México, D.F., MEXICO
o por fax a: Oficina de Publicaciones del CIMMYT (5) 726-7558
o por email a:
m.delgadillo@cgiar.org
Formulario de pedidos
Por favor envíeme las siguientes publicaciones:

<table>
<thead>
<tr>
<th>Número de pedido</th>
<th>Título</th>
<th>Cantidad</th>
<th>Marcar si la publicación es gratis</th>
<th>Precio unitario</th>
<th>Precio total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Solicitado por:
Nombre: ____________________________ Teléfono: ____________________________
Institución: __________________________ Fax: ____________________________
Dirección: __________________________ Email: ____________________________
Recent Publications from CIMMYT’s Regional Offices

Readers should contact CIMMYT’s regional offices concerning availability and prices of the following publications.

Bangladesh
CIMMYT
PO Box 6057, Gulshan
Dhaka-1212, Bangladesh
Fax: (880 2) 883 516
Email: cm@cimmyt.bdmemail.net
Primary contact: Craig Meisner

Bolivia
CIMMYT
c/o ANAPO, Casilla 2305
Santa Cruz, Bolivia
Fax: (591 3) 427 194
Email: cimmyt@bibosi.scz.entelnet.bo
Primary contact: Patrick Wall

China
CIMMYT
c/o Institute of Crop Breeding and Cultivation
Chinese Academy of Agricultural Sciences
Beijing 100081, China
Fax: (86 10) 6891 8547
Email: zhhe@public3.bta.net.cn
Contact: Zhonghu He

Colombia
CIMMYT
c/o CIAT
Apdo. Aéreo 67-13
Cali, Colombia
Fax: (57 1) 445 0025
Email: c.deleon@cgiar.org
Primary contact: Carlos De Leon

Costa Rica
CIMMYT
Apartado 55
2200 Coronado
San José, Costa Rica
Fax: (506) 229 2457
Email: gsain@iica.ac.cr
Primary contact: Gustavo Sain

Ethiopia
CIMMYT
PO Box 5689
ILRI Sholla Campus
Addis Ababa, Ethiopia
Fax: (251 1) 611 892/614 645
Email: cimmyt-ethiopia@cgiar.org
Primary contact: Wilfred Mwangi

Guatemala
CIMMYT
12 Calle 1-25 Zona 10
Edificio Geminis
Torre Norte, 16 Nivel, Of. 1606
Apdo. Postal 231-A
Guatemala, Guatemala
Fax: (502 2) 335 3407
Email: jbolanos@ns.guate.net
Primary contact: Jorge Bolaños

Kazakhstan
CIMMYT
PO Box 374
Almaty 480000
Kazakhstan
Fax: (7 3272) 398379
Email: karabayev@imbb.almaty.kaz
Primary contact: Alexei Morgounov
Kenya
CIMMYT
PO Box 25171
Nairobi, Kenya
Fax: (254 2) 631 499/630 164
Email: a.diallo@cgiar.org
Primary contact: Alpha Diallo

Nepal
CIMMYT
PO Box 5186, Lazimpat
Kathmandu, Nepal
Fax: (977 1) 419 352
Email: cimkat@mos.com.np
Primary contact: Peter Hobbs

Philippines
CIMMYT
c/o IRRI
MC P.O. Box 3127
Makati City, the Philippines
Email: m.george@cgiar.org
Primary contact: Maria Luz George

Syria
CIMMYT
Cereal Improvement Program
ICARDA
PO Box 5466, Aleppo, Syria
Fax: (963 21) 213 490
Email: m.nachit@cgiar.org
Primary contact: Miloudi Nachit

Thailand
CIMMYT
PO Box 9-188
Bangkok 10900, Thailand
Fax: (66 2) 561 4057
Email: svasal@loxinfo.co.th
Primary contact: Surinder Vasal

Turkey
CIMMYT
PK 39 Emek
Ankara, Turkey
Fax: (90 312) 287 8955
Email: cimmyt-turkey@cgiar.org
Primary contact: Hans-Joachim Braun

Uruguay
CIMMYT
CC 1217
Montevideo, Uruguay
Tel/fax: (598 2) 902 8522
INIA fax: (598 2) 902 3630
Email: cimmyt@inia.org.uy
Primary contact: Man Mohan Kohli

Zimbabwe
CIMMYT
PO Box MP 163
Mount Pleasant
Harare, Zimbabwe
Fax: (263 4) 301 327
Email: cimmyt-zimbabwe@cgiar.org
Primary contact: David Jewidi
Adoption of Maize Production Technologies in Central Tanzania

Farmers in Central Tanzania were interviewed to assess their adoption of maize production technologies and evaluate the impact of maize research and extension in the study area. A two-stage least squares procedure was used to analyze factors affecting farmers' allocation of land to improved maize varieties and use of inorganic fertilizer. Several ways in which research, extension, and policy could encourage the adoption of improved maize production technologies are outlined.


Adoption of Maize Production Technologies in Eastern Tanzania

Farmers in Eastern Tanzania were interviewed to assess their adoption of maize production technologies and evaluate the impact of maize research and extension in the study area. A two-stage least squares procedure was used to analyze factors affecting farmers' allocation of land to improved maize varieties and use of inorganic fertilizer. Several ways in which research, extension, and policy could encourage the adoption of improved maize production technologies are outlined.


Adoption of Maize Production Technologies in Northern Tanzania
E. Nkonya, P. Xavery, H. Akonaay, W. Mwangi, P. Anandajayasekeram, H. Verkuijl, D. Martella, and A. Moshi

This report is based on a study that evaluated the impact of maize research and extension during the past 20 years in Tanzania's Northern Zone (one of the country's seven agroecological zones that were concurrently surveyed). The study documented many important instances of adoption and non-adoption of various maize technologies and factors related to their adoption status. Some findings were particularly noteworthy, including: 80% of farmers recycled improved varieties, contrary to recommendations; the rates of adoption of fertilizer and its correct placement were low; and recommendations on land preparation methods, frequency and timing of weeding and fertilizer application, and plant...
spacings were successfully adopted in the region. Recommendations for future action are made based on the study.

Adoption of Maize Production Technologies in the Southern Highlands of Tanzania
S. Bisanda, S., W. Mwangi, H. Verkuijl, A.J. Moshi, and P. Anandajayasekeram

Farmers in the Southern Highlands of Tanzania were interviewed to assess their adoption of maize production technologies and evaluate the impact of maize research and extension in the study area. Tobit analysis was used to examine factors affecting farmers’ allocation of land to improved maize varieties and use of inorganic fertilizer. Several ways in which research, extension, and policy could encourage the adoption of improved maize production technologies are outlined.

Adoption of Maize Production Technologies in Southern Tanzania
N. Katinila, H. Verkuijl, W. Mwangi, P. Anandajayasekeram, and A.J. Moshi

Farmers in Southern Tanzania were interviewed to assess their adoption of maize production technologies and evaluate the impact of maize research and extension in the study area. Survey data were analyzed to determine factors affecting farmers’ use of improved maize varieties and other practices (especially fertilizer use, row planting, weed control, disease control, and maize storage measures). Several ways in which research, extension, and policy could encourage the adoption of improved maize production technologies are outlined.

Adoption of Maize Production Technologies in Western Tanzania

Farmers in the Southern Highlands of Tanzania were interviewed to assess their adoption of maize production technologies and evaluate the
impact of maize research and extension in the study area. A two-stage least squares procedure was used to analyze factors affecting farmers' allocation of land to improved maize varieties and use of inorganic fertilizer. Several ways in which research, extension, and policy could encourage the adoption of improved maize production technologies are outlined.

An Assessment of the Adoption of Seed and Fertilizer Packages and the Role of Credit in Smallholder Maize Production in Kakamega and Vihiga Districts, Kenya
B.D.S. Salasya, W. Mwangi, H. Verkuijl, M.A. Odendo, and J.O. Odenya

This study documents maize farmers' practices in Vihiga and Kakamega Districts of Kenya, which account for one-third of the maize area in the mandate region of the Regional Research Center–Kakamega. In both districts, farms are small and maize yields are very low. A formal farmer survey and logit analysis identified socioeconomic and technical factors affecting the adoption of improved maize seed and fertilizer. The authors describe specific ways in which research, extension, and policy could improve the adoption of maize technologies in the study area.

CIMMYT (International Maize and Wheat Improvement Center)
CIMMYT

Overview of CIMMYT in Russian.

D.C. Jewell, K.V. Pixley, M. Bänziger, S.R. Waddington, G. Varughese, B.T. Zambezi, and M. Mekuria

Overview of research program and recent results.

Farmers' Seed Sources and Management of Bread Wheat in Wolmera Woreda, Ethiopia
Hailu Beyene, H. Verkuijl, and W. Mwangi

This study focuses on the wheat seed system in Ethiopia and particularly in Wolmera woreda. The authors describe how
farmers acquire and exchange wheat seed, explore problems related to farmers' acquisition and transfer of wheat seed, document the status of previously released bread wheat varieties, and examine the effectiveness of the seed testing and release mechanism. A multistage stratified sampling design was used in selecting farmers for a formal survey in the study area, and logit analysis was used to draw conclusions about farmers' seed management and adoption of improved wheats.

Farmers' Wheat Seed Sources and Seed Management in the Chilalo Awraja, Ethiopia
Regassa Ensermu, W. Mwangi, H. Verkuijl, and M. Hassena

This study focuses on the wheat seed system in Ethiopia and particularly in Chilalo Awraja, a major wheat-growing area. The authors describe how farmers acquire and exchange wheat seed, explore problems related to farmers' acquisition and transfer of wheat seed, document the status of previously released bread wheat varieties, and examine the effectiveness of the seed testing and release mechanism. A multistage stratified sampling design was used in selecting farmers for a formal survey in the study area, and logit analysis was used to draw conclusions about farmers' seed management and adoption of improved wheats.

Farmers' Wheat Seed Sources and Seed Management in the Enebssie Area, Ethiopia
Alemu Hailye, H. Verkuijl, W. Mwangi, and Asmare Yallew

This study focuses on the wheat seed system in Ethiopia and particularly in Enebssie, a major wheat-growing area. The authors describe how farmers acquire and exchange wheat seed, explore problems related to farmers' acquisition and transfer of wheat seed, document the status of previously released bread wheat varieties, and examine the effectiveness of the seed testing and release mechanism. A multistage stratified sampling design was used in selecting farmers for a formal survey in the study area, and logit analysis was used to draw conclusions about farmers' seed management and adoption of improved wheats.
The Ninth Regional Wheat Workshop for Eastern, Central, and Southern Africa
D.G. Tanner, T.S. Payne, O.S. Abdalla, Editors

The ninth regional wheat workshop for Eastern, Central, and Southern Africa assembled researchers from Ethiopia, Uganda, Kenya, Burundi, Tanzania, Zambia, Zimbabwe, and South Africa and their counterparts in the international research and development community to review current issues in wheat research and production in the region. The workshop, sponsored by the CIMMYT/CIDA Eastern Africa Cereals Program, the CIMMYT/EU Eastern Africa Project, and the SADC Wheat Programs, covered wheat crop management and physiology, economic studies, wheat breeding and genetics, and wheat diseases and pests.

P.R. Hobbs and N.P. Rajbhandari, Editors

This proceedings synthesizes results of six years of research by scientists of the Nepal Agricultural Research Council (NARC) at sites in the lowlands and mid-hills where the rice–wheat cropping system is important. The research focused on several issues that will be critical to the future sustainability and productivity of rice–wheat cropping systems, including tillage and crop establishment, integrated nutrient management, integrated pest management, farmer monitoring and outreach, irrigation, and farm equipment. Papers on these topics are followed by synopses of workshop findings, discussions of research results, and discussions about future priorities for research on the rice–wheat cropping systems of Nepal.

Resultados del decimosextó vivero de líneas avanzadas del Cono Sur (LACOS)
M.M. Kohli, Editor

The nursery of advanced lines of Southern Cone countries (LACOS) is a collaborative effort among the national wheat improvement programs of the member nations of PROCISUR. Through this nursery, which is coordinated by CIMMYT and INIA, the national program of Uruguay, advanced wheat lines are exchanged and evaluated at the regional level. This report contains results of the 16th nursery, which contained 318 advanced lines and varieties developed by 19 research centers. 
throughout the Southern Cone of South America. Information is provided on yield, disease resistance, and other importance characteristics of interest to breeders.

Contact Uruguay office.

Soil Fertility Research for Maize-Based Farming Systems in Malawi and Zimbabwe
S.R. Waddington, H.K. Murwira, J.D.T. Kumwenda, D. Hikwa, and F. Tagwira, Editors

Proceedings of a results and planning workshop of the Rockefeller Foundation-funded “Soil Fertility Research Network for Maize Based Cropping Systems in Malawi and Zimbabwe,” at Africa University, Mutare, Zimbabwe, July 1997, this publication brings together 40 papers representing more than 4 years work by network members. Major topics covered include general soil fertility research issues and the development of technologies to address soil fertility constraints in southern Africa, including intercrops and rotations, green manures, new legumes and legume screening, improved fallows and trees, organic x inorganic input combinations, and inorganic fertilizer management.


Wheat: Prospects for Global Improvement
H.-J. Braun, F. Altay, W.E. Kronstad, S.P.S. Beniwal and A. McNab

Contact Turkey office.
Reprints of Journal Articles
by CIMMYT Staff: 1998*

√ Abayo, G.O.; English, T.; Eplee, R.E.; Kanampiu, F.K.; Ransom, J.K.; Gressel, J.

√ Bindraban, P.S.; Sayre, K.D.; Solis Moya, E.


* To obtain a copy of an article listed here, see the Document Delivery Form/Forma para la entrega de documentos, page 31.


General Interest


1993/94. Nuevamente, la industria de semilla de maíz: Funciones emergentes de los sectores público y privado; ISSN 1405-2105]. ($10.00, $4.00)


✓ 1379. Fifty Years around the Third World: Adventures and Reflections of an Overseas American. H. Hanson. ISBN 0-87034-080-8. (Hardcover, $16.95; softcover, $11.95)


✓ 1162. Scientific Information Bulletin. Produced six times per year. Each issue approximately 16 pp. ($20.00, No charge.)

✓ 0424. Seed Health at CIMMYT. Pamphlet. Also available in Spanish [0433 Sanidad de Semilla en el CIMMYT] (No charge.)


Maize


0497. Efficient Mass Rearing and Infestation Techniques to Screen for Host Plant Resistance to Fall Armyworm, Spodoptera frugiperda. Technical Bulletin. J.A. Mihm. 1983. 16 pp. Paperback. Also available in Spanish [0514 Técnicas eficientes para la crianza masiva e infestación de insectos, en la selección de las plantas hospedantes para la resistencia a los taladradores del tallo del maíz, Diatraea spp.]. ($3.00, $1.00)


√ 0613. Managing Trials and Reporting Data for CIMMYT’s International Maize Testing Program. Technical Bulletin. Fourth printing. 1994. 20 pp. Paperback. Also available in Spanish [0622 Manejo de ensayos e informe de datos para el programa de ensayos internacionales del maíz en CIMMYT]. ($2.00, $1.00)

√ 3809. Managing Trials and Reporting Data for CIMMYT’s International Maize Testing Program. Technical Bulletin. 1995. 20 pp. Paperback. Also available in Spanish [3818 Manejo de ensayos e informe de datos para el programa de ensayos internacionales del maíz en CIMMYT]. ($2.00, $1.00)

√ 1748. La reducción de micotoxinas en alimentos para animales [Reducing mycotoxins in animal Feed]. H.L. Trenholm, D.B. Prelucky, J.C. Young, and J.D. Miller. 1990. 26 pp. Paperback. Distributed for Agriculture Canada by CIMMYT. Agriculture Canada Publication No. 1827. Also available in English or French from the Communications Branch, Agriculture Canada, Ottawa K1A OC7. ISBN 0-662-02167-3. ($3.00, $1.00)


Wheat

Price information: Wheat Program Special Reports are photocopied on request. Please inquire about the price and mailing costs. If you are not at CIMMYT, e-mail for price information:
m.delgadillo@cgiar.org


0712. Characteristics of Selected Seedborne Fungi. Poster. In color. Also available in Spanish [0884 Características de un grupo de hongos que atacan al trigo y son transmitidos por la semilla (carbón parcial)]. ($2.00, $1.00)

3719. CIMMYT Results of the twenty-seventh International Spring Wheat Yield Nursery 1990-91. 1995. CIMMYT. 82 pp. (No charge.)


0695. Common Cereal Aphids. Poster. In color. ($2.00, $1.00)

0703. Common Cereal Viruses. Poster. In color. ($2.00, $1.00)

Paperback. Also available in Spanish [0785 Guía para la identificación de enfermedades en cereales de grano pequeño] and French [0794 Maladies communes des cereales apaille: guide d’identification]. ($25.00, $10.00)


√ 2648. Four Years of On-Farm Research Results at Chalco, Mexico. Wheat Program Special Report No. 34. M.A. Bell. 1994. 35 pp. ISSN 0187-7787.


Identification of Rust Diseases on Wheat. Poster. In color. Also available in Spanish [0758 Identificación de royas en trigo] and French [0767 Identification des rouilles du ble]. ($2.00, $1.00)


0875. Rust Scoring Guide. Field Guide. 8 pp. Paperback. Also available in French [0893 La rouille quantification]. ($3.00, $1.00)


Economics


√ 1397. Determining Comparative Advantage through DRC Analysis: Guidelines Emerging from CIMMYT’s Experience. Economics Paper No. 1. M.L. Morris. 52 pp. ISSN 0188-2414. Also available in Spanish [1405 Determinación de la ventaja comparativa mediante el análisis del CRI: Pautas establecidas a partir de la experiencia del CIMMYT; ISSN 0188-2422]. ($7.00, $3.00)


1135. Improving Soil Fertility with Green Manures. Video. 6:47 minutes. D. Buckles. 1993. Also available in Spanish [1144 Pica pica mansa y la milpa]. ($8.00)


1441. Modeling the Aggregate Effects of Technological Change on Income Distribution in Pakistan’s Favored and Marginal Production Environments. Economics Paper No. 4. M. Renkow. 1991. 120 pp. ISSN 0188-2414. Also available in Spanish [1982 Modelos de los efectos globales de los cambios tecnológicos sobre la distribución de los ingresos en ambientes de producción favorecidos y marginales de Pakistan; ISSN 0188-2422]. ($7.00, $3.00)

Natural Resources Group


- 1414. Triticale Production in the Central Mexican Highlands: Smallholders’ Experiences and Lessons for Research. Economics Paper No. 2. J. Carney. 1990. 56 pp. ISSN 0188-2414. Also available in Spanish [1423 Producción de triticale en la Meseta Central de México: Experiencias de los pequeños agricultores y lecciones para la investigación; ISSN 0188-2422]. ($7.00, $3.00)


Applied Biotechnology


CIMMYT’s Regional Offices


