Major Constrains and Verdict of Crop Productivity

The Editor

Dr. U.N. Bhale, presently Assistant Professor, Department of Botany, Arts, Science and Commerce College Naldurg Tq. Tuljapur, Dist. Osmanabad affiliated to Dr.Babasaheb Ambedkar Marathwada University Aurangabad (MS). He has completed his Ph.D. in Botany (Plant Pathology) from Dr.Babasaheb Ambedkar Marathwada University Aurangabad (MS). He has 12 years teaching and 15 years research experience. He has contributed more than 90 papers in National and International journals of repute. He has published 3 books, guided 06 Ph.D. students and attended 37 National and International conferences. He has completed 03 Minor and 01 Major research projects. He has successfully organized a National Conference as Organizing Secretary funded by University Grants Commission (UGC). His areas of interest are Mycology, Plant pathology and VAM technology. He is an Associate Editor of International Journal of Bioscience Discovery and Life Member of Academy of Plant Sciences, IPS, ISMPP, BBRC, MSI, IMS, JBB and IJPS.

Major Constrains and Verdict of Crop Productivity

Volume 1

Editor
Dr. U.N. Bhale
Department of Botany,
Arts, Science and Commerce College,
Naldurg – 413 602
Tal. Tuljapur, Dist. Osmanabad,
Maharashtra (India)

2015
Daya Publishing House®
A Division of
Astral International Pvt. Ltd.
New Delhi – 110 002

Cataloging in Publication Data--DK
Courtesy: D.K. Agencies (P) Ltd. <docinfo@dkagencies.com>
Major constrains and verdict of crop productivity / editor, Dr. U.N. Bhale.
pages cm
Includes bibliographical references and index.
ISBN 9789351243489 (Set)
ISBN 9789351243694 (Vol. 1)
ISBN 9789351243700 (Vol. 2)
ISBN 9789351305545 (International Edition)
1. Crops and soils--India. 2. Soil productivity--India. I. Bhale, U. N., editor.
DDC 631.4954 23

Published by : **Daya Publishing House®**
A Division of
Astral International Pvt. Ltd.
– ISO 9001:2008 Certified Company –
4760-61/23, Ansari Road, Darya Ganj
New Delhi-110 002
Ph. 011-43549197, 23278134
E-mail: info@astralint.com
Website: www.astralint.com

Laser Typesetting : **Classic Computer Services**, Delhi - 110 035

Printed at : **Replika Press Pvt. Ltd.**

PRINTED IN INDIA

Contents

Volume-2

2015, Major Constrains and Verdict of Crop Productivity *Pages 75–97*
Editor: **Dr. U.N. Bhale**
Published by: **ASTRAL INTERNATIONAL (P) LIMITED, NEW DELHI**

Chapter 5

Role of Biotechnology in Crop Improvement

T. Ugandhar[1]*, M. Venkateshwarlu[2] and T. Srilatha[3]

[1]Department of Botany,
S.R.R. Govt Degree and P.G. College, Karimnagar – 505 001, India
[2]Department of Botany,
University College, Kakatiya University, Warangal – 506 009, India
[3]Department of Botany,
Govt Degree and P.G. for Women, Warangal – 506 009, India

Introduction

The last decade has witnessed remarkable change which has taken plant biotechnology from study of basic science to large scale commercial applications. This is true for almost every aspect of plant biotechnology such as development of molecular markers to speed up plant breeding practices and using knowledge of genes and their expression to generate and commercialize transgenic crops. In general, the role of biotechnology in crop improvement can be divided into two categories:

1. Those directed towards same goals as conventional plant breeding like improved yield, quality, resistance to pests and diseases, tolerance to abiotic stresses etc by molecular breeding or production of transgenic crops.
2. Novel applications such as use of plants as bioreactors to generate pharmaceuticals, vaccines or biodegradable plastics.

* *Corresponding Author*: E-mail: tugandharbiotech@gmail.com

A) Molecular Breeding

By 2025, the global population will exceed seven billion. In the interim per-capita availability of arable land and irrigation water will decrease from year to year as biotic and abiotic stresses increase. Food security, best defined as economic, physical and social access to a balanced diet and safe drinking water will be threatened, with a holistic approach to nutritional and nonnutritional factors needed to achieve success in the eradication of hunger. Science and technology can play a very important role in stimulating and sustaining an Evergreen Revolution leading to long-term increases in productivity without any associated ecological harm (Borlaug, 2001; Swaminathan, 2007). The objectives of the plant breeder can be realized through conventional breeding integrated with various biotechnology developments (Damude and Kinney, 2008; Xu *et al.*, 2009c).

Plant breeding can be defined as an evolving science and technology (Figure 5.1). It has gradually been evolving from art to science over the last 10,000 years, starting as an ancient art to the present molecular design-based science. Plant breeding is becoming quicker, easier, more effective and more efficient (Phillips, 2006). Plant breeders will be well equipped with innovative approaches to identify and/or create genetic variation, to define the genetic feature of the genes related to the variation (position, function and relationship with other genes and environments), to understand the structure of breeding populations, to recombine novel alleles or allele combinations into specific cultivars or hybrids, and to select the best individuals with desirable genetic features which enable them to adapt to a wide range of environments. Sequencing data for many plants is now readily available and the Gene Bank database is doubling every 15 months. Over 20 plant species including many important crops are in the process of being sequenced (Phillips, 2008). The next challenge is to determine the function of every gene and eventually how genes interact to form the basis of complex traits. Fortunately, DNA chips and other technologies are being developed to study the expression of multiple or even all genes simultaneously. High throughput robotics and bioinformatics tools will play an essential role in this endeavor.

New information about our crop species is expanding our capabilities to use molecular genetics. For example, we did not previously realize how similar broadly related species are in terms of their gene content and gene order. Since these species cannot usually be crossed, there was no means of assessing their relatedness. With the advent of DNA-based molecular markers, the extensive genetic mapping of chromosomes became readily possible for a variety of species. We learned that the genomes were highly similar and that this similarity allowed the prediction of gene locations among species. For example, rice has become the model or reference species for the cereals as many of the gene sequences on the rice chromosomes are shared with other cereals such as maize, sorghum, sugarcane, millet, oats, wheat and barley (Xu *et al.*, 2005). Knowing the complete DNA sequence of a model or reference genome allows genes/traits from this model to be tracked to other genomes. We have come to realize that the differences between species of plants are not due to novel genes, but to novel allelic specifications and interactions (Figures 5.1 and 5.2).

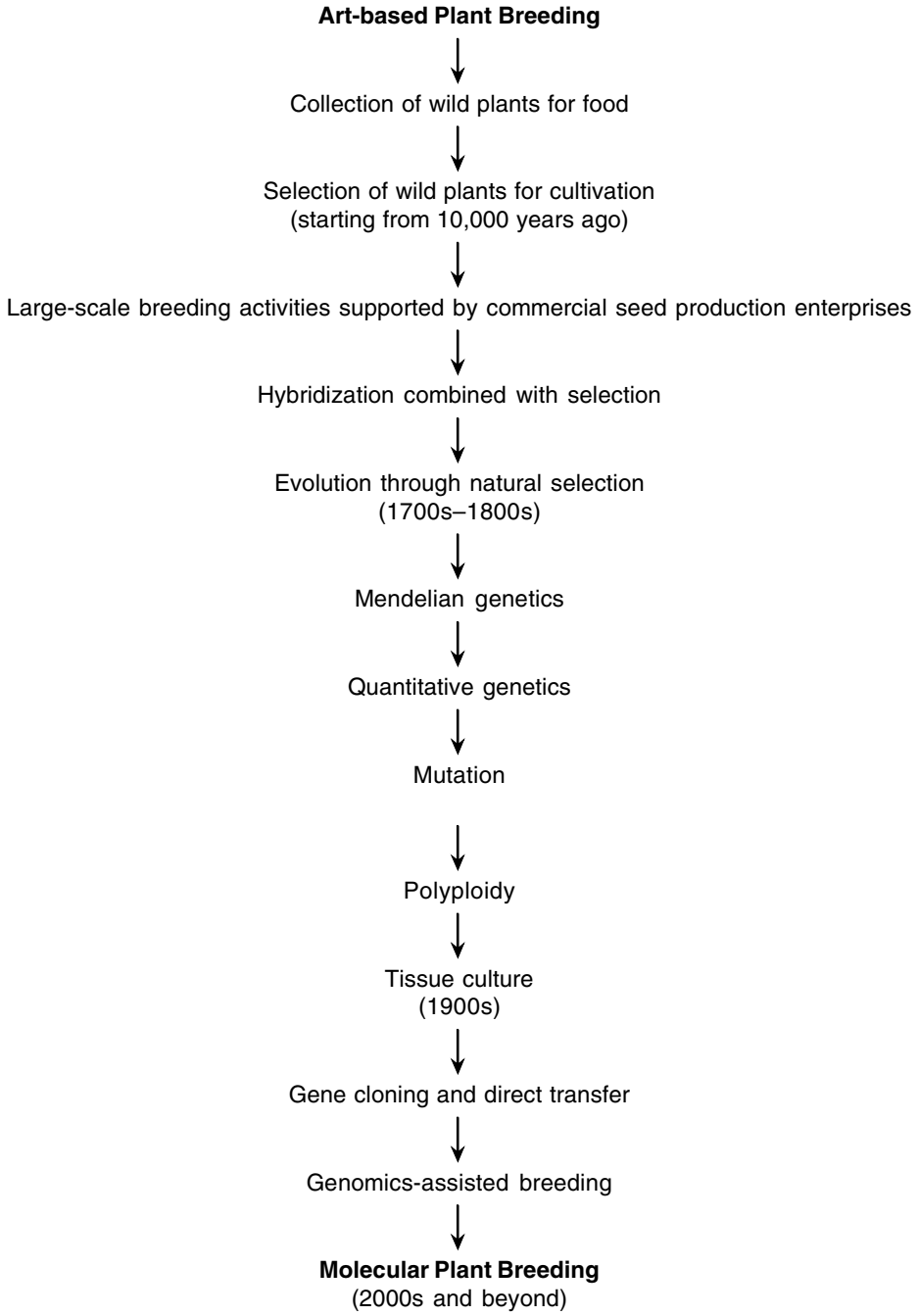

Figure 5.1: The Steps of Evolution of 'Plant Breeding'. With the availability of more sophisticated tools, the art of plant breeding became science-based technology, molecular plant breeding.

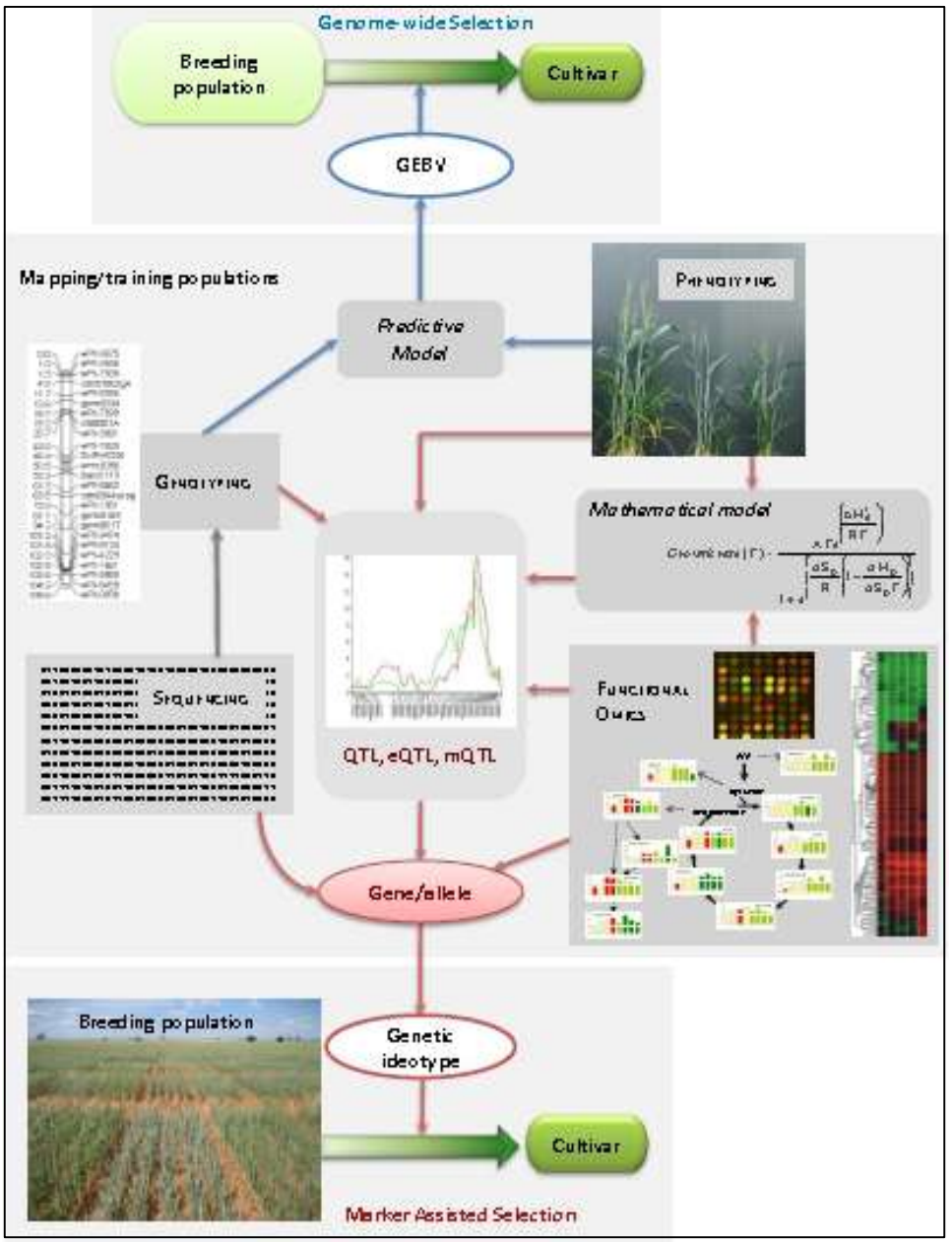

Figure 5.2: Future Molecular Breeding Strategies.

Molecular Breeding and Marker-Assisted Selection

The process of developing new crop varieties can take almost 25 years. Now, however, biotechnology has considerably shortened the time to 7-10 years for new

ECONOMICS OF TRIBAL AGRICULTURE

Dr. B. BONDYALU

ABOUT THE AUTHOR

Dr. B. BONDYALU

Dr.B.Bondyalu is working as assistant professor of economics in SR&BGNR Government Degree College,Khammam of Telangana State,on deputation basis at present.Born in 1972 in a village in Warangal district his early education took place in the Z.P High School Nekkonda and intermediate education in the A.P.R.J.C Utnoor of Adilabad district. Dr.B.Bondyalu completed the degree education from university arts college Warangal and post-graduation in economics from Kakatiya University,Warangal in 1998.He was qualified in SLET in 1999 and he joined SSRJ Arts and ScienceCollege in Khammam as a Lecturer in Economics in2002.He pursued M.Phil from Madurai Kamaraj Universityand hewas awarded Ph.D by the Kakathiya University for his thesis an "Economics of Tribal Agriculture,A study of select Tribal Villages" under the supervision of Professor A. Vinayaka Reddy, His areas of interest include "tribal economy and agricultural economics and he has 10 published papers" to his credit Dr.B.Bondyalu has attended one orientation course in S.V. University Tirupati,two refresher courses in Osmania University Hyderabad and one workshop at Hyderabad.He has participated in different international and national and state level seminars and has given extension lecturers, He has been teaching UG and PG students under regular and distance mode of Kakathiya University and Dr.B.R.Ambedkar UniversityHyderabad.

The scheduled tribes in India, numbering more than 700 are distinct as a social group with their unique featuresof socio economic, cultural and religeous living. ST population of 10.43crores in India as per 2011 census accounting for 8.6 percenta of the total population is widely spread across the states and union territories with a few exceptions. The state of Telengana has the largest concentration of ST population, 9.3percenta among the states of south India.

This book divided to six chapters. vividly presents the transformation of tribal agriculture to modernity by selecting one plain and one agency villages inhabited by two different tribes, All the aspects of tribal agriculture like podu cultivation crop pattern, input applications and marketing of agricultural produce are analised in detail .The extent of awareness and transition to modernity are elobrated at length as more than 80 percent of the tribals depend on agriculture. A separate chapter comparing the two sample villages focuses on the variations in catching of the trends of modernity in agriculture. Spatial factors weigh more in the change of mindset and production process as the plain village is ahead in modern practices when compared to the agency village. This book is of immense help to the researches,academicians, policymakers and to those who have a stake in tribal development.

Price: 600/-

ROSHAN Publications
New Delhi, Visakhapatnam
E-mail: roshanpublications@gmail.com

ISBN : 978-93-87540-16-3

CONTENTS

ECONOMICS OF TRIBAL AGRICULTURE

Dr. B. BONDYALU

ABOUT THE AUTHOR

Dr. B. BONDYALU

Dr.B.Bondyalu is working as assistant professor of economics in SR&BGNR Government Degree College,Khammam of Telangana State,on deputation basis at present.Born in 1972 in a village in Warangal district his early education took place in the Z.P High School Nekkonda and intermediate education in the A.P.R.J.C Utnoor of Adilabad district. Dr.B.Bondyalu completed the degree education from university arts college Warangal and post-graduation in economics from Kakatiya University,Warangal in 1998.He was qualified in SLET in 1999 and he joined SSRJ Arts and ScienceCollege in Khammam as a Lecturer in Economics in2002.He pursued M.Phil from Madurai Kamaraj Universityand hewas awarded Ph.D by the Kakathiya University for his thesis an "Economics of Tribal Agriculture,A study of select Tribal Villages" under the supervision of Professor A. Vinayaka Reddy, His areas of interest include "tribal economy and agricultural economics and he has 10 published papers" to his credit Dr.B.Bondyalu has attended one orientation course in S.V. University Tirupati,two refresher courses in Osmania University Hyderabad and one workshop at Hyderabad.He has participated in different international and national and state level seminars and has given extension lecturers, He has been teaching UG and PG students under regular and distance mode of Kakathiya University and Dr.B.R.Ambedkar UniversityHyderabad.

The scheduled tribes in India, numbering more than 700 are distinct as a social group with their unique featuresof socio economic, cultural and religeous living. ST population of 10.43crores in India as per 2011 census accounting for 8.6 percenta of the total population is widely spread across the states and union territories with a few exceptions. The state of Telengana has the largest concentration of ST population, 9.3percenta among the states of south India.

This book divided to six chapters. vividly presents the transformation of tribal agriculture to modernity by selecting one plain and one agency villages inhabited by two different tribes, All the aspects of tribal agriculture like podu cultivation crop pattern, input applications and marketing of agricultural produce are analised in detail .The extent of awareness and transition to modernity are elobrated at length as more than 80 percent of the tribals depend on agriculture. A separate chapter comparing the two sample villages focuses on the variations in catching of the trends of modernity in agriculture. Spatial factors weigh more in the change of mindset and production process as the plain village is ahead in modern practices when compared to the agency village. This book is of immense help to the researches,academicians, policymakers and to those who have a stake in tribal development.

Price: 600/-

ROSHAN Publications
New Delhi, Visakhapatnam
E-mail: roshanpublications@gmail.com

ISBN : 978-93-87540-16-3

CONTENTS

Social Transformation and Cultural Heritage of Lambada Community in Telangana

Boda Hathiram

Social Transformation and Cultural Heritage of Lambada Community in Telangana

ISBN 978-93-84845-89-6
Price : Rs. 300/-

PRAGMA PUBLICATIONS
Hyderabad - 44

CONTENTS

About the Author

Dr. Boda Hathiram obtained his M. A. and Ph.D. degrees from Kakatiya University, Warangal, Telangana and M.Phil. Degree from Potti Sri Ramulu Telugu University, Srisailam, Andhra Pradesh, Currently, he is working as Contract Lecturer, Department of History, Government Degree College, Mahadevpur Jayashankar Bhupalpally district, Telangana. His research interest on Social History. He published nearly five articles in various journals and proceedings.

₹ 300/-

PRAGMA PUBLICATIONS
Hyderabad - 500 044.

ISBN No. 978-93-84845-89-6

ANDHRA PRADESH HISTORY CONGRESS

PROCEEDINGS OF THE
FORTY FIRST SESSION
ANANTHAPURAMU - 2017

ISSN 2320-057X

14. Ibid, p.47.
15. Alvin Texas Fishermen., Cultural Change and the Under Privileged, A Study of Madigas in South India under Christian Guidance, The Christian Literature Society of India, Secunderabad, 1941, p.32.
16. P.Y. Luke & John B. Carman., Rural Christians in South India, Village Christians and Hindu Culture, ISPCK, Delhi, 1968, P.18.
17. Alvin Texas Fishermen., Cultural Change and the Under Privileged, A Study of Madigas in South India under Christian Guidance, Opcit, p.32.
18. [illegible] 29.
19. Ibid, p.57.
20. Ibid, 58, and American Baptist Telugu Mission Report, 1879, p.17.
21. Alvin Texas Fishermen., Cultural Change and the Under Privileged, A Study of Madigas in South India under Christian Guidance, Opcit, p.58.
22. Ibid, p. 60.
23. [illegible] 19.

Proverbs of Lambadas (Gwar Matiri Saaki)

Boda Hathiram
Research Scholar, Dept. of History & Tourism Management
Kakatiya University, Warangal

Proverb is a word derisive from Latin proverbium. Proverbs are some sentences that come with a long period of human life. Those sayings are normally look as simple and concert sentences, popularly known and repeated, that expresses a truth based on common sense or the practical experience of humanity. They are often metaphorical.

Proverbs are often borrowed from similar languages and cultures, and sometimes come down to the present through more than one language. In Lambada this is one of the oldest practices known as "GWAR MATIRI SAAKI". From these proverbs we can understand lambada language is the old language.

These proverbs of lambada's show their accuracy and fluency towards the language. Life of Lambadas not only depends on their routine speeches but also proverbs. Lambada proverbs can have huge impact of their own experiences, while roaming towards one end to the other end of the earth on their duties and business. As per their experience they gained knowledge and put that in to as proverbs. Proverbs explains real life incidents of Lambadas and they formed those words as universal truth[1].

In community of the lambadas proverb can represent perfect and reality of life as a part. As a human being man can get sorrows and joys in the same manner. So he who gets the knowledge about personal experience can be a creation of words as proverb. In one note we can say the proverb can be framed through a single person experience but creation of proverb can be one single persons but it can have universal appeal.

A saying cannot be a sentence because it has to be accepted by the people and used in general speeches. Proverb represents entire meaning of human life in one word. According Sundaram "In generally a proverb consist a sentence or two but it has uniformity of words at the end of sentence, as a proverb can be divided as two parts consisting same number of words in each part like.

Chesindhipodhu – cheyandhiradhu
Cheseviiopalu – chebithekopalu
Nalugurunadichindhebaata – paluvurupalikindhemaata

In this proverbs cannot be consist equal parts of proverbs but it can followed rhyme scheme and rhythm. Thomas Fuller says proverb means "much matter in decoted in decoted in a few words".

Characteristics of Proverb

1. Simplicity of words.
2. Must be a sentence.