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## **ODOM YAZMIN**

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Physics Briefs Springer Nature  
High-quality seed is essential for healthy crops and greater agricultural productivity. At the same time, advances in breeding technology require equivalent advances in seed technology. In order to ensure food security, it is crucial to develop seeds that are high yielding, and resistant to drought, heat, cold, and insects. Gathering the latest research in seed sciences, the book includes contributions on seed production in crops such as legumes, sugar, rice, wheat and other cereals. It discusses a range of topics, like the effect of climate change on seed quality, production and storage; seed rouging; seed certification for different crop species; seed biology; and seed pathologies and their effective management. Integrating basic and applied research, this compendium provides valuable insights for researchers and students in agricultural

and life sciences; professionals involved in seed certification and those working in quarantine laboratories; as well as plant pathologists.

Accelerating Genetic Gains in Pulses  
Springer

Legumes in the Omic Era provides a timely review of recent advances in legume genomics research and application. In this post-genomic era enormous amount of biological information is available which could be of huge potential use for crop improvement applications. This aspect of genomics assisted plant breeding is focused throughout the book for all the important grain legume crops. Role of functional genomics and importance of bioinformatics tools in present day genomics and molecular breeding research is also discussed in detail. Use of molecular tools for nutritional fortification of grain legume is briefly presented. A chapter also been contributed on fungal disease resistance to elucidate potential application of genomic tools in molecular breeding of grain legume species. The book contains fifteen chapters contributed by 50

scientists from different countries who are actively involved in analyzing and improving particular legume genome. This book will serve as reference resource to legumes researchers for use of genome information in improvement of major legume crops. Dr Sanjeev Gupta is Principal Scientist/Project Coordinator-All India Coordinated Research Project on Vigna Crops at Indian Institute of Pulses Research (IIPR), Kanpur. He has more than two decades of research experience in grain legume breeding and developed a number of high yielding cultivars in grain legumes. He is authored numerous research papers published in peer-reviewed journals and edited several books in plant breeding aspects. He was the Organizing Secretary of the International Grain Legume Conference, 2009 held in the Indian Institute of Pulses Research, Kanpur, India. He has travelled across the continents to present his research several times. He is recipient of several awards for his research and literary contributions Dr. Nagasamy Nadarajan is the Director of the Indian Institute of Pulses Research (IIPR), Kanpur. He has more than three decades of teaching and research experience and developed more than fifteen legume and cereal cultivars. He has to his credits more than 200 peer-reviewed research publications. He has guided several graduate students for Masters and Doctoral degrees in food legume breeding and genetics research. He has authored a book in biometrics which is one of the most popular books among the agriculture graduate students in India. He is the recipient of three international and six national awards and honours for his outstanding contributions Mr. Debjyoti Sen Gupta is the ICAR International Fellow and Ph.D.

candidate at North Dakota State University (NDSU), Fargo, USA. Recently, he visited Department of Crop and Soil Sciences, Washington State University, Pullman, USA for high throughput genotyping work. Before joining at NDSU he was serving as the Scientist in the Indian Institute of Pulses Research (IIPR). He has authored several research articles, review articles and book chapters in the peer-reviewed journals and books from reputed publishers like Springer, CABI etc. He is recipient of several fellowships like CSIR-JRF, New Delhi; ICAR-JRF, New Delhi throughout his graduate study programs.

**The Finger Millet Genome** Woodhead Publishing

Merging topical data from recently published review and research articles, as well as the knowledge and insight of industry experts, *Omic Applications in Crop Science* delves into plant science, and various technologies that use omics in agriculture. This book concentrates on crop breeding and environmental applications, and examines the applicatio

Legumes in the Omic Era Elsevier

This book presents deliberations on molecular and genomic mechanisms underlying the interactions of crop plants to the abiotic stresses caused by heat, cold, drought, flooding, submergence, salinity, acidity, etc., important to develop resistant crop varieties.

Knowledge on the advanced genetic and genomic crop improvement strategies including molecular breeding, transgenics, genomic-assisted breeding, and the recently emerging genome editing for developing resistant varieties in oilseed crops is imperative for addressing FHNEE (food, health, nutrition, energy, and environment) security. Whole genome sequencing of

these crops followed by genotyping-by-sequencing has provided precise information regarding the genes conferring resistance useful for gene discovery, allele mining, and shuttle breeding which in turn opened up the scope for 'designing' crop genomes with resistance to abiotic stresses. The eight chapters each dedicated to a oilseed crop in this volume elucidate on different types of abiotic stresses and their effects on and interaction with the crop; enumerate on the available genetic diversity with regard to abiotic stress resistance among available cultivars; illuminate on the potential gene pools for utilization in interspecific gene transfer; present brief on classical genetics of stress resistance and traditional breeding for transferring them to their cultivated counterparts; depict the success stories of genetic engineering for developing abiotic stress-resistant crop varieties; discuss on molecular mapping of genes and QTLs underlying stress resistance and their marker-assisted introgression into elite varieties; enunciate on different genomics-aided techniques including genomic selection, allele mining, gene discovery, and gene pyramiding for developing adaptive crop varieties with higher quantity and quality of yields, and also elaborate some case studies on genome editing focusing on specific genes for generating abiotic stress-resistant crops.

*Polyploidy and Hybridization for Crop Improvement* New Age International Chickpea: Crop Wild Relatives for Enhancing Genetic Gains explores aspects related to critical analysis on factors responsible for narrow genetic base of chickpea productions including domestication bottleneck, the level of diversity present in different cultivated and wild species, the uniqueness and

usefulness of potential gene sources available and maintained in production systems across the globe, the level of genetic erosion both at landrace and species level over time and space etc. Despite considerable international investment in conventional breeding, production of chickpea has not yet been significantly improved beyond that achieved through its normal single domestication event and high self-pollination rate. Total annual pulse production of ~12 million tons (FAO 2016) is far below actual potential. Susceptibility to both biotic and abiotic stresses have created a production level bottleneck whose solution possibly lies in the use of crop wild relatives and other genetic traits cultivated by tailoring novel germplasm. Presenting options for widening the genetic base of chickpea cultivars by introgression of diverse genes available in distantly related wild Cicer taxa, thus expanding the genetic base and maximize genetic gains from the selection, it is necessary to accumulate other complimentary alleles from CWRs. This review will focus on present status of gene pool and species distribution, germplasm conservation, characterization and evaluation, problems associated with crop production, sources of target traits available in wild species, status of trait introgression in synthesizing new gene pool of chickpea along with progress made in chickpea genomics. An edited book with contributions from leading scientists, this information will guide and inform chickpea breeders, PGR researchers and crop biologists across the world. Presents both conventional and emerging techniques Provides insights into gene pyramiding as cytogenic manipulations Includes case studies highlighting the impact of

improving chickpea production

**Organophosphorus Chemistry**

KHANNA BOOK PUBLISHING CO. PVT. LTD.

Plant Virus-Host Interaction contains cutting-edge research in plant molecular virology, including pathogenic viroids and transport by insect vectors, interference with transmission to control viruses, and synergism, with pivotal coverage of RNA silencing and the counter-defensive strategies used by viruses to overcome the silencing response in plants. With a clear focus on plant virus evolution, including quantitative and population genetics, Plant Virus-Host Interaction provides insights on the major factors favoring disease emergence, such as genetic change in pathogen and host populations and changes in host ecology and environment. The book also examines socioeconomic implications of widespread plant viral agents. Contributions from leading experts around the globe provide varied perspectives, while comprehensive coverage ensures a complete look at this exciting field. Covers the emergence of new viral diseases Provides molecular approaches for virus-host interaction Highlights RNA silencing and counter-defensive strategies Discusses socioeconomic implications of viral spread and mitigation techniques

**Accelerated Plant Breeding, Volume 4** Academic Press

Plant Breeding Reviews presents state-of-the-art reviews on plant genetics and the breeding of all types of crops by both traditional means and molecular methods. Many of the crops widely grown today stem from a very narrow genetic base; understanding and preserving crop genetic resources is vital to the security of food systems

worldwide. The emphasis of the series is on methodology, a fundamental understanding of crop genetics, and applications to major crops.

**Legumes for Global Food Security**

Academic Press

Pepper Virome: Molecular Biology, Diagnostics and Management presents detailed information about the plant viruses that infect pepper worldwide, providing crucial insights for both the scientific community and producers. Understanding the nature of the viruses, their transmission methods and possible sources of resistance in order to minimize the yield losses as well as to reduce the spread of these viruses to new locations or countries is of global importance. Pepper is an important commodity worldwide. It is cultivated for both fresh produce and for processing industry as a spice. However, various diseases affect pepper production and cause significant yield losses in pepper yield. The increasing outbreaks of virus species infecting Capsicum spp. have become a major problem for growers. A combination of factors, including expansion and intensification of pepper cultivation, availability of volunteer hosts, abundance of insect vectors and climate change have all contributed to the issue. Pepper Virome provides in-depth information on both the viruses infecting peppers, and eco-friendly management measures to decrease the rate of spread of viruses. Addressing the need for increased international collaboration and exchange of pepper germplasm, these insights will also facilitate the selection and breeding for improved Capsicum spp. adapted to local conditions and uses. Focuses on symptomatology, transmission, and epidemiology of pepper viruses Reveals the impact on host, yield, and virus-

vector interactions Evaluates management strategies against viruses and how they have evolved

The Chickpea Genome Academic Press

Natural Remedies for Pest, Disease and Weed Control presents alternative solutions in the form of eco-friendly, natural remedies. Written by senior researchers and professionals with many years of experience from diverse fields in biopesticides, the book presents scientific information on novel plant families with pesticidal properties and their formulations. It also covers chapters on microbial pest control and control of weeds by allelopathic compounds. This book will be invaluable to plant pathologists, agrochemists, plant biochemists, botanists, environmental chemists and farmers, as well as undergraduate and postgraduate students. Details microbial biopesticides and other bio-botanical derived pesticides and their formulation Contains case studies for major crops and plants Discusses phytochemicals of plant-derived essential oils

*Cumulated Index Medicus* John Wiley & Sons

This book collates various aspects of stress tolerance in crop plants. It primarily focuses on the heat and temperature related stress, starting from the severity of the problem on quantity and quality of yield under the threat of global climate change. The content also explores other mechanistic dimensions such as physiochemical and molecular mechanism underlying thermotolerance, signaling mechanism under heat stress, role of heat shock proteins in modulating thermotolerance, omics approach for development of climate smart-crop. Chapters discuss different approaches used in the past to develop heat stress tolerant crop plants, list of developed

thermotolerant agriculturally important crop plants, redox homeostasis under heat stress, nutrient uptake and use efficiency in plants under heat stress and much more. The book is a useful compilation for researchers working in the area of abiotic stress tolerance in crop plants, as well as for students of plant physiology and agricultural sciences.

Science Abstracts CRC Press

Physics For Engineers Is A Text Book For Students Studying A Course In Engineering. The Book Has Been Written According To The Syllabi Prescribed In The Various Universities Of Karnataka. But It Can Be Profitably Used By The Students Of Other Indian Universities As Well. Engineering Is Generally Regarded As Applied Physics. It Is The Purpose Of The Book To Present The Principles And Concepts Of Physics As Relevant To An Engineer. The Topics Covered In The Book Are Drawn From Acoustics, Optics, Solid State Physics, Materials Science, Heat, Thermodynamics, Electricity And Magnetism. Some Of The Salient Features Of The Book Are: \* Lucid Style \* Clarity In The Presentation Of Concepts \* Contains Numerous Problems And Solved Examples \* Has More Than 300 Figures.

Peanuts Springer Nature

During the past 15 years, cellular and molecular approaches have emerged as valuable adjuncts to supplement and complement conventional breeding methods for a wide variety of crop plants. Biotechnology increasingly plays a role in the creation, conservation, characterization and utilization of genetic variability for germplasm enhancement. For instance, anther/microspore culture, somaclonal variation, embryo culture and somatic hybridization are being exploited for obtaining incremental improvement in

the existing cultivars. In addition, genes that confer insect- and disease-resistance, abiotic stress tolerance, herbicide tolerance and quality traits have been isolated and re-introduced into otherwise sensitive or susceptible species by a variety of transgenic techniques. Together these transformative methodologies grant access to a greater repertoire of genetic diversity as the gene(s) may come from viruses, bacteria, fungi, insects, animals, human beings, unrelated plants or even be artificially derived. Remarkable achievements have been made in the production, characterization, field evaluation and commercialization of transgenic crop varieties worldwide. Likewise, significant advances have been made towards increasing crop yields, improving nutritional quality, enabling crops to be raised under adverse conditions and developing resistance to pests and diseases for sustaining global food and nutritional security. The overarching purpose of this 3-volume work is to summarize the history of crop improvement from a technological perspective but to do so with a forward outlook on further advancement and adaptability to a changing world. Our carefully chosen “case studies of important plant crops” intend to serve a diverse spectrum of audience looking for the right tools to tackle complicated local and global issues.

*Plant Virus-Host Interaction* Academic Press

*Advancement in Crop Improvement Techniques* presents updates on biotechnology and molecular biological approaches which have contributed significantly to crop improvement. The book discusses the emerging importance of bioinformatics in analyzing the vast resources of information regarding crop

improvement and its practical application and utilization. Throughout this comprehensive resource, emphasis is placed on various techniques used to improve agricultural crops, providing a common platform for the utility of these techniques and their combinations.

Written by an international team of contributors, this book provides an in-depth analysis of existing tools and a framework for new research. Reviews techniques used for crop improvement, from selection and crossing over, to microorganismal approaches Explores the role of conventional biotechnology in crop improvement Summarizes the combined approaches of cytogenetics and biotechnology for crop improvement, including the importance of molecular techniques in this process Focuses on the emerging role of bioinformatics for crop improvement

*Accelerated Plant Breeding, Volume 3* Frontiers Media SA

*Advances in Legume-based Agroecosystem for Sustainable Intensification* explores current research and future strategies for ensuring capacity growth and socioeconomic improvement through the utilization of legume crop cultivation and production in the achievement of sustainability development goals (SDGs). Sections cover the role of legumes in addressing issues of food security, improving nitrogen in the environment, environmental sustainability, economic-environmentally optimized systems, the importance and impact of nitrogen, organic production, and biomass potential, legume production, biology, breeding improvement, cropping systems, and the use of legumes for eco-friendly weed management. This book is an important resource for scientists, researchers and advanced students

interested in championing the effective utilization of legumes for agronomic and ecological benefit. Focuses on opportunities for agricultural impact and sustainability Presents insights into both agricultural sustainability and eco-intensification Includes the impact of legume production on societal impacts such as health and wealth management

**Pulse Improvement** Academic Press  
Peanuts: Genetics, Processing, and Utilization (Oilseed Monograph) presents innovations in crop productivity and processing technologies that help ensure global food security and high quality peanut products. The authors cover three central themes, modern breeding methods for development of agronomic varieties in the U.S., China, West Central Africa, and India, enhanced crop protection and quality through information from the peanut genome sequence, and state-of-the-art processing and manufacturing of products in market environments driven by consumer perception, legislation, and governmental policy. Discusses modern breeding methods and genetically diverse resources for the development of agronomic varieties in the U.S., China, India, and West Central Africa Provides enhanced crop protection and quality through the application of information and genetic tools derived from analysis of the peanut genome sequence Includes state-of-art processing and manufacture of safe, nutritious, and flavorful food products

Optics and Spectroscopy CRC Press  
Genomic Applications for Crop Breeding: Biotic Stress is the first of two volumes looking at the latest advances in genomic applications to crop breeding. This volume focuses on genomic-assisted advances for improving economically important crops against

biotic stressors, such as viruses, fungi, nematodes, and bacteria. Looking at key advances in crops such as rice, barley, wheat, and potato amongst others, Genomic Applications for Crop Breeding: Biotic Stress will be an essential reference for crop scientists, geneticists, breeders, industry personnel and advanced students in the field.

**Translational Genomics for Crop Breeding, Volume 1** Springer Nature  
Organophosphorus Chemistry provides a comprehensive annual review of the literature. Coverage includes phosphines and their chalcogenides, phosphonium salts, low coordination number phosphorus compounds, penta- and hexa-coordinated compounds, trivalent phosphorus acids, nucleotides and nucleic acids, ylides and related compounds, and phosphazenes. The series will be of value to research workers in universities, government and industrial research organisations, whose work involves the use of organophosphorus compounds. It provides a concise but comprehensive survey of a vast field of study with a wide variety of applications, enabling the reader to rapidly keep abreast of the latest developments in their specialist areas. Specialist Periodical Reports provide systematic and detailed review coverage of progress in the major areas of chemical research. Written by experts in their specialist fields the series creates a unique service for the active research chemist, supplying regular critical in-depth accounts of progress in particular areas of chemistry. For over 80 years the Royal Society of Chemistry and its predecessor, the Chemical Society, have been publishing reports charting developments in chemistry, which originally took the form of Annual Reports. However, by 1967 the whole

spectrum of chemistry could no longer be contained within one volume and the series Specialist Periodical Reports was born. The Annual Reports themselves still existed but were divided into two, and subsequently three, volumes covering Inorganic, Organic and Physical Chemistry. For more general coverage of the highlights in chemistry they remain a 'must'. Since that time the SPR series has altered according to the fluctuating degree of activity in various fields of chemistry. Some titles have remained unchanged, while others have altered their emphasis along with their titles; some have been combined under a new name whereas others have had to be discontinued. The current list of Specialist Periodical Reports can be seen on the inside flap of this volume.

*Advances in Seed Production and Management* Elsevier

1- Applied Physics-II (With Lab Manual) by Hussain

Jeevakhan-789391505578(DIP126EN)  
 "Applied Physics-II" is a basic science course in the first year of the Diploma program in Engineering & Technology. Contents of this book are stringently aligned as per model curriculum of AICTE and incorporated with the concepts of outcomes-based education(OBE). Book covers seven topics- Wave motion, Optics, Electrostatics, Current electricity, Electromagnetism, semiconductor physics and Modern physics. Each topic and its subtopics are written from the perspective of a student's learning and in accord with the NEP 2020 guidelines. Every unit comprises a set of activities and exercise at the end to assist the student's learning. Some salient features of the book: | Unit Outcomes of each unit are mapped with Course Outcomes and Programs Outcomes. | Book Provides relevant interesting facts, QR Code for E-

resources and use of ICT and suggested micro projects activities in each unit. | Content presented in book in chronological way. | Figures, tables and equations are given to improve clarity of the topics. | Solved examples are given with systematic steps. | MCQ's, short and long answer questions and unsolved problems of understanding and above levels (Bloom's Taxonomy) are given for learning reinforcement of students and as per OBE.

Plant Breeding Reviews Royal Society of Chemistry

Many of our current agricultural crops are natural or agricultural hybrids (between two or more species), or polyploids (containing more than one genome or set of chromosomes). These include potato, oats, cotton, oilseed rape, wheat, strawberries, kiwifruit, banana, seedless watermelon, triticale and many others. Polyploidy and hybridization can also be used for crop improvement: for example, to introgress disease resistance from wild species into crops, to produce seedless fruits for human consumption, or even to create entirely new crop types. Some crop genera have hundreds of years of interspecific hybridization and ploidy manipulation behind them, while in other genera use of these evolutionary processes for crop improvement is still at the theoretical stage. This book brings together stories and examples by expert researchers and breeders working in diverse crop genera, and details how polyploidy and hybridization processes have shaped our current crops, how these processes have been utilized for crop improvement in the past, and how polyploidy and interspecific hybridization can be used for crop improvement in the future.

**OMICS Applications in Crop Science**



John Wiley & Sons

Bioinformatics in Agriculture: Next Generation Sequencing Era is a comprehensive volume presenting an integrated research and development approach to the practical application of genomics to improve agricultural crops. Exploring both the theoretical and applied aspects of computational biology, and focusing on the innovation processes, the book highlights the increased productivity of a translational approach. Presented in four sections and including insights from experts from around the world, the book includes: Section I: Bioinformatics and Next Generation Sequencing Technologies; Section II: Omics Application; Section III: Data mining and Markers Discovery; Section IV: Artificial Intelligence and Agribots. Bioinformatics in Agriculture: Next Generation Sequencing Era explores deep sequencing, NGS,

genomic, transcriptome analysis and multiplexing, highlighting practices for reducing time, cost, and effort for the analysis of gene as they are pooled, and sequenced. Readers will gain real-world information on computational biology, genomics, applied data mining, machine learning, and artificial intelligence. This book serves as a complete package for advanced undergraduate students, researchers, and scientists with an interest in bioinformatics. Discusses integral aspects of molecular biology and pivotal tool for molecular breeding Enables breeders to design cost-effective and efficient breeding strategies Provides examples of innovative genome-wide marker (SSR, SNP) discovery Explores both the theoretical and practical aspects of computational biology with focus on innovation processes Covers recent trends of bioinformatics and different tools and techniques