

Book Title (ID 2024_04)

Progress and Prospects in Oilseed Crops Research

(Mustard, Rapeseed, Groundnut, Sesame, Sunflower, Safflower, Soybean, Niger)

About the Book

The book delves into cutting-edge research and innovative approaches aimed at enhancing the productivity and sustainability of oilseed crops. The book comprehensively covers advanced genomics and modern breeding techniques that pave the way for developing high-yielding and stress-tolerant varieties. It highlights the integration of genomics in addressing abiotic stresses, including drought tolerance in rapeseed-mustard through both conventional and molecular approaches and the genomic designing for sesame resistance to various stresses. The performance trends, prospects and constraints of key oilseed crops like soybean, rapeseed and mustard are analyzed, providing insights into recent advancements and future directions. The book also explores biotic and abiotic stress management, emphasizing innovative pest and disease control strategies, nutrient management and sustainable weed management practices. Intercropping, zero tillage and other sustainable agricultural practices are examined to enhance oilseed production efficiency. Overall, this book serves as an essential resource for researchers, agronomists, and policymakers seeking to leverage modern scientific advancements for the improvement of oilseed crops, ensuring food security and economic sustainability.

Chapters Outlines But Not Limited To

Part I: Genomics and Modern Breeding Techniques

1. Introduction to Oilseed Crops: Significance and Global Impact
2. Genomics of Oilseed Crops: An Overview
3. Advances in Oilseed Crop Genomics
4. Modern Breeding Techniques in Oilseed Crops
5. CRISPR/Cas9 Applications in Oilseed Breeding
6. Marker-Assisted Selection in Oilseed Crop Improvement
7. Genomic Selection in Oilseed Crops: Progress and Prospects
8. Transcriptomics in Oilseed Crops
9. Proteomics and Metabolomics in Oilseed Research
10. Genome-Wide Association Studies (GWAS) in Oilseed Crops

Part II: Promising Varieties and Genetic Improvement

11. Development of High-Yielding Mustard Varieties
12. Promising Varieties of Sesame: Characteristics and Performance
13. Recent Advances in Sunflower Breeding
14. Innovative Varieties of Groundnut
15. Soybean Varieties: Recent Developments and Future Directions
16. Castor Crop Improvement: Breeding and Biotechnology

17. Genetic Enhancement of Flax for Oil Quality
18. Hybrid Breeding in Oilseed Crops
19. Biofortification of Oilseeds: Enhancing Nutritional Value
20. Genetic Resources and Germplasm Conservation in Oilseeds

Part III: Biotic and Abiotic Stress Management

21. Biotic Stress Resistance in Oilseed Crops
22. Abiotic Stress Tolerance in Oilseeds: Genomic Approaches
23. Pest and Disease Management in Mustard and Rapeseed
24. Weed Management Strategies in Oilseed Crops
25. Drought Tolerance in Rapeseed-Mustard: Conventional and Molecular Approaches
26. Salt Tolerance in Oilseed Crops: Mechanisms and Management
27. Genomic Designing for Sesame Resistance to Abiotic Stresses
28. Integrated Pest Management (IPM) in Oilseed Crops
29. Biological Control of Pests and Diseases in Oilseeds
30. Impact of Climate Change on Oilseed Crop Production

Part IV: Agronomic Practices and Sustainable Farming

31. Nutrient Management in Oilseed Crops
32. Intercropping Systems with Oilseed Crops

33. Zero Tillage in Oilseed Farming: Benefits and Challenges
 34. Sustainable Practices in Oilseed Crop Production
 35. Precision Agriculture in Oilseed Farming
 36. Water Management in Oilseed Crop Cultivation
 37. Organic Farming of Oilseed Crops
 38. Role of Biofertilizers in Oilseed Production
 39. Soil Health and Fertility Management in Oilseed Crops
 40. Integrated Crop Management for Oilseeds
- Part V: Performance and Prospects of Major Oilseed Crops**
41. Overview of the Oilseeds Sector: Current Status and Growth Behaviour
 42. Performance of Soybean: Recent Trends, Prospects and Constraints
 43. Performance of Rapeseed and Mustard: Recent Trends, Prospects and Constraints
 44. Future Prospects of Sunflower Cultivation
 45. Groundnut Production: Challenges and Opportunities
 46. Economic Importance of Castor and its By-products
 47. Flaxseed Production and Market Trends
 48. Sustainable Development Goals and Oilseed Crop Production
 49. Policy and Regulatory Frameworks for Oilseed Crop Improvement
 50. Future Directions in Oilseed Crop Research

****Note:** Chapter may be written on individual cereal crop, wherever applicable and chapter title may also be modified by the author

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Book Chapter may be submitted through e-mail: bioticabooks@gmail.com or online portal

- **Last date of chapter submission:** 30th Sept., 2024
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