



PB INSTITUTE OF RESEARCH AND TECHNOLOGY

P.O Box 21457-00100

Nairobi - Kenya

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Sustainable Rice & Maize Production Techniques: Maximize Yields, Minimize Impact

Duration: 5 days

On-Site

01 Who Should Attend

- Rice and maize farmers
- Agricultural extension officers and advisors
- Agricultural researchers and scientists
- Seed producers and distributors
- Farm managers and supervisors
- Agricultural cooperatives and associations
- Rural development practitioners
- Agricultural educators
- Soil scientists and consultants
- Water resource managers
- Pest management specialists
- Sustainability officers
- Students and enthusiasts of sustainable agriculture

02 About the Course

Sustainable Rice and Maize Production Techniques equips farmers and agricultural professionals with the knowledge and skills to optimize yields while minimizing environmental impact. This course focuses on implementing best practices for cultivation, resource management, and pest control in rice and maize farming. Participants will learn to enhance soil health, conserve water, and improve crop resilience. By mastering sustainable production techniques, professionals can contribute to food security and build profitable, eco-friendly farming systems.



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03 Workshop Objectives

- Understand the principles and benefits of sustainable rice and maize production.
- Implement techniques for improving soil health and fertility in rice and maize fields.
- Understand the role of water management in sustainable rice and maize production.
- Implement techniques for efficient irrigation and water conservation.
- Understand the role of integrated pest and disease management in sustainable rice and maize farming.
- Implement techniques for managing weeds and reducing herbicide use.

04 Module Topics

Module 1: Foundations of Sustainable Rice and Maize Production

- Principles and benefits of sustainable grain farming.
- Understanding the role of these staple crops in food security.
- Benefits of minimizing environmental impact.
- Historical context and modern sustainable practices.

Module 2: Soil Health and Fertility Improvement

- Techniques for enhancing soil organic matter.
- Implementing conservation tillage and no-till practices.
- Utilizing cover crops and green manures.
- Managing nutrient cycling and soil biodiversity.

Module 3: Water Management in Rice and Maize

- Understanding water requirements and irrigation needs.
- Implementing efficient irrigation techniques.
- Managing water logging and drainage.
- Utilizing water harvesting and conservation practices.

Module 4: Efficient Irrigation and Water Conservation



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- Techniques for implementing alternate wetting and drying (AWD) in rice.
- Utilizing drip and sprinkler irrigation in maize.
- Implementing precision irrigation and scheduling.
- Benefits of reducing water waste.

Module 5: Integrated Pest and Disease Management (IPM)

- Implementing IPM strategies for pest and disease control.
- Utilizing biological and cultural control methods.
- Managing pesticide use and residues.
- Benefits of minimizing chemical inputs.

Module 6: Weed Management and Herbicide Reduction

- Techniques for managing weeds through cultural practices.
- Implementing mechanical weed control.
- Utilizing cover crops and crop rotations for weed suppression.
- Benefits of reducing herbicide reliance.

Module 7: Seed Selection and Management

- Techniques for selecting high-yielding and climate-resilient varieties.
- Implementing seed treatment and quality control.
- Managing seed storage and viability.
- Utilizing improved seed varieties and hybrids.

Module 8: Crop Rotation and DiversificationPlanting and Harvesting Optimization

- Techniques for optimizing planting dates and spacing.
- Implementing precision planting and seeding.
- Managing harvesting techniques for minimal losses.
- Utilizing mechanized harvesting and post-harvest handling.

Module 9: Crop Rotation and Diversification



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- Techniques for implementing crop rotations with rice and maize.
- Utilizing intercropping and mixed cropping systems.
- Implementing crop diversification for resilience.
- Benefits of enhancing agroecosystem diversity.

Module 10: Crop Residue and Organic Matter Management

- Techniques for managing crop residues for soil improvement.
- Implementing composting and mulching.
- Utilizing biochar and other organic amendments.
- Benefits of enhancing soil carbon sequestration.

Module 11: Climate-Smart Agriculture

- Techniques for adapting to climate change impacts.
- Implementing climate-resilient practices.
- Utilizing climate forecasting and risk management.
- Benefits of reducing greenhouse gas emissions.

Module 12: Economics of Sustainable Production

- Analyzing the economic benefits of sustainable practices.
- Evaluating the costs and returns of improved techniques.
- Identifying market opportunities for sustainably produced grains.
- Benefits of enhancing farm profitability.

Module 13: Promoting and Scaling Up Sustainable Practices

- Developing communication and extension strategies.
- Building farmer networks and knowledge sharing platforms.
- Implementing training programs for sustainable grain farming skills.
- Scaling up successful production models.

Module 14: Case Studies: Successful Sustainable Grain Farms



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- ▶ Analyzing real-world examples of sustainable rice and maize production.
- ▶ Highlighting best practices and innovative techniques.
- ▶ Documenting economic and environmental impacts.
- ▶ Farmer testimonials and field visits.

Module 15: The Future of Sustainable Grain Production

- ▶ Exploring emerging trends and innovations.
- ▶ Integrating new technologies and research findings.
- ▶ Adapting to evolving environmental and market conditions.
- ▶ Building resilient and sustainable food systems through improved grain farming.