

COURSE OUTLINE

PROGRAMME TITLE	Ganoderma & BSR Risk Reduction in Oil Palm Nursery & Replanting: Practical Preventive Establishment
OVERVIEW (Brief introduction Of the topic)	Ganoderma Basal Stem Rot (BSR) is a major disease-management challenge in oil palm, and replanting a previously affected area can carry disease risk into the next planting cycle. Preventive management therefore needs to begin before a young palm is planted in the field. Nursery seedling health, root condition, planting-material handling, field disease history, infected palm and root residues, sanitation, drainage, planting-point selection and early establishment practices all need to be considered as part of an integrated Ganoderma risk-reduction strategy. This two-day Industry Specific programme focuses specifically on Ganoderma and BSR risk reduction during two critical stages: nursery production and field replanting / young-palm establishment. Participants first build a practical understanding of Ganoderma/BSR risk pathways and the limitations of any single control measure. They then learn how to assess nursery seedlings and root zones, recognise weak or unsuitable planting material, strengthen nursery hygiene and monitoring, and integrate appropriate biological approaches such as beneficial microorganisms, arbuscular mycorrhizal fungi (AMF) and inoculated biochar into a preventive establishment programme. A core Day 1 practical will establish an approximately 100-seedling nursery demonstration. Participants inspect and select seedlings, establish treatment and comparison/control groups where conditions permit, prepare the agreed biological inputs, carry out supervised treatment, label seedlings and create baseline records for 30-day / 60-day / 90-day follow-up. The practical is designed as a monitored demonstration rather than proof that any biological treatment prevents Ganoderma or BSR. Day 2 moves from the nursery into a replanting or young-palm field area. Participants review the host estate's BSR history, identify higher-risk areas, inspect old palm/stump/root residues and site conditions, consider sanitation and biomass-management issues, assess drainage and planting points, and carry out supervised preventive establishment activities using available planting-ready seedlings. The programme does not present biological inputs, sanitation or replanting practices as a guaranteed cure or complete prevention method for Ganoderma. Instead, participants learn to combine disease history, hygiene, planting-material quality, site preparation, biological establishment, agronomic management and structured monitoring within an integrated BSR risk-reduction approach.
LEARNING OUTCOME	Upon completion of this course, participants will be able to: 1. Explain key Ganoderma/BSR risk pathways relevant to nursery, replanting and early oil palm establishment. 2. Identify nursery seedling, root-zone and site conditions that may weaken establishment or require additional BSR risk-management attention. 3. Apply practical nursery hygiene, seedling assessment, treatment allocation and monitoring procedures within a preventive Ganoderma/BSR programme. 4. Explain the potential roles and limitations of AMF, beneficial microorganisms, inoculated biochar and other biological approaches within integrated BSR risk reduction. 5. Establish an approximately 100-seedling nursery demonstration using an agreed treatment/comparison protocol, including preparation, application, labelling, quality control and baseline records.

	6. Conduct a structured BSR-aware replanting-site assessment covering disease history, old palm/root residues, sanitation, biomass, drainage and planting-point condition. 7. Participate in supervised field establishment activities using planting-ready seedlings, including appropriate root/seedling treatment, biological input placement, planting and establishment recording. 8. Develop nursery and young-palm monitoring records and a practical management plan for 30-day / 60-day / 90-day nursery review and longer-term field surveillance.
DURATION (days)	2 days (14 hours)
TARGET PARTICIPANTS (position/level)	• Plantation Managers • Estate Managers • Nursery Managers and Nursery Supervisors • Replanting / Development Managers and Executives • Assistant Managers • Agronomists and Plant Health Personnel • Plantation / Field Executives • Sustainability Managers • Ganoderma / BSR Management Teams • Plantation Supervisors • Technical Officers involved in nursery, replanting or young-palm establishment • Plantation Owners • Smallholder Cooperative Leaders
COURSE CONTENT (with submodules)	DAY 1 – GANODERMA RISK, NURSERY PREVENTION & 100-SEEDLING PRACTICAL Module 1 – Understanding Ganoderma & BSR Risk Before Replanting • 1.1 Ganoderma / BSR as a Plantation and Replanting Challenge • 1.2 Disease History and Risk Carried from the Previous Stand • 1.3 Root / Woody Residue and Site-Related Risk Considerations • 1.4 Why Nursery-to-Field Establishment Must Be Managed as One Process • 1.5 Integrated Risk Reduction: No Single Guaranteed Control • 1.6 Building a Preventive Nursery and Replanting Strategy Module 2 – Nursery Seedling Health, Hygiene & BSR Risk Management • 2.1 Healthy versus Weak / Stressed Planting Material • 2.2 Root-System and Root-Zone Assessment • 2.3 Growing Media, Moisture, Drainage and Root Stress • 2.4 Nursery Hygiene, Water and Cross-Contamination Awareness • 2.5 Seedling Selection, Isolation / Rejection Considerations and Records • 2.6 Establishing Baseline Nursery Monitoring PRACTICAL 1 – Nursery Seedling, Root-Zone, Hygiene & Baseline Assessment Module 3 – Biological Approaches Within Integrated Ganoderma Risk Reduction • 3.1 Rhizosphere Biology and Root Establishment • 3.2 Beneficial Bacteria and Fungi • 3.3 AMF and Early Root Association • 3.4 Inoculated Biochar as a Biological Carrier / Root-Zone Amendment • 3.5 Biological Input Handling, Compatibility and Quality Control • 3.6 What Biological Approaches Can and Cannot Claim • 3.7 Integrating Biological Establishment with Sound Nursery Agronomy PRACTICAL 2 – Biological Input Identification, Handling & Treatment Preparation Module 4 – Approximately 100-Seedling Ganoderma/BSR Preventive Nursery Demonstration • 4.1 Selecting Representative Seedlings and Demonstration Location • 4.2 Treatment / Comparison or Control Allocation Where Conditions Permit • 4.3 Baseline Seedling and Root-Zone Records

	• 4.4 Preparing the Agreed Biological Treatment Protocol • 4.5 Supervised Seedling / Root-Zone Treatment • 4.6 Labelling, Application Consistency, Hygiene and Quality Control • 4.7 30-Day / 60-Day / 90-Day Monitoring Plan PRACTICAL 3 – Core Hands-On Practical: Establish an Approximately 100-Seedling Nursery Demonstration. Every participant participates in assessment, allocation, treatment preparation, application, labelling and/or recording under trainer supervision. DAY 2 – BSR-AFFECTED REPLANTING, PREVENTIVE FIELD ESTABLISHMENT & SURVEILLANCE Module 5 – BSR-Aware Replanting-Site Assessment & Sanitation • 5.1 Reviewing BSR History and Identifying Higher-Risk Areas • 5.2 Mapping Previous Infected / Fallen Palm Locations Where Records Exist • 5.3 Old Palm, Stump, Root and Woody Residue Considerations • 5.4 Infected / Suspected Material Handling and Field Hygiene • 5.5 Biomass Management During Replanting • 5.6 Drainage, Waterlogging, Compaction and Planting-Site Condition • 5.7 Selecting Suitable Training / Demonstration Planting Points PRACTICAL 4 – BSR-Aware Replanting-Site Risk Assessment & Field Hygiene Review Module 6 – Preventive Biological Establishment at Replanting • 6.1 Planting-Point Preparation in a BSR-Risk Context • 6.2 Planting-Ready Seedling Inspection and Handling • 6.3 Root / Seedling Treatment Where Appropriate • 6.4 AMF and Biological Input Placement • 6.5 Inoculated Biochar / Organic Amendment Placement Where Appropriate • 6.6 Planting, Root-Zone Contact, Moisture and Immediate Care • 6.7 Hygiene, PPE, Tools and Application Quality Control • 6.8 Integration with the Estate's Replanting and Agronomic SOPs PRACTICAL 5 – Core Field Practical: Supervised Planting-Point Preparation, Root/Seedling Treatment, Biological Input Placement and Young-Palm Establishment. Number of planting points depends on the host plantation's replanting schedule, available planting-ready seedlings and field conditions. Module 7 – Young-Palm BSR Surveillance & Establishment Monitoring • 7.1 Establishment Stress versus Disease-Suspicion Observations • 7.2 Root-Zone, Drainage, Moisture and Palm-Vigor Indicators • 7.3 Field Hygiene and Follow-Up Management • 7.4 Ground Cover, Mulch and Root-Zone Management • 7.5 Photographic, Treatment and Planting-Point Records • 7.6 Monitoring Frequency, Responsibilities and Escalation • 7.7 When Further Technical / Diagnostic Assessment May Be Required PRACTICAL 6 – Establish Young-Palm Monitoring & BSR Surveillance Records Module 8 – Nursery-to-Field Ganoderma Risk-Reduction Action Plan • 8.1 Reviewing the 100-Seedling Demonstration • 8.2 30-Day / 60-Day / 90-Day Nursery Review Framework • 8.3 Longer-Term Young-Palm Surveillance • 8.4 Operational Cost and Feasibility • 8.5 Interpreting Results Without Overclaiming • 8.6 Criteria for Adjusting, Continuing or Scaling • 8.7 Integrating Preventive Measures into Nursery and Replanting SOPs PRACTICAL 7 – Team Ganoderma/BSR Nursery-to-Field Implementation & Management Review Plan
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LEARNING METHODOLOGIES	Learning Methodologies 1. Interactive Instructor-led Ganoderma / BSR Presentations 2. Participant Experience Sharing on BSR, Nursery and Replanting Challenges 3. Ganoderma / BSR Case Discussions and Disease-History Review 4. Guided Nursery Seedling, Root-Zone and Hygiene Assessment 5. Practical Baseline Recording and Seedling Selection 6. Biological Input Identification, Handling and Treatment Preparation 7. Supervised Establishment of an Approximately 100-Seedling Nursery Demonstration 8. Treatment / Comparison Allocation, Labelling and Quality-Control Recording 9. BSR-Aware Replanting-Site Assessment and Field Hygiene Review 10. Practical Review of Old Palm / Root Residue, Drainage and Planting-Point Conditions 11. Supervised Planting-Point Preparation, Root/Seedling Treatment and Biological Input Placement 12. Hands-On Young-Palm Establishment Using Available Planting-Ready Material 13. Nursery and Young-Palm BSR Monitoring / Surveillance Record Development 14. Nursery-to-Field Ganoderma Risk-Reduction Action Planning 15. Knowledge Checks, Practical Competency Review, Reflection and Q&A
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