

TOBACCO RESEARCH INSTITUTE OF TANZANIA



**CURRICULUM TRAINING GUIDLINE
FOR
FLUE-CURED TOBACCO**

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Foreword

The Tobacco research Institute of Tanzania Company Ltd (TORITA) was incorporated under the Companies Ordinance Cap 212 on 31st October 2000. Tobacco Research Institute of Tanzania (TORITA) is a registered Company Limited by guarantee and not having share capital.

In the context of training and research TORITA Promote production of Quality tobacco in Tanzania for a sustainable growth and development that improve income for women and men tobacco growers and other stakeholders through application of appropriate technologies, with conserve our renewable natural resource.

Training objective

To disseminate appropriate technologies to the Tobacco growing community for improved productivity to support the Tobacco sector goals in social-economic development of the country.

Agronomic Practices Training Syllabus

TOPIC	SUBTOPIC	TRAINER'S ACTIVITY	TRAINEES' ACTIVITY
TOBACCO NURSERY	Introduction:	<p>Introduce:</p> <ul style="list-style-type: none"> -What is tobacco to trainees and its importance to the farmers' and National income <p><u>Ecology.</u></p> <p>Explain:</p> <ul style="list-style-type: none"> - Location of seedbeds -Ideal site for seedbeds -Type of size -Water supply, slope 	<p>Discuss & Questions</p> <ul style="list-style-type: none"> - Economic importance. - Ecology of tobacco <p>Ask questions and discussion</p>
	<p>Preparation:</p> <p>Sowing:</p> <p>Management:</p> <ul style="list-style-type: none"> - Pre emergence of seedlings - Post emergence of seedlings 	<p>Show: -</p> <ul style="list-style-type: none"> -How to prepare land -Lay down the beds -Dimensions of the beds -Fine tilth & leveling -Tobacco seed varieties selection <p>Explain: -</p> <ul style="list-style-type: none"> -Ideal time for sowing -Fertilizer application and rate. -Seeds required per bed in gm. -Watering the beds -Sowing -Chemical application -Mulching <p>Explain:</p> <ul style="list-style-type: none"> -Importance of watering and amount of water. <p>Explain: -</p> <ul style="list-style-type: none"> -Reducing mulches on the seedbeds. -Chemical applications & dosages. -How to determine number of seedlings per bed. -Control growth by clipping 	<p>Practical:-</p> <ul style="list-style-type: none"> - Manually prepare the land for seedbeds. - Lay down the seedbeds in required dimensions - Make the final tilth and level. <p>Practical:-</p> <ul style="list-style-type: none"> - Measure the required amount of fertilizer and apply on the bed, mix with soil properly. - Water the bed with enough water - Sow - Apply agrochemicals – (Confidor + Decis) - Apply mulch <p>Discuss and answering questions.</p> <p>Practical:</p> <ul style="list-style-type: none"> - To reduce mulches - Apply insecticides if there are symptoms. - Count plants in beds by using a square box of 20cm x 20cm. - Racking the beds. - Thinning. - Resetting/filling - Clipping and hardening.
FIELD	Land Preparation	<p>Explain</p> <ul style="list-style-type: none"> - Cultivation - Ridge type & preparation. - Spacing of ridge to ridge. 	<p>Practical:</p> <ul style="list-style-type: none"> - Cultivate the land. - Prepare ridges. <p>Practical:</p> <ul style="list-style-type: none"> - Prepare holes for

	<p>Transplanting</p> <p>Field Management</p> <p>Basal fertilizer application</p> <p>Top dressing/side application</p> <p>Topping</p>	<ul style="list-style-type: none"> - Holing out the planting stations. <p>Explain</p> <ul style="list-style-type: none"> - Timely transplanting. - Ideal seedlings for transplanting - Seedlings selection and uniformity. - Taking the seedlings from the seedbeds and cutting of the taproot transplanting. - Application of chemicals. By drenching. - Management of seedbeds after removal of seedlings. - Sowing of mucuna/crotalaria in the field. <p>Explain:</p> <ul style="list-style-type: none"> - The right time for application of fertilizer. - Gap filling. - Fertilizer application – type, rate & method. - Chemical application <p>Explain and show:</p> <ul style="list-style-type: none"> - Top dressing - Breaking the crust - Earthing up (loosening the soil) - Insect pests and diseases scouting <ul style="list-style-type: none"> - Explain the topping process and its advantages - Explain the method of topping <ul style="list-style-type: none"> - Chemical application – spraying. 	<p>transplanting</p> <ul style="list-style-type: none"> - Select the seedlings from the seedbeds. - Cut the tap root. - Transplant. - Apply the chemicals (Decis + Confidor) by drenching. <ul style="list-style-type: none"> - Cultivating and sowing of mucuna and crotalaria. <p>Practical:</p> <ul style="list-style-type: none"> - Apply the NPK fertilizer - The right time for gape filling <p>Practical:</p> <ul style="list-style-type: none"> - Apply CAN or any other Nitrogen rich fertilizer for top dressing as per recommendations. - Importance of breaking the crust - Earthing up or loosening the soil. - Insecticide application on insects control - Scouting and Spray if the threshold level is reached. <p>Practical:</p> <ul style="list-style-type: none"> - Top and apply suckeride. - Reaping the priming & tying.
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HARVESTING & CURING	Reaping	<p>Explain & show:</p> <ul style="list-style-type: none"> - the stage at which topping is done. - Topping process and how to apply suckeride. <p>Explain:</p> <ul style="list-style-type: none"> - Selection of ripe/mature leaves by physical appearance and position of the leaf. - Characteristics of mature leaf to be reaped and tying on sticks. - How to determine the mass of leaves on sticks. - To arrange sticks in the curing barn. 	<p>Practical:</p> <ul style="list-style-type: none"> - Do reaping & Tying on sticks. - Measure the mass of the stick without leaves and then with leaves. - Arrange sticks in the barn.
	Curing:	<p>Explain and show:</p> <ul style="list-style-type: none"> - Control of temperature and humidity in the curing barn. - Removing the cured tobacco leaves from the barns - dry mass determination - Conditioning and untying the leaves from the sticks. 	<p>Practical:</p> <ul style="list-style-type: none"> - Start curing from the stage of yellowing to midrib drying. - Control fuel wood consumption per cure. - Remove the tobacco from the barns condition it. - Do untying of leaves from/ measure dry mass.
	Storage & Bulking:	<p>Demonstrate</p> <ul style="list-style-type: none"> - Arrangement of tobacco in the store according to plant position in the different partitions 	<p>Practical:</p> <ul style="list-style-type: none"> - Arrange tobacco according to plant position and bulk.
	Grading:	<ul style="list-style-type: none"> - Grading and sorting according to plant position. - Making the hands, sorting and bulking. 	<ul style="list-style-type: none"> - Grade and sort. - Make the tobacco hands, sort and bulk.
	Baling & Bulking:	<ul style="list-style-type: none"> - Baling according to tobacco council agreement 	<ul style="list-style-type: none"> - Baling of tobacco by the system agreed by Tobacco council.
	Field Management after harvest:	<p>Explain:</p> <ul style="list-style-type: none"> - Importance of removal of stems. - Inter cropping with 	<p>Practical:</p> <ul style="list-style-type: none"> - To remove the stems - To sow crotalaria or mucuna

<p>MINIMUM TILLAGE</p>	<p>Tillage:</p>	<p>leguminous plants – crotalaria or mucuna.</p> <ul style="list-style-type: none"> - Importance/Advantages <p>Explain: Importance Advantages The process</p>	<ul style="list-style-type: none"> - Prepare a field for minimum tillage and put mulch - Questions, Answers and discussion.
<p>AFFORESTATION</p>	<p>Importance</p> <p>Exotic trees -Nursery management -Out planting in field -Woodland management -Harvest management</p> <p>Natural Woodland management.</p>	<p>Explain: - As fuel source - Home for wild animals - Windbreaker - In rain catching - Medicines - Protection of the environment - Ornamental</p> <p>Explain: Exotic or planted trees</p> <ul style="list-style-type: none"> - Trees for tobacco curing - Type of trees for, forestation - Ideal soil for raising seedlings sowing tube preparations sowing process potting. - Transplanting and spacing. - Management of seedlings in the field. <p>Natural regeneration</p>	<p>Practical:</p> <ul style="list-style-type: none"> - Prepare potting materials - Filling the tubes with soil. - Sowing in the pots - Manage the seedlings. <p>- Transplant in required spacing.</p>
<p>CURING BARNES</p>	<p>Capacity</p> <p>Furnaces</p>	<p>Explain and calculate</p> <ul style="list-style-type: none"> - Barn capacity and its relation to the area planted or to be planted. - Compare improved barns against conventional barns. <p>Show:</p> <ul style="list-style-type: none"> - Constructions of furnaces. - Compare the Modern furnaces against the traditional furnace in terms of - efficiency and fuel wood consumption - Calculate:- Fuel wood consumption 	<p>Practical:</p> <ul style="list-style-type: none"> - Measure and calculate the capacity of the barns. - Discuss which is better than the other. <p>- Do construct furnaces</p> <p>- Discuss which is better than the other.</p> <p>- Calculate fuel wood consumed per cure, per barn, per season.</p>

<p>INTEGRATED PEST MANAGEMENT (IPM) ON COMMON DISEASES AND PESTS FOUND IN TOBACCO</p>	<p>Diseases</p> <p>Pests</p> <p>IPM</p>	<p>Explain and show</p> <ul style="list-style-type: none"> - The common bacterial diseases - The viral diseases - Fungal disease - their occurrences symptoms, prevention and treatments and control - Environmental effects/Disorders and control <p>Explain :</p> <p>Common pest</p> <ul style="list-style-type: none"> - Occurrences, symptoms control. <p>Explain:</p> <ul style="list-style-type: none"> -What is IPM -Importance of IPM -Insects identification and interaction -Differentiate between beneficial and harmful insects -Scouting -Economic threshold levels -Control methods of pest and diseases 	<p>Practical:</p> <ul style="list-style-type: none"> - Identify; differentiate the diseases caused by bacteria, viruses, fungi and environmental defects. <p>-Identify different types of pests</p> <ul style="list-style-type: none"> - Common pests found on Nursery - Common insect pests found in a field
<p>AGROCHEMICALS</p>	<p>Agrochemicals</p>	<p>Explain:</p> <ul style="list-style-type: none"> -what are the agrochemicals -Classes of agrochemicals -safe storage -Protection gears <p>Explain and show</p> <ul style="list-style-type: none"> - Decis and confidor 	
<p>FERTILIZERS</p>	<p>Fertilizers</p>	<p>Explain & Show:</p> <ul style="list-style-type: none"> -Types of fertilizers -Currently the fertilizers used <ul style="list-style-type: none"> - Chemical constituents and importance of N.P &K. - Fertilizers rates. 	<p>Discuss and do some calculations on the amount of N,P&K per bag and their requirement in the plants.</p>
<p>SOP AND PM FORMS</p>	<p>Types of Forms</p>	<p>Explain & Show:</p> <p>Importance of these farmers is communication from the farmers to customers.</p>	<ul style="list-style-type: none"> - Exercise on how to calculate data for production report forms. - Exercise on how to fill the forms correctly.

<p>AGRICULTURE EXTENSION & COMMUNICATION SKILLS</p>	<p>Production Estimates</p> <p>Social characteristics of farmers</p> <p>How to communicate with farmers</p>	<p>. – Production forms and SOP</p> <ul style="list-style-type: none"> - Technical files - Visit programs etc. <p>Explain how to fill the forms</p> <p>Explain how production can be estimated by using.</p> <ul style="list-style-type: none"> - Estimated area and productivity. - Statistical production trend and productivity. - Kgs produced per bag of Fertilizer <p>Extension methodology</p> <ul style="list-style-type: none"> - How to deliver the new innovation to farmers - How to approach the farmers 	<p>Questions and discussions</p> <p>Form the groups and practice how to convey the message</p>
<p>AGRICULTURAL ECONOMICS&AG RIBUSINESS</p>	<p>How to communicate with farmers</p> <p>-Farm economics -Agriculture finance credit& management -Agribusiness</p>	<p>How to communicate with the farmers</p> <p>Trainee should be able to teach farmers on how can do a simple budget Credit management</p>	<p>Visit some farmers around to speak with them</p> <p>Prepare a budget</p>
<p>SOIL SCIENCE</p>	<p>Soil types Soil nutrients</p> <ul style="list-style-type: none"> - Macro nutrients - Micro nutrients <p>Soil fertility Farm yard manure (FYM)</p>	<p>Trainee should know type of soils</p> <p>Essential nutrients Non-essential nutrients Importance of soil fertility Importance of FYM</p>	<p>Practical:</p> <ul style="list-style-type: none"> - Trainee should visit the field and be able to identify the soil types and profile - They should be able to identify the weak and strong soil - Identify the texture and the structure of the soil
<p>CHILD LABOUR</p>	<p>-Eradication of child labour in tobacco farms</p>	<p>-Hazardous effect to child labour -Impacts of child labour to the nation</p>	<p>Visit some farmers to see the reality</p>