

EARLY LESSONS ON MECHANIZED PLANTING IN ESWATINI



CONNEXIONS
INVESTMENTS

CONTRACTOR



RISUTEC

EQUIPMENT SUPPLIER

INTRODUCTION

MANAGING DIRECTOR BINDA ZWANE

COMPANY CONNEXIONS INVESTMENTS

ESTABLISHED 2014

STAFF 145


CONTRACT SILVICULTURE

COUNTRY ESWATING



OBJECTIVE

SHARE EXPERIENCES ON THE INTRODUCTION OF MECHANISED
PLANTING IN SWAZILAND WHICH IS BELIEVED TO BE THE FIRST IN
AFRICA



REASON TO MECHANIZE PLANTING

PROBLEMS

- ❑ SHORTAGE OF LABOR
- ❑ 2000 ABADONED WORK IN 10 YEARS
- ❑ POOR SURVIVAL/QUALITY ISSUES
- ❑ EXTREME WEATHER CONDITIONS
- ❑ COMPLIENCE ISSUES
- ❑ WELFARE OF EMPLOYEES
- ❑ MINIMUM WAGE VS OUTPUT & QUALITY

CAUSES

- ❑ INCREASED LITERACY
- ❑ POOR HEALTH CONDITION
- ❑ INCREASED ALTERATIVE EMPLOYMENT
 - ✓ SECURITY GUARDS
 - ✓ SHOPS & TEXTILE
 - ✓ ILLEGAL FARMING ACTIVITIES
 - ✓ STREET VENDING
 - ✓ LIGHT WORK (SAWMILL)
- ❑ INCREASED NUMBER OF EMPLOYERS
 - ✓ EMPLOYEES UNDISCIPLINED
 - ✓ EASY TO FIND JOBS
 - ✓ FIRING NO MORE AN OPTION

BENEFITS

- ❑ FUTURE COST SAVINGS
- ❑ REDUCED ACCIDENTS
- ❑ MINIMAL HUMAN ERROR
 - ✓ J ROOTING
 - ✓ SHALLOW PLANTING
 - ✓ AIRPOCKETS
 - ✓ THEFT OF RESOURCES
- ❑ LESS INVESTMENTS ON IDLE ASSETS
 - ✓ VILLAGES
 - ✓ LABOUR TRUCKS
 - ✓ WORKMANS COMPENSATION
 - ✓ SICK LEAVE & MEDICALS
 - ✓ PROTECTIVE CLOTHING
 - ✓ INDUSTRIAL RELATIONS

THE ASP 360 PLANTING MACHINE



MACHINE FUNCTIONS

- MARKING (NOT WORKING)
- REMOVE SLASH
- PITTING
- GEL/WATER APPLICATION
- GRANULAR FERTILIZER APPLICATION
- PESTICIDE APPLICATION



TEAM COMPOSITION 75HA PER MONTH

PERSONNEL

- 3 OPERATORS
- 1 MACHANIC
- 3 ASSISTANTS MIGHT BE PHASED OUT
- WATER SUPPLY DRIVER

OTHER SUPPORT SERVICES

- LDV SEEDLINGS & FUEL
- TRACTOR WITH 5000L WATER BOWSER
- SEEDLING TRAILER

STRATEGIC BENEFITS

- ESTABLISHMENT OF REMOTE AREAS FLATNING LABOUR DEMANDS CURVE
- ESTABLISHMENT ON HIGH FUEL LOAD
- EXTENDED PLANTING SEASON
- GPS DOCUMENTATION OF SEEDLINGS
- TUP TURN AROUND TIME GAINS JULY PLANTINGS
- SURVIVAL LARGE PIT, DEEP ENOUGH, COMPACTION

SEEDLING SURVIVAL ANALYSIS

PINES

- PLANTED PINUS TAEDA IN HIGH ALTITUDE
- PLANTED APRIL /MAY/ JUNE
- HAD (SNOW)
- FIGURES BAD NO TRUE REFLECTION

EUCS

- PLANTED E. SMITHII HIGH ALTITUDE
- PLANTED DEC/ JAN/ FEB/MAR
- SURVIVAL 90%
- PLANTED GXU LOW ALTITUDE
- JUNE/JUL
- 78% & 90% SURVIVAL

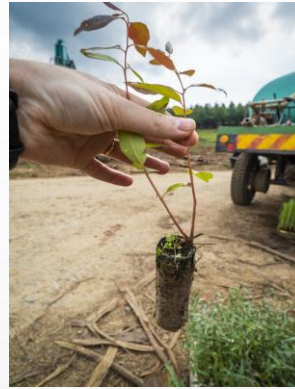
PRODUCTIVITY

- PRODUCTIVITY 150 – 250 TREES PER HOUR
- SLASH CONDITION
 - BURNT
 - SPECIES
 - HARVESTING SYSTEM
 - INFIELD PROCESSING
 - ROADSIDE PROCESSING
 - WINDROWS
- OLD STUMP LINES
- STUMP HEIGHT
- LEAD DISTANCE LONGER LINES IMPROVES PRODUCTION
- OPERATOR EXPERIENCE

SEEDLINGS TRAY SPECIFICATIONS

SUITABLE FOR ALL TRAY TYPES

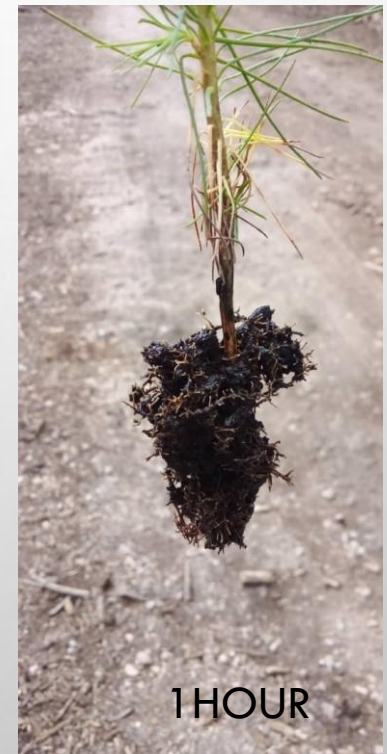
- POLYSTYRENE
- UNIGROW
- ELLEPODS
- SAPPI 49



CRITICAL SEEDLINGS QUALITY FACTORS

- SEEDLING HEALTH
- SEEDLING HEIGHT
- SEEDLING STRUCTURE
- COMPOSITION OF GROWING MEDIUM
- ROOT DEVELOPMENT CRITICAL

GROWING MEDIUM



CHALLENGES/OPPORTUNITIES

- MARKING SYSTEM NOT IN PLACE
- SOME TEETHING PROBLEMS
 - BREAKING BOLTS
 - GEL BLOCKAGES
 - TUP AVAILABILITY POSTNMENT OF DELIVERY COULD NOT RESERVE AREAS
 - HIGH COST PER HA
 - PIONEERING EQUIPMENT
- MACHINE NEEDS CONSTANT MAITENANCE BOLT TIGHTING & GREASING
- CURRENT EURO RAND RATE NOT FAVORABLE FOR PROJECT
- SPARE PARTS
- SOME COMPONENTS AVAILABLE SA
- BEEN ABLE TO MACHINE SOME COMPONENTS IN ESWATINI
- SHIPPING FROM FINLAND TO SWAZILAND 4 DAYS AT HIGH COST
- AB;E TO MAINTAIN THE MACHINE FOR A YEAR ON OUR OWN
-

WORKING CONDITIONS



POSSIBLE CHALLENGES

- LOW PRODUCTION DURING TRAINING PHASE
- QUALITY OF SITE (MOUNTAINS, HIGH STUMPS, ROCKS)
- SMALLER COMPARTMENTS SIZE (RE-LOCATION COST)
- LACK OF EXPERTISE TO MAINTAIN THESE MACHINES LOCALLY
- AFTER SALES BACK UP SERVICES AS CURRENTLY NO DEALER IN AFRICA
- SHORT PLANTING WINDOW
- PLANTING AT NIGHT