FINAL REPORT
SX 825/0 Q
TRIAL OF TILLER-
TRENCHER

SILVICULTURE BRANCH
83/2/28
SILVICULTURE TRIALS and TESTS

REPORT SX 82560 Q

INTERIM □ FINAL X

DATE 83/2/28

TITLE Trials with Tiller-Trencher

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Introduction

In co-operation with the Ministry of Forests and using experience gained in their previous developments, Messrs. Sanders and Araki built a twin unit, deep tilling, Tiller - Trencher designed to prepare dry sites for hand planting.

Purpose

The unit casts the sod layer aside and forms a deeply-tilled trench. The purposes of this treatment are to:

a) Gather water
b) Facilitate water penetration
c) Facilitate planting
d) Facilitate root penetration
e) Remove competing grasses
f) Reduce evaporation.

The Machine

The machine, photos 1, 2 and 3, consists of two separate plow-type units each attached by a vertical swivel pin to a cross bar. The cross bar is attached by horizontal hinges to a second cross bar. The front cross bar is firmly attached to a tube which has a swivel connection to the draw pin of the crawler. The angle of penetration of the plows can be varied by adjustment of a cylinder between the two cross bars. The machine can be lifted by means of chains connected to the winch cable and led through the fairlead. Weight of the machine is approximately 2700 kg (3 tons).
The machine was coupled to a T.D. 20 crawler, photos 4 & 5, which pulled it along the contour. Since each unit acts independently it finds its own level based on the relative angle of the horizontal plane surfaces. The mechanism is capable of effective treatment working on a 20% side slope. Very preliminary estimates indicate a productivity of one hectare per hour. Treatment is done along the contour in order to form catchment troughs for the collection of Spring snow melt. Treatment along the contour also prevents erosion.
Results

Trenches, photo 6, made by the two units are 236 cm. apart centre to centre. Tilling is carried out to a depth of 43 cm and the width of sod removal is 53 cm. Berm created by the sod extends the total mineral soil surface width to 170 cm. It is anticipated that a great deal of the disturbed material will have washed back into the trench prior to planting.