

Report on Mechanical Preparation of Derelict Woodland for Planting.

University of Dublin—Kells Ingram Farm.

By DR. N. MURRAY

AS woodlands manager for Kells Ingram Farm, Drogheda, Co. Louth, I was faced in March 1958 with the preparation for planting of 14 acres of derelict woodland. Apart from the high cost of the method, hand clearance could not be considered at this late stage and I was accordingly authorised by the Management Committee to hire machinery for preparing the land.

The area was heavily covered with lop and top and briars. There had been an average of 57 commercial trees per acre but the actual number of stumps was much greater due to scrub and inferior trees.

The contractors were not required to remove any of these stumps but only to push all lop and top and briars etc. into heaps for burning by estate labour. The machine employed for this purpose was a D4 bulldozer hired at the rate of 45/- per hour. Work commenced on 14/3/58 and ended on 9/4/58 during which time the machine put in 89 working hours at a total cost of £195 4s. 0d. (average £14 per acre). Bad weather caused delays. The soil in the area is heavy and impervious and was readily "puddled" by the churning action of the 'dozer tracks on the wet surface. Progress was slowed up by these soil conditions and it was practically impossible for the operator to prevent large quantities of mud from being pushed into the heaps. This mud rendered burning very difficult and in some cases nearly impossible.

A worry which the ensuing summer did not justify was that the ground scraped clear of vegetation at this late stage would dry and crack under sun and wind resulting in loss of plants due to drought. This operation on sloping ground could, under wet conditions result in loss of soil by erosion.

On a few occasions the 'dozer got jammed on hidden stumps but the operator was able to work it clear.

An average of 10 to 12 heaps per acre were made and these were left for a few days to dry before burning was attempted. Old sacks cut up and soaked in T.V.O. were found convenient for firing the heaps though a pressure flame gun was found to be better and quicker provided sufficient labour was available to tend a large number of fires started in quick succession. Old engine oil and rubber tyres are also suitable for getting fires going. If the fires can be started while the 'dozer is still operating in the vicinity the fires may be conveniently tidied in by the machine as they must be tended or else will burn out in the centre leaving a large outer ring of unburned material.

Where there was scrub or sapling growth it was found necessary to have this felled in advance of the dozer as otherwise it was only pushed over and sprang erect again when the machine passed. If the dozer blade was lowered in order to push such material out of the ground it was found to cause too much disturbance of the soil and hold up progress to an undesirable extent. While a larger and more powerful bulldozer might be capable of pushing heavy material into heaps more easily, its greater width would render it less manoeuvrable between stumps resulting in less efficient cleaning of the ground.

In corners, on ditch edges, etc., briars may be conveniently removed by driving the dozer in with the blade raised, lowering it, applying pressure and reversing away dragging the briars out of the ground ("backblading"). When dealt with by bulldozer this troublesome growth remains in check longer than if it is merely chopped off at ground level leaving the roots undisturbed to sprout again.

Hand clearance of the area in question would have cost £20-£25 per acre.

Costs:

Bulldozer clearance of 14 acres			
89 hours at £2 5s. 0d. per hour	£195	4s.	0d.
Assisting bulldozer driver when in difficulties			
7 man hours at 2/- per hour		14s.	0d.
Cutting light scrub in advance of bulldozer			
68 man hours at 2/- per hour	£6	16s.	0d.
Labour for burning material pushed into heaps			
192 man hours at 2/- per hour	£19	4s.	0d.
Oil for burning heaps,			
approx. 66 gallons at 1/6½d. per gallon	£5	1s.	9d.
	Total	£226	19s. 9d.

Average cost per acre in thus approximately £16.

Drainage work was carried out in the wake of the bulldozing operation. A 10 RB dragline excavator was hired at 25/- per hour commencing operations on 26/3/58 and finishing on 16/4/58. 396 yards of new drains were excavated and 1,136 yards of old drains were re-opened (total 1,530 yards) in 107½ hours at a total cost of £133 8s. 9d. (1/9d. per yard or £6 per acre approximately).