

Headquarters Mechanical Development Committee

Report No. 54

The Kingslaw Bark Peeler on Norway and Sitka spruce

Origin

During the trials of the Kingslaw machine at Brandon in December, 1955 (H.Q.M.D.C. Report No. 47) it was noted that the standard of finish left on spruce might not be satisfactory on pit props owing to a certain amount of tearing of the surface. A further trial on different sizes of spruce was therefore carried out at Mortimer in May, 1956.

Conditions

1. A range of four sizes was available in Sitka and Norway spruce and this range was available both freshly felled (under 10 days) and felled 2 - 3 months.
2. Both the machine operators were fully experienced on the machine.
3. The trial took place in dry weather after a long dry period.
4. Unlimited labour was provided to bring produce to the machine and to clear it and stack it. This was done so that the results would be a measure of machine performance divorced from any interruptions from outside sources.
5. All the props for the sixteen specific tests were good quality (very straight and well trimmed). All the props had been sorted into sizes and each test consisted of a timed run of 20 - 30 minutes on one size.

Observations

1. The details, output rates and calculation of cost per Hoppus foot for each individual test are given in the Appendix to this report.

2. Costs ranged between 2d and 5.7d. per Hoppus foot. As in the case of Report No. 47, operating costs for this machine were calculated as follows:-

Depreciation on £1,185 over 5,000 hour	=	4/9d.	per hour
Repairs and Maintenance (estimated)	=	1/6d.	" "
Fuel and lubricants	=	7d.	" "
Total machine costs	=	6/10d.	" "
Wages of 3 men at 3/6d. per hour			
+ 40% for overheads	=	14/8d.	" "
Therefore total operating cost	=	21/6d.	" "

Two operators are required for the machine but three are allowed for in the above calculations since one extra man to assist in collecting and stacking is considered to be the minimum requirement.

3. Except on test No. 16 there was no noticeable difference between either the rate of output or the quality of the peeling on Sitka and Norway spruce.
4. More surface damage was seen on the freshly felled props than on those felled 2 - 3 months but it was only the small diameters (3") which seemed to suffer to any extent. The quality of the peeling on diameters of $3\frac{1}{2}$ inches and upwards was very good on both old and new felled props. After the sixteen specific tests had been completed some tests were made on a few rough props having large whorls and not being well trimmed. In these cases the surfaces were considerably torn by the machine through the props having momentarily stopped when passing the rotors and therefore received more than their share of bruising.
5. The small amount of bark left in small patches on some of the props would, almost certainly, fall off during seasoning but it was noticeable that more bark was left on the older felled timber than on the fresh. More pressure was used on the rotor adjustment when peeling the older props.

The only real trouble in getting the bark off occurred on Test No. 16 (N.S. 3 x 3 felled 2 - 3 months) where out of 176 props peeled 77 had to be put through the machine twice and 18

Observations
(contd)

were actually rejected as being impossible to peel with the machine. This fact explains the very much lower output and higher cost on this particular test than on any other.

Conclusions

The results of this trial showed that:-

1. Straight and well trimmed Norway and Sitka spruce can be peeled satisfactorily by the Kingslaw machine at very low cost.
2. Output rates are higher and costs are lower on the spruces than on the pines (covered by Report No. 47).
3. Some suspicion remains that the surface finish may fall short of what is required on freshly felled spruce under $3\frac{1}{2}$ inches in diameter. The same remarks apply to the rougher spruce props which frequently have large whorls and are difficult to trim thoroughly.

R. G. SHAW

Machinery Research Officer

May, 1956

The Kingslaw Bark Peeling Machine - Detailed Results of a trial on Sitka
and Norway spruce at Mortimer 10th-14th May, 1956

APPENDIX

Test No.	Species	Size	Gear used	No. of props peeled	Time	Lineal ft. per hour	Hoppus ft. per hour	Cost per H. ft. pence
Fresh Felled								
1	Sitka spruce	3 x 3	4th	267	30 mins.	1602	69.4	3.7
2	"	5½ x 4½	2nd	101	"	1111	131.3	2.0
3	"	4 x 4	3rd	184	"	1472	114.1	2.3
4	"	3½ x 3½	4th	258	"	1677	95.6	2.7
5	Norway spruce	3 x 3	4th	264	"	1584	68.6	3.8
6	"	3½ x 3½	4th	161	20 mins.	1569	89.0	2.9
7	"	4 x 4	3rd	115	"	1380	107.0	2.4
8	"	5½ x 4½	2nd	101	30 mins.	1111	131.3	2.0
Felled								
9	Sitka spruce	3 x 3	4th	269	30 mins.	1614	69.9	3.7
10	"	3½ x 3½	4th	163	20 mins.	1589	90.5	2.9
11	"	4 x 4	3rd	111	"	1332	103.2	2.5
12	"	5½ x 4½	2nd	68	"	1022	132.6	2.0
13	Norway spruce	5½ x 4½	2nd	99	30 mins	1089	128.7	2.0
14	"	4 x 4	3rd	111	20 mins	1332	103.2	2.5
15	"	3½ x 3½	4th	174	20 mins	1696	96.6	2.7
16	"	3 x 3	3rd	176	30 mins	1056	45.8	5.7