THE USE OF BRUSH CUTTERS ON MANA GRASS

P.B. EKANAYAKE & M. WATSON

Research Officer and Agronomist respectively, Tea Research Institute, Low-Country Station, Ratnapura

---

Mana or Guatemala grass is grown for soil rehabilitation and/or provision of thatching material for new clearings. Grass cutting thus becomes a routine operation in estates. The labour requirement for cutting mana or guatemala grass is around 15-30 labourers per hectare (6-12 lpa), and it is also an unpopular task with estate labour, especailly in the case of mana grass.

Mechanisation of this operation could therefore lead to better labour use and reduced costs. There are various machines called 'brush cutters', 'reapers' *etc* which the manufacturers claim are suitable for cutting and clearing undergrowth, weeds, shrub, grass, branches, *etc*. One such machine was tested on mana grass and the results are reported in this article.

The machine, a Maruyama Brush Cutter MB-160A, was obtained from Lankem (Ceylon) Limited. The specifications as given by the manufacturers are shown in the Appendix. Cutting is done by means of a circular blade at the end of a long handle. This blade is driven by a 2-stroke engine. During operation the brush cutter is hung at waist level from the shoulder.

Preliminary tests showed that the reaping blade was more suitable than both the mowing and sawing blades. The machine was then used on mana grass of different stages on varying terrain.

On flat to gently sloping land it was found that the brush cutter could be swung from side to side cutting two

rows at a time. In regularly cut mana, the machine covered 0.4 ha (1 ac) in a day (6½ hours continuous work). No additional labourer was required for the mowing operation. But an extra labourer was used for refuelling *etc*. Where the mana was fairly overgrown and mature the output was lower, approximately 0.3 ha (¾ ac) per day.

On steep land, it was difficult to cut on both sides by swinging the machine. Best results were obtained when the blade was moved along the slope *ie*. downwards, while walking on the contour. Therefore, cutting should be commenced from the top of the slope. Here, it is essential that the cut grass is cleared for the operator to harvest the next row. This is easily done with a suitable stick 1-2 m. long. Thus, an additional labourer is required in this case. Outputs of around 0.3 ha (¾ ac.) per day were obtained on regularly cut mana. The output will be lower in mana grass that has not been lopped regularly.

The machine cannot be used successfully in areas overgrown with creepers such as *Mikania*. These creepers tend to wind round the shaft at the cutting end, and jam the blade.

The fuel tank capacity is 1.0 litre. Fuel consumption was 750 ml (1 bottle) per hour, and after one hour of continuous operation the operator generally showed signs of fatigue. 10-20 minutes rest for every 50 mins operation is recommended by the manufacturers to prevent overheating of the machine. Thus, two men could take turns to operate the machine changing over at the time of refuelling at 45 mins to 1 hr intervals. Checking and tightening of nuts *etc* also has to be done.

In these trials, the labourers were not provided with any protective gear. But it is essential that the operators be provided with some form of protection *eg*. boots or 'putties', as they complained of considerable skin irritation caused by the pieces of mana grass.

The brush cutter was also used on a field of guatemala grass and performed satisfactorily.

Assuming an output of 3.0 ha/day and a petrol consumption of 750 ml/hr the operating cost per day is Rs 98/- *ie.* Rs 58/- for fuel and Rs 40/- for two labs. In comparison, cutting the same area (0.3 ha.) by hand will require six labourers (20 lph) at a cost of Rs 120/-. The actual cost of using the brush cutter will of course be higher when depreciation and maintenance costs are taken into account.

Apart from any economic benefits, two distinct advantages of the machine are -

(a) it does a job that is disliked by estate labour; and,
(b) for every hectare of grass cut by the machine there is a saving of labourers who could be deployed for more productive work on the estate.

APPENDIX

SPECIFICATIONS OF MARUYAMA MODEL MB-160A:

(a) BODY:

Weight	- 8.0 kg
Dimensions (L x W x H)	- 1,820 x 590 x 445 mm
Clutch system	- Automatic centrifugal clutch
Disc angle	- 120°
Reduction ratio	- 1:1.3
Carrying method	- Hanging type
Cutting width	- 2 m
Transmission	- Spiral bevel gear

(b) ENGINE:

Model	- Kawasaki KT-15
Type	- Forced air-cooled 2-cycle single cylinder gasoline engine
Piston (Bore x Stroke)	- 34 x 30 mm
Displacement	- 27.2 cc
Carburetor	- Float carburetor
Compression ratio	- 7.0:1
Fuel	- Mixture of gasoline with oil (25:1)
Fuel tank capacity	- 1.0 litre.