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STONE ROLLER AS MOWING AID

By R. L. DOWN, Manager, Avondale Research Station

The Avondale Research Station is situated on land typical of many thousands of acres of the Avon Valley—jam, wattle and York-gum country liberally dotted with stony outcrops. Despite the expenditure over the years of many man-hours on stone-picking, the cutting of meadow hay was always a task involving frayed tempers, loss of time and a heavy bill for replacements of mower parts. Small stones, which were of no consequence in the working of a paddock with other types of machinery, jammed the mower knives with exasperating frequency.

It was not a practicable proposition to make hundreds of acres entirely stone-free, so following upon consultations with experienced farmers and engineers it was decided to test a heavy roller to press the stones into the ground before mowing, and incidentally to level out minor irregularities on the soil surface.

A roller was constructed of 5/8 in. steel plate, welded in cylindrical form and ground smooth over the weld. The roller was 9 ft. in length and 3 ft. in diameter. The ends were two circles of 3/4 in. plate, fillet-welded into the ends of the cylinder, and these carried two 2 in. diameter stub-axles welded and strengthened into the centres of the circles. One of the roller ends was fitted with a 1 1/2 in. gas plug to enable the cylinder to be filled with water.

The stub axles were fitted into sawbench-type bearings, the construction of which enabled them to withstand side-thrust, and these bearings were bolted to a 4 in. channel-steel frame. The weight of the implement was 1½ tons dry and 3 tons when water-filled.

SUCCESSFUL OPERATION

The roller was delivered at Avondale at the end of June and given a thorough trial. It exceeded all expectations in operation, being easily handled by a light tractor and proving highly manoeuvrable — sliding round in short turns without “scuffing” or damaging the pasture growth.

The maximum (water-filled) weight was shown to be desirable and the most effective speed appeared to be 3 m.p.h.
Due to the smooth surface of the roller it could be used without scuffing, even under wet conditions.

Approximately 200 acres were rolled satisfactorily during June, July and August under varying conditions of soil moisture. Stones up to 3 in. in diameter were pressed into the ground quite easily under almost dry conditions.

Under moist conditions and active plant growth, the pressure of the roller did not appear to cause any damage to the plants. They returned to their normal positions so quickly after rolling that we considered fitting a marker to the roller. The fitting of a trailer behind the roller to dispose of any large stones encountered, made a marker unnecessary as the tyre-tracks remained visible.

The advent of a dry spell caused the pasture growth to wilt prematurely and prevented us from ascertaining how late the pasture could be effectively rolled.

Because of the dry spell it was decided to try to cut hay on a paddock which was not showing early effects of the dry weather, but had previously been regarded as hopeless for hay-cutting.

This paddock was very stony, and the ground surface was particularly rough. It was rolled in an anti-clockwise direction and then mowed "against the grain" of the rolling.

The mower guards were tilted downward and although the ground surface was very dry and the clover going down rapidly, a large quantity of hay was cut with a minimum of damage to the guards and knife sections.

From the foregoing, it will be seen that the roller can be recommended as an economical and practical approach to the
problem of increasing the areas of meadow hay cut annually. Our experience indicates that it makes mowing possible on areas previously regarded as too rough.

The cost of the roller is soon recovered in lowered mower maintenance costs, time saved, and extra hay harvested. Its simple construction makes it probable that the implement will last for many years with little or no maintenance costs.

A similar roller has now been delivered to the Esperance Plains Research Station where small roots have created difficulties when hay-cutting.

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