

## HAULAGE OF SUGAR CANE BY MOTOR LORRY

The motor lorry has, in recent years, so firmly established its position in transport work, that the use of this form of transport for cane haulage merits very thorough study.

The principal advantages of lorry transport are three in number:—

1. It can be placed close alongside the cane, thereby reducing the distance the cane has to be carried.

2. The natives can be taken quickly to the fields. This ensures an early start in the morning, and is also of immense value in the event of cane fires.

3. It is always available for other work, such as haulage of fertilisers, seed cane, rations, etc.

Details are available of four applications of motor lorries to cane haulage. In each case the lorry has been used for other work, and, consequently, the life and maintenance costs are, in effect, estimates. In no case has a lorry been worked to destruction, and it is considered desirable that records should, if possible, be kept in some such cases, in order that these figures can be verified. There is, however, sufficient data to justify the contention that the costs given represent fairly what may be expected in the existing conditions.

**Case A.**—A popular 8-cylinder 2-ton truck is used to carry 2-ton loads from the field to a tramline siding two miles away. The life will probably be about 70,000 ton miles (70,000 tons hauled 1 mile plus the return journey empty) with a cost over this period for repairs, replacements and overhauls, including tyres, of £600, which, with a first cost of £260, gives a cost of 2.95 pence per ton mile.

Petrol, oil and grease cost 2.80 pence per ton mile. Overheads on a normal cane season work out at:—

Interest on Capital (5% on half the original cost) . . . . .	£ 6 10 0
License and Insurance (half year) . . . . .	18 0 0
Driver's Wages (6 months) . . . . .	30 0 0
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	£54 10 0

**Case B.**—A heavy-duty 4-cylinder truck is used to carry 4-ton loads from the field to an S.A.R. Siding, average distance 4½ miles. This lorry is equipped with solid rubber tyres. The life of this lorry is expected to reach 150,000 ton miles, with a repair bill of £1,200. This, with the first cost of £650, gives a cost of 2.96 pence per ton mile.

Petrol, oil and grease cost 2.88 pence per ton mile. Overheads on a normal cane season work out at:—

Interest on Capital . . . . .	£16 0 0
License and Insurance . . . . .	18 0 0
Driver's Wages . . . . .	30 0 0
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	£64 0 0

In the third and fourth cases a new system is used. Here large tonnages are handled by the lorries. Ox wagons are loaded in the field with the cane in chain slings, and hauled to a portable derrick at the side of the nearest road. The cane is lifted by the crane and placed on the lorry. This system enables the one lorry to haul up to 450 ton miles a day. Since this lorry is used solely on made roads, it is reasonable to expect that its life will be longer and its maintenance lower, than is the case where it has to enter the fields, and this expectation promises to be supported by experience. This system is particularly suited to the haulage of large crops.

**Case C.**—A 6-cylinder heavy-duty high-speed truck is used, with pneumatic tyres, to haul 4-ton loads an average distance of 3¾ miles. This lorry gives promise of a life of 200,000 ton miles with a repair bill of about £980. This, with the first cost of £800, gives a cost of 2.14 pence per ton mile.

Petrol, oil and grease cost 2.10 pence per ton mile. Overheads show:—

Interest . . . . .	£20 0 0
License and Insurance . . . . .	18 0 0
Driver's Wages . . . . .	30 0 0
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	£68 0 0

To this must be added a sum of 4½ pence per ton for handling from the field to the lorry; made up of oxen, wagons, crane, slings, driver, brakeman, voorlooper and craneman.

**Case D.**—In this case the above truck (C) was replaced by a modern 4-cylinder ignition-compression engined high-speed truck, carrying 4-ton loads. This lorry has not yet been in service long enough to ascertain its economic life and repair costs, but costs up to date have closely paralleled those of the petrol lorry working under the same conditions. The same figure has, therefore, been taken for the purpose of comparing costs, viz., 2.14 pence per ton mile.

Fuel consumption is, however, considerably less than is the case with a petrol lorry, being 0.15 pence per ton mile, with an oil and grease bill of 0.05 pence.

Overheads:—	
Interest (£900) . . . . .	£22 10 0
License and Insurance . . . . .	18 0 0
Driver's Wages . . . . .	30 0 0
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	£70 10 0

In order to compare these three cases these costs have been evaluated below for nine different conditions:—

	A	B	C	D
2,500 tons 1½ miles	13.8	14.9	17.4	14.7
3	22.5	23.7	23.7	18.2
6	39.7	41.2	36.5	25.3
5,000 tons 1½ miles	11.2	11.8	14.1	11.4
3	21.2 (2)	21.6	21.5	14.9
6	38.4 (2)	38.1	33.2	21.9
10,000 tons 1½ miles	11.25 (2)	10.3	12.5	9.7
3	21.2 (3)	30.6 (2)	18.8	13.2
6	39.7 (4)	38.1 (2)	31.6	20.2

The above table shows the calculated cost per ton hauled in each case. In some cases one lorry will not handle the crop. Where more than one lorry is required this is shown by the figure in brackets. This is calculated by assuming a season of 200 days, by applying the average speed (as found in practice) and the average loading and off-loading times as found in these cases, so as to ascertain the actual tonnage one lorry can haul in 200 days of ten working hours each.

These figures show the advantage of the light lorry for small tonnages and short distances, and also reveal that, for larger crops or longer hauls, the larger lorries are more economical.

There should be some lessons to be learned by further comparing detailed costs, as below:—

	A	B	C	D
Maintenance . . . . .	2.95	2.96	2.14	2.14
Fuel and Oil . . . . .	2.80	2.88	2.10	0.20

There is a marked saving under both headings in cases C and D. This would appear to be due to the fact that these lorries never enter the fields, thereby avoiding the heavy low-gear work which is unavoidable in the other cases. The fuel saving in case D is due to the use of low priced fuel and to the increased mileage obtained with it.

Lorry users must bear in mind certain rules if they are to obtain economical service.

1. Do not overload. This is by far the most common cause of high repair bills and low life, especially so in view of the prevalent habit of vendors of advertising their lorries as able to stand a certain overload. This does apply to an occasional load, but, if this overload is applied every time, expense is inevitable.

2. Few, if any, lorries are fitted with efficient air cleaners. The conditions under which they work demand an air cleaner of the type fitted to tractors. This is a matter to which makers should give serious study, and owners are strongly advised to fit extra air cleaners to their lorries.

3. License and insurance are heavy items, and owners should, if possible, lay up their lorries for the first part of the year to save on these items.

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