

BALING OF RAW RUBBER.

BY

B. J. EATON.

In view of the necessity for reduction of costs in the production and marketing of raw rubber, it appears desirable again to draw attention to the question of packing of raw rubber in relation to baling instead of packing in wooden chests.

Although the necessity is more urgent at the present time than previously, attention may be drawn to an article entitled "The Utilisation and Waste of Wood in the Preparation and Packing of Raw Rubber" published by the writer in *The Malayan Agricultural Journal* Vol. XII, Nos 6 and 7, June-July 1924 pp. 165-184.

In that article the possibilities of using a treated hessian or matting bale was discussed and figures of costs for packing in various wooden chests—Threeply, Momi etc., and Gunny sacking (hessian) were given.

As is probably well known, a few large manufacturers owning rubber estates and also several large manufacturers purchasing rubber in Singapore bale their rubber in treated hessian.

A letter has been addressed to the London Advisory Committee of this Institute suggesting that a questionnaire be sent to all the leading rubber manufacturers in Great Britain, United States of America and Europe to obtain opinions on the subject. Sufficient time, however, has not yet elapsed for the receipt of replies to this questionnaire.

At my request, Mr. A. Moore, Field Officer, Johore instituted enquiries among producers and manufacturing companies which were purchasing rubber in Singapore and shipping it in treated hessian bales. I am indebted to him for the details contained in this article which should be of interest to producers. Thanks are also due to the producing company using this method of packing for permission to publish the figures of costs.

USE OF HESSIAN FOR BALING RUBBER.

On one estate treated hessian is used for baling all rubber except scrap which is packed in ordinary rice (gunny) sacks.

Hessian (jute) sacking is purchased at a cost of \$104.10 per 1,000 yards 45 inches wide. The material is treated on the estate

with a size composed of tapioca starch and sodium silicate prepared as follows:—

Tapioca flour	...	120	lbs.
Sodium silicate	...	7½	„
Water	...	120	gallons.

The above quantity is stated to be sufficient for the treatment of 850 yards of hessian.

The mixture is contained in a shallow wooden tank fitted inside with rollers which are under the surface of the paste. The hessian is passed under the rollers through the paste and the excess of paste is removed from the hessian by means of two boards fixed near the edge of the tank. The hessian is handled rapidly by winding it on a revolving frame which pulls it through the paste. It is later unwound and hung out to dry before being used.

It has been found that, in a working day, five labourers can prepare 850 yards at the following cost:—

850 yards of hessian	...		\$88.83
120 lbs. of tapioca starch	...	\$4.00	
7½ lbs. of sodium silicate	...	0.56	4.56
5 labourers at 40 cents each	...		2.00
			<hr/>
Total			95.39

3½ yards of hessian is sufficient for two bales of rubber, so that 850 yards is sufficient for 486 bales.

			Cts.
Cost of hessian per bale	19.6
Cost of labour for packing and sewing			
per bale,	11.0
Cost of string and French chalk	2.3
			<hr/>
Total cost per bale,			32.9

250 lbs. of rubber can be packed in each bale, so that the total cost of packing (including labour) is 0.131 cents per lb.

The present cost of imported three-ply chests is not less than 85 cents, which at 250 lbs. per chest is equivalent to 0.34 cents per lb. of rubber, apart from the labour costs in making up the cases from the imported sides, bottoms etc., pressing, filling and nailing of cases, which bring the total cost to 0.4—0.5 cents per lb.

BALING IN "GRASS" MATS.

The use of "grass" mats or mats made locally from "Mengkuang" palm fibre has also been considered. Such material is used

for the baling of tobacco leaf and other products. Some years ago a patent was obtained in Malaya for mats of this type.

The following information has been obtained by Mr. Moore in connection with the cost of such packing, using "grass" matting imported from Hong Kong and Banjermassin. The rubber is pressed and strapped with tapes $\frac{3}{8}$ inch wide fastened by clips. The bale of rubber is then placed in the matting which is sewn up.

The costs are as follow:—

Mats	...	18	cents	per	bale.
Steel tapes (4)	...	10	"	"	"
Clips for fastening tapes (4)	2	"	"	"	"
Talcum powder and string	1	"	"	"	"
Labour	...	10	"	"	"
<hr/>					
Total	...	41	"	"	"
<hr/>					

The above costs are for packing 250 lbs. of crepe rubber in bales. Costs for packing sheet would be considerably less, and it would probably be necessary to strap the rubber with steel tapes. If strapping can be dispensed with, the cost would be only 29 cents per bale or less than baling in hessian. Even if two tapes were used the cost would be only 35 cents per bale.

These mats also withstand very well the use of hooks used for handling. A point in favour of such matting is that it could probably be made locally as a village industry from locally grown material.

The following criticisms have been raised in relation to bale packing of rubber and are discussed under each heading.

- (i) *Manufacturers prefer bale packing when shipping to their own factories and when the rubber is used more or less immediately after arrival.*

There does not appear to be any valid reason why rubber packed in bales should not be stored satisfactorily, especially in view of the fact that a layer of rubber is now invariably used as a wrapping round the contents of the cases or bales.

- (ii) *In the case of estates having contracts with manufacturers, the price might be cut if the rubber were baled.*

This might happen and it is agreed that baling could only be adopted by consent in such instances or by all producers combining to effect this procedure.

- (iii) *It is suggested that "massing" will occur in the holds of ships or in the warehouses in which the bales are*

stored and that the warehouses would ask for higher rent for baled rubber, since the bales could not be stacked as high and would occupy more floor space.

In view of the fact that all rubber is now pressed before packing so that the cases contain 224 or 250 lbs., of rubber per case (=10 or 9 cases per ton), no additional "massing" would occur during storage. If the bales are packed 20 feet high, the pressure on the lowest bales due to the weight of those above is only about 6 lbs., per square inch, which is less than that used when pressing the rubber into cases on the estate.

- (iv) *Bale packing would appear definitely to rule out dealers, who are a big factor in the trade, since an estate confining itself to a manufacturer might find difficulty in disposing of baled rubber if manufacturers were not buying.*

This is agreed and it will be necessary to obtain agreement between manufacturers, dealers and producers in order to effect any change in the present procedure.

- (v) *An objection might be raised in the case of rubber consigned say to London, and re-packed for the continent or elsewhere.*

It should be quite simple to re-pack the rubber in the same baling material or to place another wrapping of ordinary sacking outside the treated hessian. This would be cheaper than re-packing in wooden cases.

CONCLUSION.

It has been shown that the packing of raw rubber in wooden cases is an unnecessary expense and that cheaper baling materials, in the form of hessian treated with a starch—sodium silicate paste, or "grass" matting, are quite suitable.

Emphasis might also be laid on the fact that the wooden cases at present in use are not a British or Imperial product, but are imported from foreign sources, while hessian is a British Indian Product prepared from jute grown in India and the starch-sodium silicate paste is also a British Product.

In the case of "grass" matting a useful local industry could probably be developed from locally grown material.

Two other points of interest and importance may also be mentioned. It may be found practicable and economical to treat hessian with a vulcanised latex. A cheap method which could be

adopted on estates would be to treat the hessian with a latex to which lime and sulphur (polysulphide of lime) are added. Such latex when dried is vulcanised and the baling material would be more waterproof. Both lime and sulphur are comparatively cheap and easily obtainable.

This method of treating the baling material would also result in a useful consumption of rubber in the form of latex. Experiments are required in order to compare the cost with the treatment described above.

Another important point is the size and shape of the bales in relation to shipping requirements and the width and length of sheet rubber in relation to factory machinery and coagulating tanks. It is possible that a bale of different size and shape to the wooden chests now in use may be more suitable.