FULLY STRIPPED BUNCHES IN PALM OIL MILLS

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JUNE 2001
127
MPOB TT No. 111

MPOB INFORMATION SERIES ISSN 1511-7871

Fresh fruit bunches are subjected to steam sterilization for the purpose of loosening fruitlets from the bunch as well as to stop the increase of free fatty acids in the fruits. The sterilized bunches are then transferred to a cylindrical rotating machine called a thresher which lifts and drops the sterilized bunches onto the interior causing the fruitlets to detach from the bunches.

Unfortunately, the level of unstripped bunches (USB) is still high in most mills and this has resulted in higher oil and kernel losses. The presence of USB does not only reflect the efficiency of the sterilization and threshing operation but it also indicates the level of unripe/underripe bunches processed. Although many mills manage to control the USB to an acceptable level either by manually recycling or by a combination of bunch crusher and double threshing, there are also mills which do not make any attempt to recover the USB.

MPOB has developed a new USB recovery system that is slightly different from the conventional approach whereby the second or double threshing is completely eliminated. The system has the advantages of low capital and maintenance cost and small space requirement. It does not require an inclined conveyor and thus making the operation easy.

SYSTEM DESCRIPTION

A bunch crushing machine uses a double-roller powered by a motor and speed reducing gear box and a device for varying the clearance between the two rollers through which the bunches are fed. This device forcefully tears the bunches and loosens the fruits from the bunches. Three bunch flippers arranged in series will act on the bunches passing through the bunch crushers in order to shake loose fruitlets which are already in a condition ready for separation. By the time the bunches pass through the three flippers complete separation of all fruits is possible. *Figure 1* shows the top view of the USB recovery system. *Figure 2* shows the top view of the flipper in detail.

PERFORMANCE TRIAL

The system was tested in palm oil mills running with a throughput of 40 t hr^{-1} for a period of six months. The USB percentage was collected before and after the USB recovery system was installed. Results from this trial indicate that

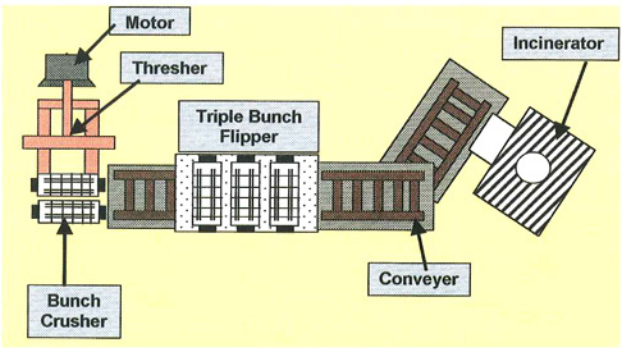

Figure 1. The top view of the unstripped bunches recovery system.

ISSN 1511-7871
9 771511 787001

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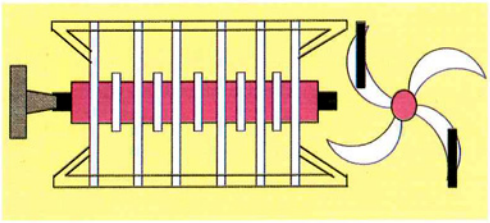

Figure 2. The top view of flipper system.

the system is capable of reducing the USB to below 2% with a fruitlet recovery efficiency of 91%. It is a good system for any mill, as the payback period has been estimated to be less than a year.

CONCLUSION

The proposed USB recovery system is an alternative method of fruitlet recovery from the USB. It brings about additional oil and kernel yields. It has low investment and maintenance cost, less space area is needed and it can be applied to all mills which either have a single or two processing lines.

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