

PACKAGE LINERS & DIVIDERS

Introduction: When fresh produce is packed in large wooden boxes, fiberboard packages or plastic crates, there are times when using liners or dividers in the package during shipping will serve to cushion and immobilize the items and reduce abrasions, bruising and subsequently reduce postharvest losses. The use of dividers is especially common with heavy crops such as melons. The dividers separate and prevent the melons from vibrating against one another during handling and transport. Simple liners and dividers can be made from inexpensive materials such as soft paper, pressed pulp, fiberboard, foam sheets or plastic coated pads.

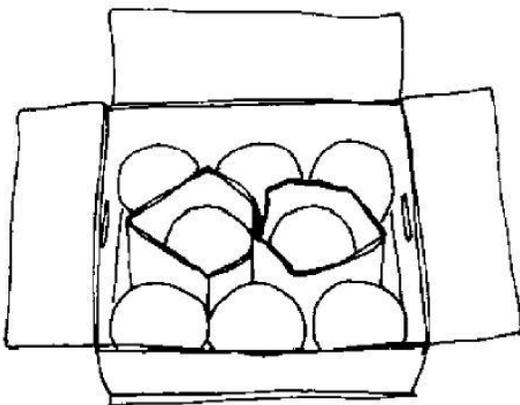
Design Options & Materials Needed-- Package Liners:

Fiberboard liners can help smooth a rough inner surface of a container made of wood or plastic. A few examples are provided here as illustrations. Vent holes can be added to ensure there is adequate air flow.

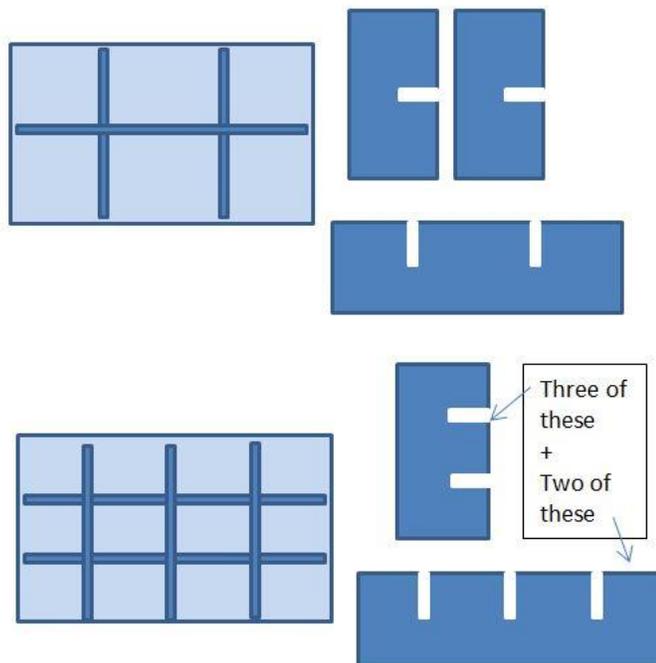


Design Options & Materials Needed-- Package Dividers:

Simple folded fiberboard or foam pieces can be used as separators or dividers. If the fiberboard is the same height as the sides of the package, it can also help increase stacking strength.



Some simple designs for dividers:



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These designs and illustrations (for the 2x1 and 3x2 patterns) are provided only as examples. Any number of divider patterns can be constructed, depending upon the size of the package and the size and shape of the produce to be packed. Smaller produce may need more dividers (3x4 or 4x5). If two layers of produce are being packed, dividers can be made at half the height of the package, and a simple flat piece of rectangular fiberboard can be laid on the first set of dividers before starting to pack the second layer.

Costs and benefits

The extra costs for dividers when used for packing higher value commodities are immediately repaid by the reduced losses, even though more packages may be required to package the same volume of produce. If the reduction in mechanical damage also results in a higher market price, then profits can be even higher than shown in this example.

Crop (1000 kg)	Typical large package or container	Package dividers used in large packages or containers	Potential increase in profits
Guava fruits	Market price \$1.50 per kg 83 cartons @ \$1.00 (holds 12kg) 15% discards due to abrasions, cuts, bruises, compression damage during shipping Market value = 850 kg x \$1.50 = \$1275 \$1275 - \$83 = \$1192	Market price \$1.50 per kg 100 cartons @ \$1.00 (holds 10 kg) 100 dividers @ \$0.20 no mechanical damage Market value = 1000 kg x \$1.50 = \$1500 \$1500 - \$120 = \$1380	\$1380 - 1192 = \$188 The first use will repay the total cost of the dividers and result in an added profit of \$188.

For further information

McGregor, B. 1987. Tropical Products Transport Handbook. USDA, Office of Transportation, Agricultural Handbook Number 668. <https://naldc.nal.usda.gov/download/CAT89930509/PDF>

Small-scale postharvest handling practices: A manual for horticultural crops (Chapter 4; 5th edition 2015) http://ucanr.edu/sites/Postharvest_Technology_Center_/files/231952.pdf

Postharvest Technology Center (UC Davis) <http://postharvest.ucdavis.edu>

The Postharvest Education Foundation <http://www.postharvest.org>

Postharvest Innovations LLC <http://www.postharvestinnovations.com>

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