

# REDUCING PACKAGING

## – R5

Eco-efficiency resources for the food processing industry

### *Do you need boxes in boxes?*

*All packaging that is not essential for the protection, containment, handling or identification of the product should be eliminated. Opportunities to eliminate packaging include changing packaging design, delivering in bulk and alternative handling and distribution techniques.*

The three main categories commonly used for packaging are:

1. primary packaging that is used around the product at the point of sale e.g. bottle
2. secondary packaging that groups the product until it is sold e.g. boxes
3. tertiary packaging that enables the product to be handled and transported e.g. pallets, pallet wrap and strapping.

*Packaging is a two-way street. Work with the whole supply chain to reduce the packaging burden.*

### Eliminate packaging

#### Packaging design

Examples of ways to eliminate packaging by changing the design of packaging include eliminating:

- unnecessary layers e.g. bags within bags
- unnecessary tertiary packaging e.g. replace cardboard boxes with reusable containers
- unnecessary labelling e.g. replacing paper labels with direct ink printing
- adhesives.

### BOXES WITHOUT BOXES

Ice-cream processor Weis eliminated the need for an outer master carton (excess secondary packaging) by using the inner wrappers as the retail pack (primary packaging) and not having boxes in boxes. Weis also reduced the film thickness of the product from 40µm to 35µm saving 12.5 per cent of the total packaging used in the product range.<sup>1</sup>

<sup>1</sup> Weis Australia Pty Ltd, 2005, National Packaging Covenant Five year action plan July 2005 – June 2010, [www.packagingcovenant.org.au/documents/File/ap\\_Weis\\_Frozen\\_Foods\\_05\\_10.pdf](http://www.packagingcovenant.org.au/documents/File/ap_Weis_Frozen_Foods_05_10.pdf)

## PRINTED TOP FILMS ELIMINATES PAPER

Hans Continental Smallgoods has eliminated paper labelling on 15 product lines through the introduction of printed top-films.<sup>2</sup>

## TERTIARY PACKAGING ELIMINATED

The baker Goodman Fielder has eliminated the need for tertiary packaging that enables the product to be handled by connecting a pneumatic conveyor to two large silos that can distribute flour throughout the plant using air pressure.<sup>3</sup>

### Bulk delivery

Bulk delivery can eliminate the need for tertiary packaging which in turn can reduce transport costs through weight reduction. Bulk delivery methods include tanker delivery and IBC's (intermediate bulk containers) that are cube-shaped containers that fit onto a standard pallet.

## WORKING WITH SUPPLIERS PAYS OFF

Prepared foods processor Eurest reduced purchasing, logistic and landfill costs by working with suppliers to deliver goods in bulk. The company for example now receives its milk and cream in 1,000L pallet boxes instead of 10L bags.<sup>4</sup>

## BULK HANDLING REPLACES MANUAL HANDLING

Ginger processor Buderim Ginger replaced manual handling systems for its sugar with a bulk handling network. The bulk dry or liquid sugar system will reduce packaging from 60,000 units of 25kg paper bags to less than 1,000 units.<sup>5</sup>

### Alternative handling and distribution

By changing handling or distribution to systems such as ring mains to deliver chemicals around the plant it may be possible to totally eliminate packaging.

## Reduce product packaging

If packaging cannot be eliminated other opportunities to reduce packaging should be considered. Methods include:

- lightweighting
- reducing the use of adhesives
- optimising packaging operations
- efficient receiving, handling and storage
- complementary packaging design
- reducing waste from conversion processes.

<sup>2</sup> Hans Continental Smallgoods Pty Ltd, 2001, National Packaging Covenant April 2001–March 2002 Action Plan.

<sup>3</sup> Goodman Fielder, 2002, National Packaging Covenant Action Plan July 2002.

<sup>4</sup> Eurest Prepared Foods, 2002, National Packaging Covenant November 2002–October 2003 – Year One Action Plan.

<sup>5</sup> Buderim Ginger Pty Ltd, 2002, National packaging Covenant March 2002 Action Plan.



### Lightweighting

Methods to reduce the weight of packaging while still retaining its function include:

- reducing the thickness
- using lighter but stronger materials
- replacing cardboard with shrink wrap
- optimising shape.

Computer programs can be used to digitally simulate the mechanical strength of packaging to help determine the thickness and design required while keeping weight to a minimum.

### REDUCING THICKNESS REDUCES WASTE

Nerada reduced its consumption of polywrap film used to cover its packets of tea by 1,259kg by reducing the thickness from 30µm to 25µm. The tea processor saved an additional 4,516kg annually by reducing the thickness of stretch wrap used on pallets.<sup>6</sup>

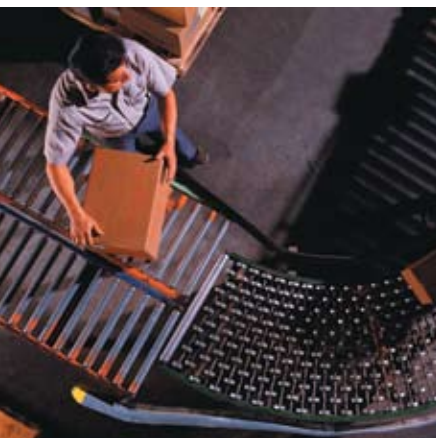
### Reducing the use of adhesives

Reducing the use of adhesives can not only reduce packaging costs but also increases recyclability (some adhesives can contaminate the recycling process). Methods to reduce adhesives include:

- optimising tape width
- using kraft paper taps rather than plastic taps to assist recycling
- improving box rigidity
- spot gluing
- PET strapping.

### SPOT SEALING SAVES

Nerada changes the glue mechanism on their machines to a spot sealing system and now saves 120kg of glue annually.<sup>7</sup>



### Optimising packing operations

Packing lines are typically made up of a number of different machines that are either connected manually or by a conveyor belt. Poor design and operation can lead to bottlenecks that waste not only packaging but also product and time. Adjust the speed of packaging lines to prevent downstream bottle necks that can damage the product or result in product needing to be repacked.

### Efficient receiving, handling and storage

Reduce packaging waste from damage or ageing by:

- checking for damage on delivery
- timing deliveries so packaging will spend minimal time in storage
- storing packaging carefully
- only order enough packaging to meet production needs.

<sup>6</sup> Nerada Tea Pty Ltd, 2002, National Packaging Covenant July 2002 Action Plan.

<sup>7</sup> Nerada Tea Pty Ltd, 2002, National Packaging Covenant July 2002 Action Plan.



### Complementary packaging design

Packaging should be designed to achieve maximum space efficiency to reduce transport, material and handling costs. Primary packaging should be designed to fit efficiently into secondary packaging, which should be designed to fit efficiently into tertiary packaging.

### IMPROVED CARTON UTILISATION

Capilano Honey replaced round glass jars with PET and pail packs to improve carton utilisation.<sup>8</sup>

### Reduce waste from conversion processes

Conversion packaging machines form packaging from unformed packaging materials. Select conversion machines that minimise trimming waste. For example 18-20 per cent of plastic bag material in conventional vacuum packaging processes is lost as off-cut waste.

This series of fact sheets provides examples and suggestions to the modern food processor on how to achieve both economic and environmental benefits from eco-efficiency. Visit the project website [www.ecoefficiency.com.au](http://www.ecoefficiency.com.au) for more ideas and case studies.

8 Capilano Honey, 2002, National Packaging Covenant Dec 2002–November 2003 Action Plan.

*The eco-efficiency for the Queensland food processing industry project is an initiative of the Department of Tourism, Regional Development and Industry and the Environmental Protection Agency with technical information provided by UniQuest through the UNEP Working Group for Cleaner Production.*