

# REDUCING SOLID WASTE

## – R2

Eco-efficiency resources for the food processing industry

### *Reduce your waste line*

*The ‘waste minimisation hierarchy,’ as discussed in the **Solid waste overview (R1)** fact sheet, indicates that eliminating and reducing waste should be the first avenue of opportunity to be investigated by food processors looking for smarter waste management solutions.*

#### **Review plant layout and building design<sup>1</sup>**

Efficient plant layout with adequate storage and processing space can reduce waste whilst improving operator safety and hygiene and saving time and space.

Key principles for improving plant layout include:

##### **minimising**

- material handling – as a general guide handle raw material only once after it reaches the plant
- the distance travelled by raw materials or product to reduce likelihood of damage and contamination
- clutter to decrease the likelihood of accidents such as spills
- storage area through effective inventory management.

##### **maximising**

- smooth flow – eliminating bottle necks or complicated processes
- utilisation of plant by removing any non-value-adding activities
- flexibility so the layout can be quickly adapted to change
- visibility – have a clear line of vision in areas where problems occur
- use of visual cues to aid movement and storage such as for signs, lines and colours.

<sup>1</sup> Berger, D., 2002, Build a Lean Plant Layout to Increase Your Efficiency, Advanced Manufacturing [www.advancedmanufacturing.com/index.php?option=com\\_staticxt&staticfile=lean.htm&Itemid=65](http://www.advancedmanufacturing.com/index.php?option=com_staticxt&staticfile=lean.htm&Itemid=65)



## REDUCED MATERIAL HANDLING SAVES TIME

Prepared Foods in Queensland reviewed its plant layout and material handling procedures with the aim of reducing waste and improving the flow of raw materials into the processing area. Previously, staff collected raw ingredients for each batch as required from the various freezers and storage areas which resulted in time delays on batch changeovers and inefficient material handling. Now on the day prior to the shift, all the raw ingredients are weighed out and placed in one tub in a cool room from where production staff can simply collect the tub and commence processing immediately. (Prepared Foods is an ecoBiz participant.)

Wastage from poor storage conditions and building design is often a problem for businesses that are outgrowing their processing plant.



*Raw materials ready for immediate processing.*

## Supply chain management

Often poor management of raw materials in a food processing plant leads to waste that costs in raw materials, storage and disposal.

Ensure all raw materials are:

- delivered at the correct time and in the correct quantity to ensure materials are not wasted by becoming out-of-date
- stored under appropriate conditions to prevent spoilage
- the correct quality so material is not wasted because it is off specifications
- delivered in appropriate packaging
- recorded on arrival in an efficient inventory management system
- not spoilt in transit, storage or while being handled.

Inventory management systems incorporating computer programs and barcodes can assist large companies track the movement of materials before, during and after processing. 'Just-in-time' manufacturing is a lean manufacturing concept that enables raw materials to move directly from the delivery dock onto the factory floor for immediate use, minimising storage requirements and the associated risk of spoilage. When successfully implemented 'just-in-time' manufacturing can significantly reduce waste.

## Improving process design and operation

Wastage or rework can be the result of poor process design, operation or maintenance. Food processors should work systematically through each step of the process to identify areas of waste. Good maintenance, the use of process controls and standard procedures can help to reduce waste.

## REDUCING WASTE PRODUCT BY PRODUCT

Priestley's Gourmet Delights, a bakery product manufacturer, reviews one product per week, brainstorming every step in the process to determine how, where and why waste occurs – for example, incorrect stacking of product, dropping raw ingredients, incorrect decorating procedure. Then the line-team develops solutions and staff are informed through a series of posters with pictures of both the wrong and right methods to reduce waste. So far this initiative has saved approximately \$99,500 in raw materials. (Priestley's Gourmet Delights is an ecoBiz participant.)



There are a number of useful strategies available to assist food processors identify and reduce waste. For more information on strategies such as Lean Manufacturing, 5S and Total Productive Maintenance refer to the *Good housekeeping (G2)* fact sheet.

### **X-ray and metal detectors for product assurance**

The use of X-rays and metal detectors to locate foreign objects in food products is becoming increasingly common. Whilst detectors are mostly used for food safety purposes and to prevent bad publicity they can also reduce waste. If the foreign object can be isolated during production, whole batch recalls can be avoided.

#### **METAL DETECTORS REDUCE WASTE**

Australian Food Corporation, a food processing company, pass all patties through a metal detector before they are packed. Any metal foreign object can be detected and the batch isolated before it is distributed to the public. Whilst this reduces recall, it also reduces waste as it may be possible to retain part of the batch if it is an isolated incident. (Australian Food Corporation is an ecoBiz participant.)

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.

*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.*