

# Precision CL – a practical reality

X-ray technology can measure CL of trim and weight it with an accuracy of plus or minus one percent. It's a great technology but the real challenge is to create markets by building systems that leverage this capability to deliver superior product for customers and greater margins for processors.

**T**he CL composition of beef trim is critically important for all users be they a multination food chain making hamburgers or a family business making sausages. Off specification trim creates errors in recipes and disappoints consumers and the repercussions cascade down the supply chain through retail and food service, to wholesalers and processors.

X-ray technology has been around for almost a decade. It can measure CL with great accuracy but the real marketing and efficiency challenge is to develop a cost effective system that uses the technology to deliver on-spec product every time as opposed to just telling you when you get it wrong.

Traditionally CL batching has been an art, based on a good eye and experience. CL can be measured using NIR (Near Infra-Red) or moisture-loss techniques. These tests take time and skill and are relatively accurate. But they only tell you the CL of the finished product.

There is some value in knowing you've got it wrong including, limiting fat penalties, reducing your lean give-away and disappointing customers by delivering off spec. Immediate solutions such as rebidding are expensive and discounting or storing mid-range 70-80 CL till you find a buyer can be costly.

## Trim Blend

Trim blend systems proactively use X-ray technology to ensure the CL level is correct as the product is being accumulated into a batch. It's much more than a QA check at the end of the process.

"Trim blend systems allow you to set and control the CL before you pack. The technology is used to monitor and adjust the spot CL on a continuous basis so each batch is exactly on spec," explains Stuart Hincksman, Business Development Manager at Adelaide based Food Processing Equipment.

"Product can be custom made to exacting CL specifications to meet the demands of big and small volume customers alike.

"This approach creates commercial opportunities," Mr Hincksman said. "With trim blend systems you know the

CL you are making and you can guarantee CL and supply to big and small customers alike."

FPE design and manufacture custom trim blend systems. The heart of the system is an Eagle FA X-ray machine that monitors CL levels and a computer that manages fat and lean inputs in real-time, to achieve the CL specified for the batch.

FPE also provide conveyors, bins, handling and packing solutions to make a complete process line.

The Eagle FA can analyse CL with an accuracy of 1 CL and check weights with an accuracy of less than 1.5%. It analyses 100% of the trim, in pieces or lots up to 30 kg and detects metal, glass, stone and calcified bone contamination.

The system is not affected by moisture, metal foil or meat conductivity. It can analyse fresh, chilled and frozen product, but not meat adulterated with ingredients or spices. It can analyse up to 160 tonnes per hour.

"Additional benefits include, no lean give-away, no excess fat discounts and the reduction of mechanical, marketing and legal risks associated with contaminants," Mr Hincksman said.

A variation of the measure-first approach is to use an Eagle FA to scan packed cartons for CL and to then sort them into multi carton batches to a pre specified CL.

An Eagle FA costs about \$400,000 and a complete trim blend system including the X-ray equipment, conveyors, batchers and packers about \$1.2million. ■

## How Eagle works

Eagle FA (Fat Analysis) X-ray system works on the principles of DEXA (Dual Energy X-ray Absorptiometry) technology. DEXA technology uses two X-ray energies one absorbed by fat and one by lean. By measuring the amount of X-rays absorbed by each and taking the ratio, CL can be calculated.

One hundred percent of the trim is X-rayed in the process. Weight is calculated based on X-ray data, not a separate weigh system and contaminants are detected.

# CL Management System incorporating Eagle FA X-ray system

## The Trim Blend Process

Trim blend is about getting the CL right every time.

The required Batch CL and Batch weight is specified and entered in the system.

The operator visually selects very lean (S1) and very fat (S2) product from the Trim Supply Line and directs it to the Lean and Fat Feed bins.

Meanwhile, the main line (S2) continues through the Eagle FA X-ray analyser. CL and weight data is passed on to the computer management

system. Given the weight and CL of the trim already in the batch is known, the system adds fat or lean from the respective Feeds, to the main line (S2), to achieve the required batch CL.

Additional options include size reduction to 70mm cubes, followed by mixing to ensure uniformity.

This product can then be packed into cartons using automated multi batching and carton filling systems.

