

# Taking the guesswork out of meat processing

by the technical team, Marel.

Beef processing companies looking for greater efficiency are increasingly focusing on key performance indicators (KPIs), such as traceability, throughput and yield – that are crucial pointers for how effectively their plant is running.

The need for KPI monitoring may vary from company to company – but one thing that has been stressed by many a processor is that ‘What is not measured cannot be managed’.

Yield is one of the most important KPIs in fresh meat processing and has a direct impact on the bottom line. Because of the cost structure of the industry, where 65-75% of the cost is associated with raw materials, it is vital for red meat processors not to waste raw material and be in complete control of the yields for main and high-value products at every stage.

Wasting and not controlling the raw material will put the company’s profit under pressure. From a sustainability point of view, it is



**With the StreamLine at Krasno in the Czech Republic comes a whole new way of thinking compared to traditional ways of deboning.**

## Krasno, Czech Republic

A yield improvement of 1.3% and productivity increase of 20% is reality at Krasno, the largest pork processor in the Czech Republic, after having installed a StreamLine deboning and trimming system in one of their production facilities.

“Seeing the positive results of the line, we should have made it bigger from the start,” said Mr Pilcik, director and owner of Krasno, about the StreamLine system which was installed in 2011. Purchasing director, Tomas Lesa continues, “We bought the StreamLine system to better control and measure yield, get a transparent evaluation of the operators and of course increase productivity. We have reached all of that plus more.”

In addition to the mentioned measurables, Krasno has also experienced positive side effects, including a very successful connection to their warehouse system, faster run-through time of raw material, new ways of thinking of the operators as well as quality evaluation of supplies.

also important to transform raw materials efficiently into final products.

Even very small deviations in percentages between the actual and the expected yield can have a substantial financial impact on the profitability of the business.

However, effective yield management is a very tricky discipline to master. Many unwanted mass losses are hidden and need to be explored to make the management fully aware of these losses and the corresponding economic impact.

## Monitoring and controlling

The meat industry presently faces many challenges and profit margins are under such pressure that it only takes small ‘mistakes’ before black figures turn into red. And even slight yield increases in highest price cuts will increase profit significantly.

These yield increases are difficult to achieve without automation and monitoring tools. So, in order to survive in this competitive and financially difficult marketplace, automation and the implementation of information technology for process control are absolute necessities.

Yield monitoring systems come in many forms and complexities ranging from stand alone equipment to complete plant monitoring systems

## Tying processes together

Marel, being one of the suppliers with the most extensive range of equipment to the global meat industry, is catering for both scenarios – stand-alone equipment as well as full factory lines. At the heart of most Marel equipment and systems is Innova – their intelligent production control software.

Innova can monitor individual machinery or whole processing lines – and connects easily to existing ERP systems, bringing direct control into the hands of senior management.

When meat processors invest in automation one frequent objective is to implement systems that will measure individual worker’s efficiency and performance in real time and measure individual yield against a standard to maximise the red meat yield.

This is possible with StreamLine, Marel’s deboning and trimming line where proces-

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sors see overall yield increases in the deboning and trimming process leading to significant profit figures.

## Get more out of meat

Entering the deboning hall primals from stock are weighed-in on an overhead track scale. The information about each animal, such as animal ID, slaughter date, etc, is captured by the Innova production control system. The primals are then cut down according to individual specifications and weighed before entering the StreamLine for deboning/trimming.

Primals are distributed to one of the work stations on the StreamLine, based on operator availability, where they are deboned and trimmed according to customer specifications.

The weight of the trim, fat and finished product is registered individually and compared to the incoming weight. The finished products are sent to packing, manual or vacuum, after which they are transferred to a finished goods stock.

The StreamLine system provides traceability on each animal, as well as online monitoring of individual operator performance including yield, efficiency, throughput and quality throughout the process – right from carcase intake to dispatch of the finished product.

StreamLine can be configured for a variety of deboning and trimming applications, including PAD. This allows processors to cater entirely to their customers' specifications. Ultimately, the flexibility of the line also leads to a higher quality end product by giving processors the ability to maximise the selection of cuts into the highest price products and to minimise red meat loss.

## Deboning and trimming

Innova deboning and trimming is part of the Innova software suite featuring a total plant control system enabling beef processors to gain full control over production processes, inventories and material flows.

The module is supporting Marel StreamLines and all processes in front of and subsequent to the line including weighing, grading, portioning, quality assurance, inventory and dispatch. The deboning and trimming module has been designed with the following main features:

- **Individual traceability on every part:** Innova keeps track of an animal through all processes such as deboning, trimming and packing. All parts leaving this area can be identified with labels tracing back to the original animal and lot.
- **Real-time instructions:** At the deboning and trimming station a



**Yield, throughput, quality and other KPIs for each individual operator is registered and monitored online.**

compact ergonomic terminal is mounted in front of the operator. This terminal is used by the system to automatically instruct the operators about tasks and specifications.

- **Monitoring of yield, throughput and defects:** Standard yield and throughput results are stored in the system for all tasks. Operators are monitored in real time on their performance, which they can check themselves at all times. It also provides management with accurate and reliable data to help improve performance and make decisions.

- **Integrated quality control:** Inspection procedures can be configured in the system for all products. The system randomly guides products to operator stations identified as quality control stations. Defects are identified, optionally valued, and a notification given online to the operator that caused the defect.

## Variety of possibilities

In addition to the comprehensive deboning and trimming system, Marel offers a wide range of other processing equipment and system including trim management lines, packing and labelling lines, RF ID logistic solutions, intelligent portioning machines, and all kinds of grading, batching and weighing equipment.

All this equipment provides real-time data for performance monitoring to optimise the profitability at each stage.

Customers also benefit from the possibility of process consultancy.

The core competence of the process consultants is to optimise production processes and increase the yield.

One of the ways to achieve this is by optimising the standard cutting patterns or introducing new cutting techniques. Cutting meat the correct way reduces giveaway and the portions are cut so they give maximum possible profit. ■

## Las Piedras, Uruguay

Uruguayan company Las Piedras believes in being innovative and seizing the opportunity, a policy which has resulted in a successful state-of-the-art beef processing plant with a slaughter capacity of 1,000 head per day and an export rate that equals 10% of the country's total beef export. Five Marel flowlines are installed at Las Piedras, forming an impressive backbone of the deboning room.

"After seeing what the system did for processors in Europe and Australia, we could easily see the opportunity that we had for improving quality, logistics, yield and traceability," general manager, Martin Bazterrica explains. "We consulted Marel and, together with their meat processing experts, we designed a full production hall catering for the future. We are getting better results every day and we have now begun to analyse the results of the flowlines and see improvements in both yield and throughput."

The system has not only given better yield and throughput results, but hygiene, product quality and the overall working environment have also improved as well as the possibility for tracking of individual animals throughout.

The entire production line at Las Piedras is connected to the central trace and recall system that has been set up nationally by Uruguay's national meat institute, Instituto Nacional de Carnes (INAC), (which feeds individual animal ID traceability back to the farmer, along with information on weight, grade, production lot and other data).

The INAC project has been recognised worldwide as an impressive and unique system for full traceability, features for which Uruguayan meat has become famous, as well as its supreme quality



**Some 4,260 quarters are deboned, trimmed and packed per shift at Las Piedras in Uruguay.**