BONE DETECTION AND FOOD TRACEABILITY

Essential parts of modern food processing

Einar Sigurdsson
Product Manager - X-ray solutions
Bones from 12 minutes of production at a meat plant

Bones from 12 minutes of production at a poultry plant
WHO ARE WE?
LEADING GLOBAL PROVIDER OF ADVANCED PROCESSING SYSTEMS AND SERVICES TO THE POULTRY, MEAT AND FISH INDUSTRIES.
Active in all major food processing stages

INNOVA
Food Processing Software

Primary processing → Secondary processing → Further processing

Bone detection

Marel presence  Marel not present
THE TEAM BEHIND SENSOR X
Full production control

Traceability
Source to shelf
WHY BONE DETECTION?
In early 2000s serious bone detection did not exist
Bone detection is solved: future is soft contaminants

PRESENT

HARD CONTAMINANTS AND BONES

FUTURE

PLASTICS AND CARTILAGE
WHAT IMPACT HAS SENSORX HAD?
SensorX has opened the eyes of food processors

Prior to SensorX launch

Bones received limited attention

After SensorX launch

Bones become center of attention
IMPROVED “VISION“

PROVEN SOLUTION

INCREASED FOCUS ON QUALITY AND SAFETY
Improved vision
### Improved vision

Bones pr. 1000 kg – (larger than 6mm)

<table>
<thead>
<tr>
<th></th>
<th>Manual quality check</th>
<th>SensorX x-ray</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast meat</td>
<td>2.4 bones</td>
<td>35.7 bones</td>
</tr>
<tr>
<td>Leg meat</td>
<td>3.4 bones</td>
<td>59.2 bones</td>
</tr>
</tbody>
</table>
Proven solution - SensorX
Proven solution – Innova process monitoring and traceability

**Production report**

**Date:** 21/02/2017

| Supplier   | Big Farm Foods | Machine | SensorX – Machine 1 – Lane 1 | PO number | 12345 |

![Graph showing production data with various metrics such as pieces, bone %, out of bounds % over time.](image)

**Note:** data is calculated from hour start to hour end i.e. 08:00 = 08/00-08:00

<table>
<thead>
<tr>
<th>Summary of production</th>
<th>Machine status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total scanned</strong></td>
<td><strong>Gain calibrations</strong></td>
</tr>
<tr>
<td>80,543 pcs</td>
<td>3</td>
</tr>
<tr>
<td>20,154 kg</td>
<td></td>
</tr>
<tr>
<td><strong>Bone pieces</strong></td>
<td><strong>Last registration calibration</strong></td>
</tr>
<tr>
<td>2348 pcs</td>
<td>5.7.2017</td>
</tr>
<tr>
<td>587 kg</td>
<td></td>
</tr>
<tr>
<td><strong>Bone rate</strong></td>
<td><strong>Last phantom validation</strong></td>
</tr>
<tr>
<td>2.9% (pcs)</td>
<td>15.4.2017</td>
</tr>
<tr>
<td>0.12 pr. kg</td>
<td></td>
</tr>
<tr>
<td><strong>Out of bounds</strong></td>
<td><strong>Out of bounds (on/off)</strong></td>
</tr>
<tr>
<td>3015 pcs</td>
<td>On</td>
</tr>
<tr>
<td>753.75 kg</td>
<td></td>
</tr>
<tr>
<td><strong>Out of bounds %</strong></td>
<td><strong>Bone settings within window</strong></td>
</tr>
<tr>
<td>3.7%</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Program name</strong></td>
<td><strong>Generator runtime within limits</strong></td>
</tr>
<tr>
<td>Fillets</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Last program adjustment</strong></td>
<td><strong>Sensor exposure time within limits</strong></td>
</tr>
<tr>
<td>2.9.2017</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Consumers have now reached the point where they are willing to pay for quality.
"Consumers have now reached the point where they are willing to pay for quality."

- Egbert Miebach, Deutsche See
PROTECT YOUR CONSUMERS
PROTECT YOUR BRAND
2010: All suppliers have to get SensorX bone detection solution
"Now because of the SensorX, I can go to sleep with peace of mind because I know we will deliver products without bone contamination."

- Brian Coan, Chick-Fil-A, Inc.
Every year, SensorX detects

14,000,000 bones for

Chick-fil-A®
2011:
Partnership with OSI

Goal:
Bone detection and fat/lean measurement system
OSI and Marel are bonefree
And the fat to lean is spoton
Brand value of McDonalds:

$98 billion
96% of unhappy customers will not complain

91% of unhappy customers will never return

Unhappy customer will tell 9-15 people about their bad experience
Without SensorX bone detection

Supplier

605,000 bones

Food serving companies

4,400 complaints

(Fast food chains, Restaurants etc.)
With SensorX bone detection – change in one year

<table>
<thead>
<tr>
<th>Without SensorX</th>
<th>With SensorX</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,400 complaints</td>
<td>6 complaints</td>
</tr>
<tr>
<td>605,000 bones</td>
<td>800 bones</td>
</tr>
</tbody>
</table>
What does this mean for the stakeholders?

- **Supplier**: 99.9% reduction in bone complaints
- **Restaurants**: 99.9% reduction in potential unhappy or lost customers
- **End consumers**: 99.9% reduction of bone threat and bad experience
In partnership with our customers we are transforming the way hamburgers are processed….

… as well as food in general.
PROTECT YOUR CONSUMERS
PROTECT YOUR BRAND