International ColdWater Prawns Forum
Industry Meeting
Kensington Close London, England

Improve your profit per pound

Thursday November 15th, 2012
Presented by: Brent Ledet & Lasse Simonsen
Agenda

- Laitram Machinery Intro
- Value of increasing yield
- Laitram Machinery Solutions:
  - CoolSteam™ Cooker
  - Continuous Improvement Service Plan
- Future technology
  - Peeling System 2.0
  - De-heading
- New machinery
- Open Questions
In 1949, a 17-year old J.M. Lapeyre, invented the world’s first automated shrimp peeler.

In the late 60’s Laitram Machinery brought the new patented technology to the Cold Water Market.

Thanks to Laitram Machinery’s Cooking and Peeling Systems, the North Atlantic Shrimp industry was revolutionized through an increase in efficient production and technological advances resulting in tremendous profitability for producers.
Value of increasing yield

1970’s: 16-18 %

1980’s: 26-28 % with additives

2000’s: 26-28 % pre-treatment without additives
28-36 % pre-treatment with additives

Source: Tom Libby, Cooked Shrimp School 2007

Tests on cold water shrimp that were cooked then hand peeled showed a “perfect” yield
approaching 42%
## Range of Savings | Yield

<table>
<thead>
<tr>
<th>Annual Production</th>
<th>0.50%</th>
<th>1.00%</th>
<th>1.50%</th>
<th>2.00%</th>
<th>2.50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,000,000</td>
<td>$80,000</td>
<td>$160,000</td>
<td>$240,000</td>
<td>$320,000</td>
<td>$400,000</td>
</tr>
<tr>
<td>6,000,000</td>
<td>$120,000</td>
<td>$240,000</td>
<td>$360,000</td>
<td>$480,000</td>
<td>$600,000</td>
</tr>
<tr>
<td>8,000,000</td>
<td>$160,000</td>
<td>$320,000</td>
<td>$480,000</td>
<td>$640,000</td>
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<tr>
<td>12,000,000</td>
<td>$240,000</td>
<td>$480,000</td>
<td>$720,000</td>
<td>$960,000</td>
<td>$1,200,000</td>
</tr>
<tr>
<td>14,000,000</td>
<td>$280,000</td>
<td>$560,000</td>
<td>$840,000</td>
<td>$1,120,000</td>
<td>$1,400,000</td>
</tr>
<tr>
<td>16,000,000</td>
<td>$280,000</td>
<td>$560,000</td>
<td>$840,000</td>
<td>$1,120,000</td>
<td>$1,400,000</td>
</tr>
</tbody>
</table>

**Selling Price per Lb**: $4.00
Our solutions improve our Customer’s profit per pound

Laitram Machinery Continuous Improvement Plan
Increase your profit per pound with Laitram Machinery Solutions

Laitram CoolSteam™ Cooker
Benefits of the CoolSteam™ Cooker

More than 70 CoolSteam™ Cookers sold globally.

- Improves Yield 1%-5%
- Energy Savings of 25%-75%*
- 25-75% Reduction in Energy Consumption
- Improves Food Safety
  - Certified by M&S, BRC and other agencies
  - Only 1 HACCP control point
  - Uniform Cooking
  - No cold spots
- Payback time of 1-2 years

* Steam to product ratio
  Individual cooker 1 kg steam = 1,5 kg shrimp raw material
  Cool SteamCooker 1 kg steam = 8,0 kg shrimp raw material
Cooker Theory and Principles

Cross section of Cooked Shrimp

Conventional Cooker      CoolSteam™ Cooker

Cooker Theory and Principles

Core Temperature Data – Conventional 100C Cooker
Testing on coldwater shrimp in Denmark

- Customer spec was core temp of 80°C
- Similar-sized shrimp had large core temperature variation
- All of the smaller shrimp were getting extremely overcooked
Core Temperature Data – CoolSteam™ Cooker
Testing on coldwater shrimp in Denmark

- Similar-sized shrimp had much tighter range of core temps
- Smaller shrimp did not get hotter than the CoolSteam™ Cooker set point
1) Circulates a homogenized mixture of air and steam.

2) Transfers heat efficiently and uniformly (no cold spots).

3) Consistently cooks product and reduces steam usage.
Effects of Temperature on Lethality

Equivalent Lethality Method of Cook Validation

Conventional Cooker vs. CoolSteam™ Cooker

- The same core temperature is reached in both cookers, but the Fo is higher in the CoolSteam™ Cooker
- Laitram’s team has broad understanding of thermal processing and HACCP requirements
- Laitram has re-written cooking CCP’s for our Customers and discussed the change with their auditor’s

\[ F(o) = \text{Equivalent time at a predetermined target temperature} \]
# Savings Analysis for CoolSteam™ Cooker

<table>
<thead>
<tr>
<th>Customer Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Prawns Forum</td>
<td>15-11-2012</td>
</tr>
</tbody>
</table>

## Revenue Calculation Table

<table>
<thead>
<tr>
<th></th>
<th>Conservative</th>
<th>Most Likely</th>
<th>Optimistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor's Annual Product Throughput</td>
<td>10,000,000</td>
<td>10,000,000</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Selling Price per Lb of Product</td>
<td>$4.00</td>
<td>$4.00</td>
<td>$4.00</td>
</tr>
<tr>
<td>Yield Increase</td>
<td>1,00%</td>
<td>1,50%</td>
<td>2,00%</td>
</tr>
<tr>
<td>Increase in Profits</td>
<td>$400,000</td>
<td>$600,000</td>
<td>$800,000</td>
</tr>
</tbody>
</table>

## Energy Consumption Table

### Current Cooker

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lbs of Steam Created per Liter of Oil</td>
<td>31.42</td>
<td>31.42</td>
<td>31.42</td>
</tr>
<tr>
<td>Lb/Product to Lb/Steam*</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Lbs Product Cooked per Liter of Oil</td>
<td>47</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>Annual Fuel Usage in Liters</td>
<td>212.179</td>
<td>212.179</td>
<td>212.179</td>
</tr>
<tr>
<td>Cost of Fuel per Liter</td>
<td>$0.90</td>
<td>$0.90</td>
<td>$0.90</td>
</tr>
<tr>
<td>Annual Energy Cost</td>
<td>$190.961</td>
<td>$190.961</td>
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</tr>
</tbody>
</table>

### Laitram CoolSteam™ Cooker

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lb/Product to Lb/Steam*</td>
<td>7.0</td>
<td>8.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Lbs Product Cooked per Liter of Oil</td>
<td>220</td>
<td>251</td>
<td>251</td>
</tr>
<tr>
<td>Annual Fuel Usage in Liters</td>
<td>45,467</td>
<td>39,784</td>
<td>39,784</td>
</tr>
<tr>
<td>Annual Energy Cost</td>
<td>$40,920</td>
<td>$35,805</td>
<td>$35,805</td>
</tr>
<tr>
<td>Savings</td>
<td>$150,041</td>
<td>$155,156</td>
<td>$155,156</td>
</tr>
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## INCREASED PROFITS SUMMARY

<table>
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<th>Most Likely</th>
<th>Optimistic</th>
</tr>
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<tr>
<td>Increased Profits from Yield Increase</td>
<td>$400,000</td>
<td>$600,000</td>
<td>$800,000</td>
</tr>
<tr>
<td>Decreased Energy Costs</td>
<td>$150,041</td>
<td>$155,156</td>
<td>$155,156</td>
</tr>
<tr>
<td>Total Annual Savings Laitram CoolSteam™ Cooker</td>
<td>$550,041</td>
<td>$755,156</td>
<td>$955,156</td>
</tr>
<tr>
<td>Cost of Delay per Month</td>
<td>$45,837</td>
<td>$62,930</td>
<td>$79,596</td>
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</table>
"The investment in the cooker has an effective payback time of less than one season, measured in yield, energy savings and improved peel ability compared to a traditional central cooker."

Lars Pederson, General Manager Eastern Quebec Seafoods, a division of Royal Greenland

Enrique Nieto, Vice President Frigorificos Delfin

- 3% Increase in yield
- 60% Reduction in Labor
- Decreased Energy Costs
- Decreased Cleaning Times
Three cooking methods were compared; boil, steam and convection steam… Steam convection cooking retained or produced the highest masses in whole lobster, claw/knuckle meat and tail meat.

“The Laitram CoolSteam™ Cooker provides a more uniform and controllable cooking temperature that assure compliance with existing regulations without compromising cook yield or product quality.”

Dr. Steve Otwell, of the University of Florida (USA) Aquatic Food Products Lab

Dr. Jason Bolton, University of Maine Cooperative Extension, Department of Food Science and Human Nutrition and the Lobster Institute
Increase your profit per pound with Laitram Machinery Solutions

Laitram Machinery Continuous Improvement Plan
Poorly performing peelers

Peelers and Gaps in rollers

Maintaining contact between inserts and rollers and lower and power rollers is essential to preserving yield and high-peeling quality.

Widened pinch points create GAPS between rollers:
- damage or destroy meat, increase peeler aggressiveness;
- increase water usage;
- make water flow inconsistent

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Key Factors to Peeler Performance

New Technology
- Automatic Insert Cleaners to prevent shell wrapping around inserts
- Lower Roller Lift Kit to eliminate lower roller gaps.
- And new innovations from Laitram Machinery

Peeler Configuration
- Best configuration of Rollers Rubber and inserts finish, hardness, and construction methods
- Diameter and Concentricity (Straightness)
- Complete roller change including inserts and bushings

Laitram Optimization Analysis, Technical Analysis & Maintenance
- Problem identification, reporting and onsite troubleshooting on all the peelers.
- Critical Parts inventory kept onsite in plant
- Laitram Canadian Service Team
- C&W Service Technicians with Laitram Accountability
Comprehensive approach to Pinch Point Management:

- Rollers manufactured to the strictest tolerances and highest standards.
  - Proprietary rubber from rollers will not delaminate from its core.
  - Reduction of break-in period.
  - A variety of rollers-inserts configurations for an optimal
- No more Gaps on Rollers
- Improved control and precision with easy adjustments of water flow.
Poorly performing peelers Peelers and Gaps in rollers

Comparison of Various Lower Roller Gap Sizes on Peeling Quality

- **Control: No Gap**
- .010 inch gap between lower and power roller.
- .040 inch gap between lower and power roller.

<table>
<thead>
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<th>Gap Size</th>
<th>Peeling Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00 mm</td>
<td>Poor</td>
</tr>
<tr>
<td>0.25 mm</td>
<td>Moderate</td>
</tr>
<tr>
<td>1.00 mm</td>
<td>Good</td>
</tr>
</tbody>
</table>
Laitram’s patented Lower Roller Lift Kit considerably decreases GAPs between rollers and inserts.

1) Increases yield
2) Less water usage
3) Water flow more consistent
4) Eliminate the need for adjustment
Access to New Technology – Insert Cleaners

Improve yield, quality and water consumption with Laitram Machinery’s patented Automated Insert Cleaner.

The patented Automated Insert Cleaner efficiently removing shells from the inserts with an automated, high pressure water spray.

HYPERLINK TO VIDEO:
E:\International Prawns Forum Industry Meeting 15. November 2012\Insert Cleaner LAITRAM.MOV
Continuous Improvement Service Plan

• The Continuous Improvement Service Plan is designed to ensure that your peeling system is efficient and optimized for consistent quality and high yield.

• Partners have access to new technologies—automatic insert cleaner, lower roller lift kit, forced convection cooker—before anyone else.

• We take a complete approach to Addressing Key Factors to Peeling System Performance

*Laitram’s goal is to maximize the profitability of your investment*...
<table>
<thead>
<tr>
<th>Service Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic</strong></td>
</tr>
<tr>
<td>Service, Parts</td>
</tr>
<tr>
<td><strong>Premium</strong></td>
</tr>
<tr>
<td>Service, Parts, LRLK</td>
</tr>
<tr>
<td><strong>Platinum</strong></td>
</tr>
<tr>
<td>Service, Parts, LRLK, IC, After Peeler</td>
</tr>
</tbody>
</table>

**Service (Peeler Configuration – LOA)**
- Laitram Optimization Analysis (LOA)
- Preventative Maintenance: Adjustment and lubrication of peelers.
- Complete roller change when needed including inserts and bushings.
- Problem identification, reporting and onsite troubleshooting on all the peelers.
- Travel Expenses paid by Laitram.
- Training of plant personnel during visit.
- Laitram Canadian Service Team.
- C&W Service Technicians with Laitram Accountability.

**Parts**
- Fast break-in, reliable and long lasting rollers (peeler configuration).
- Discount on parts to bring the equipment up to standards, before a service contract is initiated. *(For customers who already have a peeling system)*
- Critical Parts inventory kept onsite
- All electrical/ switch box components covered. *(Only for Laitram switch box components)*

**New Technologies**
- Lower Roller Lift Kit
- Automated Insert Cleaners
- After Peeler: Lower Roller straighten device (Sag Device)
Increase Yield with Laitram Machinery Solutions:
Future Technology
Increase your profit per pound with Laitram Machinery Solutions
Peeling System 2.0
New Peeler 2.0

Less downtime, less risk for overhauls and far more precision means substantially greater value for your money.

- A more reliable and accurate peeler.
- Better control of the end product quality.
- Diminish human error.
- Ease of operation.
- Improved performance.
- Designed with operator safety as a priority.
- Greater wear protection and reliability of components.
- No self fixtures techniques needed.
Future technology

**PPTS – Pre Peeling Treatment System**

- Why cook the shrimp head?
- By removing the head before cooking a lot of advantages can be achieved.
Don’t blow away your profits!

The new generation of Laitram Machinery’s AS Air Separators (AS4 –AS8) are an ideal solution to separate waste material from shrimp meat, for high volume shrimp processing plants.

The reliable, easy to adjust, patented stainless steel design features a pulsating fan that gently palpitates the shrimp in the airstream to aid waste removal.
New PRG-55 Grader

Setting a New Standard for Dimensional Grading Technology.

What Can the PRG-55 do for you?

• Enhance Pricing Control
• Bolster Product Quality
• Meet Tighter Customer Specifications
• Eliminate Downtime
• Anyone Can Operate

High Capacity, Small Footprint

• 6000 + pounds per hour
• Up to 6 grades
• Unparalleled uniformity
Questions?

International Cold Water Prawns Forum

THANKS