SERVICE LEAFLET

INTERCOOL FOOD TECHNOLOGY LTD.

Live Animal Handling Systems for Advanced Slaughterhouses

The Live Animal Handling System (LAHS) is a vital part of an efficient, traceable production of high-quality meat products.

From safe, efficient unloading of livestock trucks, to seamless integration with the slaughter line, care must be taken in the design of every detail, to ensure functionality, animal welfare, and meat quality.

Transport - Reception - Lairage - Stunning - Bleeding

Qualified animal handling and implementation of a dedicated Live Animal Handling System:

Proper handling of live animals by educated operators, and the implementation of a dedicated Live Animal Handling System, are essential for ensuring animal welfare, high meat quality, and a seamless operational flow from animal reception to sticking.

A well-designed live animal handling system sets the benchmark for operational performance and profitability within a slaughterhouse. It is the foundation for animal welfare, traceability, and the consistent production of premium-quality meat. Compromises at this stage may undermine the potential for value creation.

Whether or not critical details are executed with care and precision, the capital expenditure (CAPEX) remains largely unchanged. However, neglecting these details leads to a substantial reduction in product value and negatively impact the efficiency and effectiveness of downstream slaughtering operations.

INTERCOOL FOOD TECHNOLOGY brings decades of practical experience and deep expertise in design and realization of these processes at the highest industry standards.

LAIRAGE DESIGN:

Sizing in accordance with:

- Production capacity
- Required area per animal
- Required resting time
- Overnight stay
- Variation in supply frequency

Placement in accordance with:

- Access to stunning system
- Access for operators and veterinarians
- Segregated entrance/exit for livestock vehicles
- Access to weighbridge
- Access to livestock vehicle sanitation

General Design considerations:

- Level free connection to stunning system
- Level free unloading from livestock vehicles
- Weather-independent unloading
- Unloading time and number of unloading ramps
- Future expansion of lairage
- Facilities for drivers
- Documentation exchange
- Ante Mortem inspection facilities
- Operator and veterinarian admittance
- Odor and noise emissions
- Ambient climate

Detailed design considerations:

- Pigs, sows, boars/weight ranges
- Herd/group size aligned with stunning system
- Handling of unmarked animals
- Building materials and execution for floor surface/slope, pens, gates/locks
- Type and placement of drains
- Drinking troughs/nipples
- Veterinarian inspection
- Handling of sick or unfit animals
- Hygiene, cleaning
- Cooling/heating, Ventilation
- Feed supply, bedding
- Fire safety and segregation

STUNNING SYSTEM AND CONFIGURATION:

Choice of principle:

- Electric- or CO_2 stunning:
- Animal Welfare
- Reliability
- Meat quality
- Working environment/labor requirement
- Installation and building requirements
- CAPEX & OPEX

Stunning system configuration:

- Capacity
- Herd/group size
- Cycle time and stress incurrence
- Future expansion
- Space requirements

Layout considerations:

- Animals' natural behavior
- Work and observation areas
- Noise impact
- Operator admittance
- Evacuation and handling of unfit animals
- Installation and maintenance admittance

Detailed design considerations:

- Lairage and driveway interface
- Manual or semiautomatic lairage system
- Driveway width, slope, drains, gate design
- Operator access
- Lighting conditions
- Height difference between stunner entrance and outlet
- Traceability/Data transfer

BLEEDING SYSTEM:

Dimensioning in accordance with:

- Allowed Stun-to-Stick Time according to choice of stunning principle
- Production capacity
- Required number of operators
- Stunning procedure and fluctuation
- Unclean slaughter line

Placement in accordance with:

- Stunning system and unclean slaughter line
- Operator access
- Blood collection- or disposal system

General Design considerations:

- Allowed Stun-to-Stick Time
- Number of animals per stunning discharge
- Horizontal or vertical sticking
- Conventional or hygienic blood collection

Detailed design considerations:

- Conveyor designs
- Shackling workstation design
- Sticking workstation design
- Knife sterilization, hygiene, apron wash
- Conventional or hollow sticking knife
- Blood removal/anti coagulant
- Bleeding line floor/blood trough
- Bleeding monitoring and alarm functionality
- Traceability of unmarked batches

THE ANIMAL HANDLING SYSTEM

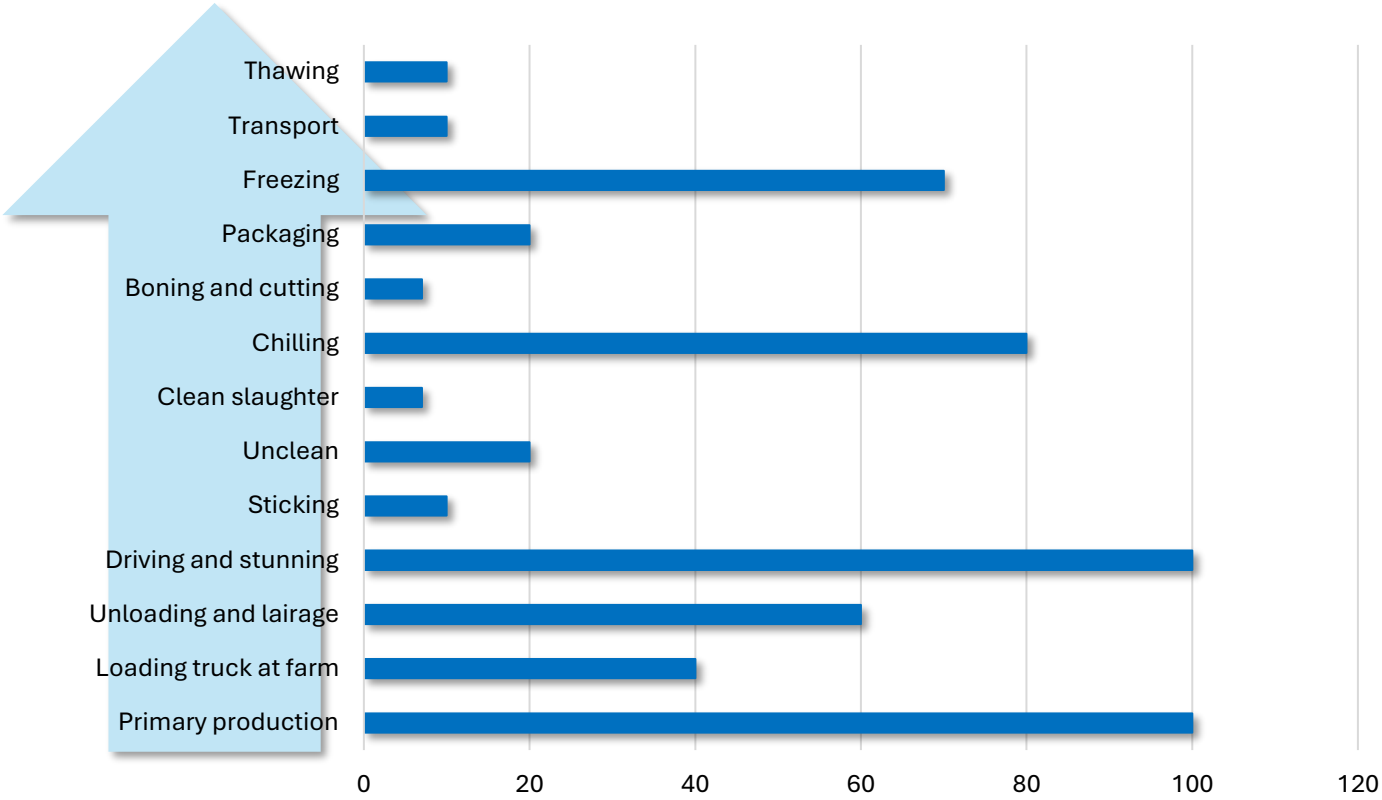
A Live Animal Handling System consists of six main elements being: Truck Design, Operator Performance, Unloading, Lairage, Driveway and Stunning, and Sticking/bleeding system. It comprise all areas from loading on truck at farm until certain death of the animals have been ensured.

The lairage serves two main purposes: It acts as production buffer, ensuring constant flow, and providing animals comfortable resting, to reduce negative effects on meat quality, incurred by transport related stress.

The driveway/stunning system, often provided as a complete solution from the stunning-system manufacturer, must ensure safe and reliable stunning, while reducing incurrence of any avoidable discomfort, pre-slaughter stress, or unwanted distraction of the animals, which will otherwise compromise animal welfare, disturb the production flow, and affect meat quality negatively.

The bleeding system must ensure compliance with maximum allowed stun to stick time, providing shackling and sticking operators ergonomic and efficient workstations. Bleeding and observation time must be sufficient to ensure certain death and may include a monitoring system. It may include a hygienic blood collection system, enabling production of human consumption/pet food, feed, or technical -blood products.

MEAT QUALITY IS ONLY AS STRONG AS THE WEAKEST LINK



"It's an irreversible process. Once broken - it can't be fixed!"

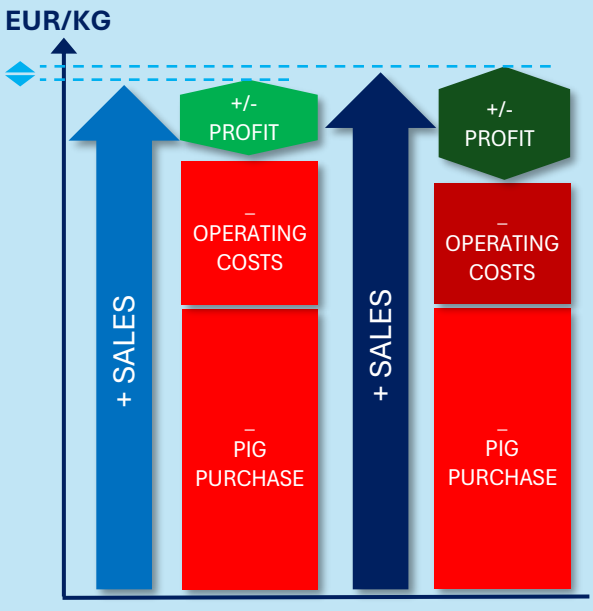
Higher profitability through improved animal welfare

Improved meat quality and reduced costs

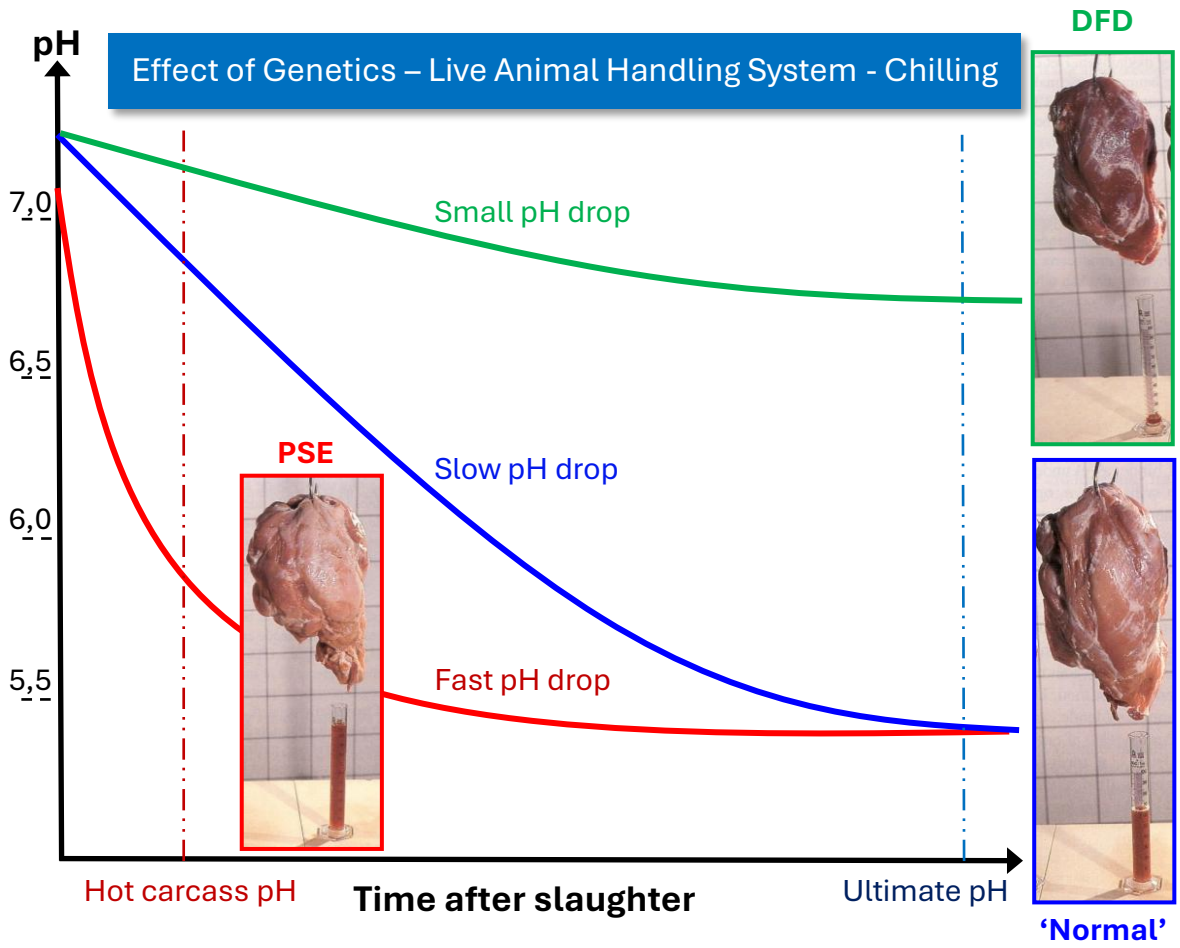
LAHS DESIGN & OPERATIONS - PROFIT CONTRIBUTION:

- Improved profitability from yields, quality, and productivity:
- Less drip loss
- Less bruisers
- Less trimmings of muscular hemorrhages or spot bleedings
- Less broken limbs
- Less DOA
- Less occurrence of PSE
- Darker meat
- Less operators and interference—let the pigs do the job
- Less cleaning costs

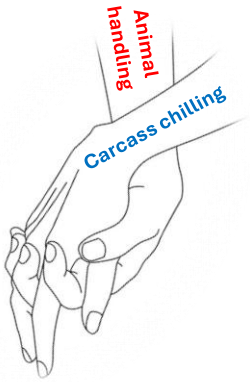
Improved cost efficiency and higher obtainable price/kg



DEVELOPMENT OF pH



Live Animal Handling Systems and Carcass Chilling Processes go hand in hand:



If well designed, the two processes will slow down the pH decline, and reduce denaturation of proteins, reduce drip loss and improve meat quality!

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Your Solution Facilitator!

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