Latest developments in poultry processing.

A global outlook

VIV MEA in Abu-Dhabi, 15 February 2016

marel

Leading global provider of advanced equipment and systems for the food processing industry

A Short Introduction

- Name: Ernst Kah
- Age: 55 years
- Function: Export Manager Middle East, North Africa, former Yugoslavia and Greece

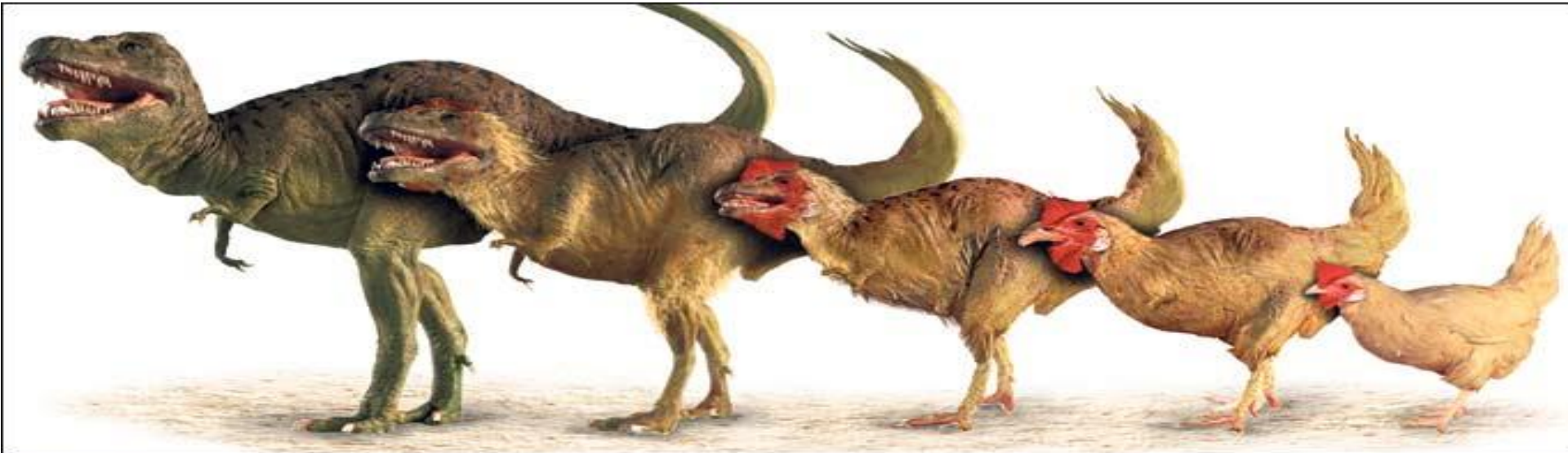
- Company: **Marel Stork Poultry Processing**
- Location: Boxmeer, The Netherlands
- HQ: Gardabaer, Iceland

- Employees ww: 4000 + FTE
- Annual Turn Over: EUR 700 mio +

- Market Penetration: 30+ Subsidaries ww
- 100+ Agents ww

- *No1 Poultry Processing Systems ww*
- *No1 Fish Processing Systems ww*
- *No1 Further Processing Systems ww*
- *One of the larger Red Meat Processing System Supplers*

Historic outlook poultry processing



Hourly capacity increase 1970 - 2015

Year	Line Speed	Equipment Development
1970	3,000	Mostly manual operation
1975	4,500	Automatic eviscerator
1980	8,000	Total automation in EV* department
1990	9,000	Giblet harvesting (automatic, semi-automatic)
2000	10,500	Cut up machine together with inline chilling
2010	12,000	Automated stunning (before shackling)
2015	13,500	Efficient vision inspection system
*EV = evisceration.		

1970 – 3.000 BPH

2015 – 13.500 BPH

World meat production 1950 - 2010

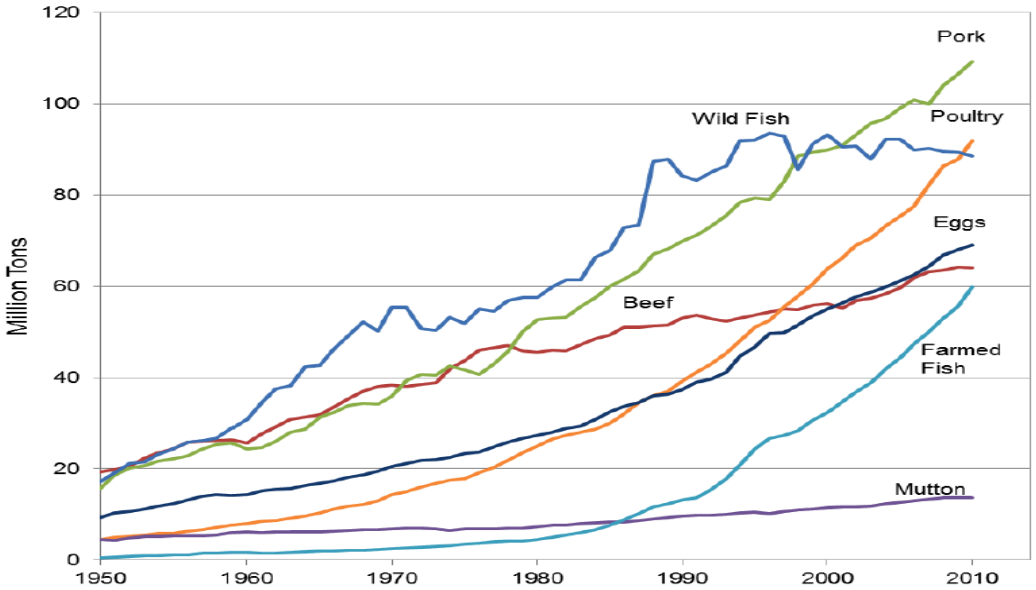


Figure 2.1.1 World meat production by type, 1950-2010. Redrawn from FAO (2013).

1950 – 5 MIO TON Poultry

2010 – 94 MIO TON Poultry

Improvements poultry production 1925 - 2010

Improvements in poultry meat production from 1925 to 2010 Data from National Chicken Council (2014)				
Year	Market age	Market weight	Feed to meat gain	Mortality %
	Average days	Live weight	Feed / broiler, live weight	
1925	112	1134	2132	18
1935	98	1297	1996	14
1940	85	1310	1814	12
1945	84	1374	1814	10
1950	70	1397	1361	8
1955	70	1393	1361	7
1960	63	1520	1134	6
1965	63	1579	1089	6
1970	56	1642	1021	5
1975	56	1706	953	5
1980	53	1783	930	5
1985	49	1901	907	5
1990	48	1982	907	5
1995	47	2118	885	5
2000	47	2282	885	5
2005	48	2436	885	4
2010	47	2585	871	4

Improvements poultry production 1925 - 2010

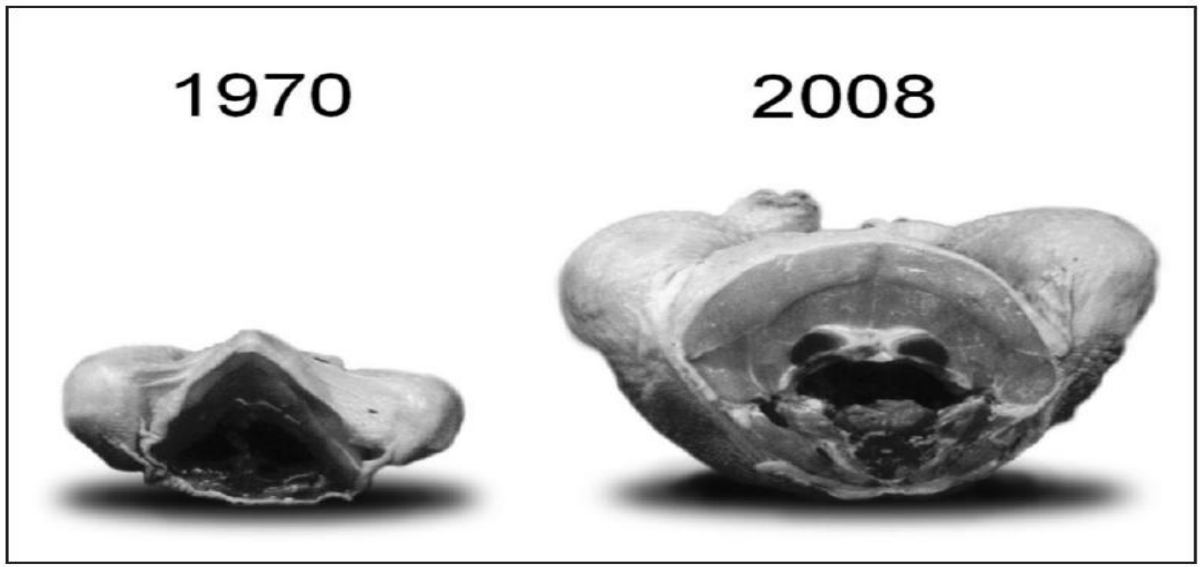


Figure 2.3.2 Cross section of a broiler carcass showing the breast area and its proportion in a 1970 and a 2008 broiler. Source unknown.

Improvements poultry production 1925 - 2010

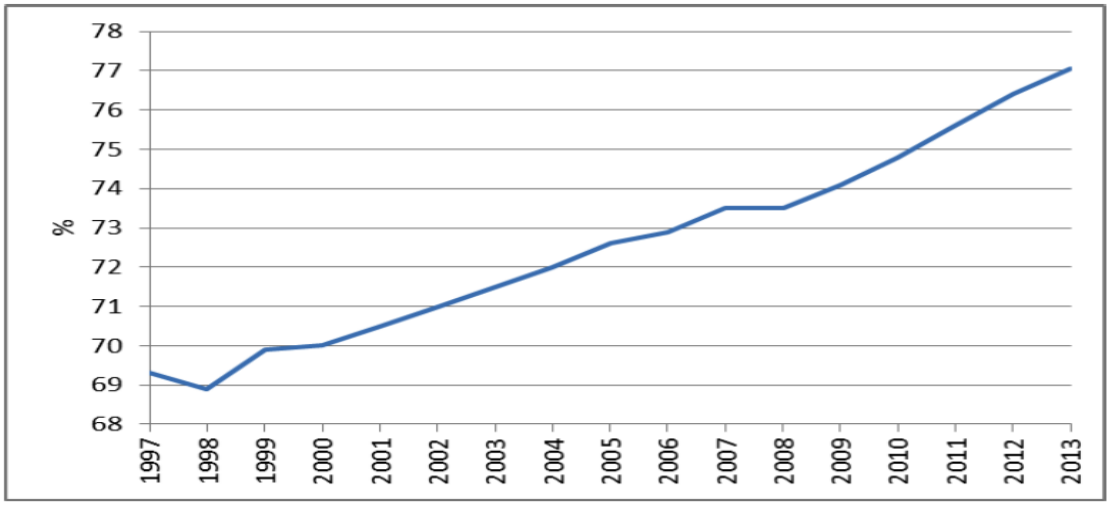


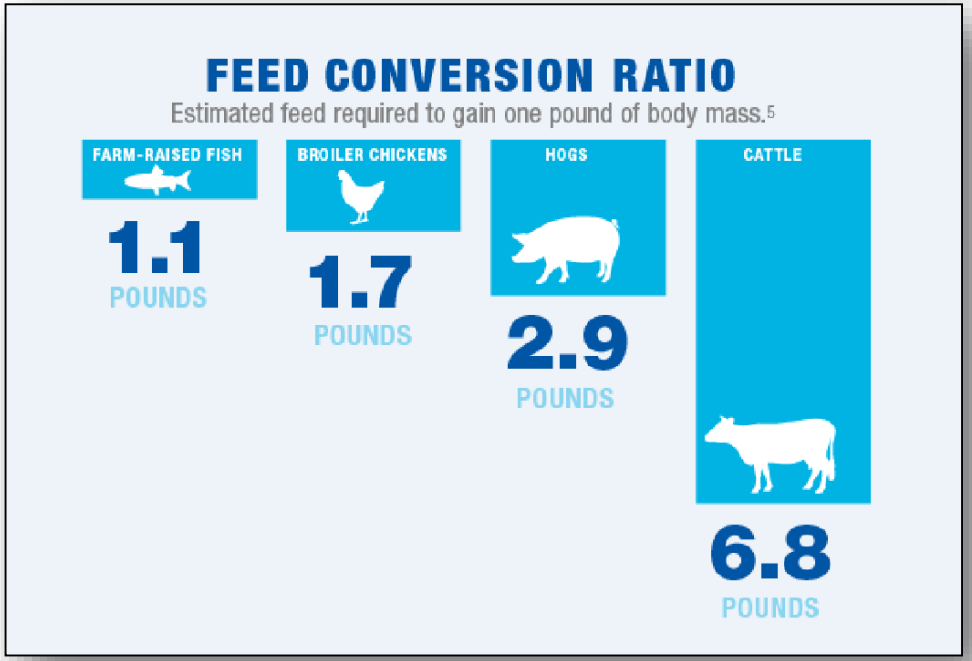
Figure 2.3.3 Percent yield of broiler meat as a portion of carcass weight without giblets (WOG) in the US from 1997 to 2013. Data from Donohue (2014).

Water and meat production

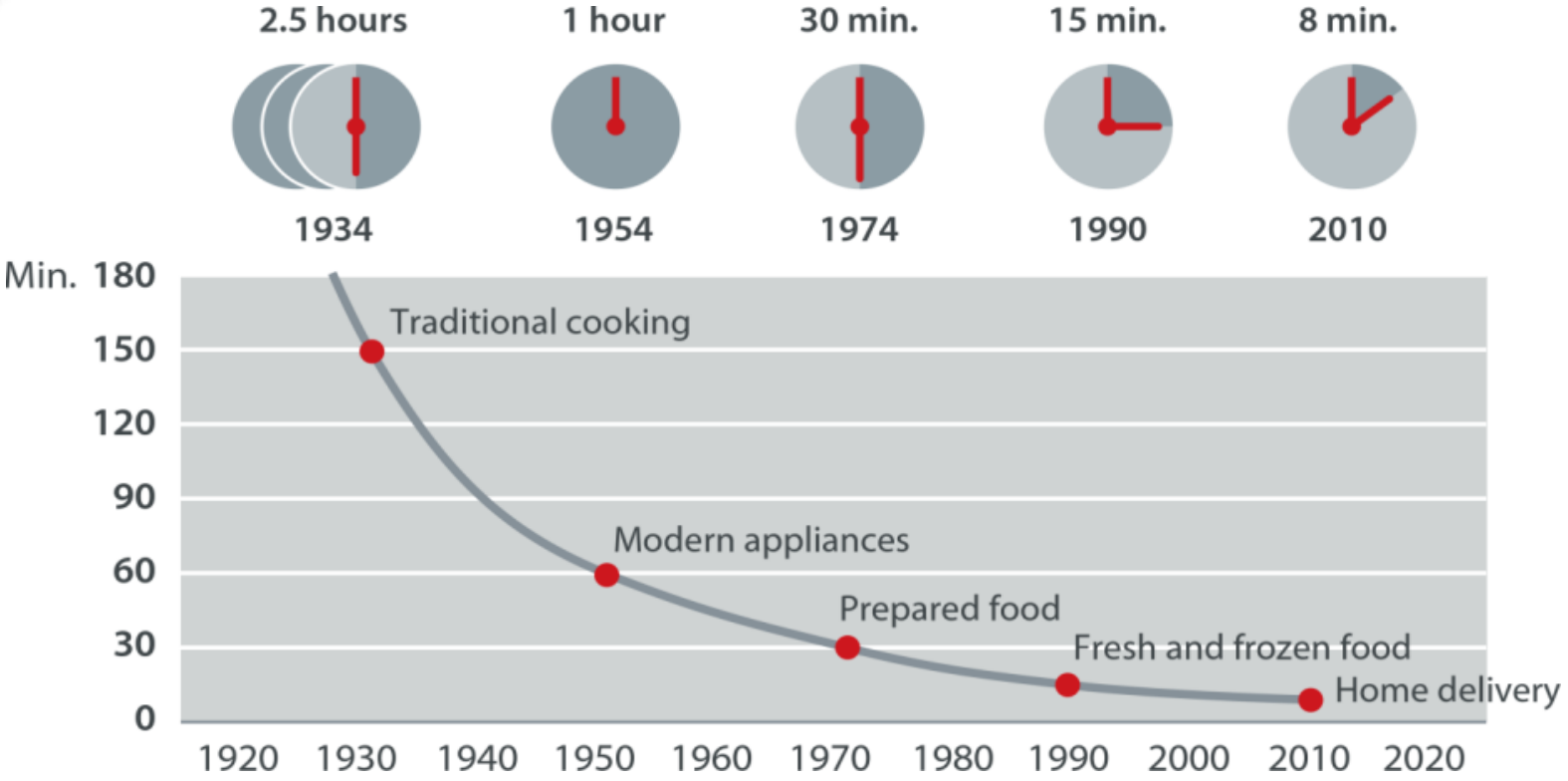
- Meat production requires very large amounts of water
- 5,500 liters per kilogram of beef
- At 3,900 liters per kilogram, the production of poultry meat consumes the least water.

Improvements poultry production 1925 - 2010

Food and meat production



Kitchen-time spent USA 1920 - 2010



Product transition 1962 - 2013

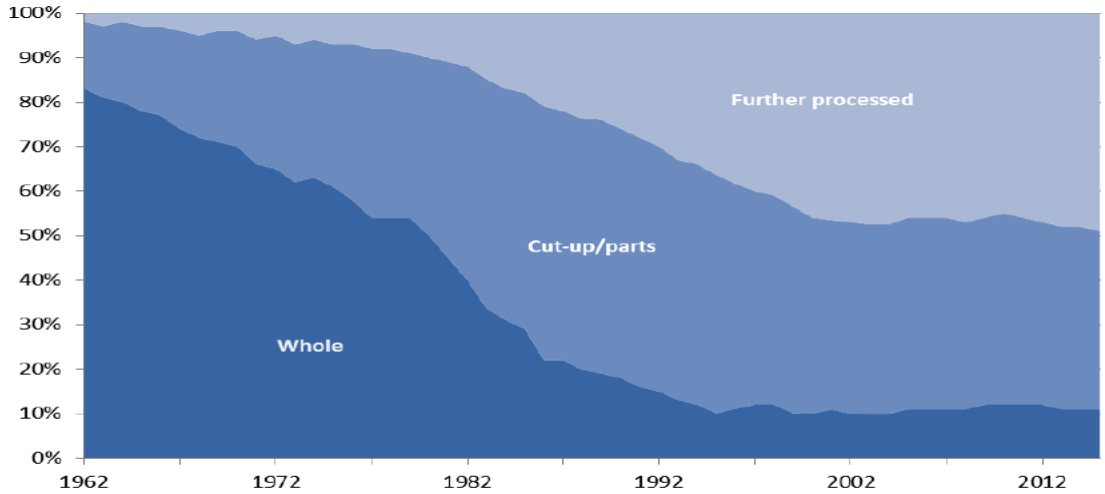


Figure 2.4.1 Changes in marketing whole broilers, cut up parts, and further processed products in the USA from 1962 to 2012. Data from National Chicken Council (2014).

Improved performance processing lines 1994 - 2013

Line efficiency and amount of water used per bird during primary processing

Year	Bird per man hour	Line efficiency (%)	Water per bird (Liters)
1994	208	95,5	22,7
1995	212	95,3	22,7
1996	218	95,3	22,7
1997	217	95,7	24,23
1998	200	94,9	26,87
1999	210	95,2	26,87
2000	219	96,5	26,87
2001	222	96,8	27,25
2002	230	97,3	26,11
2003	240	98,0	26,11
2004	245	97,7	25,74
2005	257	97,6	26,11
2006	275	98,2	25,74
2007	275	98,0	24,6
2008	275	97,9	23,09
2009	278	98,3	23,46
2010	287	98,2	23,84
2011	305	98,5	24,22
2012	307	98,3	23,46
2013	310	98,3	24,22

Latest Innovations Poultry Processing and more…

- Nutech Nuova Eviscerator
- Giblet handling
- Aero-scalding
- Secondary processing SP1 & SP2
- Innova

Nutech Nuova Eviscerator

Latest Innovations Poultry Processing and more…

Poultry Industry is demanding for more automation:

- Lack of manpower
- Hygienic and quality rules
- Process control

Cost per processed bird

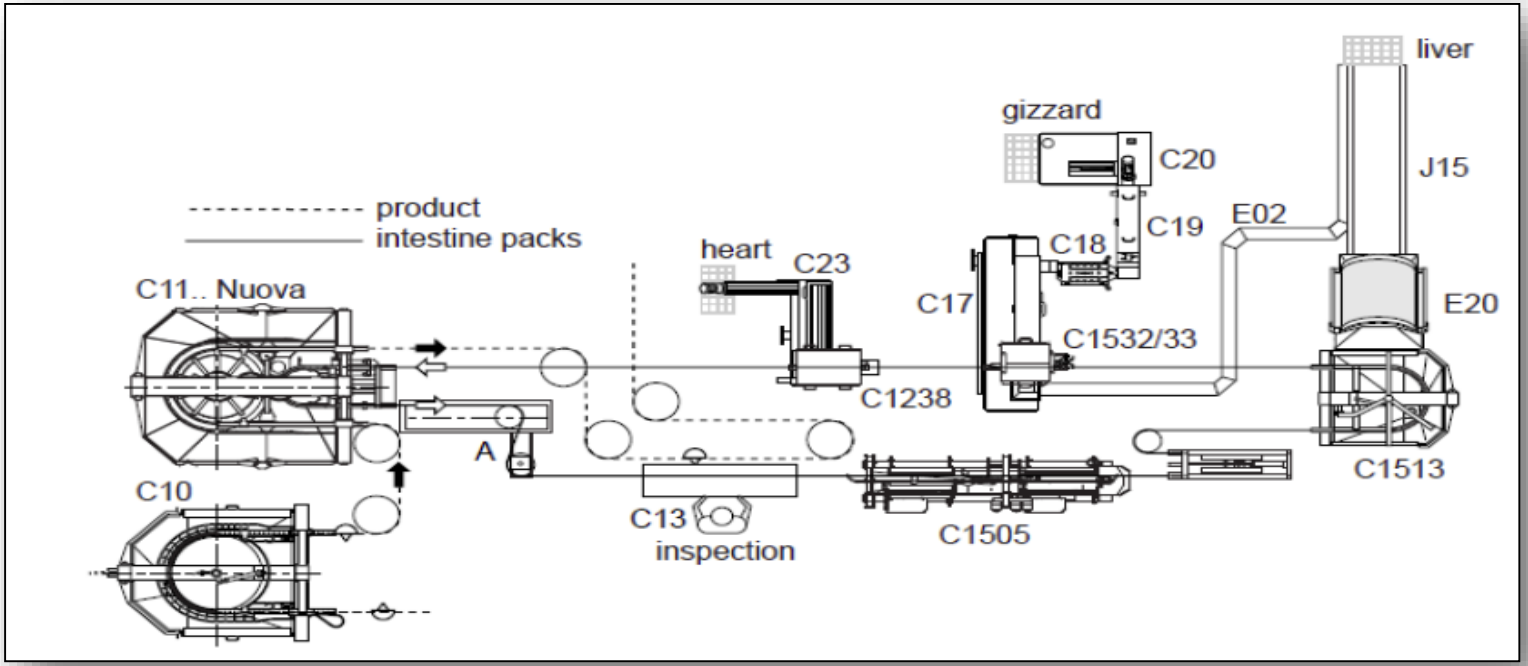
Nutech Nuova Eviscerator

Latest Innovations Poultry Processing and more…

- Less hands touching the bird
- Less chance of cross contimination
- Manual harvesting vs fully automatic harvesting

Latest Innovations Poultry Processing and more…

- Labor can be reduced to only 4 persons; QC and giblets harvesting



Latest Innovations Poultry Processing and more…

Today automatic evisceration systems can handle live weight birds between 1.200gr. – 3.500gr with one single machine setting!

AEROSCALDER

Sustainability - a key business driver

- Fresh water and energy are finite resources
- Ever increasing energy use is warming our planet

- **We have a moral responsibility to develop technologies which conserve finite resources, whilst at the same time preserving our environment.**

Water consumption will go on increasing

- **50** years ago the world consumed only **one third** of the water it consumes today
- By **2050** world population, currently just above **7 billion**, will have increased by between **0.5** and **3.5** billion (UN figures)
- In 2050 the world will be more urbanized and more industrialized. Increasing affluence will see people eating more meat and vegetables and fewer cereals
- In this situation, global water consumption levels could well be some three times higher than today.

Latest Innovations Poultry Processing and more…

Scalding is a vital step in the primary process, which uses large amounts of water and energy to conduct heat.

Scalding/plucking account for 17% of water usage in a typical poultry processing plant.

So why not using air?

Aeroscalder : scalding without immersion

- Lower risk of cross contamination
- Quick start up
- Virtually smell free
- Better Accessibility and clean ability
- 75% water saving
- 50% in energy saving
- Much cleaner scalding process

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International recognition

- **EuroTier** Golden Innovation Award – Hanover 2012
- **AGRAme** Dubai 2013 – Best New Poultry Product for Gulf Market.

Latest Innovations Poultry Processing and more…

Installations

- High volume broiler processing plants in Europe and Australia
- Greenfield broiler plants in the Netherlands and in Turkey
- First one in the Middle East region has been installed in March 2013.

Secondary processing SP1 & SP2

Latest Innovations Poultry Processing and more…

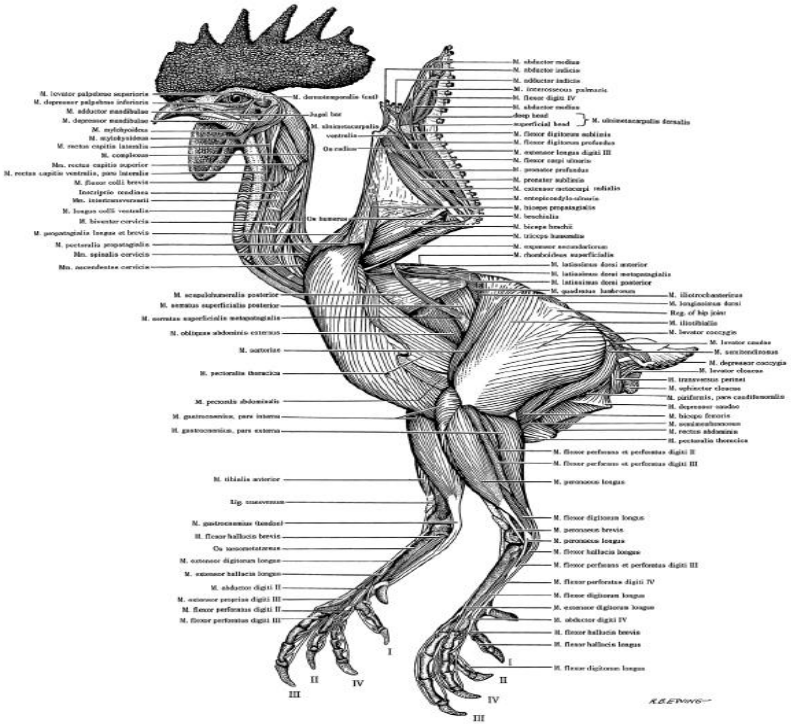

Figure 3.6.1 Lateral view of the superficial musculature of a single comb White Leghorn chicken. Abbreviations: *Lig., Ligamentum; M(m)., Musculus*(i); Reg., Region. From Lucas and Stettenhiem (1972).

From whole broiler frozen……..

- to whole broiler fresh……
- to cut up……
- to marinated……
- to further processed meat……
- to ……

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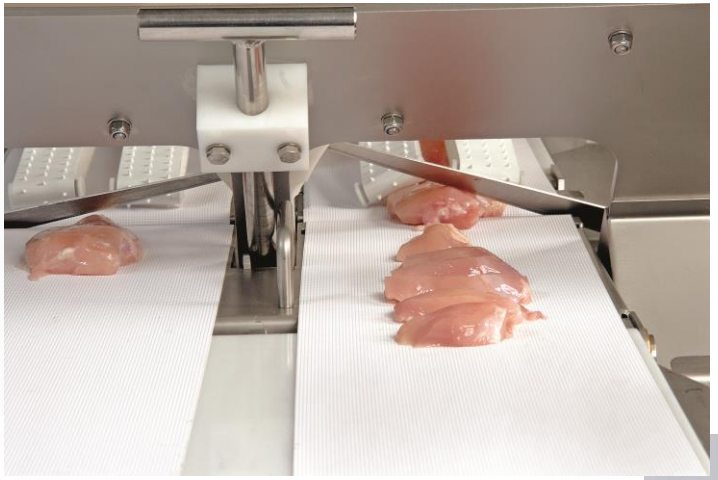

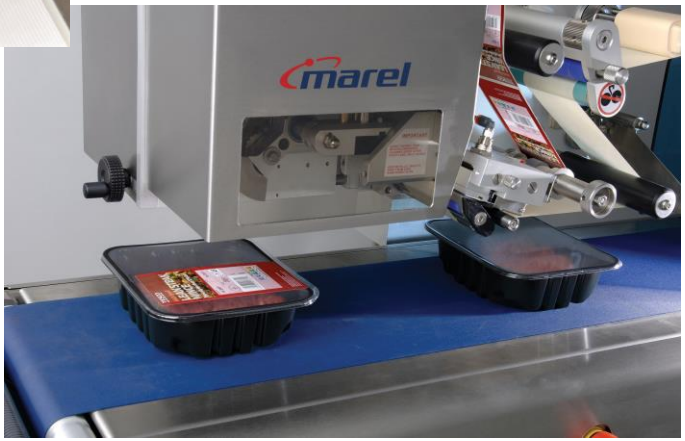

INNOVA

Latest Innovations Poultry Processing and more…

INNOVA

Software solutions that empower poultry processors

- Maximize yield and throughput
- Conform to quality standards and ensure food safety
- Achieve full traceability and raise efficiency

Latest Innovations Poultry Processing and more…

Latest Innovations Poultry Processing and more…

INNOVA SOFTWARE SUPPORT

Provides remote and telephone support during normal working hours. This includes assistance relating to routine questions regarding software use. Information on new or changed configuration and functionality is provided on request.

- Single point of entry for all Innova service and support
- Defined service levels, such as response times, availability and priority rules
- Referral to relevant specialists when required

INNOVA 24/7 SUPPORT LINE

Provides access to emergency support for critical incidents outside normal working hours and is available 24/7/365.

- Fast response time
- Lower risk of production downtime
- Peace of mind

INNOVA SOFTWARE MAINTENANCE

Innova is continuously developed to fit changing market needs and requirements. Our Software Maintenance Program provides users with rights to all new major version releases, service packs and features, which are released on a regular basis.

- Access to and rights for all upgrades
- A high degree of process and device compliance and protection reduces operational uncertainty
- Life cycle support reduces operational risk, improves control of IT costs, and reduces financial risk

INNOVA SYSTEM MAINTENANCE

Includes a suite of services designed to keep the Innova software and IT infrastructure in an optimal state. This prevents or minimizes unexpected downtime and disturbances to overall performance.

- System is kept up to date to ensure reliability and availability
- Costly downtime is reduced through preventive maintenance to the server, database, network or other critical IT infrastructure
- Users and operators are evaluated, and training plans devised, to continually update their competence in operating and maintaining Innova

INNOVA CUSTOMER TRAINING

Designed for IT and technical personnel, operations and production managers, and shop-floor operators, to ensure that users are kept up to date on new developments and that their skills to operate the system are continually improved.

- Continuous skills improvements for customer workforce
- Optimized system utilization

INNOVA CONSULTANCY SERVICES

Designed to focus on specific improvement tasks with clear financial and business goals for customer operations.

- Analyzes future business and financial impact
- Provides better management tools with improved KPIs

Latest Innovations Poultry Processing and more…

Close monitoring = financial benefits

This example from the poultry industry illustrates the financial benefits of close, continuous monitoring of production yields.

Improvement	+ or – per year	Euro/year
Fillet yield + 0.25%	200,000 kg	€ 600,000
Product loss – 0.25%	275,000 kg	€ 425,000
Uptime + 0.5%	20 hours	€ 200,000
Water consumption –5%	25,000 m^3	€ 30,000

STORK POULTRY PROCESSING

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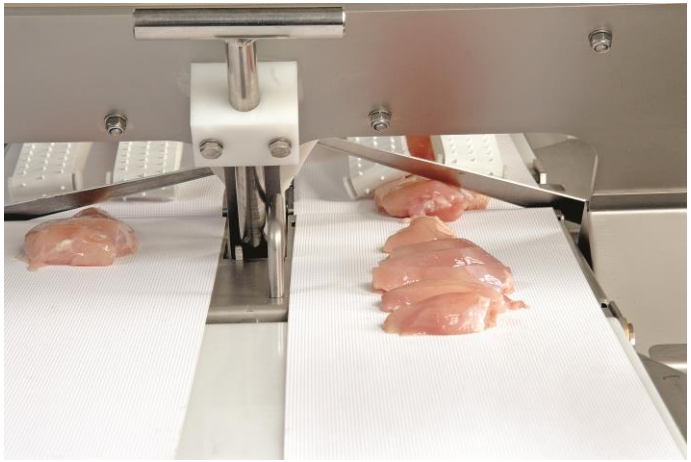

Thank you / Dank u wel / Mange tak / Takk fyrir

QUESTIONS ?