



2015 MINTRAC Meat Inspection and Quality Assurance Conference

# X-ray for contaminate inspection, fat analysis and Material Discrimination (MDX) X-ray

Stuart Hincksman, Food Processing Equipment





# MINTRAC Conference 2015

Eagle Product Inspection

“The next generation in X-ray examination”

Stuart Hincksman - FPE



# Agenda

- How safe is X-ray of Food – **Short movie**
- Who is Eagle product Inspection
- X-ray applications in the meat Industry
- Fat Analysis story so far – **Short movie**
- MDX technology
- MDX Meat Industry Examples
- Data flow and control in the meat industry



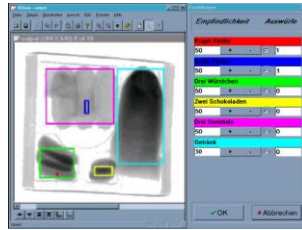
# EAGLE History

- PID Established in August 1998 under Smiths Heimann Systems GmbH
    - Developed the first X-ray system to utilize morphology technology
    - Introduced simultaneous inspection of products for contaminant, defects and weight analysis through proprietary SimulTask™ Software
  - Purchased by Smiths Group PLC in 2002
    - Introduced first QuadView X-ray system (2006)
    - Introduced MDX technology for material discrimination (2006)
    - Introduced Fat Analysis through X-ray to measure Fat to Lean in meat products through partnership with Meatvision Ltd. (2007)
  - Acquired by Mettler-Toledo March, 2011
    - Introduced Pack 240 XE 9 (2012)
    - Introduced HC 400 – 2012 (2012)
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# History of X-ray for Food Quality



First EAGLE X-ray food inspection machine: Contaminant Detection only



First system with multitasking capability to find various product defects



Eagle introduced MDX



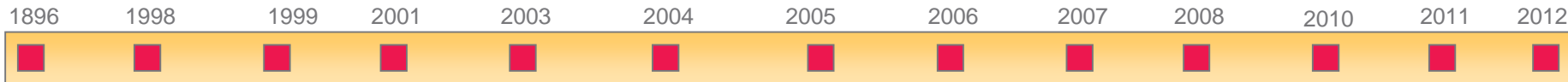
Eagle FAT Analysis



Shortest side-inspection



Pack 400 Hygienic Clean (in place)



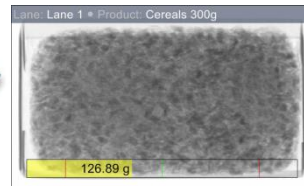
First X-ray image by Wilhelm Conrad Röntgen



EAGLE introduces Morphology



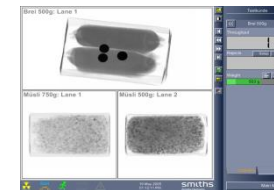
EAGLE introduced X-ray checkweighing



First machine with 4 beams introduced to market



SimulTask 4 New flexible software platform



EAGLE Pro Product Line



Pack 240 XE



# X-ray in the Meat Industry

## In-line Fat analysis

- Bulk Meat
- Cartons
- Crates

## Contaminant detection

- Stainless steel / Ferrous / Non-ferrous
- Bone
- Glass / Stone / Rock
- Plastics / Rubber





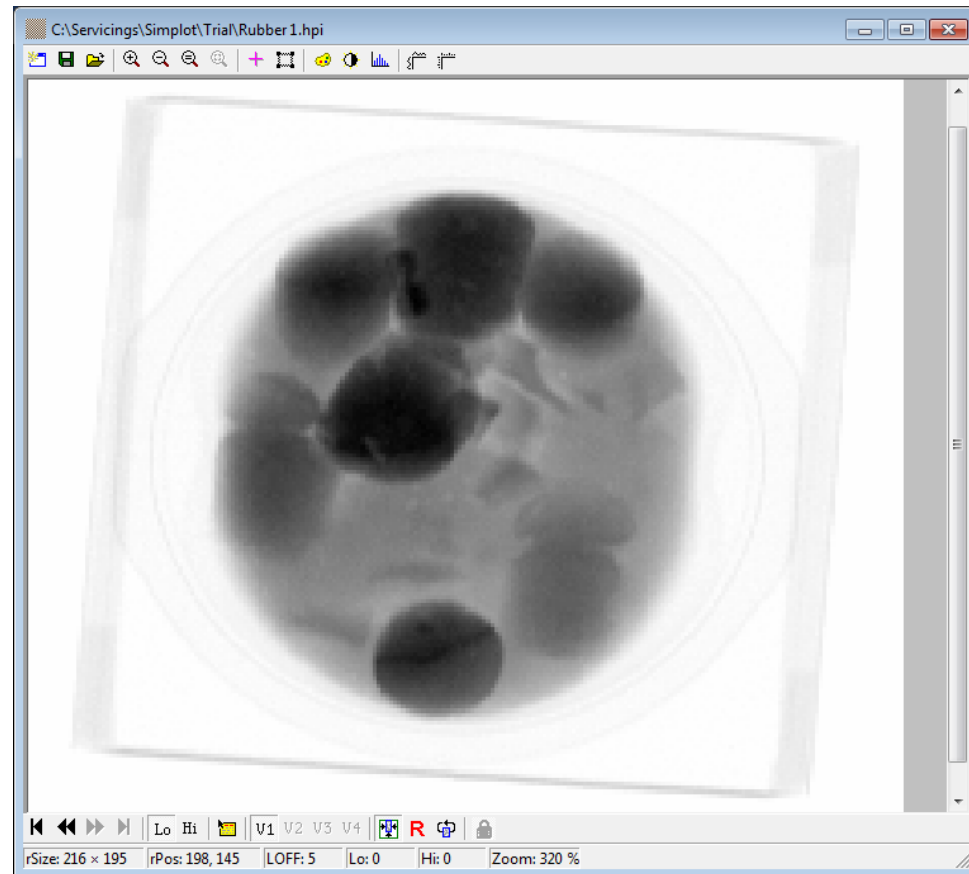
# MDX

- Material Discrimination X-ray operates on the same principle as fat analysis, DEXA (Dual Energy X-ray Analysis) to discriminate materials by their chemical composition (atomic number) .
- MDX is valuable in difficult or “busy” images that contain high variations in image density.
- In the meat industry today, the most common use of MDX is to detect bone.

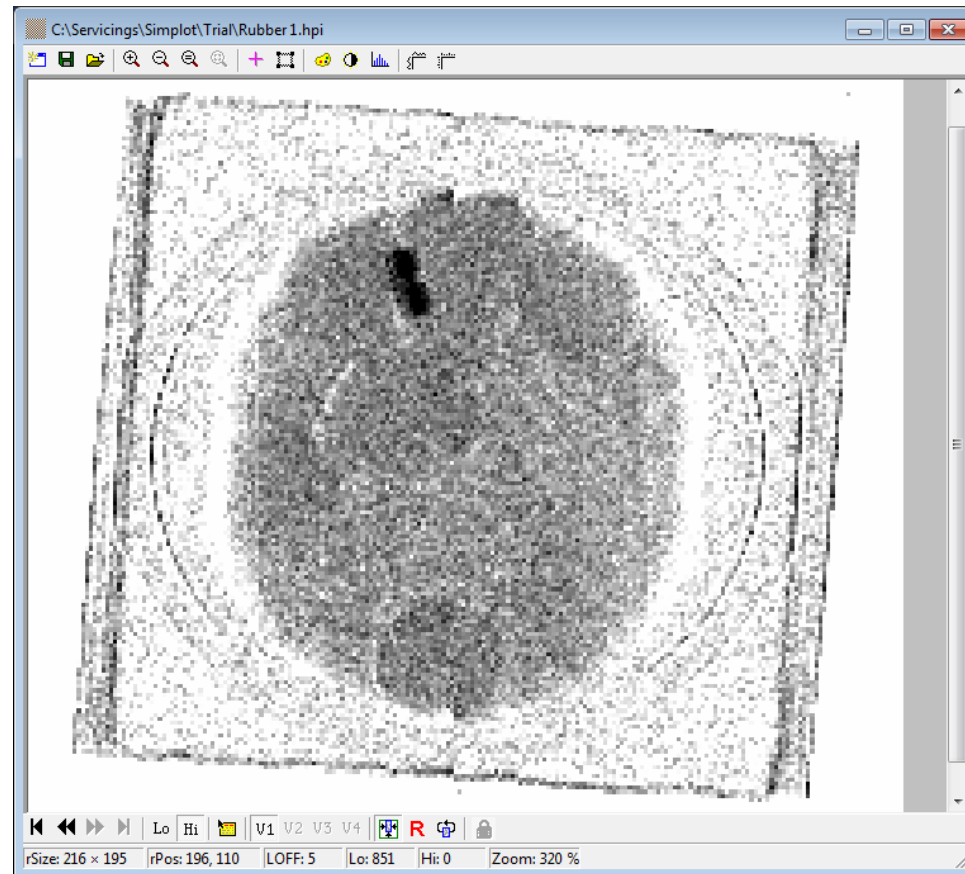
# Example of MDX in use



# Single energy X-ray image



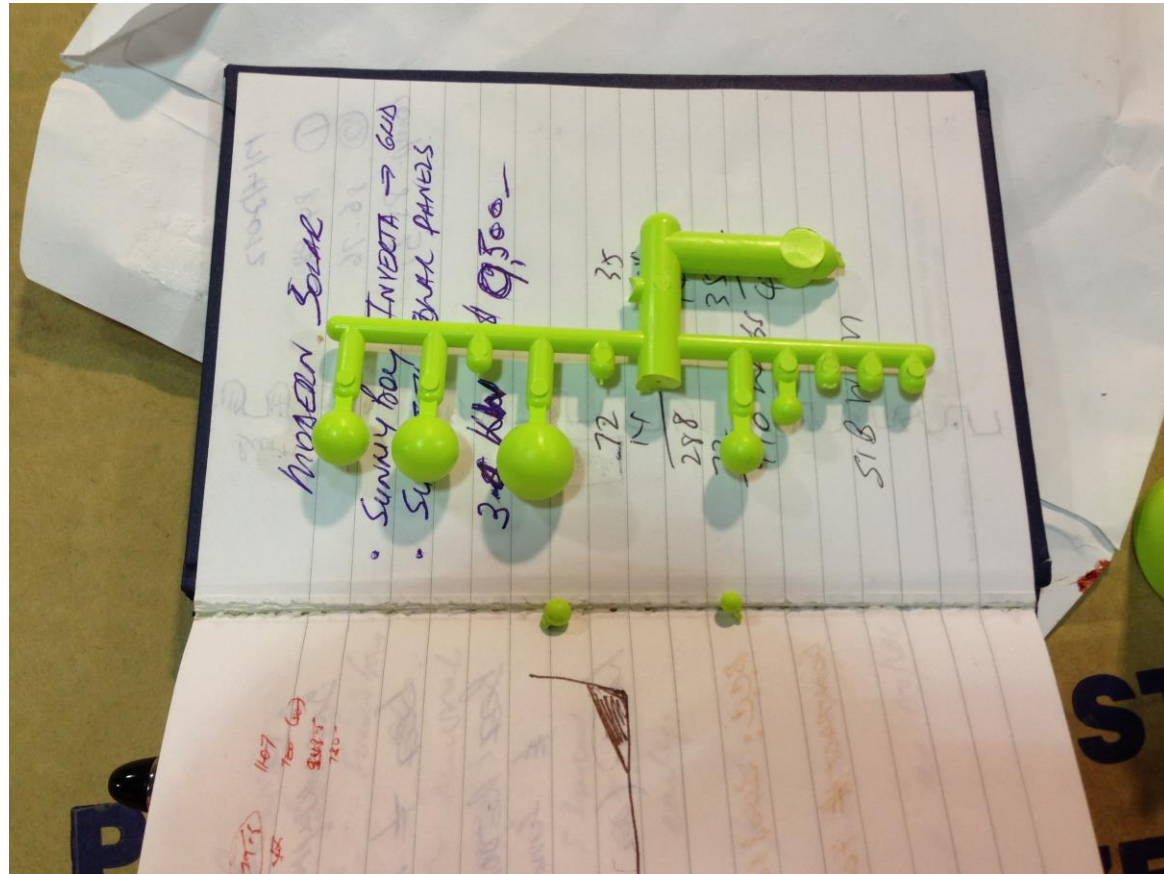
# MDX image



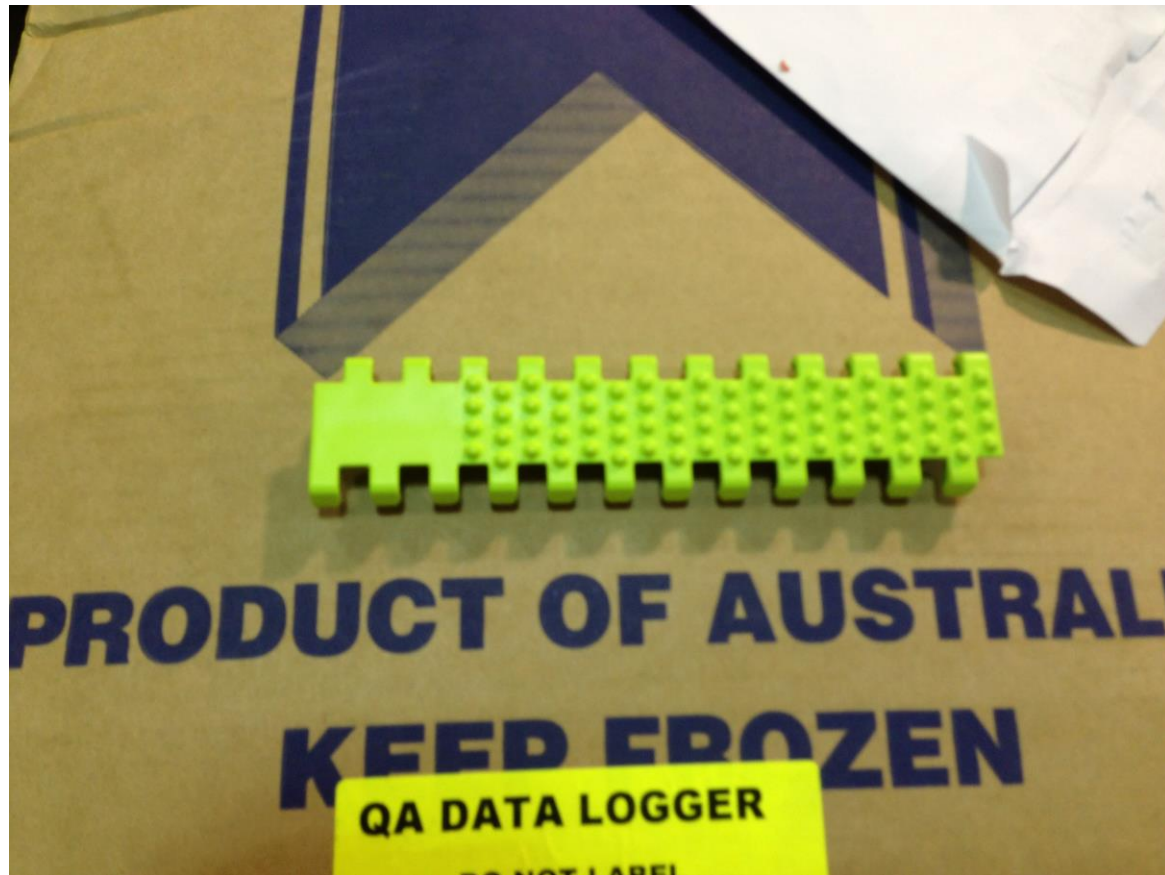
# Contaminant found



# Future use of MDX



# Conveyor belt





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# Data flow and control

- Need for remote inspection stations in the Meat industry with access to X-ray image
- Plants should be saving and storing EVERY X-ray image for 18 months
- X-ray images can be analysed remotely anywhere by a person – Do not need to be necessarily on plant





**Thank you**

Questions?