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IHFood A/S and

What's next in food processing inspection?

Tue Moerck

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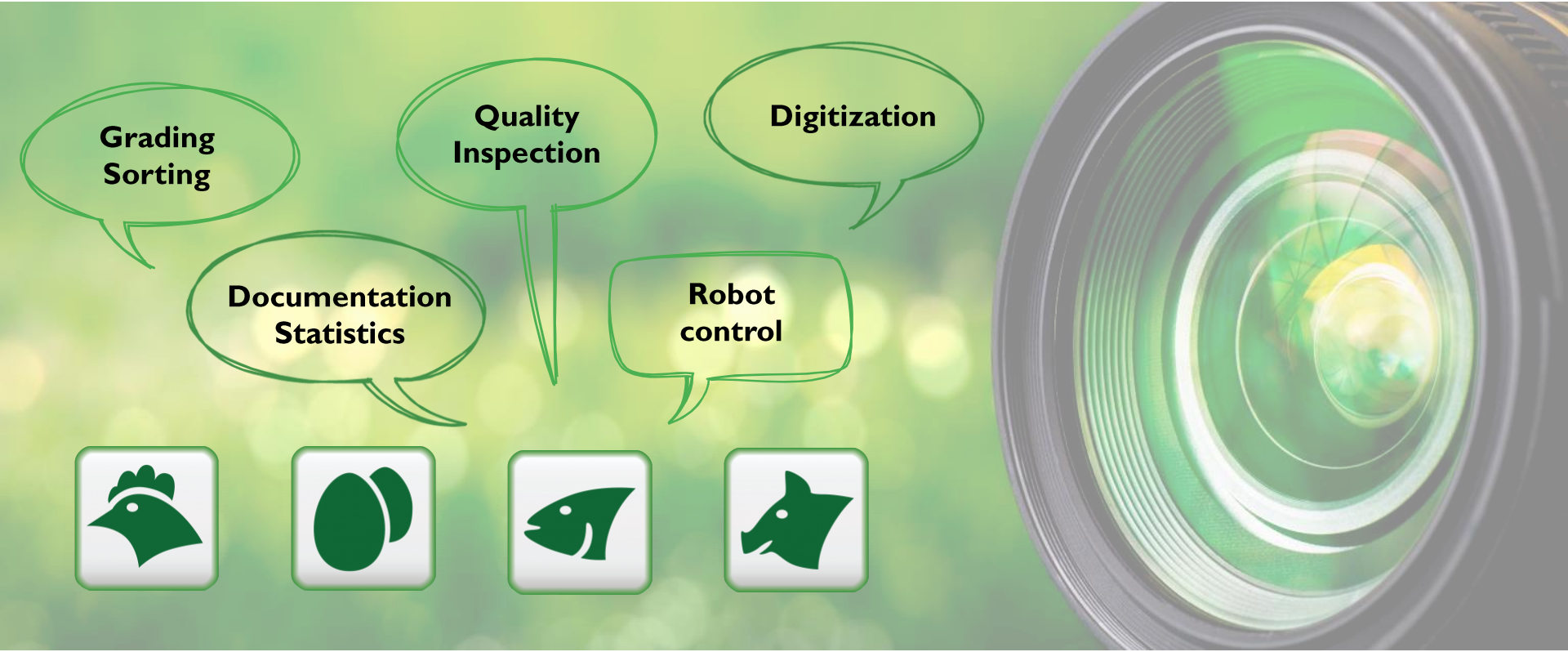

It's about automation

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256000 eggs/hour
14 ms per egg
32 image layers to process

14000 birds/hour
257 ms per bird
12 image layers to process

1500 fish/hour
2400 ms per fish
40 image layers to process

1200 pigs sides/hour
3000 ms per pigs side
3D point cloud to process

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How do we run the business:

1) People first
2) Purpose and value creation
3) Flat structure

Team-of-teams

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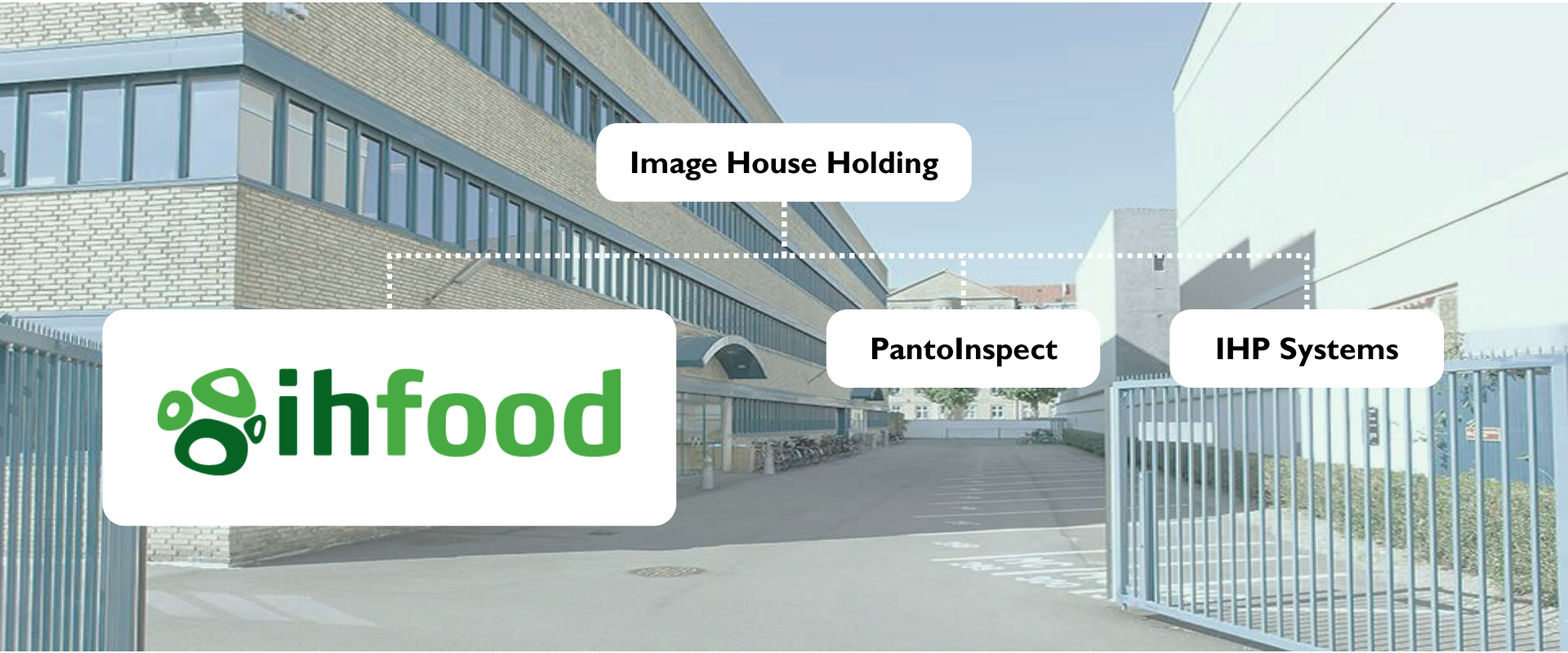

Founded in Copenhagen 2006

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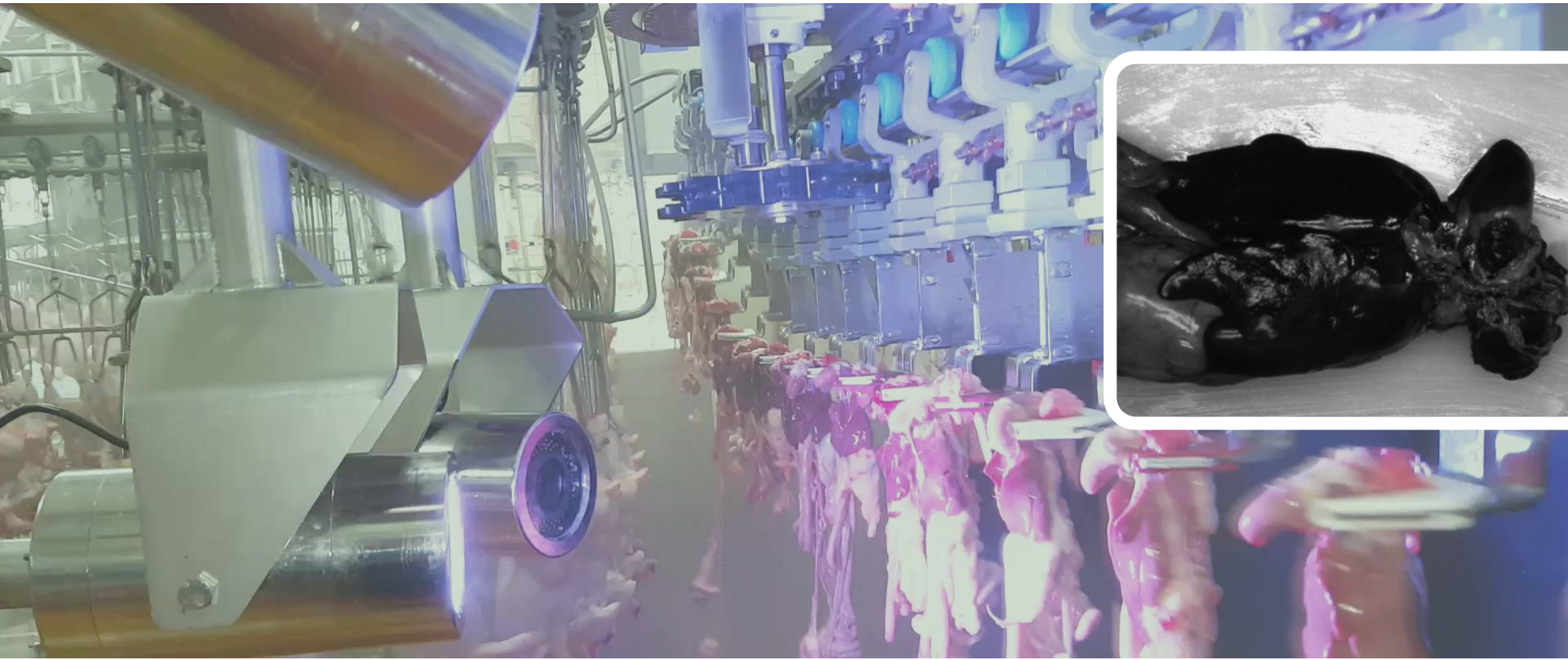

Image acquisition, multispectral- and hyperspectral-imaging

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State of the art software development

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We care

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- Increased productivity
- More uptime
- Predictive maintenance
- Lower risk
- Lower waste
- Higher quality
- Higher earnings

Towards Industry 4.0

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EggInspector - Egg inspection, grading and sorting

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ClassifEYE - Quality inspection and grading of chicken

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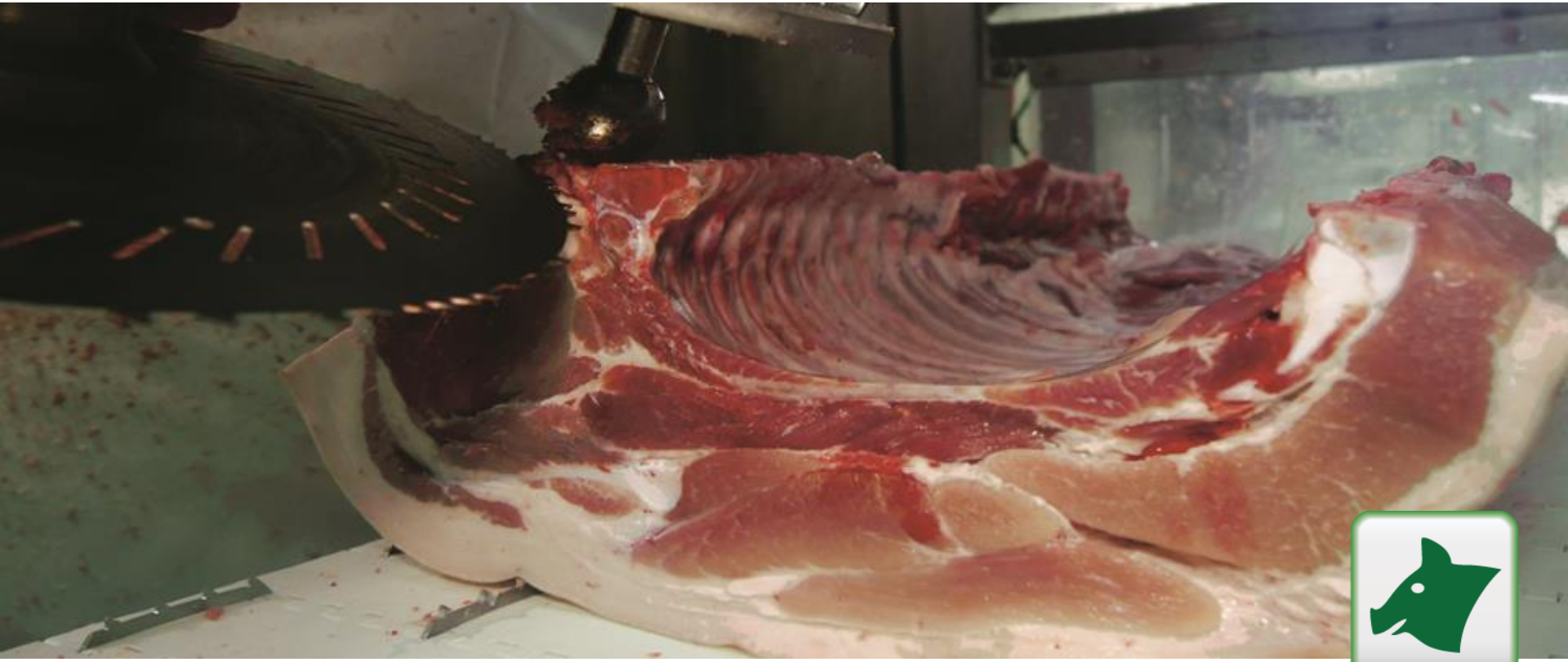

Chine Bone Saw - Automatic removal of pork chine bone

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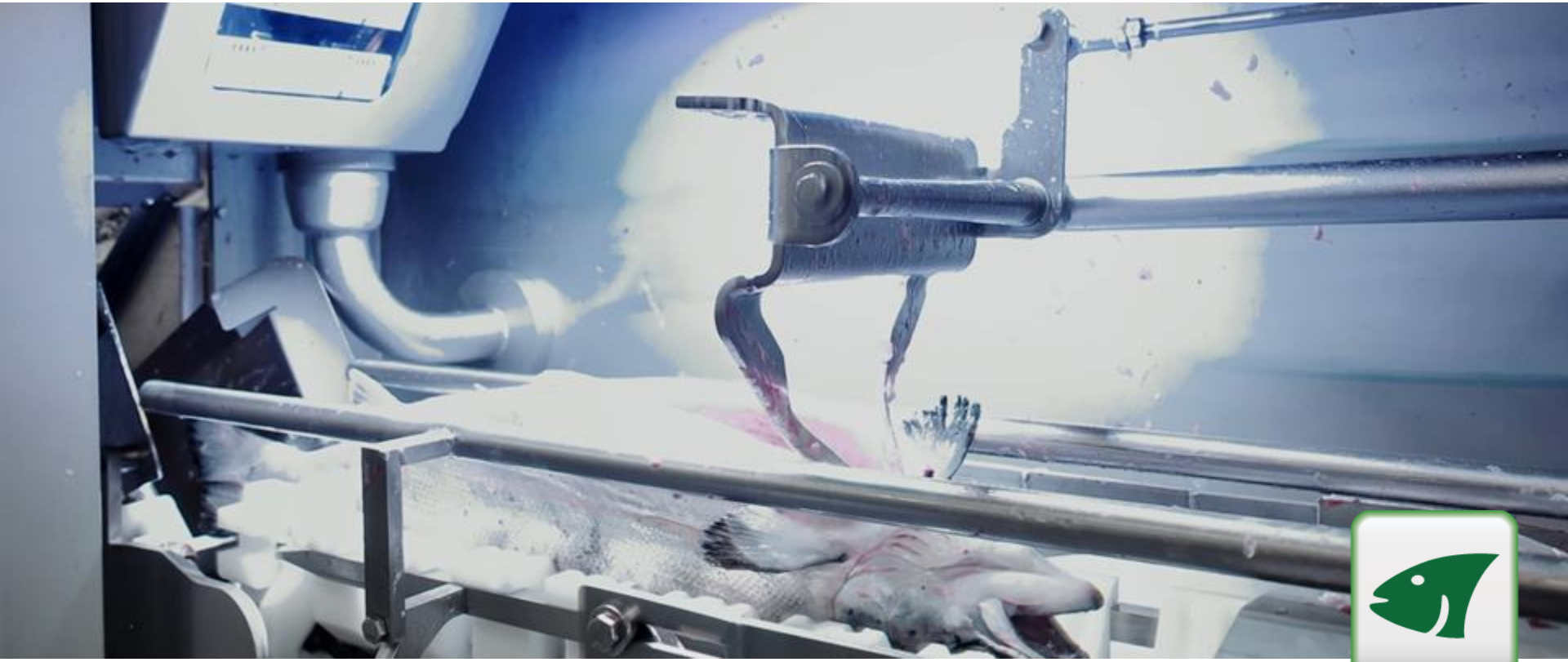

Salmon Gut Inspector – Grading, sorting and quality control

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We take care

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What's next in food inspection?

Automated veterinarian inspection?

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GUDP funded project

Partners

Member of the BAADER GROUP
LINCO FOOD SYSTEMS

AALBORG UNIVERSITY

Danpo

HKSCAN

Collaborators

LANDBRUG FØDEVARER

Miljø- og Fødevareministeriet
Fødevarestyrelsen

DANISH MEAT
RESEARCH INSTITUTE

”Computer vision system for automated poultry veterinary inspection”

- Health inspection is performed of whole chickens and of the eviscerated organs

- Every bird must be inspected by a veterinarian or qualified person and removed if it is not viable for human consumption

Poultry veterinary inspection

- One challenge is the line speed
- Line speed can be as high as 4 birds a second

Poultry veterinary inspection

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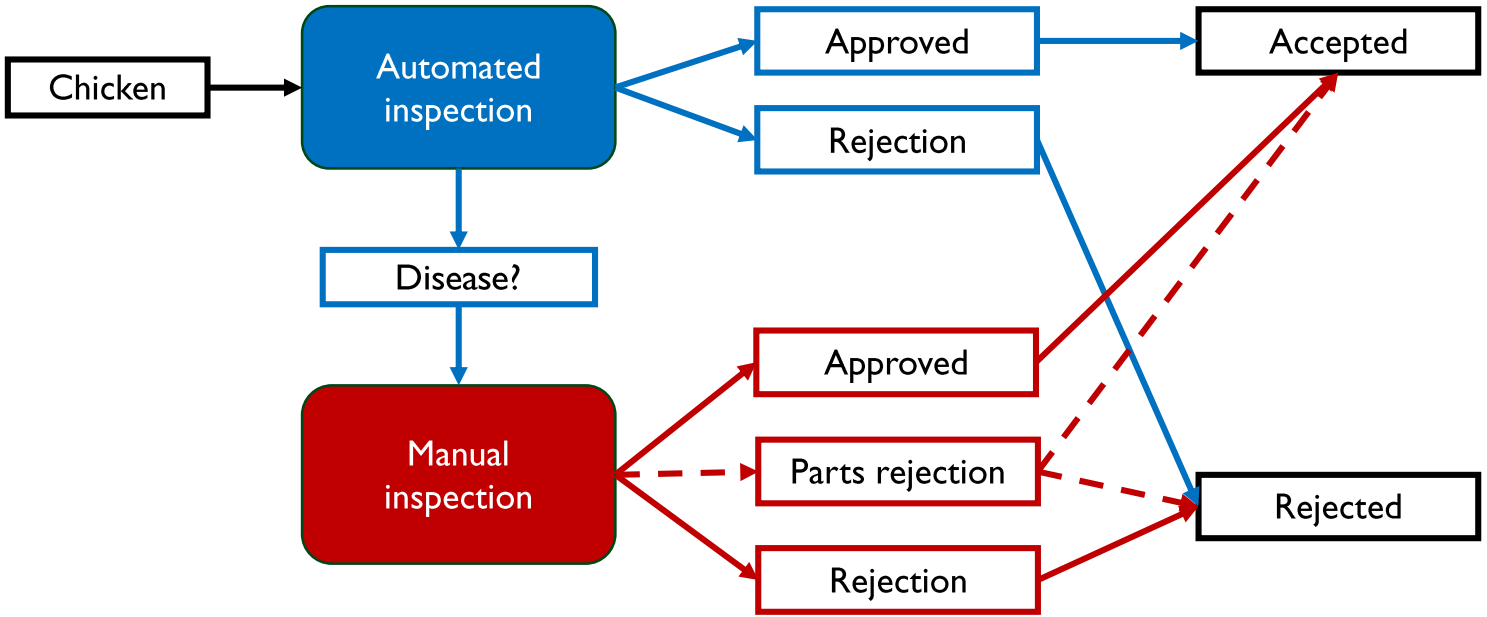

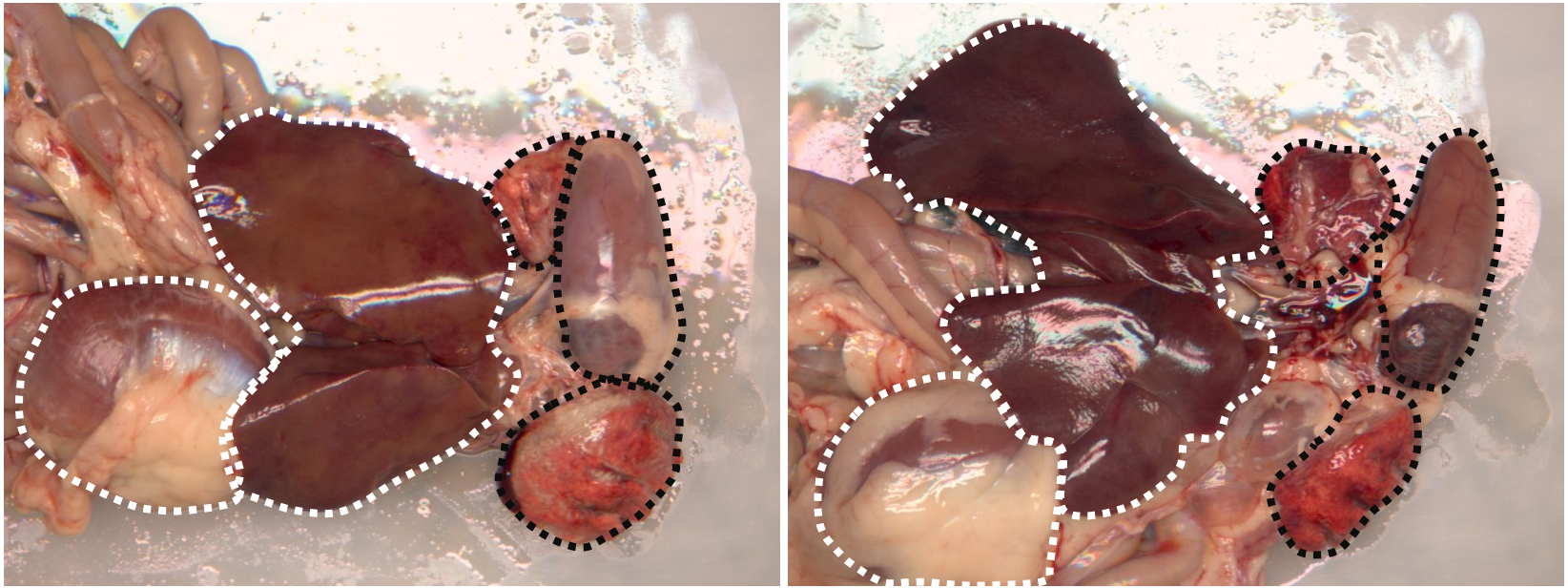

Viscera

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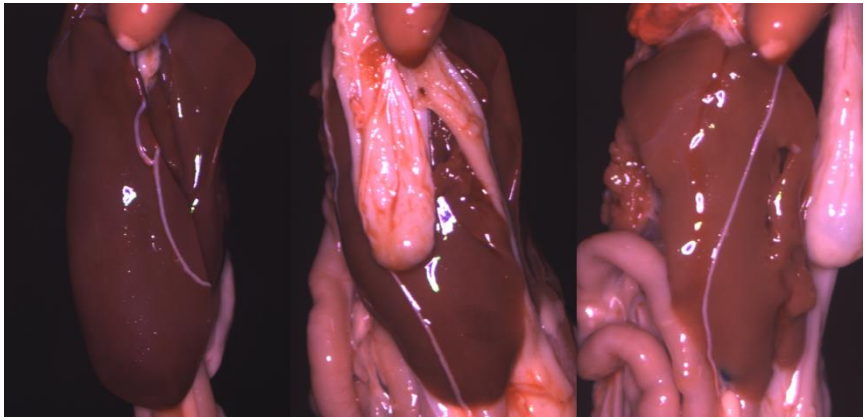
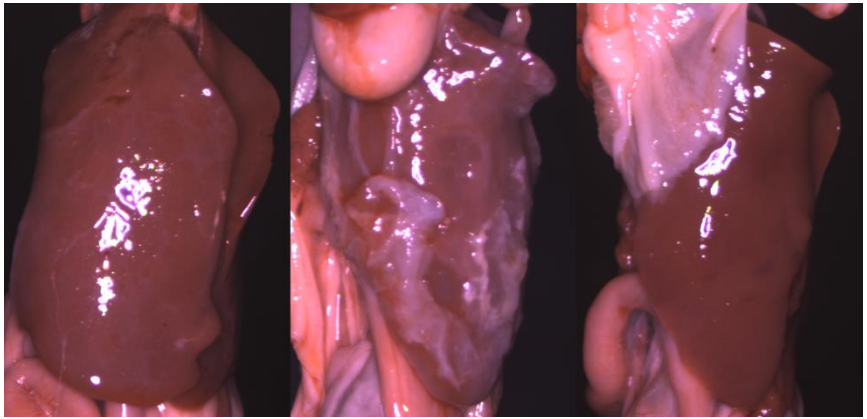
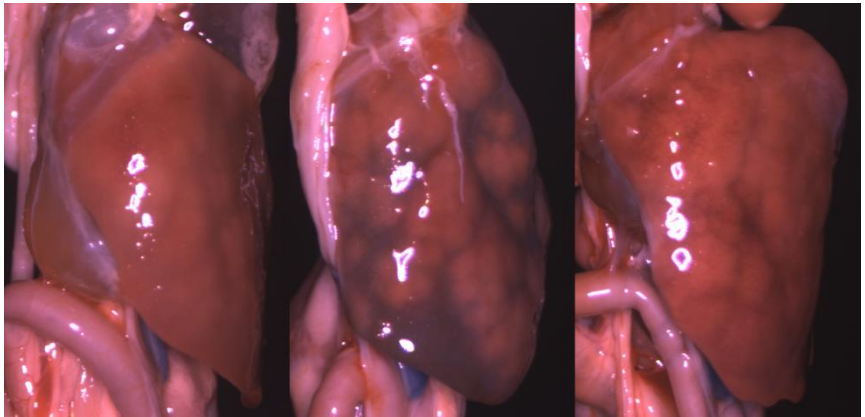
Healthy liver



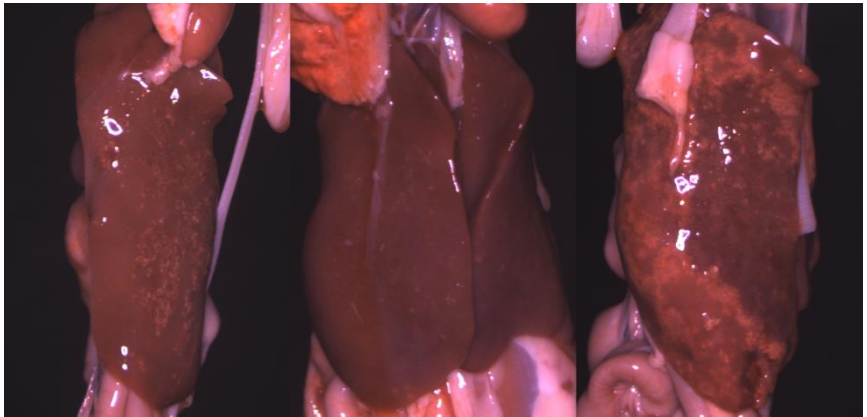
Changes on the liver surface



Liver stase



Necrotizing hepatitis



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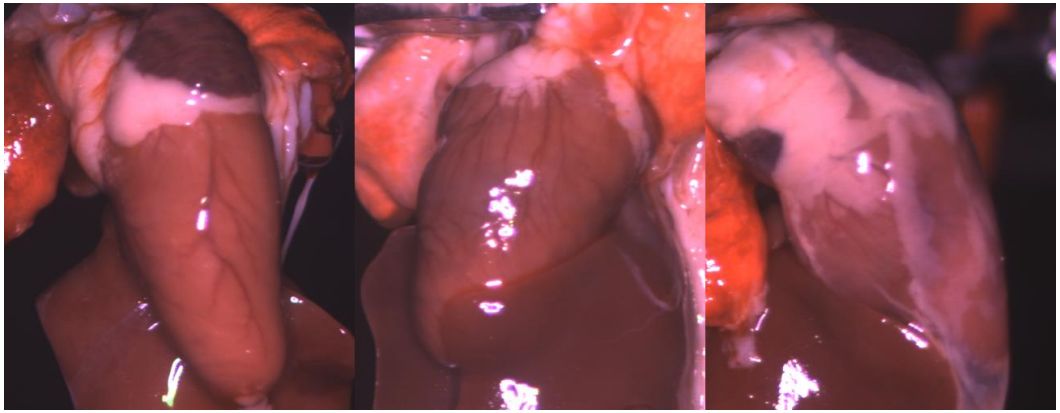
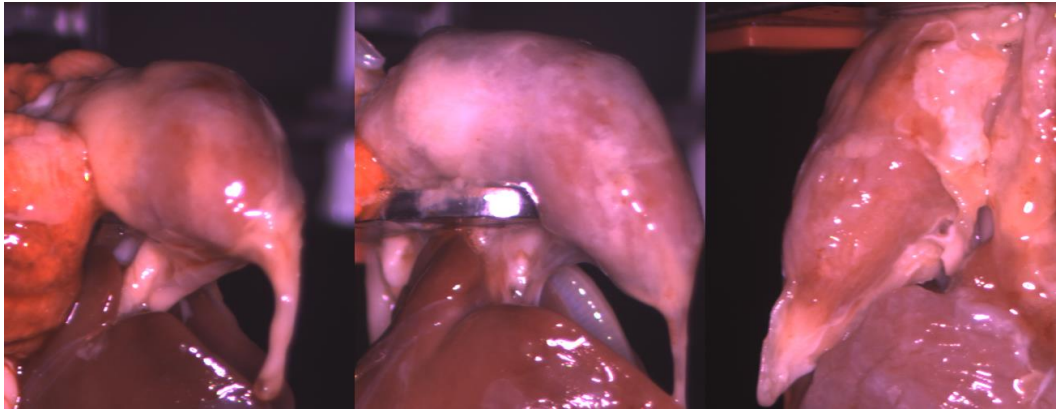
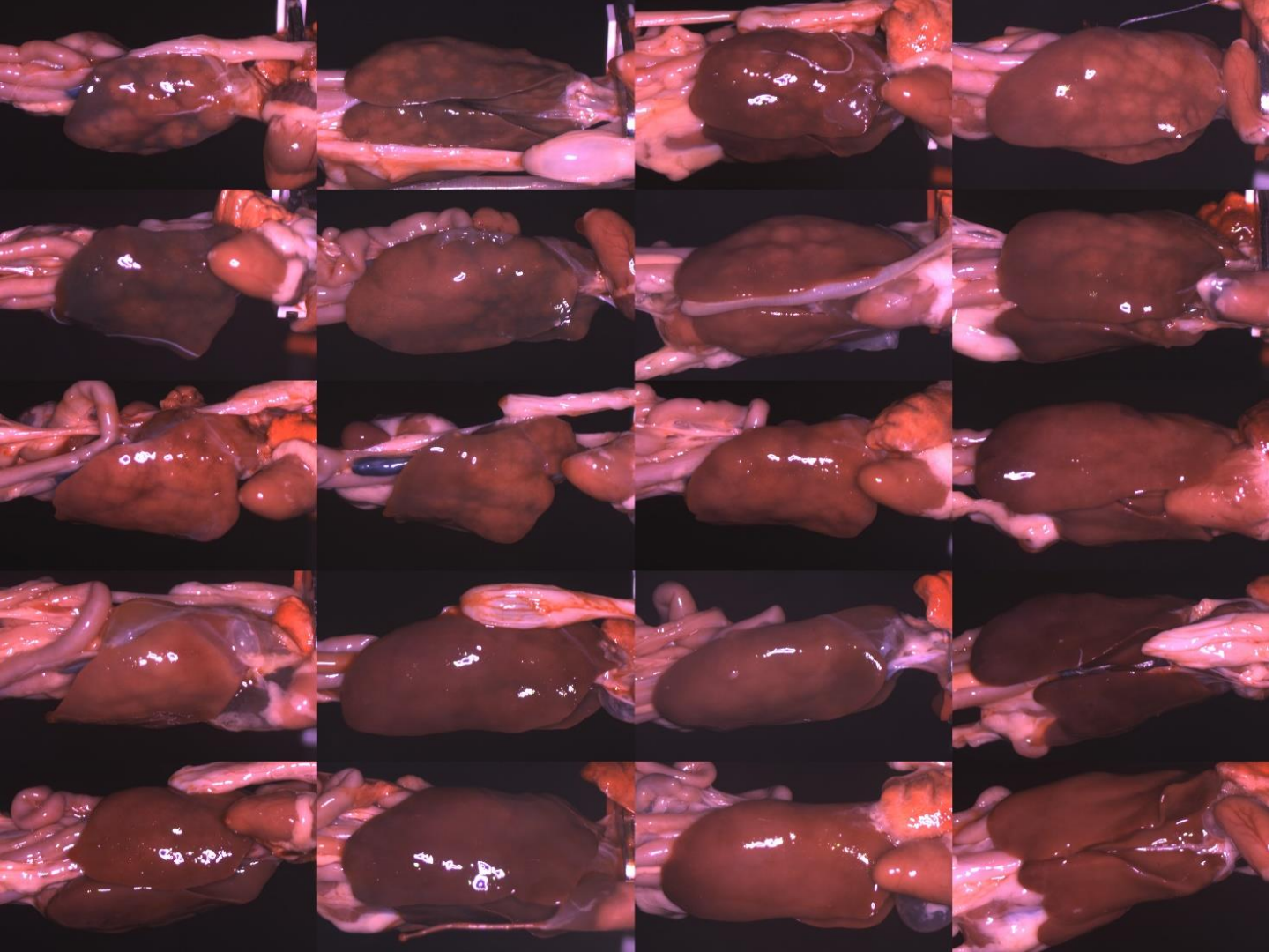
Healthy heart



Pericardium (heart) inflammation





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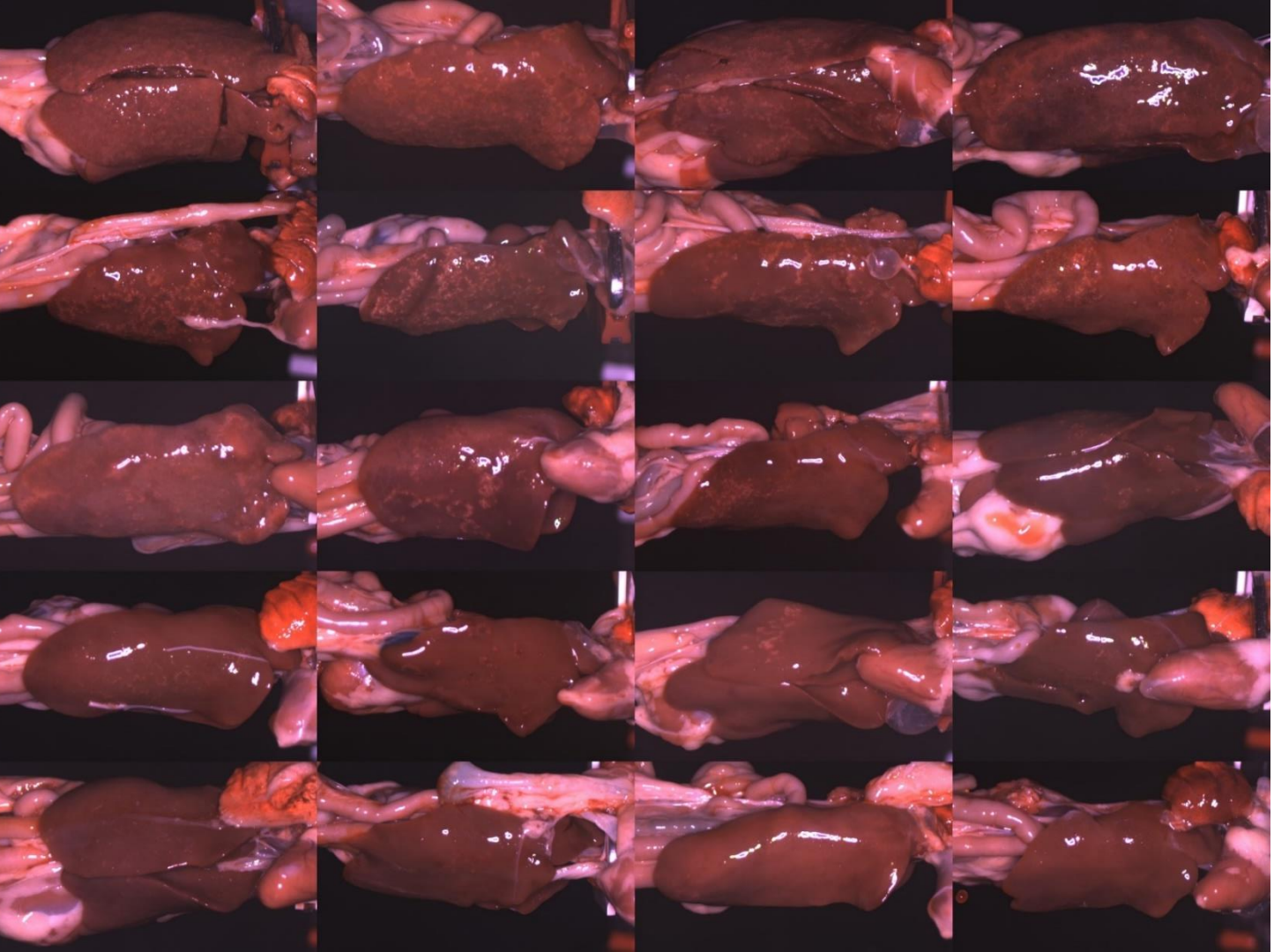
Uncertainties in the manual classification



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Uncertainties in the manual classification

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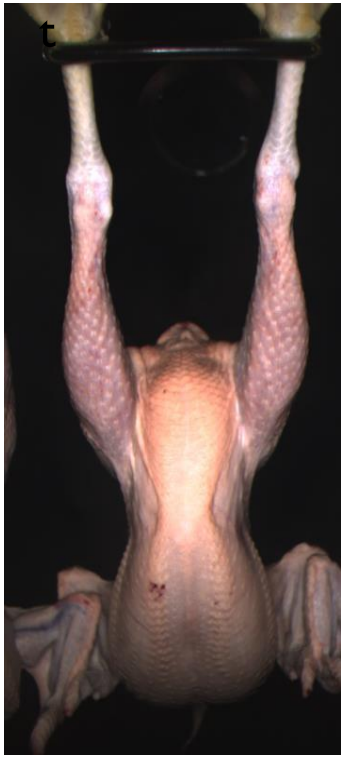
Healthy chicken

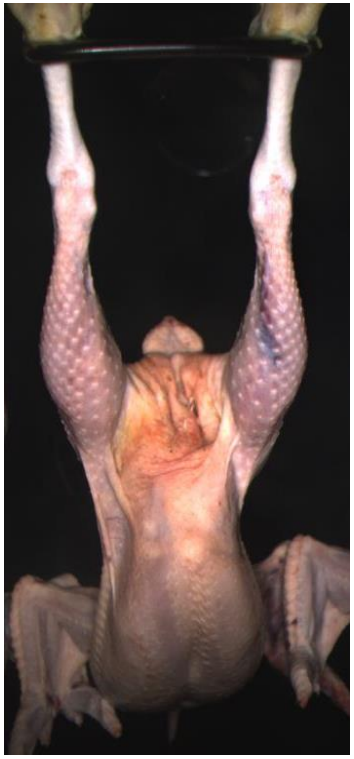
Groin | Breast | Back | Rump | Knee joint

Outside control

Ascites BugWatterso t

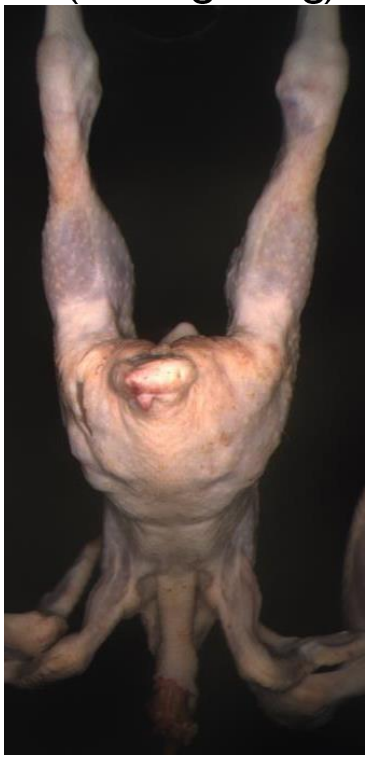


Deep skin inflamation



Shallow skin inflamation

Emaciation (Abmagerung)



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Discoloration

Scratches

Knee joint deformity