

Longevity, culling reason and osteochondrosis in crossbred sows

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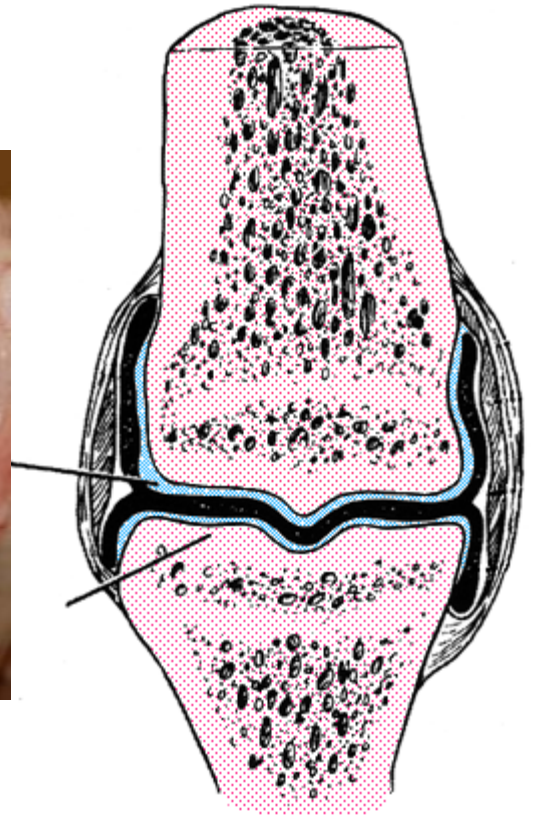
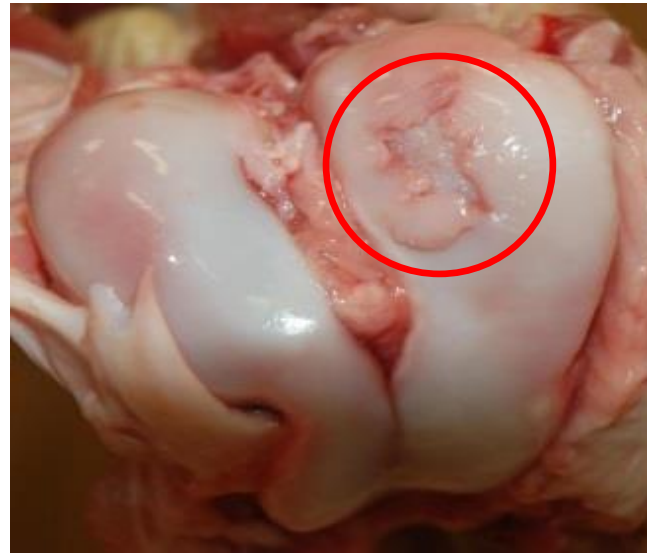
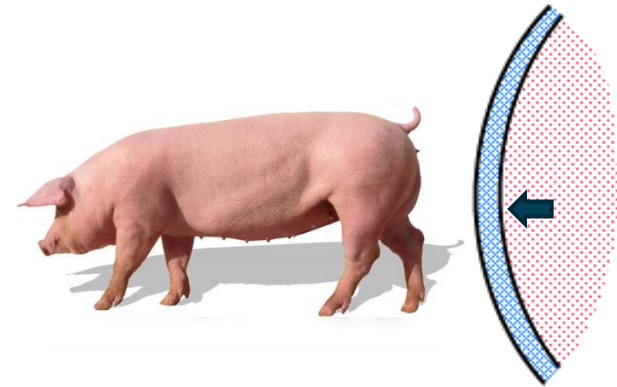
Charlie de Hollander
Egbert Knol
Henry Heuven



What is osteochondrosis (OC)?

Osteochondrosis

bone cartilage disturbance



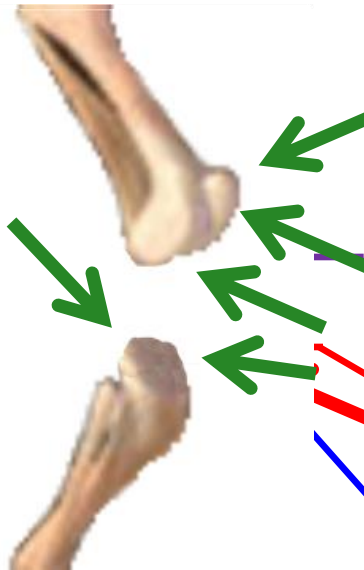
In many species



In which joints is OC scored?

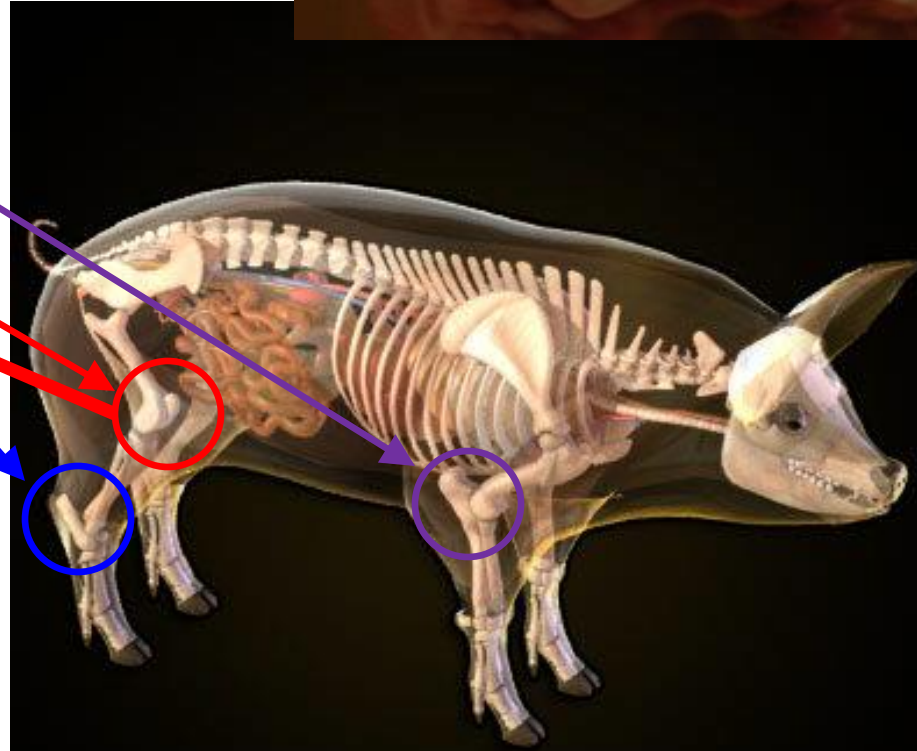
OC scored on:

- Elbow
- Stifle
- Hock



~ 5 Locations/ joint

Each location scored 0-4



Background

- Prevalences OC are >90% in fattening pigs and sows
- Correlations longevity, OC and culling reason debated
- Recording of traits
 - Takes (too) long → Longevity
 - Hard/Expensive → OC
 - Unreliable → Culling reason
- Longevity = parity number at culling
- OC = sum of scores at affected locations
- Culling reason = 8 classes recorded by farmer



Aim of study

Longevity

Discover the relations
between longevity, culling reason and osteochondrosis,
using 3 databases

Unknown
Relations

Osteochondrosis

Culling reason



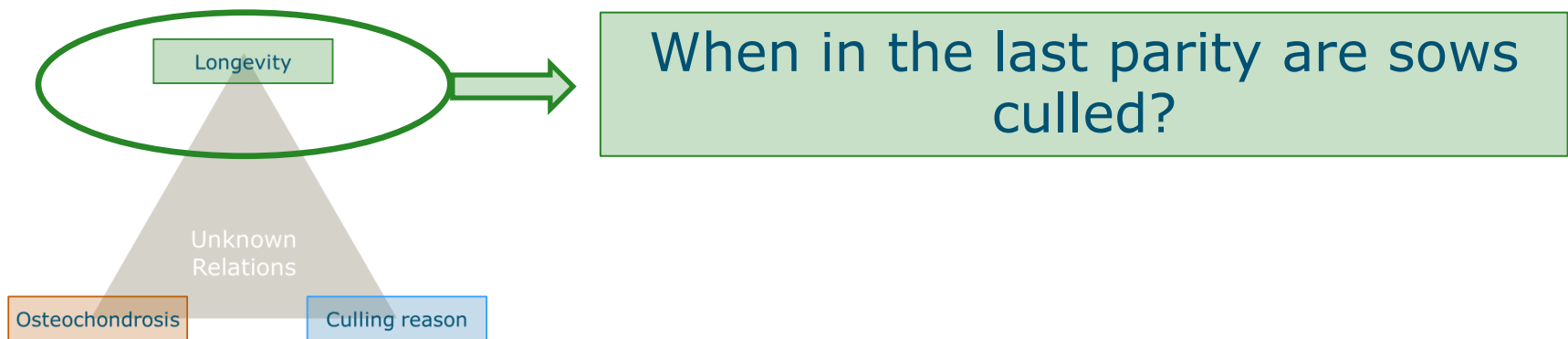
Database 1: F1 sows Topigs

- 111,987 sows

- 24,815  and 1,372 

- 189  in the Netherlands

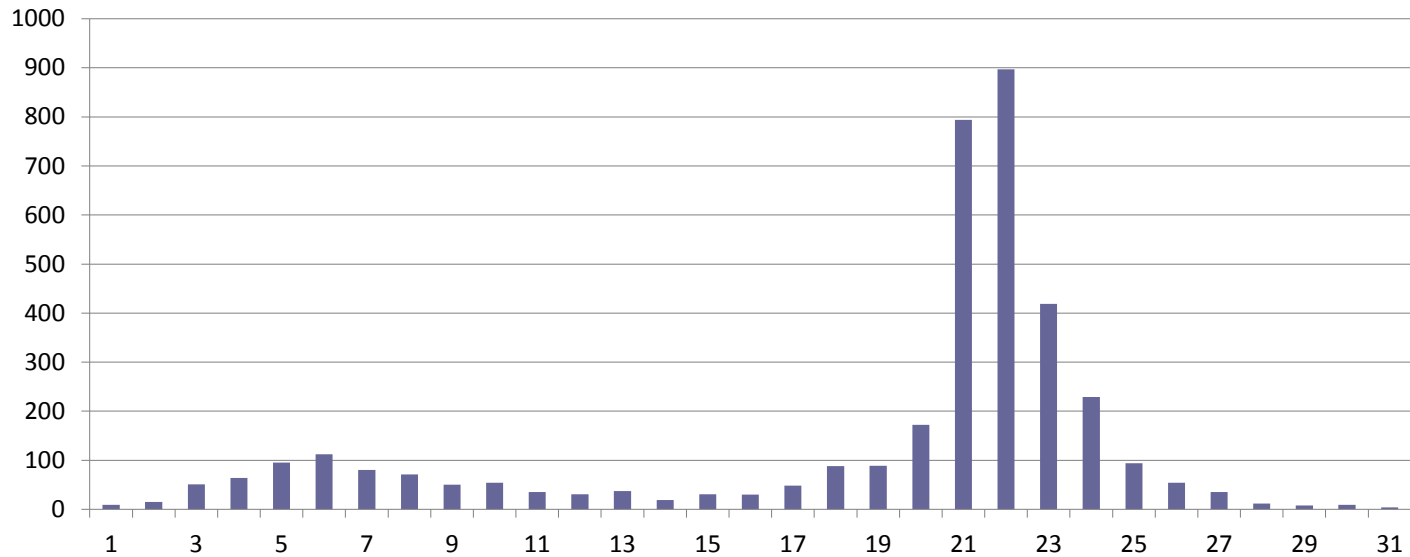
-  and  between 2005 and 2012



Interval insemination to culling

- Culling reason not accurately available from practice

Frequency of culling



Insemination

Scanning

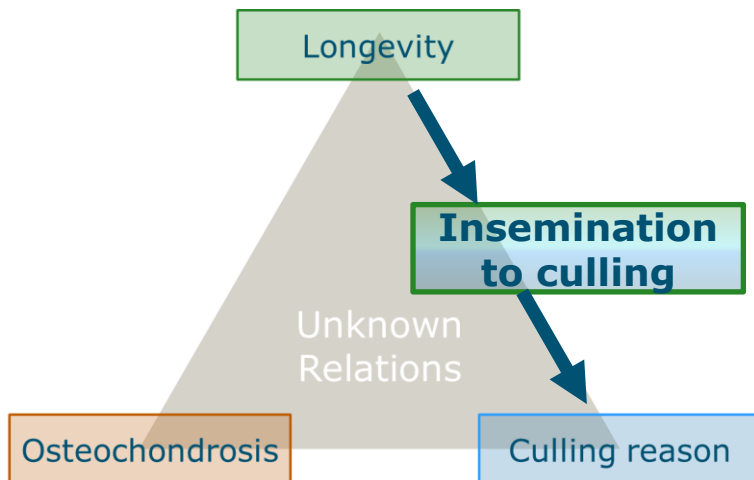
Farrowing

Weaning



Heritabilities

- h^2 Longevity 0.16 (SE 0.01)
 - h^2 Insem to culling 0.05 (SE 0.01)
- $r_g = \text{NS from } 0$
- Interval insemination to culling can be used in selection




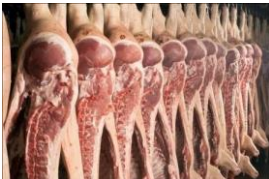
Do culling reasons represent different parity and culling time?

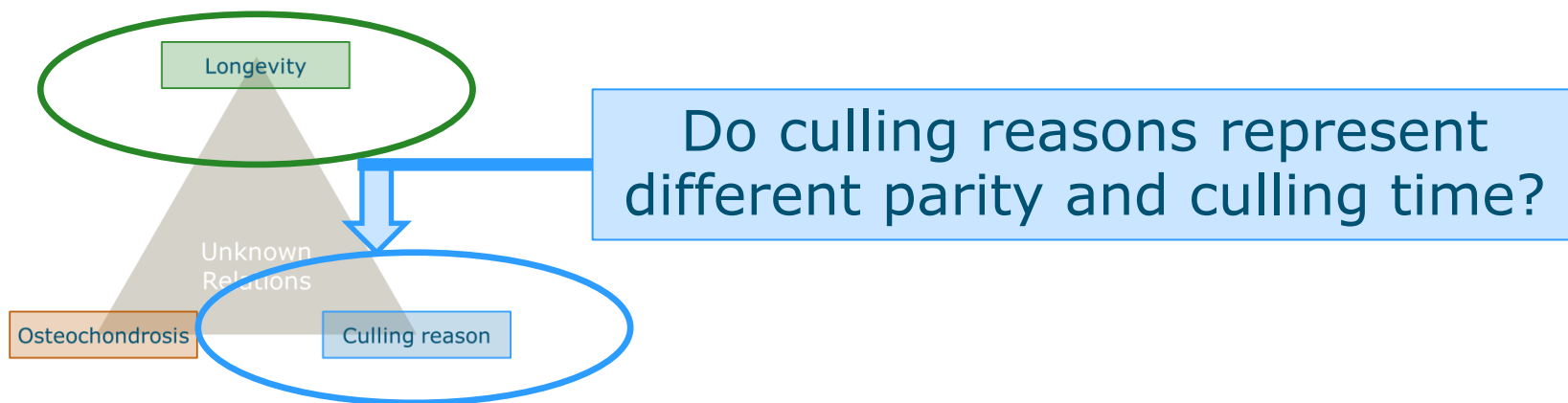
Database 2: Research farm data

- 2,552 crossbred sows

- Descended from 530  and 279 

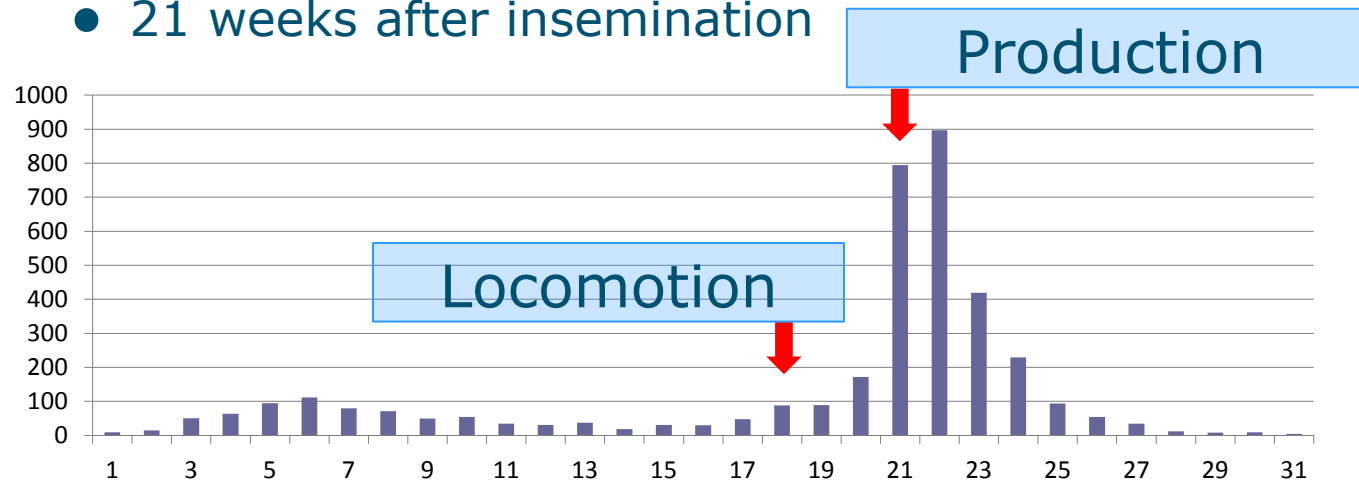
- Research  in the Netherlands

-  1997-2013 /  2004-2014



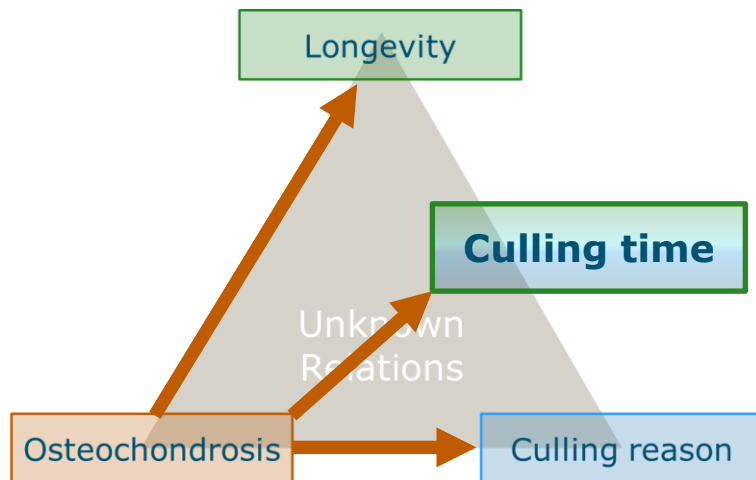
Discovering patterns in culling

- Culled for locomotion
 - 2.3 Parities (lowest)
 - 18 weeks after insemination
- Culled for piglet production
 - 4.6 Parities (highest)
 - 21 weeks after insemination



Heritabilities and (genetic) correlations

- h^2 Longevity 0.16 (SE 0.05)
 - h^2 Insem to culling 0.22 (SE 0.06)
- $r_g = \text{NS from } 0$



How does osteochondrosis relate to the other traits?

Database 3: Slaughterhouse sows

- 539 crossbred sows

- 9  in the Netherlands



- between March-Oct 2014

- Longevity varied from 1 to 11 (mean 5.8)



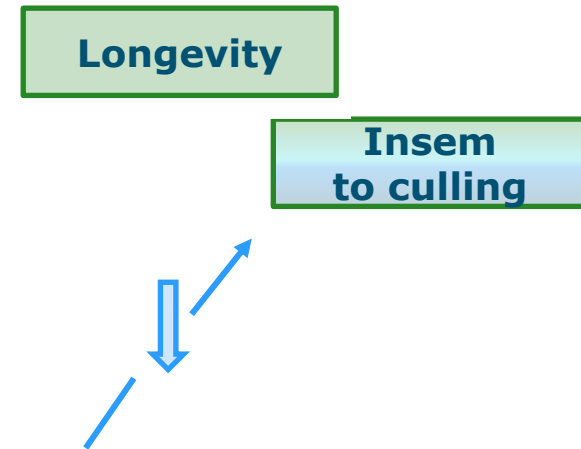
Prevalence of OC and relation with locomotion?

- **Osteochondrosis** at animal level varied 0-13 (mean 3.4)
 - **94%** of sows had some degree of OC (1-4)
 - **73%** in hock joint (mean 1.9)
 - **83%** in stifle joint (mean 1.5)
- **Locomotion** problems result in
 - Low **Longevity** → 3.1 parities (mean 5.8)
- **Locomotion** can be divided in
 - Claw problems → 2.9 parities ↓
 - Joint problems → 3.2 parities ↓
 - Trauma → 3.2 parities ↓



Conclusions

- **Insem to culling** and **Longevity** should both be used in selection
- **Locomotion** problems are related to
 - More **osteocondrosis**
 - Lower **longevity**
- **Osteochondrosis** is related to
 - Lower **longevity**
 - Lower **Insemination to cul**
- Selection on osteochondrosis could lead to
 - Improved longevity
 - Ability to finish complete parity



For improved longevity, select on:
osteochondrosis and,
interval last insemination to culling

Any questions?

