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Benchmarking Production Diseases - Could we have 10% fewer cows?

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Can we produce the same milk with less environmental impact?

Vets Role...?

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Important?



Food and Agriculture Organization of the United Nations

report published by the United Nations Food and Agriculture Organization...

“ the livestock sector generates more greenhouse gas emissions as measured in CO2 equivalent – 18 percent – than transport. It is also a major source of land and water degradation.”

“Livestock are one of the most significant contributors to today’s most serious environmental problems. Urgent action is required to remedy the situation.”

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Whole Farm Strategies to Minimise Environmental Impact not fully Understood



- for example – dairy cows:-
 - High or low output?
 - Impact of different feeding regimes that include growth and transport of the feeds
 - Net effect on all aspects of the ‘environment’ for different methods of dairy farming

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But , for any given dairy system at the moment...

- Reduce unnecessary culling
 - reduced cow numbers required



- Minimise "wasted" milk
 - Due to treatments or production losses



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The Veterinary Surgeon
– A key Role ✓

Now?

- Improve efficiency of production
 - Minimise milk wastage and culling due to health and reproductive disorders

Future?

- Be aware of strategies that are developed to reduce environmental impact
 - Production methods, slurry management ...etc

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Do we have room to improve health and reproduction?



Data?!

Current health status?

Current culling rates?

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Do we have room to improve health and reproduction?

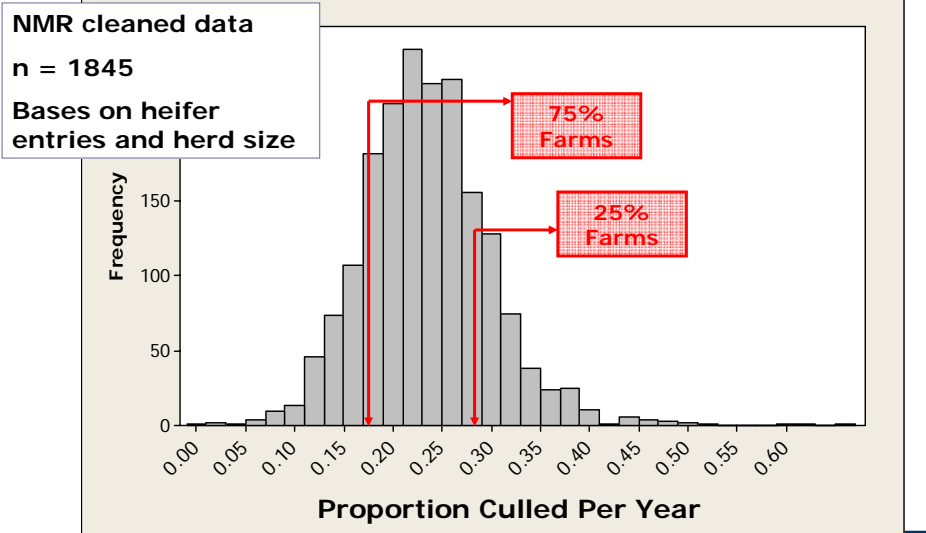


Current culling rates?

- Kingshay Farmdata
 - ~ 20% pa
(29 replacements pa for mean herd size of 145)
- National Milk Records data...

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Between Farm Variation in Culling Rates



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Why do we cull?

Culling Reasons: %s of cows culled

	Northern Ireland	England
Infertility	27	37
Lameness	15	11
Mastitis	10	10
Other Disease	7	12
Yield, temperament	14	11
Other (udder, age)	20	12
Unknown	7	7

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Agric. Res. Inst. NI and University of Reading

>50%

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Number of animals slaughtered for Foot and Mouth Control 2001

- Source: Defra Animal Health and Welfare

thousands

	Cattle
England	467.1
Wales	25.3
Scotland	89.7
GB Total	582.1

Approx half this
culled annually
due to
Infertility
Mastitis
Lameness

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Improve efficiency of production

✓ Minimise unwanted culling

? Minimise milk losses due to:-

- Reproduction
- Mastitis
- Lameness
- Metabolic/nutritional
- Infectious
- Miscellaneous

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Do we have room to improve?

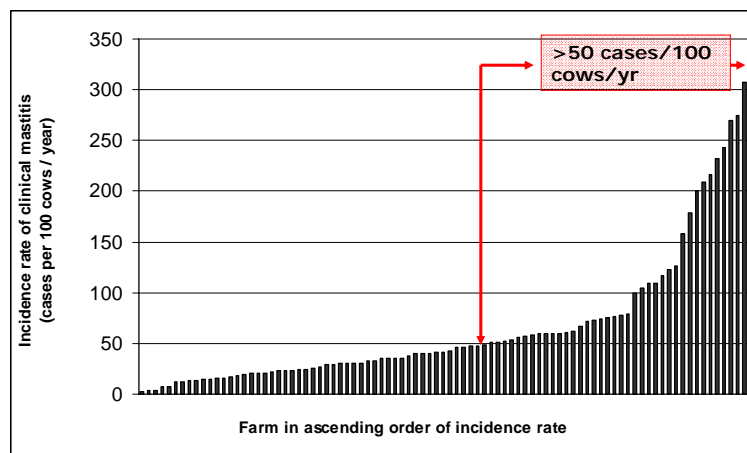
- Variability in health & fertility status?



- National accurate benchmarking of health is poor!

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Do we have room to improve? CLINICAL MASTITIS



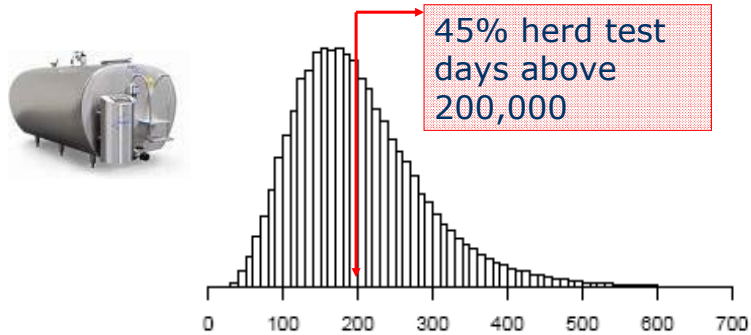
Bradley et al 2007

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Do we have room to improve?
SOMATIC CELL COUNTS



Bulk tank SCC in 1845 herds over 3 years



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Do we have room to improve?
SOMATIC CELL COUNTS



Individual Cow SCC >200,000/ml
in 1845 herds over 3 years

- **25% herds: >30% cow-readings above 200,000 cells/ml**



- **25% herds : > 20% cows remain above 200,000 cells/ml for 2 consecutive recordings**

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Do we have room to improve?
LAMENESS



- Probably ranges from <10% to >50% cows affected pa
- Herd distribution?
- Prevalence?
 - Length of each case



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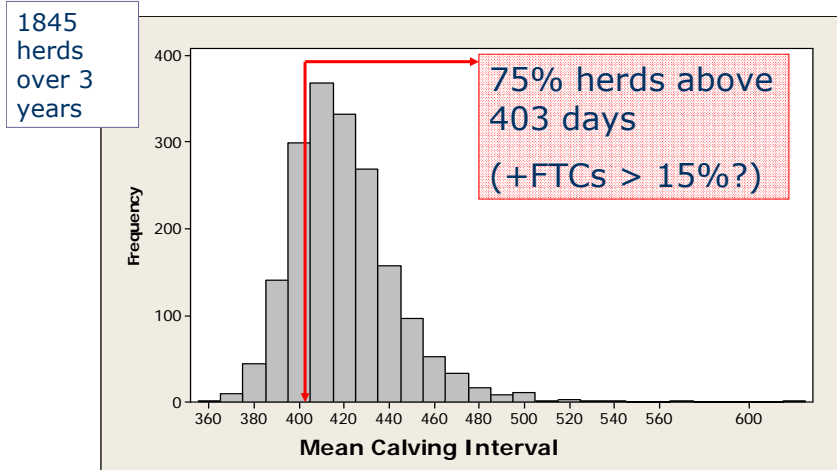
Do we have room to improve?
OTHER INFECTIOUS DISEASE



- (BVD, IBR, Johnes, Leptosporosis, Neospora ...)
- National prevalence?
- Test difficulties
- Effects on culling and milk loss?
 - Within or between herd
- Probably large variability between herds?

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Do we have room to improve?
FERTILITY: Mean calving interval



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So large differences in Culling Rates and Health Status between Herds



- How much does this matter for the environment...?

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Example of a Dairy Herd Emissions Model - Fertility Only



- P.C. Garnsworthy (2004)

	Days to 1 st AI	HDR(%)	Preg Rate (%)
A	78	50	37
B	72	55	46
C	70	70	60

Better fertility - Fewer cows and replacements needed per litre milk

Tot Herd methane reduction (with quotas) in comparison to A

B = 10-12% less **C = 21-24% less**

Tot Herd ammonia reduction (with quotas) in comparison to A

B = 9% less **C = 14% less**

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Vet Impact?



- Exact impact of health of dairy cows on the environment unknown
- But active Herd Health and Production Management will improve efficiency of milk production and benefit the environment
 - Nothing new??
 - But things aren't getting any better...**WHY?**

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Current Health and Fertility Trends?

- Fertility
 - getting worse
 - Mastitis
 - Clinical cases no better than 20 years
 - SCCs recently worse
 - Lameness
 - difficult to know but many agree not getting any better
 - Infectious disease...?
- Genetic?
- Environmental?
- Social?

So why the relatively poor performance in dairy health and reproduction?



Why the relatively poor performance in dairy health and reproduction?



- **Veterinary Profession?**

- Routine visits to <25% herds
 - In some cases, those visits often contain fertility and cursory glance at health issues
- Knowledge gap?
 - Is knowledge sufficient (research?)
 - Variation in approach?
 - Gaps in knowledge (pre or post graduate)?
- Motivation gap?
 - TB testing and medicines - ?provide comfort zone...

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Evidence-based Veterinary Services?



- Complexities of administering national strategies for control of key (non-political) diseases
 - Communicating new information
 - Updating thinking when new evidence arrives
 - Of varying quality and quantity
 - Prior views, personality, psychological etc
 - Monitoring uptake and outcome?

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Why the relatively poor performance in dairy health and reproduction?



- Lack of appropriate research?
 - Unbalanced in favour of the epidemic and infectious diseases?
 - Political influences?

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What do we “need”?



- Clinically proven routes to improve health & fertility
 - these will also have a positive environmental impact
- Example of National Mastitis Control Plan (DairyCo) – a result of research and a clinical trial in commercial conditions
 - ? Fertility
 - ? Lameness
 - etc

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Why the relatively poor performance in dairy health and reproduction?



- Farmers
 - Financial gains not enough of a carrot?
 - Welfare, but how is this valued?
 - Knowledge gap?

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Why the relatively poor performance in dairy health and reproduction?



Confusion...in agriculture!

eg

- Annual 'tick box herd health plans' (in contrast to true health management)
 - Can these actually make it worse?
- Advisors and health!
 - huge variation
 - lack of accreditation?

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Improving Health/Welfare and Environment in Dairy Farming: WHO GAINS? WHO PAYS?



- Current climate:
 - 'Sharing costs and responsibilities for exotic animal disease' - Joint Industry/Government
- Society?
 - Consumer - 'Pay as you eat'?
 - Should we all pay for a 'better' environment, to some extent?

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Poor Health of Farmed Animals-

More Important for Welfare and Environmental Reasons rather than Farm Financial Returns?

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So...



- Room to improve health and fertility of dairy cows, and thus environmental impact...
- Have (some of) the knowledge...
- Route?

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THE 
INDEPENDENT



Cow 'emissions' more damaging to planet than CO2 from cars
Sunday, 10 December 2006

**“Meet the world's top destroyer of the environment.
It is not the car, or the plane, or even George
Bush: it is the cow...”**

A United Nations report has identified the world's rapidly growing herds of cattle as the greatest threat to the climate, forests and wildlife. And they are blamed for a host of other environmental crimes, from acid rain to the introduction of alien species, from producing deserts to creating dead zones in the oceans, from poisoning rivers and drinking water to destroying coral reefs.”

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The future?



- Better understanding of the true environmental impact of different dairy farming methods?
 - Methods acceptable to modern society?
 - Possible conflicts – e.g. welfare vs environment?
- Veterinary profession that will deliver an evidence-based, co-ordinated approach to improve health and reproduction?
 - National outcomes measured?
 - Identify areas for research?
- Industry receptive to change?

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