The wider benefits of PLF: welfare and the environment

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Outline

- How PLF benefits animal welfare:
  - Now: Direct benefits
  - Future: Assessment protocols/benchmarking?
  - Future: Extensively reared animals?
  - Risks
- How PLF benefits the environment:
  - Now: Direct benefits
  - Future: Extensively reared animals?

FAWC 'Five Freedoms'

- Farm Animal Welfare Council 'Five Freedoms':

  1. Freedom from **Hunger and Thirst**

  2. Freedom from **Discomfort**

  3. Freedom from **Pain, Injury or Disease**

  4. Freedom to **Express Normal Behaviour**

  5. Freedom from **Fear and Distress**

- More a **framework** for welfare assessment than a set of strict rules

Free-range *vs* caged hens

✔ Freedom to **Express Normal Behaviour**

✘ Freedom from **Pain, Injury or Disease**

✔ Freedom from **Pain, Injury or Disease**

✘ Freedom to **Express Normal Behaviour**

Current direct welfare benefits

- Precision approaches can improve welfare:

  1. Freedom from **Hunger and Thirst**

  2. Freedom from **Discomfort**

  3. Freedom from **Pain, Injury or Disease**

  4. Freedom to **Express Normal Behaviour**

  5. Freedom from **Fear and Distress**

- Through monitored/controlled access to feed and improved disease detection

Current direct welfare benefits
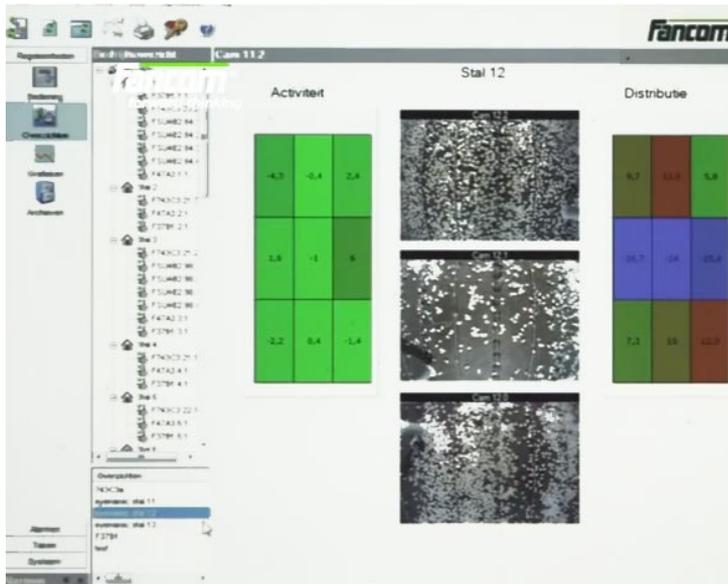
- Fancom eYeNamic
- Cameras can detect abnormal bird behaviour
- e.g. can detect feed line problems

- Boumatic StepMatrix
- Cow step force and duration measured
- Early detection of lameness

On-farm welfare assessment

- Detailed protocols have been developed for assessing animal welfare on farms e.g.
  - Bristol Welfare Assurance Protocol (RSPCA)
  - EU Welfare Quality® Protocols
- Combine a number of measures e.g.:
  - physical resources
  - animal condition
  - some animal behaviour

Welfare Quality®

- Protocols available for several farm animal species:
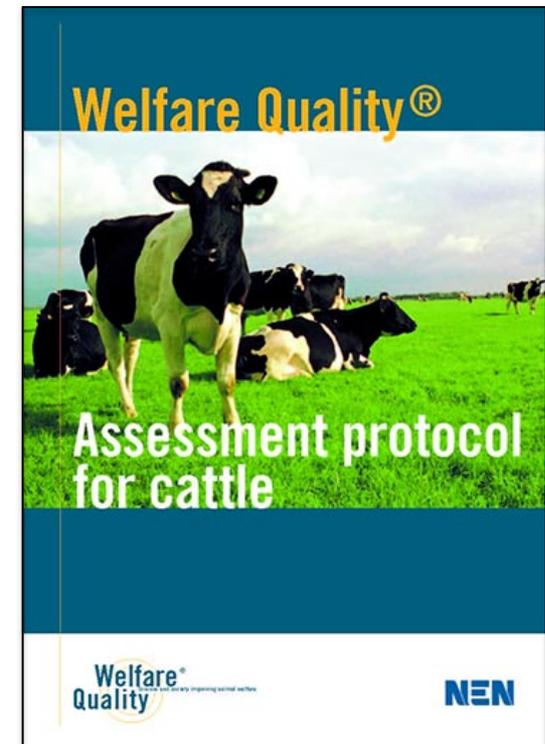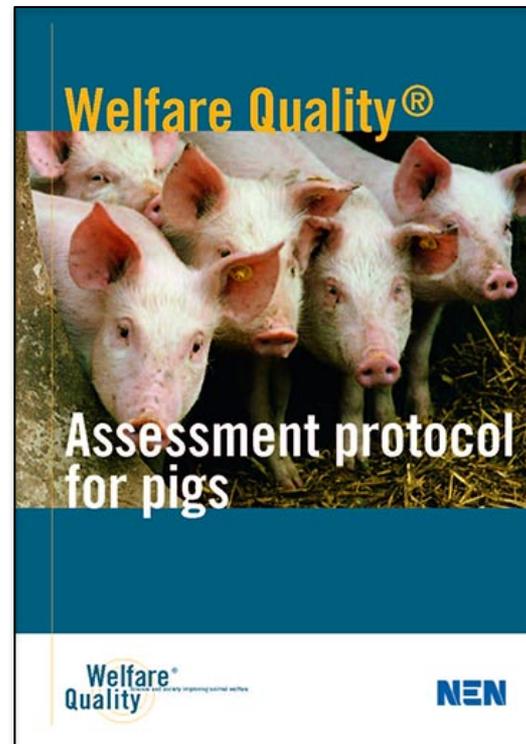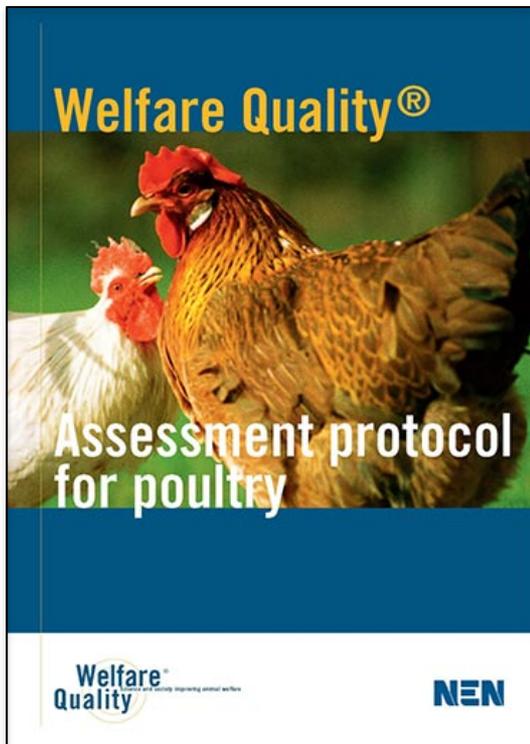
Welfare Quality®

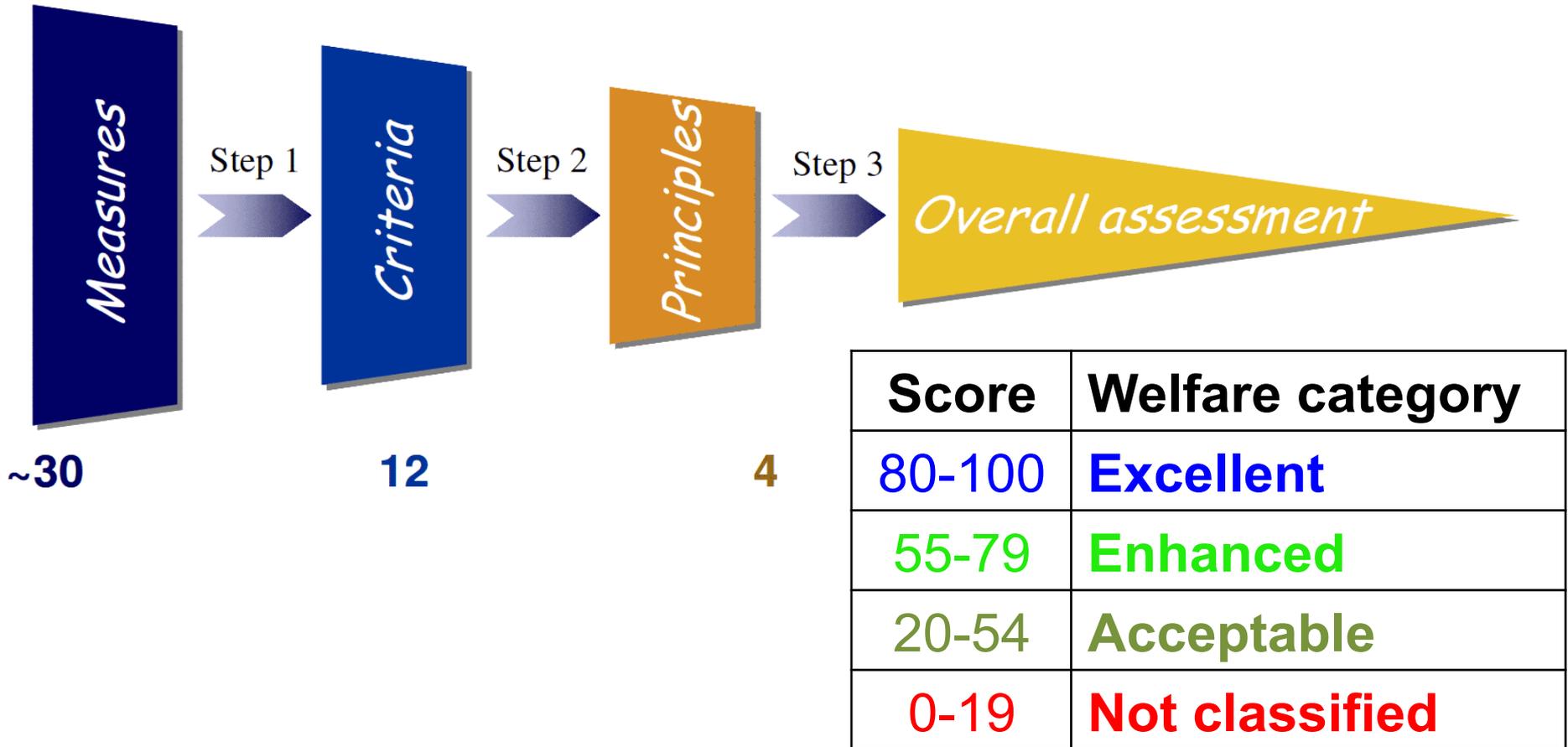- Freedom from hunger and thirst
  - measure the provision of **drinkers** rather than **drinking**

Score

Is the number of drinker places sufficient?

Yes → Are the drinkers clean?

- **Yes** → Are there at least 2 drinkers available for an animal?
  - **Yes** → 100
  - **No** → 80
- **No** → Are there at least 2 drinkers available for an animal?
  - → 60
  - → 45

No → Are the drinkers clean?

- **Yes** → Are there at least 2 drinkers available for an animal?
  - → 55
  - → 40
- **No** → Are there at least 2 drinkers available for an animal?
  - → 35
  - → 20

Welfare Quality®

- Scores for each category can be calculated

Measures → Step 1 → **Criteria** → Step 2 → **Principles** → Step 3 → *Overall assessment*

~30 · 12 · 4

Score	Welfare category
80-100	**Excellent**
55-79	**Enhanced**
20-54	**Acceptable**
0-19	**Not classified**

Welfare Quality®

- Different farms can be compared
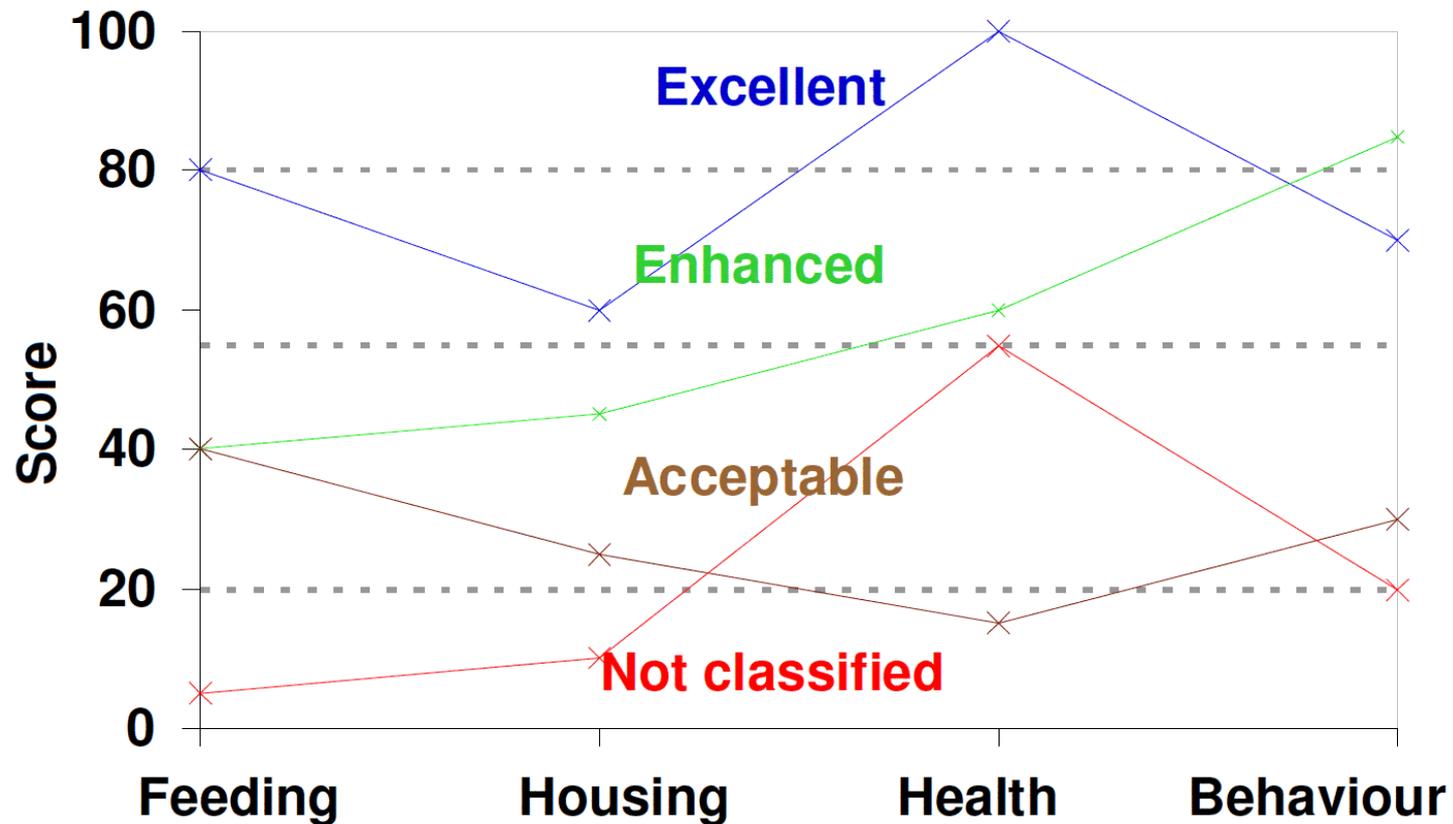
Examples of farms in the four welfare categories

Problems with the protocols

- Missing data can prevent completion
- Aggregated scores do not always help to indicate the most appropriate intervention
- Low inter-assessor reliability
- Time consuming
- Just a 'snap-shot' on the day of assessment
- Too little focus on direct animal measures
- Can PLF provide a better solution?

PLF as a welfare monitor?

- PLF can provide **continuous monitoring** of animal behaviour and the environment:
  - lying, standing and walking
  - rumination time
  - lameness and other diseases
- Can provide **animal-based measures** than can feed into new, continuous on-farm welfare assessment protocols

Welfare benchmarking?

- PLF provides objective data allowing farmer's to **benchmark** their animal welfare

- i.e. how are they doing compared with anonymous peers?

- Can provide both a **tool** and **motivation** to improve animal welfare

- Objective data for farm assurance programmes

Welfare in extensive systems

Hunger and thirst	✖
Discomfort	✔
Pain, injury or disease	✖
Normal behaviour	✔
Fear and distress	=

Hunger and thirst	✔
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Normal behaviour	✖
Fear and distress	=

Welfare in extensive systems

Direct welfare benefits

- Precision approaches can improve welfare:
  1. Freedom from **Hunger and Thirst**
  2. Freedom from **Discomfort**
  3. Freedom from **Pain, Injury or Disease**
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- Through monitored/controlled access to feed and improved disease detection

Hunger and thirst	✖		1.	Hunger and thirst
Discomfort	✔		2.	Discomfort
Pain, injury or disease	✖		3.	Pain, injury or disease
Normal behaviour	✔		4.	Normal behaviour
Fear and distress	=		5.	Fear and distress

Welfare in extensive systems

- A future concept: the '**virtual shepherd**'
- Collars monitor animal location and behaviour
- Animals learn to follow sound cues which lead them:
  - to fresh pasture (or other food rewards)
  - away from environmentally sensitive areas
  - towards shelter when bad weather forecast
  - with flock-mates to a handling area for veterinary treatment if disease/injury is detected
- Brings the benefits of intensive monitoring to animals in free-ranging extensive systems

PLF welfare risks?

- PLF is not meant to replace good stockmanship

- Indeed it should free-up time for the farmer, allowing them to spend more time with animals

- But there are risks:
  - Rather than spend more time with their existing stock, farmers simply buy more animals
  - Over reliance causes problems **when** PLF systems fail

- PLF systems need to be fail safe (and could even monitor farmer engagement/reliance?)

PLF welfare risks

- Is public attitude to 'factory farming' a risk?
- There is a risk of the **incorrect** assumption that:
  - *"PLF is all about the further intensification of intensive farming"* – **its not!**
- Recent evidence that this might be an issue:
  - Supermarket: *Whether cows milked by robot?*
  - Welfare charity: *Surely PLF will intensify production at the expense of animal welfare?*
- The public needs **reliable information** about the welfare benefits and risks

Getting the message across
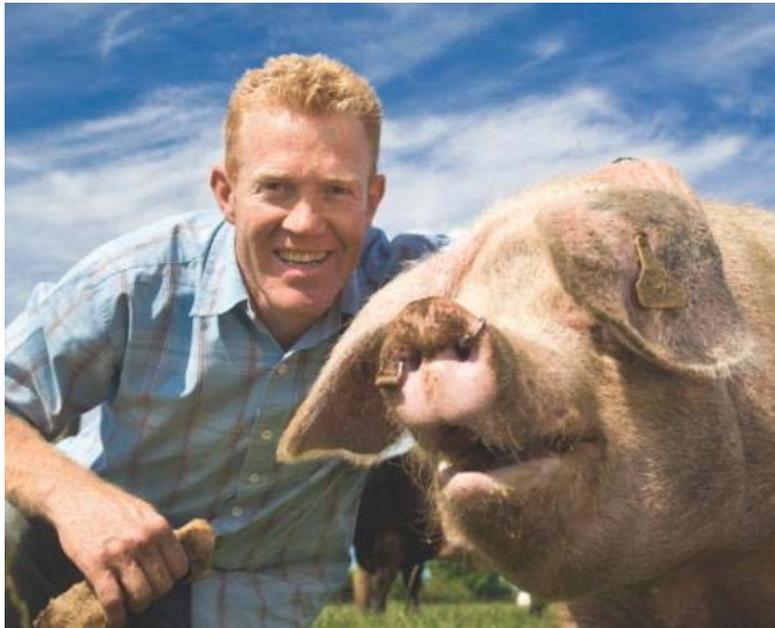
'Responsible' media

Supermarkets?

Welfare summary

- PLF is already improving animal welfare
- PLF has the potential to:
  - provide continuous welfare assessment and/or benchmarking
  - improve welfare in extensive production systems
- Need to mitigate against welfare risks
- Need to ensure public receives reliable information about the welfare benefits of PLF

Environmental benefits

- Precision farming:
  - Gathering and processing **information** to improve the **precision** of resource management
  - i.e. doing more with less
- Whilst the primary driver for adoption is financial…
- … "**it goes without saying**" that more efficient production is better for the environment:
  - less pollution
  - produce more food from the same area of land

Feed Conversion Ratios
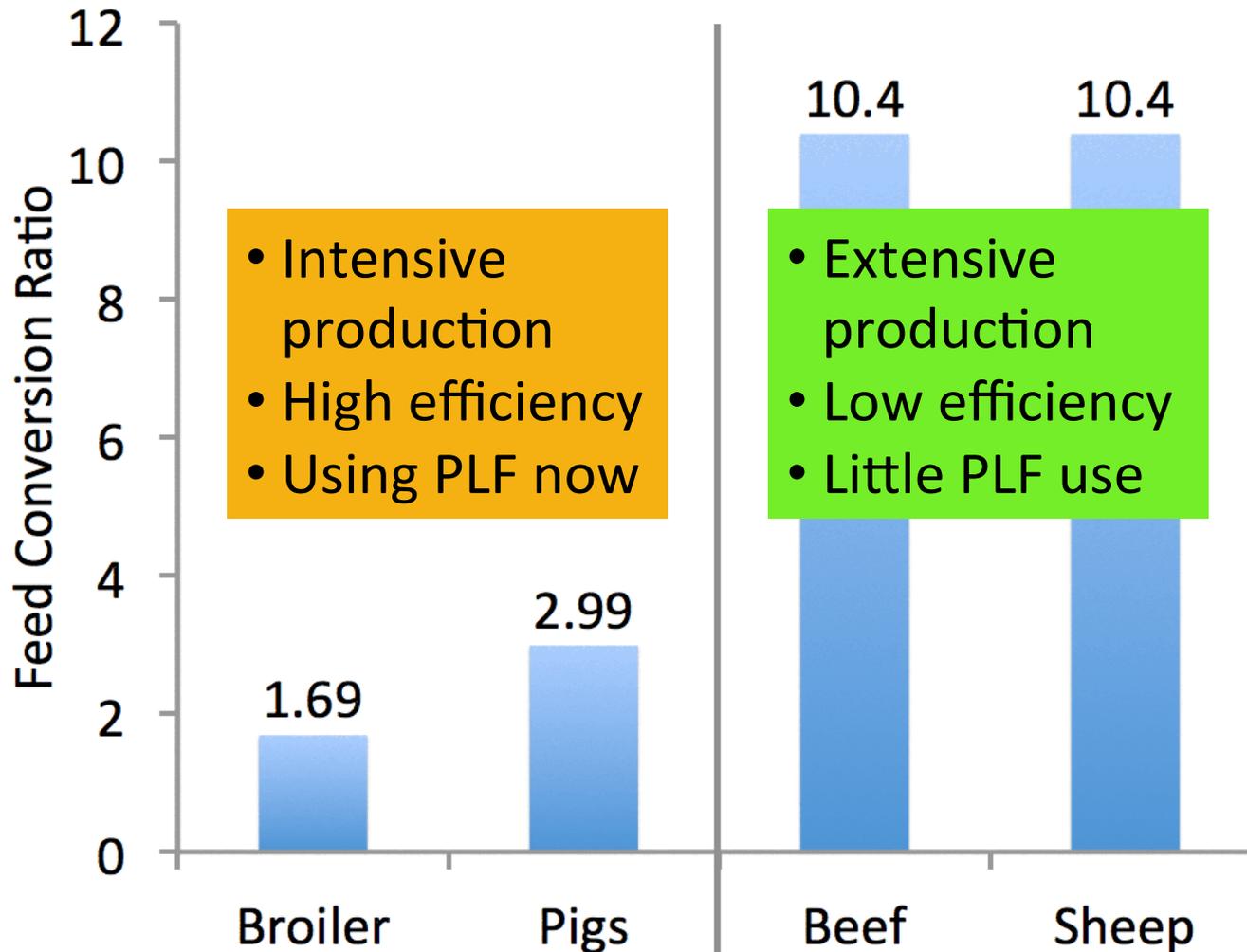
FCR data: Tolkamp *et al.*, 2010

Improving extensive efficiency

- Considerable scope for the application of PLF in **extensive** production

- Not to make it more intensive, just more **efficient**

- Could also use technology to help manage and monitor the effectiveness of **agri-environment** schemes

- e.g. unmanned aerial systems monitoring grazing

Summary

- Precision livestock farming is already benefiting animal welfare and the environment

- More research/development needed on:
  - automatic welfare monitoring/benchmarking
  - PLF for managing extensively reared livestock

- Need to avoid the public taking a negative attitude towards PLF due to misinformation

Thank you

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