Extensive or easy-care management systems for sheep flocks – a contradiction in terms?

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Relevance to session theme -

- How can we match the behavioural traits of sheep managed in extensive systems with high levels of animal welfare?
- Are the terms low-input and extensive interchangeable?
- Are extensive systems low-management systems?

Background for addressing this potential contradiction -

- Project on the economics, husbandry and welfare of sheep in extensive flocks in the UK
- On a number of occasions the possibility of moving to use easy-care sheep has been raised
- Through farmer focus groups an awareness of the significant input required for successful management of extensive sheep flocks

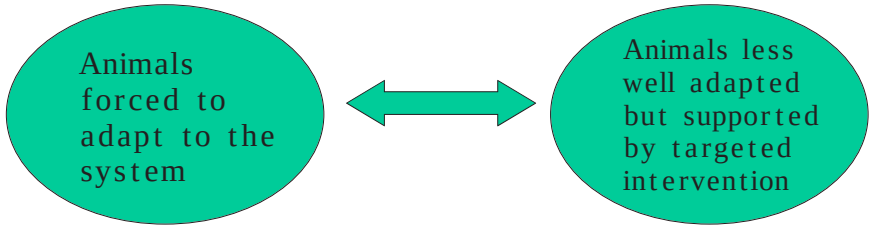
UK Hill Sheep Flocks

- Use a combination of fields and semi-natural pasture (hills)
- For many systems sheep remain on the open hill throughout the winter
- Some lamb on hill, fields or in sheep housing
- Little daily shepherding, with breeds adopting dispersed grazing patterns
- Human Interaction at gathering for animal health treatments, at stock draws and lambing

Summary points we wish to consider

- Human-animal interactions: a crucial interface in animal management
- In extensive systems there is less opportunity to habituate the sheep to humans
- Human intervention has a particularly important impact at lambing time
- Animals chosen for extensive systems should have good survival traits
- Appropriate intervention reduces ewe and lamb mortality for genotypes with poorer survival behaviour
- Easy-care systems may have animal welfare costs until selection has been successfully achieved
- Alternatively systems could rely on targeted human intervention to support well-adapted genotypes
- High standards of animal welfare require significant management inputs which should focus on key events

Options for extensive sheep systems



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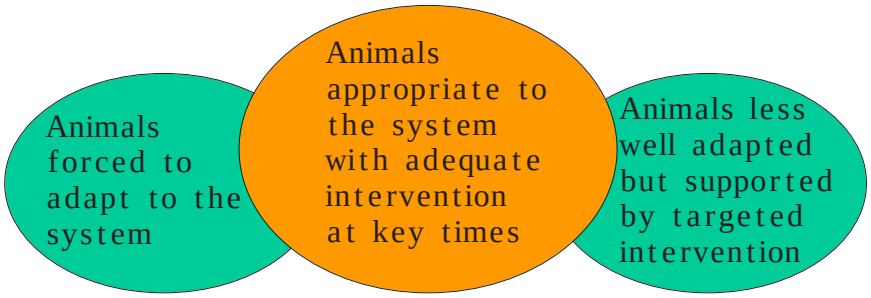

What is the public perception of welfare of animals in extensive systems?

- Naturalness
- Freedom to engage in a wide range of behaviour exhibited by wild relatives
- Considerable opportunity for poor health or compromised welfare
- Danger of miscommunication of the reality

Why should we be concerned about animal welfare?

- Animals considered sentient beings (able to experience) and so should be treated with some degree of respect
- Most people inherently sympathetic to animals
- Increasingly a welfare-friendly label increases product value and Quality Assurance Schemes require animal welfare components
- If we move to more extensive systems, does the level of input delivered by stockpersons equate to easy-care and does the level of animal welfare change?

Specific issues for extensive systems

- Infrequent human contact / lack of supervision
- Climate and nutrition
- Disease pattern and veterinary care
- Predation and neonatal survival
- Transportation and slaughter

Human-animal interactions (1)

- Standard view is that labour is biggest cost in sheep systems
- and retaining skilled labour is difficult
- if reduce labour, avoid production loss, then profit increases
- therefore reduce human - animal interaction?

Human-animal interactions (2)

- Growing body of knowledge about H-A interactions
- The work of the stockperson is made easier by animals which are easy to handle
- Is there a relationship between animals which are easy to handle and their survival traits?
- Breed differences in responses – more later
- Handling animals to undertake zootechnical tasks will probably be aversive to the sheep based on actions for ectoparasite control.....

Animal welfare considerations

Action	
Gathering – physical strain on sheep	2.6
Putting sheep through a race	2.6
Gathering – strain put on sheep by dog/bike/shepherd	2.2
Putting sheep through a race and applying pour-on	2.3
Putting sheep through a race and injecting them for disease control	3.0
Catching sheep in a small pen and applying pour-on	2.9
Catching sheep in a small pen and injecting them for disease control	3.2
Putting sheep through a modern dipper that requires minimal man-handling	3.2
Putting sheep through a dipper that requires considerable man-handling	4.3

What stockpersons do

- From our focus groups of farmers in four hill / upland areas we tried to identify the various actions undertaken
- It is clear that, even in extensive flocks a lot of actions are carried out and that the level of sophistication that many farmers adopt to manage lambing is quite high.
- These activities are a long way from easy-care
- We will also present a broad-brush view of some of the problems experienced

Critical risk periods

- Lambing
- Predation risk
- Stormy weather
- High disease risk / prevalence

Pre-lambing:

Providing supplementary feed	4-12 weeks before lambing
Percentage of day spent feeding sheep	24%
How are ewes grouped for lambing?	Scan and divide – 57% Age group – 17% Scan and divide part of flock – 11% Condition score – 9%
Veterinary treatments prior to lambing	Worm drench – 46% Vaccination – 48% Fluke – 26% Vitamin drench – 9%
Main causes of ewe deaths prior to lambing	Staggers – 48% Pre-lambing complications – 30% Prolapse - 17% Old age / poor condition – 15% Toxaemia – 7%

Maternal behaviour: Nutritional effects

- Ewes fed high (H: requirements) or low (L: 65% rations fed to H ewes)
- Weight change: H = +2.8 kg, L = -3.4 kg
- Maternal grooming in first hour after birth: H = 45 mins, L = 34 mins
- Rejecting behaviours: H = 6.7%, L = 17.2%
- High maternal attachment scores: H = 61%, L = 38%

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Lambing:

Where do you lamb?	Indoors – 46% Outdoors – 46% Part indoors – 8%
How often are groups of ewes inspected each day?	Inside: 3.5 x – all day Field: 2.4 x – every hour Hill: 1 x – all day
How many people at lambing time?	2.4
Percentage of day spent on different tasks	Checking sheep – 45% Bedding pens – 20% Moving stock – 11% Mothering up – 10% Feeding ewes – 7% (Dealing with cattle – 7%)
Was the vet called in or consulted?	Yes – 72% (Caesarean; other lambing problems; prolapse; health plan; abortion)

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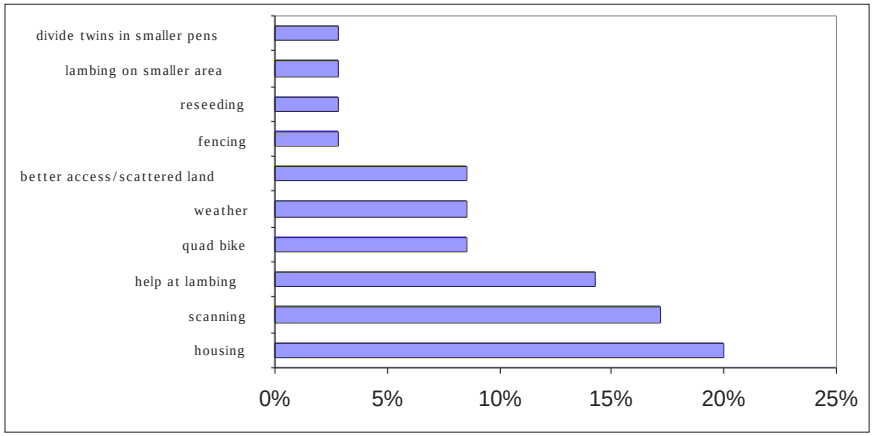
Lambing: improvements to system / facilities to make lambing easier



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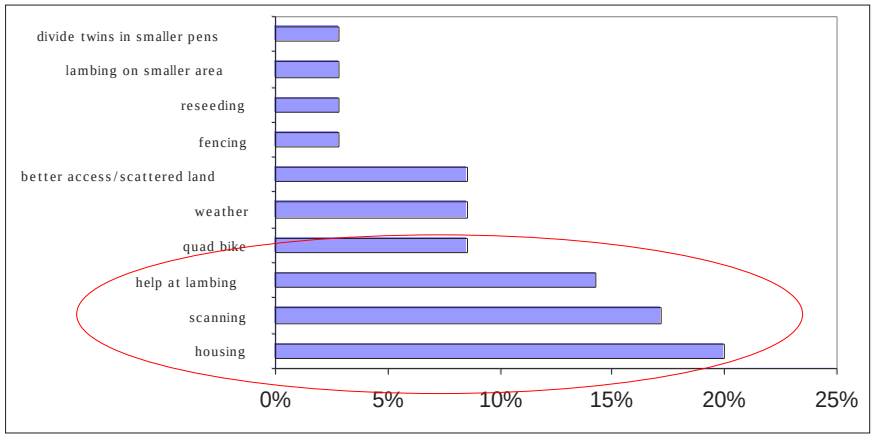

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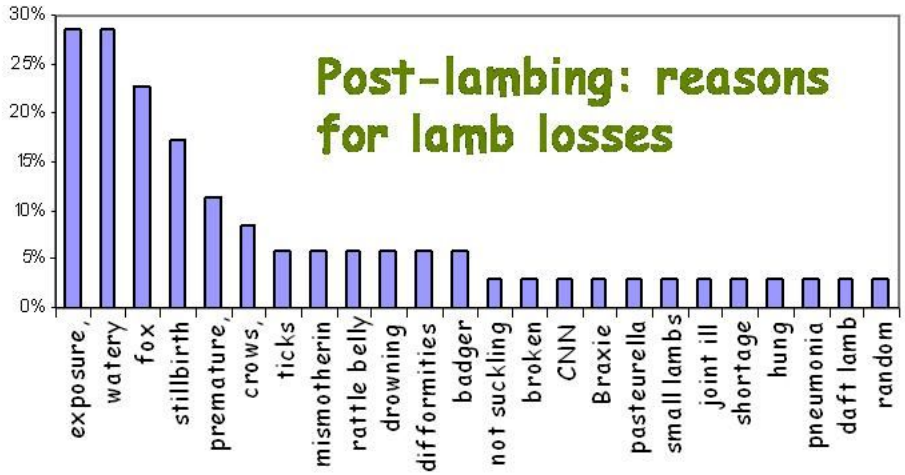


Use of additional labour at lambing

Additional labour would be used for:	Check, feed, more attention, condition scoring, night checks, (less time with cows)
Could you cope with less labour?	Yes - 20%; No - 80%

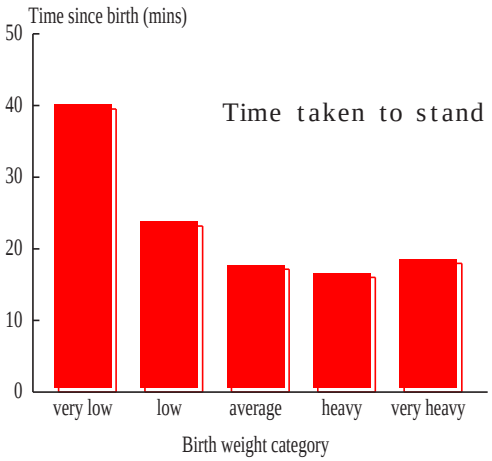
Perception of the sheep of intervention at lambing time

- Since farmers wish for more intervention at lambing, how does stockperson activity impact on the sheep?
- Suggestions that genotypes requiring higher levels of intervention at lambing require greater habituation to man to minimise potentially detrimental effects of intervention.
- There is little clear evidence that shepherding ensures easy births or an effective ewe-lamb bond – but neither is there clear evidence that shepherding is harmful!

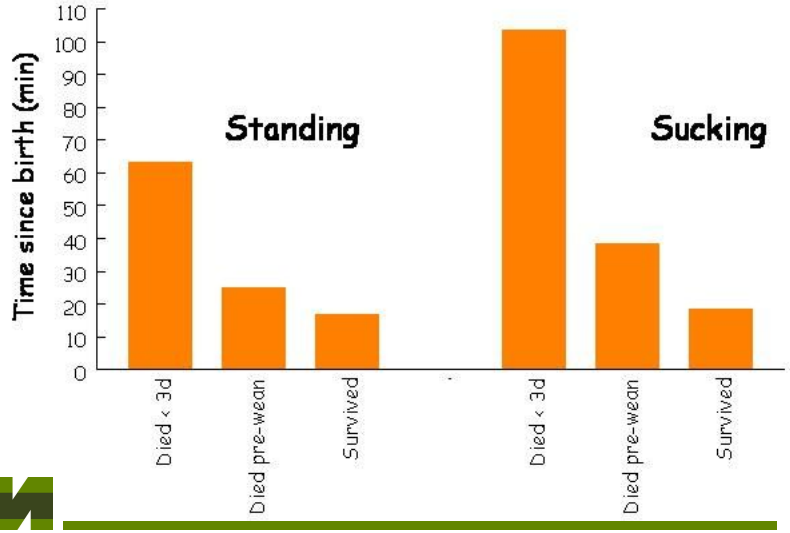
Management contributions to lamb survival

- In terms of extensive flocks, nutrition may be less well regulated: even a moderate level of undernutrition impairs the ewe-lamb bond
- Low birth weight lambs may not show normal behavioural progress which could impact on their survival

Lamb behaviours: Prenatal nutrition effects



Lamb behaviours and survival

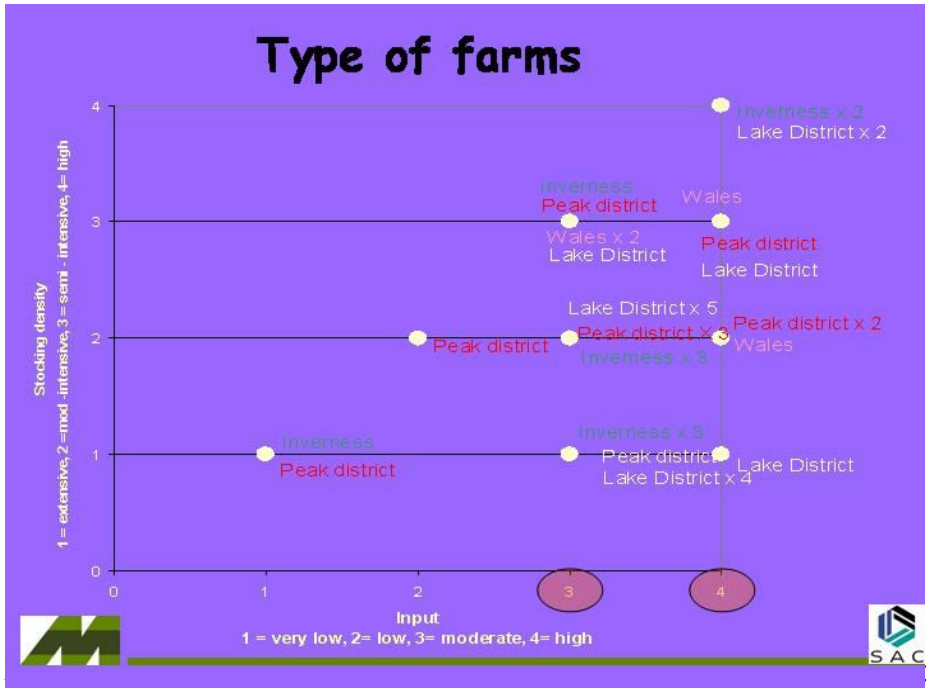


What constitutes easy-care?

- Self-sufficient sheep / systems?
- How do we get there – are there problems along the way?
- Can we adapt breeds and systems at the same time?

- Looking first at systems.....

Type of farms



Selecting breeds to suit both the environment and management system

- A number of studies have indicated a genetic base for animals' reactions to humans
- Selection should consider the interaction between breed and local husbandry conditions
- Different breeds show different inter-animal characteristics which may favour survival

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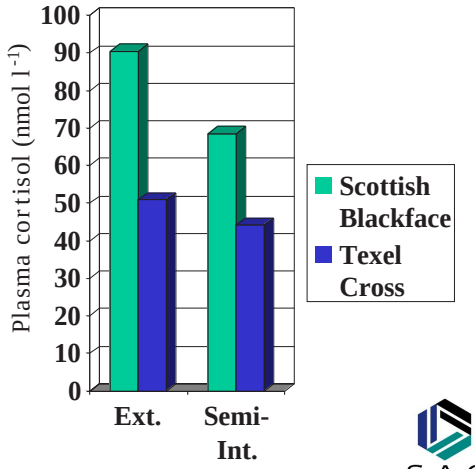
The importance of knowledge of breed differences

Mean plasma cortisol concentrations of lambs, following testing in an open-field arena in week 1 post-weaning.

Different management regimes (Extensive - Ext.; Semi-intensive - Semi-Int.) applied from birth to weaning.

Significant effect of genotype ($p<0.01$) but not management.



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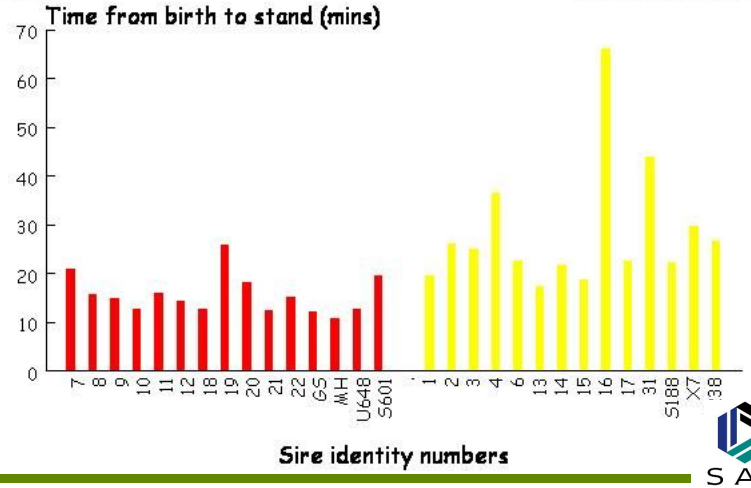
Lamb behaviours: Genetic effects



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Developing a hierarchy of welfare needs

One view is that sheep will rank different welfare compromises according to their needs

Physiological

Safety

Behavioural

How do sheep see their world?

(Based on Curtis, 1987)

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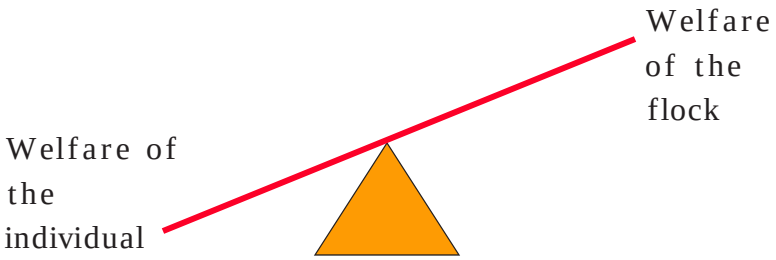
Remember that welfare is to do with the individual



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What problems are there for the shepherd?

- How to deliver the necessary individual care which is appropriate – reduction in the opportunity for positive H-A relationship to develop in extensive systems
- Lack of habituation may cause animals to react more strongly to close human proximity
- Increases stress and the risk of injury during handling...and reinforced fear of humans

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Key issues to emerge from an expert workshop

- Lameness and foot problems
- Ectoparasites (scab specifically identified)
- Lamb survival
- Stockperson effects (supervision of stock in general and at lambing in particular)
- Nutrition
- Adequacy of facilities and equipment

What solutions are possible?

- Selection of animals that show good survival traits, are resistant to disease and react less strongly to close human proximity
- Develop handling procedures which reduce potentially negative experiences
- Skilled stockpersons and well-designed handling facilities
- Reduce direct contact with humans and stressful handling procedures
- Selection of stockpersons with appropriate characteristics

Matching welfare and profit

- From some of our farmer focus group exercises it appears that when asked to plan systems on alternative welfare or profit priorities, farmers allocated core inputs of feed and animal health in a similar way
- Welfare prioritised systems had extra labour (eg casual labour at lambing) and veterinary input.
- Tendency to put additional resources into labour rather than feed

Why do farmers adopt more welfare-friendly policies ?

- Products attract a higher price

- Penalised for not adopting such policies

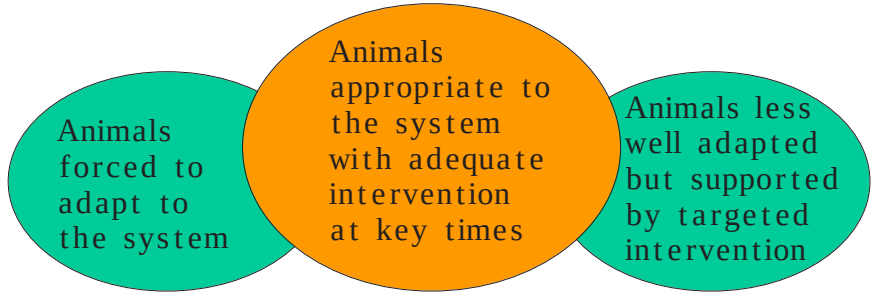
- Because they believe in the system

After Ritson, 1997

Approach for the future: bringing our arguments to a conclusion

- Systems approach – breed and management
- Improvements "within" specific systems
- Identification of specific weaknesses which need support
- Proactive rather than reactive management
- The role of the stockman: human - animal interactions
- Technology transfer

Options for extensive sheep systems



To answer our opening question:

Extensive or easy-care management systems for sheep flocks – a contradiction in terms?

YES!

There is nothing easy about the extensive management of sheep. As our farmer focus groups indicate, this requires a high degree of stockmanship and the ability to proactively manage a flock whose genotype has been carefully selected to fit it for a particular environment.

Acknowledgements

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