Module 2

Welfare assessment and the Five Freedoms
動物之五大自由與動物福利
費昌勇譯

Learning objectives

• To understand the concept and potential uses of the Five Freedoms 了解五大自由的觀念與用法
• To understand the difference between factors affecting welfare (inputs) and actual welfare performance (outcome) 了解對動物的管理方式與實際之福利結果
• To use the Severity, Duration, Number affected (SDN) framework to quantify welfare 深度，時間，與數目的定量法
• To appreciate that science can provide information on the severity of welfare problems (but not the acceptability) 了解科學對探測動物福利問題(但非可接受度)深度的功用

Summary of content

• Five Freedoms 五大自由
• Welfare factors 動物福利判定因子
• Quantifying welfare 動物福利量化
• Assessing significance 評估意義

Assessing human welfare

How are you feeling at the moment?
目前你們的感受如何

Welfare continuum

Good
• Fantastic
• Pretty good
• Reasonable
• OK
• Not good
• Miserable
• Terrible

Poor

Why?

Poor
Good

Chair comfort
Hungry
Hot / cold
Work
Social life
Overall
Animal Welfare criteria

Animal quality of life = Five Freedoms

Five Freedoms = Animal welfare

Are all Freedoms equally important?

How important are the Five Freedoms?

Motivation towards the Five Freedoms

- The council (Farm Animal Welfare Council) believes that the welfare of an animal should be considered with reference to ‘Five Freedoms’.
- Freedom from hunger and thirst
- Freedom from discomfort
- Freedom from pain, injury and disease
- Freedom to express normal behaviour
- Freedom from fear and distress

(Farm Animal Welfare Council UK, 1993)

In your opinion how much importance should be placed on providing animals with the Five Freedoms?

Producer attitude (344 farmers) – questionnaire distributed by Tesco plc

- In this survey more than 80% of UK farmers thought that all Freedoms were of great or extreme importance. 80%英國農民認為很重要或極度重要
- This proportion will be different for different groups of users and different countries. 不同國家與團體看法不一定相同
- Even in the surveyed population, with reportedly high motivation, there are significant welfare problems. 即使被調查的對象中也有嚴重動物福利問題
- For example, in the UK 20% of dairy cattle are lame, and lamb mortality is more than 20%. 如英國有20%跛足, 苜蓿死亡率>20%
Five Freedoms conflict 五大福利的互相衝突
• Freedom from disease conflicts with (免於疾病與)
  – Fear from handling during treatment (治療時的保定)
• Freedom to express normal behaviour conflicts (表現自然行為)
  – Distress during normal social interactions (正常社
    會互動時發生之挫折沮喪)

All farming systems restrict normal behaviour 所有動物農場都會限制正常行為

Restriction of ‘normal’

Obvious - farrowing crates

Not so obvious - cubicle surface

Cubicle surface and lying time

% time spent lying

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<th>Rubber mat</th>
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Significance of Freedoms

• Consensus amongst scientists and politicians in many
countries – welfare should be considered in terms of
the Five Freedoms 政治家與科學家有五大自由之共識

• The Freedoms give an initial indication of what should
be assessed and what should be provided to animals五
大自由提供了評估方向與概念(但並非科學上的最低要求標準的量化)

• It does not define the minimum standards as it is
extremely difficult to always provide all the Freedoms五
大自由並非最低要求標準，因為並非隨時可提供五大自由，只是開始

Inputs (indirect parameters)

STOCKMAN e.g. training

ENVIRONMENT e.g. housing / diet

ANIMAL e.g. breeding

Outputs (direct parameters)

Animal-based measures e.g.:

Body lesions / condition

Lameness

Hock lesions
Five Freedoms & welfare inputs/factors

- Freedom from **hunger & thirst** by ready access to fresh water and a diet to maintain full health and vigour 藉著提供水與食物
- Freedom from **discomfort** by providing an appropriate environment including shelter and a comfortable resting area 藉著提供適當的環境
- Freedom from **pain, injury and disease** by prevention or rapid diagnosis and treatment 藉著提供診療
- Freedom to express **normal behaviour** by providing sufficient space, proper facilities and company of the animal's own kind 藉著提供設備
- Freedom from **fear and distress** by ensuring conditions and treatment which avoid mental suffering 藉著避免心理的受苦以確保條件與

Examples of welfare factors

- **Stockman** 同理心, 知識, 觀察技巧
  - Empathy, Knowledge, Observation skills
- **Environment** 房舍, 床鋪, 飲食品質, 水供應
  - Housing, Bedding, Feed quality, Water provision
- **Animal** 整個系統適當的品種, 年齡, 性別
  - Suitable breed, Age and Sex for the system

Quantifying severity

- **Behaviour** 行為
  - e.g. fearfulness 如: 恐懼
- **Disease** 疾病
  - e.g. lameness, pneumonia 如: 跛足, 肺炎
- **Production performance** 生產表現
  - e.g. growth rates 如: 生長速率
- **Physiology** 生理
  - e.g. heart rate, cortisol 如: 心跳, 壓力素

Common framework for quantifying problem

- **Severity** 嚴重性
- **Duration** 持續性
- **Number affected** 數目

Severity example

How severe is the social isolation of sheep? 社會性離群造成的嚴重性
Severity example (contd.)

(Baldock & Sibly, 1990) 羊是 flock animals 離群會焦慮

Spatial isolation 空間隔離 Visual isolation 視線隔離

Vocalisations a minute 每分鐘 呼叫次

Heart rate increase (beats/min)

Duration example 舉例說明持續性

For how long are sheep sensitive to pain after a lameness episode?

Sheep lameness 舉例說明持續性

Threshold stimulus (N)

Normal (Not lame) Lame (After 3 months)

Example: At any one time, how many animals are lame?

Example: Confinement in farrowing crates 同時測量SDN之例子

15% * 22% * 26% *

* UK figures

Example: Confinement in farrowing crates 同時測量SDN之例子
Severity: Nest building distress

- Cortisol levels:
  - Baseline: 20 ng/ml
  - During farrowing: 60 ng/ml

Duration: Avoidance of piglets

- Cortisol levels (nmol/l):
  - Days after farrowing:
    - 1: 6 nmol/l
    - 7: 4 nmol/l
    - 14: 2 nmol/l
    - 21: 2 nmol/l
    - 28: 0 nmol/l

Farrowing crate

- Severity:
  - Restrict freedom to move around
  - Restrict freedom to nest build
  - Restrict freedom to avoid the piglets

- Duration:
  - 3-4 weeks

- Number affected:
  - Most indoor sows in intensive systems

Intrinsic issue

- Farrowing crates are a significant welfare issue for the sow but are used throughout the world
- Why?
  - Currently considered intrinsic (unavoidable) in commercial indoor pig production
  - i.e. Benefits for piglets and production > Costs to the sow

SDN example: Cattle in poor condition

- Severity:
  - How thin are the cows (e.g. Body condition score)?

- Duration:
  - How long have the cows been thin?

- Number affected:
  - How many cattle are thin?

Conclusions / Summary

- Welfare can be assessed systematically
- Five Freedoms are a useful initial indication
- Welfare factors / inputs can also be assessed
- Severity, Duration and Number affected can quantify problems