UNIT 11 FREEDOM TO EXPRESS NORMAL BEHAVIOUR

Structure

11.1 LEARNING OUTCOMES

a) **Knowledge and Understanding:** After studying this Unit you will be able to:

- Understand the concept and definitions of normal behaviour.
- Outline the main ways that normal behaviour can be assessed and provide examples of how animal welfare has been improved by consideration of normal behaviour assessment methods.

b) **Practical and Professional Skills:** After studying this Unit you will be able to:

- Discuss how abnormal behaviour is linked to animal welfare with scientific rationality.

11.2 INTRODUCTION

Dear Learner,

In Units 8-10, we discussed the first three Freedoms, and the means to achieve them as follows:

- Freedom from hunger, thirst and malnutrition - by ready access to water and a diet to maintain full health and vigour.
- Freedom from discomfort – by providing an appropriate environment.
- Freedom from pain, injury and disease – by prevention or rapid diagnosis.

In this Unit, we will consider the fourth of the Five Freedoms i.e *Freedom to express normal behaviour – by providing space, facilities and company of species* *own kind*. In the following sections, definitions of each of these states will be provided and discussed. Major issues involved in normal and abnormal behaviour are reviewed along with the most appropriate methods for assessing these states. A case study is provided to illustrate how a scientific understanding of the underlying problem has led to a solution.

11.3 NORMAL BEHAVIOUR

11.3.1 Concepts and Definitions

As noted in Unit 7, the modern understanding of *'Freedom to Express Normal Behaviour'* is that animals should be able to perform:

- Normal behaviours for its species
- Normal standing and lying movements
- Normal social behaviours, play, grooming, and
- Any species specific responses.

The concept that natural behaviour is important and that restriction of its performance causes suffering goes back to the early days of interest in animal welfare. A key point of debate has been whether good animal welfare can be achieved by providing animals with all their basic requirements (e.g. acceptable environmental parameters, nutrition) or whether, in addition to achieving these, animals need to be able to perform some or all aspects of their possible behavioural repertoire. Some might claim (e.g. under a naturalness view of animal welfare) that an inability to perform all normal behaviours, by definition compromises welfare. However, a more mainstream view would be that it needs to be experimentally established whether particular behavioural restrictions impair welfare.

This freedom is the only one of the five that represents a freedom "to" rather than a freedom "from". This distinction makes this freedom more ambiguous than the others since it does not demand that a specific negative state is avoided, and therefore the fulfillment of this freedom can be more controversial and open to debate. Despite such limitations, this freedom does capture important aspects of welfare missing from the others; for instance, that satisfying this freedom can actively lead to experiences of positive welfare, rather than simply the avoidance of welfare impairments.

11.3.2 What is Normal Behaviour?

Animal welfare researcher Marek Špinka defines natural behaviour as

> "*those behavioural elements and their sequences that are adaptive, i.e. that have evolved either during the evolution of the species or during its domestication "in order" to increase the fitness…of the behaving animal*"

This definition highlights that an important first step in assessing the role of 'normal' behaviour in animal welfare is to compare behaviour of captive animals with wild conspecifics, or – for domesticated species – with related / ancestral species in the wild (where this is possible). However, even where such comparisons are possible it is too simplistic to presume that deficits in captive animal behaviour imply a welfare problem. Wild animals are flexible in their behaviour, meaning that different behaviours or time budgets may be seen when species live in different habitats, and within a species individual animals may achieve the same functional results via different behavioural routes. To further investigate this issue requires some further understanding of the behaviour in question; this would include establishing the function of the behaviour and the nature of its control.

Example: The relative importance of internal and external factors in driving the behaviour.

Some behaviours may not be required if the animal is provided with a relevant resource.

Example: Animals probably do not need to perform search behaviour for water to drink if they have a suitable provision of water in their home pen.

The key is in identifying behaviours where motivational importance to the animal is high, even when the end product of the behaviour is satisfied– as opposed to stimulus-driven behaviours where in the absence of the stimulus no motivated drive to perform the behaviour is experienced.

Example: Wallowing behaviour in pigs is only seen above certain temperature thresholds – so not providing conditions that allow wallowing is only a problem if those thresholds are regularly exceeded.

Broadly speaking, there are three important aspects of housing or husbandry relating to normal behaviours:

- Space
- Resources, and
- Social composition.

Let us discuss them briefly:

1) **Space**

For many animals, particularly those kept under intensive farming conditions, a significant limiting factor on the display of natural behaviour can be space. However, limited space can be an issue for laboratory, companion and wild captive animals too. Indeed, issues relating to natural behaviour may be most acutely felt where human intervention has resulted in wild animals being maintained in captivity, e.g. as part of a Zoological collection.

2) **Resources**

In addition to basic requirements for space, animals often require specific resources to fulfill particular behaviours.

Examples: In animal welfare science examples include the use of a water bath by farmed mink or access to substrates that allow dustbathing behaviours in poultry.

More generally it is widely appreciated in animal welfare that many animals also need opportunities for exploration or environmental interaction. The absence of this can lead to abnormal behaviours and other welfare problems.

3) **Social Environment**

Perhaps one of the most critical aspects of provision in the captive environment is providing an animal with an appropriate social environment. Yet, in many situations for farm, companion, laboratory or wild / zoo animals the social environment may be highly inappropriate.

Example: Isolation from other animals or frequent alteration of group composition.

These contexts may therefore limit the performance of normal social behaviours – for instance, in general terms for isolated animals, or in specific terms when limitations on normal reproductive or maternal behaviours are imposed.

Before we proceed, please complete activity 1.

Activity 1 (Visit & Discussion): Visit a nearby Zoo and discuss with the authorities about Space, Resources, and Social composition aspects of housing or husbandry relating to normal behaviours and associated animal welfare issues. Compare them with the discussion in the above section and write your observations.

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Check Your Progress 1

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1) Write the normal behavioural functions that animals should be able to perform under 'Freedom to Express Normal Behaviour'

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2) Why is 'Freedom to Express Normal Behaviour' ambiguous, more controversial and open to debate than the other Freedoms?

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3) Define natural behaviour

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4) What are the three important broad aspects of housing or husbandry relating to normal behaviour?

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11.4 ASSESSMENT OF NORMAL BEHAVIOUR

The assessment of animal welfare in relation to performance of normal behaviour has mostly focused on two main approaches:

1) Assessing the consequences of not being able to perform a specific behaviour.
2) Experimentally quantifying the motivational important of access to conditions which allow the performance of behaviour.

Under conditions where a behaviour cannot be performed (for instance, if it requires a particular environmental resource) animals may show no alteration to their behaviour or physiology, suggesting that the absence of the behaviour from their repertoire is trivial. Alternatively, such conditions may cause clear and substantial alterations to behaviour and physiology. Changes to behaviour can include signs of frustration or re-directed attempts to perform the behaviour (for example when piglets 'belly-nose' other piglets as a re-directed form of the normal behaviour they would perform on the sow to stimulate milk let-down). Abnormal behavioural responses can also include things like stereotypy or displacement activities.

A complementary approach to such assessments is the use of various behavioural choice / preference / motivational test paradigms that allow animals to behaviourally report on the strength of their preferences, or the strength of their motivational drive to perform a specific behaviour. Various such approaches exist but the common element is that experimental set-ups are used that ask the animal to report on how important behaviours are to them e.g. where animals pay a 'cost' to access the conditions (e.g. simply more space, or specific resources) where the behaviour can be performed, e.g. by walking a long distance, pushing a heavy door, or by forgoing some other important resource.

11.5 ISSUES IN NORMAL BEHAVIOUR

11.5.1 Not all Normal Behaviours are Good

If taken literally this freedom would imply that animals should be able to perform all behaviours in their repertoire. However, as we have seen, individual behaviours appear to have varying importance to animals. In addition, there are two categories of normal behaviour that actively contribute to, or indicate, a welfare problem:

- The first of these can be called 'emergency' behaviours as outlined by Marek Spinka; these include behavioural reactions to challenge such as fear or pain responses. The performance of such behaviours is considered bad for animal welfare.
- The second category is behaviours that improve the life status (welfare) of the actor at the expense of the recipient.

The most obvious of these is aggression between conspecifics. Aggressive behaviours are normal for many species and are seen in the wild. However, this normal behaviour can be seen to occur at abnormal levels in some captive conditions, and whilst the welfare of animals that win aggressive encounters could be debated, there are unambiguous costs to welfare for animals that lose.

Before we proceed, please complete activity 2.

Activity 2 (Case Study & Visit):

a) **Case Study on Restriction to Normal Behaviour – Nest Building Prior to Giving Birth (Farrowing) in Pigs:** One good example of a restriction to normal behaviour which harms animal welfare is the case of nest-building prior to giving birth (Farrowing) in pigs. In the ancestral species, the Wild Boar, pregnant females are seen to perform nest building prior to farrowing. After detaching herself from her social group the sow gathers foliage from the surrounding environment and forms an enclosed nest within which she will give birth. For much of the domesticated history of the pig, sows were able to perform a rudimentary version of this nest building. However, in the latter half of the 20th century a new system for sow farrowing housing was developed: the farrowing crate, which is used to boost pig production by minimizing piglet mortality (e.g. from crushing by the sow) (Fig. 11.1).

Fig. 11.1: Farrowing Crate

(Source: https://infograph.venngage.com/p/188613/sow-farrowing-crates)

Farrowing crates greatly limit sow movements; sows are able to stand up and lie down but are not able to turn around, and have only limited forward and backward movement. This represents a space restriction, but also – during the period prior to birth – the highly restricted ability to perform even basic nest-building behaviours. Sows in crate will still attempt to perform nest-building behaviours, even in the absence of any substrate. In terms of behavioural control, nest building occurs in response to physiological changes in the sow, occurring at predictable times prior to birth, yet under wild conditions nest-building is variable and responses to environmental conditions (e.g. less effort made if aspects of natural terrain provide shelter) i.e. it is internally driven but shaped by the environment. Numerous studies have demonstrated that the restricted ability of sows to nest-build causes signs of behavioural distress and increased levels of various stress hormones.

The fuller understanding of the impact that this restriction has on sow welfare has led to increased interest in developing alternative systems, which do not restrict the sow's behaviour but which achieve acceptable levels of piglet mortality. Such work has led some countries – e.g. Norway, Sweden and Switzerland – to ban farrowing crates entirely, and within other countries has led retailers or farm assurance schemes to adopt 'free' farrowing alternatives to the crate.

b) **Visit:** Visit a nearby Pig Farm and discuss with farm manager about the utility of farrowing crates. Compare his / her view points with what you read in the above case study and write your remarks on the following:

i) How are farrowing crates restricting the normal behaviour of a sow?

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ii) Positive and negative aspects of farrowing crates on Sow welfare.

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iii) Positive and negative aspects of farrowing crates on Piglet welfare.

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Check Your Progress 2

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1) What are the two main behavioural approaches to assessing the effect of behavioural restriction on animal welfare?

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2) What are 'emergency' behaviours?

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3) How do farrowing crates boost pig production?

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11.6 LET US SUM UP

- The fourth of the Five Freedoms is f*reedom to express normal behaviour – by providing space, facilities and company of species own kind.*
- In *freedom to express normal behaviour,* animals should be able to perform: Normal behaviours of its species; Normal standing and lying movements; Normal social behaviours, play, grooming, and; Any species specific responses.
- A key point of debate has been whether good animal welfare can be achieved by providing animals with all their basic requirements (e.g. acceptable environmental parameters, nutrition) or whether, in addition to achieving these, animals need to be able to perform some or all aspects of their possible behavioural repertoire.
- This freedom is the only one of the five that represents a freedom "to" rather than a freedom "from". This distinction makes this freedom more ambiguous than the others since it does not demand that a specific negative state is avoided, and therefore the fulfilment of this freedom can be more controversial and open to debate.

- An important first step in assessing the role of 'normal' behaviour in animal welfare is to compare behaviour of captive animals with wild conspecifics, or – for domesticated species – with related / ancestral species in the wild (where this is possible).
- The three broad aspects of housing or husbandry relating to normal behaviours are: space; resources; and social composition.
- The assessment of animal welfare in relation to performance of normal behaviour has mostly focused on two main approaches: assessing the consequences of not being able to perform a specific behaviour, and experimentally quantifying the motivational important of access to conditions which allow the performance of behaviour.
- Emergency behaviours include behavioural reactions to challenge such as fear or pain responses. The performance of such behaviours is considered bad for animal welfare.

11.7 KEYWORDS

Abnormal Behaviour: Behaviour that either are not shown in the wild at all or at a different level to that in captivity and cause problems for humans, the animal or other group members.

Animal Behaviour: Refers to the physical expression of bodily movements that result from an internal drive or motivation.

Farrowing: It is a term specific to Pig that refers to the action of giving birth.

Natural Behaviour: This encompasses those behaviours shown by the species under wild conditions and at the same frequency, duration or intensity. It does not inlude those behaviours that are shown only in captivity but not seen in the wild or those shown at a level that differs from the wild.

Redirected Behaviour: Targeting of behaviour towards a group member due to the absence of a more appropriate target.

Stereotypical Behaviour: Repetitive, apparently functionless sequences of behaviour.

Stimulus-driven Behaviour: A behaviour that occurs as a result of a specific event or cue external to the animal.

Subjective Mental State: A conscious experience, which is only accessible to the individual experiencing it.

11.8 BIBLIOGRAPHY AND FURTHER READING

Millman, S. T. (2007). Sickness behaviour and its relevance to animal welfare assessment at the group level. *Animal Welfare* 16, 123-125

Špinka, M. (2006). How important is natural behaviour in animal farming systems? *Applied Animal Behaviour Science* 100, 117-128

Web resources

Information on laboratory rodent handling: https://www.nc3rs.org.uk/handling-and-restraint

Information on alternatives to farrowing crates:https://www.freefarrowing.org

11.9 SELF ASSESSMENT EXERCISES

1) Discuss the advantages and limitations of comparing behaviour of captive animals with wild conspecifics in assessing the role of 'normal' behaviour in animal welfare.

2) What is the role of space, resources, and social composition aspects of housing or husbandry relating to normal behaviour?

3) Discuss the two main approaches of assessing animal welfare in relation to performance of normal behaviour.

4) Not all normal behaviours are good. Comment

11.10 ANSWERS/HINTS TO CHECK YOUR PROGRESS

Check Your Progress 1

1) The normal behavioural functions under this freedom includes: normal behaviours of its species; normal standing and lying movements; normal social behaviours, play, grooming, and; any species specific responses.

2) This freedom is the only one of the five that represents a freedom "to" rather than a freedom "from". This distinction makes this freedom more ambiguous than the others since it does not demand that a specific negative state is avoided, and therefore the fulfillment of this freedom can be more controversial and open to debate.

3) Those behavioural elements and their sequences that are adaptive, i.e. that have evolved either during the evolution of the species or during its domestication "in order" to increase the fitness of the behaving animal.

4) The three important broad aspects of housing or husbandry relating to normal behaviour are : space; resources, and social composition.

Check Your Progress 2

1) The two main approaches are: Assessing the consequences of not being able to perform a specific behaviour, and ; Experimentally quantifying the motivational important of access to conditions which allow the performance of behaviour.

2) Emergency behaviours include behavioural reactions to challenge such as fear or pain responses. The performance of such behaviours is considered bad for animal welfare.

3) Farrowing crate system is used in sow housing to boost pig production by minimizing piglet mortality (e.g. from crushing by the sow).