

Scenario 1 - Current beef with current lameness levels

Score sheet

Welfare principles	Welfare criteria	<div><div>0 – Lowest level of welfare</div><div></div><div>Highest level of welfare – 100</div></div>	1st round	90% certain	90% certain	2nd round	90% certain	90% certain	
			score	lower bound	upper bound	score	lower bound	upper bound	
Good feeding	1	Provision and access to food. Animals should have appropriate access to the quantity and quality of appropriate foodstuffs for health and wellbeing.	50	40	85	50	40	85	85 Generally fine for young stock, although concentrate feeding may lead to discomfort and is unnatural. Suckler cows lose condition in winter. Some on crash diet. Combined with being pregnant and possibly outwintered. Wide range depending on how condition is managed. Monotonous diet. Not considering dairy mothers to be part of the beef system. Lameness will cause pain accessing food or grazing.
	2	Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing.	80	75	90	80	75	90	90 Generally OK. Contamination can be a problem. May have to wade through slurry to get to water. Lameness will cause pain accessing water.
Good housing	3	Animals should have comfort when resting.	50	30	75	50	30	75	75 Really hard to put a number on due to variety of systems. Huge range as depends on bedding quality, use of slats and stocking density indoors and, if outdoors, weather, pasture drainage, shelter from sun and wind.
	4	Animals should have thermal comfort being neither too hot nor too cold.	65	55	75	65	55	75	75 Similar comments as above. For suckler cows, depends on whether in or out-wintered. For all depends on pasture drainage, weather and shelter from sun and wind.
	5	Animals should have sufficient space to move freely.	65	50	80	65	50	80	80 Generally better than other species even when housed. Fattening cattle on slats can be highly stocked, but minority of cattle for only part of the year. All cattle have less space than natural.
Good health	6	Animals should be free from injuries and disorders (e.g. skin conditions, lameness, bone fractures etc.).	60	50	85	60	50	85	85 Valuable animals that are generally treated more promptly than other types of stock. In my experience, lameness of scores 2 or 3 is already around 2 or 3% in suckler cows and less in calves and fattening cattle. However, assumed the prevalence in the Tunstall references are correct here. Poor gait from overgrown hooves occurs. Dystocia might be regarded as a 'condition' but dealt with in 8 as its partly a result of management decisions.
	7	Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene.	70	65	75	60	55	65	65 Parasitism can be a problem - fluke, ringworm... Some significant endemic diseases may be perceived as suffering - BVD, Johnes, pneumonia, leptospirosis... Lack of colostrum intake is serious problem and may cause calf suffering from poor immunity. Gastric problems from concentrate feeding and nitrates might cause suffering in fattening cattle. Hygiene can be poor.
	8	Animals should not suffer pain - for example as a result of poor management, handling, surgical or other procedures, slaughter etc.	35	25	50	45	35	60	60 Dystocia is common and likely to be painful. Caesareans common in some breeds. Castration and ear tagging are routine. Dehorning, disbudding and branding are painful. Non-stun slaughter (1% of cattle) will result in extreme suffering. Lameness will be painful, especially if untreated. Poor handling (hitting, falling) likely to cause pain.
Appropriate behaviour	9	Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding).	50	45	75	50	45	75	75 Frequently regrouped. Space limited when housed to avoid aggression. Competition at feedface. Early weaning, especially for dairy bred calves. Social interactions will be constrained by lameness.
	10	Animals should be able to express other normal behaviours (e.g. foraging, exploring).	45	40	65	45	40	65	65 Exploring and foraging prevented when indoors. Possibly outdoors, but fields offer a homogeneous environment and less space than the wild. Lameness will constrain normal behaviour.
	11	Animals should be handled well with positive and not negative animal-human relationships.	60	40	85	60	40	85	85 Harsh handling common, and usually only performed for aversive tasks. Occupies only a small part of the animals' lives. Injuries from handling occur. May be good human-animal relationship in small well-managed herds. Large range as depends on the stockperson.
	12	Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals.	60	50	70	60	50	70	70 Potential for positive sensory experiences when outdoors in ideal weather

Scenario 2 - Beef production with 3% prevalence lameness mobility scores 2/3

Score sheet

Welfare principles	Welfare criteria	<div><div>0 – Lowest level of welfare</div><div></div><div>Highest level of welfare – 100</div></div>	1st round	90% certain	90% certain	2nd round	90% certain	90% certain	
			score	lower bound	upper bound	score	lower bound	upper bound	
Good feeding	1	Provision and access to food. Animals should have appropriate access to the quantity and quality of appropriate foodstuffs for health and wellbeing.	60	40	85	60	40	85	85 Generally fine for young stock, although concentrate feeding may lead to discomfort and is unnatural. Suckler cows lose condition in winter. Some on crash diet. Combined with being pregnant and possibly outwintered. Wide range depending on how condition is managed. Monotonous diet. Not considering dairy mothers to be part of the beef system. Improvement in lameness will facilitate grazing or access to food.
	2	Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing.	85	75	90	85	75	90	90 Generally OK. Contamination can be a problem. May have to wade through slurry to get to water. Improvement in lameness will facilitate access to water.
Good housing	3	Animals should have comfort when resting.	50	30	75	55	35	80	80 Really hard to put a number on due to variety of systems. Huge range as depends on bedding quality, use of slats and stocking density indoors and, if outdoors, weather, pasture drainage, shelter from sun and wind.
	4	Animals should have thermal comfort being neither too hot nor too cold.	65	55	75	65	55	75	75 Similar comments as above. For suckler cows, depends on whether in or out-wintered. For all depends on pasture drainage, weather and shelter from sun and wind.
	5	Animals should have sufficient space to move freely.	65	50	80	65	50	80	80 Generally better than other species even when housed. Fattening cattle on slats can be highly stocked, but minority of cattle for only part of the year. All cattle have less space than natural.
Good health	6	Animals should be free from injuries and disorders (e.g. skin conditions, lameness, bone fractures etc.).	75	70	85	75	70	85	85 Valuable animals that are generally treated more promptly than other types of stock. Significant improvement in lameness will reduce chronic pain. Dystocia might be regarded as a 'condition' but dealt with in 8 as its partly a result of management decisions.
	7	Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene.	70	65	75	60	55	65	65 Parasitism can be a problem - fluke, ringworm... Some significant endemic diseases may be perceived as suffering - BVD, Johnes, pneumonia, leptospirosis... Lack of colostrum intake is serious problem and may cause calf suffering from poor immunity. Gastric problems from concentrate feeding and nitrates might cause suffering in fattening cattle. Hygiene can be poor.
	8	Animals should not suffer pain - for example as a result of poor management, handling, surgical or other procedures, slaughter etc.	35	25	50	45	35	60	60 Dystocia is common and likely to be painful. Caesareans common in some breeds. Castration and ear tagging are routine. Dehorning, disbudding and branding are painful. Non-stun slaughter (1% of cattle) will result in extreme suffering. Lameness will be painful, especially if untreated. Improvement in pain from reduced lameness is included in criterion 6 and not duplicated here. Poor handling (hitting, falling) likely to cause pain.
Appropriate behaviour	9	Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding).	55	50	75	55	50	75	75 Frequently regrouped. Space limited when housed to avoid aggression. Competition at feedface. Early weaning, especially for dairy bred calves. Improvement in lameness will facilitate social behaviour - both affiliative and performance and withdrawal from agonistic behaviour.
	10	Animals should be able to express other normal behaviours (e.g. foraging, exploring).	55	40	65	55	40	65	65 Exploring and foraging prevented when indoors. Possibly outdoors, but fields offer a homogeneous environment and less space than the wild. Improvement in lameness will facilitate normal behavioural expression.
	11	Animals should be handled well with positive and not negative animal-human relationships.	60	40	85	62	40	85	85 Harsh handling common, and usually only performed for aversive tasks. Occupies only a small part of the animals' lives. Injuries from handling occur. May be good human-animal relationship in small well-managed herds. Large range as depends on the stockperson.
	12	Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals.	60	50	70	60	50	70	70 Potential for positive sensory experiences when outdoors in ideal weather

Name of scorer: Expert 4

Comments Round 1

Comments Round 2

Name of scorer: Expert 4

Comments Round 1

Comments Round 2

Reduced in round 2 as I'd forgotten how difficult it will be to handle animals to treat disease when at pasture.

Increased in round 2 as I'd given too much weight to the pain associated with the conditions in the previous category.

Increased in round 2 as achieving a reduction in lameness will likely need an increase in bedding/pasture quality.

Increased in round 2 as reduced lameness will mean animals can move through handling systems easier without handler resorting to forceful behaviour.