

Scenario 1 - Current beef with current lameness levels

Score sheet

Name of scorer: Expert 11

Comments Round 1

Comments Round 2

Welfare principles	Welfare criteria	Assume 1 cow: 1.25 calves: 0.83 finisher											
		0 = Lowest level of welfare			Highest level of welfare = 100								
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.	70	60	80	65	55	80	Assume majority adult cows & heifers fed well to ensure productivity; assume 1/3 in each system type, on average 50-70% of time some choice in forage through grazing access - possible higher risk of mineral deficiencies with prolonged periods at pasture, may be more restricted in indoor housing. 8% lame via indoor housing / competition for food. Dairy calves (55% beef) early separation potential issues with sufficient colostrum (nutrition for low values male calves may be poor before euthanasia/early kill for slaughter) and abnormal suckling on each other; beef calves (45%) less likely to have problems obtaining colostrum as feeding from mother (subject to her nutrition)? Feeding at markets may be inadequate when sold on. High performance finishing animals should be fed well, but rumen acidosis and laminitis potential risk for high starch diets. Assume ~2/3 of 10% (dairy origin) 25-50% indoors; ~2/5 of 10% beef bull calves in housed indoors to 5% life and more at risk with more limited choice (and risk of oral stereotypy); 1/5 more opportunity to graze (eg 25% life indoors but unclear); steers/heifers housed so 1/5-1/4 lifetime rest of time grazing. Extensive systems may risk poor nutrition not being picked up so soon.				
	2	Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing.	80	75	95	80	75	95	Assume most provided with appropriate quality water, though extensive animals may need to travel further to access it 8% lameness may impact ability to travel / competition at water source. Dairy calves at higher risk of thirst with early weaning?				
	3	Animals should have comfort when resting.	65	45	75	65	45	75	Outdoor access associated with greater choice though quality dependent on resource, Animals primarily on pasture during wet months may struggle to find appropriate resting places subject to appropriate shelter, cubicles may not be the right size for beef cows, straw yards risk wet bedding an hygiene if not topped up / replaced. Finishing on slatted floors increasing - issues moving from standing to lying and risk of treat and tail injuries; concrete floors leg lesions; stocking density higher for indoor housing lame animals may have trouble competing for good resting spaces and will lie for longer may experience disturbed rest if in pain				
Good housing	4	Animals should have thermal comfort being neither too hot nor too cold	80	60	85	75	60	85	expect generally good Suckler cows may be outwintered; may experience thermal stress if inappropriate shelter and wet. Poor litter / ground can impact thermal insulation. Young calves outdoors more susceptible to cold stress. High performance bull calves kept indoors more likely to experience heat stress.				
	5	Animals should have sufficient space to move freely	70	60	80	70	60	80	expect good space available for cattle outdoors but more challenging indoors, dairy calves limited space following weaning, beef calves experience more space 6-8 month before brought indoors. Finishing animals variable amount of time outdoors but at least 50% lifetime, lame or sick animals compromised ability to utilise space assuming motivated to				
	6	Animals should be free from injuries and disorders (e.g. skin conditions, lameness, bone fractures etc.).	65	45	80	65	45	80	small proportion of lameness due to non infectious causes eg joint disorders in finishing animals and upper limb lesions, rumen acidosis more common in indoor housed				
Good health	7	Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene.	40	25	60	50	25	60	mean farm level prevalence lameness estimated 8.3% for finishing cattle and 14.2% for suckler cows; considered painful due to improvements in mobility scores with anti-inflammatories and reduced pain thresholds. Likely impacts on accessing resources and normal behaviour. Treatment in extensive systems may be delayed due to infrequent inspection, farmers may underestimate what constitutes lameness, mixing animals from different sources via markets increase disease transmission risk; calves risks respiratory tract infection housed indoors - bovine respiratory disease may cause chronic respiratory difficulty and pain even after recovery. BVD occurs at any age. Bovine Tuberculosis, Johne's disease; gut and lung worms, fluke, lice, mites, common in animals at pasture. discomfort weight loss skin damage and compromise immunity.				
	8	Animals should not suffer pain - for example as a result of poor management, handling, surgical or other procedures, slaughter etc.	40	30	55	55	35	65	Artificial insemination, pregnancy detection -- cows experience discomfort; ear tagging acute pain and risk of infection; disbudding - caustic paste - irritant and associated potential chemical burns on face - majority via hot iron cauterise with local anaesthetic but limited protective effect for acute pain, chronic effects less clear; deboning more significant pain and risk of infection but less likely; castration associated with pain but no relief required, injuries during transport - slips and fall more likely with slatted systems and loading/unloading and potential abrasion; ~1% cattle non start slaughter in 2018; emergency culling for notifiable diseases may be associated with greater risk of pain and distress, vaccinations, TB testing				
	9	Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding).	65	55	75	65	55	75	group housing of calves and finishing cattle facilitates social play, synchrony. early separation of particularly dairy calves - distressing to cow and calf, likely impacting social development of calves and expression of normal mother-offspring behaviour; cattle appear to form 'friendships' so mixing may impact by separating bonded cows as well as disrupting social rank and experiencing unfamiliar animals, calves may experience significant mixing with other unfamiliar animals and social stress via markets				
	10	Animals should be able to express other normal behaviours (e.g. foraging, exploring).	70	65	90	65	60	90	outdoor access facilitates expression of normal behaviour including grazing/foraging exploration, locomotor play; enrichment and resource indoors may be limited - cows value automatic brushes,				
Appropriate behaviour	11	Animals should be handled well with positive and not negative animal-human relationships.	35	30	55	45	30	55	much of handling involves restraint for negative management procedures. Handling likely to be more negative also for animals unsued to humans, animals may experience handling and transport at several times during life for sale. Markets associated with crowds and likely frightening; testing for notifiable diseases could be stressful; lameness may increase fearfulness of humans due to reduced control of exposure				
	12	Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals.	70	60	80	60	45	80	sensory experience (fresh air, sunlight etc.) due to outdoor access positive but indoors may be barren and associated with poorer air quality eg dust, ammonia, and lighting				

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

Score sheet

Name of scorer: Expert 11

Comments Round 1

Comments Round 2

Welfare principles	Welfare criteria	Assume 1 cow: 1.25 calves: 0.83 finisher						
		1st round score	90% certain lower bound	90% certain upper bound	2nd round score	90% certain lower bound	90% certain 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.	76	60	80	71	61	80 reduction from 8% finishing and 14% suckler cows to 5% lame cattle - fewer animals compromised ability to feed / compete for food
	2	Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing.	86	75	95	86	71	95 reduction from 8% finishing and 14% suckler cows to 5% lame cattle - fewer animals compromised ability to access water / compete for water
	3	Animals should have comfort when resting.	71	45	75	75	50	85 reduction from 8% finishing and 14% suckler cows to 5 % lame cattle - fewer animals compromised ability ability to get up/down to rest or compete for resting space and experience disturbed rest if pain associated
Good housing	4	Animals should have thermal comfort being neither too hot nor too cold.	83	60	85	78	60	85 reduction from 8% finishing and 14% suckler cows to 5% lame cattle - fewer animals compromised ability to behaviourally thermoregulate
	5	Animals should have sufficient space to move freely.	73	60	80	75	60	80 reduction from 8% finishing and 14% suckler cows to 5% lame cattle - fewer animals compromised ability to make use of space
	6	Animals should be free from injuries and disorders (e.g. skin conditions, lameness, bone fractures etc.).	67	45	80	68	45	80 reduction from 8% finishing and 14% suckler cows to 5% lame cattle - fewer animals injuries associated with poor mobility/stability and treat or tail injuries in slatted systems due to increased lying
Good health	7	Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene.	48	30	60	60	30	70 reduction from 8% finishing and 14% suckler cows to 5% lame cattle - fewer lame animals experiencing associated pain, compromised immunity which may impact susceptibility to other conditions
	8	Animals should not suffer pain - for example as a result of poor management, handling, surgical or other procedures, slaughter etc.	42	30	55	60	40	75 reduction from 8% finishing and 14% suckler cows to 5% lame cattle - fewer animals compromised ability to move and potentially fall during handling
	9	Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding).	71	55	75	68	55	75 reduction from 8% finishing and 14% suckler cows to 5% lame cattle - more likely able to engage in social play and manage positive and negative social interactions
Appropriate behaviour	10	Animals should be able to express other normal behaviours (e.g. foraging, exploring).	76	65	90	68	60	90 reduction from 8% finishing and 14% suckler cows to 5% lame cattle - more likely able to engage in locomotor play, exploratory behaviour, self care and utilising any enrichment
	11	Animals should be handled well with positive and not negative animal-human relationships.	40	30	55	50	35	55 reduction from 8% finishing and 14% suckler cows to 5% lame cattle - fewer animals experience challenges to moving and potential prodding / poor handling loading / unloading at markets and for management procedures and better able to tolerate humans if can control exposure by moving away
	12	Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals.	70	60	80	60	45	80 limited effect on sensory experience