

Scenario 1 - Current dairy production

Score sheet Name of scorer: Expert 10 Comments

Welfare principles	Welfare criteria	Welfare scale						Notes	
		0 – Lowest level of welfare	Highest level of welfare – 100		1st round score	90% certain lower bound	90% certain upper bound		2nd round score
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.	45	30	60	45	30	60	Assume any cow likely to be lame at some point so this could be equivalent to a cow being lame for 30% of her adult life (throughout). Likely to have reduced access to feed bunk if mobility impaired, poor nutrition also a risk factor for lameness so likely to be hungrier than a non lame cow.
	2	Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing.	60	45	80	60	45	80	Cow less mobile and may therefore be less likely to be able to freely access water, may have less choice or use nearest available source even if poorer quality
Good housing	3	Animals should have comfort when resting.	30	20	50	40	25	50	Likely to be lying on harder surfaces as this is a risk factor for lameness, maybe unable to compete for preferred lying places or to walk to more comfortable areas, rising and lying may be painful and rest disturbed
	4	Animals should have thermal comfort being neither too hot nor too cold.	50	30	65	55	30	65	Less able to compete for preferred spaces with better thermal comfort, may not be willing to move to more thermally suitable environments if involves a lot of movement
	5	Animals should have sufficient space to move freely.	40	30	55	45	35	60	Restricted space likely to be a risk factor for lameness, may also be unabel to move freely due to pain and mobility impairments so not able to make adequate use of available space and may be less likely to exercise choice.
Good health	6	Animals should be free from injuries and disorders (e.g. skin conditions, lameness, bone fractures etc.).	20	15	35	30	15	45	45 30% of life spent in pain from lameness, likely that may also have low grade pain from less severe lameness and other metabolic disorders, increased time spent lying may also predispose to other injuries
	7	Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene.	25	15	35	25	15	35	35 Risk factors for lameness include poor hygiene which can also predispose to other diseases, mastitis etc,
	8	Animals should not suffer pain - for example as a result of poor management, handling, surgical or other procedures, slaughter etc.	25	15	35	25	15	35	35 Poor management can be a risk factor for lameness, risk of unsympathetic handling when lame, forced to rise or move more quickly than she can, handling facilities may be suboptimal and cause pain (sharp edges)
Appropriate behaviour	9	Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding).	30	15	55	30	15	55	55 Social interactions may be impaired (pain, sickness behaviour), unable to avoid negative social interactions, unable to express maternal care to calf/calf unable to have positive maternal care (in most farms)
	10	Animals should be able to express other normal behaviours (e.g. foraging, exploring).	25	10	40	35	20	45	45 Reduced mobility will affect the ability of the cow to engage with the environment, likely reduced environmental diversity of comfort, lack of choice and less able to compete for access to resources
	11	Animals should be handled well with positive and not negative animal-human relationships.	30	15	50	30	15	50	50 Handling can influence incidence of lameness, may be at risk fo poorer quality handling in frustration at slow or inability to move, unable to avoid negative interactions with stokpeople, movement for milking and being milked may increase pain from lameness
	12	Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals.	30	15	45	30	15	45	45 Reduced choice and agency in environment, unable to avoid negative encounters and still required to move and be milked when in pain.

Scenario 2 - Dairy production with only 5% lameness score 2/3

Score sheet Name of scorer: Expert 10 Comments

Welfare principles	Welfare criteria	<div>0 – Lowest level of welfare</div> <div></div> <div>Highest level of welfare – 100</div>						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.	75	55	85	70	55	85	Dairy cows not usually limit fed, actions to improve lameness might mean more space, better access to feed, cows in better condition and more choice is allowed access to pastures, may still be some food competition or lack of interesting choices					
	2	Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing.	80	60	90	80	60	90	Cows more mobile and better able to access water and move to drinkers for most of their life, when calves may feel thirst depending on how fed.					
Good housing	3	Animals should have comfort when resting.	50	40	60	50	40	60	Improved access to comfortable lying areas for cows if implementing best practice to reduce lameness, access to pasture will allow better rest and more comfort. May still be limited in how much time spent at pasture for all lifestages.					
	4	Animals should have thermal comfort being neither too hot nor too cold.	60	40	70	60	40	70	Some access to choice and ability to move to comfortable areas if available. May still be exposed to heat stress for at least some periods either indoors or outdoors. Calves may still experience heat or cold.					
Good health	5	Animals should have sufficient space to move freely.	50	35	65	50	35	65	Improvements in lameness management should lead to more space for free movement and improved pasture access allowing better movement for cows. Still some restrictions in other life stages and at some periods of the animal's yearly experience.					
	6	Animals should be free from injuries and disorders (e.g. skin conditions, lameness, bone fractures etc.).	50	40	60	55	40	65	Significant improvement in lameness and associated pain although some low level lameness might still exist, animals may still experience other injuries although at a lower level if more access to pasture					
	7	Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene.	50	40	60	50	40	60	Improvement in hygiene and management can improve lameness but can also be other metabolic and other issues that are not addressed especially metabolic effort of high levels of milk production.					
	8	Animals should not suffer pain - for example as a result of poor management, handling, surgical or other procedures, slaughter etc.	40	30	60	40	30	60	Some risk of injury through handling with increased hoof care potentially, greater movement about the system might lead to more issues, calves and youngstock will still be exposed to potential issues					
	9	Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding).	50	30	60	35	25	60	Opportunities for animals to express social behaviours especially if provided with more space. Calves still separated from their mothers so these relationships cannot occur, calves may also have limited other social contacts.					
	10	Animals should be able to express other normal behaviours (e.g. foraging, exploring).	45	25	55	50	35	60	Some more opportunities for full engagement with the environment especially if measures to tackle lameness allow more pasture access. Still likely to spend significant amounts of time in restricted space at various ages and stages in life.					
Appropriate behaviour	11	Animals should be handled well with positive and not negative animal-human relationships.	45	30	60	45	30	60	Better handling if cows able to move more freely or able to avoid negative contacts. Can still be some negative interactions at various stages in life					
	12	Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals.	50	40	60	50	40	60	Depending on the measures taken to tackle lameness can lead to more agency and choice with variation in choices. Calves and youngstock still may have very limited lives at various points and limited choice, also great risks in entering the milking herd, male calves?					