

Scenario 1 - Current dairy production

Score sheet		Name of scorer: Expert 5		Comments				
Welfare principles	Welfare criteria	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.	30	20	70	40	30	70	As calves, they're denied normal access to their mother's milk. As adults they're usually below condition score 2, as diet is inadequate to meet demands of lactation. Downstream effects on fertility, disease susceptibility and longevity. Large range as there are times in life when metabolic demands are more closely met. Monotonous diet.
	2 Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing.	75	70	90	75	70	90	I assume this is OK otherwise milk yield will fall, so farmers must maintain adequate water intake.
Good housing	3 Animals should have comfort when resting.	50	20	80	50	20	80	Large range as could be resting on dry clean pasture or indoors. When indoors, could be in minimally bedded cubicles with or without mats (cubicles are too small on some farms) through to deep straw. Thin animals, so contact with hard surfaces will be uncomfortable.
	4 Animals should have thermal comfort being neither too hot nor too cold.	70	50	80	65	50	80	Likely to experience some heat stress due to internal heat production in summer; and cold stress if outdoors in wet/windy weather due to low amount of body fat.
	5 Animals should have sufficient space to move freely.	60	40	70	60	40	70	I don't think tie stalls are used in the UK any longer. If I'm incorrect, this score will need to be amended. Large range as score is much lower for zero grazed herds.
Good health	6 Animals should be free from injuries and disorders (e.g. skin conditions, lameness, bone fractures etc.).	60	40	90	55	40	90	Lameness at 30% and they need to be on their feet for long periods. Moderate to severe lameness evident to an observer indicates that animal is altering gait because of pain. Pain from lameness included here rather than in other criteria. Other conditions less common. Large range reflects variation in whether a cows is lame or not and the fact that condition can be long-lived in affected animals. However, lameness is still likely to affect a minority of a cow's life.
	7 Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene.	60	40	80	55	35	80	Metabolic conditions (e.g. ketosis) and infectious disease (e.g. mastitis) occur. Inspected frequently and valuable animals so likely to be treated, but likely to affect welfare during illness.
	8 Animals should not suffer pain - for example as a result of poor management, handling, surgical or other procedures, slaughter etc.	65	50	75	55	45	70	I think polled sires are still in the minority, so disbudding is common. Dairy bred calves retained for beef will be castrated. Handling less of a problem in calm dairy cattle compared to beef. Dystocia pain from poor bull choice is probably common. Pain from caesarians.
Appropriate behaviour	9 Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding).	60	50	75	50	40	70	Calves separated from cow at birth - likely to be upsetting for cow and calf and to affect calf long-term development. Limited calf-calf contact when young. Limited opportunities to escape dominant cow when housed, but generally better than most livestock systems. Relatively stable social groups. Social behaviour constrained if lame.
	10 Animals should be able to express other normal behaviours (e.g. foraging, exploring).	60	45	70	60	45	70	Grazing prevented in housed cattle. Even a field won't replicate the opportunities presented in the wild. Less problematic than for most livestock. Constrained if lame. Large range as this criteria is much more constrained in zero grazed cattle than those with pasture access.
	11 Animals should be handled well with positive and not negative animal-human relationships.	80	60	90	80	60	90	Valuable animals. Used to human presence so harsh handling practices are probably rarely resorted to. Animals known individually to handlers.
	12 Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals.	50	35	60	50	35	60	Discomfort from udder distension - likely to be experienced every day for years. Generally good air quality. Pleasure from days at pasture when weather is kind - possibility for positive welfare.

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

Score sheet		Name of scorer: Expert 5		Comments				
Welfare principles	Welfare criteria	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.	35	25	70	45	35	70	As calves, they're denied normal access to their mother's milk. As adults they're usually below condition score 2, as diet is inadequate to meet demands of lactation. Downstream effects on fertility, disease susceptibility and longevity. Large range as there are times in life when metabolic demands are more closely met. Also ease of accessing food depends on whether cow is lame or not - scored slightly higher than 30% lameness scenario as fewer cows struggle to access food due to lameness. Monotonous diet.
	2 Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing.	80	70	90	80	70	90	I assume this is OK otherwise milk yield will fall, so farmers must maintain adequate water intake.
Good housing	3 Animals should have comfort when resting.	50	20	80	50	20	80	Large range as could be resting on dry clean pasture or indoors. When indoors, could be in minimally bedded cubicles with or without mats (cubicles are too small on some farms) through to deep straw. Thin animals, so contact with hard surfaces will be uncomfortable.
	4 Animals should have thermal comfort being neither too hot nor too cold.	70	50	80	65	50	80	80 Likely to experience some heat stress due to internal heat production in summer; and cold stress if outdoors in wet/windy weather due to low amount of body fat.
Good health	5 Animals should have sufficient space to move freely.	60	40	70	60	40	70	I don't think tie stalls are used in the UK any longer. If I'm incorrect, this score will need to be amended. Large range as score is much lower for zero grazed herds.
	6 Animals should be free from injuries and disorders (e.g. skin conditions, lameness, bone fractures etc.).	75	60	90	75	60	90	Lameness at 5% and they need to be on their feet for long periods. Moderate to severe lameness evident to an observer indicates that animal is altering gait because of pain. Pain from lameness included here rather than in other criteria. Other conditions less common. Large range reflects variation in whether a cows becomes lame and
	7 Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene.	60	40	80	55	35	80	Metabolic conditions (e.g. ketosis) and infectious disease (e.g. mastitis) occur. Inspected frequently and valuable animals so likely to be treated, but likely to affect welfare during illness.
	8 Animals should not suffer pain - for example as a result of poor management, handling, surgical or other procedures, slaughter etc.	65	50	75	55	45	70	I think polled sires are still in the minority, so disbudding is common. Dairy bred calves retained for beef will be castrated. Handling less of a problem in calm dairy cattle compared to beef. Dystocia pain from poor bull choice is probably common. Pain from caesarians.
Appropriate behaviour	9 Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding).	62	50	75	52	40	70	Calves separated from cow at birth - likely to be upsetting for cow and calf and to affect calf long-term development. Limited calf-calf contact when young. Limited opportunities to escape dominant cow when housed, but generally better than most livestock systems. Relatively stable social groups. Social behaviour constrained if lame.
	10 Animals should be able to express other normal behaviours (e.g. foraging, exploring).	63	45	70	63	45	70	Grazing prevented in housed cattle. Even a field won't replicate the opportunities presented in the wild. Less problematic than for most livestock. Constrained if lame. Large range as this criteria is much more constrained in zero grazed cattle than those with pasture access.
	11 Animals should be handled well with positive and not negative animal-human relationships.	80	60	90	80	60	90	Valuable animals. Used to human presence so harsh handling practices are probably rarely resorted to. Animals known individually to handlers.
	12 Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals.	50	35	60	50	35	60	Discomfort from udder distension - likely to be experienced every day for years. Generally good air quality. Pleasure from days at pasture when weather is kind - possibility for positive welfare.