


### Scenario 1 - Broilers

Score sheet

**Legal stocking density of 39kg/m2**

Name of scorer: Expert 2

First round 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.	60	40	70	65		50	80 As farmers are primarily interested in getting broilers to grow as fast and as much as possible, the quantity of food available is not usually an issue for growing birds (not breeders). However, evidence suggests that 39kg/m2 has higher risk of birds not accessing the feeders. In all cases, the feed is designed to maximise growth, not provide well-being from other aspects of food consumption.
	2	Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing.	80		70	95	85	70	95 Water provision is generally good in modern broiler facilities, with requirements under the law to have emergency supply etc in case of breakdown. There is a slightly higher risk of birds not being able to access water in 39kg/m2 conditions than lower stocking densities.
Good housing	3	Animals should have comfort when resting.	30		10	40	30	10	40 Broiler chickens have very little comfort around resting - with no choice of bedding or area and build up of wetness of the litter. The evidence suggests that even in well-run 39kg/m2 facilities that there is little comfort once birds get beyond 300 age.
	4	Animals should have thermal comfort being neither too hot nor too cold.	70		60	85	70	60	85 At higher stocking densities, broiler houses have to give evidence that their facilities are sufficient to allow for good thermal control and ventilation levels and back up in case of emergency. However, birds have little behavioural choice, or ability in such conditions to change their temperature with behaviour if needed (apart from huddling or open-beak breathing). Wing stretching or wing holding to reduce heat is less possible in 39kg/m2 at the older ages.
	5	Animals should have sufficient space to move freely.	10		0	10	20	0	30 Around 25% of the birds life will be under very restricted conditions, without enough space to move freely. Birds cannot stretch, or shake-out feathers well, nor can they always turn or lie down unimpeded.
Good health	6	Animals should be free from injuries and disorders (e.g. skin conditions, lameness, bone fractures etc.).	30		10	50	30	10	50 There is plenty of evidence that shows that keeping birds at 39kg/m2 increases the incidence of lameness (even in genetically improved for leg health birds), skin conditions such as hock burn and footpad dermatitis. Although bone fractures are not common, disorders of bone growth are.
	7	Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene.	50		30	70	60	40	70 Broiler chickens are often not free from disease at such stocking densities. Campylobacter sp. is common in this type of housing. However, birds are usually protected from Avian influenza and other infectious disease by high biosecurity measures. Broiler chickens are susceptible to metabolic disease, although this may not be specifically related to stocking density.
	8	Animals should not suffer pain - for example as a result of poor management; handling, surgical or other procedures, slaughter etc.	30		10	50	40	20	60 As birds are at risk from hock burn, footpad dermatitis and lameness, it is likely that the risk of pain is quite high. However, as broiler chickens are not subjected to mutilations, the pain is unlikely to be 100% (unlike beak trimming in layers for example). Birds may suffer pain when handled at 'harvesting' and on the shackles at slaughter if that method is used, but this is in regards to the use of broilers, not necessarily the stocking density.
Appropriate behaviour	9	Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding).	30		10	50	30	10	50 The birds may carry out socially facilitated behaviours (e.g. feeding, preening etc) especially when younger ages, but this becomes impeded by lack of space as the birds grow.
	10	Animals should be able to express other normal behaviours (e.g. foraging, exploring).	10		0	20	20	5	25 At 39kg/m2 there is very little space for normal behaviour. Unless additional enrichment is used (not usually in high SDs) then there is very little opportunity for foraging behaviour, there is no space for 'scratch scratch-peck' type behaviour (and of course, nothing to scratch for). Although broilers do need a lot of rest due to being neonates, active normal behaviour is seen more frequently at lower densities.
	11	Animals should be handled well with positive and not negative animal-human relationships.	10		0	20	30	10	35 Birds are not handled at all post addition to the shed unless there is a problem and until harvesting. There is no human-animal-bond. Transceptor type walk throughs occur regularly, and stockpeople will be trained not to cause panic or high levels of fear for risk of smothering. Handling at harvesting can be problematic. However, this is mostly just a factor of farming system rather than stocking density.
	12	Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals.	20		0	30	30	0	30 There is very little opportunity for broiler chickens to experience positive welfare in these systems at such high stocking densities, especially for the final quarter of their lives.


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Score sheet

**Legal stockine densitv of 30kem2**

Name of scorer: Expert 2

First round 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.	75		60	85	75	60	85 As farmers are primarily interested in getting broilers to grow as fast and as much as possible, the quantity of food available is not usually an issue for growing birds (not breeders). However, evidence suggests that 30kg/m2 has lower risks of birds not accessing the feeders. In all cases, the feed is designed to maximise growth, not provide well-being from other aspects of food consumption.
	2	Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing.	85		75	95	85	75	95 Water provision is generally good in modern broiler facilities, with requirements under the law to have emergency supply etc in case of breakdown. There is a somewhat lowered risk of birds not being able to access water in 30kg/m2 conditions than higher stocking densities.
Good housing	3	Animals should have comfort when resting.	50		30	60	50	30	60 Broiler chickens have very little comfort around resting - with no choice of bedding or area and build up of wetness of the litter. However, in 30kg/m2 sheds, birds are likely to be significantly more comfortable than at higher densities due to less waste/wetness in the litter. This is evidenced by lower rates of hock burns and footpad dermatitis in these conditions. 30kg/m2 would also allow for enrichment devices such as bales of straw, which could add extra comfort during resting/preening etc.
	4	Animals should have thermal comfort being neither too hot nor too cold.	75		65	90	75	65	90 In broiler sheds, birds have little behavioural choice, or ability in such conditions to change their temperature with behaviour if needed (apart from huddling or open-beak breathing). However, in 30kg/m2 conditions, wing stretching or wing holding to reduce heat is more possible than in 39kg/m2 at the older ages.
	5	Animals should have sufficient space to move freely.	40		30	50	40	30	50 Evidence on bird behaviour in different stocking densities points to the ability for 30kg/m2 birds having far more freedom of movement in terms of preening and maintenance behaviours. However, the birds are still restricted in true freedom of movement that they would be able to perform in other systems.
Good health	6	Animals should be free from injuries and disorders (e.g. skin conditions, lameness, bone fractures etc.).	60		30	65	60	30	65 There is a lot of evidence that shows that keeping birds at 30kg/m2 significantly reduces the incidence of lameness, skin conditions such as hock burn and footpad dermatitis compared to higher SDs. Although bone fractures are not common, disorders of bone growth are but have a slight reduction in lowered SDs according to one paper.
	7	Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene.	60		40	80	60	40	80 Broiler chickens are often not entirely free from disease even at lower stocking densities. Campylobacter sp. is common in this type of housing, however the incidence can be lower in farms with a lower stocking density according to a couple of papers. However, birds are usually protected from Avian influenza and other infectious disease by high biosecurity measures. Broiler chickens are susceptible to metabolic disease, although this may not be specifically related to stocking density.
	8	Animals should not suffer pain - for example as a result of poor management; handling, surgical or other procedures, slaughter etc.	50		30	60	50	30	60 As birds are at risk from hock burn, footpad dermatitis and lameness, it is likely that the risk of pain is quite high, albeit lower in 30kg/m2 than in 39kg/m2. However, as broiler chickens are not subjected to mutilations, the pain is unlikely to be 100% (unlike beak trimming in layers for example). Birds may suffer pain when handled at 'harvesting' and on the shackles at slaughter if that method is used, but this is in regards to the use of broilers, not necessarily the stocking density.
Appropriate behaviour	9	Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding).	50		30	60	50	30	60 The birds may carry out socially facilitated behaviours (e.g. feeding, preening etc) especially when younger ages, but this becomes impeded by reduced space as the birds grow, however, this is less of an extreme problem than those birds kept at 39kg/m2.
	10	Animals should be able to express other normal behaviours (e.g. foraging, exploring).	30		20	50	30	20	50 At 30kg/m2 there is a little bit of space for normal behaviour, however, unless additional enrichment is used then there is very little opportunity for foraging behaviour. Although broilers do need a lot of rest due to being neonates, active normal behaviour is seen more frequently at lower densities.
	11	Animals should be handled well with positive and not negative animal-human relationships.	20		0	25	40	10	40 Birds are not handled at all post addition to the shed unless there is a problem and until harvesting. There is no human-animal bond. Transceptor type walk throughs occur regularly, and stockpeople will be trained not to cause panic or high levels of fear for risk of smothering. At 30kg/m2 there is slightly less risk as birds can easily move away from the person. Handling at harvesting can be problematic. However, this is mostly just a factor of farming system rather than stocking density.
	12	Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals.	30		10	40	40	15	45 There is little opportunity for broiler chickens to experience positive welfare in these systems even at lower stocking densities, especially for the final quarter of their lives. However, there is a greater possibility of enrichment use at 30kg/m2 than 39kg/m2 which would add more playful and perching opportunities.