

Scenario 1 - Current use of farrowing crates in pig production

| Score sheet | | Name of scorer: Expert 7 | | 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 | 50 | 30 | 20 | 50 | During gestation, sows restrict feed to avoid obesity and metabolic issues likely to experience chronic hunger & frustration increasingly as gestation progresses with insufficient safety even if nutritionally sufficient (infrequent concentrates). Increasing metabolic stress and use of body reserves as lactation increases. Extreme compromise of highly motivated feed searching behaviours likely associated with frustration and associated with our interventions. Roughly 25% year for most of sows' adult life. No food choice / variation and fed at specific times. Sows score 20. Maternal stress during gestation can affect piglets in utero so possible longer term effects on piglets. Piglets unlikely to experience extreme hunger unless underweight / fawns do not produce milk. associated with larger litter sizes (ie not system) which may affect feed competition and competition for food in creep. No variation in food provision, some choice in when to eat creep food but not in types. Likely most would experience satiation unless underweight. Piglets 50 during farrowing period, but then can experience severe hunger at weaning 50 and significant mortality (25%), likely 50 during rearing but shorter life span unless introduced to breeding herd 50 and experience restrictions later in life - unsure what proportion. 45 |
| | 2 Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing. | 60 | 55 | 70 | 60 | 55 | 70 | assume constant access to clean fresh water but restriction of crate during farrowing makes getting up and down harder for sows so may be more effort involved than if unrestricted for 25% sows breeding life. No variation in provision of sources. Limited ability to play. For piglets can experience severe dehydration and mortality during weaning. Thereafter, cannot at all simultaneously be potential competition, possible opportunity for play subject to water source type. If females enter breeding herd same possible restrictions for farrowing |
| | 3 Animals should have comfort when resting. | 35 | 20 | 40 | 35 | 20 | 40 | Sows extremely restricted due to confinement for ~25% adult life. Cannot turn around, getting up and down harder, show restlessness, lying on concrete, may develop pressure sores and other injuries with infrequent position changes. May be worse if contrast between freedom and confinement. Cannot access demanding piglets due to confinement and may be likely to limit access, likely may be less comfortable. Associated with pain, frustration, possible disturbance in rest due to discomfort / limited autonomy. Piglets primarily reared without bedding although may vary between systems. May develop burrs but have more choice than sows in where to lie and positions can lie in. more restricted space in farrowing crates may be harder to lie together as grow and disturbance of others if insufficient space. |
| Good housing | 4 Animals should have thermal comfort being neither too hot nor too cold. | 50 | 40 | 60 | 50 | 40 | 60 | costing of sows ~25% adult life prevents behavioural thermoregulation when hot to move to a different part of a pen (eg wet area) to cool. When hot, may be associated with discomfort and frustration. Cold stress less likely. Piglets easily get cold stress and must access creep area with lamp to keep warm but 45 can behavioural thermoregulation |
| | 5 Animals should have sufficient space to move freely. | 20 | 20 | 30 | 35 | 20 | 35 | 60 sows extremely restricted due to confinement for ~25% adult life. Cannot turn around, getting up and down harder, show restlessness. Cannot show movement away from nest as would naturally. Likely associated with frustration, discomfort and pain. Also affects muscle and bone strength. Piglets have freedom to move though more limited space in current farrowing crate than temporary or free farrowing and could be crowding and challenge to movement in large litters |
| | 6 Animals should be free from injuries and disorders (e.g. skin conditions, lameness, bone fractures etc.). | 25 | 15 | 35 | 25 | 15 | 35 | 35 lameness is a significant welfare issue in sows and to a lesser extent rearing pigs; sows experience abrasions and lameness associated with difficulty getting up and down in farrowing crates - can be associated with chronic pain and impact on mobility. sows experience injuries to udders associated with change to confined environment. fast growing strains predisposed to osteochondritis which will be exacerbated by lack of exercise; piglets at risk of crushing by sows, facial injuries due to heat competition (though less when tooth clipped), abrasions from floor when suckling. Likely associated with discomfort and pain. rearing pigs may experience lesions on ears and tail associated with boredom, frustration, restricted foraging and / or competition for resources, diseases may develop from these. Fast growing strains predisposed to osteochondritis likely associated with chronic pain |
| Good health | 7 Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene. | 50 | 25 | 75 | 60 | 45 | 75 | respiratory and gastro-enteric disease primarily affects rearing pigs |
| | 8 Animals should not suffer pain - for example as a result of poor management, handling, surgical or other procedures, slaughter etc. | 40 | 35 | 50 | 40 | 35 | 50 | pigs experience tooth clipping which may be associated with pain and inflammation and discomfort as well as impacting on feeding short term, tail docking which again may be associated with pain and discomfort and contribute to pain sensitisation. transport and slaughter likely associated with significant stress. |
| | 9 Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding). | 40 | 30 | 60 | 30 | 20 | 60 | sows are confined and unable to fully express maternal behaviour towards piglets, or to initiate/ regulate contact with piglets, sows experience separation distress with abrupt weaning at a earlier stage than natural, there may be short term physical effects as piglets do not suckle under. Sows would naturally return to family group 50d after farrowing so may be socially isolated for longer than naturally, possibly associated with stress. Aggression may occur on return to group housing with fighting to establish dominance hierarchy and thereafter competition for resources. Piglets experience social interactions only with kin prior to weaning whereas sows mix with other non related piglets from 30d. Weaning is very stressful and piglets may fight to establish dominance hierarchy on grouping. early weaning associated with belly rising which can cause lesions which can become infected |
| Appropriate behaviour | 10 Animals should be able to express normal and not negative animal-human relationships. | 20 | 15 | 30 | 20 | 15 | 30 | sows are unable to choose a nesting site to perform appropriate nesting behaviour during farrowing. They are unable to perform foraging behaviour, keep away from elimination site or explore their environment exploration/stimulation for ~25% adult life and may experience negative states including extreme frustration as a result; piglets experience limited stimulation / opportunity for exploration and pigs may particularly develop tail biting in barren environments |
| | 11 Animals should be handled well with positive and not negative animal-human relationships. | 50 | 20 | 60 | 35 | 20 | 60 | good human animal relationship possible. In farrowing crate no control over proximity of sows, sows handled for oestrus, AI, pregnancy detection and moving between pens and groups and can be stressful; may be aversive when weak after weaning. Handling of piglets for tooth clipping and tail docking may be associated with fearfulness. |
| | 12 Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals. | 30 | 20 | 50 | 30 | 20 | 50 | in sensory terms farrowing crate may be noisy or barren, no escape from solid areas so potentially odorous, generally barren and little stimulation, rearing decks generally barren with limited stimulation, may be dusty and odorous, limited opportunity for positive states |

Scenario 2 - Free farrowing

| Score sheet | | Name of scorer: Expert 7 | | 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. | 45 | 30 | 55 | 45 | 30 | 55 | Some dietary restrictions as current farrowing with chronic hunger and no food choice / variation plus fed at specific times, much more provision for foraging / rooting behaviour assuming straw provision (although limited rooting substrate) which may additionally alleviate some hunger as roughage sows score still limited choice in food provision sows score 40, possibly lower maternal stress during gestation if less hungry / frustrated so more limited long term effects on piglets. Piglets unlikely to experience extreme hunger unless underweight / sows do not produce milk - associated with larger litter sizes (ie not system) which may affect feed competition and competition for food in creep. No variation in food provision, some choice in when to eat creep food but not in types. Likely most would experience satiation unless underweight. Piglets 50 during farrowing period, but then can experience severe hunger at weaning 50 and significant mortality (25%), likely 50 during rearing but shorter life span unless introduced to breeding herd 50 and experience restrictions later in life - unsure what proportion. 50 |
| | 2 Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing. | 70 | 60 | 75 | 70 | 60 | 75 | assume constant access to clean fresh water, should not be affected getting up and down but no variation in provision of sources. Ability to play subject to drinker type but likely limited where straw bedding is present unless in separate section. For piglets can experience severe dehydration and mortality during weaning. Thereafter, point of drink simultaneously be potential competition for play subject to water source type. |
| Good housing | 3 Animals should have comfort when resting. | 70 | 60 | 75 | 70 | 60 | 75 | Sows experience more space to move without restriction and deep bedding which provides comfort and ability to fashion appropriate nest which subject to sufficient fresh straw they can manage the quality of nest which may satisfy associated behavioural motivation. Allows for changes in lying position, more freedom to move though more limited space in current farrowing crate than temporary or free farrowing and could be crowding and challenge to movement in large litters |
| | 4 Animals should have thermal comfort being neither too hot nor too cold. | 60 | 50 | 70 | 65 | 50 | 75 | 75 ability to escape piglets and more choice in where to lie although still not able to distance as far from piglets / nest as would naturally (10m!) Less likely to develop pressure sores. Piglets primarily reared without bedding although may vary between systems. Behavioural thermoregulation of sow possible but may be harder to find cooler area if all bedded. Piglets may be insulated from cold stress by straw |
| Good health | 5 Animals should have sufficient space to move freely. | 60 | 55 | 75 | 60 | 55 | 75 | 75 sows can move relatively freely around pens, can turn around and easier getting up and down. Cannot show movement away from nest as would naturally (or large distance to find a suitable nest site) but can move a little further than other systems. may improve muscle and bone strength. Piglets have freedom to move. |
| | 6 Animals should be free from injuries and disorders (e.g. skin conditions, lameness, bone fractures etc.). | 45 | 35 | 55 | 45 | 30 | 60 | lameness is a significant welfare issue in sows and to a lesser extent rearing pigs; sows less likely to experience abrasions and lameness associated with difficulty getting up and down and may slip less on straw bedding. Fast growing strains predisposed to osteochondritis but able to move more so potentially less severe of exercise restriction piglets potentially a greater risk of crushing by sows, facial injuries due to heat competition (though less when tooth clipped), abrasions from floor when suckling rearing pigs may experience lesions on ears and tail associated with boredom, frustration, restricted foraging and / or competition for resources, diseases may develop from these. Fast growing strains predisposed to osteochondritis likely associated with chronic pain |
| | 7 Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene. | 45 | 20 | 75 | 55 | 35 | 75 | respiratory and gastro-enteric disease primarily affects rearing pigs. Hygiene harder to maintain with straw provision |
| | 8 Animals should not suffer pain - for example as a result of poor management, handling, surgical or other procedures, slaughter etc. | 40 | 35 | 50 | 40 | 35 | 50 | pigs experience tooth clipping which may be associated with pain and inflammation and discomfort as well as impacting on feeding short term, tail docking which again may be associated with pain and discomfort and contribute to pain sensitisation. transport and slaughter likely associated with significant stress. |
| | 9 Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding). | 55 | 48 | 65 | 55 | 40 | 60 | sows able to fully express maternal behaviour towards piglets, sows experience separation distress with abrupt weaning at a earlier stage than natural, there may be short term physical effects as piglets do not suckle under. Sows would naturally return to family group 50d after farrowing so may be socially isolated for longer than naturally, possibly associated with stress. Aggression may occur on return to group housing with fighting to establish dominance hierarchy and thereafter competition for resources. Piglets experience social interactions with mother likely to be beneficial in terms of resilience and social interaction later in life, only with kin prior to weaning whereas sows mix with other non related piglets from 30d. Weaning is very stressful and piglets may fight to establish dominance hierarchy on grouping. early weaning associated with belly rising which can cause lesions which can become infected |
| | 10 Animals should be able to express normal and not negative animal-human relationships. | 60 | 45 | 75 | 60 | 45 | 75 | sows have some choice in nesting site and are able to perform appropriate nesting behaviour during farrowing. Freedom and provision of straw allows for performance of foraging behaviour. Sows can keep away from elimination site. Some stimulation provided by straw though behaviours still somewhat limited by space. piglets experience more stimulation / opportunity for exploration with straw bedding which may increase resilience and reduce stress and fear later. If growing environment is barren pigs may develop tail biting |
| Appropriate behaviour | 11 Animals should be handled well with positive and not negative animal-human relationships. | 58 | 30 | 60 | 40 | 25 | 60 | good human animal relationship possible. more control of proximity in free farrowing pens. otherwise, sows handled for oestrus, AI, pregnancy detection and moving between pens and groups and can be stressful; may be aversive when weak after weaning. Handling of piglets for tooth clipping and tail docking may be associated with fearfulness. |
| | 12 Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals. | 50 | 40 | 60 | 45 | 40 | 55 | in sensory terms straw may dampen noise and provide stimulation though may introduce dust, more copies early environment associated with lower fear, rearing decks generally barren with limited stimulation, may be dusty and odorous, limited opportunity for positive states |

Scenario 3 - Temporary use of farrowing crates

| Score sheet | | Name of scorer: | | Expert 7 | 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. | 32 | 20 | 50 | 32 | 20 | 50 | Some dietary restrictions as current farrowing with chronic hunger and no food choice / variation plus fed at specific times. Severe behaviour restriction occurs for shorter period (roughly 10% year) but still limited space and no foraging substrate so benefit to foraging behaviours limited. Sows score 22. Maternal stress during gestation can affect piglets and sows to possible longer term effects on piglets. Piglets unlikely to experience extreme hunger unless underweight / sows do not produce milk - associated with larger litter sizes (ie not system) which may affect feed competition and competition for food in creep. No variation in food provision, some choice in when to eat creep food but not in types. Likely most would experience satiation unless underweight. Piglets 50 during farrowing period, but then can experience severe hunger at weaning 20 and significant mortality (22%), likely 50 during rearing but shorter life span unless introduced to breeding herd 50 and experience restrictions later in life - unsure what proportion. 50 |
| | 2 Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing. | 65 | 55 | 70 | 65 | 55 | 70 | assume constant access to clean fresh water but restriction of crate during farrowing makes getting up and down harder for sows so may be more effort involved than if unrestricted but less time restricted of current farrowing crate (10%). No variation in provision of sources. Limited ability to play. For piglets can experience severe dehydration and mortality during weaning. Thereafter, cannot at all simultaneously do potential competition, possible opportunity for play subject to water source type. If females enter breeding herd same possible restrictions for farrowing |
| Good housing | 3 Animals should have comfort when resting. | 40 | 25 | 48 | 38 | 25 | 48 | Sows extremely restricted due to confinement for ~10% adult life where cannot turn around, getting up and down harder, show restlessness. Opening crate provides more freedom to move for sows and ability to change position more frequently but still limited in choice of lying area. May develop pressure sores. Slightly more ability to escape demanding piglets but still limited due to confinement. Still likely associated with some pain, some frustration, and possible disturbance in rest due to discomfort / limited autonomy. Piglets primarily reared without bedding although may vary between systems. May develop burrs but have more choice than sows in where to lie and positions can lie in. |
| | 4 Animals should have thermal comfort being neither too hot nor too cold. | 55 | 48 | 60 | 48 | 40 | 60 | costing of sows ~25% adult life prevents behavioural thermoregulation when hot to move to a different part of a pen (eg wet area) to cool. When hot, may be associated with discomfort and frustration. Cold stress less likely. Piglets easily get cold stress and must access creep area with lamp to keep warm but 45 can behavioural thermoregulation, assuming enough space for large litters |
| Good health | 5 Animals should have sufficient space to move freely. | 35 | 30 | 60 | 38 | 25 | 60 | 60 sows extremely restricted due to confinement for ~10% adult life. Cannot turn around, getting up and down harder, show restlessness. Cannot show movement away from nest as would naturally. Likely associated with frustration, discomfort and pain. Also affects muscle and bone strength. Piglets have some freedom to move and slightly more space than current farrowing pens |
| | 6 Animals should be free from injuries and disorders (e.g. skin conditions, lameness, bone fractures etc.). | 28 | 18 | 35 | 25 | 18 | 35 | lameness is a significant welfare issue in sows and to a lesser extent rearing pigs; sows experience abrasions and lameness associated with difficulty getting up and down in farrowing crates - can be associated with chronic pain and impact on mobility. Fast growing strains predisposed to osteochondritis which will be exacerbated by lack of exercise; piglets at risk of crushing by sows, facial injuries due to heat competition (though less when tooth clipped), abrasions from floor when suckling. Likely associated with discomfort and pain. rearing pigs may experience lesions on ears and tail associated with boredom, frustration, restricted foraging and / or competition for resources, diseases may develop from these. Fast growing strains predisposed to osteochondritis likely associated with chronic pain |
| | 7 Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene. | 50 | 25 | 75 | 58 | 45 | 75 | respiratory and gastro-enteric disease primarily affects rearing pigs |
| | 8 Animals should not suffer pain - for example as a result of poor management, handling, surgical or other procedures, slaughter etc. | 40 | 35 | 50 | 40 | 35 | 50 | pigs experience tooth clipping which may be associated with pain and inflammation and discomfort as well as impacting on feeding short term, tail docking which again may be associated with pain and discomfort and contribute to pain sensitisation. transport and slaughter likely associated with significant stress. |
| | 9 Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding). | 45 | 40 | 60 | 35 | 25 | 60 | sows are confined and unable to fully express maternal behaviour towards piglets in first few days, but thereafter have more freedom to interact with piglets, sows experience separation distress with abrupt weaning at a earlier stage than natural, there may be short term physical effects as piglets do not suckle under. Sows would naturally return to family group 50d after farrowing so may be socially isolated for longer than naturally, possibly associated with stress. Aggression may occur on return to group housing with fighting to establish dominance hierarchy and thereafter competition for resources. Piglets experience more social interaction with mother which may be beneficial to resilience later in life. Social interactions only with kin prior to weaning whereas sows mix with other non related piglets from 30d. Weaning is very stressful and piglets may fight to establish dominance hierarchy on grouping. early weaning associated with belly rising which can cause lesions which can become infected |
| | 10 Animals should be able to express normal and not negative animal-human relationships. | 30 | 20 | 40 | 25 | 20 | 40 | sows are unable to choose a nesting site to perform appropriate nesting behaviour during farrowing. For 10% adult life they are unable to perform foraging behaviour, keep away from elimination site or environmental stimulation and associated with frustration. Thereafter performance of these behaviours may be limited by space; piglets experience limited stimulation / opportunity for exploration and pigs may particularly develop tail biting in barren environments |
| Appropriate behaviour | 11 Animals should be handled well with positive and not negative animal-human relationships. | 53 | 30 | 60 | 38 | 25 | 60 | good human animal relationship possible. In farrowing crate no control over proximity for short period. otherwise, sows handled for oestrus, AI, pregnancy detection and moving between pens and groups and can be stressful; may be aversive when weak after weaning. Handling of piglets for tooth clipping and tail docking may be associated with fearfulness. |
| | 12 Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals. | 35 | 25 | 55 | 30 | 25 | 20 | in sensory terms farrowing crate may be noisy or barren, no escape from solid areas so potentially odorous, generally barren and little stimulation, rearing decks generally barren with limited stimulation, may be dusty and odorous, limited opportunity for positive states |