December 2025

Responsible Protein Business Case series:

A Business Case for Improving Animal Welfare in Supply Chains and Sourcing

Summary:

Good animal welfare policies, standards and cage-free commitments enable Asian corporates to:

- Have less stressed, more contented, and comfortable animals producing more meat, milk, eggs, fish
- Optimise production, product quality and safety, including reduced antibiotic use, residues, resistance
- Segment markets with value-added products for increasingly sustainability-conscious customers
- Meet independent certification, differentiated labelling or export standards and EU trade agreements
- Increase investor confidence, reduce portfolio risk, and enhance business reputation and growth
- Align with sustainability disclosure frameworks' cage-free reporting, and the International Finance Corporation (IFC) Good Practice Note
- Increase score in various benchmarks and indices including those by Standard & Poor's, Business Benchmark on Farm Animal Welfare, FAIRR, World Benchmarking Alliance, Asia Research & Engagement
- **Work towards Sustainable Development Goals 2, 3, 6, 12, 13, 14 and 15.**

This business case complements and integrates with others on responsible antibiotic use, climate, and nature. For benchmarking reports including regional protein buyers, "food and agri" sector bank policies & relevant sustainable finance, see here.

1. Overarching economics – the impact of welfare improvements on retail prices

According to a study published in 2022 by *Frontiers in Animal Science*, the welfare of farmed animals is just as important to citizens from a range of **Asian nations** as it is to their western counterparts.[1] Similarly, global surveys show Asian **consumers have a preference – and are willing to pay more** – for cage-free eggs, while customers in China show a preference for sow systems, and those in Taiwan for higher-welfare meat chickens.[2] [3] [4]

While **willingness-to-pay** studies do not necessarily correspond to higher sales, they do provide an indicator of the value placed on farm animal welfare and consumer ability to absorb increased cost. **Price premiums** can open new markets for emerging higher-welfare products and establish them as a specific market segment.

Over time, mainstream improvements, policy, incentives, and economies of scale can accelerate the path to **cost parity**, as we've seen in mature markets. Equally, direct credit schemes can initially fill supply gaps and enable corporates to meet their commitments.

Before examining the wide range of cost-effective higher-welfare solutions available, we will look at the economics of cheap meat, milk, dairy, and eggs, and perceived barriers to better farm animal welfare.

Subsidising, supplying, and sourcing cheaper meat, milk, fish, and eggs can be misleading, as it continues to externalise environmental and social costs that are gradually expected to be reduced or internalised by corporates (through products labelled deforestation-free, cage-free etc). Animal welfare is an inherent material risk to food companies and their supply chains that is now **embedded in prevailing sustainability disclosure** and leading **responsible lending frameworks**.

Improvements in animal welfare can convey a range of production, financial, environmental, and public health benefits. They can also convey economic benefits in terms of food safety, quality, corporate reputation, and ranking, as well as deliver savings in reducing animal losses, veterinary costs, antibiotic use, disease, and risk of pandemics. Good animal welfare thereby serves to boost corporate and supply chain resilience, and short to long-term value.

Cost is one of the principal perceived barriers to substantial improvements in farm animal welfare. However, improvements do not always cost more. On the contrary, significant economic benefits can be achieved with relatively small inputs, such as selection of suitable staff attitudes, provision of training, good demonstration of equipment, and better techniques. In some dairy systems, these changes can increase milk production by up to 11%, while the economic and food-safety benefits of humane slaughter systems are well established.[5]

Step changes such as cage-free systems can also be less costly than imagined. Many companies in the pig industry have integrated or even reduced costs when transitioning to group housing of sows to avoid pregnancy cages. While cage-free egg systems do have an initial cost, it can be absorbed, enable initial premiums, and become mainstreamed over time. Cage-free cost-calculators exist to assist decision-making, while for dairy and meat chickens (broilers) and aquaculture, there are a range of economic studies and cost-benefit analyses available (which we will visit later).

The **FARMS initiative**, for example, produced an economic case study resource in response to a 2024 investor and bank webinar.[6] The following extract captures the overarching thesis:

[Agricultural economist] McInerney *points out that the impact on retail food prices of welfare improvements is often "greatly over-stated". He explains that most husbandry changes required for higher-welfare methods affect only a subset of the overall costs entailed in livestock production (such as space allowance, housing, feed, health management, transportation standards) leaving all the other costs unchanged. He states "so while some components of production costs may as much as double (unlikely) the resulting impact emerges as perhaps just, say, a 10% increase in overall production cost".* [7]

Moreover, any increase in on-farm production costs arising from the use of a higher-welfare system will have a proportionately smaller impact on the retail price. For example, a 10% rise in on-farm production costs will lead to a significantly lower than 10% increase in the retail price. This is because on-farm production costs are only one of a range of factors which determine the retail price. Distribution and marketing are also significant components of the final price. For example, a rise in the price of fuel (or feed) may well have more impact on the retail price of pork than improving the way in which the pigs are housed.

Left: a typical caged laying hen facility (credit: We Animals)

Right: a cage-free aviary system in China (credit: Global Food Partners)

Recent evaluation of caged and cage-free egg economics in **Southeast Asia** and **India** affirms this principle. As poultry feed is the dominant cost, feed prices and associated government policies, rather than production systems, are most likely to drive the viability of cage-free egg production. The authors of the study state that retailers and government policy are the most probable drivers of cage-free egg demand in these markets, and believe that suppliers will rise to meet that demand.[8]

In **China**, the world's largest egg producer, free range and cage-free egg production is rapidly increasing to meet consumer and corporate demand. Lessons from how suppliers have successfully promoted their products with tailored information, trusted certification, and labelling, along with buyer engagement, could be adopted by other markets.[9] [10]

2. What is animal welfare, international guidance, standards, and frameworks

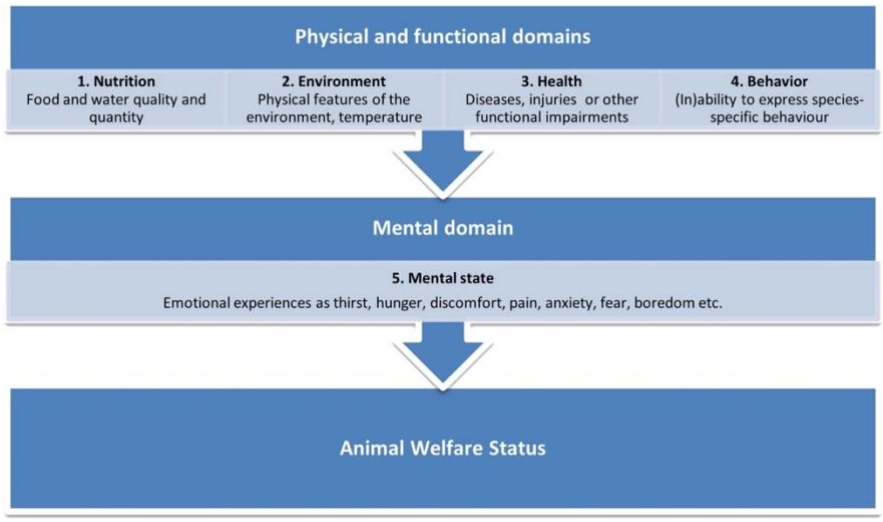
The World Organisation for Animal Health (WOAH) acknowledges animal welfare as a complex component of Sustainable Development, and defines it as the "physical and mental state of animals in relation to the conditions in which they live and die".[11]

WOAH has a range of species-specific chapters in its Terrestrial Code, to which more than 180 Member States have agreed. While these basic guidelines are neither comprehensive nor measurable, they provide a broad acknowledgement of the importance of farm animal welfare globally. Additionally, ARE defers to the concise and measurable species-specific "Minimum Responsible Standards" outlined by the FARMS Initiative, originally modelled on the 2014 International Finance Corporation (IFC) Good Practice Note risk and mitigation approach.[12] [13] FARMS standards focus around measurable mitigations that scientifically contribute to improved animal welfare in commercial production.

While we appreciate companies may not be able to implement all aspects of FARMS standards at once, ARE's investor-backed platform encourages companies to refer to them as an aspirational but clear signal for suppliers and sourcing, consumers and investors, and align with the standards where possible. They can also enable clear KPIs for sustainability-linked loans, capital allocation, and third-party certification.

The "Five Freedoms" (and the associated but often-omitted "Provisions") are a well-known framework in emerging markets, which are sometimes cited by companies and other stakeholders. While these principles are memorable, like the WOAH guidelines they are unmeasurable, so ARE also refers to the **Five Domains**, which can also enable positive animal

welfare states and welfare outcome measurements. We note that solely stating the Five Freedoms or Five Domains does not constitute a corporate animal welfare policy, and doing so could be interpreted as "humane washing", along with other pitfalls (see annex 1).[14] For guidance on how to write a meaningful animal welfare policy, request **ARE's policy guidance, corporate examples resource, and tailored assistance**.



The most modern framework for animal welfare is the **Five Domains**, which is well aligned with the **EU Welfare Quality Project**.[15] This demonstrates how the first four domains contribute to the final domain or outcome of the mental state of animals, which is usually measured via animal behaviour and condition as a proxy.[16]

3. What Animal Welfare Issues Exist in Asian Supply Chains?

Asian consumers are inherently compassionate and increasingly aware of caged and other low-welfare systems. The majority of people surveyed across seven Asian markets care about farm animal welfare, prefer animals to be unconscious prior to slaughter, and prefer cage-free egg production.[17] [18] [19]

However, there is a disconnect. Animal suffering from low welfare standards is inherent in intensive farming, which is rapidly increasing in Asia's prevailing policy and corporatisation environment. ("Low animal welfare" refers to the daily and lifetime experience of animals, summarised on a Quality of Life spectrum as a life "not worth living".)

More than half of the world's terrestrial and the majority of aquatic animals are bred and raised in Asia, in caged, overcrowded, barren environments, often without natural light or the opportunity to perform basic natural behaviours. If the majority of their experiences are negative, their life (to them) can be categorised as "not worth living". Common Asian examples of low animal welfare systems include:

- **Caged egg-laying hens** – lack even a nest for egg laying, and have no ability to perform essential behaviours such as dust-bathing, wing-flapping or perching, while **caged ducks** lack water also for bathing and breeding. In China, more than 90% of layer hens are caged. While China is the fastest-growing cage-free egg market, commercial indoor systems represent around 1% of the country's total egg market.[20] The Welfare Footprint Framework Coalition describes the entire welfare footprint of conventionally produced cage eggs in detail.[21]
- **Mother pigs (sows) spending their entire adult life in pregnancy or birthing cages**, unable to turn around, let alone walk, explore, and socialise. Caged birthing pigs (in farrowing crates) are additionally unable to mother their young, and suffer a range of health issues, along with the stress of premature weaning of piglets. The vast majority of industrially farmed sows are held in such cages, though Thailand is leading regional progress. Thailand's two largest producers (CP Foods and Betagro Group) have committed to phasing out gestation cages for group housing

systems in Thailand by 2025, and all sow cages by 2027, respectively. CP Foods has extended its commitment to cover their overseas markets by 2028. Some companies in China (Qing Lian, De Xing) and Brazil (BRF, JBS) have also made and implemented commitments.[22] See section 7 for more about the group sow housing solution.



Left: typical sow gestation/pregnancy crate/cage/stalls

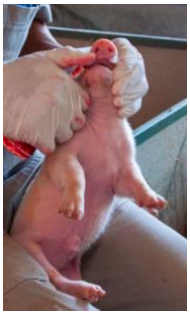
Middle: a typical fast growth broiler unable to stand for long.

Right: a typical peri-urban dairy in India.

- **Conventional fast-growth meat chickens** (broilers) are now the norm in Asia. These birds are bred to prioritise feed conversion efficiency and growth, growing more than four times faster than they naturally did half a century ago.[23] According to one report, these chickens essentially "eat, sit, suffer, repeat" in an average area the size of an A4 sheet of paper. [24] Fast-growth chicken breeds were found to be 3.5 times more likely to suffer from moderate to severe lameness, four times more likely to suffer foot and leg burn, with most requiring culling. Such birds were also 7.8 times more likely to have "white striping" (fatty deposits) in breast meat, as well as other **cardiac and sudden death issues, though lameness remains the prevailing daily burden**, according to the **Welfare Footprint Scientific Coalition**.[25] White striping (or the even more extreme woody breast) are **muscular dystrophies** that result from fast-growth genetics and cost the US industry more than USD200 million annually due to downgraded or condemned carcasses, further creating waste. White striping has been documented since 2012 in Thailand, affecting meat quality and consumer satisfaction, and likely exists elsewhere in Asia (e.g. Japan) with maximal fast-growth genetics.[26] [27]
- In addition, **broilers are increasingly caged**. Five of Asia's largest 10 chicken producers are in China, with Wens leading production at more than 1.1 billion chickens annually.[28] These large-scale producers, which account for more than 70% of white broiler production in China, primarily rear these birds in multi-tiered cage or perforated/net floor systems. Increasingly, traditional, slower-growing "yellow chickens" are also being caged**.**[29] Aside from the above-mentioned behavioural restrictions, the latter systems have been shown to decrease bird welfare and make them even more prone to heat stress.[30] Caged broilers also exist in India, Pakistan, Bangladesh, Japan, Malaysia, and are emerging elsewhere in countries such as the Philippines and Indonesia.

- **All breeding pigs and chickens (with similar fast-growth genetics)** are on highly restricted, concentrated diets to prevent obesity. They suffer chronic hunger and behavioural deprivation, triggering fighting and biting, related stress, injuries, and additional antibiotic use.
- **Hens, calves, and piglets** experience mutilations (painful procedures that remove horn buds, teeth, tails, and testicles) that predispose them to infections and more antibiotic use. With better understanding and training, many of these procedures are unnecessary, as they can either be avoided (e.g. tail docking of cows, teeth reduction of piglets, polled genetics, sexed semen) or replaced with humane alternatives (such as "immunocastration", which we describe later).
- **Dairy calves** are removed immediately from mothers, often housed individually in small crates, while males are often neglected or sold very young for slaughter. These practices are endemic in the global dairy industry, not just Asia. Additional religious precepts also preclude slaughter or euthanasia, which results in male calves often being left to die in India, while peri-urban dairies

feature the worst welfare, hygiene, and antibiotic overuse. In the absence of adequate land and farm size, adult dairy/beef cows are often tethered in Asia or housed in crowded, barren barns, predisposing them to distress, and more infections, including high rates of mastitis and lameness. Mid- to large-sized dairies in Asia, while still hosting some inherent welfare issues, at least enable better housing, bedding, feeding and more natural behaviours.



Left: typical clipping of piglet teeth

Middle: pangasius fish farming, Vietnam

Right: corporate raised pigs may end up slaughtered conscious.

- **Fish and other aquatic animals** farmed in very high densities are predisposed to disease, often deprived of opportunities to escape predators and stress. **Female shrimp** routinely experience eye ablation, an unnecessary cutting of the eye stalks in pursuit of misconceived gains in fertility. CP Foods has ceased this practice in Thailand, at least, demonstrating that it is unnecessary at commercial scale.
- **Inhumane transport and slaughter without stunning** still remains a prevalent practice, especially with small suppliers to large companies. Death, injury, and extreme suffering may occur during transport or at many slaughter facilities that do not practice pre-slaughter stunning. Various religion-prescribed slaughter practices are associated with a range of welfare issues.

Intensively bred and fed, fast-growing and fast-producing, these animals suffer hunger, discomfort, injuries, pain, and stress that leads to abnormal behaviours, self-harm, biting and fighting, and more antibiotic use, impacting food safety, quality, and production. Such systems generate uniformly bred and immuno-susceptible animals, further risking disease and food safety. Issues such as poor staff attitudes, lack of training or equipment, and long transport distances cause low welfare, leading to poor meat quality, safety, and financial losses due to carcass damage, condemnation, and shorter shelf life. However, solutions exist for all these risks. For a more detailed and visual understanding of farm animal needs, behaviour, and risky systems, see a **Financial Institutions' Guide to Farm Animal Welfare**.

4. Animal Welfare Matters: A Food Safety, Supply Chain, Business Reputational Risk

If any of the following are considered a material risk to your company or financial institution, you need to understand the risks and benefits of acceptable animal welfare. We'll explore the systemic linkages also further below.

- **Reputation**, which contributes to a significant proportion of market value, e.g. up to 28% of e.g. US company market value[31]
- **Food safety and quality**, which is core to business compliance, consumer trust and safety
- **Responsible sourcing/procurement/marketing**, increasingly required by investors and customers
- **Antimicrobial or antibiotic use, resistance** and other health concerns include food-borne disease, all increasing food safety risks
- **Production costs and business disruption**, economic imperatives, profit, shareholder interest

- **Emissions, Climate, Nature,** as physical climate risks, disasters, deforestation, biodiversity etc
- **Financial risk,** as stranded assets, write-downs, market laggards etc

Companies and financial institutions that ignore animal welfare or fail to set meaningful policies or standards (for example by expanding intensive farming and outdated or high-climate-risk systems) are undermining their climate and sustainability commitments, disclosure, and reputation, along with harming productivity and potentially long-term market access, stability, and value. To appreciate how some of Asia's largest food companies (from Thailand, Japan, and China) score, explore the **Business Benchmark for Farm Animal Welfare's** (BBFAW) annual benchmark of policy, management, and performance. It assesses 150 of the largest food companies globally, including 17 in Asia. An investor statement on Farm AW is also available.

5. Interconnected System and Supply Chains: Compounding Material Risks

As well as directly harming welfare, intensive animal farming:

- Is the largest user of land, water, and antibiotics
- Is the biggest driver of deforestation, biodiversity loss, and pollution
- Contributes around 15% of all greenhouse gas emissions
- Degrades soil quality and increases water scarcity

As the EAT Lancet 2.0 publication highlights, our current food system has already breached six of the nine planetary boundaries.[32] The expansion and acceleration of intensive farming entrenches environmental dependency, along with these negative environmental and other social impacts. Specific examples of interconnected risks and benefits are listed above and summarised below.

Poor traceability, weak supply chain standards and monitoring, and a business case that relies on expansion with new intensive or multi-storey farms, commonly increases exposure to deforestation and habitat encroachment, impacting nature and increasing the risk of wildlife-livestock interfaces and rise of disease.

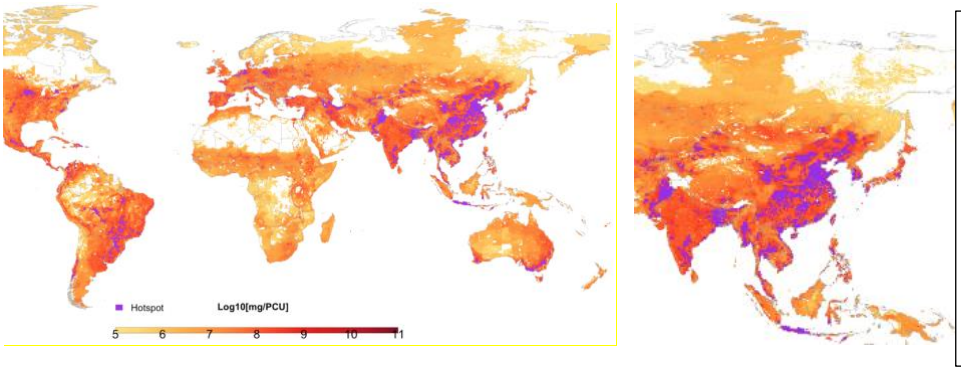
High numbers of genetically uniform, selectively bred, and highly stressed animals are vulnerable to existing and emerging diseases. In fact, 75% of emerging human infectious diseases reported in the past three decades arose and were transmitted from animals to humans, accelerating and mutating under intensive, stressful conditions.[33] Examples include avian and swine flu, Nipah virus, and many others. Bacterial food-borne illnesses caused by *Salmonella, Campylobacter,* and *E coli* are also often correlated with low-welfare farms and feedlots.[34]

Disrupted supply chains due to diseases spread from animals to workers – including pandemics like COVID-19 – further expose systemic low animal welfare and abuse. The Asian pork industry is still recovering from African Swine Fever (ASF) after culling hundreds of millions of pigs across East and Southeast Asia. In many markets, smallholder farmers have ceased operations, enabling significant corporate consolidation of low-welfare intensive farming.

Low animal welfare and resultant disease is often ameliorated by mass use of antibiotics, which threatens food safety due to possible antibiotic residues or contamination with resistant superbugs. Recent studies reiterate that around 73% of all antibiotics use globally is in farm animals, while reducing antibiotic use corresponds to decreased prevalence of resistant bacteria.[35] In Asia, expanding meat production has led to growth in antibiotic use and the highest

prevalence of resistance to tetracyclines, penicillin, and sulphonamides. (See also our Business Case on Antimicrobial Resistance and Responsible Antibiotic Use.)

Manure biodigesters may appear to assist in waste reduction and energy generation, but they may also increase superbug concentration and ultimately spread remaining solids or fluids into the environment, affecting crops and impacting food production, waterways, soil, wildlife etc.



Left: global map of antibiotic use per mass livestock, corresponds with intensive livestock farming.
Right: Asia focus.
– Source: Mulchandani et al, 2023 https://journals.plos.org/globalpublichealth/article/figure?id=10.1371/journal.pgph.0001305.g003

Additional environmental impacts may be seen beyond farm sites, such as in raw materials used for animal feed that result in escalating scope 3 emissions for companies. For example, soybean meal, palm derivatives (such as palmate in dairy feed), maize, and corn often involve deforestation in remote lands and at-risk habitats, while grain is inefficiently converted. National decarbonisation targets and Life Cycle Analyses may not include such feed-related impacts and emissions, even though supply chain risks are becoming default approaches. In addition, heat stress impacts crops as well as animal productivity and welfare, and in due course may render intensive systems and equipment as stranded assets, especially in tropical climates.[36]

6. Amplified Welfare Risks on Multi-storey farms, care with AI and Precision Farming

While all of the risks mentioned above are readily found in Asia, there are also some Asia-specific systems that are accelerating and compounding risk. Multi-tier caged broiler systems predominate in China and are fast increasing elsewhere. Despite cage-free corporate commitments held by over 380 companies operational in Asia,[37] caged egg layer farms will continue to dominate production until major retailers also make similar commitments. Caged duck farms are accelerating, and caged mother pig systems still dominate. Integrated multi-species systems in Asia (e.g. poultry and fish) can be efficient, but also risk welfare restrictions and disease transfer.

Multi-storey pig farms, a particular trend in China, are now expanding to South Korea, Hong Kong, and Vietnam, and their unprecedented animal density compounds welfare and disease risks.[38] Many are still battling more endemic strains of ASF, despite external biosecurity efforts. (Look for our pending statement on Multi-storey Farms.)

Precision Livestock Farming (PLF), often considered part of "climate-smart agriculture", is an industry-driven approach combining high-tech sensors and cameras, AI, and Internet of Things technologies whose primary aim is to further enhance productivity. In some ways, PLF can be used to for early detection, monitoring, and response to herd-level health and welfare issues, and has been used in chicken, dairy, and pig farming.[39] However, it is predicated on intensive systems and approaches, and limitations, welfare failures or compromises are often not disclosed.

For example, AI can be used to monitor and respond to poultry movement or emergent heat stress, but is often not feasible for caged systems. It does not enable fundamental behaviour and welfare improvements of cages or tackle harmful behaviours or lameness that impact birds on an everyday basis. Climate-smart agriculture has many benefits in soil and water conservation and crop integration, strengthening resilience and reducing scope 3 GHG emissions, but doesn't consider the overall or cumulative animal welfare impacts (e.g. of new caged or multi-storey systems) or inherent dependence on deforestation-linked animal feed.

Specifically **AI use in livestock farming** has a potential range of welfare benefits, but most reviewers conclude a current lack of ethical guidance and responsibility, with the potential to overlook inherent harms to animals if welfare scientists and key principles are not part of the development and monitoring of the application of AI tools for farm animals.[40] [41] [42]

7. Corporate Commitments, Opportunities, Economic Case Studies

Many companies in Asia have already committed to cage-free/crate-free systems, but the addition of more local companies – especially retailers – will help accelerate the shift towards critical mass and price parity (where needed). There are a range of resources that offer corporate precedents and economic case studies, which can be used to support the case for Asian businesses.

- For lists of companies committed to cage-free eggs or better chicken commitments, by market, sector, and tracking reporting progress, see: **Chicken Watch**. **Cage-Free Asia Tracker.**
- For majority group housed sows commitments and progress, see the Asian pages of A Crate-Free World.
- For an existing list of Asian companies with **Certified Humane** farms/products, standards and how to get certified (Asia, ex-China).
- For local market supplier lists for cage-free egg and higher-welfare pork procurement, ARE can provide these or link companies with various local sector experts and solution providers.

Below, we summarise a selection of economic business cases or factsheets of systemic improvements that are emerging or advancing in Asia, highlighting some sector-specific business cases:

7.1 Avoiding pregnant sow cages / crates / stalls: Optimal group housing for pregnant sows.
The Business Case for Pre-implantation Group Housing Systems (CH version) can be used in conjunction with ARE's cost calculator in 10 Asian markets and currencies (see below).

Capital and operating costs for sow housing primarily depend on the market, whether the project is a new-build or a conversion (i.e. retrofit) of an existing building, the type of feeding system and the time spent in insemination stalls, if any. Although there is clear scientific evidence that maximal group housing provides much better welfare than partial-gestation or full-gestation stalled systems, it is important that group housed sows are protected from competition and aggression while feeding.

Key systems for sow protection and individual feeding, include:
- electronic sow feeders (ESF), which provide individual precision feeding, and can also have additional reproductive monitoring capabilities, but only one sow feeding per ESF is possible at any time.

- free-access stalls (like the Gestal system), or shorter shoulder stalls, can simplify electronic feeding. Usually, several stalls are used in a pen, enabling more than one sow to feed at any time.

ESF systems (offered by several equipment companies) are the most technically advanced and capable, usually required at a ratio of 1 ESF system per 40 to 50 sows in a pen. They have been commercially successful and integrated into existing housing costs by major Thai producers and retailers (Betagro, CPF, Central Retail's Tops[43], and formerly Tesco Lotus, though current Lotus's supermarkets have not clarified this commitment[44]) and some Muyuan farms supplying a principled buyer, and other companies in Asia, Brazil, Europe, US, Australia, and Canada. Effective enrichment (providing safe, chewable, ideally edible fibre materials) also reduces fighting, biting, and reduces chronic hunger among commercial sows by enabling innate foraging behaviour in otherwise barren environments (details in the next case).

Humane World for Animals (HWA) developed a business case for group sow housing, including a range of scientific studies and commercial examples, along with some economic analysis to show that pre-implantation group housing enabled optimal welfare outcomes and productive, cost-effective modern housing.

The following table compares conventional sow stalls with two other group sow-feeding systems in a North American context. The Gestal 3G system (by Jyga Technologies), which allows a sow to enter a stall just while feeding to protect her from other sows, also provides a tailored diet to her nutritional needs. Shoulder stalls extend to the sow's shoulder and provide her with some protection from other sows while usually providing trickle feeding. A range of production case studies from **Brazil, Spain, Canada, Italy** and **the US** can also be found in the publication. **For Asian cost inputs and system comparison, the ARE calculator is available.**

Table: three cost estimates for a new build from different equipment providers, HWA, 2025.

Category	Gestation stalls	Shoulder stalls	Gestal
Total sow spaces	4610	5528	5454
Total sow spaces	100%	120%	118%
Gating	100%	118%	24%
Electronic feeders			100%
Feed system	100%	60%	13%
Plumbing	100%	98%	40%
Install labor	100%	73%	99%
Total	100%	98%	77%
Cost/sow space	100%	81%	65%
Space allowance/sow	18.8ft² or 1.75m²	20.4ft² or 1.89m²	19.6ft² or 1.82m²[d]
Cost/square foot	100%	75%	62%
Cost/sow space (USD)	490.30	399.12	318.66

Image: Gestal 3G group housing system, source: Jyga Technologies.

7.2 Enrichment for all pigs: Produced by World Animal Protection, this science-based, pictorial factsheet enables good decision-making by understanding the role and benefits of effective enrichment. Enrichment enables normal pig behaviour, optimising production and reducing negative impacts, antibiotic use, costs and even losses at slaughter due to fighting, biting, chronic stress and endemic disease generated in barren intensive systems. Local materials can be assessed with key practical criteria – "rootable", "edible", "chewable" and "destructive" – with examples provided from farms in Thailand, China, Brazil, and Canada. The business case for enrichment is also presented, and commonly perceived barriers are dispelled with practical advice to avoid blockage of manure (slurry) systems and breaches in biosecurity, while storage and supply of enrichment at scale are also briefly discussed. The factsheet assesses optimal to sub-optimal types of enrichment, noting that chains and basic plastic toys can harm or bore pigs, and should not be used.

Left: UV-treated straw used in Betagro's group sow system.

Right: after drinking, sows chew the jute sacks hanging as enrichment.

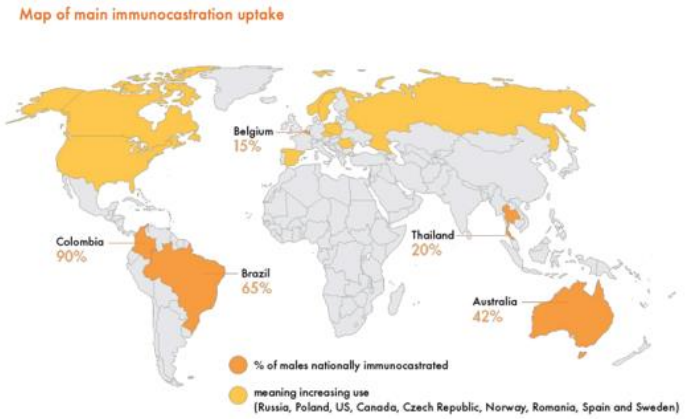
Source: World Animal Protection, Enrichment Factsheet, 2019.

7.3 Avoiding pig mutilations/painful procedures: The Business Case for Higher Welfare of Pigs Raised for Meat covers a range of productive and economic case studies that avoid routine mutilations, otherwise known as painful procedures, of piglets. These invasive procedures were originally embedded into intensive conventional pig-raising systems to reduce related fighting, biting, lost growth, injuries, and infections found in intensive systems. We now know there are better, humane ways to avoid these procedures by addressing the root cause or applying cost-effective and often growth and health-enhancing technologies to replace these practices.

One relatively easy example, involving very low to no cost, is avoiding teeth reduction by training staff to focus on and observe the sow for milk let-down or problems rather than cutting or grinding piglet canine teeth routinely to prevent them from biting when they don't receive sow milk. This procedure is fast becoming obsolete, and is already being phased out by some of the

world's largest or leading producers, including in Brazil (BRF, JBS Brazil), Thailand (CPF, Betagro), and China (Muyuan, which supplies such pork to major Chinese retailer Sun Art Retail – RT supermarkets, SR2025).[45]

Avoiding the surgical castration of male piglets (routinely conducted with no anaesthetic or pain relief) is another cost-saving, or at least cost-neutral, example. Immunocastration (effectively stops puberty in male pigs via a vaccine-like approach) involves two injections in growing animals and leads to leaner market pigs. It more than pays for itself by promoting faster growth, reducing feed, manure, and GHG emissions. Feed efficiency is optimised by 8 to 10%, manure reduced by 8 to 10% (compared with castrated pigs), without the fighting and boar taint associated with uncastrated males.[46] This technology has seen widespread commercial adoption, with rates of almost 100% in Brazil and Colombia and growth elsewhere, including Thailand. (See the Business Case for details of these and other case studies, including how the best farms also phase out piglet tail docking.)



Source: World Animal Protection, 2019

7.4 Cage-free egg systems: Compassion in World Farming published a [2024 Laying Hens Business Case for Cage-Free Transition], outlining some of the costs and price premiums in Japan, the US and parts of the EU.

The report includes a study that surveyed laying-hen farmers in China, Japan, Indonesia, Philippines, Malaysia, and Thailand on the adoption of cage-free systems. About 25% of respondents said "yes" and 41% said "maybe" to cage-free egg systems being feasible in their country. The study found that farmers perceive the main barriers to cage-free adoption to be reduced profitability, limited land and cost of land, as well as higher production costs. Technical training, support, and resources were cited as the key factors that could drive a cage-free transition.[47] The report outlined other key factors including cost mitigation strategies, including spreading the cost over time, price premiums, and securing buyer contracts (which is also critical to obtaining finance). By 2025, more than 370 companies active in Asia had committed to cage-free eggs.[48]

While establishing and operating cage-free hen systems does cost more (premiums vary according to the market), commercial producers in countries including China and Indonesia have produced transition case studies for restaurants, manufacturers, and food-service companies, supported by Global Food Partners. From simpler single-tier (floor system) to multi-tier aviary systems, the retail premium enhances economic feasibility in Asia. In China, Asia's leading cage-

free egg market, retail demand is growing. An ARE survey (link to articles in English and Chinese) in 2025 found that 8 out of 10 supermarket operators in Beijing sell cage-free eggs, though the report found most retailers still need to optimise their product marketing strategies.

Additionally, where supply is currently limited, Impact Incentives (a "book and claim" credit system directly supporting emerging or expanding cage-free farms in the local market) can fill the gap. Incentives can sometimes translate to savings of up to 30% for buyers, who only pay the cost difference between caged and cage-free eggs, not transport and other logistics. Impact Incentives, which is supported in-principle by ARE's investor engagement programme, aims to grow local cage-free egg markets in Asia and enable corporate commitments, particularly in the food-service sector.

Left: Pingyao aviary cage-free farm in China. Farmer and GFP support featured.

Right: from a foodservice case study

Source: Global Food Partners, 2025.

7.5 Higher-welfare dairy: The Business Case for Higher-Welfare Dairy in India is a collection of medium-sized commercial dairies that model loose housing and other welfare improvements, sharing the benefits and economic data. In addition, ARE has data from small dairy farmers who used guidance to transition from permanent tethering to loose housing systems and found better milk yield and quality, lower veterinary costs, antibiotic use and labour, as well as greater satisfaction and livelihood benefits.

ARE is also working with ERM (India) to develop some economic models and business cases for higher-welfare dairy, cage-free eggs, and chicken retail in the Indian context.

Japan offers a contrasting example. All dairy in Japan is highly intensive and mechanised yet farm animal welfare is lagging. And while there is lower consumer understanding of dairy welfare, partly because of information asymmetry, there is an emerging interest in higher welfare. Authors concluded from a national survey that clear labelling and accurate information, with assistance from retailers, would inform and help drive consumer behaviour towards higher-welfare dairy.[49] This probably applies to many Asian markets.

7.6 Higher chicken welfare: "Valuing Higher Welfare Chicken" a report by World Animal Protection, includes research by the University of Wageningen makes the financial case for humane chicken production, featuring cost modelling and linked welfare outcome analysis for Thailand and China (plus the US, Netherlands, and Brazil). The report also presents a case study of full domestic retailer transition in the Netherlands.

Aside from being cage-free, key features of higher-welfare chicken (also known as the **Better Chicken Commitment** [BCC], signed by more than 200 companies in the US, and others globally)[50] include moderately slower-growing breeds, which enable more balanced growth and behaviours. Other improvements include reduced stocking density, environmental enrichment, adequate lighting, dark periods, and the most modern slaughter method (Controlled Atmospheric Stunning).

This study found that cost did increase, but at a lower-than-expected rate of 6 to 9 eurocents per kilogram of liveweight chicken. In real economies, this system requires some transition of consumer expectations, and ideally a level playing field. This was successfully established in the Netherlands, where domestic retailers agreed to remove low-welfare chicken from shelves and menus and found they recouped the extra cost through a modest premium, which consumers were willing to pay.

Higher welfare chickens on litter on a Dutch farm. Source: World Animal Protection, 2019

While economists in the US have pushed back against this model, arguing that extra land and cost is needed to raise the same amount of chicken, in the Netherlands producers did not find this to be the case, even though the country has much more limited space. The US, along with some East and Southeast Asian nations, is already eating excessive meat per capita (when compared to WHO and EAT Lancet Commission recommendations), so eating less but better-quality chicken could be a consumer and health benefit.

A recent collaborative study of welfare benefits versus cost of slower-growing chicken in the US by the Welfare Footprint Framework and the Stockholm Environment Institute showed a USD1 and 1kg CO2e increase per kilo of chicken purchased. As the authors note, the cost to avoid 15 to 100 hours of pain per chicken, when compared with the cost of carbon offsets, may encourage a humane decision for companies.[51]

In Asia and many other regions, transitioning to moderately-growing breeds (those that reach market weight in 45/46 days vs 40/42 days) would represent a significant step change in a highly competitive industry. In Thailand, all exported chicken (and thus much domestic chicken that uses other parts of the carcass) is cage-free, and broadly meets stocking density and environmental requirements. However, Thai producers retain fast-growth genetics, which translates to lameness, pain, and boredom, among other low-welfare animal experiences.[52] Major producers also push back on concerns over increased emissions. The science on this issue is complex, and total production emissions depends on whether the full the scope of the chicken

production cycle (from hatchery to harvest) is considered and whether deforestation is involved in feed sourcing. ARE conducted a literature review on this topic of Broiler Welfare and Environmental Sustainability in 2022.

Some smaller chicken providers supply companies that have committed to the BCC, but there are currently few suppliers in Asia and they attract a premium. However, the BCC is likely to attract growing civil-society attention as cage-free egg markets mature. This is already the case in Europe,[53] [54] where civil society is targeting Quick Service Restaurants and Retailers.[55] A range of resources are provided by Compassion in World Farming to assist corporate change and supply.

For more economic case studies, we invite you to explore the FARMS initiative resources page, specifically the Briefing on the economic implications of moving to farming systems with higher standards of animal welfare. While economics and drivers for animal welfare obviously vary by market, the relativity of costs usually do not.

1. Economic Tools and Ecosystem of Support for Companies

- For a cost calculator for cage-free egg suppliers/producers: **see here**
- For training, a free introductory session or low-cost further sessions: **see here.**
- For site visits to three model cage-free egg farms; China, Indonesia and India, **ask ARE**
- For ARE's Sow Housing Cost Calculator, adapted from that of Michigan State University, **ask ARE**
- For banks offering sustainable finance for cage-free conversions or new farms, **ask ARE**
- For guidance and examples on corporate animal welfare policies, **ask ARE**
- For cage-free hen and sow systems, ARE can introduce companies and suppliers to a range of **professional services and experts that provide an ecosystem of support** from China, India, Indonesia, Japan, Malaysia, Philippines, Thailand and Vietnam.

2. Discerning Disclosure around Outcome Indicators, Certification Schemes

To align with the main disclosure frameworks, the minimum priority for corporates is to establish an animal welfare policy to signal direction, and consider a time-based cage-free commitment. Already both SASB 2023 (subsumed under ISSB Standards) and GRI 2022 require annual disclosure around the percentage of eggs that are cage-free, and percentage of pork raised without sow gestation stalls.

So, whatever the decision, the next step is **annual disclosure**. Similarly, **financial institutions need to set some meaningful KPIs or conditions around sustainable finance for cage-free systems or higher welfare**. Selecting a few "iceberg indicators" can be extremely efficient and effective for both scenarios. For a science-based understanding of key indicators, Assurewel has species-specific examples, simply explained. ARE can also assist in this area with corporate examples in and beyond its **Animal Welfare Policy Guidance**.

When ready, companies can strengthen trust and transparency by considering certification – though this is not an essential starting step. Not all certification programmes are created equal. Some do not include animal welfare, are not independent, or measure a mix of system inputs and animal-based welfare outcome indicators as best practice. For a categorised list (from "basic" to "moderate" to "best practice") of many farm animal welfare certification schemes, see Sheet 2 of ARE's self-assessment questionnaire found here. This list also generally aligns with the categories used by the Business Benchmark in Farm Animal Welfare. ARE and the Financial Institutions' Guide to Farm Animal Welfare recommends the following increasingly

available certification process in Asia, plus possibly others in China (via a trusted and trained third-party provider). **Contact ARE for more information.**

- **Humane Farm Animal Care**. Label Certified Humane. Asia website (low cost, local certifiers)

- **Global Animal Partnership** (G.A.P) (emerging in Asia)

Recommendations

Companies should ask themselves:

- Isn't low animal welfare a material risk, given the risk to reputation, production, and growing consumer and investor interest?
- Do we understand the benefits, costs, and sustainability implications of higher vs lower-welfare systems?
- Could we be underperforming and getting left behind in meeting consumer, investor, customer expectations?
- Are we missing out on market premiums, segmentation and value-added products and markets?
- What are our barriers to change, and how do we overcome them to be a leader or join peers?
- Can we at least start exploring the risk and disclose what we already do well on animal welfare? And look to phase out the worst practices?
- Have we explored ARE's resources for developing a policy, cost calculators or other support?

Banks should ask themselves:

- Do we understand the business case for higher welfare?
- How can we best support our "food and agri" clients to derisk, transition, and future-proof?
- What is the demand, or our opportunity for sustainable finance for higher-welfare systems?
- What conditions or indicators do we need to set as a responsible lender for higher welfare?
- What are our barriers to including animal welfare in our responsible lending framework, and how do we overcome them to be a leader or join peers?
- When can we set up a meeting with ARE to support us?

Investors need to:

- Develop a general understanding of the economics, production, and sustainability benefits of higher-welfare systems for Asia, as a double-material issue.
- Critically analyse disclosure on animal welfare and be alert to "humane washing".
- As a minimum, encourage companies to develop an animal welfare policy, to meet Platform investor expected disclosure 5.2
- Request companies consider time-based commitments for cage-free, as a start, to meet Platform investor expected disclosure 5.3, and prevailing disclosure frameworks.
- Where a commitment is not forthcoming, investors can request annual progress disclosure to encourage corporates to monitor and measure, and then set internal sales targets. Also, encourage them to suitably place, promote, and price higher-welfare products in stores or on menus.
- When a commitment does happen, ensure it is time-based and includes annual progress reporting (to prevent any risk of humane washing), and congratulate the company!

Annex 1: Assessing Welfare Practice vs Humane Washing (summary table)

Species	Baseline Industry stands and norms*	Critical Critical elements to look for	Best practice Best practices to look for	Red flags Causes for concern
All species	Compliance with legislation Complying with baseline industry standards or guidelines "Zero tolerance" policy for animal abuse Having heating and cooling systems, water quality and quantity, nutritional levels and environmental control, humidity, ventilation, temperature, lighting and bedding quality monitored periodically Pre-slaughter stunning General comments about audits For large animal producers, having a full-time veterinarian(s) on staff Internal training about animal welfare	A policy in place that meaningfully addresses critical animal welfare risks or meaningful, public-facing, time-bound commitments to improve the level of farm animal welfare (commitments should address primary animal welfare risks) Public-facing reporting and timely updates	Third-party auditing of meaningful commitments at the farm level Certification to a meaningful science-based animal welfare standard Land transport time limited to a maximum of eight hours (except for poultry) A pain control protocol (including anesthetic and analgesic) for any invasive or harmful procedures Guidelines for removing suppliers that do not comply with animal welfare policy	No mention of animal welfare, even at a basic level No description practices/policies addressing critical welfare risks for the species category Commitments without time-bound goals Solely grouping animal welfare under biosecurity or quality assurance Wrongly using production data (e.g., feed efficiency) as an animal welfare indicator International long-distance transport and/or export/import of live animals by sea The use of confinement-based production practices (or a vague mention, or no mention of housing system) Use of wording that indicates a lack of proactive engagement and creates a loophole such as "if the market allows," "depending on market conditions/price" or "depending on availability" in relation to animal welfare policies Antimicrobial commitments without separate, meaningful animal welfare commitments

Source: Humane World for Animals: https://www.farmsinitiative.org/post/hsi-releases-guide-to-humane-washing-for-financial-institutions

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