

## **Animal welfare and profitable farming**

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After World War II the extraordinary call for food in an economically devastated world and the advances in research for new technologies, lead to profound changes in farming systems in Europe. Until this decade, livestock was normally reared under traditional methods based on family run, low input, and multispecies farms usually characterized by having animals outdoors in low density conditions. Starting in the fifties and sixties, a new type of intensive animal production developed, increasingly relying on the use of technology.

Since then the economy of animal production changed completely. Genetic and nutrition “forced” higher performances. For example, in 1940 it would take a chicken 12 weeks to reach 1.8 kg body weight, while nowadays a broiler will only take five weeks. At the same time, machinery, infrastructures and animal density allowed for a tremendous increase in animal/stockperson ratio. This meant that very few people were now needed to produce food for a growing urban population. For example, in 1940 one farmer would feed approximately 19 people while in 2010 the same farmer would manage to feed 155 persons.

As a result of this animal derived products became cheaper and universally available. While in 1950 a worker could buy only 7 eggs for one hour work pay, today the same worker would buy 400 eggs.

However the intensification of animal production, characterized by confined production systems and concentration of production in fewer large units, changed how society perceived this activity, generating a set of actions to ensure farm animal welfare.

Public attention was first drawn to the welfare of animals kept under intensive husbandry conditions by the publication of Ruth Harrison's book “Animal Machines: The New Factory Farming Industry”.<sup>1</sup> Perhaps for the first time modern animal production paradigms, the economic changes taking place within the industry and how it affected animals, were scrutinized.<sup>2</sup>

All these changes brought about new welfare challenges and a more concerned view from society towards animal production.

With time, consumers became aware of some of the negative effects resulting from intensive farming and became more informed, judicious and sensitive. Three reasons are behind this increasing worry for animal welfare during the last 50 years: 1) the change to a less humane way of confining animals; 2) a prevailing urban population that sees animals as sentient beings rather than as instruments and a media that constantly “humanizes” animals and shows some terrible conditions in which animals are kept; 3) a reaction to all “non-natural” conditions that could put food safety at risk.<sup>3</sup>

Bernard Rollin also suggests that “society was more ready to think ethically about animals”, because of what he called an “ethic wave” that engulfed society during the second half of the twentieth century and included moral crusades such as those in favour

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of civil rights, equal treatment for women, the integration of coloured people, immigrants and the disabled, and even nature conservation.<sup>4</sup> We would add another reason that may explain why some countries, namely northern Europe, headed this ethical wave for animals: prosperity and stability in the more developed countries allowed for financial and intellectual investment in improving animal welfare – As John Webster says in his book “Limping towards Eden”: “...wealth (...) allowed us to behave towards (animals) with responsibility and altruism”.

So, although some of the consumers’ demands sprung from the idea that intensive farming produces less “natural” and safe food, it is also true that ethical concerns played a considerable part. Retailers (and legislators) quickly responded to this situation by demanding stringent welfare policies from animal producers.

In 1964 the British Farm Animal Welfare Council published the first guidelines destined to guarantee better living conditions for farm animals. These are widely known as the Five Freedoms. Since then welfare guidelines and legislation have been developed all around the world. So modern society in developed countries has demonstrated, without a shadow of a doubt, that animal welfare is one of their main concerns when discussing animal production and sentience is the fundamental, morally important basis, upon which worry for animal welfare rests. As Duncan puts it “... *neither health nor lack of stress nor fitness is necessary and/or sufficient to conclude that an animal has good welfare. Welfare is dependent on what animals feel*”.<sup>1</sup>

Meanwhile other factors have to be added to the equation, influencing the future of agriculture:

- Provisions by FAO and other organizations have shown that the world population is growing and asking for more from agriculture. For example, FAO predicts that in 2050 there will be an increase in meat production of over 200 million tonnes to a total of 470 million tonnes.
- Concern is growing on the impact of agriculture on the environment (e.g. soil and water usage and pollution, green-house gas, deforestation...).
- Consumers will demand food safety and will seek naturally/organic produced food.

In summary, consumers demand safe, natural, high quality, animal and environment friendly food at any cost... but only if a low cost. But is this feasible?

### **Why does animal welfare increase economic gain?**

Although some of these current demands are out of scope of this paper, we aim to demonstrate that it is possible to increase animal performance by ensuring its welfare. In other words, three intertwined reasons back the promotion of farm animal welfare by humans: ethical, health but also economic reasons.

Gradually, consumers expect welfare to be part of the core of farm animal production and will avoid products which they view as not fulfilling minimum conditions. Examples of this pressure and of consumers withdrawing their support for certain types of production are available worldwide. So, farmers’ opposition or disregard for public concern is nowadays unsustainable. No industry will continue to produce a car that is so ugly that drivers won’t seat on it. In the same way, farmers that insist in producing in a way that consumers abject, are killing their own and others’ businesses. It is an enormous and well known economic blunder not to listen to your clients. This does not mean that every criticism should be accepted, but it does mean that farming must be open, transparent, informative and sensible. Consumers should trust farmers and believe that their share the same values.

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But even if consumers did not object to poor animal welfare, there is more than enough proof that good welfare corresponds to good performance and high quality products. In this paper we present just a few examples of good welfare as a way to guarantee animal health and farm profit. By using the Five Freedoms it is easy to find scientifically sound studies to prove this.

1. It is obvious that hunger and thirst, are neither features of good welfare or good performance. Not so evident are certain deficits or unbalanced diets (can be considered a type of hunger) that may lead to sub-clinical metabolic disease. For example, ensuring enough effective fibre in ruminants' diets is sometimes ignored, but studies have shown that long duration of oral manipulation of feed in cows, may be linked to higher oxytocin and lower cortisol levels, compared with shorter oral feeding time and filled rumen.<sup>5</sup> Or, *ad libitum* hay benefits both behaviour and gastrointestinal health (less ulcers) in veal calves.<sup>6</sup>
2. In case of disease and lesions, it is also self-evident that a sick and debilitated animal will not performed adequately. However, the dimension of these losses is not always that clear. This is what happens with sub-clinical disease. For example, we have found that calves with sub-clinical pneumonia (detected after slaughter) had a reduced daily weight gain. Other authors have found that these unapparent respiratory infections also have an impact on the quality of meat.<sup>7</sup> Also in the case of pain it is logical to think that an animal in pain (anorectic, reluctant to move...) will not be using all its capacity to grow or produce. So it is important to understand how pain affects physiology and mental and physical activity. Another paper in these Proceedings deals in particular with this welfare issue and its effect on performance.
3. Fear, anxiety and distress, especially if chronic, have very important implication on fertility and immunity. Human-animal relationship' quality also fits in this group with examples of good or bad stockmanship being correlated with milk yield, behaviour at milking, somatic cell count, weight gain, carcass quality and fertility. The application of improved pre-slaughter handling practices in Latin America reduced aggressive handling and the incidence of bruised carcasses at slaughter in cattle and pigs.<sup>8</sup> Even negative experiences as young calves may affect how bulls behave and endure transportation when sent to slaughter. Lensik et al, showed that animals that had previous positive contacts with humans had lower heart rate, lower cortisol levels and were easier to move, load and unload.<sup>9</sup>
4. The effect of discomfort on production is relatively easy to demonstrate in dairy cows. Several studies have shown correlation between different types of bedding material or stall design and milk yield.
5. The link between the freedom to perform natural behaviour and economic gain, is perhaps the less clear association. However, there is growing scientific evidence that this is true. We conducted an experiment in which environment enrichment was tested in piglets. When objects were placed in their pens, piglets showed more exploratory behaviour, less tail biting and more weight gain. Some very nice research with fattening lambs showed that lambs placed in an enriched pen (wooden platform with ramps giving access to a concentrate hopper, straw as bedding, and a further ramp for play) had higher average daily gain, heavier carcasses and higher fattening scores.<sup>10</sup>

So it is well established that animals with poor welfare have suboptimal performances or demand artificial ways of maintaining health and production (e.g. antimicrobials). Farms where animal welfare is promoted are usually successful businesses. Good managers

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will be constantly seeking for ways to guarantee the welfare of their animals and to detect risk factors. By assessing welfare through a well built and comprehensive protocol, it is possible for early identification of sub-clinical disease, health risk factors and reasons for low yield, reduced growth or high mortality. Using welfare assessment protocols is also an excellent way to discern and monitor disease prevalence, such as lameness. Benchmarking is also increasingly being used to track changes within the same farm over time as a part of good farm management. Comparison of the same measure between farms with similar housing systems or management practices facilitates the identification of those farms that are outside the normal range of variation in a specific animal-based measure. These are all sound economic measures that any modern enterprise will use.

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