

INDUSTRIAL LIVESTOCK PRODUCTION AND GLOBAL HEALTH RISK

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Abstract

Factory farming has become a global risk to both animal and human health. These are risk to both animals and people from infectious disease and from pollution that arises when every large number of animals are kept crowded together in a relatively small area, often indoors. Other health risks relate to the diets that we choose to eat. It is now a proven fact that the production of large quantities of low-priced meat and dairy products has encouraged overconsumption of animal protein and animal fat in developed countries to the detriment of public health which can incur very high cost in terms of prevention, clean-up, compensation and the cost of illness. This paper gives an overview of the trend so far and the way forward.

Keywords – Factory farming, industrial livestock production, occupational exposure and environmental burden.

Intensive livestock production methods, where large numbers of animals are kept together in confined spaces, increases the potential for infections to be spread between animals and from animals to humans. The stress of these type of farming and their reduced genetic diversity damage animals' natural capacity to resist infection and maintain health, (Rauw, 1998). This method of farming commonly use antibiotics to prevent the spread of disease that would otherwise occur among animals kept in unnaturally crowded conditions. It has been estimated that half of all antibiotics produced in the world are used for food animals, often for preventing disease rather than for curing sick animals. Over use of antibiotics in intensive animal production is a major

cause of the resistance of many common pathogens to the antibiotics used to treat humans. Intensive livestock production use of antibiotics is also implicated in the spread of superbugs such as methicillin – resistant staphylococcus Aureus (MRSA). Shea, (2007), is of the opinion that,

“This type of farming has also been implicated in the development of several significant human health challenges of the last 20 years. Bovine Spongiform Encephalopathy (BSE) emerged out of the intensification of the dairy industry. Highly pathogenic avian influenza or bird flu, which once posed the threat of global pandemic among people, emerged during a boom and rapid intensification in the global chicken industry,”

Reducing the size of the global-intensive chicken meat industry would be one essential step towards controlling the disease from reemerging. In 2009, the human swine flu pandemic also raised questions as to the role of the intensification of livestock farming in its origin and spread of the new or currently emerging animal diseases, it has been estimated that 73% are transmissible to humans (Zoonotic), (Greger 2007). Global warming and global trade and transport can be expected to increase the rate at which animal diseases are spread and make infections in factory farms more difficult to control.

Pollution Hazards to Farm Workers and the Public

Farms where hundreds of thousands of animals are confined in a small space, are sources of pollutants that can damage the health of people who work in them. Slurry pit under livestock sheds produce toxic gases, these include sulphur dioxide, which can cause loss of consciousness after a few breaths, together with carbon dioxide, methane and ammonia, all of which can displace oxygen and can lead to the asphyxiation of workers. When the slurry is stirred, the level of hydrogen sulphide can rise to lethal concentration very rapidly causing asphyxiation of workers working in confined spaces, (Wathes, 2010).

Studies by Groot, (2009), showed that the level of ammonia and inhalable dust in broiler sheds in some countries were close to or above the eight hour exposure level for stock people and often exceeded the guideline limit for the animals. The levels of endotoxins (airborne particles of bacteria, insects, manure etc) were considered high enough to induce fever in humans given prolonged occupational exposure. It is also a fact that the air of poultry houses seethes with a health-threatening mixture of gasses, dust and microorganisms and that a poultry house is a large source of aerial pollutants. Toxic dust and gases can cause chronic respiratory problems for agricultural workers, especially those in pig production units and in buildings with high levels of dust and gases. People living near factory farms, may also experience lower but significant levels of air pollution which can affect especially children and the elderly. A survey of the

Biom families in Jos, Plateau state found high prevalence of asthma among children who lived on family pig farms, especially if antibiotics were added to the pig feed, (Rule 2009). Over 20 chemical species of odorants have been identified in animal housing, which can be carried on dust and smelled up to 2km away. Researchers at John Hopkins school of public health London, have found that disease-causing bacteria, some of them antibiotic-resistant, are emitted from trucks taking farmed animals to slaughter and that these bacteria collect on surfaces and in the air inside cars travelling behind these trucks, this means that individuals not living near these farms can also be infected without physically being on the farm.

Highly Pathogenic Avian Influenza (Bird Flu) HPAI

Highly Pathogenic Avian Influenza (HPAI) first came to attention in 1997 in Hong Kong's live bird market and chicken farms when six people died from the disease, (Van Beest 2009). The H5N1 virus has since spread across countries in Asia, the Middle East, Europe and Africa. It has been found in chicken, goose and turkey farms and in some wild birds too. Intensification and the global poultry meat trade are implicated in this rapid spread. The Food and Agricultural Organization (F.A.O) has also confirmed that the disease is also spread through the human activities of poultry production, improper hygiene and uncontrolled commercialization leading to an influenza pandemic. This influenza virus survives in contaminated raw poultry meat and therefore can be spread through the marketing and distribution of contaminated food produce, such as fresh or frozen meat. Although the virus is killed by thorough cooking, it survives for days or weeks in birds faeces or on surfaces, particularly at low temperatures such as those used in chilled meat storage. Most of the people infected lived in close proximity with their household chicken, or were involved in killing infected birds or infected through retail meat. This could happen if birds were slaughtered before the disease became obvious.

Foot and Mouth Disease (FMD)

Animal disease outbreak can be very damaging to farmers and extremely costly even when they are not transmissible to humans. In the last decade several production viruses have emerged in the intensifying global pig industry, which tend to weaken the pigs immune systems and increase their susceptibility to other pathogens. Evidence is abundant that stress caused by intensification of livestock is likely to be an important factor in the spread of such virus. The main route of infection is from other live pigs and workers, clothes and equipment. Live transport of pigs is a major infection route. Studies by Evans, (2010) have found that the infection is more likely to persist in large pig herds, in pig – dense rearing region where the viruses are repeatedly reintroduced by bringing in new infected pigs. Many intensively farmed pigs are likely to be highly stressed by overcrowding, inadequate ventilation, lack of opportunity for natural behaviour, rough handling as well as close confinement in gestation and farrowing

creates. Rule, (2009), opined that, pigs are weaned and removed from their dams as early as 3-4 weeks old, making them very prone to infections and high mortality among weaned piglets from post weaning multi systemic wasting syndrome (PMWS).

Downer Cows and BSE

During the 1980s meat and bone meal derived from slaughtered dairy cows were fed back to intensively farmed dairy cows as a cheap source of protein to increase cow milk production, (Powles, 2007). This feeding practice caused the emergence of the degenerative brain disease BSE (Bovine Spongiform Encephalopathy) among cows and its tragic transmission to human as new Variant Creutzfeldt Jakob Disease (nVCJD). Recently a new variant of BSE in older cattle showing no disease symptoms has been identified at slaughter houses. The findings suggest that this disease created by factory farming has not left the food animal population and that only expensive drugs are likely to keep infections at bay.

Obesity and Diet

The current epidemic of overweight and obesity in developed countries has a number of causes related to diet and lifestyle, but a substantial cause is the overconsumption of saturated fat from animal products (meat and dairy) and under-consumption of vegetables and fruits, (Eshel, 2009). Other writers like Robertson, (2007) Strongly believe that,

“An energy dense diet high in saturated fat and low in food of plant origin, together with a sedentary lifestyle, is a major cause of epidemic in obesity and overweight, with increased risk of non-communicable diseases including cardiovascular diseases, certain cancers and diabetes”.

It is now a proven fact that reducing meat consumption in developed countries will both improve health and reduce the greenhouse gas emission. The benefits would include a likely reduction in the risk of colorectal cancer, breast cancer and heart disease as well as the risk of becoming overweight or obese. The likely reduction in heart disease would be mainly due to reduction in the consumption of saturated fat in meat, (Powles, 2007).

Antibiotic Resistance and Factory Farming

Factory farms commonly use antibiotics to prevent the spread of infections that would otherwise occur among the animals kept in unnaturally crowded conditions. Low doses of antibiotics are also used in some countries as additives in pigs and poultry feeds because they have the effect of increasing growth rate, (Shea, 2007). The over-use of antibiotics in intensive animal production is known to be an important factor in the development of resistance to antibiotics that are used to treat humans. Because of this

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danger, the use of antibiotic feed additives for growth promotion is illegal in some countries although the use of antibiotics for disease prevention is still legal.

Bacteria in farmed animals that are under-treated with antibiotics become resistant to the drugs and the resistant bacteria are passed from the animals to humans either in food or via the environment. Antibiotics used for people and animals are often closely related, even if they are not identical. This means that when a person suffers from a serious food borne infection the antibiotics that doctors use to treat the infection may fail. Factory farm use of antibiotics is also implicated in the spread of super-bugs (multi-drug resistant bacteria) in the human population which are a serious threat to human medicine. The rapid growth of resistance at the end of the 20th century has been described as a crisis stage in human medicine with the prospect of untreatable infection, (Shea, 2007).

Food safety and Food Poisoning

Intensively farmed (broiler) meat chickens are good examples of the negative impacts of factory farming on food and health. These farm products are a common source of food poisoning by bacteria such as salmonella and campylobacter in the birds intestines and feces that contaminate poultry meat during slaughter and processing. Snow, (2007) found that the prevalence of campylobacter among free-range meat chicken on farms was not higher than among intensive broiler chicken, even though proponents of factory farming often claim that animals confined indoors are better protected from infection.

Summary

Industrial livestock production produces cheap meat, milk and eggs for retail sale, but the hidden external cost of production are high. The cost includes damage to the environment, animals and human health. The bird flu pandemic has also raised questions as to the role of factory farming in its origin and spread.

Conclusion/Recommendation

Of the new or currently emerging animal diseases, it has been estimated that 73% are transmissible to humans (zoonotic). Global warming and global trade and transport can be expected to increase the rate at which animal diseases are spread and make infections in factory farms more difficult to control. Scaling down the consumption of animal protein and increasing the consumption of plant protein is seen as a step in the right direction in reducing the health risk related to our diets.

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