

PLEA FOR SUSTAINABLE LIVESTOCK FARMING

An End to Organized Irresponsibility

The Dutch province of North-Brabant has imposed a temporary restriction on the construction of new mega animal stables. The threats of diseases, 'flats' for pigs and large industrial complexes with tens of thousands of animals, and their impact on the landscape: enough is enough, the Provincial Council agreed in response to a public initiative of 33,000 citizens. Although this decision may have historical significance, it is no more than a hesitant start. Minister of Agriculture of the Dutch government, Gerda Verburg, quickly squashed any optimism by stating that in other parts of the country, there may still be sufficient room for mega-stables.¹ Moreover, provincial politicians and stakeholders are already pleading for exemptions, exceptions and temporary arrangements. These responses illustrate the persistence of problems in the Dutch intensive livestock industry.² But the North-Brabant decision also shows the need for change and the beginning of a turnaround. That is hopeful, in view of the remarkable stagnation in the past decade.

"Intensive animal farming should be changed radically. Animals should get more room for their natural behaviours, such as scratching around outside. Transport of live animals should be limited and breeding of livestock should not focus solely on increasing productivity."³ A commission chaired by Herman Wijffels recommended this to the Dutch Minister of Agriculture in 2001. "Current animal farming no longer fits into the urban society that we live in", Wijffels commented when he presented the advice. "The keeping of animals does not take place in the way we want to and the environment is burdened too much. The animals have little resistance to diseases, food safety is threatened, and the expenses of crises are escalating."

Brinkhorst, the Minister of Agriculture at the time, called the plans "clear, tough and inescapable" and planned to introduce the proposed reforms rapidly. By 2010, the industrial, and degrading – for both humans and animals – meat and dairy production would be a matter of the past. In the parliamentary notes "Keeping Animals" (2001) and "Animal Welfare" (2002)⁴ by Brinkhorst, these intentions were realized by placing animal welfare centre stage, as part of "a transition to sustainable farming": "In an international context, the Dutch government chooses to position itself as a leader in the shaping of humane and socially acceptable animal farming."

The Wijffels commission⁵, which was composed quite broadly, had provided all the reasons for the need for this transition in its report: the large-scale production methods, minimal living space for animals, animals rarely going outside, stench, environmental degradation, reduction of the gene pool, damage to surrounding natural areas, long-distance transportation of animals, dioxin and hormone scandals, swine fever, mad cow disease, foot and mouth disease, and subsidized overproduction; a farming system "that treats animals immorally and has raised the exploitation of animals to such a level that any malfunction will have disastrous consequences."

The Wijffels commission was not alone in noticing that the "developments within the livestock industry ... have exceeded the limits of what is acceptable and permissible." Sicco Mansholt, one of the architects of modern agriculture, described intensive animal farming as "a system of organized

¹ <http://www.boerderij.nl/1097469/Varkenshouderij/Verburg-verbindt-geen-gevolgen-aan-Brabants-besluit.htm>

² In the remainder, the terms *intensive animal farming*, *livestock industry*, and *factory farming* are used interchangeably.

³ "De Volkskrant" May 30, 2001: http://www.volkskrant.nl/archief_gratis/article890640.ece/Einde_intensieve_veehouderij

⁴ http://www.minlnv.nl/portal/page?_pageid=116,1640803&_dad=portal&_schema=PORTAL&p_news_item_id=18778 ; www.minlnv.nl/txmpub/files/?p_file_id=13616

⁵ http://www.minlnv.nl/portal/page?_pageid=116,1640851&_dad=portal&_schema=PORTAL&p_news_item_id=18376

irresponsibility” in his last interview in 1995⁶. Agriculture Minister Cees Veerman concluded in 2003: “We import fodder, export pigs, and keep the mess here. The system is stuck.”

Today, in 2010, we must conclude that the doomsday scenario of the Wijffels commission has almost entirely come true, and even worse. We have been faced with Q-fever, livestock-related MRSA, ESBL,⁷ the threat of an H5N1 pandemic, and the impact of the intensive animal feed industry and animal farming on greenhouse gas emissions have become even more evident. In the year by which the proposed measures should all have been executed, it appears that hardly anything has been done with the recommendations.⁸ On the contrary, the livestock industry has intensified even further, there are still large-scale culling operations of healthy animals, animal disease crises remain a major public health threat, and we should still be ashamed of the living and slaughtering conditions of hundreds of millions of animals in our “civilized” society.

Over one hundred full professors at various Dutch universities from a variety of disciplines have now united to use their collective expertise and effort, to promote the structural reform of intensive farming that was already considered necessary ten years ago.

Never before in history have we spent such a small fraction (less than 10%⁹) of our family income on food. And never before has the production of food had such an enormous impact on our environment. The cost of food has decreased. The price is being paid by animals, nature, and the environment – and thus, in time, by us and future generations. The livestock industry leaves severe, and in part irreversible, damage in our environment, in biodiversity, global food supply, balance of minerals, freshwater resources, public health, and especially animal welfare.

Animal welfare

In the recommendations of the Wijffels commission and the plans of Brinkhorst, the aim of natural treatment of animals was laid down. It was noted that this requires adjustment of the farming system to the animal, rather than vice versa. Factory farming has developed into an industrial enterprise – technically, a sophisticated and highly efficient production system – in which animals are adapted to the needs of the industry, even to the extent that they are mutilated. Animals are bred to produce ever higher outputs: in the past 25 years, 25% more eggs per hen, 40% more growth per animal, and 40% more milk per cow.¹⁰ The increasingly larger scale of the industry appears to result in a strong “thing-ification” of the animal: the animal is treated as an object, a product. There are cattle breeds that cannot give natural birth to a calf any longer; pigs with congenital heart and leg problems because of our preference for lean meat, suffering from anxiety and stress leading to break-down of their muscle tissues¹¹; calves that are separated from their mothers immediately after birth and suffering from anaemia due to a low-iron diet¹² because they must produce white meat on behalf of export preferences; hens destined solely to produce eggs, so that in The Netherlands alone, 50 million one-day-old male chicks a year are gassed or shredded alive because they serve no useful production

⁶ <http://geschiedenis.vpro.nl/programmas/3299530/afleveringen/15337284/items/16651494/>

⁷ [http://zembla.vara.nl/Afleveringen.1973.0.html?&Tx_ttnews\[tt_news\]=24177&tx_ttnews\[backpid\]=1972&cHash=8f497565d1](http://zembla.vara.nl/Afleveringen.1973.0.html?&Tx_ttnews[tt_news]=24177&tx_ttnews[backpid]=1972&cHash=8f497565d1)

⁸ <http://weblogs.nrc.nl/opklaringen/2010/01/02/ongezond-vleesbeleid-is-deel-van-de-grote-crisis/>

⁹ <http://www.cbs.nl/nl-NL/menu/themas/prijzen/publicaties/artikelen/archief/2008/2008-2582-wm.htm>

¹⁰ Leo den Hartog (Director of Nutreco), lecture in June 2006, Symposium Animal Diseases, LNV, Castle Groeneveld Baarn.

¹¹ <http://www.ers.usda.gov/Publications/aer835/aer835c.pdf>; <http://www.highbeam.com/doc/1G1-145681186.html>

¹² scientific opinion on: The risks of poor welfare in intensive calf farming systems, May 2006, EFSA (Scientific Committee European Commission), p. 10-11: http://www.efsa.europa.eu/EFSA/Scientific_Opinion/ahaw_op_ej366_calveswelfare_en1.pdf?ssbinary=true

purpose¹³; and other chickens are bred to grow from a few grams at birth to 2 kgs in 40 days: “The broiler has not been a real chicken for quite a while now. ... This juvenile bundle of muscles is admittedly a technological marvel, but from a welfare point of view it is a disaster. ... With such an explosive growth in a period of six weeks, their hearts, lungs and legs can barely cope. Some animals literally grow to death. ... Other animals are so heavy that their legs can no longer support them. Their legs collapse and they can hardly move.”¹⁴

Based exclusively on financial considerations, animals are literally reconstructed to meet production requirements, by means of invasive interventions (often without anaesthetics), such as the cutting of beaks and tails, filing of teeth, castration and dehorning. Hidden from public view, each year hundreds of millions of animals are slaughtered in our country, after unnaturally short lives with hardly any opportunity for natural behaviour such as exploring, scratching/pecking, running, nesting, playing, and other social behaviour. Due to the current slaughter surveillance systems and limited supervision, there is no guarantee that the animals have been effectively stunned before killing, or that they are all truly dead by the time they are hanging from the hooks.¹⁵

Both farmers and consumers feel uncomfortable when the issue of animal well being in the livestock industry is raised.¹⁶ Most people, including farmers themselves, frown upon this state of affairs, but tacitly accept it by means of a psychological mechanism called “pluralistic ignorance”,¹⁷ which can be described by the idea: “If nobody is concerned, then apparently it’s not so bad” and “If it was really that bad, the government would do something about it.” Moreover, consumers often feel that their food choices have little impact: the ‘drop-in-the-bucket’ feeling. When the resulting conformity is interpreted, by government, farmers, and suppliers, as a sign that consumers approve of the methods of production, then the cycle is closed: all parties assume there is nothing wrong because the other party doesn’t seem to think anything is wrong. Our government’s tolerant attitude also subtly creates a new general social norm: apparently, the way in which we treat farm animals is perfectly normal.

Even if consumers try hard to buy more animal-friendly food, it requires a lot of work to find out how food has actually been produced. The traceability of our food is focused on preventing contamination and pollution, but there is hardly any ethical traceability, on the basis of which consumers may express their moral choices¹⁸. For instance, 40% of Dutch consumers think they buy eggs produced by chickens free to roam outside. In reality, this applies only to free-range and organic chickens, that supply 13% and 3% of the eggs, respectively.

Nature and environment

Dutch livestock currently produces 70 billion kilograms of manure per year¹⁹ (more than 4,000 kg per inhabitant). These huge amounts result in severe environmental stress, acidification and

¹³ http://www.minInv.nl/portal/page?_pageid=116,1640333&_dad=portal&_schema=PORTAL&p_news_item_id=19985

¹⁴ <http://library.wur.nl/way/bestanden/clc/1803525.pdf>

¹⁵ cf. Jonathan Safran Foer (2010). *Eating Animals* (2010), and <http://www.agd.nl/1098473/Nieuws/Varkenshouderij/Meer-nieuws-varkenshouderij/Varkens-Duitse-slachterijen-half-levend-aan-de-haak.htm>.

¹⁶ Velde, H.M., te, M.N.C. Aarts & C.M.J. van Woerkum (2002). Dealing with ambivalence: farmers’ and consumers’ perceptions of animal welfare in live stock breeding. *Journal of Agricultural & Environmental Ethics*, 15 (2): 203-219; Velde, H.M., te, M.N.C. Aarts & C.M.J. van Woerkum (2001). Eten, maar niet willen weten [Eating, but don’t want to know]. In: H.M. te Velde & C. Hanning et al (2001). *Hoe oordelen we over de veehouderij?* [How do we judge livestock management?] The Hague: Rathenau Institute 20012.

¹⁷ Katz, D., & Allport, F.H. (1931). *Students’ Attitudes*. Syracuse, N.Y.: Craftsman Press; Darley, J. M. & Latané, B. (1968). Bystander intervention in emergencies: Diffusion of responsibility. *Journal of Personality and Social Psychology*, 8, 377-383.

¹⁸ Korthals, M. (2007). Voeding en landbouw: chaos, ellende en tegenstrijdigheden. [Food and agriculture: Chaos, misery and contradictions.] *NRC Handelsblad*, Dec. 15, 2007.

¹⁹ <http://www.compendiumvoordeleefomgeving.nl/indicatoren/nl0104-Mestproductie-door-de-veestapel.html?i=3-17>

eutrophication of soils and surface waters, and contamination of groundwater.²⁰ Heath fields and dunes turn into grasslands due to nitrogen contamination from the air, and low-lying, species-rich, grasslands and swamp forests deteriorate due to exposure to large amounts of nitrate and sulphate via polluted groundwater.²¹ The excessive fertilization by the livestock industry represents one of the most serious threats to the flora in our natural environments²². As a consequence, the Netherlands most probably cannot meet European obligations to attain specific EU objectives for nature (Habitats Directive, Natura-2000). Moreover, in some regions the high rates of fertilization threaten drinking water supplies.²³ It is striking that EU nitrate standards for drinking water in groundwater under agricultural sites are exceeded almost everywhere in the Netherlands.²⁴ The high fertilizer application rates can also lead to elevated concentrations of hazardous substances such as sulphate and arsenic compounds.²⁵

Fauna in our natural areas also suffers. For instance, heavy fertilization practices have led to a sharp decrease in the number of large insects in the vast area of Dutch grasslands,²⁶ with major negative implications to all living organisms depending on these insects (meadow birds, swallows, amphibians, dragonflies).

In addition to nitrogen, manure also contains substantial amounts of phosphate: via animal fodder, it is imported here from overseas countries, and is emitted into our environment via animal excrements. The environmental impact of phosphorus per kg of meat protein production is, roughly, seven times the phosphorus load per kg of plant protein.²⁷ While phosphate produces serious environmental pollution here, it is rapidly becoming a scarce resource in other parts of the world.²⁸ The phosphate that is present in the world as a mineral is expected to run out this century, which will make traditional agriculture impossible because phosphate is an essential nutrient. At the same time, in our country, we flush away huge amounts of phosphate, with our excess manure, that cannot be

²⁰ Roelofs, J.G.M., J.A.A.R. Schuurkes & A.J.M. Smits (1983). Impact of acidification and eutrophication on Macrophyte communities in soft waters, *Aquatic Botany* 17:139-155; Roelofs, J.G.M., A.J. Kempers, A.L.F. Houdijk & J. Jansen (1985). The effect of air-borne ammonium sulphate on *Pinus nigra* var. *maritima* in the Netherlands, *Plant and Soil* 84, 45-56.

²¹ Witte, J.P.M., C.J.S. Aggenbach & Runhaar, J. (2007). Grondwater voor Natuur. In: R. Lieste et al., Beoordeling van de grondwatertoestand op basis van de Kaderrichtlijn Water, [Groundwater for Nature. In: R. Lieste et al, Assessment of the groundwater situation on the basis of the Directive 'Water Guidelines',] p. 43-102. RIVM, Bilthoven.

²² Aggenbach C.J.S. (Ed.), 2005. Knelpunten en kansanalyse Natura 2000 gebieden. [Constraints and opportunity analysis Natura 2000 sites.] Kiwa / EGG-consult, Nieuwegein.

²³ Van Beek, C.G.E.M., D. van der Kooij, P.C. Noordam and J.G. Schippers (1984). Nitraat en drinkwatervoorziening. [Nitrate and drinking water supply.] Kiwa Mededeling [Communication] 84, 144 p., Nieuwegein.

²⁴ RIVM, 2008. Waterkwaliteit op landbouwbedrijven. Evaluatie Meststoffenwet 2007. [Water quality on farms. Evaluation Manure Act 2007.] RIVM report 680130002/2007, Willems, W.J., B. Fraters, C.R. Meinardi, Reijnders, H.F.R & C.G.E. M. van Beek (2002). Nutriënten in bodem en grondwater: kwaliteitsdoelstellingen en kwaliteit 1984-2000. [Nutrients in soil and groundwater: quality objectives and quality 1984-2000.] RIVM report 718201004, Bilthoven.

²⁵ Van Beek, C.G.E.M. (1999). Herkomst van sporenelementen in grond- en oppervlaktewater, onvermoede bronnen en bekende processen. [Origin of trace elements in groundwater and surface water, unexpected sources and well-known processes.] *H2O* 32 (9): 23-26; Van Beek, C.G.E.M., M.H. Jalink & A.F.M. Meuleman (2001). De verzwaveling van grondwater in zandgronden. [Sulphurisation of groundwater in sandy soils.] *Landschap* 18 (4): 263-272; Van Beek, C.G.E.M., G. van den Berg & P. Heslen (2005) Geohydrochemische typologie als hulpmiddel bij grondwaterkwaliteitsbeheer. [Geohydrochemical typology as a tool for managing groundwater quality.] *Bodem* 5: 178-181.

²⁶ Schekkerman, H & Beintema, A.J. (2007). Abundance of invertebrates and foraging success of black-tailed godwit *Limosa limosa* chicks in relation to agricultural grassland management. *Ardea* 95: 39-54.

²⁷ Reijnders, L. & S. Soret (2003). Quantification of the environmental impact of different dietary protein choices. *American Journal of Clinical Nutrition* 78: 664S-668S.

²⁸ Udo de Haes, H.A. et al (2009). Fosfaat - van te veel naar tekort. Beleidsnotitie van de Stuurgroep Technology Assessment van het Minsiterie van LNV. [Phosphate - from surplus to deficit. Policy note of the Technology Assessment Steering Group of the Ministry of LNV.] Utrecht, September 2009.

recovered.²⁹ These phosphates accumulate in soils and elsewhere in nature³⁰, for instance, in surface waters or as precipitates deep in seas and oceans. In short, despite an imminent shortage of phosphate in the world, we take it away from other countries in the form of animal feed, thus creating local surpluses that we flush away. In this way, we jeopardise the future world food supply.

Worldwide, more than 80% of agricultural land now serves the livestock industry in some way, and more than 40% of the world grain harvest is swallowed up by livestock, whereas a substantial part of that grain could serve as food for humans.³¹

Ecological footprint, climate, and world food supply

In the conversion of plant protein to animal protein, environmental damage occurs in almost every stage. An animal is an “inefficient protein converter” – roughly, 1 kg of meat = 5 kg of grain (corn, soybeans, or tapioca) (= 6 kg manure)³². In order to grow this grain, extensive areas of arable land are required elsewhere in the world: one third of farmland in the world is used to produce animal feed. The disappearance of natural areas and the cutting down of rain forests to create still further agricultural expansion, continues unabated.

Whereas we know that the currently available arable land can produce sufficient plant food for tens of billions of people, more than one billion people suffer from malnutrition every day.³³ That number will definitely not decrease with the predicted redoubling of meat demand in the world, from 228 million tons today to 463 million tons in 2050.³⁴ In that year, it is expected that 9.5 billion people will need to be fed. This will only be possible if the arable land is used in a sustainable fashion.

These problems are international and cannot be solved by the Netherlands alone. However, our responsibility is very high, given the relatively disproportionate size of our livestock industry. The Netherlands has the highest livestock density in the world and is the second biggest exporter of animal proteins in the world, after the USA. Our cows, pigs, and chicken live mainly on imported feed, especially soy from South America.

The production of meat not only requires agricultural land but also water, which is already scarce in many parts of the world, and will be in other parts in the future. All food production requires water, but disproportionately so for meat production, thus leading to even greater freshwater scarcity. In 2017, 70% of the world population will have problems with access to clean fresh water,³⁵ but we continue wasting large quantities of it to produce animal proteins³⁶ – not only in the Netherlands, but especially so in developing countries where the fodder is produced.

²⁹ <http://www.trouw.nl/achtergrond/deverdieping/article1844890.ece>

³⁰ <http://www.thebrokeronline.eu/en/articles/Peak-phosphorus>; Wassen, M.J., Olde Venterink, H., Lapshina, E.D., & Tanneberger, F. (2005). Endangered plants persist under phosphorus limitation. *Nature*, 437, 547-550.

³¹ http://www.minlnv.nl/portal/page?_pageid=116,3387931&_dad=portal&_schema=PORTAL&p_file_id=28004

³² Van Huis, WUR, 2008 [PDF] <http://edepot.wur.nl/14249>

³³ Kamervragen over de vleesconsumptie in relatie tot de wereldvoedselcrisis en de uitstoot van broeikasgassen [Parliamentary questions on the meat consumption in relation to the world food crisis and greenhouse gas emissions], May 29, 2008. http://www.minlnv.nl/portal/page?_pageid=116,1640854&_dad=portal&_schema=PORTAL&p_file_id=28004

³⁴ FAO State of Food and Agriculture 2009, Livestock in the Balance, 2010.

<http://www.fao.org/docrep/012/i0680e/i0680e00.htm> ; Stehfest, E. et al (2009), Climate benefits of changing diet. *Climatic Change* 95:83-102. DOI 10.1007/s10584-008-9534-6.

³⁵ <http://www.duurzaamnieuws.nl/mvo/bericht.rxml?id=41232&title=Wereldwaterforum%3A%20van20wie%20is%20het%20blauwe%20goud%3F>

³⁶ <http://www.news.cornell.edu/releases/aug97/livestock.hrs.html>

Livestock industry also contributes significantly to climate change. Conservative calculations by the Food and Agriculture Organization (FAO) of the UN indicate that the emission of greenhouse gases by livestock globally is 40% higher than of all cars, trucks, trains, ships and aircrafts combined³⁷, while researchers have now calculated that these emissions may even be much higher if all side effects are taken into account as well.³⁸ Take, for example, the transportation of animal feed and of animals themselves: ideally, the production of feed, the rearing, and the slaughtering and processing location should all be close together, to prevent animal suffering and greenhouse gas emissions. If every Dutch person would refrain from eating meat only one week in a year, this would already decrease these emissions by 3.5%.³⁹ With just one meatless day a week, all climate goals of the Dutch government for its households for 2012 would be realized.⁴⁰

Public health

For the sake of their health, Dutch consumers should consume one third less proteins, and replace one third of their animal protein intake by vegetable protein.⁴¹ Nevertheless, by means of campaigns sponsored by the European taxpayer, the consumption of chicken⁴² and milk products⁴³ is promoted in order to absorb overproduction by increasing consumption, instead of reducing production. This continues in spite of the major health disadvantages of animal fat intake,⁴⁴ and the warning by the World Health Organisation (WHO) that the dairy promotion strategy of the EU has harmful effects on public health.⁴⁵

Consumption of meat and dairy products contributes to the intake of saturated fat, which increases the risk of cardiovascular diseases.⁴⁶ Furthermore, the consumption of red meat and processed meats is associated with an increased risk of colon cancer.⁴⁷ Considering the increase in obesity and type 2 diabetes mellitus, the consumption of more plant-based foods – with a relatively high dietary fibre content and low energy density – is desirable as well: on average, vegetarians weigh less than meat eaters, and people who switch to a plant-based diet, gain less weight in subsequent years than meat eaters.⁴⁸ Under current policies, aimed at ever-higher production of animal proteins at lower costs, there appears to be no other option than promoting products that should really be consumed *less* for the sake of public health.

³⁷ <http://www.fao.org/newsroom/en/news/2006/1000448/index.html>

³⁸ <http://www.worldwatch.org/files/pdf/Livestock%20and%20Climate%20Change.pdf>

³⁹ <http://www.wrr.nl/content.jsp?objectid=5169> : De overheid als keuzearchitect? [The government as choice architect?]

⁴⁰ http://www.nrc.nl/ opinie/article1857442.ece/Minder_vlees_moet

⁴¹ Aiking et al (2006): Sustainable Protein Production and Consumption: Pigs or Peas? <http://www.springer.com/environment/book/978-1-4020-4062-7>

⁴² <http://www.pve.nl/pve?waxtrapp=cccJsHsuOpbPREcBHZ>

⁴³ <http://www.nu.nl/economie/2199650/joris-driepinter-komt-terug.html>

⁴⁴ <http://www.mkatan.nl/columns-en-kranten/nrc-columns/312-hoe-melkvet-gezond-wordt.html>

⁴⁵ <http://www.who.int/bulletin/volumes/86/7/08-053728/en/index.html>

⁴⁶ Mozaffarian D, Micha R, Wallace S, 2010 Effects on Coronary Heart Disease of Increasing Polyunsaturated Fat in Place of Saturated Fat: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *PLoS Med* 7(3):e1000252. doi:10.1371/journal.pmed.1000252

⁴⁷ <http://www.wcrf-nl.org/onderzoek/rapportkankerpreventie/index.php>

⁴⁸ Rosell M, Appleby P, Spencer E, Key T (2006). Weight gain over 5 years in 21,966 meat-eating, fish-eating, vegetarian, and vegan men and women in EPIC-Oxford. *Intern J Obesity (Lond)*. 30 (9) :1389-1396; <http://www.ncbi.nlm.nih.gov/pubmed/16534521>

Apart from unhealthy food intake, there are additional health effects associated with the keeping of animals on this large and intensive scale.⁴⁹ For example, the emission of volatile compounds and particulate matter is harmful to public health.⁵⁰ Recently, attention has increased for the dangers of intensive use of antibiotics, which were known long before. Animals living under unnatural conditions, crowded in large numbers, as in the current livestock industry, lose their resistance and easily contaminate each other, so their condition can only be controlled by large quantities of antibiotics. Moreover, low dosages of antibiotics and chemotherapeutics are continuously mixed into the feed to promote growth. Pathogenic bacteria that can seriously threaten public health, may become resistant to the antibiotics that they come in touch with so extensively in factory farms. Suspicion is growing that these bacteria, through food and through contacts with animals (mostly by the animal farmers themselves), can infect humans, who subsequently infect each other.⁵¹ For this reason, for example pig farmers who are admitted to hospital, are quarantined because they are often carriers of these bacteria. It may not be long before all animal farmers will be denied access to public hospitals because they carry bacteria that can be life-threatening to weakened patients.

Pathogenic agents such as Q-fever, MRSA, ESBL-bacteria and pathogens in livestock products are already making many human victims. 80% of Dutch goat farmers and their family members are infected with Q-fever, and so is 2.4% of the entire Dutch population now.⁵² The reduction of the gene pool resulting from the exclusive focus on production and volume in the livestock industry increases the risk of a massive and fast-spreading infection, as well as mutations of pathogens associated with risks to humans. The minister of Agriculture has announced that the use of antibiotics will have to be reduced to 50% by 2013. Apart from the question whether this reduction is sufficient and whether it is realized in time to avoid large-scale infections of antibiotic-resistant bacteria in humans, it is also unclear how the outbreak of diseases in animals can be avoided if nothing changes in their living conditions.

Finally, we note that in the Netherlands, it is virtually impossible to buy any chicken meat that is *not* contaminated with Salmonella or Campylobacter bacteria, in spite of the agreement between the Ministry of Agriculture and the chicken industry to solve this problem. In any other food sector, the presence of such contaminated products in stores would probably lead to confiscation and factory closures.

Financial and economic considerations

In spite of accumulating scientific evidence that we cannot continue the way we are going, the policy of the Ministry of Agriculture in the past decade has had the effect of still further intensification and expansion. The idea behind this policy is that the livestock industry benefits our economy, export, and farmers' incomes. Considering the problems discussed in this essay, which are inherent in this production system, the question is whether such financial considerations are relevant at all. Just as we have accepted our responsibility in abolishing slavery and child labour, so must we do likewise in our handling of farm animals. Today, nobody would dare to claim that there is something to be said in favour of child labour or slavery because of the economic benefits. When an ethical boundary is crossed, financial considerations become irrelevant.

⁴⁹ <http://parlis.nl/pdf/kamerstukken/KST138577.pdf> ; <http://www.rivm.nl/bibliotheek/rapporten/215011002.pdf>

⁵⁰ Howard, C.J. et al (2010). Direct measurements of the ozone formation potential from livestock and poultry waste emissions. *Environmental Science and Technology* 44: 2292-2298; Howard, Ko, G. et al (in press). Endotoxin levels at swine farms using different waste treatment and management technologies. *Environmental Science and Technology*.

⁵¹ <http://www.rivm.nl/persberichten/2009/veelmsaveehouderij.jsp>

⁵² <http://www.omroepbrabant.nl/?news/1347931103/Meeste+geitenhouders+en+gezinnen+hebben+Q-koorts.aspx>

If one does insist on considering the financial aspects of the livestock industry, this should be done properly. Factory farming generates large costs for society⁵³ in the form of environmental problems such as acidification, eutrophication, emission of particulate matter, pollution through excessive use of pesticides and, last but not least, climate change. Dutch citizens pay hundreds of Euros on sewage taxes, whereas the societal costs of manure surpluses from livestock farming are not, or only for a small part, incorporated into the price of animal products. Instead, the costs of pollution are partially shared by all citizens through general taxes, and to a larger extent passed on to future generations.

In recent research⁵⁴, the environmental impact of pork production has been quantified into the categories: climate change, animal welfare, biodiversity, and animal diseases. The total societal cost of conventional pork production was estimated at € 2.32 per kg at least. The total annual societal cost of all pigs slaughtered in the Netherlands in 2008 amounts to at least € 1.5 billion, or almost € 100, - per Dutch citizen.

In addition, farmers in the Netherlands receive an annual income subsidy of almost one billion euros. Dairy farmers and growers (who produce fodder) receive money from the EU. This money often ends up in regions where eutrophication and desiccation are most serious. In this way, the government subsidizes pollution of the environment. Dutch agriculture can only survive with the help of massive state support. If this support is phased out, and fixed prices are abolished as is now being proposed for milk, then the problems we have described will be far from resolved: in the present system, farmers can only survive by intensifying even further.

A paradigm shift, directed by the government, can no longer be deferred. In our view, the solution to the problems arising from low food prices can only be found in a thorough restructuring of the entire industry. This will lead to increased prices of animal products, so that traditional farming (land-based, with the production of forage, breeding and rearing of animals, fattening and slaughtering all taking place in the same region) can become profitable again without any government subsidies. Prices of animal products are too low; an egg in the store today costs as much as 60 years ago. In the present livestock industry, an acceptable income can only be earned by means of bulk production. Each week, 50 farmers in the Netherlands stop farming, mostly because they can no longer keep up with the race to ever-greater production⁵⁵. The Common Agricultural Policy (CAP), a system of European Union agricultural subsidies and programmes, takes up more than 40% of the total EU budget. For many years now, it has focused on intensifying and enlarging livestock farms, often at the expense of animal welfare⁵⁶, animal health, the environment, and public health.

The Netherlands has developed into the butcher and the milkman of Europe, by exporting 75% of its animal protein at rock-bottom prices in which the societal costs are not incorporated. Dutch consumers have only limited impact on this state of affairs, because their purchasing behaviour only affects a small part of the total production.

Brinkhorst's policy note "Animal Welfare" (see footnote 4) from 2002 already stated: "Given our current and future position in the market, it is highly likely that the future of Dutch livestock farming will be in market segments with high surplus value. A demonstrably high level of animal welfare will be the feature with which Dutch livestock farming can acquire a sustainable position in the demanding markets of north-western Europe in particular." However, Brinkhorst was succeeded by ministers

⁵³ See e.g., Sengers & Hoste, 2004:

http://www.lei.dlo.nl/wever/docs/nota/Indicatie_maatschappelijke_kosten_varkenshouderij_021104.pdf

⁵⁴ Institute for Environmental Studies at the Vrije [Free] University, commissioned by the Nicolaas G. Pierson Foundation, see <http://www.ngpf.nl/>

⁵⁵ <http://www.cbs.nl/nl-NL/menu/themas/landbouw/publicaties/artikelen/archief/2008/2008-90101-wk.htm>

⁵⁶ The European requirement, contained in Article 13 of the Treaty on the Functioning of the European Union (TFEU), to "pay full regard to the welfare requirements of animals" since "animals are sentient beings", is not exactly practiced here.

Veerman and Verburg, respectively, in four consecutive governments under Balkenende. In this period, these good intentions were never carried out.

Conclusion

The future prospect of more responsible animal farming sketched by the Wijffels commission in 2001 with an expiration date of 2010, has not been realised in any way.⁵⁷ Warnings are still being ignored and the necessary policy changes have not been made.

The Dutch livestock sector can only have a future if the steady increase in scale and production for the world market is ended, and production for domestic use becomes the core business. The societal rejection of animal cruelty will have to be translated into a transformed farming sector that operates according to ethical standards that characterize a truly civilized society. In such a society, it is inappropriate to close our eyes to the animal suffering that is associated with the production of our food, or to fool our children when they ask questions about the origins of their food (“Milk comes in packets from the factory”; “No dear, those piglets don’t mind because they have been specially made for that purpose”).

It is time for us to reflect on the principles of our livestock industry, so that politicians and citizens can arrive at choices to change the ‘system of organized irresponsibility’ (Mansholt) and get a clear view on the ‘limits of social acceptability and tolerance’ (Wijffels). Our thinking should not be dominated by impediments, but instead by possibilities of achieving rapid and dramatic improvement. The eventual loss in a financial-economic sense will be limited in the long run; the economy is dynamic and will adjust – as it did after the abolition of slavery and of child labour, in spite of strong opposition at the time.

Nothing less than a paradigm shift is needed: a change from an intensive, large-scale livestock industry dominated by economics and technology, to a farming system in which the economy and technology are at the service of animal welfare, human health, and society at large. This provides the prospect of real sustainability. This type of farming responds to the needs of nature and of all living beings. With this turnaround, the farming business will again be socially acceptable and tolerable, and we no longer have to fool ourselves and each other.

Recommendations

We, scientists from various disciplines, working at Dutch universities as full professors (or emeritus professors), believe that factory farming should be reorganized and transformed into a system that is friendly towards animals, humans, and the environment, and that meets the needs of nature and all living beings. Through this appeal, we aim to stimulate a public debate and to inspire farmers, producers, consumers, voters, and politicians to make choices in the interest of animals, nature, our landscape and the environment, the people in The Netherlands and in other parts of the world, as well as future generations. To accomplish this, we argue that first of all, the plans put forward by Wijffels and Brinkhorst ten years ago, should be realized. It is unacceptable that these recommendations and policy proposals have still not had any notable effect (even though the target date was 2010, and for some measures even 2005). Therefore, we plead for a critical evaluation of what has been done specifically with the recommendations of the Wijffels commission, and more so what has not been done.

⁵⁷ http://www.minInv.nl/portal/page?_pageid=116,1640782&_dad=portal&_schema=PORTAL&p_news_item_id=18376;
http://www.minInv.nl/portal/page?_pageid=116,2211815&_dad=portal&_schema=PORTAL&p_news_item_id=18466;
Chavannes, M. 2010: <http://weblogs.nrc.nl/opklaringen/2010/01/02/ongezond-vleesbeleid-is-deel-van-de-grote-crisis/>

In addition, we have formulated the following general principles that, in our opinion, should guide the transformation of the livestock sector:

1) *The government and not the market should direct change.* The agricultural policy in the past decade has demonstrated redundantly that the necessary changes are not realized when they left to the market or the consumers. In reforming the livestock industry, the government explicitly has to take on a directing role. Through legislation, the government should enforce that meat and dairy production become sustainable. Moreover, independent governance is necessary⁵⁸, both with regards to animal welfare and environmental impact, and to zoonoses (diseases transmitted from humans to animals and vice versa) and food safety. The time for rhetorics and consultations without commitment is over, given the large and urgent global challenges we are facing and the important role that the consumption of animal protein plays in these issues.

2) *The consumption of animal proteins should be reduced by at least 33% by 2020.* This should be an objective of government policy. In part, the government can achieve this objective, which requires a change in consumer behaviour, by informing consumers about the consequences of the production and consumption of meat and dairy products on health, environment, climate, third world countries and animal welfare, and about the benefits of plant-based products. The government must end any form of sponsorship of meat and dairy products (such as the chicken meat-campaign sponsored by the European Union) or promotion of the livestock sector (such as the publicly funded glossy magazine “Gerda”, which was released by the Ministry of Agriculture to enhance the image of the Dutch farming industry). The government should promote transparency about the origins of products, e.g., by regulating food labelling and containing the proliferation of ‘approved brands’. If the government also sets a good example by providing advice and independent information on animal welfare, environmental, ecological footprint and health, this will generate a change in social awareness among consumers. As a result, commercial companies will also tailor their advertisements to this (just as they did with ‘energy saving’ campaigns), instead of advertising products that cause animal suffering and societal damage, as they do now.

3) *All societal costs of meat and dairy production should be incorporated into the price.* A reduction in the consumption of animal protein may further be achieved by incorporating the real costs of meat and dairy production entirely into the price of the product (i.e., the costs of overproduction, over-consumption, environmental damage, safeguarding animal health and public health), according to the principle ‘the polluter pays’. The starting point is a fair price that reflects *all* expenses⁵⁹ (with possibly even an additional tax: in the case of petrol, we find it quite normal that a higher tax rate is applied to discourage use). This will also lead to lower consumption, so that supply and demand are balanced. Key terms for the consumption of meat and dairy products should be: less and better. Farmers who achieve improvements in quality and sustainability of their production, and in animal welfare, will generate a higher income because the societal costs of their products are lower. As a result, the implementation of such improvements becomes more attractive than mere production increase.

4) *The Netherlands should take the lead in Europe.* Wherever possible, measures should be taken in a European context, but given the size of its livestock industry, the Netherlands should take the lead. The Dutch government must take the initiative in international forums to stimulate sustainable production of meat and dairy products, to prohibit animal-unfriendly and environmentally damaging production, and to convince other countries that this path is in the public interest.

⁵⁸ Peters, P. (2009). Is het Staatstoezicht nog wel onafhankelijk? [Is the State Inspectorate still independent?] *Journal Warenwet* 8, 17-20.

⁵⁹ This makes the cost of living more expensive, which is especially detrimental for the poorer consumer. But if we all do it together, the difference may only be small because the costs are apportioned over many persons. Quite separately, a general price increase of foodstuffs may be countered by lower taxes and by financial benefits on the foods and produce, produced in a sustainable manner by land-bound farmers.

5) *Animal welfare should receive a central position in the livestock sector.* The government must guarantee animal welfare by prohibiting welfare-unfriendly practices. A clear guarantee for the welfare of animals should be laid down in the Dutch constitution (see also the recommendations from the Dutch Raad voor Dieraangelegenheden [Council for Animal Concerns]⁶⁰), for instance, the guidelines by the Brambell commission (1965)⁶¹. Such guidelines should form the basis of policy and legal framework in the realm of animal welfare. Note that this means, among other things, that animals are no longer kept inside all year, that healthy animals are not ‘cleared away’ in case of threatening disease crises, that chicks are no longer shredded alive, calves are not taken away from their mothers immediately after birth, teeth are not filed, cows are no longer earmarked, freeze-branded or dehorned, un-stunned ritual slaughtering is banned, long-distance transportation ends, the breeding of cows that cannot deliver calves through natural means is terminated, and the use of hormones is prohibited.

6) *The use of antibiotics and hormones in livestock farming must be banned.* It should only be allowed after specific, clearly defined veterinary indications for individual animals that are ill. The control on usage should not be left to the sector itself, but to the Ministry of Public Health.

7) *Land-bound agriculture and closed cycles in the production of animal proteins should be the starting point.* The government can encourage this by actively promoting the regional production of protein crops such as lupins and peas, and the regional utilisation of manure. The rearing, fattening, and slaughtering of farm animals, as well as the production of raw materials for fodder should preferably occur within the same region, so that the high environmental and climate costs caused by transporting fodder and live animals no longer apply.

8) *The establishment and expansion of large-scale factory farms should be restricted.* Laws and regulations should be introduced to counter further harm to the countryside. A limit should be set to the number of animals that can be kept per hectare, per region, or across the country.

9) *Farmers should get a chance to adapt.* In the enforced restructuring we propose, it is clear that the sector will face difficulties in the transition phase. Supporting measures are needed in this period, during which the government should help farmers who get into financial trouble, by facilitating their switch to more sustainable production methods or to another line of business. We consider politicians and decision makers (in the Netherlands and the EU) as primarily responsible for many of the current problems. Investments in a total reorganisation should, thus, come from that direction. Given the high societal costs of the current mode of operation, this investment will be paid back in due course. As an aside, the generally held principle that companies operate only under a “license to produce” which is granted or denied by the community, also applies to the agricultural sector, as it does to any other business. Obviously, there will be no compensation for being unable to continue practices that have already been undesirable or illegal for many years.

10) *The development of nutritious and tasty plant-based foods should be promoted.* The government should invest more in research into the efficient production of plant-based products that can replace animal products, and invest in providing information about products that help consumers switch to more vegetarian diets. An attractive alternative naturally leads to a lower meat and dairy consumption, and hence, will help resolve all of the problems we have noted, while also benefiting consumers’ health.

April 27, 2010

⁶⁰ <http://www.rda.nl/pages/adviezen.aspx>

⁶¹ <http://www.welzijnswijzermelkvee.nl/Welzijnswijzer/Devijfvrijheden/tabid/61/Default.aspx>

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