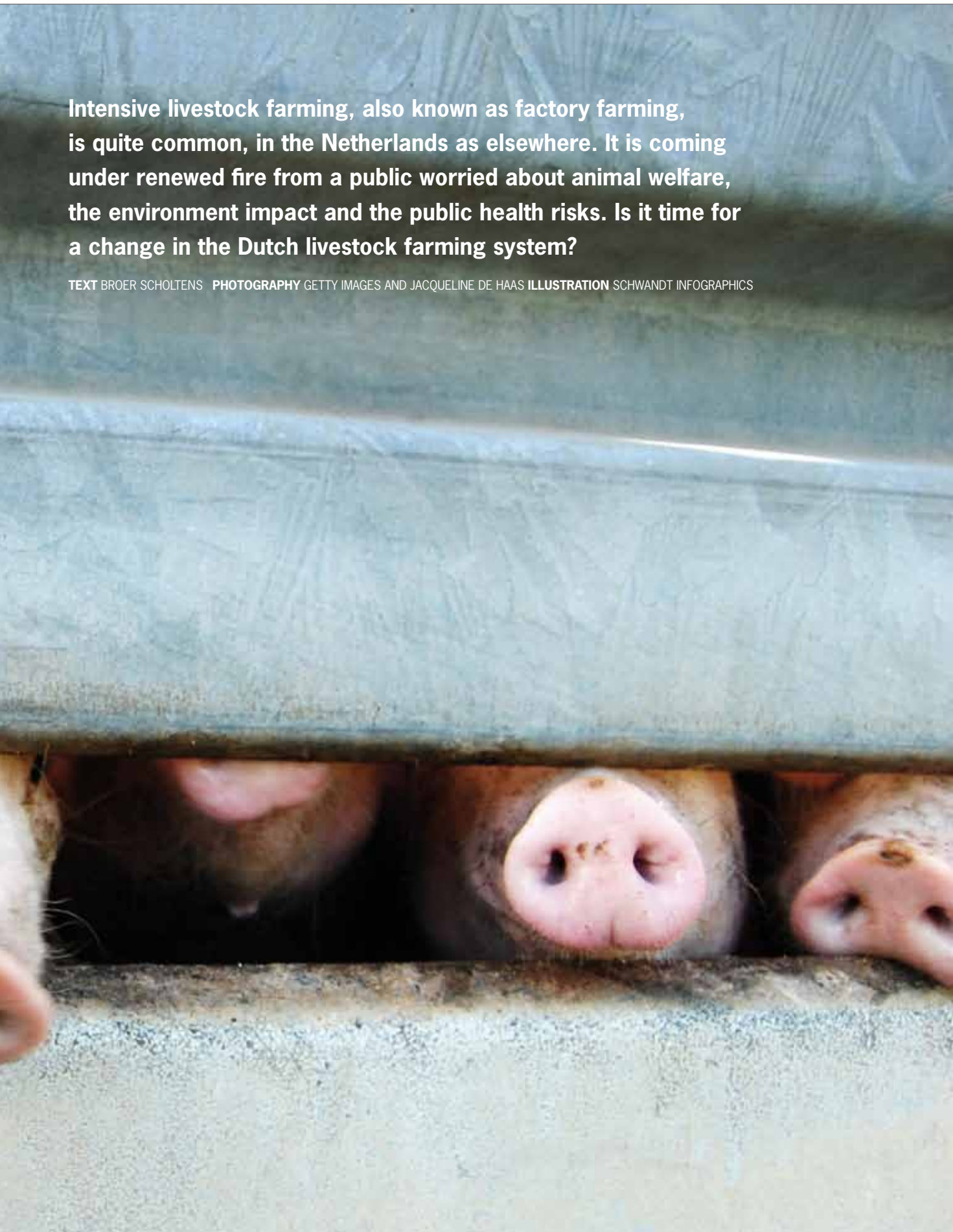


**Can intensive  
livestock farming  
be sustainable?**



**Intensive livestock farming, also known as factory farming, is quite common, in the Netherlands as elsewhere. It is coming under renewed fire from a public worried about animal welfare, the environment impact and the public health risks. Is it time for a change in the Dutch livestock farming system?**

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It is intensive livestock farming – rather than extensive farming on the land – that is under attack. One of the solutions being proposed in the public debate is to halve livestock numbers and give animals more space. ‘Of course livestock farming needs to become more sustainable but that does not necessarily mean you need to halve the number of animals’, is the response of Johan van Arendonk, professor of Animal Breeding and Genetics at Wageningen University. ‘The number of animals is an outcome, not a goal in its own right.’ He feels two things are being lumped together that are not necessarily related. You can make the system more sustainable and you can increase or reduce livestock numbers independently of each other, he says. Van Arendonk thinks a lot has been achieved in livestock farming over the past few decades in the Netherlands. ‘There have been efficiency gains in the conversion of feed into milk, meat and eggs, animal welfare has improved and there is less damage to the environment. Although there is still room for improvement in terms of the environment and animal welfare.’

### PROFESSORS’ PETITION

Intensive livestock farming is under attack. This public debate flared up in response to outbreaks of infectious diseases such as Q fever, caused by the increasingly intensive farming of dairy goats, and plans in the province of Noord-Brabant to build megabarns housing tens of thousands of animals. A petition towards the end of April signed by about 150 professors in different disciplines put the proverbial cat among the pigeons. Their discussion paper is called ‘Plea for Sustainable Livestock Farming – an end to organized irresponsibility’; a summary in English can be found on the website [www.duurzameveeteelt.nl](http://www.duurzameveeteelt.nl). The professors, including about a dozen from Wageningen University, feel that intensive livestock farming has turned into an industry with a technically perfected production system. Over the years, animals have

had to adapt too much to the demands of this industry, say the critical professors. What is more, the soil and surface water are acidifying due to the manure being produced. And now germs from livestock, such as Q fever and ESBL bacteria, are claiming human victims. Over the past few months, 16 thousand people have expressed their support for a less intensive livestock farming system, while the number of professors signing the petition has nearly doubled since the end of April.

### OUTDATED IMPRESSIONS

Martin Scholten, Managing director of the Animal Sciences Group (ASG) at Wageningen UR, acknowledges: ‘We agree with those critics on the essential point that there are problems with livestock farming’. One problem is the excessive preventive use of antibiotics in livestock farming, for instance in poultry farming. This must be cut drastically. And that is feasible, says Scholten. ‘We need to stop using antibiotics for prevention; only sick animals should be treated. To do that, you need to be able to track individual animals in a controlled barn environment where they are free to roam around. ICT and robotics can help here.’ However, Scholten thinks many of the points listed by the critics are behind the times. He says they often have an outdated image of the sector, based on the nineteen eighties and nineties and resembling the least innovative farmers rather than the sector’s front-runners. There are intensive livestock farms that put considerable effort into animal welfare and environmental emissions, and there are extensive, organic livestock farms where that does not happen. ‘Take antibiotics. There are livestock farms using 90 per cent less antibiotics than the average. The livestock farming sector should concentrate on the best farms and not on the worst, as is so often the case now. Wageningen University researchers should be doing that too. That is what happened in the past in the fishing sector. Half the fishermen have given up since then, while the rest



**JOHAN VAN ARENDONK,**  
professor of Animal Breeding and Genetics  
at Wageningen University

**‘With an ecologically responsible form of livestock farming in place, the Netherlands can help solve the problem of feeding the world’**

have joined their sector's front-runners. If the current front-runners in livestock farming were to become the norm, that would reduce the burden on the environment by a factor of three to five while antibiotic usage levels would fall by a factor of ten. If you show farmers what's possible, they'll make the switch.'

### FRONT-RUNNERS AND STRAGGLERS

Front-runners and stragglers – that tallies with the experience of Peter Smeets, a landscape ecologist at Alterra, part of Wageningen UR. 'There are front-runners and stragglers in dairy farming and you can see that reflected in the landscape. In a subsidized sector like this the stragglers get too much incentive to carry on too long. They would have been gone long ago if they were subject to market mechanisms, and the Netherlands would have far more large-scale farms.'

Johan van Arendonk thinks change is needed but he does not agree with the analysis of the petitioners. 'I don't think you can still claim nothing has changed. That analysis is not right. There is still a lot to be done though. The negative impact on the air, soil and water must be reduced further as it is still too big. We produce more meat, milk and eggs than the Netherlands needs. We export a lot. All economic activities have to meet certain criteria and livestock farming is no exception. I have no problem with the scale of livestock farming if you can produce for export in line with such criteria. With an ecologically responsible form of livestock farming in place, the Netherlands can help solve the problem of feeding the world.' Arendonk sees progress on the animal welfare front too. 'An example is the development of open barns for cows. The 'comfort' barn has been developed for pigs; a show comfort barn has been built in Raalte. Everything is geared to allowing the animals to roam freely. The pigs can root around. And in Barneveld there is a new housing system for laying hens, the Rondeel system, with plenty of room for the hens to range

freely. These are show barns for applying knowledge and demonstrating how that knowledge can be implemented.' You might ask whether things are moving quickly enough. At present, there is a small group of livestock farmers who are adapting rapidly but there is also a large group lagging behind. This is the group that is coming under fire in the public debate. Van Arendonk draws a comparison with the electric car. 'It is cleaner and no-one is questioning that. However, it is taking time to catch on as not everyone is able and willing to get rid of their old car. It's the same with livestock housing systems. Farmers have invested in them and that money needs to be recouped; there's a depreciation period of 25 years. What we must do is establish where we want to be in the future and then set up research to tackle the obstacles.'

### NATURAL BEHAVIOUR

Scholten admits mistakes were made when going over to intensive livestock farming. 'Animals were adapted to the system and the method of production, in ways ranging from cutting off pigs' tails to genetic selection. However, there is a change taking place and farms are gradually being adapted to meet the needs of the animals. In the past, everything was geared to improving production rather than giving due regard to the situation of animals in large groups. Farm animals are herd animals; your starting point should be their natural behaviour', says Scholten. This means adapting the environment to the animals' requirements. You need to select animals for desirable social behaviour in groups. This is already being done with hens, for instance. Until recently they were kept in small cages, but that is changing. Scholten: 'They will increasingly be kept in larger groups, with some areas where they can range freely. Cannibalism occurs among laying hens kept in groups. So their beaks are trimmed to limit the risk of this happening.' Van Arendonk: 'We are looking into whether it is possible to take existing poultry breeds and select hens that keep their feathers with-



**MARTIN SCHOLTEN,**  
Managing director of the Animal Sciences Group at Wageningen UR (ASG)

**'If you show farmers what's possible, they'll make the change'**

out having to have their beaks trimmed and that aren't so prone to cannibalism. We are onto the third generation and we're seeing improvements. This is research we are doing in partnership with a Dutch company, Hendrix Genetics, and it's unique in the world. It is an innovation that could be applied in the poultry sector all over the world.' More animal-friendly group systems are being introduced in other livestock sectors as well. For example, open barns for cows and comfort barns for pigs. The idea behind them is always the same: the open area means the animals no longer have to >

**ELSBETH STASSEN,**  
 professor of Animals and Society  
 at Wageningen University

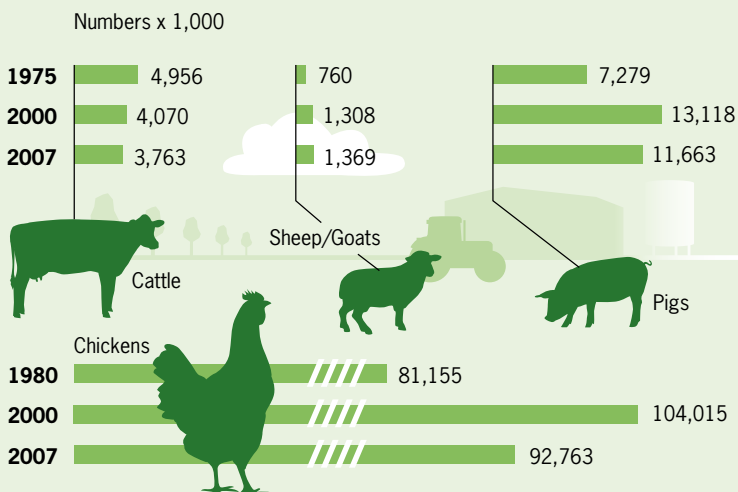
**'There is not enough discussion  
 about whether this system is  
 the right one'**



stand on one spot in narrow cubicles. Scholten calls these modern housing systems Smart Farming. 'Innovative dairy barns with everything thought out down to the last detail: feed supply, manure production, low levels of antibiotic usage, open areas for the animals and a biogas plant for processing the manure. A modern barn. It's true that this is a long way from the romantic image of livestock farming in days gone by.' Open barns with soft compost floors: Elsbeth Stassen, professor of Animals and Society at Wageningen University, agrees that is a good thing to aim for, but big changes will have to be made before such a system can be implemented in practice. Upscaling, or intensification, means for example that dairy cows spend more time indoors, with all that that entails. Stassen cites hoof diseases as the biggest welfare problem among cows. What is more, milk production has become so high that the cows cannot get enough food from grazing and have to be given supplementary feed in the cubicles. The walkways in the free-stall barns have a concrete floor, which is often wet from manure and urine. Stassen: 'That causes hoof diseases and eventually lameness. A quarter of all dairy cows go lame at least once a year. We know a lot about hoof diseases and this information has been passed on to livestock farmers. However, there has been no improvement over the years. Open barns with soft floors could be a solution. We are carrying out research into the economic impact of hoof diseases. We believe if we can get that across we can reduce the problems further.'

## LIVESTOCK POPULATIONS

Livestock numbers in the Netherlands have gradually increased over the past thirty years, although the number of farms is three times smaller than it was. The kinds of animals kept have changed too. The number of dairy cows has gone down, while the number of veal calves has gone up. Moreover, many farmers have gone over to dairy goat or sheep farming, partly for cheese production. In 1975 there were hardly any dairy goats in the Netherlands, but in the past thirty years their numbers have risen to well over three hundred thousand. Fifteen years ago it was the pig farms that were expanding tremendously. That growth has slowed down now and in recent years the number of pigs in the Netherlands has gone down, largely through the closing down of farms, as farm sizes have increased.



## VEAL CALVES AND BUCK GOATS

'It really depends on how you look at things', says Stassen. 'I feel there have been improvements in animal welfare in the past ten years, particularly in farms where group housing has been introduced. But some things have got worse, precisely because of the shift to more intensive farming, and there has been virtually no discussion about these changes.' The professor gives two examples: veal calves and buck goats. 'The Netherlands is

the biggest producer of veal calves in Europe', she says. 'Calves are transported huge distances to the Netherlands from Ireland, Eastern Europe, Poland... They are kept here for six months and then they are slaughtered. There have been improvements as they are kept in groups and their feed has been adapted, so they are more content. But that long-distance transport is stressful for the animals. What is more, animals from different farms are being housed together, which poses a health risk.'

There are developments in goat farming that are going unnoticed too. There are an estimated 350 thousand goats in the Netherlands that kid every two years. That means tens of thousands of buck kids every year. 'The buck kids are taken from the goat farm after two weeks and reared elsewhere for five to six weeks. Then they are taken by long-distance transport to Spain, where they are slaughtered. That is intensive livestock farming too. Of course the livestock farmers do all they can to give the best possible care within the context of the current system. But the question is whether that system is the right one. There is not enough discussion about that.'

## PUBLIC CONCERN

Public concern arises when the sector fails to question the status quo. 'As a result, the agricultural sector is becoming alienated from the rest of society, and public support for intensive livestock farming is falling', warns Professor Stassen. Martin Scholten at ASG is worried too. 'There is increasing public concern about intensive livestock farming. That is putting our researchers on the defensive as well, which is unnecessary as we have an independent role.'

Livestock transport is one specific focus of criticism that is also mentioned by the professors in their petition. Peter Smeets, a landscape ecologist at Alterra, explains that livestock transport has a historical background. 'Each step in the production and distribution chain has become a specialized business: sow breeding, pig breeding, finishing and slaughtering. Trucks go back and

forth between the different businesses. Meanwhile, the rural land use planning is still based on the early stages of land consolidation in 1850 in which farms were spread over the land so as to give them as large an area as possible for the farm buildings. These days, livestock farmers get half or more of their feed delivered by truck rather than from their own land. The logistics sector has become extremely important, not just for feed but for taking away animal manure as well.'

Eventually, agro parks will provide the ultimate solution: crop farming, waste disposal, livestock farming and even abattoirs all concentrated in one location. That is what Smeets wrote in his PhD thesis last year. 'Agro parks at forty locations around the Netherlands, each with one to two thousand hectares, preferably close to ports for the supply of feed and other things by ship. The entire Dutch intensive livestock farming industry, both meat and dairy, as well as all the greenhouse horticulture could be accommodated at those locations. Industry was concentrated in a similar way with the creation of industrial estates on the outskirts of towns.'

The plea for agro parks is a move away from the fiercely debated and criticized plans to build mega-barns. Smeets: 'Those mega-barns were too much 'more of the same', and they are an undesirable consequence of the old spatial planning system. Farmers stay put and the only step they take is to increase in size. There is nothing wrong with a larger barn but you need to build it somewhere else.'

The Netherlands has the technology to do that, says Smeets. 'The problem is that it is not yet being applied throughout the sector. We are subsidizing old, badly-run farms that ought to go. Productivity is high here and environmental problems have largely been solved, or are solvable at any rate. Dutch agriculture is among the best in the world. If production in the rest of the world was at the same level, we would be able to feed the world with some to spare at current levels of

meat consumption.'

Professor of Breeding Van Arendonk agrees. 'The Netherlands has a unique location, in a delta with fertile soil close to major population centres for the supply of fresh produce. What is more, our climate is suitable for both plant and animal production. We have ideal conditions here for sustainable livestock farming, livestock farming that meets the requirements of animal welfare and environmental impact.' ■



## PETER SMEETS,

landscape ecologist with the Rural Dynamics research group at Alterra, part of Wageningen UR

**'Mega-barns are an undesirable consequence of the old spatial planning system'**