

# **Prohibition of enriched cages for laying hens in the Netherlands; An examination of the consequences**

## **English summary**

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From 2012, the traditional cage housing for laying hens will be prohibited in the EU. From that date, hens may be housed only in enriched cages or alternative systems (barn, free range or organic). In December 2006, a motion was passed in the Second Chamber of the Dutch parliament requesting the legislation to be amended to prohibit the housing of hens in enriched cages in the Netherlands. The Ministry of Agriculture, Nature and Food Quality has asked LEI and ASG to investigate the consequences of such a prohibition.

### *Laying poultry chain*

30.8 million laying hens were kept on 1,147 farms in the Netherlands in 2006. Besides the layer farms, there are nearly 300 rearing farms. The primary sector, together with the packing stations and the egg products industry and the suppliers (including the feedmills), constitutes the laying poultry complex. In the period 2003-2005, the value added for the laying poultry complex averaged €186 million per annum. The employment provided amounted to 5,665 annual labour units.

The income for the farmers with laying hens varies widely from year to year. In 2004 and 2005, the incomes were negative. The provisional figures for 2006 give a family income of €27.000 for the farmers with barn hens and one of €73.000 for the farmers with hens in cages. The principal cause of this difference in income is the relatively low price for barn eggs. As a consequence of the rapid switch over from cage to barn systems in the years following 2003 there was a glut on the market for barn eggs in 2005 and 2006, resulting in low prices.

### *Housing systems*

In 2006, the distribution (in percentage of the hens) over the different keeping systems in the Netherlands was as follows: 47% cages, 37% barn, 14% free range and 2% organic. This means that, at present, 53% of the hens are kept in alternative systems. In 2002, this figure was still only 26%, which shows that in a few years many holdings have switched from cage to barn housing. According to a survey (carried out in the spring of 2007), 2% of the hens (650,000 hens) are kept at present in enriched cages. An estimated 4% to 5% of the hens (1.2 to 1.4 million hens) are kept in cages which are to be enriched. These cages

satisfy the standard for enriched cages in terms of cage height, but will not include perches, laying nests and litter until 2012.

#### *Production and sale of Dutch eggs*

About half of the present annual Dutch egg production of 9,200 million eggs consists of eggs laid in cages, and the other half are alternative eggs. About 65% of the total production is exported. Sixty percent of Dutch egg production is sold to the table eggs market (supermarkets and the non-domestic market) in the Netherlands and abroad and 40% to the egg products industry in the Netherlands and abroad. Sixty percent of the Dutch cage-laid eggs go to the egg products industry and 40% to supermarkets and the non-domestic market (restaurants, catering and institutions) mainly abroad. Seventy-five percent of Dutch alternative eggs find their way to supermarkets and the non-domestic market in the Netherlands, Germany, Belgium and the United Kingdom. About 25% of the alternative eggs go to industry in the Netherlands and Germany.

#### *Dutch consumption*

The total consumption in 2006 was 182 eggs per head of the population. The Dutch consumption can be broken down as follows:

- domestic use in the form of table eggs: 112 eggs. Of these 84% are alternative eggs and 16% cage eggs;
- non-domestic (hotels and restaurants, catering, institutions): 30 eggs. The majority of these are also alternative eggs;
- egg products: 40 eggs. This is the consumption in the form of egg products (in sauces, bakery goods and pasta). These are almost exclusively cage-laid eggs.

#### *Keeping systems abroad*

Currently, there are two countries in the EU which impose further-reaching requirements on the housing of laying hens than the EU, namely, Sweden and Germany. Outside the EU, only Switzerland has a prohibition on cages. Of all the EU countries, the Netherlands - after Sweden - has the highest percentage of hens kept in alternative keeping systems (53%). A few smaller egg-producing countries also have a high proportion, among them Austria (47%) and Denmark (43%). Among the important egg-producing countries, the proportion of alternative housing is reasonably high in the United Kingdom (37%) and Germany (27%) and low (less than 5%) in Italy, Spain and Poland.

In Sweden a prohibition was promulgated in 1988 against keeping hens in cages, with an allowance for a transition period of ten years. The law was amended at a later stage, however, to permit enriched cages in addition to aviaries and barn systems. Each keeping system must be evaluated in detail in advance in Sweden in order to prevent adverse effects on animal welfare. In 2006, 2% of the hens were still kept in traditional cages, 36% in enriched cages and the remainder in alternative systems (predominantly barn hens).

In Germany, there have been discussions for many years about a possible cage ban. The legislation now prohibits the keeping of laying hens in traditional cages after 31 December 2009 at the latest. After this date, hens may be kept only in '*kleingruppenhaltung*' (housing in small groups) or alternative systems. It is anticipated that about 50% of the

hens will then be kept in *kleingruppenhaltung* and 50% in alternative systems (barn hens with or without free range).

In the United Kingdom, the legislation conforms with the EU directive. The expectation is that, in 2012, 40 to 45% of the hens will be kept in enriched cages and 55 to 60% in alternative systems (mainly barn systems with free range outdoors).

#### *Welfare in the enriched cage*

According to EU directive 1999/74/EC, the traditional cages will be prohibited from 1 January 2012 and hens will be allowed to be kept only in enriched cages or alternative systems (e.g. barn systems). Enriched cages are cages with additional elements to give hens the opportunity to carry out their species-specific behaviour. These additional elements are: more space, laying nests, perches and litter. There are small (up to c. 15 hens per cage) and medium-sized/large enriched cages (15 to 60 hens per cage). The former variant is employed mainly in Sweden. The latter variant is in use mainly in Germany, the United Kingdom and the Netherlands. It has been concluded with reference to the welfare of laying hens that the health of laying hens is generally somewhat better in enriched cages than in alternative non-cage systems. As far as the other characteristics, such as behaviour, are concerned, laying hens in non-cage systems are better off than hens in enriched cage systems. Hens in traditional cage systems have insufficient opportunity to express their species-specific behaviour. The opportunities are greater in enriched cages than in traditional cages and comparable on a number of points with those in non-cage systems (nesting). An enriched cage scores lower than the non-cage systems mainly in the area of space per bird and dust bathing/scratching possibilities.

#### *Welfare in kleingruppenhaltung (colony system)*

A number of standards for enriched cages are clearly defined in the EU directive, such as the minimum cage area, the cage height and the area per bird. The directive is less clear about the provision of litter and the laying nest. In Germany, the enriched cage in conformity with the minimum EU standards is not permitted. By 31 December 2009 at the latest only *kleingruppenhaltung* or alternative systems will be permitted. The *kleingruppenhaltung* is, in fact, a somewhat more spacious version of an enriched cage, with generally a group size of 40 to 60 hens. The difference from the EU enriched cage lies mainly in the greater cage height and the larger area standard per bird. At the same time there are in Germany, in contrast to EU standards, minimum requirements for litter provision and laying nests. From the welfare standpoint the conclusion appears justified that, taken overall, hens in *kleingruppenhaltung* enjoy somewhat more opportunities to express their species-specific behaviour and so enjoy a rather higher level of welfare than hens in enriched cages. The health of the hens kept in the *kleingruppenhaltung* is comparable with that of those in the enriched cage.

#### *Production cost comparison of keeping systems*

There has been as yet little experience in the Netherlands with keeping hens in enriched cages. The starting points for the production cost comparison have been formulated on the basis of research results, practical experience abroad and information from experts. The calculations indicate that the production cost in the enriched cage is 7.8% higher in com-

parison with the traditional cage (with 550cm<sup>2</sup> per hen). This increase arises mainly from the higher housing costs. The production cost for barn hens held in aviary houses is 21.4% higher than the traditional cage. This increase arises from a more expensive bird (because reared in alternative systems), higher feeding costs (because of a higher feed consumption), higher housing costs, higher labour costs and a lower egg production per bird housed. After the introduction of the EU prohibition on the use of the traditional cages from 2012 the difference in production cost between cage-laid eggs (from the enriched cage) and barn eggs will be smaller. In comparison with the eggs produced in enriched cages the selling price for barn eggs must be €0.09 per kg higher in order to cover the extra costs for the production of these eggs. The production cost increase for the German *kleingruppenhaltung* amounts to 10 to 10.5% relative to the traditional cage-laid eggs, making it a few percentage points higher than for eggs laid in the enriched cage which satisfies the minimum EU requirements.

#### *Development of the industry and possibilities for switching over*

If a laying hens holding wishes to switch from cage housing to enriched cages or alternative housing the farmer will have to comply with legislation in the areas of ammonia emissions, odour and fine dust. There is separate legislation for each emission. In the past it was mainly the ammonia emissions legislation that constituted a problem for laying hen farmers who wished to switch to a different keeping system. Now, however, various aviary systems have been developed with a comparable ammonia emission standard to the enriched cage. The odour emission factors for systems with traditional cages, enriched cages and aviary systems are virtually the same. The emission of fine dust from aviary systems, however, is over eleven times higher than that from traditional cage housing and also markedly higher than that from enriched cages. If the emission from the holding is not to increase, the switch over can be realised only through a considerable decrease in the number of birds. Of all the emissions, fine dust will therefore be the most important limiting factor. Any regulations for the poultry industry will be determined by future legislation (Environmental Management Act). The Ministry of Housing, Planning and the Environment (VROM) has meanwhile indicated that, through the agency of poultry farms where 'laying poultry are kept in barn houses', the concentration of floating particles (such as fine dust) in the open air will increase 'significantly'. It is not yet clear what form the legislation in this field will take.

#### *Market for table eggs*

Sixty-five percent of all the eggs produced in the Netherlands are exported. Germany is by far the most important of the export destinations for table eggs. Seventy-five percent of Dutch alternative eggs find their way to supermarkets and the non-domestic market in the Netherlands, Germany and, to a lesser extent, to Belgium and the United Kingdom. In addition, about 25% of the alternative eggs go to the egg products industry in the Netherlands and Germany. Despite the fact that there is a large market for barn eggs, the supply at present is still larger than the demand. It may be expected on the basis of trends that the demand for alternative eggs will continue to grow over the next few years.

The Netherlands is ahead of the surrounding countries as far as market share of alternative eggs in the table egg market is concerned. Barn eggs are the market leader in the ta-

ble egg market by a wide margin, partly because cage-laid eggs are no longer sold in supermarkets. The share of cage-laid eggs in the Dutch domestic market was still 16% in 2005. In the event of an autonomous development the market share of alternative eggs in the Dutch table egg market will further increase, in which case the growth will be realised in the smaller outlet channels (including markets), where cage-laid eggs are still being sold. This will make possible an additional sale of alternative eggs amounting to 1 to 2% of the Dutch production.

In Germany the demand for barn eggs has risen enormously since 2004. This demand is expected to increase further at the expense of cage-laid eggs. Cage-laid eggs are, however, still market leader in the German table egg market. The demand for table eggs is more price-elastic in Germany than in the Netherlands and the proportions of market share of sales channels in Germany are different from in the Netherlands. As a result, German consumers more readily switch sales channels for eggs if suppliers remove the cage-laid eggs from the range. This means that the effect of the switching of Dutch supermarkets to purely alternative eggs should not be projected directly onto Germany.

In the United Kingdom, too, cage-laid eggs are still the market leader in the table egg market, followed by free range eggs. Barn eggs are scarcely sold on the British table egg market. Some of the British supermarkets seem to be following the Dutch example by no longer selling cage-laid eggs. At these supermarkets there are market opportunities for Dutch alternative eggs, certainly in the short term.

Taken as a whole, the demand for alternative eggs will further increase in the countries surrounding the Netherlands in the medium term. A market for alternative eggs can still be found for a further increase of 4 to 8% of Dutch production.

In the short term, given the surplus of barn eggs in the market, a switch over of holdings to barn poultry farming is not yet attractive. The demand for barn eggs will first of all have to further increase. If there is a further increase in the supply in the short term, this will depress the price further and adversely affect the profitability of primary holdings which have already switched.

It can be assumed, however, on the basis of the trend in demand in the table egg market at home and abroad, that the demand for barn eggs will continue to increase in the table egg market over the next five years. The speed at which that happens will depend on the selection policy of supermarkets and of customers in the non-domestic market. The implementation of a unilateral Dutch prohibition of the enriched cage will lead to an increased supply of barn eggs. A realistic pricing is achievable only if this is accompanied by a stimulation of demand for Dutch barn eggs in the foreign market. The industry states that it is unable to achieve such a stimulation of demand in a manner that is economically sound. The Dutch government and social organisations would then have to play an important role in the process.

#### *Market for egg products*

The Dutch egg products industry processes eggs into liquid egg product or powdered egg. The Dutch egg products industry is by far the market leader on the European export market. In order of rank, Germany, the United Kingdom, Belgium, Japan and Switzerland are the principal customers for the Dutch egg products industry. The industry processes predominantly cage-laid eggs, because of the lower price and the better microbiological qual-

ity. The Dutch egg products industry is encountering increasing competition in the market for liquid egg products from southern European countries such as Italy and Spain. In the powdered egg market there is also increasing competition not only from European players, but also from players outside the EU, such as the United States, Brazil and India.

The autonomous development of alternative egg products is dependent on the price trends of alternative eggs and the quality improvements which can be carried through. On the basis of the present trends in demand an increase in the demand for alternative eggs is possible by 2% to a maximum of 5% of Dutch production, since the trend towards alternative eggs is expected to develop further in the next few years in the food industry.

According to the industry, if the European Union prohibits the traditional cages and allows enriched cages, this will hardly affect market relations in the liquid egg products market, if at all. The egg products industry sees the enriched cage as an alternative to the traditional cage, but on condition that legislation is implemented and enforced by all countries at the same time. If countries are granted special positions or delay implementation, this can lead to shifts in competition relationships.

The internal European powdered egg market is at present still partly protected by import duties. If the latter are reduced this will have serious consequences for the European egg products industry. The effect of this will be relatively far greater than the consequences of the EU prohibition on the traditional cage from 2012.

The market for egg products is a semi-manufactures market, in which product quality counts more than price. The end-products - such as sauces, pasta, bakery goods and meat products - are not associated by the consumer with eggs. Consequently, the additional cost of alternative egg products as a raw material in the market cannot be recovered or can be recovered only with great difficulty. Some food manufacturers have chosen to use alternative eggs as a raw material, but do not market the end-product as such. Others deliberately choose egg products based on cage-laid eggs, from the point of view of microbiological quality.

If a prohibition on the enriched cage is introduced unilaterally in the Netherlands, awareness-raising and stimulation of behaviour will be necessary among consumers in order to encourage the sale of consumer products based on alternative egg products. The domestic and foreign food manufacturing industry also has an important role to play. This is a lengthy process, in which large sums will have to be invested. The egg products industry argues that it cannot bear these costs. A unilateral cage ban will therefore have serious consequences for the Dutch egg products industry. It will be forced to buy in cage-laid eggs from elsewhere in order to be able to continue to compete in its market, which is very price-elastic.

The people interviewed in the Dutch egg products industry believe that, for as long as production cost minimisation predominates in the food manufacturing industry, a unilateral Dutch prohibition of the enriched cage at the European level and certainly at the world level will lead to a deterioration in animal welfare through the relocation of production. As a result, the competitive advantage will shift to countries where there is less, if any, concern for animal welfare. The country of origin of egg products is, according to the industry, not a purchasing factor in most of the market for the Dutch egg product.

#### *Autonomous development*

It can be expected on the basis of the trends in the market for table eggs and egg products that the demand for alternative eggs will further increase in the next few years. As a result, the proportion of hens in alternative systems in the Netherlands may further increase from the present 53% to 65 to 70% in 2012. At the same time, there will be a continuing demand for cage eggs in the years after 2012. There will be a market for Dutch cage-laid eggs primarily in the egg products industry, but also in foreign supermarkets. On the basis of this market demand and the preference of a number of farmers for keeping hens in cage systems, c. 30% of the hens in the Netherlands will be kept in enriched cages after 2012. Because these are mainly larger holdings, the absolute number of holdings is relatively small, i.e. an estimated 80 to 120 holdings. In view of the importance of the German market, some Dutch laying hen farmers will choose to use the enriched cages in conformity with the requirements of the German *kleingruppenhaltung*.

#### *Economic consequences*

The economic consequences of a prohibition on enriched cages in the Netherlands are threefold. In the event of a prohibition from 2012 there will be a direct capital loss to the poultry keepers concerned through the enriched cages, cages to be enriched and rearing cages becoming unusable. The value of these assets, if their use is prohibited from 2012, will be nearly €12 million. If the end date of a prohibition is put back, the capital loss will be proportionately lower. In 2020/2022, the end value of the assets, after a depreciation period of 15 years, will be nil.

If there is a prohibition of the enriched cage, some of the holdings which are still using cage housing will cease operations or relocate them abroad. Some of the holdings will keep a smaller number of barn hens in the existing houses. It is estimated that the flock of laying hens in the Netherlands will decrease by 15%. As a result, the laying poultry complex will achieve a lower value added of €28 million per annum and lose 850 annual labour units.

If there is an over-supply of barn eggs, all holdings will suffer loss of income. Because some of the holdings with cage housing cannot switch to enriched cages, but will be forced to switch to barn systems, there will be an over-supply of barn eggs, resulting in lower returns. If there is an over-supply of barn eggs, all holdings will suffer loss of income. For the whole barn sector this loss can amount to 40 million per annum, over several years.

#### *Competition on the world market*

The international trade in table eggs continues to be limited primarily to the region. There is little trading with countries outside the EU. This also applies to liquid egg products. Some of the eggs are processed into powdered egg. Because of the long keeping qualities of this product and the relatively low transport costs there is an international trade in it. In some countries, such as the United States, Brazil or India, the production cost of eggs is 30 to 40% lower. This is due, *inter alia*, to cheaper fodder (supply of local animal feed ingredients) and the absence of animal welfare legislation. The European market is at present protected by import duties which, together with the transport costs, compensate for the difference in production cost. On the one hand, the European purchase price of eggs is increased by animal welfare measures and, at the same time, the EU intends to reduce the

import duties in the context of the WTO negotiations. In this situation it is economically more attractive for the food industry to replace European liquid egg product with powdered egg from countries outside the EU. The consequence is that egg product will be purchased from third countries where the animal welfare standard is markedly lower than in the EU. Figure 1 gives an overview of the relationship between costs and the space standard for laying hens in different parts of the world. If the enriched cage is prohibited unilaterally in the Netherlands in 2012, laying hens will be allowed to be kept exclusively in alternative housing systems with a minimum area of 1,100cm<sup>2</sup> per bird. In the United States voluntary rules apply which are based on 430cm<sup>2</sup> per hen with effect from 2009. In the other countries in the world there is no legislation to govern the welfare of laying hens. Outside Europe laying hens are generally kept in cages with an average area per bird, in Brazil, Ukraine, or India, for example, of 300 to 400cm<sup>2</sup>. Figure 1 shows that the production cost of eggs increases when the area per bird in cage housing is increased and when there is a switch to enriched cages, *kleingruppenhaltung* and barn systems. The production cost of Dutch eggs will rise sharply when production in cage housing is no longer possible.

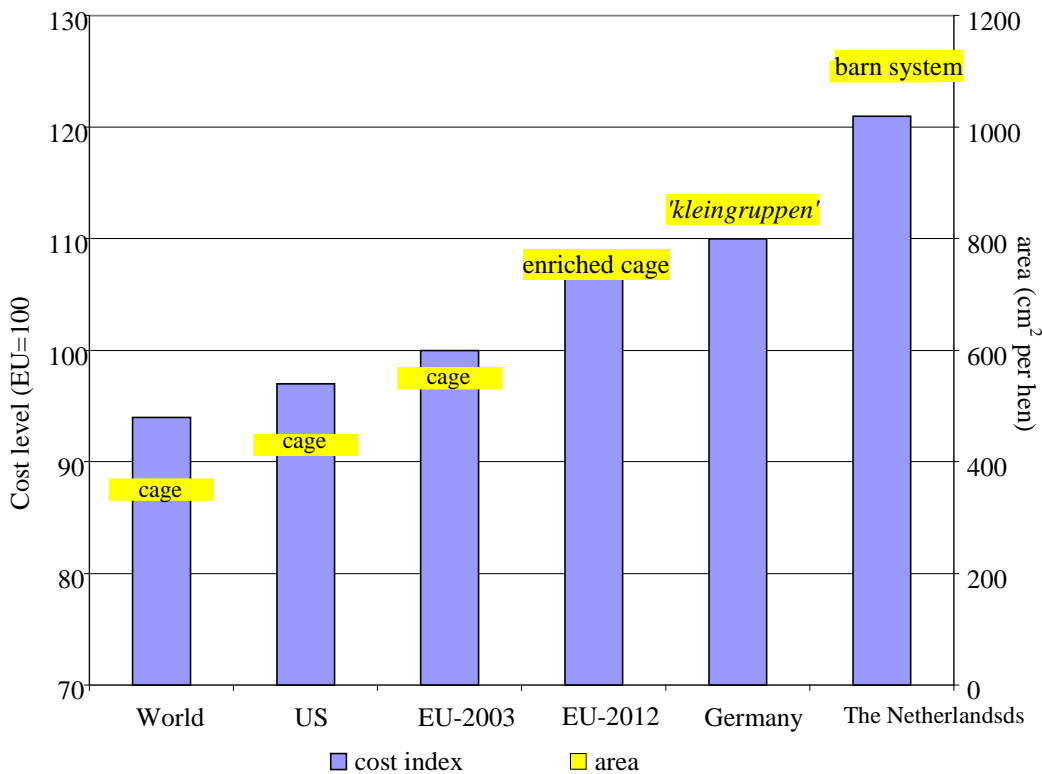


Figure 1 Relationship between costs for animal welfare (left-hand axis) and the area per laying hen (right-hand axis)