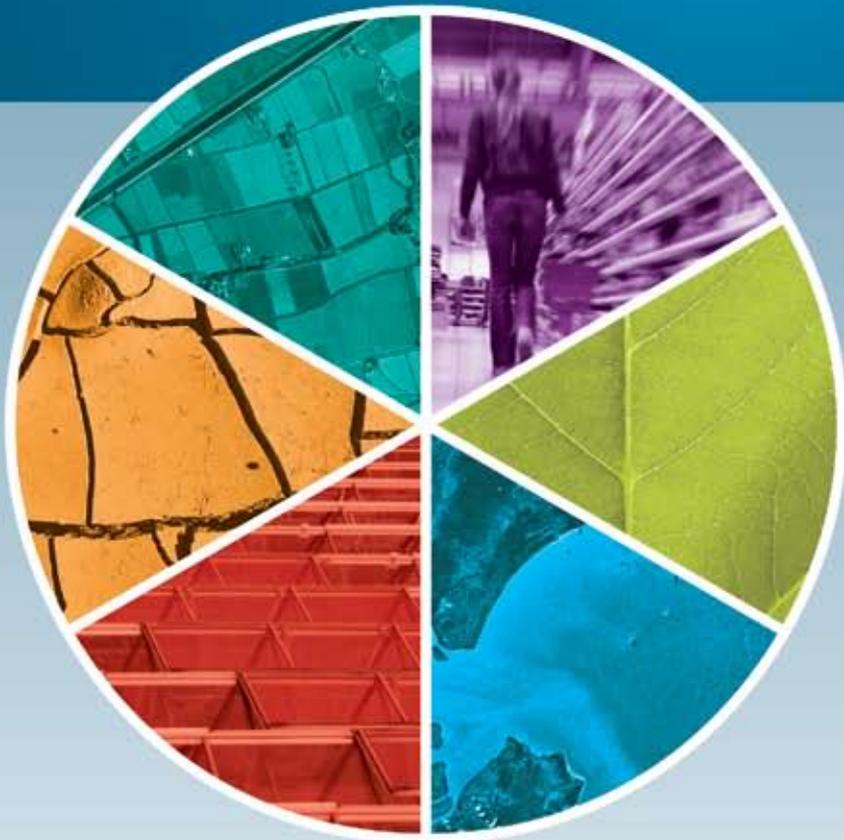


# Agricultural Economic Report 2008 of the Netherlands

Summary



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Agricultural Economic Report 2008  
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Agricultural Economics Research Institute  
P.O.Box 29703, 2502 LS The Hague  
The Netherlands  
Telephone: +31 70 3358330  
Fax: +31 70 3615624  
E-mail: [informatie.lei@wur.nl](mailto:informatie.lei@wur.nl)

**[www.lei.wur.nl](http://www.lei.wur.nl)**

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ABSTRACT

AGRICULTURAL ECONOMIC REPORT 2008 OF THE NETHERLANDS: SUMMARY

P. Berkhout & C. van Bruchem (eds.)

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This report offers an English summary of the Landbouw-Economisch Bericht 2008. It presents a survey of the economic state of Dutch agribusiness. First, attention is paid to general economic and political developments and to the development of the agricultural complex. Next, the report deals with the rural area and with environmental issues. Following a description of the production structure and production factors in agriculture, profitability and income formation in the various sub sectors are analysed.

Design and production: The KEY Agency, Amsterdam

# Preface

This summary of the *Landbouw-Economisch Bericht 2008* offers a global survey of the economic and financial state of Dutch agriculture and horticulture. In it, the changing economic and political circumstances affecting the sector are explicitly taken into account. The outline of the publication has been changed considerably. More attention is given to general analyses of the agricultural sector, less to the income developments.

The complete report, which is available only in Dutch, is based on data and contributions from the three research departments of the Institute. The report has been coordinated and edited by the Public Issues Department. The final draft of the 2008 edition of the report was completed in May 2008.

The Hague, July 2008

A handwritten signature in blue ink, appearing to read 'RBE', is positioned above the printed name of the director.

The Director,  
Prof. dr. ir. R.B.M. Huirne

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# The environment of the Dutch agricultural sector

## 1.1 ECONOMIC AND POLITICAL DEVELOPMENTS

In 2007 the world economy was doing well, with an average economic growth of 4.7%. This was only a fraction less than the top year 2006. In the second half of 2007, the financial markets began to show signs of unrest, before a credit crisis which saw the erosion of billions of dollars of invested capital. By the spring of 2008, the end of the crisis was still not in sight. Although the world economy has proved to be relatively robust, how the crisis will develop and the possible economic consequences are unknown.

The European economy proved to be robust. The Euro zone performed far above the long-term growth average of around 2%, with historically low unemployment. The expansion continued in most of the developing economies. In China, the growth rate accelerated to 11.4%. India achieved very high growth once again, even though the pace slowed slightly under the impact of the monetary response to the financial unrest. The high income countries in Asia, like South Korea and Malaysia, also maintained their good performance of recent years (average 5.5% growth). A number of exporters of oil and raw materials, including Russia and Brazil, benefited from significant price rises on the international market.

For the Dutch economy, 2007 was a top year. The economic growth of 3.5% was far above the average in the Euro zone, with a relatively low inflation rate of 1.6%. In the course of the year, tension on the job market increased. The period of high conjunction continued until the end of the year.

In June 2007, the Dutch government Balkenende IV presented the policy programme 2007-2011, entitled "Working together, living together". The agricultural and rural policy comes under the third pillar of the policy programme, sustainable living environment. The government is aiming to create an ecologically sustainable and economically vital agricultural sector. In the next four years, the government wants to devote more time and attention into energy policy. For example, it wants to implement an energy-neutral greenhouse horticulture in 2020 and there is a new incentive scheme for sustainable power. Another objective concerns improving the vitality of the countryside, an objective which is also reflected in the targets of more and better quality green areas. The improvement of animal welfare also falls under this objective.

In the coming years, there will also be more focus on a climate-resistant spatial structure of the Netherlands. Water should play a decisive role in spatial considerations.

## 1.2 AGRICULTURE IN THE WORLD

The price of oil and various other raw materials rose further in 2007, as did the prices of many agricultural products and foodstuffs. Important factors are increasing demand from countries with a fast growing economy, rising use of bio fuels, partly through government measures, poor harvests due to drought and a lack of attention for agriculture in recent years, particularly in the developing countries. The rise in prices over recent years contrasts strongly with the long term trend of declining agricultural prices, in recent decades by 2% per year. Incidentally, there were also brief periods with high prices in the past too.

The high food prices, which initially benefited the farmers, led to food shortages and riots in some places. Some countries limited food exports as a result. These developments were the reason for international consultations, putting agriculture back on the agenda after a number of years. Thanks to increasing production in general until 2016, prices on the world market are expected to decline slightly, but will remain higher than in 2000-2005. The growth of animal production will mainly take place outside the OECD.

In 2007, global production of grain and sugar was greater than in 2006, but production of oilseeds was lower. The NAFTA (with the US as main player) is by far the biggest grain exporter, exporting over half its grain to Asia. The production of the various types of meat also increased in 2007. The countries in South America, in particular, are starting to play an increasingly important role in the production and trade of meat.

Between 1996 and 2006, the Middle East, North America and Oceania in particular showed a strong growth in the import of agricultural products. Agricultural exports from the countries in the Middle East, Eastern Europe and Latin America also grew strongly. Asia is the biggest importer and the biggest exporter of agricultural products.

### *Doha Round continues*

In 2007, in the framework of the Doha round, a major reduction of trade disruptive domestic support, like that given by the EU, was proposed as well as of the import tariffs. However, the least developed countries could continue to protect their agriculture. A difficult issue concerned the determination of sensitive products. These are products for which the countries in question fear that a tariff reduction would lead to a disruption of the internal market. A number of agricultural importers (EU, US,

Canada, Japan and Norway) therefore want to keep the option of applying higher import tariffs for some products. The discussion is currently focusing on how much (4% to 6% of all tariff lines) and at which level products may be designated sensitive. In the trade consultations, the EU is supporting non trade concerns, such as the environment and animal welfare. Support for socially desirable production methods raises objections in WTO context as they can easily be considered to be trade-disruptive, but it is not impossible.

### 1.3 AGRICULTURE AND AGRICULTURAL POLICY IN THE EU

In November 2007, the European Commission (EC) issued a statement regarding the situation concerning the reform of the Common Agricultural policy (CAP) of 2003, the Health Check. The reform of 2003 involved decoupling the direct payments from the production and introducing a system of farm payments. In the Health Check, the EC explains that the 2003 reform was a first step to prepare the CAP for the challenges of the twenty-first century. Further amendments are necessary in three sections to bring the CAP in line with changing circumstances. These include the farm payment scheme, market support and a number of new challenges related to risk management, climate change, bio energy, water management and biodiversity.

With respect to the farm payment scheme, the European Commission (EC) advocates further steps in the direction of flat rate payments per hectare instead of the current payments often based on historic reference. At the same time, the support could be decoupled from production even further. Implementing these proposals means an important shift in payments between the various types of farm. With regard to market support, the EC plans to largely abolish the remaining intervention mechanisms. The abolition of the milk quotas, planned for 2015, should lead to a 3-5% growth in milk production in the EU while the price should go down by around twice as much.

Finally, the EC wants an additional modulation on the payments. The compulsory modulation is 5% of the farm payments from the first pillar in the period 2007-2012 and only applies to farms in the EU 15 which receive over 5,000 euros in farm payments annually. The Commission wants to raise this percentage annually by 2%, until a percentage of 13 is reached in 2013. The EC wants to use the resources released through this extra modulation to strengthen rural policy and tackle the five challenges mentioned above.

In the period 2007-2013, over 51.2 billion euros in EU resources are available for rural policy. Of this sum, 8.1 billion euros is due to the compulsory modulation of 5%. Thanks to this modulation, the available EU budget for rural policy has been raised by 19%. The programmes submitted by the member states in the framework of this policy

have now all been approved by the EU. The European Commission's proposal for extra modulation could provide an extra budget of around 4.6 billion euros, with which the EU budget should increase again by 9% for the second pillar.

### *Markets, expenditure and income*

In the EU, the grain harvest was smaller than in 2006, but the production of sugar, oilseeds and meat increased. The EU dairy market showed substantial price rises, which was a reason for increasing the milk quota in 2008 by a total of 2.5%. Meat production in 2007 was almost 6% more than in 2006; an important part of this increase can be attributed to the accession of Romania and Bulgaria. Half of the production consists of pork.

Apart from a small amount of grain, the intervention stocks in the EU have disappeared. Thanks to the high world market prices, expenditure for agricultural policy in 2007 lagged behind the budget. In particular, the expenditure for restitutions and storage were lower than planned. Thanks to the many agricultural policy reforms, the nature of the expenditure changed significantly. In the mid 1980s, two thirds of the budget was spent on intervention expenditure and one third on export restitutions. Direct payments were not yet included as a separate budget item. In 2006, however, direct payments constituted over four fifth of the agriculture budget; the share of the costs for intervention had shrunk to 13% and the restitution expenditure to 6%.

Largely due to the favourable price forming, the actual incomes in EU agriculture rose in 2007, on average by 5%. However, there are great variations among the member states. If we consider the development of the net added value over a longer period, the member states can be divided into two groups. In six countries (Belgium, Greece, Ireland, Italy, the Netherlands and Bulgaria), the income level in 2007 was lower than that of 2000. The other 21 member states had a more favourable income development: here the income in 2007 was higher than that of 2000. Particularly in the Baltic States and Poland, agricultural income has risen significantly since 2000.

In 2006, the EU exported over 70 billion euros of agricultural products to the world market, while 84 billion euros were imported. The US and Russia are the main sales areas for agricultural products from the EU.

# Developments in Dutch agricultural chains

## 2.1 THE AGRICULTURAL COMPLEX AND FOOD AND BEVERAGES INDUSTRY

In 2006, all the economic activities associated with agriculture and food - the agricultural complex - corresponded to around 10% of the total national added value and national employment (table 1). Just over half of this is more or less directly related to agriculture and horticulture in the Netherlands. The rest relate to gardening, forestry and supply and distribution of imported raw materials. Between 2001 and 2006 employment in the agricultural complex, based on national raw materials, declined by 5% to slightly under 400,000 job years. Pasture-based livestock farming is the largest sub-complex within the agricultural complex based on national raw materials; the share of this complex in the added value is around 28%, while the share in employment is around the 34%.

A substantial share of the activities in the agricultural production column is related to export. The significance of this export for the added value and the employment in the total agricultural complex was over 65% in the 2001- 2006 period. Greenhouse horticulture is most focused on export; an average of 93% of the income comes from export.

In 2005, the food and beverages industry had 4,600 businesses, all involved in some way with the production and sales of food and luxury items. With over 150,000 employees and a turnover of almost 55 billion euros, this sector is the biggest in the industry. Around 1 in 6 employees in the industry work in one of the businesses in the food and beverages industry. The majority of the businesses are small. Around 17% of the businesses in the food and beverages industry have no employees and operate according to traditional methods. Prominent developments in 2007 in this sector included the merger plans of the dairy companies Friesland Foods and Campina to create the biggest dairy organisation in the EU.

The Dutch food and beverages industry is very internationally oriented. Of the total turnover, in 2005 almost 45%, or 18.6 billion euros, were generated abroad. The EU 25 were responsible for almost 15 billion euros. The export orientation towards European Union countries stems largely from the advantages of a *level playing field*.

<b>Table 1</b> Gross value added and employment of the Dutch agricultural complex, 2001 and 2006				
	Gross value added <sup>a</sup> (EUR billion)		Employment (1,000 labour units)	
	2001	2006 (p.)	2001	2006 (p.)
<b>Agricultural complex <sup>b</sup></b>	<b>40.6</b>	<b>43.9</b>	<b>718</b>	<b>654</b>
<i>Share in national total</i>	10.2%	9.8%	10.8%	10.1%
Gardening, agricultural services and forestry	<b>3.7</b>	<b>3.9</b>	<b>75</b>	<b>63</b>
<i>Share in national total</i>	0.9%	0.9%	1.1%	1.0%
Foreign agricultural raw materials	<b>15.3</b>	<b>15.5</b>	<b>226</b>	<b>196</b>
<i>Share in national total</i>	3.8%	3.5%	3.4%	3.0%
Processing industry	6.6	6.7	73	63
Supply	4.0	4.4	69	64
Distribution	4.7	4.8	84	69
Agricultural complex (based on domestic agricultural raw materials)	<b>21.5</b>	<b>24.5</b>	<b>416</b>	<b>396</b>
<i>Share in national total</i>	5.4%	5.0%	6.3%	6.1%
Agricultural and horticulture	7.6	8.1	184	170
Processing industry	3.2	3.8	50	45
Input manufacturing	8.1	9.6	137	132
Distribution	2.6	3.0	45	48
<p>p.: preliminary.  a In current prices;  b based on domestic and foreign agricultural raw materials (including gardening, agricultural services, forestry, cocoa, alcohol and tobacco).</p> <p>N.B. Due to the revision of the National Accounting Convention and methodological changes, the figures cannot be compared against previously published data.</p> <p>Source: LEI.</p>				

## 2.2 DEVELOPMENTS IN AGRICULTURAL CHAINS

In the links before and after primary production, recent decades have seen a process of mergers, takeovers and scale increases in the various agricultural chains. The motives for these mergers and takeovers in the various branches of the agricultural sector are generally the same, i.e. achieving efficiency advantages through scale increases, creating a stronger position on the European and global market, joining forces against buyers (wholesale, retail and industrial processors), expanding financial capacity, creating more potential for investment in product innovation, brand familiarity, etc. This does not mean that every takeover or merger does not have its own background and history. For example, the background to the takeover of the sugar

division of CSM by the cooperative Cosun was the reform of the European sugar policy. As a result, the price of sugar went down and the processing margin had to be minimised in order to keep cultivation of the crop attractive for growers. Moreover, as a result of the reform, the extent of the cultivation and processing will be declined. The processing of sugar beet will therefore be centralised in two factories.

The plans of Friesland Foods and Campina to join forces follow a reconnaissance between the Danish/Swedish dairy companies Arla Foods and Campina several years ago. This reconnaissance did not ultimately result in anything; the time was apparently not yet ripe for such a Scandinavian-Dutch dairy alliance. The merger of Friesland Foods and Campina will mean combining around 80% of the Dutch supply of milk. One party (Friesland) traditionally has a strong position on distant markets, including the Far East, the Middle East and Africa. Because of the milk supply in the densely populated west and south of the Netherlands, the other party (Campina) tends to concentrate more on sales of fresh milk and dairy products. Both parties have their own widely known private labels. The future will tell whether the different brands will be maintained. For the two biggest flower auctions in the Netherlands, VBA and FloraHolland, the dramatic changes on the world market (including the emergence of new production and sales countries) were an important reason to join forces as of 1 January 2008. The merger aims to create a stronger international market position and better marketing, which in turn should result in the best price for the members of the cooperative. In addition, standardisation and cost control should result in lower transaction costs for growers and traders which used to do business with both auctions. The two smaller flower auctions (Bloemenveiling Oost-Nederland and Veiling Vleuten) also merged retroactively as of 1 January 2008. This merger is not only a response to the changes on the world market, but is also due to the essential relocation of Veiling Vleuten from Utrecht.

### 2.3 SALES STRUCTURE COMPARISON PER PRODUCT

The sales structure for agricultural and horticultural products is very varied. For some products, particularly starch potatoes and sugar beet, there is only one (national) buyer in the Netherlands, while for many other products the primary producer can choose from numerous buyers. Some of the chains are described below.

#### *Cut flowers and pot plants*

Cut flowers and pot plants are mainly sold through the Dutch flower auctions. In 2007, around two thirds of the auction turnover was achieved through auction clock transactions and a third through agents. For cut flowers, over 80% was sold through the auction clock. House plants are generally sold through agents (70%). After the various mergers, ornamental plant growers can theoretically choose between two auctions.

### *Bulbs and arboricultural products*

Bulbs for dry sales and bulbs for bulb forcing are mainly sold through agents. Two big purchasing and sales agencies play a central role here. Dozens of specialised trading companies are then responsible for worldwide sales.

Arboricultural products are sold through various trade channels. Traditionally, commercial nurseries play an important role in national trade and export of arboricultural products alongside specialised commercial companies. In recent years, the flower auctions - both transactions through the clock and through agents - for arboricultural products intended for the consumer market have begun to play an increasingly important role. Other sales forms are direct sales, for example to garden centres and DIY markets.

### *Fruit and vegetables*

The vegetable chain can be subdivided into a fresh chain and a processing chain. In the fresh chain, no industrial processing takes place. However, fresh fruit and vegetables are increasingly processed (washed, cut and packaged). The greenhouse vegetable growers produce exclusively for the fresh market, while open field horticulture supplies to both sales chains. Since the 1990s, when the auction activities were increasingly integrated into wholesale activities, the fruit and vegetable wholesale business has changed radically. Although the Netherlands has over 800 companies operating in the potato, fruit and vegetable trade, such as national wholesalers, intermediaries, exporters, importers, sorting and packaging stations, there is still a strong concentration in the sales chain. Major players in vegetable sales are still the "traditional auctions": the Greenery and Veiling ZON, the sales organisations set up by the growers themselves, FresQ and VersDirectNederland, which have close links with their "own growers' associations" and trading company Bakker Barendrecht. The biggest sales organisation for fruit in the Netherlands is Fruitmasters.

### *Dairy*

Besides the two big dairy cooperatives, the Netherlands still has over ten milk processing companies which are responsible for the remaining 20% of the milk. The number of smaller dairy companies has remained fairly stable in recent years. While the bigger Dutch dairy companies also operate abroad, for example Campina in Germany and Belgium, some international companies also buy milk from Dutch dairy farmers.

### *Livestock and meat*

For *fattening pigs* the number of Dutch slaughterhouses has declined from 23 to 15 since 2000. These come under a limited number of companies. However with a number of slaughterhouses, the VION company is responsible for over two thirds of the

slaughter of livestock. There are also various options for selling Dutch pigs, because approximately 20% of the pigs are exported live (3.3 million in 2007). In addition, many piglets are sold to international buyers.

For (adult) *beef cattle*, the number of slaughter houses is similar to the number of slaughterhouses for pigs. However, VION is less dominant here. With two other big companies, VION is responsible for over 60% of the total slaughter of livestock. There is less export of live beef cattle (around 10%) compared with the pig sector and this mainly consists of breeding cattle. The abolition of many livestock markets after the outbreak of foot-and-mouth disease in 2001 and the decline in the number of livestock traders has meant fewer options for beef cattle farmers.

For *veal farming* there is a specific chain structure. Most veal calves are kept on contract and belong to the contracting integration, which is also responsible for slaughtering and meat sales. The five big calf slaughterhouses are therefore also part of one of the three big integrations, of which VanDrie is dominant with a market share of around 70%. For white veal meat at least, there are few “free fattening farms”. For pink veal, the number of which are not fattened on contract for an integration is higher.

*Poultry* is also usually produced on contract basis in the Netherlands and in this respect slaughtering takes place in a few big slaughterhouses. Poultry farmers, the most important branch being broilers, have little choice in this. In recent years, several big mergers have taken place.

## 2.4 EXPORT, IMPORT, RETAIL AND CONSUMPTION

In 2007, the total Dutch export was over 347 billion euros, a rise of 9% compared with 2006. However, the export growth was lower than the year before, when exports rose by 13%. The growth of agricultural exports kept pace reasonably well with the growth of exports as a whole, so that the 17% share of agricultural exports (58.5 billion euros) remained the same compared with 2006. Total imports rose by 7% in 2007 to 306 billion euros. Agricultural imports rose by almost 15% to a value of 35.3 billion euro. As a result, the share of agricultural imports in the total imports rose by 1 percent point to 12%. In 2007, the total trade surplus rose to 40.9 billion euros, of which 23.2 billion euros (57%) were attributable to agricultural trade. The rise in agricultural imports and exports was largely due to the growth in the trade volume and to a lesser extent due to the rise in agricultural prices.

In 2007, almost 82% of the Dutch agricultural export was destined for the internal EU market, while over 63% of the imports of agricultural products came from the member states. Germany is and remains the most important agricultural trade partner for the Netherlands with a share of 25% in agricultural exports (14.4 billion euros) in 2007. In turn, the Netherlands imported 21% of its agricultural products from Germany

(7.4 billion euros). Outside the EU, the US is the most important export destination, while Brazil is the most important partner country for imports.

Ornamental plants (plants and cuttings, cut flowers and bulbs) are the main export product (figure 1), although the rise in trade in this category was disappointing in 2007 (from 7.6 billion euros in 2006 to 7.7 billion euros in 2007). The export of ornamental plants to countries outside the EU even declined slightly. Meat is another important export product; in 2007 total exports rose by over 500 million euros to 6.3 billion euros. Dairy (4.7 billion euros) and vegetables (4.0 billion euros) are also important export products for the Netherlands. On the import side, fruit (3.3 billion euros), meat (3.1 billion euros) and dairy (2.8 billion euros) are important products.

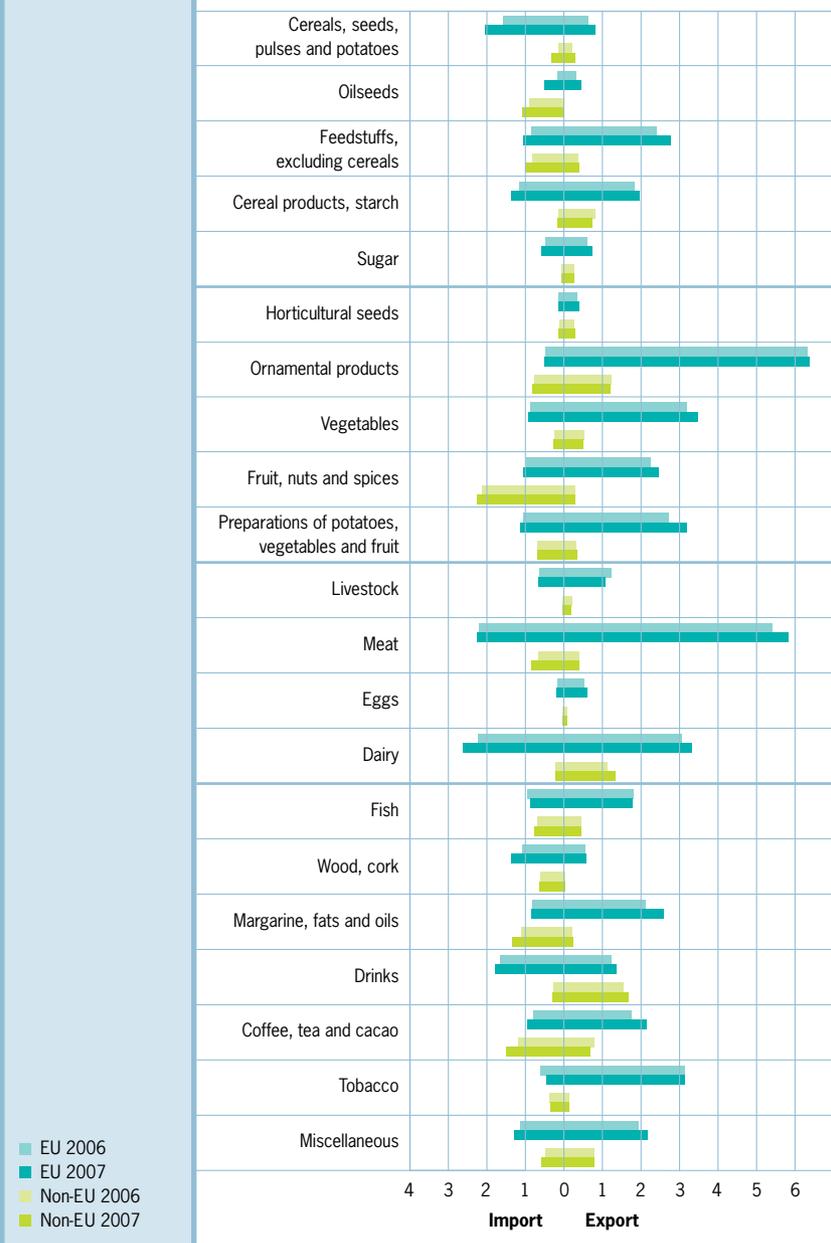
### *Retail and consumption*

The market share of the supermarkets continued to increase in 2007, at the expense of specialist shops. Of every euro spent in food stores, 85 cents now ends up in supermarket tills. The number of supermarket chains has declined in recent years through mergers and takeovers. This process is expected to continue. In the Netherlands, five chains have a joint market share of around 65%, almost half of which belongs to Ahold/Albert Heijn.

Household spending in 2006 rose by 5.1% to almost 262 billion euros (table 2). Almost 35 billion euros were spent on food and luxury items, 4.2% more than in 2005. The growth of spending on food and luxury items therefore lagged behind that of total spending. Food prices rose by an average 4.5%, with the potato, fruit and vegetable product group and the fish product group rising most in price, both by 10.5%. Of the fruit and vegetable group, 2.6% more was sold in 2006 than in 2005 and for fish the figure was 7.4%. Of the meat product group, the 1.3% price rise in 2006 was limited. Sales also declined slightly (-0.3%). In 2006, dairy products became almost 2% more expensive, while the turnover in volume rose by 2.3%.

Figure 1

Dutch agricultural imports and exports by product with the EU and with third countries, 2006 and 2007



Source: Statistics Netherlands, calculations by LEI.

	2002	2003	2004	2005	2006
Potatoes, vegetables and fruit	3.9	3.9	3.9	3.9	4.3
Meat and meat products	4.9	5.0	5.2	5.2	5.3
Fish	0.9	0.9	0.9	0.9	1.0
Dairy products	3.8	3.9	3.8	3.7	3.8
Bread	2.3	2.4	2.4	2.5	2.6
Sweets	3.1	3.2	3.2	3.2	3.3
Beverages	5.1	5.1	5.0	5.0	5.2
Tobacco	3.8	4.0	4.0	4.0	4.2
Total food	20.6	21.0	21.2	21.0	22.0
Total luxury foods	12.3	12.5	12.6	12.5	12.9
<b>Total food and luxury foods <sup>a</sup></b>	<b>32.9</b>	<b>33.5</b>	<b>33.8</b>	<b>33.5</b>	<b>34.9</b>
<b>Total consumer expenditure</b>	<b>231.1</b>	<b>236.3</b>	<b>241.7</b>	<b>248.9</b>	<b>261.7</b>
Share (%) food and luxury foods	14.2	14.2	14.0	13.5	13.3

a Excluding expenditure out of doors.  
Source: CBS, processed by LEI.

In 2006, households spent over 13 billion euros in the hospitality industry, i.e. over a quarter of the total expenditure on food and luxury items. It is expected that out-of-home consumption will increase further. Social changes and consumer behaviour, such as the increase in the number of single parent families and the “rush” culture whereby consumers have less and less time to prepare meals at home will contribute to this trend. Furthermore, it is the food sector itself which is stimulating the strong growth of out-of-home consumption. For example, the number of outlets where food is available has increased significantly. At train and bus stations, in amusement parks, retail parks, bookshops and petrol stations, more and more food outlets are being created for eating in and to go.

Obesity is becoming an increasingly serious problem in the Netherlands. This is affecting more and more young people too. Government and industry have launched programmes to encourage healthy eating, focusing on the importance of eating fruit and vegetables and restricting advertisements of unhealthy products aimed at children.

Sales of organic food rose by 13% in 2007; the market share came to almost 2%. A new agreement between government and industry aims at an annual growth in turnover of at least 10%. Young people buy relatively few organic products.

# Countryside, landscape, nature and the environment

## 3.1 AGRICULTURE AND THE RURAL AREA

In recent years, town and country planning policy has shown a clear tendency towards decentralisation. This also appears from the new Spatial Planning Act, which will come into force on 1 July 2008 and which is also aimed at promoting faster procedures and better enforcement. For the rural environment, this means that local authorities can play a more autonomous and pro-active role in town and country planning. The province in particular will be given more possibilities.

The long term policy for the rural area has been concretised in the Long Term Programme Living Countryside, implemented in 2006. This describes the goals targeted by the state and the available resources. In order to implement this programme, the many separate cash flows, instruments and working methods related to the rural area will be brought together. This will take place from 2007 through the Rural Area Investment Budget (ILG). The ILG combines the subsidies for nature, recreation, landscape, agriculture, the environment and stimulates the socio-economic vitality of the countryside. In all, the ILG contains approximately 5.5 billion euros for the period 2007-2013; almost half of this is intended for nature purposes.

Since the mid 1960s, the amount of agricultural land has been declining in the Netherlands. Between 1996 and 2003, the decline was around 8,000 ha per year. Of this, around two thirds were intended for building and infrastructure. Until the 1980s, the natural area continued to decline, but has since remained fairly stable. Rural areas are changing in appearance as more land is being bought by non-farmers who use the land for hobby-agriculture and building (second) homes or business premises. In addition, agricultural land is being turned into nature and leisure areas or submerged under water. A larger area, however, is lost as open land by being incorporated into built-up areas.

The rising number of horses in the Netherlands has also changed the look of the rural areas. The exact number of horses in the Netherlands is not known. It is estimated that there are 400,000 horses and ponies and around 80,000 horse owners. The growing interest in horse riding has produced more and bigger stables and more private individuals who keep one or more horses as a hobby. The spatial consequences of keeping horses are omnipresent. A frequently heard criticism is that it

creates an untidy countryside. This concerns the rural impact of horse containers, light masts, fields with white ribbons, shipping containers or other kinds of structures used as a stall. Another result is the building of big equestrian centres in free (agricultural) buildings.

### 3.2 NATURE

The government has designated 20 national landscapes in which conservation or reinforcing rural qualities receives high priority. National landscapes are mainly agricultural culture landscapes. Agriculture in these landscapes is often on a relatively small scale and a fair number of the farms are involved in non-agricultural activities on the farm.

The implementation of the National Ecological Network (EHS), aimed at creating a cohesive network of natural areas, is taking time. The purchase of new nature seems to be reasonably on course, although much needs to be done on extending nature management by farmers and other private individuals. Proposals to apply compulsory land acquisition in the implementation of the EHS are not always met with great enthusiasm.

In the agricultural area, the nature quality is still tending to decline, as shown by an evaluation of nature management schemes. Where botanical agricultural nature management has been implemented for some time, the usually low nature quality has been maintained, but the nature goals do not seem to come (much) closer. This is probably due to the poor environmental conditions in the surrounding agricultural area and/or the inadequacy of the location. In the meadow bird habitats, the quality has tended to decline, both in the case of agricultural management and in management by other land managers.

In order to improve the effectiveness of the schemes, the subsidy schemes for nature and landscape management are being reformed. It is expected that the high agriculture prices will lower the interest of farmers to take part in nature management.

### 3.3 AGRICULTURE AND THE ENVIRONMENT

The environmental pressure of Dutch agriculture and horticulture has declined significantly since the mid 1980s, despite the growth of production. This applies to the surplus of minerals, ammoniac emissions, the use of pesticides and greenhouse gases. In recent years, improvement on various points seems to have slowed down; between 2001 and 2006 the reduction of various emissions from the agricultural sector was clearly slower than in the previous five years (table 3). The rise in environmental costs might play a role here. In 2005, these costs were around twice as

high as ten years before. In the last couple of years, a decline was apparent, particularly due to the fall in the costs of manure disposal. Over 40% of the gross environmental costs were linked to the manure and ammoniac regulations. The tightening of the manure policy causes the costs of manure disposal to rise again, resulting in a possible rise in the total environmental costs.

The costs of environmental measures are relatively higher for the agriculture sector than for the industry as a whole. With respect to the environmental burden, environmental performance and environmental costs, the food and beverages industry is much the same as the rest of industry.

<b>Table 3</b>		<b>Development of environmental impact of agriculture and horticulture, 1995-2006</b>					
	<b>1995</b>	<b>2000</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006 (p.)</b>	
Use of crop protection agents (in million kg of active substance) <sup>a</sup>	12.61	11.38	9.55	10.66	10.7	10.46	
Greenhouse gas emissions (in billion kg CO <sub>2</sub> equivalents) <sup>b</sup>	33.2	29.1	27.1	26.9	27.0	26.8	
Supply of nitrogen (N, kg per hectare)	472	394	353	351	344	338	
Supply of phosphates (P <sub>2</sub> O <sub>5</sub> , kg per hectare)	140	125	112	102	108	106	
Ammonia emissions (in million kg)	179	139	122	120	121	120	
a Source: Plant Protection Service; b revised series.							
Source: RIVM/CBS (Statistics Netherlands), Milieucompendium, various years							

After years of decline, the use of pesticides has increased in recent years. The environmental burden caused by these pesticides has declined considerably as a result of restrictive measures in spraying and amendments to the range of available products. During the 1990s, the number of permitted products declined from around 300 to around 200, but this has increased again in recent years. Despite the reduction in emissions, the concentration of pesticides in the surface water is still regularly found to exceed the norms. However, the agricultural sector is not the only culprit.

The emission of greenhouse gases by the agricultural sector has declined by around 15% since 1990, particularly due to the shrinking number of cattle. The total national emissions declined by 7-8%. Over a third of the emissions from agriculture are CO<sub>2</sub> emissions - particularly from greenhouse horticulture. The rest is methane (ruminants) or nitrous oxide, also known as laughing gas, from (artificial) fertiliser. There are concrete plans to drastically reduce the emission of greenhouse gases. The CO<sub>2</sub> emissions from greenhouse horticulture have been declining in recent years. In the plans for further reduction, closed greenhouses which use much less fossil energy could play an important role.

For the agricultural sector, an important role is reserved for the production of

sustainable energy, particularly from biomass. The cultivation of energy crops requires a lot of land and is therefore subject to criticism. For the Netherlands, the possibilities for growing crops for energy production are restricted on account of the limited surface area and high land prices.

Since the start of the manure and mineral policy in the mid 1980s, the total manure production in the Netherlands has been reduced by over a quarter. This was linked to a decline in the supply of minerals to agricultural land, which was strengthened for phosphate due to the reduction in the phosphate level of the cattle feed. At the same time, the use of artificial fertiliser declined too; now the average fertiliser application is even lower than in around 1970. The removal of minerals has also declined but less than the supply, so that the surpluses have declined considerably. In the last five years, the mineral surpluses per hectare have not declined further. The decline is mainly due to the shrinking number of cattle and lower use of artificial fertiliser.

Ammoniac emissions have almost halved since the mid 1980s but have not been reduced any further in recent years. Apart from the shrinking number of cattle, ammoniac emissions have mainly declined due to the compulsory low emission application of manure. In recent years, the emergence of low emission stalls has also played a role. The objective for 2010 seems attainable, but a further reduction is more difficult to achieve.

In recent years, there has been more criticism about livestock farming, which is estimated to contribute 18% towards greenhouse gas emissions. Furthermore, a relatively large amount of land and water is required for animal products. The Minister of Agriculture is striving to ensure that Dutch livestock farming is sustainable in all respects in 15 years' time.

### 3.4 ANIMAL WELFARE

In the last ten years, animal welfare has become more important on the political agenda of the EU. This has resulted in numerous regulations, including regulations for transporting animals and a prohibition on battery hen farming in 2012. In an action plan from 2006, the EC indicated that it wished to go much further, without losing sight of the competitive position of livestock farming. In the framework of the second pillar of the common agricultural policy, livestock farmers can receive support for costs arising from improvements to animal welfare. In Europe, the Netherlands is average in the area of animal welfare (see table 4). Norway and Sweden lead the field.

Table 4		Minimum standards for animal welfare in the EU					
	EU	Norway	Sweden	France	Netherl.	England	Italy
<b>Minimum area porkers (m<sup>2</sup> per animal)</b>							
< 10 kg	0.15	0.15	n.b.	0.15	0.20	0.15	0.15
10-20 kg	0.20	0.20	0.25-0.32	0.20	0.20	0.20	0.20
20-30 kg	0.30	0.35	0.32-0.40	0.30	0.30	0.30	0.30
30-50 kg	0.40	0.50	0.40-0.55	0.40	0.50	0.40	0.40
50-85 kg	0.55	0.65	0.55-0.82	0.55	0.65	0.55	0.55
85-110 kg	0.65	0.80	0.82-1.02	0.65	0.80	0.65	0.65
> 110 kg	1.00	1.00	1.02-1.75	1.00	1.00	1.00	1.00
Straw for porkers obliged	no	yes	yes	no	no	yes	no
Castration piglets without anaesthetics allowed	yes	no	yes	yes	yes	yes	yes
Castration piglets allowed	yes	no	no	yes	yes	yes	yes
<b>Minimum area chickens (m<sup>2</sup> per animal)</b>							
Minimum area (m <sup>2</sup> per animal) in enriched cages	750	850	750	750	750	750	750
Minimum area (m <sup>2</sup> per animal) in conventional cages	550	700	prohibited	550	550	550	550
Beak trimming allowed	yes	no	no	yes	yes	yes	yes
Daylight obliged	no	no	yes	no	no	no	no
<b>Minimum area calves (m<sup>2</sup> per animal)</b>							
< 150 kg	1.5	1.5	1.5	1.5	1.5	1.5	1.5
150-220-kg	1.7	1.8	1.8	1.7	1.7	2.0	1.7
> 220 kg	1.8	2.0	1.8	1.8	1.8	3.0	1.8

Source: Roex and Miele (2005).

This subject has also been addressed in the Netherlands in recent years, as demonstrated in the Policy Document on Animal Welfare issued by the Minister of Agriculture, Nature and Food Quality in 2007. This document appeals for the development of new animal housing systems centred on animal needs. Enriched cages for laying hens will be forbidden in the Netherlands, causing the costs per kg eggs to rise by 1.5 to 2 cents. The castration of piglets will only be permitted under anaesthetic after 2011. Unilateral stopping of castration would have considerable financial disadvantages for Dutch pig farming.

# Structural developments in agriculture and horticulture

## 4.1 NUMBER OF FARMS AND EMPLOYEES

The total number of agricultural and horticultural farms declined by 3.4% to 76,740 between May 2006 and May 2007 (table 5). This corresponds to the average annual reduction between 2000 and 2005. In arable farming, the number of farms declined quite considerably compared with previous years (6.6%), but it is unclear why. After the major reorganisation of intensive livestock farming between 2000 and 2003, due to buy-up schemes to reduce the manure surplus and due to the poor operating results, the number of farms in this sector remained fairly constant after 2003. The already fairly strong decline in the number of greenhouse horticultural holdings and mushroom farms has accelerated in the past two years when the decline was over 7%. Since 2000, that is a decline of over a third. The scale increase in greenhouse horticulture is the reason for this. The reduction in the number of open field horticulture, dairy and other grazing and combined farms in 2007 was comparable to the average rate of decline between 2000 and 2005.

**Table 5** Development of number of holdings, number of workers and area of farmland, 1990-2006

	1990	1995	2000	2006	2007(p.)	Change (%) 2005-2006
Number of agricultural and horticultural farms (x 1,000)	124,903	113,327	97,483	79,435	76,741	-3.4
Number of workers <sup>a</sup> (x 1,000)	288.3	276.2	280.9	224.2	224.0	-
Area of farmland (x 1,000 ha)	2,005.6	1,965.3	1,955.5	1,919.7	1,914.3	-0.3

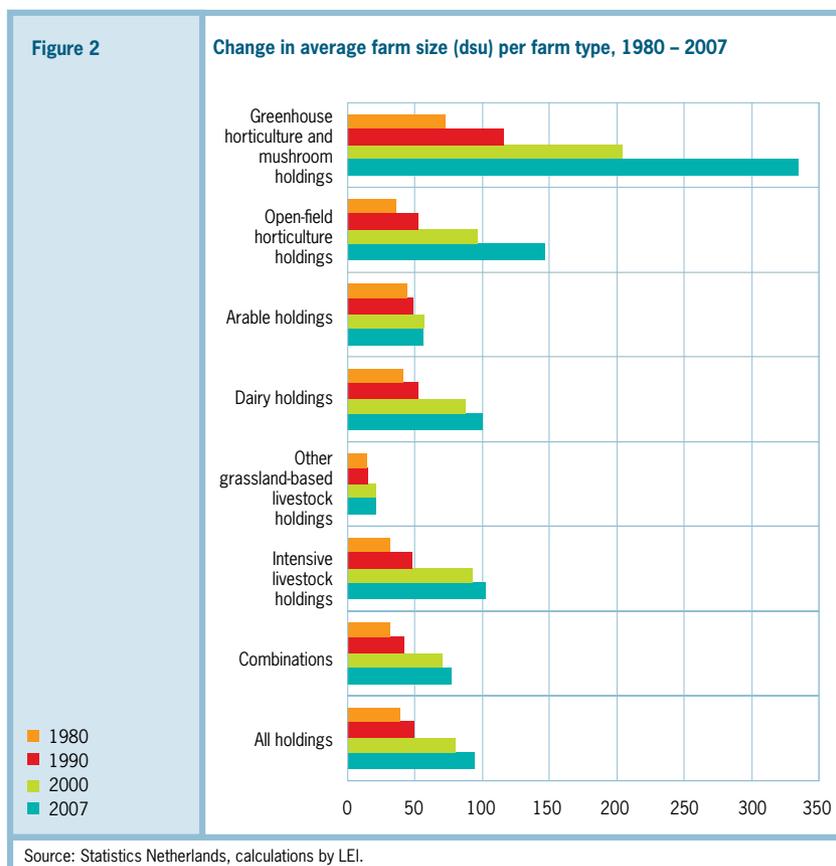
a Excluding the workers who do not work on a regular basis.

Source: CBS (Statistics Netherlands) agricultural census, processed by LEI.

The scale increase - through termination of mostly smaller farms and expansion of farms - also continued in 2007. In that year, only the number of farms smaller than 150 dsu declined (almost 3,000 farms). The number of farms larger than 150 dsu rose slightly by almost 300; in 2007 this farm size corresponds with around 125 dairy cattle (without young cattle and fodder crops), 3,400 fattening pigs, 1 hectare tomato plants or 185 ha winter wheat. Also viewed over a longer period, the decline in the

number of farms is greatest in the category up to 70 dsu. The number of small farms has declined since 1980 by 65%; the decline was strongest among dairy farmers and greenhouse horticulture.

Of the sectors distinguished here, greenhouse horticulture (including mushroom farms) generally showed the biggest scale increase. The share of the bigger farms in this sector rose from 8% in 1980 to 57% in 2007. The development of the average farm size (in dsu) also shows the extent of the scale increase in greenhouse horticulture (figure 2).



Some of the farms become much bigger than the “normal” family farm. In 2007 there were over 1,600 “mega farms” in total, i.e. farms over 500 dsu. This boundary corresponds with around six times the average size of all Dutch agriculture and horticultural farms. However, Dutch mega farms are small compared with mega farms

elsewhere in Europe, the United States and Australia. The farms are mainly to be found in greenhouse horticulture. There is much social resistance against the establishment of very big pig barns and poultry houses, particularly in view of the possible consequences for the environment and landscape. There are appeals for these farms to settle on industrial areas.

The number of certified organic farms rose very slightly in 2007 to 1,372, while the farmland under organic cultivation declined to 47,000 ha, corresponding to 2.5% of cultivated farmland. The number of certified organic agricultural farms and organic land has not increased in recent years, partly due to a surplus of organic products in previous years and also due to the ageing of organic farmers.

In 2007 agriculture and horticulture offered employment to around 224,000 people (i.e. almost 170,000 annual labour units). In addition, over 100,000 people are expected to have been hired for a short period; it is expected that the need for hired labour will increase. Young people are showing less and less interest in working in agriculture and horticulture.

## 4.2

### LAND AND CAPITAL

# 4

In 2007, the amount of cultivated land declined by 0.3% to over 1.9 million hectares. This percentage corresponds with the average annual decline since 1990. Of the total acreage of cultivated land, 53% is now in use as grassland (permanent, temporary and natural grassland), 12% for green maize, 30% for other arable land, 4.5% for open field horticulture and 0.5% for greenhouse horticulture.

The average price of agricultural land has risen from 29,000 euros per hectare in 2006 to 36,500 euros in 2007. The strong rise in the price of agricultural land is related to both national and international developments. As a result of increased global demand for agricultural products - partly for bio fuels - in times of short supplies, the prices for grain and milk have soared. The high price of milk has given Dutch dairy farming more financial scope to invest in land.

In September 2007 a new system was introduced for calculating lease prices, whereby these could rise by over 20% in the next two years.

#### *Production and supplement entitlements*

In a number of agricultural sectors, production rights or quota determine the amount of production for each farm. This applies for example to milk, sugar, pigs and poultry. Every production right has a value which is determined by supply and demand. Purchasing of production rights presents opportunities for scale increases and is generally necessary for the continuity of the farm to lower the cost price. However, developments on the markets for production rights are also affected by government policy. Decisions at European or national level in particular can have a strong affect on the

price of a production right. The price development of the milk quota in recent years is an illustration of this. In 2006, the price of milk quota fell from 50 to 25 euros per kg fat. In the summer of 2007, the quota price reached a temporary all time low of 15 euros. The price then recovered slightly to around 20 to 25 euros at the end of 2007 and the first quarter of 2008. Until mid 2006, about double was paid for milk quota. The significant decline was mainly the result of the expected abolition of the milk quota and to a lesser extent the decoupling of the milk premium in 2007. The recovery was mainly due to the soaring price of milk.

The reform of the EU common agricultural policy produced a new kind of right, the payment entitlements. These determine the amount of the farm payments - the decoupled income support - to which farms may be entitled. The payment entitlements are transferrable, which also gives them a value. The number of farmers with payment entitlements who have submitted a claim for payment of the direct payment is around 65,000. By 27 March 2008, over 90% of these had received the 2007 payment. As of this date, a sum of over 580 million euros had been paid out.

Direct payments are made to many agricultural farms based on the production of milk, grain and sugar beet in previous years, as a result of which entitlements to farm payments have arisen. Furthermore, by purchasing and hiring payment entitlements, the level of the payment can be changed. The rights can be acquired with or without land, but for purchase without land it is important that the buyer has land to be paid the payment. The average price of payment entitlements in 2007/08 is around three times the direct payment. This means that an investment in payment entitlements can theoretically be earned back in three years, if the annual direct payment remains at the same level. The policy surrounding the direct payments is however still under review. The uncertainty that this involves is partly the reason for the (relatively low) market value of the payment entitlements and the limited momentum to invest money in it.

In 2008 over 33,000 payment entitlements, over 2% of the total number of rights, were transferred. This is considerably less than in 2007, when this was around 135,000 rights. The inclusion of the milk premium in the direct payments and the possibility of increasing the value of the rights by selling a number of rights in order to spread the premium over fewer rights, probably contributed to the trade in 2007. In 2008, most rights were transferred from farmer to farmer through sales and to a lesser extent through hire. Less than 600 rights were sold to the National Reserve.

In 2007/08, the European fallow land scheme was suspended. When this scheme will be ended due to the scarcity on the grain market, the separate fallow land supplement entitlements will be abolished. The "Potato, Fruit and Vegetable" clause - no payments are granted to land on which potatoes (except for starch potatoes), fruit and vegetables are grown - has already been abolished. This means that the total area of agricultural land on which "normal" payment entitlements can be "invested" has been increased.

# Production and income development

## 5.1 PRODUCTION AND INCOME DEVELOPMENT OF THE AGRICULTURAL AND HORTICULTURAL SECTOR

In 2007, at almost 23 billion euros, the gross production value of Dutch agriculture and horticulture was around 4% higher than in 2006. The rise was mainly due to higher prices (on average nearly 3%), while the volume increased slightly (1%). Only greenhouse vegetables and pigs were cheaper. The value of the intermediate consumption increased by nearly 7%, largely due to the higher price of animal feed. Together with nearly constant depreciations, higher interest costs and an increase in the farm payments, this resulted in a rise of the joint income of self-employed farmers and their families by almost 1.5% to just over 3 billion euros.

## 5.2 THE RESULTS OF THE AVERAGE AGRICULTURAL AND HORTICULTURAL HOLDING

The results of the average agricultural and horticultural holding were relatively low in the period 2001-2004. In 2005 a significant improvement was noted which continued in 2006. For 2007, income from the business was estimated at an average of 51,000 euros per holding (table 6). That was over a quarter higher than in the period 2001-2004.

In 2007, the value of the agricultural output increased, both due to the growth of the average size of the holding as well as the higher prices of various products, particularly milk, eggs and poultry meat. Due to the increase in the yield of agricultural products, the share of the subsidies and supplements fell slightly to 4.7% of the total yield (table 6). The growth of the farms also led to higher average costs; the higher prices of feed and energy also contributed to this.

Besides income from the business, many farms also have income from other sources, outside the farm. This income consists of work performed by the farmers and their partners outside the business and other income such as savings, investments and (social) benefits. The income of children living at home is not taken into account.

Table 6

Results (x 1,000 euros per holding) on the average agricultural and horticultural holding, 2001-2007

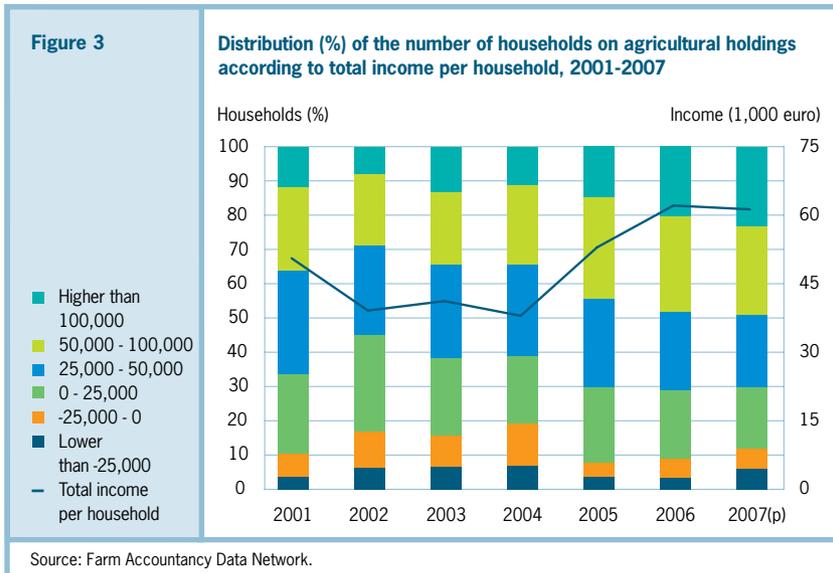
		2001-2005	2006	2007 (r)
Gross returns	(+)	275.8	324.6	343.6
of which agricultural production (%)		94.1	91.1	91.6
secondary activities (%)		3.1	3.9	3.7
subsidies (%)		2.9	5.0	4.7
Paid costs and depreciations	(-)	237.5	272.5	292.5
<b>Farm family income</b>	<b>(=)</b>	<b>39.3</b>	<b>52.0</b>	<b>51.0</b>
Income from outside the farm	(+)	11.6	18.4	18.4
of which labour		5.5	7.6	7.6
other income		6.1	10.8	10.8
<b>Total family income</b>	<b>(=)</b>	<b>50.8</b>	<b>70.4</b>	<b>69.4</b>
Taxes	(-)	3.4	3.8	3.8
Family spending	(-)	37.5	43.5	44.0
Savings	(=)	10.0	23.1	21.6

Source: Farm Accountancy Data Network.

Income from outside the farm is becoming increasingly important. This appears from both the average level of income, as well as from the share of the farms which earn substantial sums outside the farm. In the period 2001-2003, 18% of the farms had over 20,000 euros in income from outside the farm. In the period 2004-2006, this was 25%. Particularly in the case of smaller farms (< 70 dsu), the income from work outside the farm is generally high. In the case of bigger and medium-sized farms, it is often difficult to earn an income outside the farm because the farm takes up too much time and energy.

From the income, tax has to be paid and private expenditure financed. On average, 20,000 euros per holding was saved in recent years. This sum can be added to the equity capital and is in principle available for expansion investments.

On average, the income has to be divided over 1.15 households, so that the total income per household on agricultural holdings in the Netherlands is around 60,000 euros. There are big differences in income between households. In 2007, over 10% of the households achieved a negative income, while one in five households had an income higher than 100,000 euros (figure 3). Compared with the modal income in the Netherlands - 30,000 euros - the income in the agricultural sector was high in 2007 but not compared with the deployment of labour and capital (average 1.8 million euros per holding). For that deployment in the holding, around 90,000 euros per holding are charged; compensation for labour and capital is therefore not market compliant.



### Farm payments important for many farms

Due to the reform of the European agricultural policy, in the space of a few years direct payments to farms have become very important for their income. In the period 2001-2003, the premiums and subsidies amounted to approximately 2% of the gross revenues from the average agricultural and horticultural holding. With the introduction of the milk premium and compensation for the reduction of sugar prices, the share of farm payments (and other subsidies) in the gross revenues has now grown to around 5%. The sensitivity of many farms to changes in policy with respect to farm payments has subsequently increased. The payments received in 2006 constituted over 75% of the farm income on around 35% of the farms. Adjustments or reductions in the payments can have important consequences for a considerable number of farms.

In 2006, many (77%) agricultural and horticultural holdings received European payments (farm and coupled payments). For half of the farms with an income between 0 and 25,000 euros, over 75% of the income consists of EU payments. There are also groups of farms in the higher income classes which mainly achieve this income from payments. For these farms, the payments are therefore very important for generating income from the farm. On the other hand, there are also low income class farms which receive no or very few payments. As such, these farms will not be affected by any cuts to the payments. Of the total payments paid out, 34% go to the farms with an income of over 75,000 euro. This concerns 20% of agricultural and horticultural holdings.

Dairy farms receive 57% of the payments paid out, averaging at 23,000 euros per

farm. A quarter of the dairy farms earn 75% or more of their income from the payments. In arable farms, this percentage is considerably higher at 54%. The average payment per farm is 20,000 euros.

#### *Operating results according to farm type*

In 2007, the income of the average dairy farm was 84,000 euros per farm. The rise of almost 60% can be attributed to the higher milk price. In arable farming, at over 58,000 euros, the average income in 2007 was slightly lower than in 2006, but clearly better than in previous years. In the years 2004-2006, pig farmers had good results, but in 2007 the average farm income was 50,000 euros negative as a result of lower yield prices and higher feed prices. Thanks to higher egg prices, the income of the laying-hen farmers, that had been negative for several consecutive years, rose in 2007 to an average of 17,000 euros. This is still low, however. The income of the broiler farmers averaged at 68,000 euros, slightly lower than in 2006. On the fattening calf farms, the average income declined slightly at 50,000 euros.

In greenhouse horticulture, the average income per holding fell from 72,000 euros in 2006 to around 54,000 euros in 2007, mainly due to more expensive production resources. In greenhouse vegetable cultivation in particular, incomes fell, while in ornamental plant cultivation the decline was limited. In 2006 and in 2007, the average farm income of mushroom growers was around 50,000 euros. In open field vegetable horticulture, fruit farming and the tree nursery sector, a similar income development took place: from 50,000 to 60,000 euros in 2006, the average farm income increased to between 65,000 and 70,000 euros in 2007. Bulb growers earned an average income of around 75,000 euros, a decline of 15 to 20,000 euros compared with 2006.

#### *Assets*

At the start of 2007, the value of the average agricultural and horticultural holding was around 1.8 million euros. Around 37% of this is in the land and 20% in intangible assets, mainly quota. Both the balance total and its composition vary considerably between farms and types of holding.

For dairy farms, the balance total is generally the highest, partly due to the huge amount of land and partly due to the value of the milk quota. However, as the result of lower quota prices that value is considerably less than at the start of 2006. In January 2008, the milk quota price was over 50% lower than in January 2005 and 2006. The balance value of greenhouse horticultural holdings averages at nearly 2.2 million euros, thanks to both the high value of the land and of the other material assets: the greenhouses and installations. Pig farmers do not generally have much land and the value is therefore mainly in buildings, installations, production and animal rights and the

livestock population. In arable farms, the balance value averages at 1.8 million euros. Land constitutes nearly 60% of this.

On average around two thirds of the balance total is financed with equity capital. For arable farms, the average solvability is highest: nearly 80%. In greenhouse horticulture, around 55% consists of equity capital while in pig farming this is 60%.

There are also big variations in balance and assets within the different types of holdings. The size of the holding is particularly important. Among the 20% biggest arable and dairy farms, the balance total is around 4 million euros. In the 20% biggest greenhouse horticultural holdings, it even rises above 5 million euros. The biggest pig farms have a balance total of over 3 million euros. Furthermore, with respect to all types of holding, the solvability of the big farms is below average. This means that among big greenhouse horticultural holdings, there is loan capital amounting to nearly 3 million euros. On small farms, the balance total is often not even half of the average and around 80% is financed with equity capital.

As farms grow, the relative importance of their own production factors becomes smaller and thus the liquidity risk becomes greater. Research has shown that for some of the current big dairy and arable farms, further strong scale increases will be difficult to finance. In general, given the pressing need for capital and the relatively low revenue, farm transfer is a crucial phase for the farm and the farmers. Farmers will have to consider how they can best run the business to increase the return in order to be able to finance the transfer of the holding. Financial institutions recognise the problems surrounding the transfer of holdings and are introducing new financial products.

# Definitions

## *Dutch size units (DSU)*

A unit describing the economic size of agricultural holdings. The DSU is based on the standard gross margins (SGM), which are calculated by deducting related specific costs from the gross returns per hectare or per animal. The SGM is expressed in euro (current prices). On the EU level, the size of farms is not measured in SGM, but in the more workable European Size Units (ESU). DSU is the Dutch variant of the ESU. The DSU is recalculated frequently in such a way that the average farm size in DSU corresponds to the development of the volume of the added value of the average farm. The 2004 DSU equals a SGM of 1,420 euro. Some examples (on the basis of the DSU 2004): 1 ha winter wheat = 0.81 DSU; 1 ha sugar beet = 1.85 DSU; 1 dairy cow = 1.20 DSU; 1 sow = 0.261 DSU, 1 ha cherry tomatoes under glass = 231 DSU and 1 ha roses = 258 DSU.

## *Family farm income*

Income for the farm family arising from the farm business; this is a remuneration for the labour of all family members as well as the private capital and land.

## *Gross value added*

Gross returns minus purchased goods and services (excluding depreciation).

## *Net value added*

Gross returns minus costs of goods and services purchased from other sectors (including depreciation).

## *Savings*

The part of total income which has not been used for consumption or personal taxes, but is added to net worth.

## *Solvency*

Net value equity capital in % of total capital.

*Specialised farm*

Farm on which more than two thirds of production originates from one sector.

*Total income*

Family farm income plus income from non farm activities and social security benefits paid to the farmer and his spouse.



LEI develops economic expertise for government bodies and industry in the field of food, agriculture and the natural environment. By means of independent research, LEI offers its customers a solid basis for socially and strategically justifiable policy choices.

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