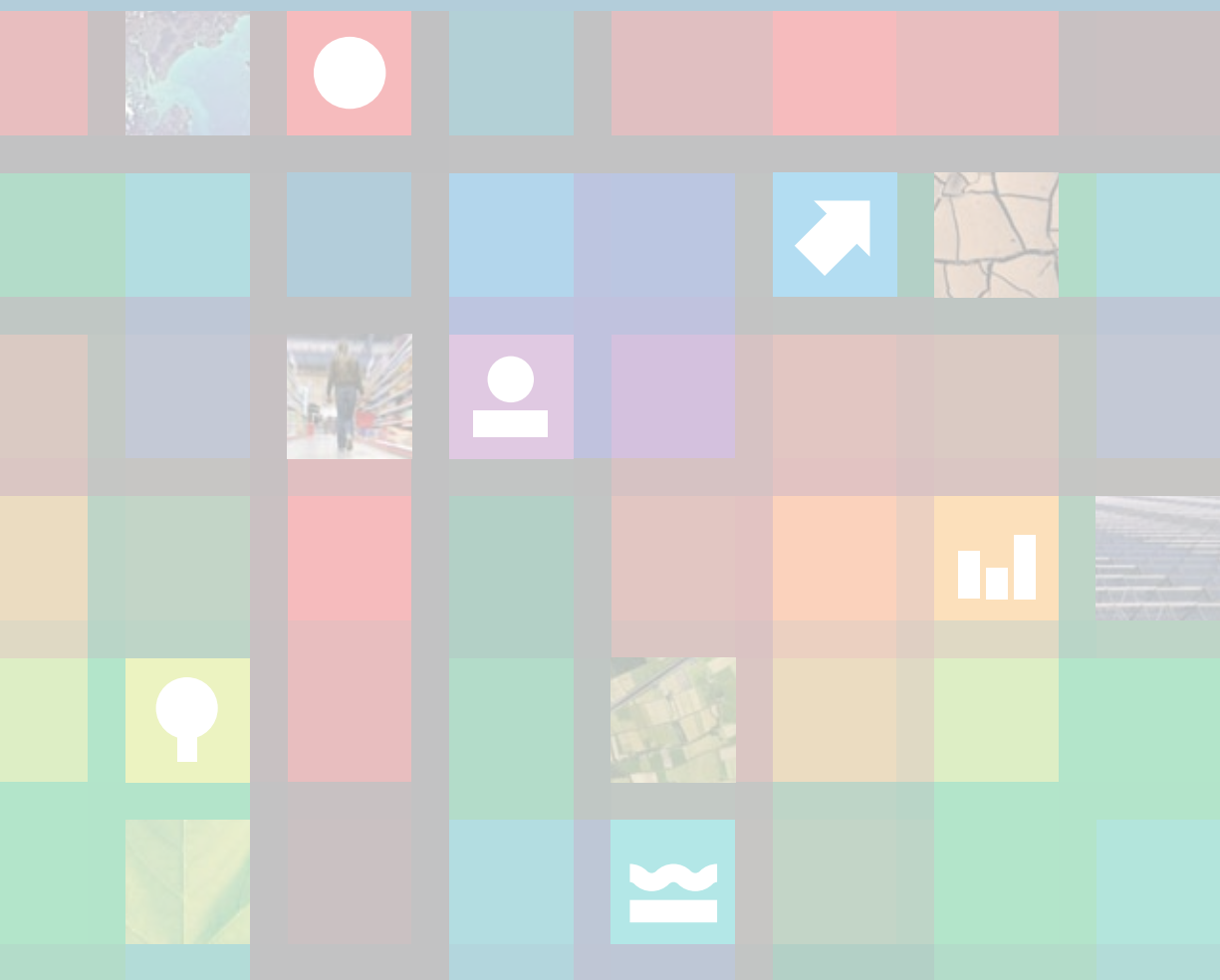


Agricultural Economic Report 2007 of the Netherlands

Summary



LEI

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ABSTRACT

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This report offers an English summary of the Landbouw-Economisch Bericht 2007. 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.

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Preface

This summary of the *Landbouw-Economisch Bericht 2007* 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 is similar to previous years, but the layout has been changed considerably.

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 2007 edition of the report was completed in May 2007.

The Hague, July 2006



The Director,
dr. J.C. Blom

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The environment of the Dutch agricultural sector

1.1 ECONOMIC AND POLITICAL DEVELOPMENTS

The more than 5% growth in the world's economy in 2006 was slightly in excess of the level in 2005; once again the greatest growth was in the Far East. The EU's economy also grew, albeit restricted to 2.5 to 3%. Unemployment exhibits a downward trend, whereby the growth in jobs was promoted by the more than 9% expansion in international trade. This was accompanied by higher prices in the world market, including oil and agricultural raw materials. On average, raw material prices in the world market increased by more than 25%. Nevertheless, inflation remains limited. In 2006 the EU's rate of inflation was 2.5%.

In 2006 the Dutch economy grew by 3%, about twice the level of 2005. The rapid rate of growth resulted in tight conditions in the labour market; the shortage of employees could in part be alleviated by labour from the new EU member states. The majority of these employees have temporary work in the agricultural sector, in particular the (greenhouse) horticulture sector.

The EU, which was expanded to include Bulgaria and Romania on 1 January 2007, has set ambitious climate and energy-policy targets. Pursuant to these targets, in 2020 emissions of greenhouse gases must be 30% below the level in 1990, and 10% of transport fuels must consist of biofuels.

The new Dutch cabinet that took office in the spring of 2007 ('Balkenende 4') has also assigned a high priority to sustainability issues such as climate change, and measures implemented within this context include the allocation of additional financial resources to sustainable energy systems in the greenhouse-horticulture complex. A separate section of the coalition agreement is devoted to animal welfare. Within the context of the relevant EU policy the new cabinet intends to ensure that rural development is assigned a higher priority, and that the link between income payments and societal objectives is strengthened.

One specific result of the higher ambient temperature was the outbreak of Blue Tongue animal disease that had not previously been encountered in the Netherlands. More than 400 farms were infected, and the outbreak resulted in an export ban on ruminants.

1.2 AGRICULTURE AROUND THE WORLD

In spite of the relatively strong economic growth both poverty and famine are persistent problems in some parts of the world, in particular in Sub-Sahara Africa, South Asia and Central Asia. The absolute number of undernourished people - estimated at more than 850 million - has increased since 1995, and it would appear difficult to achieve the 50%-reduction target for 2015. This contrasts sharply with the obesity problem that is becoming increasingly severe in the rich countries and, in recent years, in the rapidly-growing developing countries. Estimates indicate that about 300 million people all over the world suffer from severe obesity, of which one-fifth live in the USA. Obesity is also a rapidly-increasing problem in China and India.

The publication of new studies of the causes and consequences of climate change has, in particular, resulted in the issue being assigned a higher priority on the agenda. One of the consequences of the climate change is the increasing scarcity of water that could confront hundreds of million people in the coming decades. The climate change is not expected to result in a decline in the world's agricultural output. However, the world's poor will suffer most from the climate change and Africa, in particular, could be confronted with drought and smaller crops.

Little progress in the Doha Round

The WTO's 'Doha Round' has made little progress in the further liberalization of international trade since the conclusion of the framework agreement in 2004. The agriculture dossier remains a major issue in the negotiations. As has traditionally been the case, the difference in opinions between the USA and the EU causes problems, although the standpoints adopted by countries such as India and Brazil also play a role. Most model calculations of the consequences of the liberalization of agricultural world trade reveal that this will be detrimental to countries in Southern Africa as well as, for example, China; however, major agricultural exporters such as Argentina and Brazil will benefit.

The lack of progress in the multilateral negotiations has in part resulted in increased interest in bilateral (trade) treaties on the part of the USA and the EU, as well as amongst Asian countries. Agriculture plays an important role in the negotiations on some of these trade agreements, such as in the negotiations between the EU and the Mercosur (countries including Argentina and Brazil).

What are referred to as 'non-tariff trade restrictions' have received more attention in recent years. These relate to requirements imposed on food safety, animal welfare, and plant and animal health. The EU, in particular, intends to reach agreements within the scope of sustainable agriculture that will, for example, provide compensation to producers who comply with more stringent animal-welfare requirements. To date the EU

has received little response to arguments of this nature. However, major market parties such as supermarket chains are increasingly imposing requirements on the methods used to produce food. The smaller producers in developing countries, in particular, occasionally experience difficulty in complying with these requirements.

Substantial increase in international prices in 2006

In 2006 international prices of agricultural produce increased by an average of about 10%. This increase was in part due to a decline in production (of produce such as grain) and in part due to increasing demand. Human consumption of animal products is increasing, whilst the growing interest in biofuels plays a major role in the increasing demand for plant products such as sugar and maize. The increasing demand for biomass for the production of energy can be to the detriment of food production. FAO forecasts indicate that by 2050 the increasing demand for animal products will have resulted in a 100% growth in global meat production and a slightly smaller increase in milk production. This will require additional agricultural land. In addition, the livestock chain is already responsible for 18% of the emissions of greenhouse gases and for 8% of the water consumption. Consequently the forecasted growth will make great demands on natural resources.

Agricultural products account for a gradually declining share of international trade; the current share is about 8-9%. Trade is shifting away from bulk products such as coffee and wheat towards processed agricultural products.

1.3 **AGRICULTURE IN THE EU**

The Health Check of the EU's agricultural policy in 2008 will among other issues discuss a further modulation of the single farm payments for the benefit of the rural budgets. The conditions attached to these payments encourage farmers to modify their production process in a manner more in line with their responsibilities to society. The European Commission is of the opinion that these payments must be decoupled entirely from production; at present this is the case to only a limited extent.

Discussions are also underway on the dairy quotas, which pursuant to the prevailing agreements shall be abolished in 2014. During the coming years the dairy quotas may well be relaxed and the support prices reduced further. Austria and Finland are against the abolition of dairy quotas, probably since this would most likely result in a substantial contraction of their national dairy sectors.

To date the 2006 reform of the sugar regulations has made an inadequate contribution to the reduction of the EU's production of sugar, as a result of which further measures were required to bring the market more into balance. The buy-up scheme for sugar quotas, in particular, has failed to achieve the expected results.

However, a relatively large amount of the sugar quota has been offered for sale in Ireland, Italy, Spain, Portugal, and Sweden.

Animal welfare and the countryside are high on the agenda

In recent times animal welfare has been placed high on the agenda in both the Netherlands and in the EU. For example, in May 2007 a new Directive was adopted on animal welfare rules for broilers which includes regulations such as the maximum stocking density per square metre. In 2009 the European Commission intends to submit proposals for the pig-farming sector which will probably prohibit the castration of piglets.

A new programme period for the EU's rural policy began in 2007 and will run up to and including 2013. Pursuant to this programme a budget of more than 77 billion euros will be made available for purposes such as the diversification of the rural economy, landscape management, and care for the environment. The new member states have been allocated a relatively large proportion of this budget. Additional financial resources are required following the aforementioned accession of Romania and Bulgaria to the EU, and this has resulted in the need for cutbacks in the budget for the market and income policy.

Nowadays the EU's less favoured areas scheme (LFA) dating from 1975 - which focused on the continuation of the use of agricultural land in mountainous areas or in other areas where the physical landscape results in higher production costs - is incorporated in the rural policy. In 2005 more than half of the EU's agricultural land was brought under this scheme. Only four member states, including the Netherlands, have designated less than 20% of their agricultural land as problem areas. In most instances the 'compensatory allowances' farmers receive in these areas are insufficient to bridge the shortfall in income as compared to non-problem areas.

It would appear that in the event of the continuation of the current EU market and income policy the EU-25's self-sufficiency in vegetable products will increase significantly in the years until 2015, and will decline slightly in meat products other than pork. In the years since the end of the nineteen-eighties the EU's agricultural prices have come much closer to the international prices.

In 2006 the EU-25's agricultural production decreased by almost 2%, whilst on average the prices remained roughly unchanged. The means of production became more expensive, in part due to the higher prices of energy and artificial fertilizer. Although the net added value remained virtually unchanged, the reduction in labour volume ultimately resulted in an approximately 2.5% increase in the income per worker. Incomes in the ten new member states increased more than in the EU-15. Income decreased by more than 10% in Ireland.

Developments in the Dutch agricultural sector

2.1 THE AGRICULTURAL COMPLEX AND THE FOOD INDUSTRY

In 2005, the total of all the economic activities relating to agriculture and foodstuffs - what is referred to as the 'agricultural complex' - accounted for approx. 9.5% of the total Dutch national added value and more than 10% of the national employment (Table 1). Both shares are gradually declining. Almost 40% of the agricultural complex is based on the import of foreign raw materials - such as animal feed, grain for human consumption and tropical products - that are processed in the Netherlands. The share of the foreign raw materials is increasing over the years, the share of primary agriculture and horticulture is declining. In 2005 the latter accounted for an added value of more than 7.5 billion euros and approximately 170,000 working years (Table 1), equivalent to 1.7% and 2.7% respectively of the national totals.

With its share of almost 30% in the total added value the grassland-based livestock sub-complex is the most important sub-complex within the agricultural complex based on domestic raw materials. The greenhouse horticulture sub-complex, with a share of more than 20%, is the second most important sub-complex. The relative importance of this sub-complex is increasing over the years.

The Dutch food industry consists of more than 4,500 companies with 158,000 employees. In 2004 the industry generated a turnover of 54 billion euros, equivalent to almost 23% of the turnover generated by the entire Dutch industrial sector. The food and beverages industry has a pronounced international orientation; in 2004 almost 45% of the companies' turnover was generated by exports and 32 billion euros were invested abroad, primarily by the takeover of other companies. The largest Dutch concern in this industrial sector is Unilever, followed by the Heineken brewery and the Sovion meat producers. In recent years private equity funds have shown more interest in Dutch food companies; for example, Unilever's frozen-food division has been taken over by an investor of this nature.

	Gross value added ^a (EUR billion)		Employment (1,000 labour units)	
	2001	2005 (p.)	2001	2005 (p.)
Agricultural complex ^b	40.5	41.9	715	665
<i>Share in national total</i>	9.4%	9.4%	11.1%	10.3%
Gardening, agricultural services and forestry	3.6	3.6	71	89
<i>Share in national total</i>	0.9%	0.9%	1.1%	1.3%
Foreign agricultural raw materials	14.8	15.7	220	199
<i>Share in national total</i>	3.4%	3.4%	3.4%	3.0%
Processing industry	6.5	7.0	75	65
Supply	4.1	4.4	70	66
Distribution	4.2	4.3	75	69
Agricultural complex (based on domestic agricultural raw materials)	22.1	22.6	423	377
<i>Share in national total</i>	5.1%	5.1%	6.6%	5.9%
Agricultural and horticulture	7.9	7.6	186	170
Processing industry	3.3	4.1	53	44
Input manufacturing	7.9	8.5	130	122
Distribution	3.0	2.5	54	40

p.: preliminary.
a In current prices;
b based on domestic and foreign agricultural raw materials (including gardening, agricultural services, forestry, cocoa, alcohol and tobacco).

N.B. Due to the revision of the National Accounting Convention and methodological changes, the figures cannot be compared against previously published data.
Source: LEI.

2.2 EXPORTS, IMPORTS, RETAIL TRADE AND CONSUMPTION

In 2006 Dutch exports of agricultural products and foods increased by more than 8% to 54 billion euros, whilst imports increased by 9% to 31 billion euros. The share of agricultural exports in the country's total exports is declining gradually, and amounted to just 17% in 2006. More than 80% of the agricultural exports are designed for other EU member states, and almost 65% of the imports originate from other EU member states. The ornamental-plant segment is the most important category within the agricultural exports (with a value of almost 8 billion euros in 2006), followed by meat (almost 6 billion) and dairy products (almost 4.5 billion). When viewed from a longer-

term perspective the exports of processed agricultural products are increasing more rapidly than those of unprocessed products.

In 2006 the retail trade's turnover from food and beverages increased by 3.7%, primarily due to a larger volume. The supermarkets' share of sales of food and beverages - whereby the supermarkets' sales of non-food products are also gradually increasing - continues to increase to the detriment of specialist shops.

The supermarkets now have an 80% share of all retail sales of food. Five supermarket chains account for about two-thirds of the supermarkets' sales. The largest of these is Ahold, with a 27.5% share. During the period from 2001 to 2005 the number of food stores per 100,000 inhabitants decreased by 18%.

In 2006 sales of organic foods increased by more than 9% as compared to the previous year. Organic foods now have an almost 2% share of the market.

In 2005 Dutch households allocated less than 14% of their disposable income to food and beverages; in 2001 the proportion was still 14.5%. The largest cost item in food expenditure was meat and meat products (21%), followed by beverages and tobacco.

The authorities and the business community are devoting a continually increasing amount of attention to health issues associated with food, as is manifested by activities such as campaigns to combat obesity, the introduction of health labels, and the emergence of functional foods, healthy dairy foods and vegetable and fruit drinks. Almost half of the Dutch population is now overweight, as compared to about one-third 25 years ago. These new vegetable and fruit drink products capitalize on the Netherlands Nutrition Centre's advice to eat more vegetables and fruit. There are a continually increasing number of indications that increased amounts of vegetables and fruit in the diet reduce the risk of cardiovascular disease and some forms of cancer.

Rural areas, the landscape and the environment

3.1 AGRICULTURE AND RURAL AREAS

3

The first real Dutch land consolidation took place in 1916. During the subsequent years the authorities began to take active part in land consolidation in the form of statutory regulations – the first of which were introduced in 1924 – and financial support. Until about 1960 land consolidation – later referred to as ‘land reconstruction’ – focused virtually entirely on the improvement of the agricultural sector’s production conditions. However, since then objectives relating to nature, the landscape, recreation and water management have become more important. Land reconstruction projects have now been completed in about 60% of the rural areas, and some areas have even been the subject of a number of these projects. Nevertheless, the land-division situation has deteriorated: for example during the period from 1993 to 2004 – in part due to increases in scale – the number of farms operating on more than five plots has increased from 25% to 37%. During this same period the proportion of dairy farms with more than 60% of the land close to the farmhouse – of great importance to the ability to bring the cows to pastureland – has decreased from 47% to 39%.

The new *Wet Inrichting Landelijk Gebied* (‘Rural Areas Development Act’, WILG) which came into force on 1 January 2007 is intended to provide for faster, simpler and more flexible land reconstruction. In this new approach the provinces have taken over the leading role from the national government. This new Act also constitutes the statutory basis for the *Investeringsbudget landelijk gebied* (‘Investment Budget for Rural Areas’), which combines the various national budgets for the development and management of the rural areas. Within the scope of this budget a total of almost 4 billion euros is available from the period from 2007 to 2013, of which almost half is allocated to the Ecological Main Network (EHS). Just 6% is intended for the improvement of the agricultural and horticultural infrastructure, and 10% for the reconstruction of the sandy regions.

Water management, which has much in common with the agricultural sector, requires a continually increasing amount of attention; this is needed to combat the desiccation of nature areas, especially since current estimates indicate that more than 220,000 hectares are now desiccated. In addition, the climate change is resulting in the agricultural and horticultural sectors’ increasing need for irrigation, whilst measures

also need to be implemented to counter the salinization of the land in part caused by the increasing sea level. Moreover the water level needs to be lowered in the Western grassland region to limit subsidence, although this will complicate the position of the livestock-farming sector.

The *Reconstructiewet Concentratiegebieden* ('Concentration Areas Reconstruction Act') that came into force five years ago is intended to assist the intensive-livestock farming sector concentrated in specific regions - in particular, the sandy regions in the Southern and Eastern Netherlands - by offering more (production) opportunities to the sector whilst simultaneously safeguarding the nature and landscape value. Zoning is an important element of the reconstruction; the intensive-livestock farming sector may expand in the 'agricultural-development regions', but not in the 'extensification regions'. Although work has since begun on the reconstruction little progress has been made in an essential element, namely the relocation of livestock farms. This is in part due to the resistance of the residents in the relevant regions.

The development of the horticulture sector focuses on five what are referred to as 'greenports' that are characterized by a powerful concentration of the supply, production and marketing operations relating to horticultural products and products associated with the sector. These greenports accommodate 65% of the country's total area under glass. In addition, the authorities have designated ten agricultural-development areas for the reconstruction and expansion of the horticulture sector, and a further three to the bulb-cultivation sector. Funds have also been made available for this reconstruction, which is focused on sustainability. However, this development is also making little progress, in part due to the little amount of interest amongst the growers.

3.2 AGRICULTURE AND THE ENVIRONMENT

Since the mid nineteen-eighties the Dutch agricultural sector has greatly reduced its environmental impact. However, when viewed from an ecological perspective the impact is still too great. From the beginning of the nineteen-nineties onwards this reduction of the environmental impact was accompanied by a substantial increase in the sector's environmental costs; the costs have stabilized only in recent years. In 2003 the environmental costs, after the deduction of subsidies of about 215 million euros, amounted to approx. 575 million euros. Approximately half of these costs are incurred as a result of the manure and ammonia policies. The primary agricultural sector's share of the national environmental costs is almost triple its share in the national added value.

Although the consumption of chemical crop protection agents was roughly halved during the period from the mid nineteen-eighties until the turn of the century,

consumption has once again increased slightly in recent years (Table 2).

The environmental impact of these agents has been greatly reduced, primarily due to restrictions on their application such as the mandatory use of low-drift nozzles. The government's target for the use of chemical protection agents stipulates that by 2010 the environmental burden chemical crop protection agents impose on the surface waters shall have been reduced to 95% of the level in 1998. Until about 2000 the Netherlands conducted a more stringent authorization policy for these agents as compared to the majority of the EU member states; in the years since then endeavours have been made to ensure for the harmonization of the Dutch authorization policy with EU policy. During the course of the nineteen-nineties the number of authorized products decreased from more than 300 to less than 200. However, the number has once again increased since 2001. Studies have revealed that the crop-protection agent policy has only limited unfavourable economic consequences for the growers.

Table 2		Development of environmental impact of agriculture and horticulture, 1995-2005				
	1995	2000	2002	2003	2004	2005 (p.)
Use of crop protection agents (in million kg of active substance) ^a	12.61	11.38	9.70	9.55	10.66	10.70
Greenhouse gas emissions (in billion kg CO ₂ equivalents) ^b	31.7	29.1	27.4	27.1	27.0	27.2
Supply of nitrogen (N, kg per hectare)	472	394	352	353	351	341
Supply of phosphates (P ₂ O ₅ , kg per hectare)	140	125	108	112	102	107
Ammonia emissions (in million kg)	179	139	123	122	120	121

^a Source: Plant Protection Service;
^b revised series.

Source: RIVM/CBS (Statistics Netherlands), Milieucompendum, various years

The agricultural and horticultural sectors account for 12-13% of the total Dutch emissions of greenhouse gases. In the years since 1995 the agricultural sector's emissions of greenhouse gases - of which about two-thirds are comprised of methane and nitrous oxide - have been reduced by almost 20%, although the level has stabilized in recent years (Table 2). The trade in CO₂ emission rights constitutes one major instrument within the scope of the climate policy. The EU began this trade in 2005. The intention is that a number of major greenhouse horticulture holdings will also take part in this trade as from 2008. The high energy prices and the more stringent climate policy offer the agricultural sector opportunities to serve as a producer of renewable energy, for example by means such as the collection of solar heat in greenhouses and the generation of energy from manure and biomass. Consequently the interest in biogas installations, which are facilitated by the authorities, has increased greatly.

Although energy from biomass is renewable, it is not always sustainable. Biomass still results in substantial CO₂ emissions, albeit significantly lower than those from fossil fuels. Moreover a great deal of land is required for the production of biomass, and this is detrimental to biodiversity and/or the landscape.

During the past 15-20 years the production of cattle and pig manure has declined by about one-third. This has resulted in a similar decline in the supply of minerals to agricultural land (Table 2). However, the concentration of minerals in some regions' groundwater is still too high. Two years ago Dutch manure policy was subjected to a fundamental amendment under pressure from the EU, when the former loss standards were replaced by supply standards for nitrogen and phosphates. This amendment results in increased costs for manure disposal; in 2005 the pig-manure disposal costs amounted to 5-10 euros per cubic metre, and in 2006 to as much as 15-20 euros. A new element is what is referred to as 'derogation', whereby 250 kg nitrogen from the manure of grazing animals may be applied per hectare rather than the standard quantity of 170 kg. However, farms may make use of derogation only when at least 70% of their land is grassland. This condition has resulted in an increase in the area of grassland (see Table 3, paragraph 4.1).

Although ammonia emissions roughly halved since the mid nineteen-eighties, the level has not fallen further in recent years (Table 2). The target specified by the EU agreements, which for the Netherlands stipulates a maximum emission of 114 million kg in 2010, will probably be achieved. Both the generic component (focused on low-emission stalls) and the spatial component (the reduction of emissions in the vicinity of vulnerable areas) of the ammonia policy have been relaxed in recent years. Major farms that greatly expand their ammonia emissions will however be required to achieve a reduction of 90%, a target which can be achieved solely by installing ammonia scrubbers.

Structural developments in agriculture and horticulture

4.1 NUMBER OF HOLDINGS AND EMPLOYEES

In 2006 there were 2,400 fewer agricultural and horticultural holdings as compared to one year previously (Table 3). This 2.9% decrease is in line with the average during the past ten years. The number of holdings has decreased by more than 35% in the years since 1990; there is little difference between the land-based and non-land-based holdings. However, in recent years the decline in the non-land-based holdings has accelerated; the number of greenhouse horticultural holdings and intensive-livestock farms has decreased by 25-35% since 2000.

Table 3 Development of number of holdings, number of workers and area of farmland, 1990-2006

	1990	1995	2000	2005	2006	Change (%) 2005-2006
Number of agricultural and horticultural farms (x 1,000)	124.9	113.3	97.5	81.8	79.5	2.9
of which land-based	100.8	91.7	79.4	68.2	66.4	-2.6
Number of workers ^a (x 1,000)	288.3	276.2	280.9	235.8	224.2	-4.9
Area of farmland (x 1,000 ha)	2,005.6	1,965.3	1,955.5	1,920.8	1,899.1	-1.1
of which grassland	1,096.5	1,048.5	1,011.9	980.4	996.8	1.7

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

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

It is expected that in the years until 2020 the total number of holdings will, depending on the degree of liberalization of the European agricultural policy, decline by a further 40 to 50%. The decline in the number of small(er) holdings will be particularly marked. Almost two-thirds of the farmers have a great deal of confidence in the long-term future of their holding; the smaller companies have a less favourable view than the larger holdings. The continuity of about 57% of the land-based holdings is assured for the time being, either because the head of the business is below the age of fifty or because a (potential) successor is available. Almost 20% of the land-based holdings are engaged in some form of secondary activity.

The number of organic agricultural and horticultural holdings, which has been declining for some years, amounted to more than 1,360 in 2006. During the years

from 1999 to 2005 the associated acreage increased from 27,000 hectares to 49,000 hectares, although the acreage would appear to be stabilizing in recent years. The acreage used for organic cultivation is equivalent to 2.5% of the total agricultural land. The official target is a 10% share in 2010.

The number of employees exhibited a great decline in the past year, namely by almost 5% to about 224,000 (Table 3). This decline is equivalent to approx. 167,000 FTEs. About 70% of the entire workforce is comprised of family workers. The majority of the non-family workers are employed by the horticulture sector, which is gradually employing more workers from Middle and Eastern Europe. During the years from 2002 to 2005 the rate of absenteeism of employees in the agricultural sector decreased from 4% to 2.6%, a rate well below the national average.

4.2 LAND AND CAPITAL

In the years since 1990 the registered area of cultivated land has decreased by about 6,700 hectares per annum (Table 3), equivalent to an average of 0.3% per annum. However, the decline was significantly faster in the past year, when the area of grassland increased by almost 17,000 hectares and the area used to cultivate green maize decreased by a roughly equal amount. This development is probably primarily due to the aforementioned amendment of the manure policy (see Section 3.2). In 2006 the area of arable land decreased to 550,000 hectares, a reduction of almost 28,000 hectares as compared to 2005, of which more than half was due to the contraction of sugar-beet cultivation following the reduction of the sugar quotas. The area allocated to open-field horticulture continues to increase; in 2006 the area increased by almost 7% to 108,000 hectares. The area allocated to greenhouse horticulture remains stable at around 10,500 hectares.

Land prices, which declined greatly during the years from 2001 to 2005, have increased again recently. This is primarily due to the upturn in the economy. In March 2007 the average land price was 29,500 euros per hectare, about 10% below the peak in 2001. About half the buyers of agricultural land live within 600 metres of the land they purchase.

In September 2007 new lease regulations will come into force which are intended to halt the decline in the area of leased land. During the period until 2005 inclusive the acreage of land with regular leasehold exhibited a continual decline to some 20% of the total acreage. In 1975 the proportion was still 44%.

During the years from 2002 to 2006 the balance sheet value of the average agricultural and horticultural holding increased by 18% to almost 1.8 million euros (Table 4). Of this more than 0.6 million euros is tied up in land, and 0.4 million euros in quotas. The increase was primarily due to the increase in the price of land and dairy

quotas, and to the growth of the size of the business. On average the dairy farms have the highest balance sheet value (almost 2.5 million euros) as a result of the value of their land and quota. Since the quota price has been halved during the past six months the balance sheet value of the dairy farms has also declined. On average half a million euros is comprised of outstanding loans, and the remainder is equity. Since the loans have increased relatively rapidly during the past few years the equity ratio (solvency) has gradually declined.

Table 4

Balance sheet value (1,000 euro) of the average agricultural and horticultural holding per January 1, 2002-2006

	2002	2003	2004	2005	2006 (p.)
<i>Size of the holding</i>	104	105	105	107	106
Total balance sheet value	1,492	1,537	1,581	1,659	1,766
of which: quotas	366	364	364	386	408
land	545	557	569	589	637
Loans	378	407	472	471	510
Equity capital	1,004	1,020	1,000	1,073	1,134
Solvency (%)	67.3	66.4	63.3	64.7	64.2

Source: Farm Accountancy Data Network.

Production and income development

5.1 PRODUCTION AND INCOME DEVELOPMENT OF THE AGRICULTURAL AND HORTICULTURAL SECTOR

In 2006 the production volume of the Dutch agriculture and horticulture sector was virtually unchanged from that in 2005 (see Table 5). This was the net result of a pronounced decline in arable-farming production and a limited growth in other sectors' production. Following the price increases in 2005 many prices increased further in 2006. The average increase was 5-6%. Arable-farming products, in particular, were considerably more expensive; solely cattle and poultry exhibited a decline in prices. In total, this resulted in an increase in the gross production value of more than 5.5%. The general price increase of purchased goods and services amounted to between 4 and 5% whereby the prices of energy and artificial fertilizer, in particular, increased by a substantial amount.

Table 5 Gross production and value added of agriculture and horticulture, 2004-2006

	Value (mio. Euro)			Index 2006 (2005=100)		
	2004	2005 (p.)	2006 (est.)	Volume (est.)	Price (est.)	Value (est.)
Total gross production value ^a	20,443	20,965	22,154	100.0	105.5	105.5
of which:						
Arable products	2,223	2,059	2,287	91.0	122.0	111.0
Horticultural products	7,859	8,176	8,710	100.5	106.0	106.5
Grassland-based livestock products	4,445	4,646	4,761	101.5	100.5	102.0
Intensive livestock products	3,688	3,844	4,109	101.0	106.0	107.0
Intermediate consumption (-)	12,010	12,146	12,687	100.0	105.5	105.5
Depreciations (-)	2,658	2,730	2,840			104.0
Levies ^b (-)	391	422	425			100.5
Subsidies ^b (+)	341	322	502			156.0
Net value added	5,726	5,989	6,704			112.0

p.: preliminary; est.: estimation;

a Including agricultural contract workers and gardening;

b not product-tied.

Source: CBS, estimation 2006 by LEI.

Depreciation increased by 4%, and the levies remained virtually unchanged. The non-product subsidies increased greatly, in part due to the 2006 decoupling of premiums, that had until then been part of the production value, and were made available in the form of farm payments. On balance, in 2006 the net added value was more than 700 million euros (12%) above the value in 2005. In comparison with the low level of 2004 about one billion euros has now been added (Table 5). Interest, lease costs and wages must be paid from this added value. These cost items decreased slightly. After the deduction of these cost items the remaining income per holding has, after correction for inflation, increased by more than 30%. This is roughly equal to the level in 2001.

5.2 THE RESULTS OF THE AVERAGE AGRICULTURAL AND HORTICULTURAL HOLDING

The development of the results of the average agricultural and horticultural holding exhibits great similarities with the developments at sector level. This is, as such, logical since more than 90% of the holdings' gross returns originates from the sales of agricultural products. In addition, in recent years some 3.5% (in 2006, on average more than 10,000 euros per holding) originates from secondary activities (inclusive of agricultural contract work and the rental of assets), sales from the farm and processing on the site and almost 5% (14,500 euros) from subsidies (see also box).

Payments are an important source of income for some holdings

In 2006 the average holding received about 14,500 euros in the form of farm payments (within the framework of the European agricultural policy) and premiums (for instance for nature management); in 2005 the figure was 12,000 euros. Almost one-quarter of the holdings (primarily horticultural holdings) received no payments whatsoever, whilst 15% received more than 25,000 euros. This 15% received more than half of the total amount of farm payments paid in the Netherlands, and the payments were equivalent to more than half their income. The payments shall, within the foreseeable future, be issued in the form of a single farm payment. This amount can increase to more than 800 million euros in 2009 once the premiums in the sugar sector have also been incorporated in full in the farm payment. If the current system, based on a historical reference, would be changed into to a 'flat rate system' (with an equal payment per hectare which would be more than 400 euros per hectare) then six out of every holdings will - at least, when there is no form of differentiation - receive additional payments. This is, in particular, the case for horticultural holdings (that do not currently receive payments) and arable farms. About 30% of the holdings would receive less, and half of these would receive in excess of 5,000 euros less per annum compared to the current system.

According to the estimates the average income of all agricultural and horticultural holdings improved from more than 47,500 euros per holding in 2005 to 52,000 euros in 2006 (Table 6). According to the estimates income off the holding also increased slightly. This income makes up almost a quarter of the total income, and just under half of this comes from labour; the rest comes from capital and social benefits. At a more-or-less unchanged family income the savings increased by almost 4,000 euros. The distribution in incomes is sizeable: in 2006 almost 30% of farming families had a total income of less than 25,000 euros, and approx. 15% had an income of more than 100,000 euros. Usually the same holdings have a low or a high income year after year.

In addition to the savings, funds also become available in the form of depreciation and new loans. In 2005 this related to an average of about 84,000 euros per holding, of which more than 38,000 euros was in the form of loans. This is significantly more than in previous years, when the incomes were relatively low. On average the holdings invested more than 70,000 euros, almost 70% above the average of the previous four years. This substantial increase is indicative of greater confidence in the future.

Table 6		Results (x 1,000 euros per holding) on the average agricultural and horticultural holding, 2001-2006			
		2001-2003	2004	2005	2006 (est.)
Gross returns		269.1	279.6	293.6	308.0
Paid costs and depreciations	(-)	231.3	245.7	246.1	256.0
Farm family income	(=)	37.8	33.9	47.5	52.0
Income from outside the farm	(+)	10.0	13.7	15.3	16.0
Total family income	(=)	47.8	47.6	62.8	68.0
Family spending		36.3	37.6	41.3	41.0
Savings		7.9	7.9	17.3	21.0

Source: Farm Accountancy Data Network

Developments in the various sectors

6.1 GREENHOUSE HORTICULTURE AND MUSHROOM FARMING

In 2005 the activities associated with the greenhouse horticulture complex (together with the mushroom farming sector) resulted in a total added value of about 4.5 billion euros, equivalent to more than 20% of the added value of the Dutch agricultural complex based on domestic raw materials. The complex' share in employment provided by the agricultural complex amounted to 17%. These shares are gradually increasing as a result of the complex' expansion. More than 90% of the added value of the greenhouse horticulture complex' added value was generated by sales abroad. During recent years exports to new markets such as the 10 new member states of the EU and Russia have grown more rapidly than sales to the traditional markets.

There are still four flower auctions in the Netherlands, although the two largest auctions - Aalsmeer and FloraHolland - have announced their wish to merge on 1 January 2008. The new company would then have 90% of the Dutch market. In addition to the auctions, some 1,000 wholesalers and exporters active in this field jointly play a leading role in the international trade in ornamental plants. Figure 1 gives an overall impression of the ornamental-plant chain.

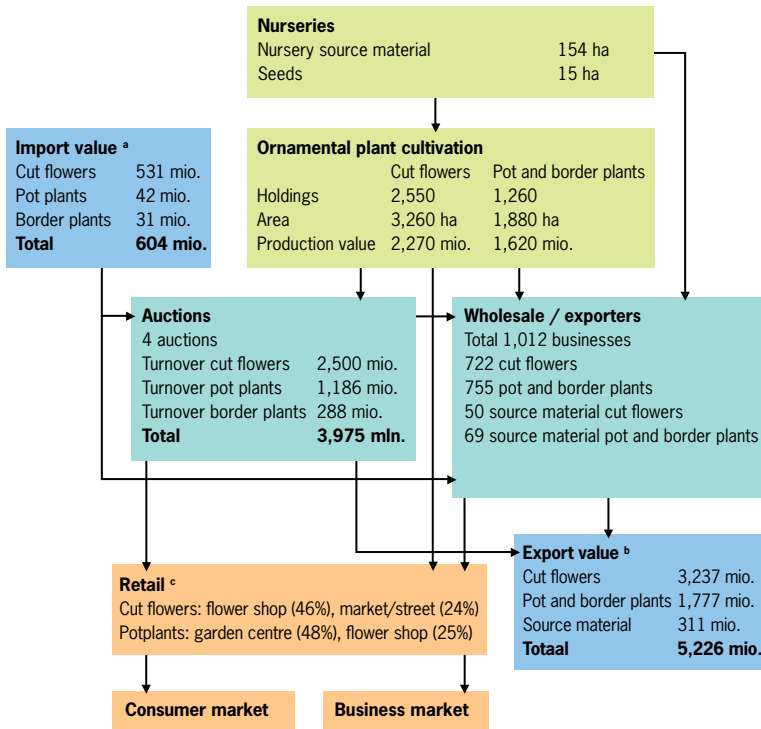
Terminations of greenhouse-horticulture holdings and increases in scale have both taken place at an extremely rapid pace during the past few years. In the years since 2000 the number of specialized greenhouse-horticulture holdings has decreased by 28% to approx. 5,660 holdings. The average holding now occupies an area of 1.7 hectares, and 5% of the holdings have more than 5 hectares of glass. During the past years the total area of glass has remained relatively stable at some 10,500 hectares. The acreage allocated to the cultivation of cut flowers is decreasing, whilst the area allocated to the cultivation of pot and border plants has grown by a relatively large amount and the area for the cultivation of vegetables has increased to a limited extent.

In 2006 the higher prices resulted in an about 6% increase in the production value of the glasshouse horticulture complex to a new record level of more than 5 billion euros. The production value of greenhouse-grown vegetables and pot plants increased by 9% and 7% respectively, while the growth in cut flower cultivation was limited to 3%.

On the cost side the price of gas, in particular, once again increased by a substantial amount. In 2006 the price increased by a further some 25% following the almost 40%

Figure 1

Overall impression of the ornamental-plant chain, 2006



a Importvalue is based on turnover flower auctions;
 b exportvalue is based on turnover exporters;
 c 2005.

Sources: CBS, HBAG, PT and VBN.

increase in 2005. The other costs increased only slightly in 2006. On balance, in 2006 the profitability and income of greenhouse horticulture holdings improved as compared to 2005. The average income of all greenhouse horticulture holdings increased from more than 50,000 euros to more than 73,000 euros (Table 7). Once again, as is customary, major differences were exhibited between the incomes of the various holdings. About 20% of the growers had a negative income in 2006, in contrast to 30% with an income in excess of 100,000 euros. The income from off the holding is relatively low in the greenhouse horticulture sector; in 2006 the average income from off the holding was 6,500 euros. The greenhouse horticulture sector has invested

relatively large amounts in the past few years. These investments relate to new greenhouses and cogeneration plants, etc.

In 2006 the number of mushroom farms decreased by more than 10% as compared to 2005. The number has now fallen below 300, almost half the number of farms in 2000. The cultivation area also declined, although at a less rapid pace. The total area used for mushroom cultivation was around 770,000 m² in 2006. In six years' time the average area of the farms has increased by more than 30% to approx. 2,700 m². In 2006 the value of mushroom production decreased by about 4%, notwithstanding a slight improvement in prices. A substantial decline in Polish mushroom production due to a cold period followed by a heat wave played a role in the increase in prices. The limited increase in costs has in part resulted in a slight recovery in incomes (Table 7).

Table 7		Farm family income (x 1,000 euros per holding), 2002-2006		
	2002-2004	2005	2006 (est.)	
Greenhouse vegetable holdings	76.6	30.9	54.6	
Cut flower holdings	48.0	46.4	64.8	
Pot plant holdings	79.0	87.2	110.0	
All greenhouse horticultural holdings	64.2	50.5	73.5	
Mushroom holdings	45.2	25.8	±35.5	
Open-field horticultural holdings	29.0	39.0	±40.0	
Fruit cultivation holdings	30.0	23.0	±40.0	
Bulb cultivation holdings	21.0	29.0	±50.0	
Arboricultural holdings	60.0	68.0	±70.0	

Source: Farm Accountancy Data Network

6.2

OPEN-FIELD HORTICULTURE

Open-field horticulture, consisting of open-field vegetable cultivation, fruit cultivation, bulb cultivation and tree cultivation, had a share of almost 9.5% in the added value in 2005, and provides more than 10% of jobs offered by the Dutch agricultural complex. These shares are gradually increasing to a slight extent. More than 80% of the added value of this complex' added value was generated by sales abroad.

Although the number of holdings with open-field horticulture more than halved during the period between 1980 and 2005, in 2006 the number declined by just 100 to 14,600 holdings. In a period of 25 years the average area of the holdings has increased from 2.5 hectares to 7 hectares. There are considerable differences between the four segments: on average, the specialized open-field horticultural holdings cultivate 13 hectares, fruit holdings 9 hectares, and bulb holdings 17 hectares. However, the average arboricultural holding cultivates just 5 hectares.

In 2006 the total area of open-field horticulture increased by about 7% as compared to the previous year, and is now in excess of 100,000 hectares.

After a number of years of declining production values achieved by the open-field horticulture segment the value increased by 6% in 2006. In the open-field vegetable cultivation segment the reduced production volume was accompanied by higher prices. The fruit-cultivation segment benefited from an increased pear crop and the higher apple prices. The bulb-cultivation segment was also able to command higher prices, thereby ending the segment's malaise of the previous years. One interesting new development is the use of flower bulbs as a raw material for medicines. The arboricultural sector was confronted with a limited decline in the production value.

In 2006 these developments, in combination with the limited increase in costs, resulted in virtually unchanged incomes in the open-field vegetable and arboricultural segments. Conversely the incomes in the fruit cultivation and bulb cultivation segments exhibited a marked improvement (Table 7).

6.3 ARABLE FARMING

In 2005 the arable farming complex had a share of just under 18% of the total added value of the agricultural complex in 2005 and more than 18% of the employment provided by the complex. These shares are gradually decreasing. More than 60% of the added value of the arable farming complex was generated by sales abroad. The added value per arable-farm worker is considerably lower than in the other segments of the complex.

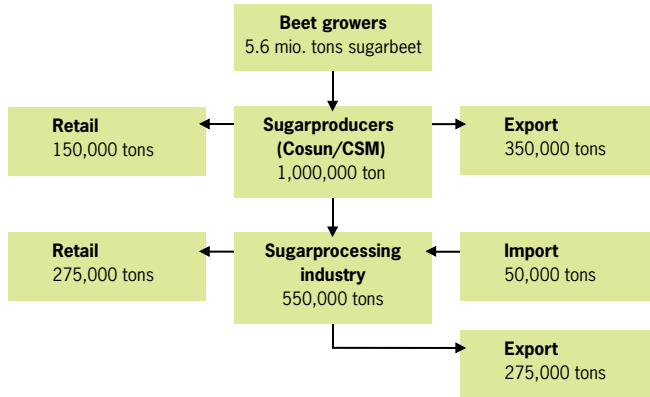
Until recently there were two sugar-processing companies in the Netherlands. However, after the takeover on 1 April 2007 only one company is active. This company produces about 1 million tonnes of sugar per annum (Figure 2). The company has purchased additional sugar quota, as a result of which the reduction in the quota for Dutch sugar beet farmers could be restricted to 6% (rather than 13%).

In the years since 1980 the number of farms with arable crops has decreased from more than 48,000 to more than 24,000 in 2006. Slightly more than half of these farms are specialized in arable farming. In 2006 the area of arable crops (other than green maize) amounted to about 550,000 hectares, 30,000 hectares less than one year before. Organic arable crops are grown on just 1,300 hectares of the total area used to cultivate arable crops. In 1986 1% of the arable farms had land in excess of 100 hectares; in 2006 this proportion increased to 3%.

In 2006 the production value of arable crops was almost 10% below the value in 2005 (see Table 5, paragraph 5.1). In addition to the aforementioned reduction of the area used to cultivate arable crops, the lower yields due to the poor weather also played a role in the decline in production value. The crops of potatoes for consumption and starch potatoes, in particular, declined during the year under review. However, the

Figure 2

The sugar chain



Source: Berkhout en Van Berkum (2005), HPA

price of many products increased; the average increase was more than 20%. Potatoes and onions, in particular, were much more expensive than in 2005. Solely starch potatoes did not increase in price. In spite of the reduction of the official sugar prices the price of sugar beet nevertheless increased by 5%, in part due to the improved international prices.

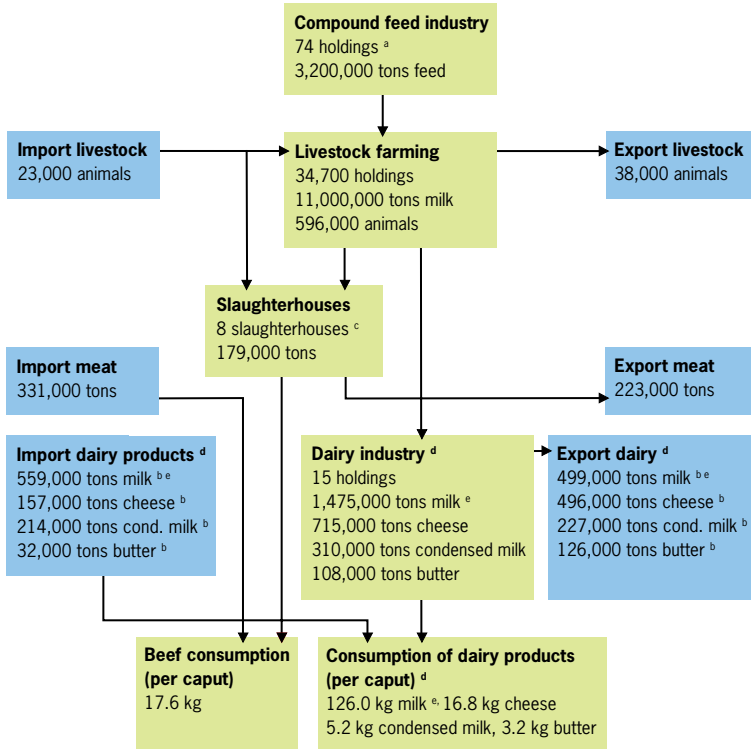
As a result of the favourable development in prices the average arable-farm income almost doubled in 2006 as compared to 2005, namely from more than 31,000 euros to approx. 61,000 euros. Estimates indicated that an average of 25,000 euros was saved. In 2006 the average income of the starch potato farms in the Veenkoloniën declined from more than 34,000 euros in 2005 to about 20,000 euros in the year under review. In 2006 about 5% of the arable-farming families had a negative income, whilst approx. 20% had an income in excess of 100,000 euros. This figure is exclusive of income from off the farm; in the period from 2003 to 2005 the income from off the arable farms was of the same order of magnitude as the farm income (on average 17,400 euros and 19,400 euros respectively, inclusive of farm payments). During the past years arable farmers have invested primarily in land.

GRASSLAND-BASED LIVESTOCK FARMING

The grassland-based livestock farming segment consists of dairy, beef cattle (excluding veal calves), horse, sheep and goat farming. The complex relating to grassland-based livestock farming is still the most important within the agricultural

Figure 3

Overall impression of the livestock farming chain, 2006



a 2004;
 b 2005;
 c Slaughterhouses with a capacity of more than 10,000 killings a year;
 d Main dairy products only;
 e Milk and milkproducts.

Source: CBS, FEAC, PD, PVE en PZ, processed by LEI.

complex, with a share of over 30% of the total added value in 2004, and more than 33% of the jobs offered by the agricultural complex. Almost half the number of jobs in the grassland-based livestock farming complex are offered by the primary sector, whilst this sector generates only a little more than one-quarter of the total added value. One of the causes of this difference is the large scale of the companies active in the processing and supply segments of the complex. For example, although there are still 15 dairy companies the two largest process about 80% of the milk (Figure 3).

Three slaughterhouses slaughter 65% of the cattle, and six compound-feed companies produce 70% of the concentrated cattle feed.

In total, approximately 4.8 million grazing animals are kept on more than 1.2 million hectares of farmland (grass and fodder crops) in the Netherlands. Since the introduction of the milk quota in 1984 the number of dairy cows has gradually declined from almost 2.5 million to more than 1.4 million. The number of beef cattle has declined greatly since the reform of the beef policy at the beginning of the nineteen-nineties, and in recent years the number of sheep has fluctuated between 1.3 and 1.4 million. The goat population is growing rapidly. The number of holdings with dairy cattle is declining by 4 to 5% per year, and amounted to just 23,500 in 2006. More than one-quarter of all dairy cattle are owned by farms with more than 100 cows; in 1986 the proportion was just 12%.

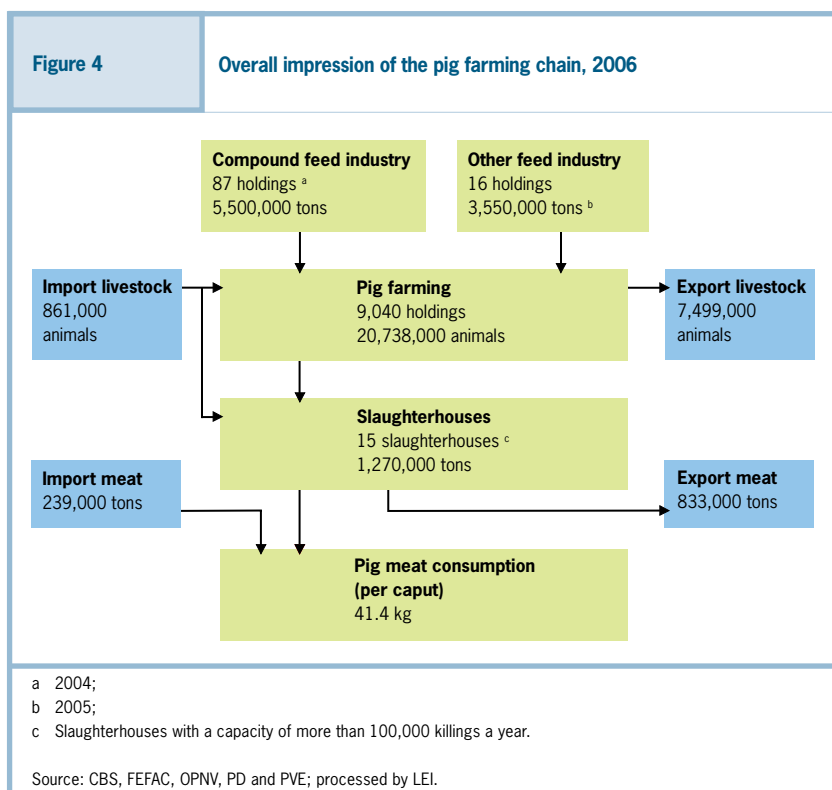
In 2006 the production value of the grassland-based livestock farming segment was about 1.5% higher than in 2005, in part due to the 1% increase in the volume of the dairy quotas. The value of this production, 80% of which is milk, increased by 2% to almost 4.8 billion euros (see Table 5, paragraph 5.1). Although the milk price declined by 2 to 3%, this decline was amply compensated by the increase in the dairy premium provided within the framework of the EU agricultural policy. The price of beef cattle declined.

On balance the yield of the average Dutch dairy farm, with a dairy quota of more than 510,000 kg, remained virtually unchanged. The increased costs resulted in a decrease in the incomes. In 2006 the average family income in the dairy-farming sector decreased from 62,000 euros in 2005 to approx. 53,500 euros in the year under review. The 2006 income includes more than 23,000 euros in farm payments (2005: 17,000 euros). The farm income is supplied by about 15,000 euros from income off the farm. In 2006 the average total family income was about 59,000 euros. About 18% of the dairy-farming families had an income of less than 25,000 euros and approx. 14% had an income in excess of 100,000 euros.

In recent years the income of organic dairy farms, which on average have about 20% fewer cows than the traditional farms, is somewhat lower than of the traditional farms.

INTENSIVE LIVESTOCK FARMING

The intensive livestock farming complex is comprised of pig farming, laying hens, poultry for slaughter, and veal production. In 2005 the intensive livestock production complex had a share of almost 23% of the added value and almost 22% of the jobs offered by the agricultural complex. During recent years the Dutch pig chain has exhibited an evident concentration, whereby the market share of a limited number of companies on both the supply side (animal feed) and marketing side (slaughterhouses) has increased significantly.



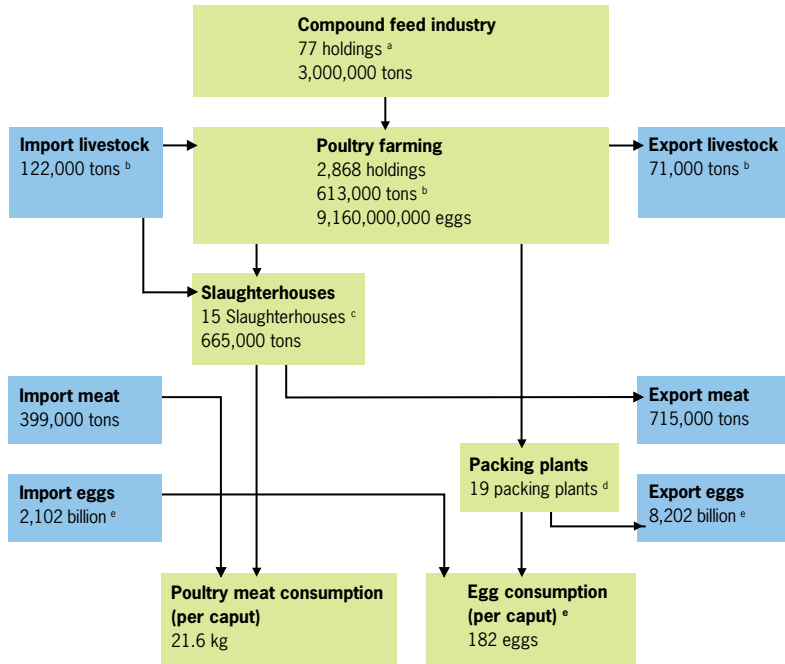
At the beginning of the nineteen-eighties there were just over 10 million pigs in the Netherlands. By 1997 the number had increased to over 15 million, after which the pig population fell to a little over 11 million in 2006. This decline was primarily due to the manure policy. There are just over 9,000 holdings with pig farming (Figure 4).

In 2000 the Dutch chicken population reached its peak of almost 107 million chickens. In the years since then the population has declined as a result of the manure policy, outbreaks of infectious diseases, and the deterioration in the competitive position. In 2006 there were still more than 94 million chickens on more than 2,800 holdings (Figure 5). The veal-farming sector continues to grow; in 2000 there were more than 780,000 veal calves in the Netherlands, but by 2006 the number had increased to more than 840,000 at almost 3,200 farms.

The number of farms active in the intensive livestock farming sector has long exhibited a significant decrease, thereby resulting marked increases in scale. In the years since 1990 the average number of pigs on the farms has more than doubled to 2,027, the average number of poultry has increased by more than 60% to 51,000, and

Figure 5

Overall impression of the poultry chain, 2006



- a 2004;
- b slaughtered weight;
- c slaughterhouses with a capacity of more than 10,000 tons a year;
- d packing plants with a capacity of more than 100 million eggs a year;
- e including egg products.

Source: CBS, FEAC, PD and PVE; processed by LEI.

the average number of veal calves has also increased by more than 60% to 594. The authorities have implemented several measures to promote animal-friendly accommodation. In 2004 almost 40% of the total number of places for sows were suitable for group pens, and 15% offered access to outdoors. About 44% of the laying hens were accommodated in systems other than battery cages, a system which will be prohibited in 2013. Free-range systems, in particular, are becoming more common.

In 2006, as was the case in the previous year, many products of the intensive-livestock farming sector once again commanded higher prices (see Table 5, paragraph 5.1). Pork prices rose by 6%, piglets by 5%, and eggs by 10%. However, the price of

broilers fell by 8%. In general, the increase in the selling prices was sufficient to offset the increases in costs. Animal feed and manure disposal, in particular, increased in price. On average, the average income of pig-breeding farms increased from almost 100,000 euros in 2005 to 107,000 euros in 2006. However, the average income of the closed pig farms and porker farms remained more-or-less-unchanged at 110,000 euros and 39,000 euros respectively. Considerable savings were made on all types of pig farms. Almost 40% of pig-farmer's families had a total income (i.e. inclusive of income off the farm) of more than 100,000 euros.

The farm income of laying-hen farmers exhibited a marked improvement from an average of minus 10,000 euros in 2005 to 40,000 euros in 2006. However, the average income of broiler farms exhibited a reverse development; the average income fell from almost 100,000 euros in 2005 to minus 25,000 euros in 2006. The financial reserves of this sector, which had already made a loss in 2002, 2003 and 2004, are becoming exhausted. On average the farm income of the veal farms declined from 56,000 euros in 2005 to 48,000 euros in 2006, in part due to the reduction of the contract compensation.

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 2002 DSU equals a SGM of about 1,400 euro. Some examples (on the basis of the DSU 2002): 1 ha winter wheat = 0.843 DSU; 1 ha sugar beet = 1.76 DSU; 1 dairy cow = 1.21 DSU; 1 sow = 0.254 DSU, 1 ha cherry tomatoes under glass = 225 DSU and 1 ha roses = 277.9 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.