

# Agricultural Economic Report 2011 of the Netherlands

Summary



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ABSTRACT

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This report offers an English summary of the Landbouw-Economisch Bericht 2011. 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 2011 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.

The complete report, which is available only in Dutch, is based on data and contributions from the various research fields of the institute. The report has been coordinated and edited by the International Policy research field. The final draft of the 2011 Dutch edition of the report was completed in May 2011.

The Hague, July 2011

The Director,

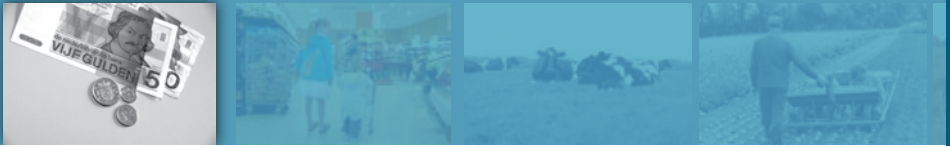


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# The international context of the Dutch agricultural sector



## 1.1 Global economic developments

In 2010, the global economy recovered as had been forecast following the crisis in the previous year with a growth percentage of 5%. Slightly lower growth is forecast for 2011 and 2012, with a marked distinction between the highly-developed and emerging economies: an average growth of 6.5% is forecast for the emerging economies, in contrast to no more than 2.5% for the Western countries. Consequently, the earlier concerns over a double dip – in which the economy would once again enter a recession on the termination of the governments' incentive measures and the failure of consumption to increase – were, in retrospect, unfounded. However, there are now concerns about rapid increases in the prices of food and energy that would have a particularly great influence on inflation in the emerging economies and developing countries: food and energy account for a relatively large proportion of expenditure in these countries. Increasing prices pose a threat to the poorer households and, consequently, contribute to social and economic unrest of the form manifested in the Middle East and North Africa in the first half of 2011. This unrest has in turn resulted in a further increase in the already high price of oil. The macroeconomic effects of the severe earthquake and nuclear disaster in Japan are still unclear: the enormous damage is estimated to amount to 230 billion euros.

The euro zone's economy is climbing slowly out of the trough in 2009. Growth of 1.7% was recorded in 2010, following the 4.1% contraction in the previous year. The rate of growth is expected to remain at virtually the same level during the coming two years, a rate which is significantly lower than that after earlier recessions. The slight recovery is primarily due to exports, which benefited from the marked increase in foreign demand and the lower exchange rate of the euro. However, the levels of national expenditure lagged. There are great variations between the member states in the rate of recovery.

### *The Netherlands*

Following the deep recession at the end of 2008 and the beginning of 2009, the Dutch economy has once again grown slowly since the second half of 2009, with a small dip in the third quarter of 2010. The 1.7% growth in the Dutch economy recorded in 2010 is reasonably in line with the average for the euro zone. Modest growth is also forecast for

2011 and 2012. Consequently, and in contrast to the rapid recovery frequently seen after other recessions, the economy is not bouncing back: whilst earlier recessions were followed by an average growth of 4.5% during the subsequent recovery, the economy is now growing extremely slowly and forecasts indicate that GDP will probably return to the level of before the crisis (2008) by no earlier than the first quarter of 2012. This is due to the reduced contribution that government expenditure and alleviation of the tax and premium burden are making to the current economic recovery, which is in turn due to the implementation of spending cuts earlier in the current recovery than in earlier post-recession periods. Exports had the greatest effect on the growth in GDP in both 2009 and 2010. Government expenditure also contributed to growth in both these years, although as this is now being cut back increasing consumption and investments will need to provide for continued growth in 2011 and 2012.

Inflation and the government's cutbacks and increase in the tax and premium burden will be greater than the pay rises in 2010 and 2011, as a result of which spending power will decline by three-quarters of a per cent per annum in this and next year. Surprisingly enough, the crisis has had only a very small influence on the unemployment rate: the Netherlands, together with Austria, has the lowest unemployment rate in the euro zone. It is presumed that this favourable development is in part due to the reforms in the labour market institutions. The forecasts indicate a decline in the number of government jobs but an increase in the market sector during the coming years.

## 1.2 **General policy in the Netherlands**

The General Election in June 2010 was followed by 125 days of negotiations before the new government was formed. The Rutte-Verhagen government was sworn in on 14 October. This coalition government of liberals and Christian democrats is confronted with the difficult task of implementing spending cuts of a total of 18 million euros during its term of office. The 'Freedom and Responsibility' coalition agreement also resulted in a reduction of the number of ministries to eleven, which included the merger of the Ministry of Agriculture, Nature and Food Quality and the Ministry of Economic Affairs to form the Ministry of Economic Affairs, Agriculture and Innovation.

The government has opted to devote specific attention to the improvement of the business and economic climate for nine top sectors in which the Netherlands has acquired a powerful market and export position and in which there is excellent cooperation between the business community and centres of expertise. These nine top sectors include the agro-food, horticulture and propagating stock sectors. During the coming years the Ministry of Economic Affairs, Agriculture and Innovation shall make an amount of 50 million euros available to these two specific sectors, alongside the generic funds for the top sector policy (knowledge and innovation, and internationalisation). The business community and decentral government, where relevant, are also expected to



make a contribution in the form of co-financing. The precise allocation of the funds is still a subject of discussion between the business community, centres of expertise and government.

The coalition agreement has less favourable consequences for nature policy, an area in which the government intends to implement substantial cost savings: the National Ecological Network (EHS) is under particularly great pressure. The government intends to focus on Natura 2000, the network of valuable European areas. Approximately 45% of the EHS areas are also Natura 2000 areas. The prevailing international obligations are determinative, and as many supplementary national regulations as possible will be scrapped. The EHS, which was to encompass an area of 728,500 hectares in 2018, will be reduced in size and its development will be decentralised to the provinces. In addition, the focus shall be placed on the best possible management of land that has already been acquired. The State Secretary also perceives major roles for farmers, private individuals and land management organisations in the management of nature and the landscape. The implementation of the Natura 2000 and EHS policies shall need to ensure that sufficient space is available to enable farmers to expand their operations.

The coalition agreement also devotes explicit attention to animal welfare: the government shall advocate more stringent EU requirements for animal welfare which provides for the reduction of long-distance animal transports and the control of animal diseases by vaccinations rather than killing animals.

#### *Agriculture, nature and food quality in 2010*

The 2011 budget focuses on sustainability and innovation. The government also intends, in advance of the reform of the European agricultural policy, to reward farmers for their efforts in areas including landscape maintenance, animal health, animal welfare, and environmental and water management. In 2011, funds of 22 million euros have been made available for the promotion of animal and environmentally-friendly stalls and support for extensive weather insurance. The objective of these measures is to enhance the farmers' economic resilience. Farmers in areas of great landscape value and/or large areas of water will also be provided an additional premium. The mid term review of the EU's Common Agricultural Policy (CAP) has also made an additional amount of 145 million euros available for rural policy in the years from 2010 to 2013. The Netherlands intends to allocate these funds to rewards for farmers who implement specific measures in field boundary management, improvements to water and environmental quality, the reduction of environmental losses, innovation and generation of sustainable energy on their farms. The great interest in the support scheme for young farmers exhibited in 2010 resulted in the decision to increase the budget in 2011. This subsidy scheme, which was introduced several years ago and is financed by the national government and the provinces, provides assistance to young farmers who wish to modernise their farm but encounter difficulties due to the high costs they incurred in taking over the farm.

# Developments in the Dutch agricultural chains



## 2.1 The agricultural complex and food industry

In 2009, the entirety of economic activities associated with agriculture and food - the agricultural complex - corresponded to approximately 10% of the total national added value and national employment (Table 1). Just over half of these activities are, to a greater or lesser extent, directly related to agriculture and horticulture in the Netherlands.

	Gross value added <sup>a</sup> (EUR billion)		Employment (1,000 labour units)	
	2001	2009 (p)	2001	2009 (p)
<b>Agricultural complex <sup>b</sup></b>	40.6	50.7	719	692
<i>Share in national total</i>	10.2%	9.9%	10.8%	10.2%
Gardening, agricultural services and forestry	3.8	5.1	72	71
<i>Share in national total</i>	0.9%	1.0%	1.1%	1.1%
Foreign agricultural raw materials	15.3	21.0	227	236
<i>Share in national total</i>	3.8%	4.1%	3.4%	3.5%
Processing industry	6.6	9.5	74	66
Supply	4.0	5.1	69	72
Distribution	4.7	6.3	84	92
Agricultural complex (based on domestic agricultural raw materials)	21.5	24.6	420	385
<i>Share in national total</i>	5.4%	4.8%	6.3%	5.7%
Agriculture and horticulture	7.6	6.1	188	159
Processing industry	3.2	4.7	50	38
Input manufacturing	8.1	10.4	136	134
Distribution	2.6	3.3	46	54

p preliminary.

a In current prices;

b based on domestic and foreign agricultural raw materials (including gardening, agricultural services, forestry, cocoa, alcohol and tobacco).

Source: LEI.

The remainder relates to horticulturists, forestry and the supply and distribution of international raw materials. Employment offered by the agricultural complex, as based on national raw materials, decreased to 385,000 working years between 2001 and 2009. Pasture-based livestock farming remains the largest sub-complex within the agricultural complex based on national raw materials; this complex' contribution to added value of the agricultural complex based on national raw materials is about 30%, whilst its contribution to employment is about 34%.

A substantial part of the operations in the agricultural production column is related to export. The significance of this export to the added value of and employment in the total agricultural complex is a steady 65% in the period from 2001 to 2009.

The food and beverages industry was comprised of 4,225 businesses in 2008, all involved in some way in the production and sale of food and beverages. The industry has over 128,000 employees and a turnover of almost 67.5 billion euros. The majority of the companies in the food and beverages industry are small: almost half have no more than one to five employees. The number of companies with one employee has exhibited a particularly marked increase in the past five years, possibly due to the economic crisis.

## 2.2 Mergers and takeovers

A total of 40 transactions were completed in the food and beverages industry in 2010, as compared to 30 in 2009. The majority of the Dutch companies that were taken over were acquired by companies in the USA, UK and Germany. The majority of Dutch acquisitions are of companies in Belgium, Germany and the UK.

A number of transactions in the food and beverages sector drew a particularly great deal of attention. The Belgian Groep Vandemoortele took over the margarine and fats business of Van Dijk Food Products, in Zeewolde, in July 2010. Van Dijk Food Products is a member of the EFS Group, which is in turn part owned by the Bencis Capital Partners private equity company that has participating interests in medium-sized companies in the Benelux. Last year Remia took over De Marne's Fabrieken from the Gyma group, a French family company which is specialised in herbs, sauces and portion packs. Unilever enhanced its position in the ice-cream segment on the purchase of the ice-cream brands and distribution network of the Greek EVGA company. Nutreco completed just one takeover last year, a Vietnamese supplier of fish and shrimp feed which the company acquired for 12 million euros. This year Nutreco announced that it will accelerate the pace of takeovers, with acquisitions in China, Brazil and, once again, Vietnam. The first takeover has since been completed in China: Nutreco took over Shihai for 40 million euros. Shihai is a fish and shrimp feed company which recorded turnover of 65 million euros in 2010.

### *DSM is evolving into a food ingredient company*

DSM, originally a chemicals company, is evolving into a food ingredient manufacturer. The company, based in the Province of Limburg, had already completed a number of takeovers earlier in this segment which included the takeover of Gist-Brocades, in Delft, in 1998. DSM announced the purchase of the US Martek Biosciences Corporation in February 2011, a major producer of food ingredients with supplements that are used to enrich baby and diet foods. More than one-third of DSM's total turnover is now generated by its food ingredient operations. DSM sold DSM Agro, its nitrogen fertiliser manufacturing company, in 2010. Before the divestment of DSM Agro, DSM had been a major supplier to the Dutch and international agricultural and horticultural sectors. The concern had been the leader in the Dutch fertiliser market and was one of the major suppliers in Belgium, France and Germany. DSM Agro was acquired by Orascom Construction Industries (OCI), in Egypt, when it was renamed OCI Agro.

	<b>Turnover worldwide (mio euros)</b>	<b>Turnover the Netherlands (mio euros)</b>	<b>Total number of employees</b>	<b>Products</b>
1. Unilever	44,262	12,015 <sup>a</sup>	167,000	Food and beverages
2. Heineken	16,133	7,894 <sup>a</sup>	65,730	Beverages
3. VION Food Group <sup>b</sup>	9,600	n.a.	31,000	Meat, ingredients etc.
4. FrieslandCampina	8,972	2,291	19,484	Dairy products
5. Nutreco	4,938	554	9,913	Feed, fish food, meat
6. DSM	3,005 <sup>c</sup>	n.a.	7,409	Food ingredients
7. CSM	2,990	n.a.	9,664	Bakery supplies and lactic acid
8. Cosun	1,766	639	4,500	Potato products, alcohol, bio ethanol and ingredients
9. Wessanen	796	157	2,222	Whole food and snacks

<sup>a</sup> Western-Europe;  
<sup>b</sup> 2009;  
<sup>c</sup> total turnover 2010: 8,176 mio euro.

Source: Annual reports and company websites.

### *VION takes over bankrupt Weyl*

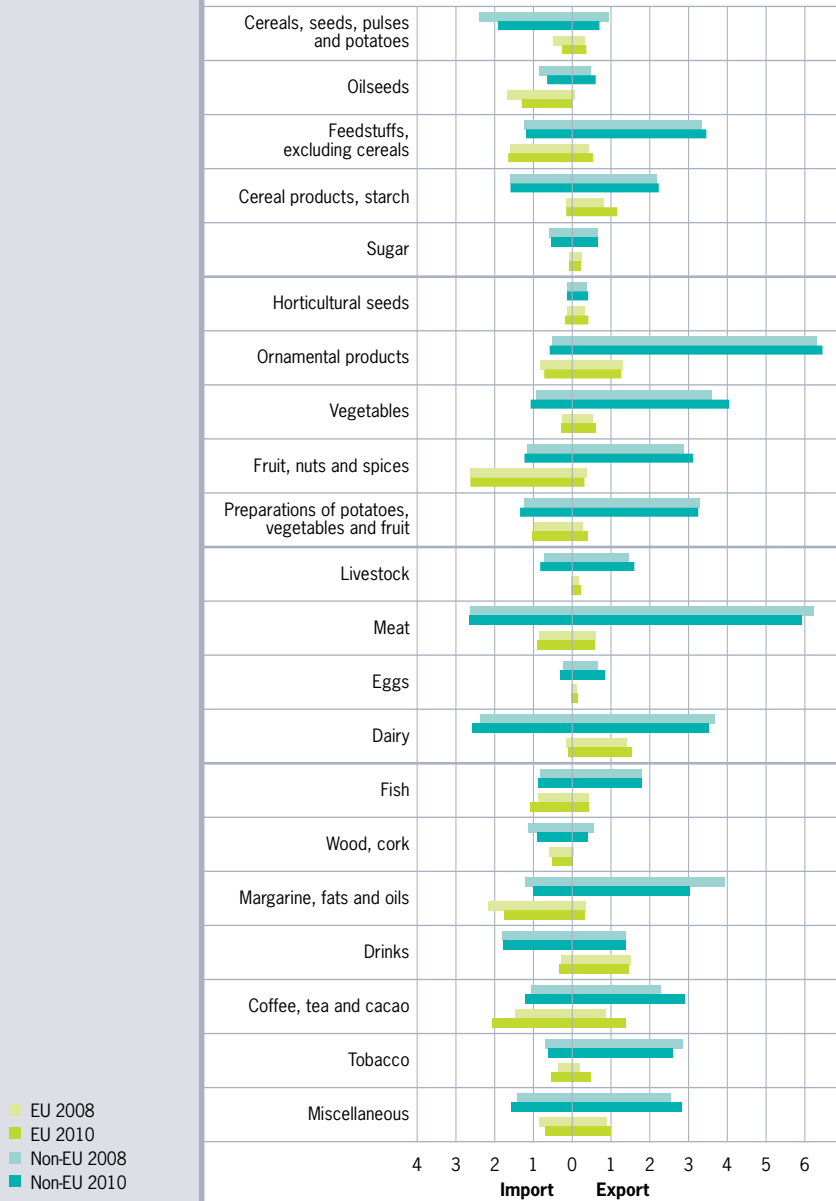
VION has become the owner of parts of the bankrupt Weyl Beef Products company. The European Commission did not lodge an objection to the acquisition. The Weyl family company, the Netherlands' largest beef producer and processor, had slaughtered a total of 5,000 exhausted dairy cows, beef cattle and veal calves a week. The company supplied its products to a number of European supermarket chains and was an important exporter of beef to Russia. McDonald's was also an important customer. VION's takeover of the former Weyl branch in Enschede constituted a restart, albeit on a limited scale for the time being. VION is one of the Netherlands' largest food companies, ranking third after Unilever and Heineken (Table 2).

## 2.3 **Export and import**

Following its rapid growth in 2010, the Dutch agricultural trading sector has recovered completely from the trough in 2009. Agricultural exports are actually above the 2008 level: exports rose to 66.4 billion euros, an increase of 10% from 2009. Agricultural imports increased by 9% to 41.0 billion euros, just below the 2008 level (41.3 billion euros). With this increase the agricultural balance of trade grew to 25.4 billion euros, two billion euros higher than in 2009. The growth in the value of agricultural trade was primarily due to the increase in prices from 2009.

Figure 1 shows the movements in exports and imports of all agricultural product groups during the period from 2008 to 2010. This reveals that some product groups had not returned to the 2008 level in 2010, in particular cereals, meat, dairy products and margarine/fats/oils: the value of exports of the last of these product groups actually fell by 43 million euros in 2010 as compared to 2009. Major export sectors such as cattle feed, ornamental plants and vegetables recorded an increase from 2008. The vigorous growth in exports of coffee, tea and cocoa is also striking. The value of imports in all product groups increased in 2010 from the level in 2009. However, imports of cereals, oilseeds, wood and margarine/fats/oils are substantially lower than in 2008. The recovery in exports of cattle feed recorded in 2010 is primarily due to the increased volume, whilst the increase in the value of ornamental plants is largely due to price effects. The increase in the value of exports of vegetables and cocoa is due both to price and volume effects.

Figure 1

**Dutch agricultural imports and exports by product with the EU and with third countries, 2008 and 2010 (billion euros)**


Source: Statistics Netherlands, calculations by LEI.

## 2.4 Retail and consumption

The retail of food and beverages recorded a 1.1% increase in turnover in 2010 as compared to the previous year: prices increased by 0.4%, whilst consumer purchases increased by 0.7%. The supermarkets exhibited a better performance than the total retail sector, the increase in turnover was 1.8%. Specialist food and beverage outlets had, as in previous years, to settle for less in 2010: they had to be satisfied with a 3.6% decline in turnover. In so doing, the supermarkets' lead over the specialist stores has increased further.

### *No future for smaller supermarkets*

The Netherlands has seven relatively large supermarket chains. A number of smaller supermarket chains are doomed to disappear: the forecasts indicate that the current twenty chains will ultimately be reduced to ten. Increases in scale and reorganisations have already resulted in a decline in the number of companies and branches in the past years. The number of stores is expected to continue to decrease in the coming years. Supermarket chains are increasingly simply shutting down unprofitable stores that cannot be sold. Full-service supermarkets with a gross floor area of less than 1,200 m<sup>2</sup> and insufficient parking facilities are encountering particular difficulty: 500 of these supermarkets are expected to close within the next five years. On average, the larger supermarkets achieve better results than smaller stores, as a result of which they have more scope for investments in the quality of the store.

Specialist shops, the counterpart of the supermarkets, have been experiencing difficulties for years. They are losing continually more of their market to the supermarkets, which benefit from consumer wishes to do all their shopping under one roof, what is referred to as one-stop-shopping. Supermarkets are also in a better position to accommodate changing consumer behaviour: they also benefit from their ability to lengthen their opening hours on weekdays and even on Sundays. The specialist shops which are doing well are the stores which focus on the upper end of the market: they distinguish themselves by the better quality products and service they offer.

### *Consumption*

Total household spending (excluding the hospitality sector) decreased by 3% to almost 263 billion euros in 2009. Expenditure on food and beverages amounted to a little over 39 billion euro, a share of nearly 15%. Household spending in the hospitality sector amounted to 13.2 billion euros in 2009.

Consumer expenditure on organic food amounted to more than 752 million euros in 2010, 13% higher than in 2009 (TF, 2011). The majority of this expenditure is on

potatoes, vegetables and fruit (almost 22%), followed by dairy products (more than 17%). However, in spite of this substantial growth expenditure on organic food accounted for less than 1.7% of the total consumer expenditure in 2009.

*Animal welfare – The Beter Leven ('Better Life') seal of approval:*

The Dutch government is of the opinion that the market players bear the primary responsibility for improvements in animal welfare. The Dutch *Dierenbescherming* (Animal Protection Society) focuses on endeavours to promote animal-friendly conduct and purchasing behaviour, pursuant to which the Society introduced its *Beter Leven* seal of approval in 2007. This seal of approval is awarded to products that take more account of animal welfare.

The seal of approval employs a system of stars: the number of stars increases with animal-friendliness. Products bearing a *Beter Leven* seal of approval offer a more animal-friendly alternative to consumers who are of the opinion that organic products are too expensive. This can result in large-scale improvements to animal welfare and, ultimately, the products could replace regular meat.

Consumer concerns about animal welfare are increasing and, consequently, the product range should accommodate this trend. Within this context associations with *Dierenbescherming* are appealing to supermarkets as is manifested by the continually increasing number of supermarkets that stock *Beter Leven* products. The number of products bearing the *Beter Leven* seal of approval has also increased sharply in recent years. A new method was recently introduced for the determination of the number of stars to be awarded to production systems, *Welfare Quality*, an instrument which makes a distinction between various levels of animal welfare on the basis of the animal's wellbeing. The use of an instrument that is endorsed by many in the scientific community responds to the objection that *Dierenbescherming* both defines the standard and monitors compliance.



# Countryside, landscape, nature and the environment



## 3.1. Rural area policy

In 2004, the government specified the country's rural area policy in its National Spatial Strategy and Agenda for a Vibrant and Dynamic Countryside (AVP). The National Spatial Strategy relinquishes much of the national government's control of spatial planning, enabling the provinces and municipalities to play a more autonomous and proactive role. The AVP combines and also delegates the policy objectives for the rural areas to the provincial level.

The National Spatial Policy and AVP are given shape in the Spatial Planning Act and the Rural Areas Development Act (WILG) that were both enacted in 2006. The AVP also serves as the basis for the Rural Area Investment Budget (ILG) which provides funds for a variety of subsidy schemes. The ILG funds are allocated on the basis of provincial multi-year plans for the period from 2007 to 2013.

The objective of the AVP is to improve both the quality of life in and the vitality (production and jobs) of the rural areas. The national government specifies the national targets and reaches agreement with the provinces on the performances to be delivered. The provinces bear the responsibility for the allocation of the budget and the achievement of the agreed performances.

The Rural Area Investment Budget, as laid down in the administrative agreements, amounts to a total of 5.6 billion euros. The national government contributes 3.6 billion euros of this total and the provinces and third parties contribute the remainder. The Rural Area Investment Budget also extends to co-financing that is not covered by the administrative agreement. The provinces make a total of almost two billion euros available for the rural areas and third parties contribute 2.7 billion euros. Part of the co-financing of the Rural Area Investment Budget measures is sourced from the EU's Rural Development Programme. The funds from this source amounted to some 70 million euros per annum in the period from 2007 to 2013.

The October 2010 coalition agreement lays down decisions to reduce the cost of the Rural Area Investment Budget and to implement a far-reaching decentralisation of the Rural Area Investment Budget, pursuant to which the provinces shall need to bear a larger proportion of the burden. The majority of the cutbacks, which amount to more than 600 million euros of the current provincial multi-year programme, target the nature

objectives. These account for the lion's share of expenditure: almost 2.9 billion euros has been reserved for the purchase and layout of the nature areas required for the implementation of the National Ecological Network (EHS). These cutbacks include the termination of the purchase of land for nature purposes. The Recreatie om de Stad ('Recreation around the City,' RodS) programme will also be terminated.

### 3.2 Spatial planning

Spatial planning became firmly embedded in the Netherlands in the 20th century as it was appreciated that it was necessary to adopt a prudent approach to the use of the limited space available in a densely-populated country: this was not an issue that could be left to the market. This in turn implied the retention of a strict spatial segregation between towns and land in the rural areas. The countryside was to be reserved for agriculture and recreation and would need to remain open. Although these objectives have not changed fundamentally, the field of forces in which they are to be achieved has changed: agriculture, although still by far the major user of land, plays a less dominant role in the rural areas. The public now has a greater influence, and in adopting the National Spatial Strategy the national government has taken a step back and assigned more of the decision-making to the municipalities and provinces. Environmental and nature interests play a more important role than in the past. The increases in scale in the agricultural sector also have consequences for the layout of the countryside: there is a demand for larger buildings, whilst farms that have terminated their operations leave vacant buildings that need to be assigned a new function. Farmers are exhibiting increasing interest in broadening and deepening their operations to encompass non-agricultural operations that in turn give cause to the need for new regulations. In conclusion, a number of rural areas are confronted with a declining population that in turn gives case to the need for new policy. The government's policy will need to find answers for all these developments.

#### *Layout of non-soil based agriculture*

The spatial policy for the intensive greenhouse horticulture and intensive livestock farming sectors has for some years focused on concentration, in part in view of nature and landscape considerations. The government has designated a limited number of areas for these sectors with the intention of reducing the consequences for the landscape and the environmental impact. The sector has the opportunity to achieve economic development in these areas of concentration (increases in scale and technical innovations), whilst farms outside these areas will be encouraged to relocate or close.

The intention is to aggregate greenhouse horticulture in three what are referred to as 'Greenports'. These accommodate more than 3,800 hectares of greenhouses, 38% of the total area of Dutch greenhouses. The Greenports are supplemented with 18 project

locations, smaller areas of concentration, distributed across the country. These are intended to serve as alternatives for horticulturalists who wish or are compelled to leave the Greenports and for holdings that need to seek an alternative location for some other reason.

The policy for the promotion of the concentration of intensive livestock farming was given shape in the Reconstructiewet Concentratiegebieden ('Concentration Areas Reconstruction Act'), 2002. This Act, originally intended for the layout of pig-free areas following the outbreak of swine fever in 1997, has become an instrument for the improvement of the spatial quality of the five provinces in which intensive livestock farms are concentrated. The objective of the Act is to provide for the feasibility of relocating farms from areas in which intensive livestock farming is regarded as undesirable (in particular, in the vicinity of nature areas, as well as near residential nuclei) and to counter the arrival or expansion of farms in these areas.

The aforementioned provinces are divided into twelve reconstruction areas, each of which is classified into one of three zones: extensification areas, in which intensive livestock farming is discouraged; interwoven areas, in which limited new farm development is feasible; and agricultural development areas, where livestock farmers are provided the space they need to modernize and expand their farms. Farms in extensification areas wishing to relocate to an agricultural development area are eligible for a relocation subsidy. Most of these farms are larger farms.

The reconstruction programme was incorporated in the Rural Area Investment Budget in 2007. Although progress in the relocation of farms would appear to be reasonable, the level of ambition is low. The development of the agricultural development areas has encountered serious difficulties. Firstly, and as was to be expected, land prices increase sharply in areas designated as agricultural development areas. This complicates the financing of relocations. Secondly, the designation of an area as an agricultural development area is always highly controversial and results in resistance from environmental groups and local citizen initiatives, in part due to the possible consequences of a high concentration of animals in one location for the landscape and public health.

However, and in spite of these problems, the spatial structure of the intensive livestock farming sector has improved. This improvement is not primarily due to the relocation of farms, but rather to the autonomous developments in the sector and to the manure and ammonia policy. The increases in scale have resulted in many farms terminating their operations and being taken over by others. The limitations imposed on production in the extensification areas have resulted in a larger proportion of these farms terminating their operations: expansions take place in the interwoven areas and the agricultural development areas. For this reason the natural process of increases in scale, with some control based on spatial policy, has resulted in a more favourable structure with only a limited number of relocations.

### 3.3 Landscape and nature policy

The Netherlands' nature policy changed course abruptly when the new government took office in October 2010. Firstly, in common with most other policy areas, major spending cuts are necessary. Secondly, the ambitions for the National Ecological Network (EHS) were adjusted downwards: although the EHS is still scheduled for completion in 2018, the scale will be smaller than was originally intended. Thirdly, the focus will shift towards nature management by farmers and other private landowners, whilst the government will reduce its purchases of land to the minimum. Fourthly, *Staatsbosbeheer* (the 'Dutch Forestry Service') will be required to sell land outside the EHS. However, the government does intend to retain the Natura 2000 objectives as these relate to an international commitment.

3

#### *Agricultural and private nature management*

The government also wishes farmers and private individuals to play a greater role in nature management. The provinces, which bear the responsibility for agricultural and private nature management, have made the necessary adjustments to their policy of promoting and encouraging the participation of private individuals. Nevertheless, the participation of private individuals (other than farmers) still falls far short of the target.

The area of agricultural nature management has declined in recent years. In 2009, some form of agricultural nature management was carried out on almost 62,000 hectares (net), an 8% decline as compared to 2007. The area of all types of management other than landscape management has decreased. The decline in pasture bird area management, the most important form of agricultural nature management (30,000 hectares in 2009), is largely due to the fall in individual management. This has in part been caused by the abolition of nest protection and the policy focused on the collective management of pasture bird areas.

### 3.4 Agriculture and the environment

The environmental load imposed by the Dutch agriculture has decreased substantially since the mid 1980s, despite the growth of production. This applies to the surplus of minerals, soil pollution caused by heavy metals, ammonia emissions and the use of pesticides. Emissions of greenhouse gases and fine particulates have declined to a much lesser extent. Fine particulates are, in particular, emitted by the poultry farming sector.

The targets for most of the environmental themes set from an ecological perspective have yet to be achieved and the agricultural sector's share in the various forms of environmental impact is still relatively large. The agricultural sector's relatively large share is largely due to the nature of the production process, i.e. the use of the soil as a means of production, production in the open air and the large number of animals.

For example, the agricultural and horticultural sector was responsible for about 40% of acidification emissions and approximately 15% of greenhouse gas emissions in 2009 much higher than the sectors' less than 2% contribution to national income. For the purposes of a comparison, in about 1990 the agricultural and horticultural sectors accounted for approximately the same contribution to acidification emissions and greenhouse gas emissions as in 2009. Consequently, the sector has exhibited a performance that is no better or worse than other sectors.

### *Crop protection agents*

The Dutch agricultural and horticultural sector's total consumption of crop protection agents was more than 21 million kg active ingredient per annum in the second half of the 1980s (Table 3), an amount which had fallen to approximately 10 million kg in the years around the turn of the century. As a result, the target – a 50% reduction between 1984-1988 and 2000 – specified in the 1991 *MeerjarenPlan-Gewasbescherming* ('Multi-year plan for crop protection', MJP-G) had largely been achieved. Consumption increased again after 2000, and has fallen since 2007. In 2009, the total consumption was about 10% lower than in 2008 – and no less than 20% lower than in 2007. However, the consumption was still – slightly – higher than in around 2002, when fewer crop protection agents were available.

Until in the years around the turn of the century the focus was largely on the reduction of the use of chemical agents: however, nowadays the emphasis has shifted primarily to the reduction of the environmental impact. The environmental impact has declined sharply, in spite of the approximately unchanged use of crop protection agents, in particular in the years around the turn of the century. The calculation of the environmental impact does not take account of greenhouse horticulture emissions: recent studies have indicated that these emissions have a much higher environmental impact than had previously been assumed. Estimates indicate that approximately one-quarter of the reduction of the environmental impact is due to the gradual introduction of agents with a lower environmental impact and the prohibition of older agents with a high environmental impact. Three-quarters of the reduction has been achieved by modifications in the operations, such as equipment that reduces emissions and the introduction of cultivation-free zones alongside ditches.

### *Use in the Netherlands, in spite of the great reduction, is still relatively high*

OECD figures indicate that the Dutch consumption of chemical crop protection agents amounted to an average of almost 5 kg active ingredient per hectare of cultivated land in 2005. This is a relatively high level as compared to other countries. In the EU, only Italy has a higher consumption – 5.8 kg per hectare. The Belgian consumption of about 4.4 kg is similar to that in the Netherlands, but the consumption in countries such as France (2.5 kg), Germany (1.7 kg), Denmark (1.2 kg), the UK (2.0 kg) and Austria

(1.0 kg) is much lower. The US consumption is even lower, at 0.7 kg per hectare. Conversely the consumption in Japan, with its highly-intensive rice cultivation, is much higher: 12.3 kg per hectare (all the above figures are based on OECD data).

However, the extent to which these figures are comparable is debatable. Some countries, for example, have large areas of extensive grassland that lower the average use per hectare of cultivated land. The comparison is more favourable when, as in practice in the Netherlands, grassland is not taken into account: although the Netherlands' use per hectare is then about double the figure determined using the OECD's method of calculation, the difference will be much greater in many other countries. A comparison at crop level would be even better. However, very few comparable data are available. In addition, account should be taken of the degree of the environmental friendliness – or environmental unfriendliness – of the agents used in the various countries.

The Netherlands' relatively high consumption of chemical agents is in part due to the intensity of the production, which is accompanied by relatively high yields per hectare, and to the composition of the production package. The major contribution made by the horticultural sector – and, in particular, the ornamental plant sector – increases the average use per hectare: for example, the use in chrysanthemum cultivation is between 40 and 50 kg per hectare and in rose cultivation about 70 kg. The higher use on crops such as potatoes and onions (10 to 20 kg per hectare), which are cultivated on much larger areas than those used for horticultural produce, also contributes to a higher general average.

	1995	2000	2004	2005	2008	2009
Use of crop protection agents (in million kg of active substance)	12.61	11.38	10.66	10.7	10.77	9.71
Greenhouse gas emissions (in billion kg CO <sub>2</sub> equivalents)	33.2	29.1	27.1	27.0	31	31
Supply of nitrogen (N, kg per hectare)	472	394	351	344	323	323
Supply of phosphates (P <sub>2</sub> O <sub>5</sub> , kg per hectare)	140	125	102	108	92	91
Ammonia emissions <sup>a</sup> (in million kg)	188	145	123	122	109	108

<sup>a</sup> Due to methodological changes all figures relating to the emission of ammonia have been revised, starting with the year 1990.

Sources: Plant Protection Service; RIVM/CBS (Statistics Netherlands), Milieucompendium, various years.

### Greenhouse gas emissions

In recent years, the Dutch agricultural and horticultural sector's total emissions of greenhouse gases amount to approximately 31 million tonnes of CO<sub>2</sub> equivalents per annum. Only one-quarter of these emissions are CO<sub>2</sub> as such. Greenhouse horticulture accounts for the majority of these emissions. The remaining three-quarters of

greenhouse gas emissions are comprised of methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). Ruminants account for most of the methane emissions and manure/fertiliser for the majority of nitrous oxide emissions. The agricultural and horticultural sector's emissions of greenhouse gases increased until around the mid 1990s and then decreased until about 2006.

When viewed from a slightly longer-term perspective, the agricultural sector has made a more than proportional contribution to the reduction of greenhouse gas emissions. National emissions fell by almost 6.5 million tonnes of CO<sub>2</sub> equivalents (-3%) in the years between 1990 and 2008, about half of which was due to reductions by the agricultural and horticultural sector. The agricultural and horticultural sector's emissions have increased slightly again in recent years, in part due to the renewed growth in the number of livestock. Consequently, the agricultural and horticultural sector's share of the total emissions of greenhouse gases is increasing again, in part due to the relatively great reduction in emissions by other sectors as a result of factors including the slowdown of the economy. However, the figures are to some extent distorted by the greenhouse horticultural segment's increased generation of electricity. About 80% of the primary agricultural sector's CO<sub>2</sub> emissions originate from greenhouse horticulture. Although greenhouse horticulture emissions fell slightly during the period from 1990 to around 2005, emissions have increased again in recent years. This increase is not due to the cultivation of greenhouse horticultural produce as such: on the contrary, emissions originating from these operations have declined in recent years other than in 2000. The increase can be attributed to the growing production of electricity using co-generation plants. However, when viewed from a national perspective total emissions are reduced since other electricity producers emit lower amounts of CO<sub>2</sub>. In 2009, this effect was estimated to amount to 2.2 million kg CO<sub>2</sub>. The co-generation plants, installed at more than 60% of the total greenhouse area, are used to generate both electricity and heat. Much of this heat is used by the holding. This combination results in a greatly improved efficiency as compared to traditional power stations, which produce a large amount of largely unutilised waste heat. However, the current co-generation plants suffer from the disadvantage of fairly high methane emissions. This, in addition to the growth in the number of livestock, is the cause of the agricultural sector's increasing methane emissions.

#### *Manure and mineral production*

The Dutch livestock population's production of manure and minerals decreased by more than one-quarter in the period from the mid 1980s to around 2005, in particular due to the effects of milk quotas and the manure policy. The almost 95 million tonnes of manure that was produced in 1986 declined to less than 70 million tonnes in 2007, about the same level as in around 1970. The reduction of the mineral content has resulted in a sharper decrease in mineral production – and a reduction of mineral production was the objective

of the measures – than in the volume of manure. Manure production has increased again slightly in the last couple of years due to the modest growth in the number of livestock.

When viewed from a longer-term perspective the use of fertiliser has more than halved from 250 kg nitrogen per hectare in 1986 to 120 kg in 2009, and from 41 kg phosphate per hectare in 1986 to 14 kg in 2009. The decline in the use of phosphate fertilisers accelerated in the years after 2006 following the introduction of new standards.

These developments have resulted in the decline in the surplus – the difference between supply and removal – of nitrogen from more than 260 kg per hectare in the middle of the 1980s to 115 kg in 2009. During this same period the decline in the phosphate surplus was even sharper, namely from more than 100 kg per hectare to approximately 20 kg. The target for phosphate is to achieve equilibrium fertilisation, pursuant to which a surplus of a number of kg per hectare is acceptable. Consequently, this target has yet to be achieved.

The utilisation of minerals has increased sharply. When viewed from a national level perspective, more than half of all nitrogen supplies had remained unutilised in 1986. However, by 2009 this figure had fallen to just 35%. The improvement achieved with phosphate is even greater: the almost 60% loss recorded in 1986 has now fallen to less than 30%. Consequently, it can be concluded that much more economical use is made of minerals.

The agricultural sector's emissions of ammonia were roughly halved during the period from the beginning to the end of the 1990s. This decline was largely due to the compulsory low-emission application of manure and the reduction in the number of dairy cows. The agricultural sector's emissions of ammonia decreased by one-quarter in the years between 2000 and 2009, to 108 million kg. The decrease in 2008 and 2009 was largely due to the prohibition on double applications of animal manure that came into force at the beginning of 2008. Alternatives such as a single application of manure and manure injections reduce emissions as compared to double applications of manure that are then ploughed under.

Grazing animals account for a total of 55 million kg of ammonia emissions, pigs for 26 million kg and poultry, rabbits and fur-bearing animals for 17 million kg. The agricultural sector's use of fertiliser accounts for a further 10 million kg of ammonia emissions. A breakdown by source of emissions reveals that the emissions from stalls and manure storage amount to 57 million kg, the application of animal manure to 40 million kg and grazing to more than 1 million kg.

Pursuant to the prevailing EU National Emission Ceilings (NEC) Directive, the Netherlands' total ammonia emissions may not exceed 128 million kg in 2010. Recent calculations indicate that in 2009 the total ammonia emissions amounted to 126 million kg. The agricultural sector accounts for about 85% of the country's ammonia emissions. Consumers, industry, the power supply sector and refineries, trade, services, the government and traffic account for the remaining 15% or almost 18 million kg.



# Structure of the primary agriculture and horticulture sector



## 4.1 Number of holdings and employees

The number of agricultural and horticultural holdings declined by one-quarter during the past ten years, from about 97,000 to 72,000 (Table 4). The rate of the decline increased with the sector's intensity of operations and independence from soil cultivation: for example, the number of greenhouse horticultural holdings was halved, whilst the reduction in the number of arable farms was limited to one-fifth. During this same period the number of combined holdings also fell by half, an indication that the trend towards segregation and specialisation is still continuing.

	2000	2005	2009	2010	Change (%) 2009-2010
Number of agricultural and horticultural farms <sup>a</sup> (x 1,000)	97,389	81,750	73,008	72,234	-0.9
Number of workers (x 1,000)	280.9	235.7	218.0	212	-2.7
Area of farmland <sup>a</sup> (x 1,000 ha)	1,975.5	1,937.7	1,917.4	1,872.3	-0.3
<p><sup>a</sup> Due to changes in the census and methodological changes the figures in this table cannot be compared against previously published data.</p> <p>Source: CBS (Statistics Netherland) agricultural census, processed by LEI.</p>					

During the past year the decline in the total number of agricultural and horticultural holdings was limited to 1%, as compared to an average 3% annual decline in the years between 2000 and 2010. This would appear to confirm that the credit crisis and the associated deterioration of the economy can result in a slight slowdown in the decrease in the number of holdings.

The number of greenhouse horticultural holdings once again fell sharply during the past year, in part due to the poor operating results in recent years and the trough in 2009. This has not yet resulted in a large number of bankruptcies. Forced closures due to bankruptcy remain a marginal phenomenon in the agricultural and horticultural sector. However, in relative terms the number of bankruptcies has increased sharply from an average of less than 50 a year in the period between 2000 and 2008 to more than 90 a year in the past two years. The peak was in the second half of 2009 and the first quarter of 2010.

### *Organic farming*

Organic farming has increased gradually in the Netherlands in recent years: the area increased by 4% to 54,000 hectares in 2010, close to the government's target of an annual growth of 5% to result in an area of 57,000 hectares in 2011. On balance, the number of certified holdings increased by about 50 (3.5%) to 1,462, i.e. 90 holdings that commenced and 40 holdings that terminated organic farming. Interest in organic farming could increase further in the coming years following the sharp increase in sales of organic produce.

### *Labour*

The number of jobs provided by the primary agricultural and horticultural sector, expressed in terms of employees working on a regular basis, has declined by one-quarter since the turn of the century from 281,000 to the current 212,000. During this same period, on balance the decline in the number of family workers was in proportion to the number of permanent employees, as a result of which the latter group's share of the total number of employees working on a regular basis has remained unchanged at 30%. The number of permanent employees fell particularly sharply in the past two years, after a growth in a number of years, by about 12,000 employees (-17%) to 60,000.

This decline has in part been compensated by an increase in flexible labour. The horticultural sector, in particular, calls in temporary employees to assist family members and permanent employees. These temporary employees include students, housewives and workers from Central and Eastern Europe. These temporary employees can be employed by the holding or contracted from third parties, usually temporary employment agencies. Estimates indicate that the country's horticultural holdings employed about 39,000 temporary employees in 2010, and that they contracted approximately 34,000 employees in October/November 2010. The figure for this last group is a snapshot, since the number fluctuates greatly during the year due to the seasonal nature of the work.

## 4.2 **Land**

In 2010, the National Service for the Implementation of Regulations modified the plot register – maps showing the land used to cultivate crops – to comply with the European regulations. Henceforth these maps will record the cultivatable area rather than the former gross area. As a result, ditches, wooded banks and rows of trees are no longer included. The substantial decline in the area of cultivated land in the past year, a fall of 45,000 hectares (-2.3%), is virtually entirely due to the change in the method used to keep the records.

Prior to this change in the records the area of cultivated land had decreased by an average of 6,500 hectares per annum (-0.3% per annum) in the years between

2000 and 2009. The majority of this decline was in the area allocated to arable farming: conversely, the area allocated to green fodder crops (virtually entirely green maize) and open-field cultivation increased. 53% of the total of almost 1.9 million hectares of cultivated land is now in use as grassland (permanent, temporary and natural grassland), 13% for green fodder crops, 29% for other arable land, 5% for open-field horticulture and 0.5% for greenhouse horticulture. This breakdown differs little from that in 2000.

Following three years in which the price of agricultural land increased sharply the price remained roughly unchanged in 2010, at 47,000 euros per hectare. It is expected that the fall, in particular, public demand for agricultural land will impose pressure on the price of agricultural land in the coming years. The recent rapid increase in the price of land is primarily due to the plans for the abolition of the milk quotas in 2015. In the years since 2006, when it became clear that this abolition would actually take place, the price of the milk quota – the right to produce milk – has halved. The margin on an extra litre of milk hidden in the production right has since shifted to the scarcest means of production, land.

#### 4.3 **Development in number of animals and animal welfare**

The total number of beef cattle remained virtually unchanged in the past year (Table 5), after two years in which the number had increased by a total of 5% due to the widening of the milk quotas. The rapid decline in the number of pigs and chickens between 2001 and 2003 due to two buy-up schemes (*Regeling beëindiging veehouderijtakken*, Termination of Livestock Farm Branches Scheme) and the outbreak of avian flu has been followed by a recovery. The outbreak of Q fever and the following killing of goats resulted in an almost 6% decrease in the number of goats between May 2009 and May 2010.

##### *Pasture grazing in the dairy farming sector*

Pasture grazing assumes a prominent position in discussions on animal welfare in the dairy farming sector. Pasture grazing offers dairy cattle the greatest opportunity to exhibit their characteristic behaviour. Pasture grazing is also beneficial to the appeal of the landscape, ammonia emissions and, last but not least, the image of the dairy farming sector. However, in practice the number of dairy cattle kept permanently in cowsheds is increasing at the expense of unlimited pasture grazing. In 2009, some 28% of cows were kept in the cowsheds throughout the year, slightly higher than the percentage of cows offered unlimited pasture grazing (27%). Larger dairy farms make less use of pasture grazing than smaller farms, in part due to restricted farm plots. Larger farms also have a larger number of cows per hectare: keeping their cows in the cowsheds enables them to optimise their feed and mineral management.

### Importance of an animal-friendly cowshed

In addition to pasture grazing, an appropriately layout of the cowshed is of essential importance to animal welfare since the cows do not leave the cowshed throughout the long winter months. However, many cubicle cowsheds do not have an optimum layout from an animal welfare perspective: the hard and slippery floors result in a large number of hoof and movement problems. The cowsheds often suffer from a lack of space and the cubicles are too confined. Larger farms make less use of pasture grazing but are often equipped with more modern and animal-friendly cowsheds.

One of the most important spearheads of Dutch animal welfare policy is the development of new, integral and sustainable stall systems. This relates to 'stalls and livestock systems that achieve additional improvements in animal welfare by the implementation of measures that go further than the statutory welfare standards, which also comply with at least other social preconditions and statutory requirements governing the environment, animal health and working conditions and are economically feasible'. At the end of 2011, 5% of the livestock sector's stalls must be integral sustainable stalls. On 1 January 2011, this was applicable to 2.3% of the stalls in the dairy farming sector, the lowest score of all sectors. The average for the entire livestock sector was 3.4%, with peaks of 5.1% in the pig-farming sector to 8.6% in the poultry farming sector.

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	Number of animals				Difference (%) 2009-2010
	2000	2005	2009	2010	
<b>Cattle, total</b>	<b>4,069</b>	<b>3,799</b>	<b>3,968</b>	<b>3,975</b>	<b>0.2</b>
Of which dairy cows	1,504	1,433	1,489	1,479	-0.7
heifers	1,335	1,154	1,245	1,247	0.2
beef cows	447	382	339	322	-5.0
beef calves	783	829	894	928	3.8
<b>Other grazings animals</b>	<b>1,601</b>	<b>1,785</b>	<b>1,636</b>	<b>1,625</b>	<b>-0.7</b>
Of which sheep	1,305	1,361	1,117	1,130	1.2
goats	179	292	374	353	-5.6
horses and ponies	117	133	145	143	-1.4
<b>Pigs, total</b>	<b>13,118</b>	<b>11,312</b>	<b>12,186</b>	<b>12,255</b>	<b>0.6</b>
Of which sows for breeding	1,129	966	985	984	-0.1
piglets	5,102	4,563	5,068	5,124	1.1
fattening pigs	6,505	5,504	5,872	5,904	0.5
<b>Poultry, total</b>	<b>104,015</b>	<b>92,914</b>	<b>96,859</b>	<b>101,248</b>	<b>4.5</b>
Of which laying hens	32,573	30,513	34,557	35,310	2.2
broilers	50,937	44,496	43,285	44,748	3.4

Source: Statistics Netherlands.

# Production and income development



## 5.1 Production and income development in the agricultural and horticultural sector

The primary Dutch agriculture and horticulture sector's gross production value of 24.5 billion euros in 2010 was almost 10% higher than in 2009. This increase is primarily due to increased prices, the production volume rose by 1%, in particular as a result of the growth in the production of the horticultural and cattle farming sectors.

The horticultural sector, with an almost 40% share of the production value, is the largest segment in the total agricultural and horticultural sector. The share of the livestock farming sector, comprised of the intensive and pasture-based livestock farming segments, was virtually the same in 2010. The share of the arable farming sector increased to almost 3 billion euros, virtually the same as that of the "Other agriculture" sector that is primarily comprised of agricultural contractor companies.

The cost of purchases of goods and services increased less than the increase in production value in 2010, since the price increase in the means of production (2%) was less than that of agricultural produce. This was in part due to the relatively large proportion of goods and services with prices that follow inflation. The price of mixed feeds, one of the purchased goods that does exhibit a pronounced annual fluctuation in prices, increased by about 5%. The increase in the price of forage was considerably in excess of 5%, as a result of which the cost of purchased feed increased by almost 10%. The 2010 energy prices were below the levels in 2009, although there are major differences between holdings.

The gross added value increased by almost one-quarter. Since the depreciation charges remained unchanged and the factor costs (wages, interest charges and leases) decreased slightly the remaining income amounted to almost three billion euros in 2010, significantly higher than the average in the past ten years and an evident improvement after two years in which the income in the entire agricultural sector was just above one billion euros.

## 5.2 The results of the average agricultural and horticultural holding

The operating income from the average agricultural and horticultural holding fell to a trough in 2009, as viewed from the turn of the century. The low level of incomes in 2009 was primarily due to the low yield prices of many important products. The deterioration of

incomes in the agricultural and horticultural sector in 2008 and, in particular, in 2009, demonstrates that the agricultural sector is also sensitive to the general condition of the economy. The global credit crisis had an evident detrimental effect on sales and, in particular, exports of agricultural produce: the Dutch agricultural and horticultural sector is especially dependent on exports.

The level of income forecast for 2010 indicates a significant recover as compared to 2009. The prices of a number of important agricultural and horticultural products have increased significantly, by an amount in excess of the increase in production costs. The pig and poultry farming sectors are the sole exceptions to the general trend. However, the recovery of incomes in 2010 is of a level such that the average agricultural and horticultural holding has attained a fairly high income that falls only just short of the favourable results recorded in 2006 and 2007, the best years to date after the turn of the century (Table 6).

<b>Table 6</b>		<b>Results (x 1,000 euros per holding) on the average agricultural and horticultural holding, 2001-2010</b>			
		<b>2001-2005</b>	<b>2008</b>	<b>2009</b>	<b>2010 (p)</b>
Gross returns	(+)	275.0	395.5	381.8	418.8
of which agricultural production (%)		95.0	90.7	89.0	89.6
subsidies (%)		3.2	4.9	5.6	5.2
secondary activities <sup>a</sup> (%)		1.8	4.4	5.5	5.2
Paid costs and depreciations	(-)	239.1	360.7	366.1	374.1
Special benefits and charges	(+)	1.3	0.9	-0.8	-0.8
Operating income	(=)	37.1	36.0	15.1	44.1
Idem per unpaid labour force unit		25.9	24.9	10.5	30.0
Income from outside the farm	(+)	11.8	12.5	23.0	19.9
of which labour		5.7	9.0	9.9	9.9
other income		6.1	3.5	13.1	10.0
Total income	(=)	48.9	48.5	38.2	64.1
Taxes	(-)	3.5	7.2	4.0	4.0
Family spending	(-)	37.2	48.3	47.2	46.0
Savings	(=)	8.1	-6.9	-13.0	14.0

Source: Farm Accountancy Data Network.

The operating income is largely determined by the revenue from agricultural and horticultural produce and the costs incurred in their production. Some of the income also derives from the proceeds from the broadening of the operations and subsidies received by the holdings. The majority of the subsidies originate from the European farm payments. The percentage contribution these other sources of income make in years with poor operating results, such as in 2009, is slightly higher than in better years such as 2010 (Table 6).

The agricultural and horticultural sector exhibits a wide variation in each year's operating income, in part due to differences in the size and structure of the holdings. The income of the large holdings, in particular, can fluctuate greatly from year to year. The income margin, the difference between revenue and costs as a percentage of revenue, of these holdings is in general much lower than that of the smaller holdings that deploy their own labour and capital.

#### *European farm payments are of great importance to incomes*

The European farm payments are an important element of the operating income of many holdings. On average these payments, together with other subsidies, accounted for almost half of the income of agricultural and horticultural holdings in 2008. The contribution increased further in 2009, due to the decline in operating income, to more than 120%. In other words, without the payments and subsidies – which amount to an average of 5% of revenue or 19,000 euros per holding – the average operating income would have been in the red in 2009.

The extent to which the operating income is dependent on payments and subsidies varies greatly between holdings. The operating income of holdings that received more than 10,000 euros in the form of payments and subsidies in 2009, more than half of all holdings, would have been significantly in the red in that year in the absence of the payments and subsidies. The revenue of the group of holdings that receive more than 50,000 euros in the form of payments and subsidies is about double that of the average holding. Nevertheless, on average the income of this group is lower than that of the other groups. The payments and subsidies received by this group of holdings exceed their operating income by a factor of more than eight.

The majority of the large holdings (as determined in terms of the standard output, the groups from 500,000 euros upwards) do not receive any subsidies or farm payments. This is because the large majority of the biggest holdings are horticultural holdings (green house horticulture and open-field horticulture) or intensive livestock farms (pigs and poultry). The majority of the farm payments are received by dairy farms and other grazing animal farms, arable farms and combined arable/livestock farms. More than half the holdings that receive more than 10,000 euros are dairy farms and a further approximately 20% are arable farms.

### 5.3 **Balance sheet development and financing of the largest holdings**

The balance sheet total of the 25% largest agricultural and horticultural holdings increased by an average of 43% between 2004 and 2009, to 3.8 million euros. For the purposes of a comparison the balance sheet total of the average agricultural and horticultural holding amounted to 2.5 million at the end of 2009. The balance sheet total of the largest holdings, 5.8 million euros, is the highest in the greenhouse horticultural

sector (Table 7). This sector has also exhibited the greatest increase in balance sheet total during the past five years, largely due to the increases in scale.

	Dairy		Pigs		Arable		Glasshouse	
	2004	2009	2004	2009	2004	2009	2004	2009
Size of holding (SO x 1,000)	356	431	764	993	342	374	1,539	2,191
Equity capital	2,400	2,750	1,251	1,540	2,156	3,180	1,485	1,634
Loans	989	1,564	886	1,652	785	1,113	1,460	3,551
Debt capital	558	428	289	419	106	123	347	628
<b>Balance total</b>	<b>3,947</b>	<b>4,743</b>	<b>2,426</b>	<b>3,610</b>	<b>3,047</b>	<b>4,416</b>	<b>3,292</b>	<b>5,813</b>
Solvency ratio	70	63	55	45	72	73	45	28

Source : Farm Accountancy Data Network.

The 25% largest holdings received more financing in 2009 as compared to 2004 (Table 7), which is reflected in the movement in the solvency ratio and the ratio of equity to total capital. The solvency ratio of all sectors other than the arable farming sector declined sharply. The equity of the largest arable holdings has increased by 1 million euros during the past five years due to the increase in the value of assets, primarily land, and the formation of reserves (savings) that were made feasible by the reasonable operating results. The growth in the equity of holdings in the other sectors was limited to several hundreds of thousand euros. The decline in the value of the milk quotas in the years since 2006 plays a major role in the dairy farming sector. Nevertheless, the solvency ratio of 63% remains at a reasonably high level.

The contribution land makes to the balance sheet total is smaller in the pig farming and greenhouse horticultural sectors than in the arable farming and dairy farming sectors, as a result of which the contribution the increase in the value of land makes to their equity is smaller. The equity of holdings in these sectors is greatly dependent on the operating results. The poor operating results of the past few years prevented these holdings from forming reserves. The outstanding amounts of long-term loans to holdings in the pig farming and greenhouse horticultural sectors have increased by more than 700,000 and two million euros respectively in the past five years. As a result, the solvency ratio of holdings in the pig farming sector has fallen by 10 percentage points to an average of 45%. No improvement in income was recorded in 2010, and the prospects for 2011 are not favourable. In view of the investments that will need to be made in the coming years to comply with the future welfare requirements it is clear that the holdings' average equity is too restricted.

The fall in incomes in the greenhouse horticultural sector to a dramatically low level in 2009 has resulted in the deterioration of the holdings' financial strength: their average solvency ratio had declined to just 28% at the beginning of 2010. This in turn makes



these large holdings vulnerable in the coming years, since their ability to absorb fluctuations in the operating results has been greatly reduced. The banks have adopted a solvency ratio of at least 25% as a criterion for their assessment of new applications for loans for expansion or other investments.

### *Transfer of large holdings*

Larger agricultural and horticultural holdings more often have a successor than the smaller holdings. The major impediment to the transfer of large holdings is their high value as compared to the returns. The agricultural and horticultural sector's return on assets is low due to the low operating income as compared to the locked-up capital. As a result, the price for the takeover of the holding exceeds the return on investment to an extent that prevents the successor from generating sufficient income in the future. The successor's takeover of the holding then offers prospects solely when the holding is taken over for an amount far below the market value – which is then to the detriment of the capital the parents have accrued for their pensions. 'Gifts' to successors are becoming less self-explanatory due to the increasingly business-mindedness of family members, certainly when large sums are involved.

In view of the large amounts involved in takeovers, this then gives rise to the question as to how potential successors can accrue sufficient capital and loans to take over a modern large holding. Entrepreneurs will need to give consideration to the manner in which they can increase the operating return to the level needed to finance the transfer of the holding. These considerations should also extend to a search for new solutions in the form of steps in financial development that render the takeover of holdings of this size a feasible proposition. To what extent could parties other than banks and family members, such as links in the chain, the government and venture capital companies, be involved in the financing? To date the venture capital companies have shown little willingness to make capital available to agricultural and horticultural holdings.

# Definitions

## Standard output (SO)

The standard output (SO) is a new criterion for the economic size of agricultural holdings. The SO is the standardised average annual output (in euros) per hectare or animal generated by the crop or animal category. Farm payments and subsidies are not included in the standards. The SO is revised at regular intervals within the context of the EU typology. The 2004 price level is applicable to the years from 2000 to 2009, and the 2007 price level (based on the years from 2005 to 2009) to 2010 and successive years. A revision of the price level can result in shifts of holdings between size classes and types of holdings.

## 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.

## Total income

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



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