Agricultural Economic Report 2014

Summary

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ABSTRACT

AGRICULTURAL ECONOMIC REPORT 2014 OF THE NETHERLANDS: SUMMARY
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This report offers an English summary of the *Landbouw-Economisch Bericht 2014*. 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 2014* 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 2014 Dutch edition of the report was completed in May 2014.

The Hague, July 2014

The Director,

Ir. L.C. van Staalduinen

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The international context of the Dutch agricultural sector

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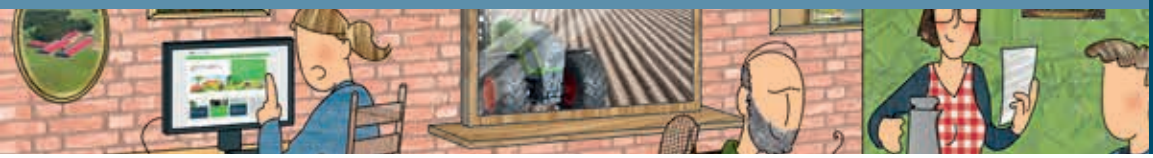


1.1 Global economic developments

The cautious recovery of the global economy which began in 2013 seems likely to continue, according to the IMF in its update of the *World Economic Outlook*, published in April 2014. This growth primarily originated in the developed countries. In particular, the economy of the United States is showing significant improvement, in part because of strong growth in export and recovery in the property market. The IMF also predicts that the American economy will continue to recover in 2015.

The economy of the eurozone is improving, primarily thanks to Germany, where 1.7% growth, well above the eurozone average, is expected over 2014.

The prognoses for developing economies are also good, although the growth figures are noticeably lower than in 2010 and 2011, for instance. These expectations are due in part to the devaluation of these countries' currencies and growing demand from developed countries. The only countries where slower growth is expected are China and Japan. In China, growth is expected to slow down because lending will be curbed and there will be greater focus on more balanced and sustainable economic growth. One of the effects of this increased focus will be stricter environmental laws affecting businesses. The slower growth in Japan is the result of more stringent tax laws, including an increase to consumption tax.

1.2 The Netherlands

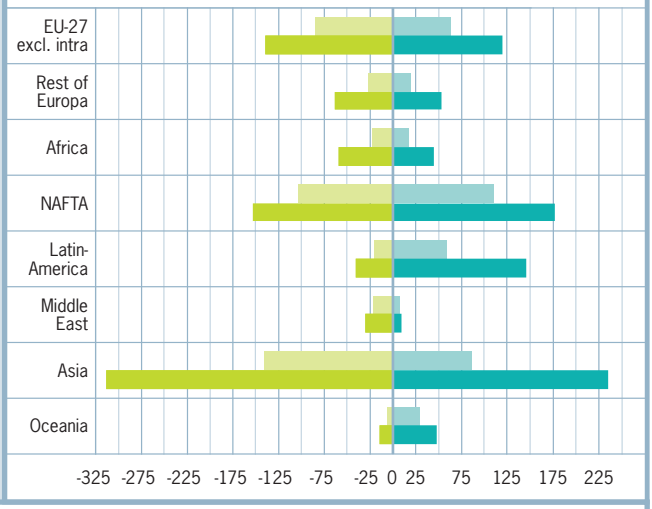
The Netherlands is seeing modest economic recovery. However, extravagant growth is not expected; the Dutch economy has not yet thoroughly recovered from the financial crisis. For instance, it is expected that 2014 will see growth of 0.75%; in 2015 this will increase to 1.25%. The fact that foreign trade is improving is acting as the motor behind the growth, but domestic spending - particularly investments on the part of businesses - has also contributed in 2014. It is expected that consumer spending will increase slightly in 2015, after years of shrinking. Inflation will remain low, at 1.5%. Unemployment will go down slightly in 2015 in comparison to 2014, but at 7% of the workforce, it is still high.

1.3 Trade in agricultural products

In recent years, Asia has become the most important player on the agricultural product market. This includes both export (in which Asia's share is more than 28%) and import (in which Asia's share is more than 38%). Asia has the largest import balance, at more than 78 billion euros, and Latin America is the most important net exporter, with a trade surplus of nearly 105 billion euros.

The share of both the EU and the NAFTA countries in global trade has decreased in relation to the other trade blocs (Figure 1). In terms of trade interests, the EU-27 and the NAFTA countries are now closer to each other than they were at the beginning of the 21st century. At that time, the NAFTA countries dominated export, with a share of more than 28%, as compared to just over 16% for the EU. The NAFTA countries' share in export dropped to just over 21% in 2011-12. The EU's share in export was just over 14% in 2011-12. Similar developments are taking place as regards import as well. The NAFTA countries' share dropped from more than 24% to just under 19%, while the EU saw its share fall from 20% to just over 17%.

Figure 1 **Trade in agricultural products by region 2002-2012 (billion euros)**



Source: United Nations Statistics Division, calculations by LEI.

Modest growth in Dutch agricultural trade

The import and export value of agricultural products increased slightly in 2013 as compared to the previous year. Imports increased by around 2% to nearly 56 billion euros, exports increased by approximately 5% to more than 83 billion euros and as a result the agricultural trade surplus grew by approximately 3 billion euros. This means that the situation for agricultural trade in the Netherlands deviates from the total trade in the Netherlands, in which the value of both imports and exports decreased in 2013. The share of agricultural imports in total imports hovers around 12-13%, and the share of agricultural exports in total exports hovers around 15-17%. As such, agricultural trade is a major pillar of Dutch trade in general.

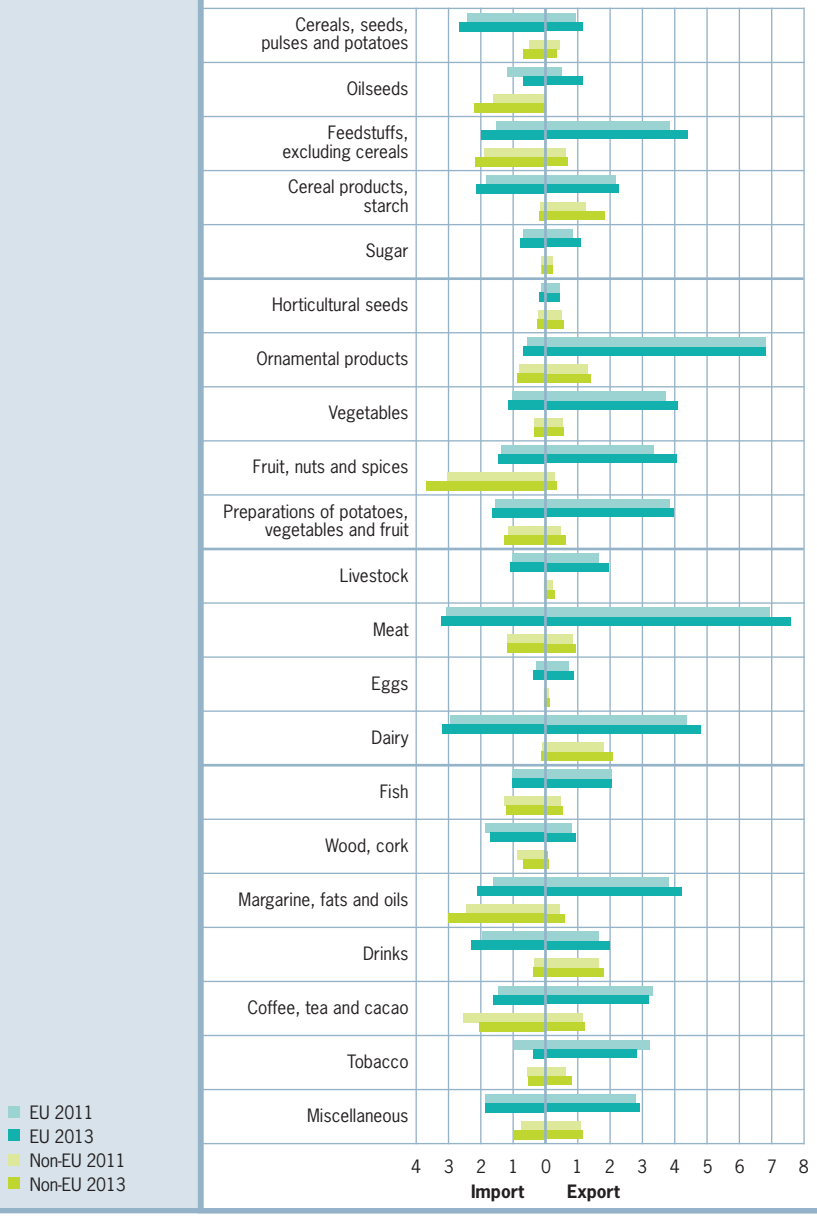
The vast majority of Dutch agricultural trade takes place within the EU. Of the Dutch agricultural exports, 80% goes to the EU, while 56% of agricultural imports come from the EU. Within the EU, the Netherlands' nearest neighbours are its most important trade partners. Approximately one third of the Netherlands' intra-EU agricultural trade is carried out with Germany; its trade with Belgium, Luxembourg, France and the United Kingdom combined amounts to about 40%. This is similar to the percentages for Dutch intra-EU trade as a whole.

The most important import products from the EU are dairy, meat, grain and grain preparations. The dairy imports primarily consist of unprocessed milk, whey and skimmed milk powder. These products are used as raw materials in the food and alcohol industries. The agricultural imports from third countries (non-EU countries) consist of margarine, fats and oils, raw materials for animal feed, fruit (including tropical fruit) and coffee and cocoa beans.

Meat, ornamental plants and dairy are the three largest agricultural exports to the EU. Agricultural exports to third countries primarily consist of processed products such as beverages, dairy products, grain preparations and ornamental plants (Figure 2).

Figure 2

Dutch agricultural imports and exports by product with the EU and with third countries, 2011 and 2013 (billion euros)



Source: Statistics Netherlands, calculations by LEI.

Developments in the Dutch agricultural chains

2.1 The agricultural complex and the food industry

In 2012, the entirety of economic activities associated with agriculture and food - the agricultural complex - accounted for approximately 9% 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. The remainder of these activities relate to horticulture, forestry and the international supply and distribution of raw materials. Employment in the agricultural complex, as based on national raw materials, stood at a little over 632,000 years of activity in 2012. The arable farming complex is the largest sub-complex within the agricultural complex based on national raw materials; this complex's contribution to the added value of the agricultural complex based on national raw materials is 31.4%, whilst its contribution to employment is 26.2%.

A substantial part of the operations in the agricultural production column is related to exports. Exports accounted for approximately 67% of employment and added value in the total agricultural complex in 2012. Due to a revision of the data, the figures for 2012 cannot be compared with data for previous years.

Table 1 **Gross value added and employment of the Dutch agricultural complex, 2012 [a]**

	Gross value added [b] (EUR billion) 2012 (p)	Employment (1,000 labour units) 2012 (p)
Agricultural complex [c]	48.6	632.2
Share in national total	*9.0%*	*8.8%*
Foreign agricultural raw materials	17.5	185.3
Share in national total	*3.3%*	*2.6%*
Agriculture and horticulture	31.1	446.9
Share in national total	*5.8%*	*6.2%*
Primary production	7.7	162.4
Processing industry	7.2	80.4
Input manufacturing	12.4	156.6
Distribution	3.8	47.6

p: preliminary.

a Due to a revision of the data, the figures cannot be compared with previous years;
b in current prices;
c based on domestic and foreign agricultural raw materials (including gardening, agricultural services, forestry, cocoa, alcohol and tobacco).

Source: LEI.

2.2 Food and beverages industries

The food and beverages industries employ more than 156,000 people and has a turnover of nearly 66 billion euros, making this the largest sector within all industries.

The food and beverages sectors are less affected by the crisis than most other industrial sectors. The number of mergers and takeovers has somewhat stagnated as a result of the crisis, but it has not completely halted. In particular, private equity companies are active on the takeover market.

A number of large multinationals are disinvesting, either out of necessity or because of changes to policy, and disposing of non-core activities. The dairy industry, however, is investing heavily, particularly in expansions of production capacity, in expectation of the elimination of the European milk quota in 2015.

Disinvestments in the food and beverages industries

VION is by far the largest pig slaughtering company in the Netherlands, with a market share of 49%. The company, based in the province of Brabant, is currently restructuring after failed takeovers in the United Kingdom resulted in heavy losses. The company has divested itself of all activities in the United Kingdom. In order to further reduce its debts, the company sold its subsidiary VION Ingredients, widely regarded as VION's crowning glory.

The animal feed producer Nutreco is planning to sell its mixed feed and meat companies in Spain and Portugal. The Amersfoort-based multinational intends to concentrate fully on the production of animal feed and fish feed in other locations, and it has already won important market positions in these sectors.

Corbion, which started as the sugar producer CSM, has sold all its bakery supplies subsidiaries to Rhône Capital. Corbion's strategy is to transform the company into a producer and supplier of biobased products. Rhône Capital also bought the CSM brand name for the bakery supplies activities.

Royal Wessanen intends to focus exclusively on the production of healthy and more sustainable food, including organic products. For this reason it has sold its subsidiary IZICO, which produces frozen snacks under the brand names Beckers and Bicky as well as snacks under private label brands.

Wessanen also decided that Natudis, the largest distributor of organic products in the Benelux, no longer fit in its portfolio and sold it to Vroegop Ruhe & Co. Wessanen's American beverage company ABC is to be sold as soon as the company is back in the black.

2.3 Changing sales channels

The supermarket is the most important sales channel for food and stimulants - more than 70% of purchases of these products are made at a supermarket. Specialist food and alcohol retail outlets are seeing their sales drop further and further. For the first time in years, sales at supermarkets are also stagnating.

Of all Western European countries, the Netherlands has the most supermarkets per resident and the most supermarket formulas; but these numbers are expected to fall. More and more supermarkets are going online. The yields obtained through online sales are as yet limited, but they could grow by at least 10% in the coming years, given the developments abroad. More and more supermarkets are using the internet for their business operations. The internet allows them to improve communication with their customers about opening hours and sales, for instance. Customers can also ask questions or submit complaints over the internet. And of course, the internet is used as an additional sales channel. A supermarket often decides to have an online presence for strategic reasons. Supermarkets that are ahead of the pack in this regard can get an advantage over their competitors, or so goes the logic. In the long term, online grocery sales could account for 15-20% of total sales. At present, online grocery sales account for less than 1% of supermarket sales. This could increase to 5-7% within three years, judging by developments in France and the United Kingdom, where these figures are already achieved.

Ordering groceries online is gaining in popularity in the Netherlands. Last year, 7% of consumers ordered groceries online, as opposed to 5% in 2012. On average, consumers order something online once per month.

'Cowpooling'

Vegetable and fruit packages have long been available for consumers to purchase directly from producers. Currently there are hundreds of such packages available. A relatively recent variation is meat packages. It is becoming increasingly popular for consumers to purchase meat packages on the basis of a subscription system or a crowdfunding system. The term 'cowpooling' is often used for this concept. The animal is not slaughtered until every single cut has been purchased by customers - in other words, until enough consumers have signed up to purchase meat via the internet that the entire animal has been sold.

It appears that the time is ripe for direct sales of meat packages, even though this is as yet a niche market. Many producers see concepts that focus on selling meat directly to consumers as part of a wider movement aimed at bringing food closer to the consumer. Farmers count on consumers wanting to know what they eat and how and by whom their food is produced and on consumers looking for products which balance out the 'anonymous' products on the supermarket shelves which do not offer enough

meaning or enough of an experience. These consumers place the identity of a product above its ease of use or price, for instance.

2.4 Retail and consumption

In 2012, Dutch households spent approximately 42 billion euros on food and alcohol, amounting to approximately 15% of total consumer purchases. Consumer purchases of organic products passed the one-million-euro mark for the first time in 2012, marking a 14% increase over the previous year. Consumers spent less on eating and drinking outside the home.

Rural area policy and nature policy

3.1 Rural area policy

Dutch rural areas have a multifunctional character: they are areas for working, living and engaging in recreational activities. In order to do justice to these three functions, analyses of the socio-economic development of rural areas often make use of a land area the size of a labour market area. A labour market area functions as an economic unit and has an agricultural sector, an industrial sector and a services sector. Most people who live in that area work there as well. In the Netherlands, 40 of these labour market areas are distinguished. On the basis of their population density, they can be classified as less urbanised regions, urbanised regions and highly urbanised regions. An analysis of socio-economic indicators such as population growth and employment growth in these three groups of regions in the period 1996-2002 showed that there were only very small socio-economic differences among the three groups. This analysis was repeated for the period 2003-2013 and the results showed that this conclusion was still valid, because there were only limited differences among the regions. Regions which give cause for concern are those where both the population and employment are falling, particularly Delfzijl and its environs in the north of the Netherlands, Zeelandic Flanders in the south-west and South Limburg.

Rural policy for maintaining the balance among working, living and engaging in recreational activities

Since the 2004 release of the Dutch government's agenda to promote the vitality of rural areas *(Agenda voor een vitaal platteland),* the Netherlands' rural area policy has focused on maintaining the balance among working, living and engaging in recreational activities. This balance is under pressure, because the modern, large-scale agricultural sector is linked to a number of negative external effects for the environment, the landscape and society, such as the leaching of fertilisers into groundwater and surface water, greenhouse gas emissions, dessication, reduced biodiversity and the degradation or disappearance of landscape elements.

Legislation and regulations in the area of environmental and water policy can restrain the external effects of agriculture. It is also possible to set up rural area policy in such a way that it provides a positive incentive for farmers to switch over to more extensive methods of production or to apply innovative methods which have less extreme

environmental effects. The rural area policy devotes a great deal of attention to the development of nature and recreational areas; promoting the function of working, in so far as it relates to non-agricultural employment, is primarily the responsibility of the regional economic policy.

The Netherlands shifts focus of implementation of EU rural development policy

The 2014-2020 programme period of the European rural development policy starts in 2014. In the new period, the Netherlands wishes to emphasise promoting the competitive strength, innovativeness and sustainability of the Dutch agricultural sector; sustainable management of natural resources; and the conservation of the quality of nature and landscape. In this way it is possible to contribute towards reducing the external effects of agriculture. The policy for developing the economy of rural areas as a whole has little priority in the new period.

The Netherlands has decided to drastically shift the focus of the implementation of the European rural development policy. Of the 87 million euros that the EU makes available each year in the form of co-financing, a mere 7% is reserved for LEADER alone. That is slightly more than the 5% required by the EU as a minimum budget expenditure. Support for village renewal, the construction of tourism infrastructure and the upgrading of cultural and natural heritage were all part of the Netherlands' implementation of the EU rural development policy in the previous period. In the new period, however, these have all been scrapped. That seems to be a missed opportunity. A mid-term evaluation of the 2007-2013 EU rural development policy in the Dutch provinces of Gelderland and Zeeland showed that there is great need for these kinds of wide-scale rural development measures. Such measures improve the quality of rural areas for those who work there, those who live there and those who engage in recreation there.

3.2 Regional structure of agriculture

More than half of all agricultural businesses were located in urbanised regions in 2013, more than one third were in less urbanised regions and nearly one tenth were in highly urbanised regions. However, the three groups of regions do vary somewhat in terms of what types of agricultural businesses are found there and in what proportions. In 2013 in the less urbanised regions, approximately 60% of the agricultural businesses were dairy farms and other grazing farms, while 25% were arable farms. In the urbanised regions, dairy and other grazing farms accounted for approximately 50% of all farms, and intensive livestock farms made up approximately 15% of all farms. In the highly urbanised regions, 45% of all agricultural businesses were horticultural businesses and more than one third were dairy and other grazing farms. This demonstrates that agriculture in the less urbanised regions has a relatively strong land-based character, while agriculture in the highly urbanised regions is more intensive.

Smallest reduction in agricultural businesses in less urbanised regions

Between 2003 and 2013 the number of farms fell by 2.3% per year. The rate reduction in the number of farms in the urbanised regions was equal to the national average, while farms in the less urbanised regions disappeared at a somewhat slower rate (1.8%) and farms in the highly urbanised regions disappeared at a much higher rate (4.2%). The greater reduction in the highly urbanised regions can be seen in all types of farms (with the exception of non-dairy grazing farms) and is connected to the relatively strong demand for land for other uses such as residential, recreational and nature. For this reason, the surface area for agriculture in the highly urbanised regions decreased by more than 1% per year in the period 2003-2013, as opposed to 0.5% per year in the urbanised regions and 0.2% in the less urbanised regions.

The greater reduction in the highly urbanised regions was also due to the large proportion of greenhouse horticulture businesses in the total number of agricultural businesses in these regions. This type of farm showed the most severe reduction. This rapid reduction is due on the one hand to scale increases as a result of the installation of combined heat and power plants, meaning that smaller farms can no longer remain competitive, and on the other hand to the poor market developments in the greenhouse horticulture sector, which resulted in a significant number of bankruptcies. The relatively small reduction in the number of non-dairy grazing farms was primarily the result of dairy farmers ceasing business operations, divesting themselves of their dairy herd and switching to other grazing animals.

3.3 Nature and landscape policy

The most important Dutch laws on nature protection at present are the Flora and Fauna Act, the Nature Conservation Act and the Forestry Act. The Dutch cabinet is planning to combine these three laws into one single law, the *Wet Natuurbescherming* ('law on nature conservation'). With this law, the cabinet aims to simplify and clarify the rules for protecting wild plants and animals, Natura 2000 areas and forested areas, as a way of reducing the complexity of laws faced by businesses and citizens. It is expected that this law will take effect sometime during 2014.

Natuurnetwerk Nederland

The Netherlands' National Ecological Network has been given a new Dutch name, *Natuurnetwerk Nederland* ('Netherlands nature network'). The network is intended to connect nature areas with the surrounding agricultural area. It comprises all existing nature areas in the Netherlands, including the 20 national parks, all Natura 2000 areas, land under agricultural nature management, more than six million hectares of large bodies of water (lakes, rivers, the North Sea coastal area and the Wadden Sea) and land to be newly made into nature areas.

Ultimately, the *Natuurnetwerk Nederland* will make up part of the Pan-European Ecological Network (PEEN) together with nature areas in other European countries. The creation of this large network falls under the goals of the Habitats Directive to protect and strengthen biodiversity in Europe. It is intended that 80,000 hectares of nature be added to the *Natuurnetwerk Nederland* by 2027. As from 2014, the provinces are responsible for protecting and developing nature within their borders.

Programme-based approach to nitrogen

The livestock farming and industrial activities around Natura 2000 areas deposit nitrogen in those areas. These nitrogen deposits must be reduced, as they form a threat to the survival of protected species in Natura 2000 areas. The *Programmatische Aanpak Stikstof* (PAS, 'programmed approach to nitrogen deposits') is being developed as a way to keep from obstructing businesses' economic development. The PAS is intended to reduce nitrogen deposits while allowing those businesses that wish to expend room to develop. This room to develop can be granted because part of the reduction in nitrogen deposits can be put towards the development of new economic activities or the expansion of existing economic activities. The reduction in nitrogen deposits is connected to businesses ceasing operations and to measures such as lowering the limit on ammonia emissions in new stalls and tightening the standards for the use of animal manure. Discussions on the PAS are in an advanced stage, and it will probably take effect in late 2014.

Towards collective agricultural nature management

On 1 January 2013 the land area devoted to agricultural land management was approximately 58,000 hectares, which represented a slight increase over the figure for 2012, just over 55,000 hectares.

Agricultural land management is currently financed in part by the second pillar of the Common Agricultural Policy (rural land management), but the Dutch Minister for Agriculture intends for the organisation of agricultural land management to be entirely the responsibility of farmers' collectives as from 2016. As part of this, farmers will no longer enter into a management contract directly with the Dutch government but rather with the collective, which in turn will enter into a collective contract with the Dutch government. This will mean that instead of approximately 14,000 management contracts, the government will only have 75-150 agricultural land management contracts. This is expected to bring about significant cost savings. Whether these savings will materialise, however, depends on how much money the collectives will need to spend on closing and monitoring the contracts and making payments under the contracts with the farmers in their regions. Collectives will need an adequate administrative system to this end. In addition, each Dutch province will need to draw up a nature management plan in which

they state which goals they intend to achieve in which regions. Subsequently, collectives will be able to submit a plan to the province stating which goals within their territory they intend to achieve with which management contracts. The expectation is that this will create widespread support in the region.

Significantly fewer collectives than the number of agricultural nature groups

The first collectives are already starting to take shape. Although it would seem self-evident that the agricultural nature groups in the Netherlands - which at present number around 160 - would take on the role of collective, this is not what is happening. At this point it would seem that approximately 40 collectives will be formed, consisting of a number of agricultural nature groups. The provinces have lobbied particularly firmly to limit the number of collectives with which they must reach agreements regarding agricultural nature management. It is debatable whether such large collectives, which may even be as large as an entire province, can function effectively. There is a limit to how many members and how much territory a collective can reasonably manage. The optimum size for a collective also depends on the homogeneity of the area, the diversity of the participating farmers and the level of professionalism of the organisation.

Agriculture and the environment

4.1 Crop protection agents

The total use of crop protection agents increased in 2012 to 11.4 million kg of active substance (Table 2). Spring 2012 was relatively wet, as a result of which nearly 10% more fungicide was used than in 2011. The use of both insecticides and soil disinfectants has decreased. A wet spring limits the population growth of insects. The use of agents is now at the same level as it was in 2000.

Formulation of supplementary crop protection policy

The Second Memorandum on Sustainable Crop Protection ('Healthy Growth, Sustainable Harvest') has brought about a shift in relationships within the production chain. This shift is the result of the transition in the focus of policy from reducing the environmental burden (2001-2010) to reducing the number of standard violations (2013-2023).

The First Memorandum on Sustainable Crop Protection (2001-2010) focused on reducing the environmental burden on surface water by 95%. The most important tools for achieving that 95% reduction were regulations to limit emissions and regulations to re-evaluate existing substances. As a result of this re-evaluation, environmentally harmful substances were replaced with environmentally friendly substances. The application of these tools reduced the environmental burden on surface water by 85%. The impetus for this change came from government regulation. The responsibility lay with the agent users (farmers, growers, agricultural contractors).

The Second Memorandum on Sustainable Crop Protection (2013-2023) focuses on reducing the number of violations of water quality standards by 90%. The excess amounts are recorded per substance by means of systematic sampling of the surface water by water resource managers. The sampling and analyses are paid for from water board charges and subsidies from the Dutch government. The results are collected in the Pesticide Atlas, developed by Leiden University's Institute of Environmental Sciences. By collating the data with the plot registration in Statistics Netherlands' agricultural census, the amounts in excess of the standards for individual substances recorded on a national level are classified in terms of individual crops or groups of crops. As a result, it is possible to address violations of standards for specific crop protection agents in a targeted way.

The Second Memorandum contains the agreement that the authorisation holder

concerned (the manufacturer) must draw up an Emission Reduction Plan (ERP) if the application of an agent in the relevant period and region will result in amounts in excess of the standard. If implementation of the ERP has insufficient results, the authorisation can be revoked. This agreement places the responsibility for the correct use of agents with the authorisation holders. From now on, they will be called to account for standard violations which are the result of their purchasers' poor compliance with the instructions for use. The result will be that the authorisation holders take responsibility for the chain and call their purchasers to account for the incorrect use of crop protection agents. After excess amounts have been found in a particular crop and from a particular user in a particular catchment area, the authorisation holders will deny delivery to stubborn purchasers who consistently violate standards. The impetus for this reduction follows from the chain responsibility of the authorisation holders. The authorisation holders want to prevent their authorisations and reputations being undermined by consistent violations of standards.

Shifting responsibility from groups of users (farmers, growers, agricultural contractors) to authorisation holders brings about a new dynamic. Whereas regulations from the government were the focus of the First Memorandum, the stewardship of authorisation holders is the focus of the Second Memorandum. This new approach offers solid potential for sustainable use of crop protection agents in the coming years.

Table 2 **Development of the environmental impact of agriculture and horticulture, 1995-2012**

	1995	2000	2005	2010	2012
Use of crop protection agents (in million kg of active substance)	12.61	11.38	10.71	9.6	11.36
Greenhouse gas emissions (in billion kg CO_2 equivalents) [a]	30	26.4	24.5	27.2	25.6
Surplus of nitrogen (N, kg per hectare) [a]	230	183	154	115	113
Surplus of phosphates (P_2O_5, kg per hectare) [a]	76	57	45	31	14
Ammonia emissions (in million kg) [a]	179	139	121	105	102

p: preliminary.

a Due to methodological changes all figures have been revised, starting with the year 1990.

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

4.2 Greenhouse gas emissions

The Clean and Economical Agro Sectors Covenant was drawn up in 2008 as a way to implement the Kyoto Protocol. This covenant lays out goals and actions for the agrosectors in the areas of energy and climate. The covenant dictates that by 2020, the entire agrosector's CO_2 emissions must be reduced by at least 3.5 million tonnes and preferably 4.5 million tonnes as compared to 1990 emissions. Emissions of other

greenhouse gases (nitrous oxide and methane) must be reduced by four to six million tonnes (in CO_2 equivalents) by 2020 as compared to 1990 and must amount to no more than 16 million tonnes. These are the main goals; additional agreements have been reached per sector.

In 2012, the Dutch agricultural sector emitted 25.6 million CO_2 equivalents in greenhouse gases. The proportion of this attributable to primary agriculture varies; for carbon dioxide, primary agriculture is responsible for around 4%; for methane, this figure is 60%; and for nitrous oxide, this figure is nearly 70%.

Since 1990, CO_2 emissions from agriculture have increased by 16%. This increase is primarily linked to energy use in greenhouse horticulture, both for cultivation and for electricity production, but this has been decreasing somewhat in recent years.

Since 1990, the total emissions of methane and nitrous oxide have decreased by 5.6 megatonnes of CO_2 equivalents. Nitrous oxide emissions from agriculture, which are primarily released during ploughing and fertilising, have decreased by about 43%. Methane emissions, which are primarily produced by ruminants, have decreased by about 5%. The size of the cattle population determines to a significant extent the total amount of methane emissions. As such, whether methane emissions continue to decrease depends on whether or not the dairy cattle population increases as a result of the elimination of the milk quota in 2015. For this reason, the Dutch dairy sector has set climate-neutral growth as a goal, expressed through the Sustainable Dairy Chain initiative. In this initiative, primary producers and the dairy processing industry work together towards making the Dutch dairy sector the global leader in sustainability.

Greenhouse gas emissions from the entire agricultural complex in 2012 amounted to 40.7 megatonnes of CO_2 equivalents. Within the entire agricultural complex, primary agriculture and horticulture are the largest contributors, accounting for 64% of these emissions.

4.3 Manure and mineral policy

In 2011 the Dutch cabinet stated that it wished to make the manure policy more concrete by focusing on three aspects: a sustainable balance between manure production and manure disposal by means of obligatory manure processing and guaranteed disposal of the remaining surplus; measures to reduce unnecessarily high quantities of phosphorous and nitrogen in animal feed; and the recognition of high-quality products made from animal manure as fertiliser replacement.

Regarding the last aspect, the Dutch cabinet has been promoting this on a European scale, so far without success. Regarding feed measures, phosphate emissions (phosphate production in manure) fell by 9 million kg in 2012, half of which was due to efforts by the pig farming sector, one third of which was due to efforts by the cattle farming sector and the remainder of which was due to the poultry farming sector. Compared to 2009 figures, phosphate emissions have been reduced by 14 million kg.

The goal for the feed measures is that by adapting the feed, grazing livestock farming and pig farming will each produce 10 million kg less phosphate for a total reduction of 20 million kg. Part of the above-mentioned reduction of 14 million kg is due to the fact that there are fewer animals. It is estimated that approximately one half of the desired 20-million-kg reduction has already been achieved through feed measures.

Sustainable balance between manure production and disposal

An ex ante evaluation of the manure policy showed that there is a risk that manure processing capacity from 2015 on will be insufficient for achieving the desired sustainable balance between manure production and manure disposal. This is true for scenarios both with and without animal rights. In a scenario with animal rights, the size of the poultry and pig populations is limited.

In part on the basis of the ex ante evaluation, the Dutch Minister for Agriculture chose to maintain animal rights for pig and poultry farming as an extra precaution for the time being, or at least until the next evaluation of the Dutch Fertilisers Act is carried out in 2016.

No animal rights will be implemented for dairy farming. The results of the ex ante evaluation give reassurance that growth in milk production will not necessarily result in increased phosphate production, because this growth will largely be compensated by increased animal efficiency and the feed measures. Farmers who wish to expand their operations can choose to purchase additional land and/or intensify their manure processing. The phosphate surplus which a given farm had in 2013 is used as its reference. Starting in 2015, each year the actual phosphate production will be established and compared to the reference amount. If phosphate production has increased, the farmer will need to demonstrate that the conditions have been met (additional land and/or additional manure processing). The reference value is bound to the individual farms and is not negotiable. If dairy farmers decide to purchase additional land, this could result in extra pressure on the manure market, because that land will no longer be available for disposing of pig manure. Cattle manure will then replace pig manure on the domestic market.

Manure and mineral production

The reduction in the amount of nitrogen in feed and reduced supplies of artificial fertiliser are important causes of the reduction in the nitrogen supply after 2010 (Table 2). The surplus per hectare (difference between supply and disposal) decreased by one third in 2011 and 2012 as compared to 1970. The nitrogen excretion ceiling (the 2002 figures for gross nitrogen production, amounting to 504 million kg) which the EU imposed on the Netherlands was never exceeded in the years after 2002.

Phosphate production in animal manure decreased by 35% between 1990 (260 million kg) and 2005 (170 million kg). In the years 2008 to 2010, phosphate production increased by 2-3% to levels exceeding the phosphate excretion ceiling (173 million kg,

equal to phosphate production in 2002). This excess is the result of an increase in the numbers of animals and an increase in the phosphorous content of feed, particularly in pig farming. One of the conditions for derogation is that the excretion ceiling shall not be exceeded. In 2011 phosphate production fell by more than 9 million kg to 170 million kg of phosphate, bringing phosphate production below the phosphate excretion ceiling again. In 2012 this reduction continued, with phosphate production of 161 million kg. This was due in part to reduced amounts of minerals in cattle and pig feed and better feed conversion among laying hens and broilers. In addition, an increase is expected in 2013, for a total of 164 million kg of phosphate, as a result of an increase in the animal population, particularly in the dairy sector.

The supply of minerals on Dutch agricultural land is decreasing because increasing amounts of manure, particularly poultry manure, are being exported. From 2006 to 2012, exports increased by 65%, from 17 million kg to 28 million kg of phosphate. In 2013 exports remained at approximately the same levels as in 2012. However, there was a shift from poultry manure to pig manure. Over the past two years, exports of pig manure have doubled, amounting to 7 million kg of phosphate in 2012.

4.4 Ammonia

In 1999, ammonia emissions in agriculture amounted to less than half of 1990 levels (143.5 kilotonnes as compared to 333 kilotonnes). This reduction was primarily the result of low-emission application of animal manure and a reduction in the animal population. The ammonia emissions in 2012 amounted to 31% (102 kilotonnes) of the ammonia emissions from agriculture in 1990. This is primarily due to reduced ammonia emissions in the application of animal manure and increased exports and processing of poultry manure in particular.

By 2012, the agricultural sector was emitting 231 fewer kilotonnes of ammonia than it had done in 1990. Most of this reduction (82%, or 190 kilotonnes) was achieved in the first ten years. It took twelve years to achieve the remaining 18% (41 kilotonnes) reduction. That indicates that the easy progress has already been made. It will be increasingly difficult to continue to reduce ammonia emissions.

Taking ammonia emissions from agriculture together with ammonia emissions from non-agricultural sources, the Netherlands had 108 kilotonnes of ammonia emissions in 2012. This is 20 kilotonnes fewer than the 128 kilotonnes stipulated by the guidelines of the European National Emission Ceiling (NEC). There has been a slight decrease compared to 2011. The NEC ceiling is unchanged, but in the near future it will be adapted and possibly set at 100 kilotonnes.

4.5 Animal welfare

Public debate about the welfare of farm animals often discusses the ways in which physical environmental factors, such as feed and room in the stalls, can help improve welfare. The goal of the Welfare Quality project, implemented in 2004-2009, was to measure and safeguard animal welfare by not only examining the environmental factors but also establishing the animals' actual well-being by taking measurements of the animals themselves. This makes it easier to measure the effects of animal-welfare-related government policy or market party measures in excess of the statutory minimum. The project was largely funded by the European Commission (www.welfarequality.net).

As part of the Welfare Quality project, protocols were drawn up for measuring the animals' well-being. The protocols examine four aspects: (1) behaviour; (2) health; (3) nutrition; and (4) shelter. It turned out that the protocols were too complex and time-consuming for livestock holders to apply them in practice. As a result, the Dutch government initiated supplementary research into how the protocols could be simplified. For instance, a simplified welfare monitor is being tested in practice in the veal calf sector. The Dutch government, the commercial sector and NGOs are cooperating with 70 veal calf farmers on these tests. The established welfare parameters are being used on the farms to make a strengths/weaknesses analysis of the herds. Measurements are also being taken on the slaughter line. On the basis of the results of the monitor, the veterinarians and company supervisor provide targeted advice to veal calf farmers on how they can improve animal welfare. Other chain parties could also use these new insights to support claims of animal friendliness and animal welfare (such as in certification schemes) made to the market.

Structure of the primary agricultural and horticultural sector

5.1 Number of businesses

In 2013, the number of agricultural and horticultural businesses fell to approximately 67,500 (Table 3). This represents a limited decrease of 1.9%. From 2000 to 2007, the number of farms decreased by 3.3% annually; after 2007, the number decreased by 2.1%. The various sectors show vast differences in the changes to the numbers of farms after 2000. This is largely dependent on the degree of the individual sectors' dependence on land. In those sectors which are not very or not at all dependent on land (intensive livestock farming and horticulture, particularly greenhouse horticulture) the number of farms decreased by a total of 45%. In those sectors which are land-based (arable farming and grazing livestock farming, including dairy farming), the decrease was limited to 20%. As a consequence of specialisation, the number of combined (mixed) farms has decreased by nearly 60% since 2000. The relatively large decrease since 2000 in the number of farms in sectors that are less strongly land-based is due in part to environmental and animal welfare policy (such as required investments) and market developments (sales opportunities and prices).

In the land based sectors, the number of farms has decreased by only 0.8% per year since 2007. The upward trend in the operating results in arable farming and the positive outlook for dairy farming, together with the elimination of the milk quota, have contributed to this.

In addition, the major differences in the speed of restructuring between land-based sectors and less strongly land-based sectors arose after the year 2000; prior to this, the differences were much smaller, and in fact the number of farms in the land-based sectors decreased at a faster rate than the number of farms in the less strongly land-based sectors.

The decrease in the number of agricultural and horticultural businesses consists for the most part of more or less voluntary cessation of business activities when the farm passes from one generation to the next. Forced cessation of business activities because of bankruptcy is still rare. From 2000 to the end of the first quarter of 2014, approximately 950 agricultural or horticultural businesses declared bankruptcy. This accounts for nearly 3% of the total net decrease in the number of farms. The largest proportion of bankruptcies, nearly 90%, were declared in the plant-based sectors.

Table 3	Development of number of holdings, number of workers and area of farmland, 1990-2013				
	2000	2005	2010	2013	Change (%) 2012-2013
Number of agricultural and horticultural farms (x 1,000)	97,389	81,750	72,234	67,481	-1.9
Number of workers (x 1,000)	280.9	235.7	212.0	193.0	-2.3
Area of farmland (x 1,000 ha)	1,975.5	1,937.7	1,872.3	1,847.6	-0.3
Source: CBS (Statistics Netherland) agricultural census, processed by LEI.					

Number of animals

The size of the cattle population fell to 4 million animals in the past year. This is entirely due to developments in dairy farming. After 2007, the number of dairy cows increased by 10%, and half of that increase occurred in the past year, up to April 2013. Since then, the dairy cattle population has grown by 3%, and in December 2013 there were more than 1.5 million dairy cows in the Netherlands. In anticipation of the elimination of the dairy quota in 2015, the dairy quota has been increased each year since 2007, amounting to a total increase of approximately 8-9%. The average milk production per cow during the same period has not increased as quickly, as a result of which the number of dairy cows has increased since 2007. The elimination of the milk quota in 2015 and the good prospects for the dairy sector have further encouraged expansion.

The total number of other grazing animals decreased by a total of 1.4% between 2000 and 2013, to 1.578 million. Balancing out the severe decrease in the number of sheep (reduction by 20%), the number of goats more than doubled. This growth was interrupted between 2009 and 2010 by the outbreak of Q fever and the subsequent goat culls. As a result, between May 2009 and May 2010 the number of goats decreased by approximately 6%.

The total number of pigs has decreased since 2000 by 7%, amounting to just over 12 million pigs in 2013. The two animal buy-up schemes intended to reduce the manure surplus resulted in a 15% decrease between 2001 and 2004. After 2004, the number of pigs increased slightly, and in the past few years the number has been relatively stable, in part due to the limits imposed by pig welfare rights. The total number of chickens decreased by a total of 6% between 2000 and 2013, now amounting to 97.7 million. The buy-up schemes and, in particular, the bird flu outbreak in 2003 resulted in a significant decrease in the number of chickens. Whereas the population previously amounted to more than 100 million, in 2003 it was down to approximately 80 million. After 2003 the population started to increase again. In this sector as well, the number of animals is limited by poultry welfare rights.

Spatial integration of large-scale livestock farming

In June 2013, the Dutch cabinet spoke out against unlimited growth in livestock farming in the Netherlands. The inducement for this is in part the advice from the Health Council of the Netherlands dated 2012, in which it was stated that intensive livestock farming poses various risks to public health. Present knowledge about the risks is insufficient however to establish well-supported standards for concerns such as the distance between intensive livestock farms and residences. The current limits on livestock farming, including intensive livestock farming, are set on the basis of regional environmental or spatial planning considerations. The Dutch cabinet wants to establish a legal framework which enables provinces to rely on health considerations as a reason for limiting the number of animals or the size of stalls in certain areas. That is currently not possible, because there is no legal foundation for it. The cabinet intends to include this legal framework in the Animals Act. The proposed law will likely be sent to the Lower House of Parliament for approval after the summer of 2014.

5.2 Labour

The number of people who regularly work in primary agriculture and horticulture decreased in the past year by 2.3% to 193,000 (Table 3). This is a slightly smaller decrease than the average decrease since 2000 of 2.8% per year. These figures do not include temporary labourers (those hired through temporary employment agencies and those with temporary contracts); these labourers are accounting for an increasing share of the labour within the horticultural sector. It is estimated that the percentage of temporary labourers has increased from 37% in 2000 to 66% in 2011. But the permanent employees generally have year-round jobs, while temporary labourers, particularly in the open-field farming sectors, work only during peak periods. As a result, the total number of temporary workers is difficult to determine.

5.3 Land

The total area of agriculturally cultivated land amounted to 1.84 million hectares in 2013, or approximately 6% less than in 2000 (Table 3). The 18% decrease in the land area for arable farming - a decrease of 114,000 hectares to 521,000 hectares in 2012 - is the most significant change in land use since 2000. Under the influence of the positive operating results in recent years and the positive outlook, the land area has again increased, by 12,000 hectares (2.2%), to 532,000 hectares in 2013. Half of this growth is found in the potato sector. The land area for grassland and feed crops decreased by 0.5%. The land area for open-field horticulture has remained the same in the past year, while the area devoted to greenhouse horticulture has decreased yet again. Since 2005, the surface area for greenhouse horticulture decreased by more than 700 hectares

(nearly 7%) to 9,800 hectares in 2013.

Of the total area of cultivated land, 53% is in use as grassland (permanent, temporary and natural), 13% is in use for green fodder crops, 29% is in use as other arable land, 5% is used for open-field horticulture and 0.5% is used for greenhouse horticulture.

Land market

Two thirds of the land surface in the Netherlands is in use as agricultural land. Approximately 60% of that is owned by farmers who use the land themselves. Another large proportion of that land is owned by private individuals who lease out the land rather than using it themselves. Over the past twenty years, on average 3% of the land area changed hands each year. Approximately two thirds of this figure concerned business takeovers within families. The rest, approximately 1% of the entire land area, was traded on the open market. Private individuals, primarily farmers, are by far the largest group of sellers and purchasers. As a result of the property crisis and the review of the nature policy, there has been a drastic decrease in the demand for agricultural land for non-agricultural purposes, such as urban planning and nature development.

Significant increase in agricultural land prices since 2005

The nominal land price for unleased agricultural land in the Netherlands has risen by approximately 80%, from an average of €29,000 per hectare in 2005 to €52,000 per hectare in 2013.

This means that the average price for agricultural land in the Netherlands is much higher than in the neighbouring countries. But within a single country there can be vast differences in prices. In certain regions of the German federal state North Rhine-Westphalia, which borders on the Netherlands, average prices for agricultural land in 2012 were as high as €45,000 per hectare; while in most of the federal states that were formerly part of East Germany, prices for agricultural land were under €10,000 per hectare. In Denmark, the prices for agricultural land dropped sharply after 2008, after years of price increases in the wake of increasing property prices in general. The financial crisis created a turning point.

Marginal income determines land prices

The agricultural land price is the price that farmers pay to one another for land. Price developments show a rising trend, broken by periods of sharp increases followed by sharp decreases. Land prices have not only increased more quickly than inflation has, but they have also clearly increased more quickly than the average income per hectare in the land-based sectors has. This rising trend in land prices is closely dependent on the continuous scale increases in land-based agriculture. Another factor is the drastic decrease in the interest rate since the late 1980s. Scale increases are necessary in order to profit from the reduction in costs brought about by technical advances. The

consequence is that agricultural land prices are determined by the land income that the expanding farms earn on additional hectares, the so-called 'marginal land income'. This marginal land income, and with it the land prices, is substantially higher than the average land income.

Capital

The average worth of Dutch agricultural and horticultural businesses has risen from 2.1 million euros in 2009 to 2.6 million euros in 2013. This increase is primarily due to an increase in the average size of businesses and the increases in the value of land. As a result, the share of land in the worth of a business rose from just under 40% in 2009 to around 50% in 2013. The share of the other tangible assets, such as company buildings and green houses, machines, equipment and the residence, has decreased from 18% to 15%. The value of the intangible assets, primarily quotas and animal rights, has been nearly cut in half in just five years, from 15% to 7%.

Both the balance sheet total and its composition vary considerably among farms and types of farms. The average worth of the arable farming companies has risen by 1.5 million euros in five years' time to 3.7 million euros, giving them the highest average balance sheet total. This is largely due to increases in land prices, combined with a 6-hectare increase in the average surface area (to 68 hectares). Land currently accounts for two thirds of the balance sheet total. Dairy farms saw their average balance sheet total increase to nearly 3 million euros, primarily because of increases to the items land and company buildings. This is due in part to investments in expansion in anticipation of the elimination of the milk quota in 2015. The average worth of the greenhouse horticulture businesses rose by 0.5 million euros, despite the decrease in land value, to 3.2 million euros as a result of growth in size. The balance sheet worth of pig farms, 2 million euros, was the lowest. A significant portion of the capital on pig farms is tied up in company buildings.

Solvency

In 2013, an average of two thirds of the balance sheet total of Dutch agricultural and horticultural companies was funded by owner's equity. The land-based farms work with larger investments of owner's equity on average than do the non-land-based farms. Solvency is highest on arable farms (80% in 2013) and lowest on greenhouse horticulture farms (36%). There are also vast differences in solvency within the individual farm types.

Production and income development

6.1 Production and income development in the agricultural and horticultural sector

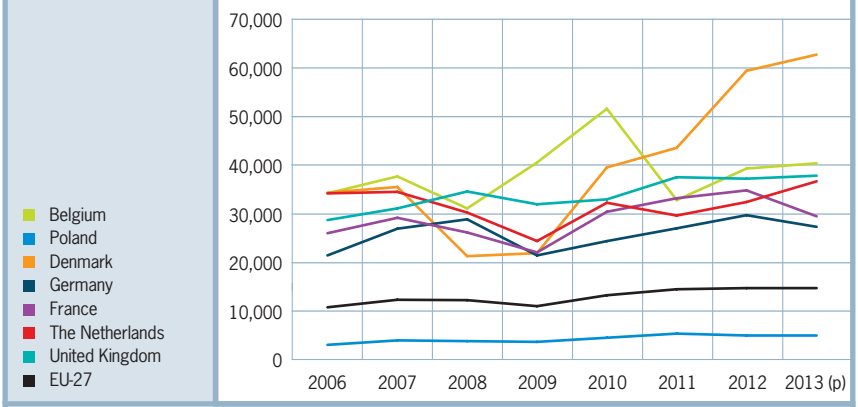
In 2012, the Dutch primary agricultural and horticultural sector's gross production value amounted to 26.5 billion euros, more than 4% higher than it was in 2011. The gross production value of the agricultural and horticultural sector has undergone positive developments in recent years, primarily as a result of higher prices.

Dutch income from an EU perspective

The net added value per worker in the Netherlands amounted to more than €36,500 in 2013, an increase of 13% as compared to 2012. The European Union's system of economic accounts for agriculture make a comparison with other countries possible. Incomes in the Netherlands were higher in 2013 than they are in Germany or France. In the EU-27 countries, the net added value per worker decreased by a half percent in 2013 to an average of €14,500 (Figure 3). There are very large differences among the member states. In particular, incomes in the countries which have recently joined the European Union are lower than incomes in the EU-15, despite showing an increase in 2013. For purposes of comparison, the net added value per worker in Poland amounts to just under €5,000, one third of the net added value for agricultural workers in the EU on average.

Figure 3

Income development (net value added in euros per labour unit) in the EU, 2006-2013



Source: Database Eurostat, calculations by LEI.

Income generation

The estimated income for 2013 has decreased slightly in comparison to 2012, which saw a relatively high income. For the agricultural and horticultural sector as a whole, the average income from business activities is estimated at €58,000 (Table 4), which is higher than the five-year averages for the periods 2001-2005 and 2006-2010. The income for dairy farmers showed significant recovery. This was primarily due to the much higher milk price as a consequence of a global increase in the demand for dairy. The combination of lower egg prices and higher feed costs resulted in a very disappointing year for egg farmers, after good results had been achieved in 2012. Lower prices for nearly all arable crops, with the exception of onions, resulted in a lower income on arable farms. This was caused by the larger global supply of grains, import limitations by countries like Russia and lower prices for sugar and ware potatoes on the global market. Despite this, incomes in arable farming remain high. Poor pricing for tomatoes and rising energy costs resulted in negative average incomes on greenhouse vegetable farms. The unseasonally cool spring and the very warm summer in 2013 influenced this. In pig farming, incomes were lower because of lower pig prices and rising feed costs.

The income from business activities is largely determined by the revenue from agricultural and horticultural produce and the costs incurred in their production. Part of the income, just over 8%, comes from the revenue from non-agricultural activities and subsidies (Table 4). The subsidies primarily consist of the direct payments under the Common Agricultural Policy, which contribute directly to income. This is not the case for the revenue from non-agricultural activities, from which the concomitant costs must be deducted. In recent years, the average revenue from allowances and subsides amounted to approximately €22,000. For dairy and arable farmers, this figure was substantially higher. In 2012, these farm types received €30,000 and €33,500, respectively, from allowances and subsidies.

Income distribution

There are major differences in income among farms. Egg farmers and greenhouse vegetable farmers, particularly tomato farmers, were relatively strongly represented in the group of the lowest-earning 20% of farmers in 2013. Arable farmers and, among greenhouse horticulturists, pot plant growers were relatively strongly represented in the group of the highest-earning 20% of farmers. The poultry sector clearly demonstrates how incomes within a single farm type can fluctuate wildly from one year to the next. In 2012, egg farmers were relatively strongly represented in the group with the highest incomes.

In order to correct for annual fluctuations, a four-year average (2009-2012) was taken to see which farm types were in the lowest-earning 20% and the highest-earning 20%. The good results in arable farming meant that more than 40% of all arable farms were among the highest-earning 20% of farms in that period. These businesses, measured in hectares, were significantly larger than the sector average. The larger poultry farms, both egg farms and broiler farms, were relatively strongly represented in this group as well. Among

greenhouse horticulture businesses, pot plant growers did relatively well. Income fluctuations in the dairy farming sector were limited compared to other sectors. This meant that relatively few dairy farms were among either the highest-earning farms or the lowest-earning farms. In the greenhouse vegetable sector, exactly the opposite was true for tomato growers. In the period 2009-2012, greenhouse cut flower growers, greenhouse vegetable growers and pig farms were relatively strongly represented in the group of the lowest-earning 20% of farms. In terms of farm size, these farms were larger than average.

Table 4 **Results (x 1,000 euros per holding) on the average agricultural and horticultural holding, 2001-2013**

		2001-2005	2006-2010	2011	2012	2013(p)
Gross returns	(+)	275.0	388.1	493.6	528.4	541.0
of which agricultural production (%)		*95.0*	*90.9*	*90.7*	*91.5*	*91.5*
subsidies (%)		*3.0*	*4.7*	*4.4*	*4.1*	*4.1*
secondary activities (%)		*2.0*	*4.4*	*5.0*	*4.4*	*4.3*
Paid costs and depreciations	(-)	239.1	345.3	452.7	465.0	483.0
Special benefits and charges	(+)	1.0	-0.5	0.0	0.0	0.0
Operating income	**(=)**	**36.9**	**42.3**	**40.9**	**63.4**	**58.0**
Idem per unpaid labour force unit		25.8	29.5	28.2	43.9	40.0
Income from outside the farm	(+)	11.8	19.1	19.8	21.4	21.0
of which labour		*5.7*	*9.0*	*10.2*	*9.0*	*9.0*
other income		*6.1*	*10.1*	*9.6*	*12.4*	*12.0*
Total income	**(=)**	**48.7**	**61.4**	**60.7**	**84.8**	**80.0**

Source: Farm Accountancy Data Network.

6.2 Sustainable investments

The Dutch Ministry of Economic Affairs stimulates sustainable investments through subsidies and/or fiscal schemes. In 2012, the number of sustainable investments rose to 27% of all investments, well above the (reduced) target of 20% in 2014. This upward trend, which occurs while the total amount of investments is decreasing, can be attributed to the legal requirements for farmers to make adaptations to stalls that will make them more environmentally friendly and/or better for animal welfare. The costs for these investments are eased through subsidies and/or fiscal schemes. When making sustainable investments, process innovations in particular, such as innovations in stall systems or greenhouses, play an important role. In 2012, 14% of all farms were either 'innovators' or 'early adopters'. The goal for 2013 is 15%. Most of these farms are early adopters that contribute to the success of an innovation. Only 2% of all farms are considered innovators.

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