

# Agricultural Economic Report 2012

Summary



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PROTECTION AGENTS POLITICS  
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ABSTRACT

AGRICULTURAL ECONOMIC REPORT 2012 OF THE NETHERLANDS: SUMMARY

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This report offers an English summary of the Landbouw-Economisch Bericht 2012. 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 2012* 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 2012 Dutch edition of the report was completed in May 2012.

The Hague, July 2012

The Director,

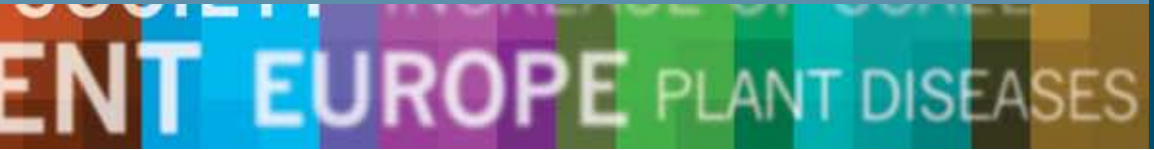
A handwritten signature in blue ink, appearing to read 'L.C. van Staalduinen', written in a cursive style.

Ir. L.C. van Staalduinen  
Algemeen directeur LEI

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# The international context of the Dutch agricultural sector



## 1.1 Global economic developments

After the financial crisis of 2009 and the strong rebound in 2010, the world economy hit another speed bump in 2011, which slowed the economic growth significantly relative to 2010. In 2011, worldwide growth in GDP came out at 3.9%. Experts are forecasting continued slowdown for 2012, after which growth is expected to pick up in 2013. The high hopes for 2011 and 2012 were shattered by declining economic activity in the second half of 2011 and the first half of 2012. For 2011 as a whole, only Japan was in recession. This was a result of the earthquake in March of that year; then came 2012 and the blow to the eurozone in the early part of the year, as a result of which the eurozone economy is expected to shrink by 0.3% on the year. This is attributed primarily to the European debt crisis, which has put not only banks but a number of eurozone countries in dire financial straits. So far, however, the damage has been limited, thanks to decisive action by the eurozone countries and improvements in the US economy. However, the situation is fragile and a resurgence of the European debt crisis remains the biggest threat to the world economy. Additionally, ongoing unrest in oil-producing countries in North Africa and the Middle East poses a threat to growth: a 50% rise in oil prices could cut worldwide economic growth by 1.3%.

## 1.2 The Netherlands

After the deep recession of 2008-2009, the Dutch economy returned to recession in the last two quarters of 2011. On balance, however, the Dutch economy did manage to achieve 1.2% growth on the year, thanks to the relatively good first half. In 2011 the Dutch economy performed somewhat less well than the rest of the eurozone, and even significantly worse than neighbouring Germany (with 3.7% growth). For 2012, negative growth of 0.8% is expected for the Netherlands, once again putting it behind the rest of the eurozone, with gradual recovery expected in 2013.

The loss of growth in the Netherlands is due in part to the effects of the world financial crisis: consumer spending was down in 2011, leading to reduced industrial investments in 2012, which in turn is expected to result in falling exports. But the cabinet's austerity measures are also suppressing growth, as is a shrinking labour market as a result of an ageing population and a lower rate of employment among women. Another striking factor is that unemployment is expected to rise sharply in 2012 and 2013, but this is not

expected to lead to mitigation or reduction of wages. On the other hand, inflation will outstrip wage increases, so in 2012 purchasing power will fall for the third year in a row. The Netherlands' price-competitive position remains good in 2012, but in 2013 it is expected to deteriorate (with a delayed effect).

*Disagreement on response to crisis leads to fall of cabinet, but accord still reached*

In recent years (2009-2011), the Netherlands has been running a budget deficit well above the European standard of 3%; for 2012 the budget deficit is forecast at 4.2%. In early March 2012, the Netherlands Bureau for Economic Policy Analysis (CPB) projected that with unchanged policies, the budget deficit would increase to 4.6% in 2013 and that the national debt would rise to 73% of GNP. Within Europe, the Netherlands always argued very strongly for enforcement of the European budget rules (maximum budget deficit of 3% of GDP) and for strong and independent monitoring of those rules. But getting the government's finances in order required some tough choices. After seven weeks of negotiations in March and April 2012, the ruling parties' attempts to reach an accord on the response to the crisis and the 2013 budget failed. The cabinet fell, and new elections were called for 12 September 2012.

But by the end of April, a number of parties representing a majority of parliament did manage to reach an accord, composed of a mix of tax increases, budget cuts and reforms, to get on track for a budget deficit of 3% in 2013.

### 1.3 **The impact of the financial crisis on the agricultural sector**

The influence of the ongoing financial crisis (and the euro crisis as an element thereof) on the Dutch agricultural sector is not easy to define. The economic downturn has had little to no impact on the agricultural sector's contribution to the economy in terms of added value and employment, currently estimated at approximately 10%. The systemic, gradual decline in employment in the agricultural sector and the other parts of the agricultural production chains can be attributed to increasing productivity. For a number of reasons, in periods in which the economy as a whole stagnates or goes into recession, the agricultural sector as a whole exhibits a much smaller fall in employment than other sectors. One of them is that the agricultural sector does not have a flexible buffer of temporary workers. In such periods of economic stagnation, a large number of agricultural activities can be relatively beneficial for a regional economy. However, while the agricultural sector can cushion the impact of an economic recession, it can never compensate for it. In general, the agricultural sector is less sensitive to economic conditions (both good and bad), so we see that the effects of economic booms as well as economic downturns are less dramatic in the agricultural sector. But the current financial crisis, however, has had its consequences on the agricultural sector, and these vary within the individual subsectors.



### *Effects of the euro crisis on the Dutch agricultural sector*

The effects of the present euro crisis on the Dutch agricultural sector are determined by a number of factors. In view of the Netherlands' relatively low exports to Greece, Italy, Portugal and Spain (in 2011 12% of total exports to the EU), the impact of the situation in these countries (and Greece's potential exit from the eurozone) on the Dutch agricultural sector will be limited.

Secondly, as a result of the crisis the euro has gone down, and the dollar has gained strength as a safe haven in these uncertain times. As a result, over 2011 the euro lost a good deal of value against the dollar. While this is good for exports to non-euro countries, it also makes imports more expensive, so agricultural sectors that are relatively dependent on imports (intensive livestock farming with animal feed raw materials) and energy (crop production using artificial fertilisers, horticulture) have been hit harder.

Thirdly, for the agricultural sector as a whole we see a slight increase in production value as a result of rising prices. Exceptions to this rule in 2011 were the vegetable sector (as a result of the EHEC crisis) and the arable farming sector. For 2012, the vegetable sector is expected to recover, while the arable farming sector will remain slightly down. Rising prices may be good for the producers, but at the same time, the rising prices of agricultural and other raw materials (such as petroleum for fuel and artificial fertiliser) also increase costs. Historically speaking, raw materials are set to remain expensive. For 2012 and 2013, the CPB forecasts an oil price of 111 dollars per barrel.

A fourth factor is consumer spending power. It is expected that in 2012, the crisis combined with government budget cuts will have a negative impact on the general income development in the Netherlands, and therefore on demand, which will in turn put pressure on prices. This expectation is further reinforced by the forecast decline in GDP in the EU (2012: -0.3%) and the forecast fall in foreign trade relevant to the Netherlands (2012: -1.8%). All this will put pressure on Dutch exports. Declining demand will hit sectors with a relatively high added value (meat, dairy, flowers and plants) hardest, as we saw in 2009.

Another common feature of crisis periods is problems relating to financing in the business sector. In 2009, it was primarily the glasshouse horticulture sector and the intensive livestock sector, two sectors with relatively low solvency, that saw problems here. In addition to the financial problems in the agricultural and horticultural sectors, this also had to do with a more restrained strategy on the part of the banks in this period. Now, as then, banks are being more cautious in providing credit to businesses such as horticulture companies. Meanwhile, companies are also being more restrained in their own investments.

Finally, savings on agricultural sector expenses at the national level (through the Ministry of Economic Affairs, Agriculture & Innovation's budget) and in an EU context, for example Common Agricultural Policy (CAP) expenses, can also have consequences for individual sectors, for example where investment and subsidy programmes or EU farm supplements are cut.

# Developments in the Dutch agricultural chains

2

## 2.1 The agricultural complex and food industry

In 2010, 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. 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 379,000 working years between 2001 and 2010.

Table 1 Gross value added and employment of the Dutch agricultural complex, 2001 and 2010				
	Gross value added <sup>a</sup> (EUR billion)		Employment (1,000 labour units)	
	2001	2010 (p)	2001	2010 (p)
<b>Agricultural complex <sup>b</sup></b>	40.6	52.5	719	689
<i>Share in national total</i>	10.2%	10.0%	10.8%	10.2%
Gardening, agricultural services and forestry	3.8	4.3	72	51
<i>Share in national total</i>	0.9%	0.8%	1.1%	0.8%
Foreign agricultural raw materials	15.3	22.4	227	259
<i>Share in national total</i>	3.8%	4.3%	3.4%	3.8%
Processing industry	6.6	9.0	74	66
Supply	4.0	5.2	69	73
Distribution	4.7	8.2	84	120
Agricultural complex (based on domestic agricultural raw materials)	21.5	25.8	420	379
<i>Share in national total</i>	5.4%	4.9%	6.3%	5.6%
Agriculture and horticulture	7.6	7.0	188	151
Processing industry	3.2	4.5	50	39
Input manufacturing	8.1	10.7	136	132
Distribution	2.6	3.3	46	56

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.

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 28%, whilst its contribution to employment is about 33%.

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, increasing to 66% in 2010 for employment and decreasing to 64% for the added value.

The food and beverages industry was comprised of 4,225 businesses in 2009, all involved in some way in the production and sale of food and beverages. The industry has over 122,000 employees and a turnover of almost 64 billion euros.

## 2.2 Mergers and takeovers

### *Strong involvement of private equity companies in food & beverages sector*

The value of takeovers fell by 39% in 2011, to 42 billion euros (as compared to 69 billion in 2010). This is the lowest level since 2008. Banks and other institutions are lending less for financing big takeovers, and no such takeovers are to be expected in the Netherlands in the near future. However, the number of transactions (particularly smaller transactions) increased, up 16% in 2011 to 532 (compared to 460 in 2010). A large number of private equity firms were involved in takeover transactions: investors with bank money, pension funds and affluent private investors, all purchasing companies to resell them later. In 2011, 150 private equity deals totalling 10 billion euros were signed, accounting for some 25% of all takeovers. Examples include the takeover of supermarket chain C1000 by its competitor Jumbo, and the proposed merger between snack manufacturers Royaan and Ad van Geloven. Foreign buyers were frequent participants in takeovers of Dutch companies (39% in 2011).

### *Further market concentration for animal feed producers*

Feed producer ForFarmers took over two competitors, one in the Netherlands and one in the United Kingdom. One of these takeovers involved Nutreco/Hendrix's animal feed activities in the Netherlands, Belgium and Germany (total sales 830 million euros). In the United Kingdom, ForFarmers is set to take over the feed group BOCM PAULS (pending approval of the European Competition Authorities). With sales of 600 million euros and a market share of 20%, BOCM PAULS is market leader in the production and sale of mixed feeds in Great Britain.

The takeover of Hendrix and BOCM PAULS creates a company with a production of 8.8 million tonnes of feed materials, and makes ForFarmers Europe's biggest feed group. Its market share in the Netherlands is 21%. Only Agrifirm has more, at 23%. A distant third, at 13%, is privately held livestock feed producer De Heus. This gives the three biggest

companies a total market share of nearly 60% in the market for mixed feed in the Netherlands; the rest of the market is made up of about 70 medium-sized and small companies, each with a market share of 4% or less. This leaves the feed market in the Netherlands still quite fragmented.

### *Big takeover in the poultry sector*

Concentration in the poultry sector continues. After something of a wave of concentrations several years ago, in January of this year the Plukon Food Group in Wezep received approval from the competition authorities for the takeover of its German competitor Stolle. Plukon had already been active in the German market through Friki Germany, but the takeover of Stolle opens up access to German discount supermarkets like Aldi and Lidl. Plukon specialises in pre-packaged products for supermarket chains, and poultry meats for the food service channel and the food industry in north-western Europe. The new group will total some 1.2 billion in sales, with 13 production locations and 4,000 employees. The takeover of the German market party makes Plukon, in which investment company Gilde Buy Out Partners has a majority stake, the second-biggest poultry meat producer in Europe, after French group LDC. In the Netherlands, 2 Sisters Storteboom is the biggest poultry slaughterer, with a market share of 27%. Plukon comes in at second with a market share of 26%.

## 2.3 Wholesale

The wholesale trade in agricultural products is a substantial element of the agricultural complex. The sector employs over 100,000 in 13,680 different companies involved in either the wholesale of agricultural products and live animals or of food products. Wholesaling in food products accounts for the bulk of the sector. With sales of almost 63 billion euros, it is essentially the same size as the food and beverages sector. Wholesalers in food include suppliers to retailers, industrial customers, the restaurant sector, company canteens and other large-scale users, referred to collectively as the “food services industry”. The wholesaler group in general is still growing, but not as fast as we have seen in recent years. The forecast of volume growth in 2012 of 0.5% can be called rather modest, particularly in comparison to the average annual growth of 5% over the past 20 years.

One of the biggest wholesalers is the Sligro Food Group in Veghel. In 2011, the group earned sales of over 2.4 billion euros, with 811 million from supermarkets and 1.6 billion in the food services channel. The Sligro Food Group supplies 130 supermarkets nationwide. In the food services channel, its clients include large and small restaurants, recreational businesses, caterers, large-scale users, company canteens, filling stations, the SME sector, small retailers and the institutional market. It has no foreign activities. With a market share of 18.7% in the Netherlands, Sligro is the largest market party. Its nearest competitor is Lekkerland Netherlands, with a market share of 14.7%.

### *Concentration in wholesaling*

There is increasing concentration in the wholesale sector. Trade in ornamentals (flowers and plants) is increasingly dominated by big companies. At present, there are 2,700 companies in this wholesaling sector, varying from single-person businesses to conglomerates of many companies under one holding. The flower trade has a strong focus on the international market. Over 60% of its sales come from foreign customers. This sector has been struggling for some time. Market parties in it will need to scale up, achieve purchasing advantages and automate processes in order to survive in a market in which prices are low and margins are narrow. Many companies in this sector are up for sale, and large parties with sales in the hundreds of millions of euros are looking for good acquisitions.

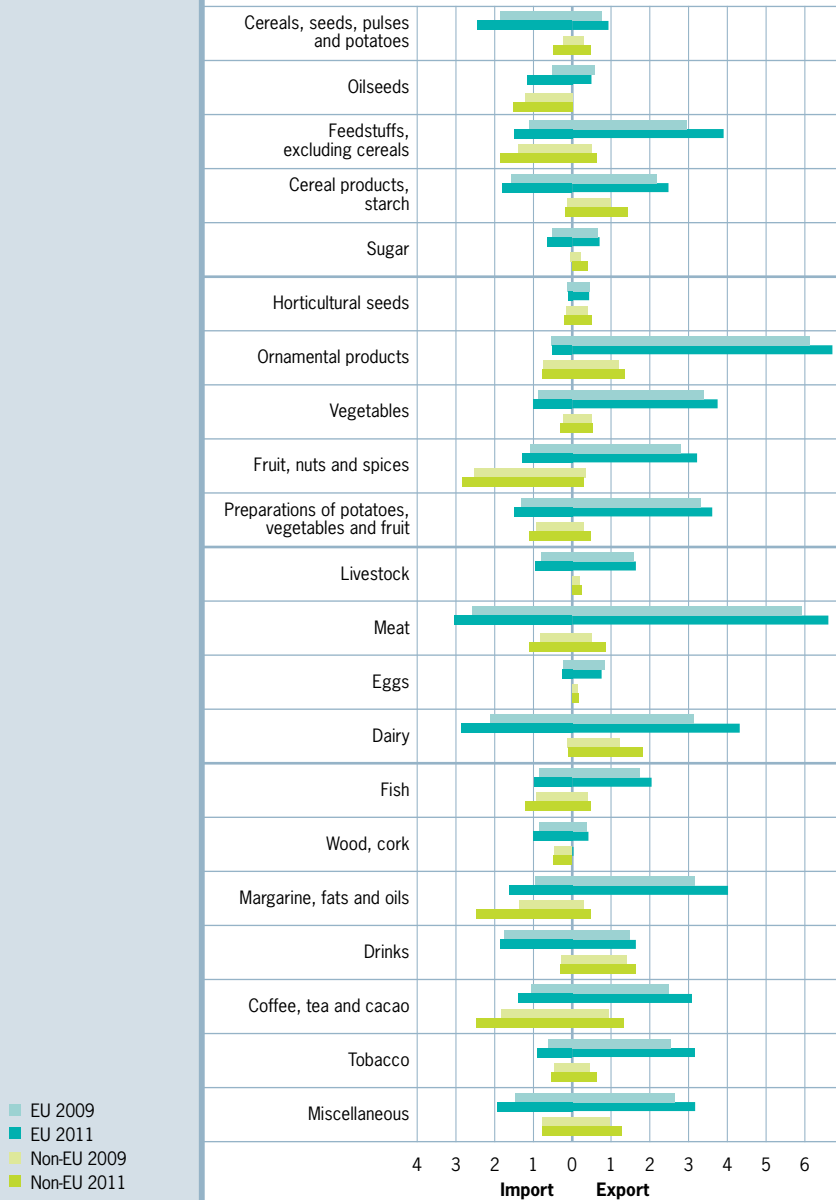
A similar process is under way in the fruit and vegetable sector. Here, too, takeovers are rampant and companies are seeking advantages of synergy. European customers, mostly supermarket chains, are growing ever bigger. In this sector, the process of scaling up started earlier and is still going on. Supermarkets and other produce buyers are demanding quality guarantees from their vendors, and are looking for vendors who can deliver in large volumes. This becomes extremely important in special sales, promotions, etc. Many supermarkets have elevated their produce departments to key focus areas by offering more fresh products, higher quality and more sustainably produced vegetables and fruits. Ties with growers and producers are being showcased. Wholesalers are working towards shortening the fresh foods chain by establishing more direct links between grower and customer. For the commercial side, good logistics planning is a principal requirement. Large companies are in a better position to bear the costs of ICT investments than small, independent businesses.

Wholesaling in fruit and vegetables is dominated by The Greenery, the market leader in the Netherlands with sales of nearly 2 billion euros. Staay Food Group in Barendrecht is second, with sales of 475 million euros. This company has completed a number of takeovers in recent years, including a 150-hectare citrus plantation in Argentina. Last year, it acquired a majority stake in Hispa Fruit, also making it the owner of a 2,500-hectare pineapple plantation in Costa Rica. Coming in third is Olympic Food Group, with sales of 400 million euros. This group was formed by the merger of eleven independently operating vegetable and fruit dealers.

## 2.4 **Export and import**

After a strong 2010, growth in Dutch agricultural commerce continued robustly in 2011. The value of exports rose by 9%, from 66.6 billion to 72.8 billion euros. The value of imports grew by no less than 18%. The increase in trading value (particularly in imports) was due largely to sharp price increases, particularly in grains and oilseeds. However, volume increases of approximately 7% were also a factor in this increase. The

Figure 1

**Dutch agricultural imports and exports by product with the EU and with third countries, 2009 and 2011 (billion euros)**


Source: Statistics Netherlands, calculations by LEI.

Netherlands' agricultural trade surplus came out at 24.5 billion euros, accounting for over 60% of the total Dutch trade surplus.

Figure 1 shows the movements in exports and imports of the major agricultural product groups during the period from 2009 to 2011. On the export side, in 2011 all product groups were above their 2009 level. Export value in vegetables was, however, lower than in 2010, as a result of poor prices for products such as cucumbers and tomatoes (an effect of the EHEC crisis). Also on the export side, there is a notable increase in exports of livestock feed, dairy products, and fats and oils. On the import side, the value of ornamental imports remained behind 2009.

## 2.5 Retail and consumption

The retail of food and beverages recorded a 1.6% increase in turnover in 2011 as compared to the previous year: prices increased by 2.1%, whilst consumer purchases decreased by 0.5%. The supermarkets exhibited a better performance than the total retail sector. Specialist food and beverage outlets had, as in previous years, to settle for less in 2011: they had to be satisfied with a 2.4% decline in turnover. In so doing, the supermarkets' lead over the specialist stores has increased further.

### *Jumbo bags C1000*

With the approval of the Netherlands Competition Authority (NMa), Jumbo Supermarkten in Veghel bought competitor C1000 from private equity company CVC Capital Partners. The takeover makes Jumbo the second-largest supermarket chain in the Netherlands. The largest is Albert Heijn, with 850 stores and sales of approximately 10.5 billion euros in 2011 (a market share of nearly 34%). The takeover deal included provisions that would put the total number of Jumbo stores ultimately in the area of 600, for a market share of approximately 20% and consumer sales of some 7 billion euros. The merger of Jumbo and C1000 is seen as the prelude to further concentration in supermarket formulas, which could see a number of the smaller formulas disappear.

### *The rise of new supermarket chains*

Despite the concentration of the number of traditional supermarket chains and the decline in the number of formulas, there has been an increase in the number of supermarkets with new formulas and in small supermarket chains. Last year, Amsterdam saw the arrival of Landmarkt, which describes itself as a combination of a large farm outlet store and a discount supermarket. Landmarkt sells a complete range of its own brands and A-brands. Potatoes, vegetables and fruit come primarily from the region around Amsterdam. The formula also includes a tasting room, where consumers can enjoy daytime meals, salads and the like, which are prepared fresh from in-store

products. Landmarkt has national ambitions, and its near-term goal is to open twenty stores around the country, mainly in the larger cities.

Another successful new supermarket formula is Marqt, which sells food products with no additives. Its products are animal-friendly, sustainably produced and fair trade. Marqt has two stores in Amsterdam, one in Haarlem and one in The Hague. Marqt's goal is to open four more stores in 2012.

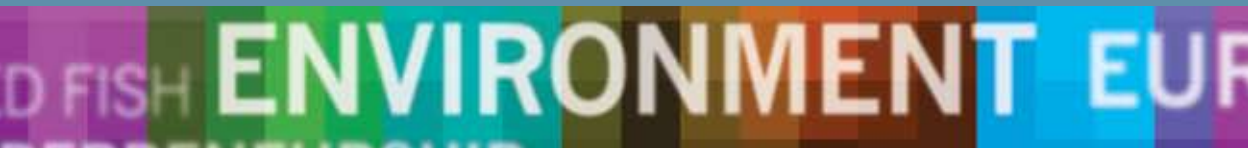
Another ambitious supermarket formula is Tanger, a Moroccan initiative. Tanger started in 2012 with just two stores, one in Amsterdam and one in The Hague. A third store, in Antwerp, is coming in 2012. This supermarket's target group is primarily ethnic Dutch, but it also attracts clientele from Belgium and Germany. It sells Moroccan, Turkish and Surinamese products. It attracts 2.5 million customers per year and generates 22.5 million in sales, and it has ambitions to expand further in the Netherlands and Belgium.

### *Consumption*

Total household spending (excluding the hospitality sector) increased by 2% to almost 268 billion euros in 2010. Expenditure on food and beverages amounted to almost 40 billion euro, a share of nearly 15% and a slight increase compared to the 39.2 billion euro spent on food in 2009. Household spending in the hospitality sector amounted to 13.1 billion euros in 2010, a decline with nearly 0.8%. Dutch households are spending less and less on eating out. The food services industry is gradually pricing itself out of the market. The prices in this sector have risen by an average of 25% over the past ten years, while in that same period supermarket prices have risen by just 2%. This has created a situation in which prices in Dutch supermarkets are among the lowest in Europe, while prices in the Dutch food services sector are among the highest.



# Countryside, landscape, nature and the environment



## 3.1 Rural area policy

In 2004, the “Agenda for a Living Countryside” (Agenda Vitaal Platteland) outlined policy tasks for the economic, ecological and socio-cultural aspects of rural life. The national government made commitments with the individual provinces on actions in the pursuit of these goals, to be carried out in the 2007-2013 period. The expenditures of ministries, provinces and third parties required to achieve the policy tasks are bundled in the Rural Area Investment Budget (ILG). The commitments are documented in administrative agreements. The majority of the budget, over 60%, is earmarked for nature within and outside of the National Ecological Network (EHS). The provinces are responsible for the execution.

The progress reports show that over 2 billion euros (approximately half of the ILG 2007-2013 budget) was spent between 2007 and the end of 2010. There are significant differences, however, in the degree of utilisation of the budget and each specific component. In the components of nature, agriculture and landscape, the bulk of the budget has already been spent, while in others, such as water, reconstruction of sandy regions and recreation, the budget is underutilised. The budget cuts that the now defunct Rutte cabinet have been announcing since their arrival in 2010 do affect the ILG. It is therefore far from certain whether the ILG goals will be achieved in 2013.

### *Negotiated agreement on decentralisation of nature policy*

In September 2011 the national government and the provinces signed a negotiated agreement on the decentralisation of the nature policy and its financing. Under this agreement, the provinces become responsible for working out rural policy, the regional policy for nature, recreation and tourism, landscape, structure enhancement of agriculture, and liveability. The national government’s responsibility is limited to defining frameworks based on international and European obligations governing the quality of nature at the area level. The national government also delegated a number of tasks, such as the living environment approach, national parks, national landscapes, the environmental quality of the National Ecological Network and the reconstruction of sandy regions. These tasks are not decentralised. It is left up to the provinces to determine whether they wish to make efforts towards them.

## 3.2 Landscape and nature policy

The negotiated agreement on the decentralisation of nature policy also defines the division of responsibilities between the national government and the provinces on the execution of the nature policy. The most important points here are the achievement of international targets and continuing compliance with international obligations under Natura 2000 and the European Water Framework Directive (WFD). The national government is accountable to the EU on these obligations. Provinces are only responsible for these obligations where the national government provides resources towards them under the agreement. A further commitment is that the National Ecological Network in its streamlined form (the recalibrated EHS) be defined for planning purposes in 2013 and complete in 2021. The rationale behind this is that the recalibrated EHS is to contribute to the international commitments that replace the previous national ambitions in the nature area. Consequently, the acquisition of land for Natura 2000 and the WFD take priority, independently of the obligations already established from a legal perspective. With all this in mind, the assignment for acquisition/functional change comes out at approximately 17,000 ha, with an additional 40,000 ha to be configured for the plans. Now that the Rutte cabinet has fallen, the question is whether a subsequent cabinet will adopt the streamlining of the EHS in this form.

### *Agricultural nature management outside of EHS remains responsibility of Dutch national government*

Under the negotiated agreement, provinces are responsible for agricultural nature management within the recalibrated EHS, and the management outside of that falls under the responsibility of the Dutch national government. Starting from 2014, the national government intends to make agricultural nature policy outside the EHS a component of the EU hectare payments under the first pillar of the common agricultural policy (CAP). Primarily, this would have to be done in the ecological focus areas (EFAs) that the European Commission wishes to embed in the CAP after 2013. Whether the government will succeed remains to be seen. Through the EFA, approximately 7% of agricultural land will face some “greening measures”. There is some debate, however, on whether nature management through the EFA is an effective approach. Effective meadow management requires planning at the area level, not the farm level, and at least 30% of the area demands active management. Additionally, it would appear that a portion of the measures for field bird management will be difficult to reconcile with the EFA.

### *Falling participation in agricultural nature management stopped*

As a result of the budget cuts, provinces will presumably be spending less on agricultural nature management. Farmers and agricultural businesses will be feeling this from 2012 on. The fees for agricultural nature management have been frozen, and only contracts

running out within the EHS are eligible for extension. The collective meadow bird and field bird management outside the EHS falling under a collective management plan will, however, be continued.

The acreage under agricultural nature management has been slowly but steadily decreasing in recent years. This decrease ended in 2010. At the end of that year, participation in agricultural nature management was just under 62,000 ha, with nearly 45% under collective management. The collective management is often through an agri-nature cooperative (ANC). There are a total of between 125 and 150 ANCs in the Netherlands.

### 3.3 Agriculture and the environment

The environmental impact of agriculture presents a varied picture for 2010, the most recent year for which figures are available. The preliminary figures on phosphate and nitrogen surpluses indicate a slight increase. Likewise, glasshouse gas emissions are also slightly on the rise. By contrast, we see a continued decrease in emissions of ammonia and the use of plant protection products (Table 2). In recent years, the growth in agricultural production has been paired with a decreasing burden on natural resources. This “disconnection” of production and environmental impact was not seen in 2010, the year in which agricultural production was more or less stable.

For most environmental topics, we can observe that the objectives seen as desirable from an ecological standpoint have not yet been reached. For a number of subjects, the question is whether these objectives are even feasible without additional policy support. This includes important objectives such as the reduction of greenhouse gas emissions. On the other hand, the sector has come a long way towards its goals in the area of crop protection.

	1995	2000	2005	2008	2009	2010
Use of crop protection agents (in million kg of active substance)	12.61	11.38	10.7	10.77	9.71	9.60
Greenhouse gas emissions (in billion kg CO <sub>2</sub> equivalents) <sup>a</sup>	30.4	26.4	24.1	24.1	25.1	26.2
Surplus of nitrogen (N, kg per hectare) <sup>a</sup>	170 <sup>b</sup>	182	154	120	115	126
Surplus of phosphates (P <sub>2</sub> O <sub>5</sub> , kg per hectare) <sup>a</sup>	86 <sup>b</sup>	57	45	23	15	20
Ammonia emissions (in million kg) <sup>a</sup>	179	139	121	115	107	105
p: preliminary.						
a Due to methodological changes all figures have been revised, starting with the year 1990;						
b 1990.						
Sources: Plant Protection Service; RIVM/CBS (Statistics Netherlands), Milieupendium, various years.						

### *Crop protection agents*

The crop protection policy set out in the Policy Document on Sustainable Crop Protection (Ministry of Agriculture, Nature & Food Quality, 2004) was evaluated over the period of 1998-2010 by the Netherlands Environmental Assessment Agency. This evaluation showed that the objective for surface water, the 95% reduction in 2010 of the environmental burden with chemical agents, was not attained; the reduction achieved was 85%. Likewise, another policy goal, reduction of the number of problem points in the area of preparing potable water from surface waters by 95% between 1998 and 2010, was also not attained, despite significant improvement. Similarly, the ecological standards for surface water quality are still regularly exceeded. Improvement in the safety of the users of the resources was likewise not adequate, partly because the government is not sufficiently active in the area of enforcement.

The objectives in the area of food safety were, however, achieved. In 2008 the number of violations of residue standards (the maximum allowable amount of chemicals on food) was 70% lower than in 2003, soundly beating the target of 50%. Our food supply has become safer. This is not to say that it is now safe enough. The assessment of violations only looked at the presence of one specific substance, but did not adequately evaluate the potential effects of the total exposure to multiple substances for the entire nutrition package. The European Commission is working on methods to change this.

### *Greenhouse gas emissions*

Greenhouse gas emissions in the Netherlands in 2010 amounted to 210 megatonnes of CO<sub>2</sub> equivalents. This is barely below the level of the baseline year 1990, when the emissions amounted to 213 megatonnes of CO<sub>2</sub> equivalents. The growth in 2010 as compared to 2009 is attributable to the cold winter and the growth of industrial production. Under the Kyoto protocol, the Netherlands is required to reduce its emissions in the period of 2008-2012 by 6% from the 1990 level, which means maximum emissions of 200 megatonnes of CO<sub>2</sub> equivalents. A portion of this obligation has been met by purchasing foreign emissions rights (13 billion kg of CO<sub>2</sub> equivalents in 2010).

Primary agriculture and horticulture account for approximately 12% of the total greenhouse gas emissions in the Netherlands. About a third of these emissions consist of CO<sub>2</sub>, while two-thirds are ruminant methane emissions and the emission of nitrous oxide from fertiliser use. Since the mid-1990s, emissions from primary agriculture and horticulture have fallen slowly but consistently; since 2007, however, they have begun rising again. This is largely the consequence of the increased CO<sub>2</sub> emissions in glasshouse horticulture, both from the cultivation itself and from electricity generation.

### Glasshouse horticulture and energy

The glasshouse horticulture sector is the biggest user of energy within the primary agricultural sector. The glasshouse horticulture sector and the government have a shared interest in reducing the consumption of fossil fuels. The goals for 2020 set out in the covenant between the government and the glasshouse horticulture sector, the Clean and Economical Agro Sectors Covenant, are:

- reducing growing-related CO<sub>2</sub> emissions by 1 megaton from 1990 to 5.8 megatonnes, with an additional ambition to further reduce these emissions to 4.8 megatonnes;
- reducing nation-wide CO<sub>2</sub> emissions from combined heat and power (CHP) generators by 2.3 megatonnes;
- improving energy efficiency by an average 2% per year;
- increasing the percentage of sustainable energy to 20%.

To achieve these objectives, the glasshouse horticulture sector and the government are working together under the “Glasshouse as Energy Source” programme. The programme’s goal is to make all new glasshouses climate-neutral and economically profitable as from 2020.

In the CO<sub>2</sub> emission figures, a distinction must be made between total CO<sub>2</sub> emissions and CO<sub>2</sub> emissions from growing. The difference is the CO<sub>2</sub> emissions that are related to the sale of electricity by the glasshouse horticulture sector. In 2010, the cultivation-related CO<sub>2</sub> emissions were still 0.3 million tonnes above the goal for 2020 under the Agro Sectors Covenant (Table 3).

The glasshouse horticulture sector is also a major electricity producer. Since 2006, the sector has been a net supplier of electricity (electricity sold minus electricity purchased). The electricity is produced using CHP systems. In this form of electricity production, the heat released is utilised, unlike in conventional power stations where over half of the fuel consumption is lost as waste heat. Electricity generation capacity in the glasshouse horticulture sector rose in 2010 to well over 2900 MWe, or the equivalent of 5 to 6 large power stations, generating 12 billion kWh of electricity, or 10.5% of total Dutch electricity consumption. By using the heat from the CHP generators, the Netherlands reduced its CO<sub>2</sub> emissions by 2.4 megatonnes, beating the goal in the Agro covenant (2.3 megatonnes).

	1990	2000	2005	2007	2008	2009	2010	Goal 2020
CO <sub>2</sub> -emission cultivation (mio. Tons) <sup>a</sup>	6.8	6.6	6.1	5.2	5.1	5.4	6.1	5.8
Total CO <sub>2</sub> -emission (mio. Tons) <sup>a</sup>	6.8	6.7	6.5	6.4	7.1	7.2	8.2	-
Energy-efficiency (index) <sup>b</sup>	100	84	68	54	44	48	47	43
Share of sustainable energy (%)	-	0.1	0.4	0.9	1.3	1.5	1.6	20

a The CO<sub>2</sub>-emission of cultivation is the total CO<sub>2</sub>-emission minus the sale of electricity outside the glasshouse horticultural sector;  
b energy-use per unit of production.

Source: LEI.

### *Manure and mineral production*

In the period 1990-2005, nitrogen production from the Dutch livestock sector dropped by 30%, from 604 million kg to 423 million kg; phosphate production was reduced from 260 million kg in 1990 to 170 million in 2005, or a decrease of 35%. The reduction in production of these minerals reached an end in 2005. Due to a slight enlargement of livestock numbers (all animals except beef cattle) and a higher production per animal per year in the intensive livestock sector, phosphate production rose by 5%, to 179 million kg in 2010.

Despite the higher mineral production, between 2005 and 2009 the use of animal manure on cultivated land in the Netherlands decreased, due to increasing sales of manure, particularly poultry manure, outside of the Dutch agricultural sector. These sales increased from 22 million kilograms of phosphate in 2006 to 39 million in 2009.

In 2010, the use of animal manure per hectare was higher than in 2009. The nitrogen and phosphate balance of Dutch cultivated land does not take into account supply level changes; where this is taken into account, the use of animal manure in 2010 was several kilograms per hectare lower than in 2009.

### *Manure policy*

In accordance with the arrangements in the coalition agreement for the now defunct Rutte cabinet, the ministry and the sector developed a shared vision for the future of manure policy. The vision is the basis for the fifth Nitrate Directive action programme, for use at the EU level. Starting from 2013, the manure problem must be dealt with by means of the following three tracks:

1. Sustainable balance between manure production and sale. To bring manure production into balance with the sales potential, livestock farmers who do not have sufficient land to dispose of it themselves are obliged to offer a portion of their surplus for manure processing. The sale of the remaining farm surplus must be arranged by the farmer through sales guarantees.
2. Feed measures. Measures to reduce unnecessarily high content of phosphorus and nitrogen in the feed, without this compromising the health and well-being of the animals.
3. Animal manure products as artificial fertiliser substitutes. According to current EU rules, concentrate is considered and handled as animal manure, with all the restrictions this requires. The Ministry of Economic Affairs, Agriculture & Innovation will argue to the EU that high-value mineral concentrates from animal manure should no longer be classified as animal manure, but as artificial fertiliser. One problem may be that the effect of nitrogen in the fertiliser concentrates is approximately 80% of that of artificial fertiliser. This may be a reason for the European Commission to continue to classify concentrate as animal manure.

How successful each of these three tracks will be remains very unclear. In the period 2001-2005, an attempt was made to regulate manure sales through sales guarantees in Manure Sales Contracts. Because these contracts were not successful, they were abolished. Feed measures would be successful if all 40,000 beef and pork farms participate, but it is by no means a given fact that they will. Finally, regarding the third track; the problem here is that it is primarily the Netherlands and Flanders that would benefit from animal fertiliser being categorised as artificial fertiliser. Whether there might be enough support for this to be found in Brussels is very much in question.

#### *National manure surplus rising*

As in 2009 and 2010, the available area for manuring both arable land and grassland is essentially saturated. In 2010, the available area for phosphate use on arable land was covered by animal manure to the tune of 75%. Almost all of the remainder (for 14 million kg of phosphate) was covered by animal fertiliser (2 million kg of phosphate) and other organic fertilisers (8 million kg phosphate). In 2011, the area available for phosphate use on arable land was reduced by 4 million kg. In 2010, there was a surplus of 6-11 million kg of phosphate, and this surplus was to come on the market in 2011. Together with the manure stock from 2010, the national manure surplus in 2011 totals somewhere between 12 and 22 million kg of phosphate. This will increase the pressure on the manure market, with the result being relatively high market prices. If nothing is done, the expectation is that the national manure surplus will total some 19 million kg of phosphate annually from 2013 on.

In order to reduce this surplus, either the export of processed animal fertiliser has to increase or the feed track must contribute to lower manure production. If the feed track succeeds, this would reduce the amount of phosphate coming on the fertiliser market by 10 to 15 million kg in 2013.

#### *Ammonia*

After ammonia emissions from the agriculture sector were halved in the 1990s, followed by a further reduction of a quarter in the early years of this century, in 2010 ammonia emissions were still 105 million kg. In 2010, ammonia emissions were cut by over 2 million kg from 2009 levels, this entirely due to a reduction in emissions from pig and poultry manure. Emissions from grazing animal manure increased. The emissions stay well under the target for 2010 of 114 million kg.

Grazing animals are responsible for emissions of a total of 57 million kg of ammonia, with pigs accounting for 23 million kg, and poultry, rabbits and fur animals for 15 million kg. In addition, the agriculture sector emitted a further 10 million kg of ammonia through the use of artificial fertiliser. Broken down by source, the emission contribution from stables and manure storage is 54 million kg, application of animal fertiliser 40 million kg and grazing nearly 2 million kg.

### *Low-emission pig and poultry pens*

The Decree on Accommodations (in effect 2008) and the supplemental policy set out in the Ammonia and Livestock Action Plan (in effect 2010) are intended to reduce ammonia emissions from pens dramatically, by 15 million kg. For firms with pigs and poultry, the reductions must be achieved no later than 1 January 2013.

In 2010, over 50% of pigs were housed in low-emission pens, 25% more than in 2008. For laying hen farms, the number of low-emission pens is over 80%. However, in 2010 the low-emission system of cage housing was still being used. This system is being banned from 2012, and laying hen farms must shift to animal-friendly housing, which produces more ammonia emissions. In 2010, 37% of broiler chicks and 32% of parent animals of broiler chicks were housed in low-emission pens. The number of broiler chicks in low-emission pens has doubled since 2008.



# Structure of the primary agriculture and horticulture sector



## 4.1 Number of holdings and employees

In 2011, the number of agricultural and horticultural businesses fell by over 1,900, to approximately 70,400 (Table 4). This translates to a decrease of 2.7%, in line with the average decrease between 2000 and 2011 (2.9%). The decrease has levelled off somewhat in the dairy farming sector and arable farming sector since 2007, presumably thanks in part to the relatively good incomes in those years.

It would appear that the financial crisis has had little impact on the trends in the number of businesses. The primary factors are dynamics such as age, succession and technological advancements, all of which are reducing the number of operations on an ongoing basis. The rate of this decline can be influenced somewhat by drastic events (such as animal plagues) or policy measures. A more recent example is the very drastic deterioration of the results in the glasshouse vegetable sector resulting from the EHEC crisis, in combination with increased competition and poor summer weather. The precise influence of each of these factors cannot be indicated with absolute clarity.



	2000	2005	2010	2011	Change (%) 2009-2010
Number of agricultural and horticultural farms <sup>a</sup> (x 1,000)	97,389	81,750	72,234	70,392	-2.7
Number of workers (x 1,000)	280.9	235.7	212.0	209.0	-1.4
Area of farmland <sup>a</sup> (x 1,000 ha)	1,975.5	1,937.7	1,872.3	1,858.4	-0.7

<sup>a</sup> Due to changes in the census and methodological changes the figures in this table cannot be compared against previously published data.

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

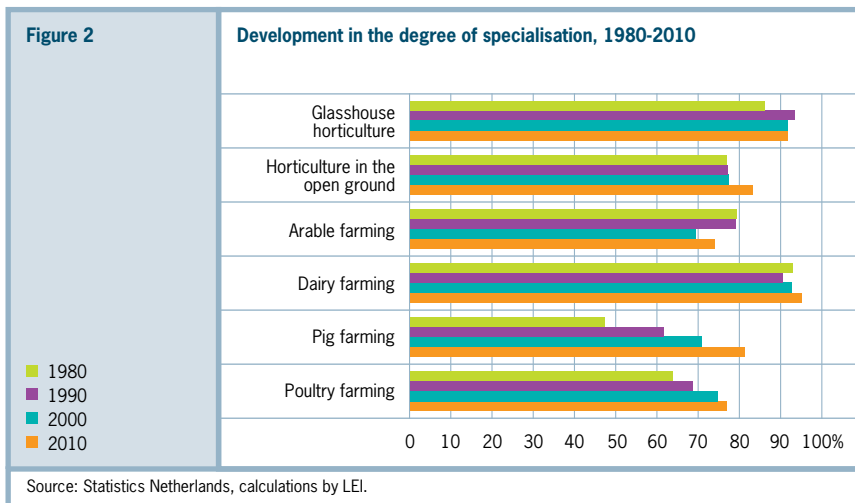
### Specialisation

To a large extent, agricultural production is generated on specialised farms, which are farms raising more than two-thirds of their production in one sector. The high, and generally still increasing, degree of specialisation in Dutch agriculture and horticulture is a product of factors such as available knowledge, labour and land. Concentration in one branch of production often allows for better results from a technological and economic

perspective. The trend towards specialisation is reinforced by increasing requirements in the production process dictated by society and the chain in general. On many farms, specialisation (reverse diversification) and scaling up in the remaining branch are happening at the same time.

The degree of specialisation has increased in all livestock sectors since the year 2000 (Figure 2). This is highest in the dairy sector (nearly 95% in 2010). But the degree of specialisation was already high in 1980, when over 90% of dairy cows were kept on dairies or specialised dairy farms, and so less than 10% on other types of farms.

In the past three years, the fastest shift towards specialisation has been seen in the pig farming sector, going from less than 50% to over 80%. In the poultry sector, the increase in specialisation has been very minor since the turn of the century. This sector had already been fairly highly specialised in the preceding decades, when chicken farming had already largely disappeared on mixed farms. That said, specialisation in broiler farming, at nearly 70% in 2010, remains some 10% lower than in laying hen farming. To a fairly high degree, broiler chicks are still farmed relatively frequently as a primary or secondary activity on farms with arable farming, where home-grown grain is used as chicken feed.



In the vegetable-growing sectors, the picture of the trend towards specialisation is somewhat more mixed. In the glasshouse horticulture sector, the degree of specialisation was already over 90% in 1990, but the open-air-grown vegetable sector, for example, only attained levels above 50% in 2010. Differences such as this are due in part to the investments required for crop growing, which are proportionately much higher per hectare in the glasshouse horticulture sector.

Orchards and tree nurseries are relatively more specialised sectors (specialised at

over 80% by land area) than the flower bulb sector. Among other factors, the required crop rotation and limitations on use of crop protection agents required for growing flower bulbs mean that a fairly large proportion of this activity has to take place on other types of farm, such as arable farms.

The degree of specialisation on arable farms was higher in 2010 than in 2000, but it was still lower than in the 1980s and 1990s. The cultivation of arable crops on non-arable farms increased in the 1980s, in part due to the introduction of milk quotas. An additional factor is that the crop rotation required makes the exchange of land between farmers of arable crops and livestock farmers attractive for growing crops such as potatoes.

### *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 209,000. During this same period, on balance the decline in the number of family workers was essentially in line with 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%. After several years of growth, the number of permanent employees fell starting in 2008 by about 13,500 employees (-18%) to 62,000. 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 school-going teens, 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.

## 4.2 **Land**

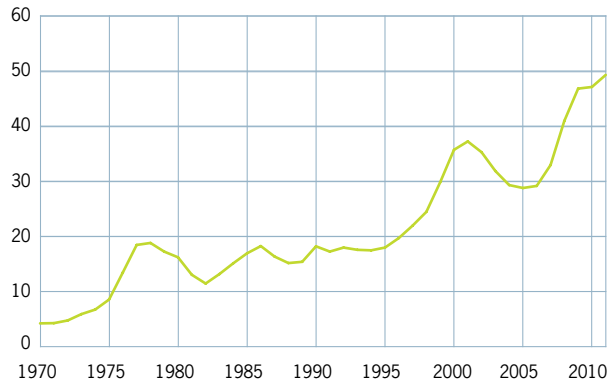
The total acreage of cultivated land in use with the registered agricultural and horticultural holdings decreased in the past year by 14,000 ha (-0.7%), to 1.86 million ha (Table 4). The decrease came primarily from grassland and arable land; the acreage of land for horticulture in the open ground actually increased in the same period. From a historical perspective, the decrease in the area of cultivated land in 2010-2011 can be considered quite high. By comparison, the decrease between 2000 and 2009 was an average of 6,500 hectares per year (-0.3%). Fifty-three percent of the total cultivated land area 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 glasshouse horticulture, a distribution that differs little from that of 2000.

### Agricultural land market settles down

The agricultural land price per hectare rose in 2011 by approximately 2,000 euros, to over 49,000 euros/ha (Figure 3). The volume of trade in agricultural lands was just as low as it was in 2010. It would appear that buyers and sellers are each waiting for the other to make the first move; the sellers are holding out for high prices that buyers are hesitant to spend. The European direct payments under the CAP encourages holding onto the land, because use of the land is a condition for the payment of the annual supplement, while selling the supplement rights is not an option because the sale prices for the rights are very low. In addition, in times of a shaky euro, landholdings are a safe asset.

Figure 3

Average price (1,000 euros per ha) of agricultural land<sup>a</sup>



<sup>a</sup> Grass- and arable land, not under tenure.

Source: DLG, calculations by LEI.

# 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 25.5 billion euros in 2011 was almost 3% higher than in 2010. This growth was achieved thanks to a slight increase in production across the entire agricultural sector plus slightly higher prices on average.

The horticultural sector, with nearly a 40% share of the production value, remains the largest sector in the total agricultural and horticultural sector. The share of total livestock farming, broken down into an intensive sector and a land-based sector, did grow this year, to at slightly over 40%. The share of the arable farming sector decreased slightly to just over 2.7 billion euros, virtually the same as that of the "other agriculture" sector, which primarily consists of agricultural contractor companies.

The value of the goods and services purchased increased in 2011 by considerably more than the production value. The price increase in the costs was much higher (9%) than the average price increase for the agricultural products (2%). Due to the high grain prices of last year, the expenses of animal feed producers increased dramatically (by 23%) for the second year in a row. Likewise, the prices for energy, and the concomitant prices of artificial fertiliser, rose faster than average. Because a large portion of the costs consist of goods and services that follow inflation, the total price increase nonetheless remained fairly limited. The different trends on the revenue side and the expenses side resulted in a decrease in gross added value of 7%. The amount of non-product-specific subsidies increased slightly, because the last subsidies that were still product-specific have now been integrated into the direct payments of the CAP. Because the depreciations remained equal and the factor costs paid (wages, interest charges and land leases) increased slightly, the remaining income for the sector fell in 2011 to under 1.6 billion euros. This figure is 25% lower than in 2010, but still well above the low level of previous years, which hovered around one billion euros.

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

The operating income of the average agricultural/horticultural enterprise recovered convincingly in 2010 after a very weak 2009 (Table 5). However, the estimated income level for 2011 indicates a clear retreat from the 2010 level. Although on average the prices for agricultural and horticultural products did increase in 2011, the increases

clearly did not compensate for the sharp increases in production costs. The rising yield prices were restricted primarily to livestock farming products. The only product that saw prices fall was eggs, after achieving very high levels in 2009. The prices for arable crop products and horticultural products were, on the whole, down in 2011, with the exception of sugar beets thanks to their high prices on the world market. Due to surplus supply, prices for potatoes and onions, major crops for the Dutch arable farming sector, fell precipitously fast. The year 2011 was dramatic for the glasshouse horticulture sector, not least because of the EHEC crisis.

<b>Table 5</b>		<b>Results (x 1,000 euros per holding) on the average agricultural and horticultural holding, 2001-2011</b>			
		<b>2001-2005</b>	<b>2006-2010</b>	<b>2010</b>	<b>2011 (r)</b>
Gross returns	(+)	275.0	387.9	458.4	458.0
<i>of which agricultural production</i>		95.0	90.6	90.5	90.6
<i>subsidies</i>		3.2	5.0	4.3	4.4
<i>secondary activities</i>		1.8	4.4	5.2	5.0
Paid costs and depreciations	(-)	239.1	345.3	400.5	429.0
Special benefits and charges	(+)	1.3	-0.3	-0.2	0.0
<b>Operating income</b>	<b>(=)</b>	<b>37.1</b>	<b>42.4</b>	<b>57.7</b>	<b>29.0</b>
Idem per unpaid labour force unit		25.9	29.5	40.3	20.0
Income from outside the farm	(+)	11.8	19.0	21.1	21.0
<i>of which labour</i>		5.7	9.0	9.4	9.0
<i>other income</i>		6.1	10.1	11.7	12.0
<b>Total income</b>	<b>(=)</b>	<b>48.9</b>	<b>61.4</b>	<b>78.9</b>	<b>50.0</b>
Taxes	(-)	3.5	5.5	3.7	4.0
Family spending	(-)	37.2	47.2	48.3	48.0
Savings	(=)	8.1	8.8	26.8	-2.0

Source: Farm Accountancy Data Network.

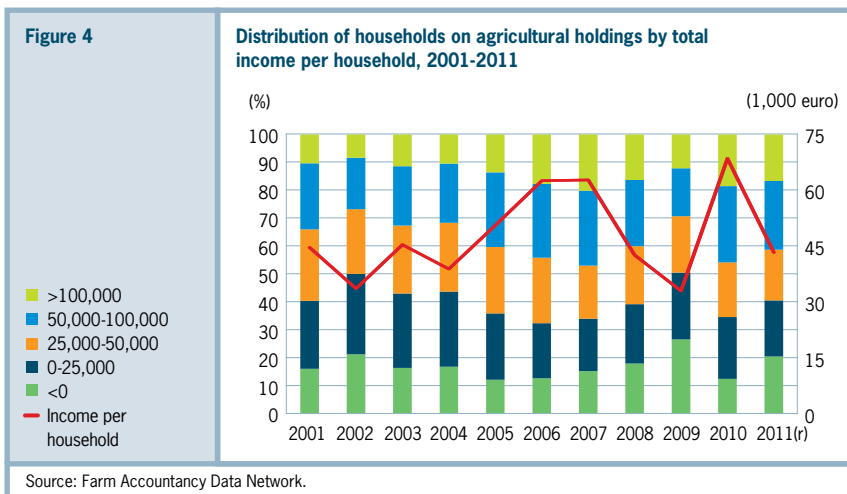
### *Low income problem*

The amount of total income, i.e. the operating income plus external income from sources such as labour, is determinate for the question of whether the total income per agricultural holding can be considered low. As a rule, the total income is assessed per household (or family). Where this income remains below a level of approximately 22,000 euros, the "minimum income" as calculated for independent entrepreneurs, this can be categorised as a problem.

The income picture for 2010 was considerably better than that for 2009. In 2010, the average income per household increased by over 30,000 euros, to nearly 70,000 euro, making it even higher than in the relatively good years of 2006 and 2007 (Figure 4). Likewise, the number of families with an income below 25,000 euros also declined as

compared to 2009, and in 2010 “only” 10% of families had a negative income. Along with the results in 2005, this is the lowest percentage in this century. On the other side of the spectrum, the number of families with an income above 100,000 euros rose in 2010 to almost 20%. Among these, there are a quite a number of arable farming families.

Based on estimates for 2011, we can see that the share of companies with a negative income will come out much higher once again, at approximately 20%. Most of these companies are in the glasshouse horticulture sector and the laying hen sector, in which the average income for 2011 finished well into the red. Nonetheless, according to forecasts the number of farms with an income of over 100,000 euros still remained quite high in 2011 (nearly 20%), in part due to the continued increase of dairy farming incomes.



#### *Large companies often have higher incomes, but also face stronger swings*

As the size of agricultural and horticultural businesses grows, the question arises of whether a larger company in the agricultural/horticultural sector is in a better earning position than a small company. To make this comparison, the operating income per unpaid worker was used as a baseline. Due to the significant swings between years, we calculated the average income in four sectors (arable farming, glasshouse horticulture, dairy farming and pig farming) for the 2008-2010 period. This average was then compared to that for the period of 2003-2005. The breakpoint between large and small was determined based on the median, and so varies from year to year.

The large arable farms, with an average of over 100 ha, earned an average operating income per unpaid worker of over 40,000 euros in the 2003-2005 period. The smaller companies earned less than half that. Also in the 2008-2010 period, the large arable

farming operations earned incomes twice as high as those of the small farms. The main factor here is that large companies have lower costs per hectare; the revenues per hectare are approximately equal for the two groups.

The large glasshouse horticulture growers (with an average of 3 ha) do not always do better than their smaller counterparts. In the 2008-2010 period, the larger companies had a negative income, primarily due to the fact that 2009 was an extremely poor year. The lean years have a particularly hard effect on the large companies, because the margins (balance of revenues and expenses) are smaller with the large companies. For both periods, the larger companies have both higher revenues and higher expenses per square metre. In 2003-2005, the margin for the larger companies was slimmer than that of the smaller companies. Because the large companies sell higher volumes, they still managed to achieve higher incomes.

The operating income per unpaid worker is higher for the large dairy farms (average above 800 tonnes of milk) than for the smaller farms. The revenues per 100 kg of milk, however, are lower for the large farms; this difference is caused in part by lower non-dairy-related revenues. Because the larger farms have lower costs per 100 kg of milk, their incomes are higher. In the two periods, the smaller companies had a stable income of approximately 20,000 euros. The larger pig farms (with on average about 3,000 pigs) faced a sharp drop in income in the 2008-2010 period. This drop was big enough to reduce their income to approximately equal to that of the smaller farms, where in the 2003-2005 period it had been three times as high. As with the glasshouse horticulture sector, the margin between revenues and expenses is slim.

To sum up, it appears that in the longer term large farms are able to earn a higher operating income per unpaid worker than small farms. The glasshouse horticulture growers in the 2008-2010 period formed an exception to this rule. Whether the larger companies' advantage comes from higher revenues per unit or lower expenses per unit differs within the individual sectors. Increasing scales have led to lower expenses per unit in arable farming, dairy farming and pig farming.

### *Solvency*

Between 2001-2002 and 2009-2010, the increase in loan capital was larger than the growth in internal capital, except in the arable farming sector. Accordingly, solvency, the percentage of internal capital within the total assets per company, dropped in all sectors except for the arable farming sector, which saw an increase to 80% in 2009-2010 (up 4%). This is the result of increases in the value of assets, primarily land, and the formation of reserves (savings) that were made feasible by the good operating results. In the dairy farming sector and pig farming sector, solvency in 2009-2010 was, on average, still reasonable (69% and 55%, respectively). In the glasshouse horticulture sector, the average change in solvency of -34% can be considered severe. Apart from the strong growth in loan capital, the equity is under pressure due to poor income in



2009 and the fall in the prices of glasshouse horticulture land. Average solvency in 2009-2010 was 39%, although it should be noted that the spread is very large. Low solvency makes companies very dependent on the bottom line. In 2011, this risk played out in the glasshouse horticulture sector in the form of the EHEC crisis. In the fourth quarter of 2011, bankruptcies in agricultural and horticultural businesses rose dramatically as compared to the two previous quarters. The total number of bankruptcies in 2011 came out at 141, a slight increase as compared to the years 2009 and 2010. The majority of those claiming bankruptcy were growers of vegetables, flowers and/or mushrooms. From a risk management perspective, it is important for companies to have a sufficient financial buffer to absorb income shocks. These days, banks enforce a lower limit of 25% solvency for new credit applications for expansion or other investments. Accounting firms are also increasingly advising their clients to hold off on investing their business profits in expansion in favour of building up financial buffers adequate to weather product price swings.

# 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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