

# Dutch agriculture and horticulture with a glance at South Korea

## Policies and results in the past, present and future

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This report provides insight into the present differences and common matters between South Korea and the Netherlands. More specific items are the developments of the Dutch agriculture and horticulture in past, present and future. Insights has been given in the stimulating circumstances in the strong international position of the Dutch agriculture and horticulture. Too, the developments in the policy of the European Union and the Dutch Government, the total agri-business and the rural area has been a part of this study. In the report also included a list of addresses of the most important bodies, institutions and enterprises around the agriculture and horticulture.

Dit rapport geeft inzicht in de huidige verschillen en overeenkomsten tussen Zuid-Korea en Nederland. Meer specifiek is ingegaan op de ontwikkelingen van de Nederlandse land- en tuinbouw in verleden, heden en toekomst en wat de voorwaarden zijn geweest voor de sterke internationale positie van de Nederlandse land- en tuinbouw. Ook de ontwikkelingen in het beleid van de Europese Unie en de Nederlandse Overheid, het gehele agro-complex en het landelijk gebied zijn in deze studie beschouwd. In het rapport is ook een bijlage opgenomen met adressen van de meest belangrijke instanties, instituties en bedrijven rondom de land- en tuinbouwsector.

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# Preface

The Korean Rural Economic Institute (KREI), located in Seoul, South Korea, is currently conducting research 'An approach to Advanced Agricultural Policy toward the Open Economy: The Structural Changes in Korean Agriculture and Evaluation of the Agricultural Policies.' As a part of the research process, KREI has made a request to selected overseas experts to write a report 'Change in Agricultural Policy and Challenges ahead.' KREI has asked the Agricultural Economics Institute LEI (Landbouw Economisch Instituut) to provide a picture of this for the Netherlands. The idea behind this is to enable lessons to be learned from the experience of the Dutch in the past and present.

KREI is interested in the experiences and knowledge in terms of agricultural policy innovation in changing conditions. They also wish to learn more about the current and future problems in agriculture and how policies should be prepared in order to resolve these problems.

KREI is also interested in how the system functions as a whole and how this involves agriculture, horticulture and the institutions affiliated with them. They also wish to know the addresses of these institutions. The Agricultural Counselor of the Dutch Embassy of the Netherlands in Seoul is also interested in these issues and is involved with this study. The contact authority for this study for KREI was: Mr Hogun Chong. The contact authority for this study for the Dutch Embassy in Seoul was: until 1 January 2008: Mr Jaques Damen and, after 1 January 2008: Mr Jean Rummenie. We would like to thank them for their commitment and compliments about this study.

This study provides an insight into the history, present and future developments in Dutch agriculture and horticulture. The study starts by providing a short overview of various information from the Netherlands. Subsequently, the differences between the Netherlands and the Republic of Korea will be outlined. The next chapter provides an overview of the recent history and present situation of the agricultural and rural areas.

Chapter 4 provides an overview of the various success factors of Dutch agriculture and horticulture. The chapters thereafter outline the history and present condition of the agricultural and rural areas, and how policy is formulated and implemented in The Netherlands. The agricultural, environmental and rural policies of the past, present and future are also provided. Chapter 8 focuses particularly on the Dutch agricultural research system. Chapter 9 provides an insight into the budgets allocated by the Ministry of Agriculture, Nature and

Food Quality. The final chapter provides an overview of the most recent and future developments concerning the rural areas and agribusiness.

Upon special request, appendix 1 provides the addresses of the most important Research Institutes, Authorities and Organisations that are involved in the research. The meeting concerning the draft report, plus discussions was held on Tuesday 3 June 2008 at KREI in Seoul. The researchers of KREI that were involved are: Mr Chang-Gil Kim Ph.D., Mr Hogun Chong (contact authority), Mr Joonkee Park Ph.D., Mr Sang-Jin Ma Ph.D., Mr Seong-Jae Park Ph.D., and Mr Yongwon Cho. Mr Jean Rummenie, Counsellor of the Dutch Embassy, was also involved in the discussions. After these discussions, a meeting was held with the President of KREI, Mr Jung-Sup Choi Ph.D. On this same date, a lecture was given for researchers at the Institute.

After the meeting concerning the draft report, a lot of questions remained. Mr Hogun Chong has distributed many questions and remarks. Following the meeting concerning the draft report, we will attempt to include all the remarks made during the aforementioned meeting, plus questions answered by e-mail in the final report. This may not create an equal balance in the report, but we believe that it will still be useful to include most of the answers.

We also created two new chapters following the meeting concerning the draft report:

- chapter 6: How policy is formulated and implemented in The Netherlands;
- chapter 9: Budget of the Ministry of Agriculture, Nature and Food Quality.

We hope that the report will give a good impression of Dutch agriculture, horticulture, rural areas, affiliated agribusiness and authorities. The report also provides an insight into past, present and future developments.

We also hope that the report can help to reform Korean agriculture and horticulture in a way that results in good prosperity for the Korean society as a whole.



Prof Dr R.B.M. Huirne  
Director General LEI Wageningen UR

# Summary

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At the request of the Korean Rural Economic Institute (KREI), located in Seoul, South Korea, LEI has drawn up this report. This report starts with the main differences between the Netherlands and South Korea, including many of the issues concerning and surrounding agriculture and horticulture in The Netherlands in the past, present and future.

KREI wishes to learn more about the Dutch agricultural system in order to be able to relate and compare this to their own agricultural system.

## *Differences between the Netherlands and the Republic of Korea*

The total population (48m) and the total surface of land of South Korea is approximately three times more than the Netherlands. The density (486 inhabitants per km<sup>2</sup>) is therefore approximately the same. The surface of the agricultural land in South Korea is only 20% of the total area. In the Netherlands, is this much more (58%). In South Korea, almost all the land used for agriculture is arable or horticulture (87%) or permanent crops (10%). There is little pasture land (3%). In the Netherlands, 52% is pasture land.

In South Korea, 8% work in primary agriculture, compared to 3% in the Netherlands. The average cultivated area per farm in Korea is with 1.5ha much less than in the Netherlands (16.4ha). The average area per worker in agriculture is 0.8ha in Korea compared to 7.9ha in the Netherlands. The average earnings for 1ha in Korea are almost three times more than in the Netherlands (USD5,600 compared to USD2,000).

The agricultural per capita income in the Netherlands is, at USD28,000, only 10% lower than the country average (USD31,000). In South Korea the agricultural per capita income is, at USD9,000, almost 40% lower than the country average (USD14,000).

The agricultural contribution in the Netherlands in the total trade-balance is very high. In South Korea the agricultural trade-balance is negative.

## *History and present situation of agriculture in the Netherlands*

Around 150 years ago, almost half of the population worked in agriculture. This percentage is currently 3%. Together with the affiliated businesses, 10% of the total population work in agriculture.

Of the total agriculture land, 41% is used by arable crops, 53% is pasture land, 6% is open-air horticulture land and 0.5% are greenhouses. Of the 79,000



farms, about 25% are specialised in cows and the same percentage in other cattle. 9% of farms are specialised in livestock. Furthermore, 18% is specialised in horticulture and 15% in arable farming.

Measured in surface area (ha), the arable farms are the largest: average 55ha. The dairy cow farms are, on average, 44ha in size. The greenhouses only have an average surface of 1.5ha, but have the largest size in terms of economy and mostly have the highest incomes.

Most farmers are well educated. Two-thirds have high or medium agricultural level education. 95% of all farms are family-run farms. Of the farms with the eldest entrepreneur being 50 years or older, one third have successors. 13% of the farms are exploited as part-time farms. In addition, many farms have extended activities such as 'nature contracts,' or they sell agricultural products from the farm or provide recreational activities.

Almost 60% of the land is used by the owner of the land. The remainder has been rented out for a number of years (28%) or for a short time (13%). The prices of the land are rather high (average €30,000 per hectare).

On average, the farms have almost 6 parcels of land, with a size of on average 4ha. On average, during the past ten years, the total parcels per farm has increased and the size of the parcels has decreased.

To ensure good production in agriculture, a good water control system is required. Waterboards (27 throughout the entire country) are responsible for the water control system.

#### *The success of Dutch agriculture and horticulture*

The success of Dutch agriculture and horticulture can be attributed to several matters.

We would like to mention the following matters:

- trade nation and good sea and river transport;
- balanced policy and democracy;
- good level of infrastructure;
- good level of education;
- agriculture-friendly policy and knowledge-infrastructure;
- unions and cooperatives;
- good policy for a good infrastructure for farmland;
- the agribusiness concerning the agriculture and horticulture is very well organised;
- integration and cooperation between agriculture, horticulture, agribusiness and government policies.

### *Agriculture policies in the past and lessons learned from these policies*

In general, the agricultural policy of the past was a policy of more liberal trade within many countries. Thus, specific products could be developed (seed potatoes, bulbs, flowers, vegetables, nursery products). The harbour of Rotterdam was also of importance for the import of relatively cheap cereals, soya and tapioca. These products were used as food for livestock. The livestock products were one of the main items of export to other countries.

Free trade was possible within the European Union, which started in 1957 with six countries. Nowadays, complete free trade is possible within 27 countries.

The product prices of many of the products are guaranteed by the European Union. The general price for many important products such as cereals, milk and sugar, was the responsibility of the European Union. After 1983, many reforms were necessary within the European Union, caused by high productivity in the European Union and high costs of sales on the world market. Measures were put into place, such as the quotations for many products, parcels of land being set aside, lower prices and direct income support to farmers.

As well as the European Union, the Netherlands also has its own policy on agricultural issues. The most important policy was based on:

- OVO: Research, Extension and Education;
- fiscal measures and stimulated funds for investments;
- reconstruction plans.

### *Policy implementation*

In the Netherlands, the various important groups are able to communicate with specific commissions in the Parliament and with employees in the Ministries. In this way, the various groups are able to influence important decisions.

The National Parliament has 150 members, distributed over 12 parties. The Government is based on a majority of the National Parliament. The 12 provinces also play an important role in terms of the implementation of rural plans.

### *Environmental agricultural and rural policy*

In the Netherlands, a regulation policy is in place for several issues:

- the reduction of greenhouse gas emissions: aim to reduce by 30% from 1990-2020;
- policy for nitrogen, phosphates and ammonia emissions: has declined in the past 15-20 years by about one-third. At the moment, there is a emission rights system which relates to the total number of animals;

- policy for the use of pesticides: in 2010, 95% of 1998 (the Netherlands has a more stringent authorisation policy as does the majority of the EU member States).

Within the Ministry of Agriculture, Nature and Food Quality and outside this Ministry there are several Services and Agencies responsible for the control and monitoring of specific environmental issues and food qualities.

Land reconstruction projects (from 1916) and the introduction of the National Ecological Network (from 1975) has had a huge impact on the rural development in the Netherlands.

Since the start of the land reconstruction projects, these projects have taken place throughout almost the entire agriculture area. In some areas, there have even been two land reconstruction projects.

Special reconstruction projects include the reconstruction of the greenhouses within the horticulture sector and the reconstruction of the intensive livestock areas.

There are also special projects for the green areas around the cities, recreation projects and network projects for cycle paths and footpaths.

Part of the plan for the National Ecological Network until 2018 is to create new nature reserves (100,000ha), nature development (50,000ha) and farm nature contracts (100,000ha). To date, farmers have signed nature contracts for a total surface area of 76,000ha.

Besides nature-projects, a lot of farmers also have other specific non-farming activities on their farms (agro-tourism, multiple use of farm buildings, processing products, selling products and social-care farms). About one quarter of all the farms have farm-related activities.

#### *Agricultural research and development*

The Wageningen University and Research organisation (WUR) is the most important research organisation in the Netherlands, in terms of rural areas and the agricultural and horticultural sectors.

Besides the Wageningen University (almost 6,000 students) and 2,200 employees there are 9 Scientific Research Institutes, 10 Plant Experimental Stations and 9 Animal Experimental Stations. At these DLO- Scientific Institutes and Experimental Stations, there are a total of 2,800 employees, working with a total research budget of €315m (2006). 42% of this budget is financed by the Ministry of Agriculture, Nature and Food Quality, 9% by Funding, 34% by contract research for companies, 1% by patents and licenses, 5% by sales, 3% by consultancy and 6% in another manner.

With 300 employees and a budget of €25m, LEI is one of the scientific research institutes. Besides Wageningen UR there are several other affiliated important Institutes and offices in the rural area.

*Budget of the Ministry of Agriculture, Nature and Food Quality*

Of the total net expenses of the Ministry of Agriculture, Nature and Food Quality of almost €1.7b are given mostly to knowledge and innovation (53%) and nature (25%). Sustainable enterprising (17%) and landscape and recreation (9%) are the next highest expenses.

Within knowledge and innovation, most of the expenses go to the VBMO schools (12-16 years) with 17% of the total Ministry budget. DLO research which is financed by the Ministry, equates to 10% of the total expenses of the Ministry.

*Payments to farmers and others from the European Union*

In 2007, the payments to farmers from the European Union to the Netherlands were €700m and €300m to other companies/bodies. These payments go directly to the farmers and these companies/bodies and thus do not pass through the Ministry.

Additionally, the European Union contributes an amount of €72m for investments in the rural areas (2008). These amounts go directly to the Service Rural Areas.

*Future policy and developments*

The report outlines the future policy of the European Union (more market-oriented and a switch of the budget into the rural policy and economy) and Dutch policy (development of National Landscapes, continuing of reconstruction plans and creation of the National Ecological Network).

In addition to these policies, the developments at world scale were also discussed (growth in population and energy developments) and ongoing larger scale processes in the agriculture and horticulture.

*List of addresses of the most important affiliated Research Institutes, Authorities and Organisations*

In this report, provided in appendix 1 is a list of addresses of the most important affiliated Research Institutes, Authorities and Organisations.

# 1 Impression of the Netherlands

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In order to understand the agriculture and horticulture within the Netherlands, it is important to understand some facts about the country.

## *Geography and population*

The Kingdom of the Netherlands is located in North-West Europe and half of its borders is surrounded by the North Sea. Almost half of the country is below sea-level. Dikes and dunes protect the land against high floods from the sea and the rivers ('God created the world, but the Dutch created their own country'). A large part of it is in the delta formed by the Rhine, Maas and Schelde rivers. The rivers originally come from surrounding countries and flow into the North Sea. The annual average precipitation is 780mm, of which approximately 250mm must be transported by watercourses and rivers to the sea. A water-system of canals, ditches, drainage and mills take care for dry land.

The surrounding water systems have had a big influence at the present soils and also on the present position of the agri- and horticulture. There are sea-clay soils (about 35% of the total surface) in the west and north of the country, river-clay soils (about 10%) in the middle around the rivers and peat (about 15%) in the west and the north. In the south and east of the country we find most sandy-soils (about 35%). In the south-east (hill-area) we find silt soil (about 5% of the total country surface). (Source: LEI. Stichting Wetenschappelijke Atlas van Nederland, Atlas van Nederland, deel Bodem)

<b>Table 1.1</b>	<b>Surface and use of the land in percentage (2003)</b>
Agriculture land (%)	47
Rest agricultural area (%) a)	9
Forests (%)	8
Nature (%)	3
Recreation (%)	2
Water (%)	19
Cities, villages, industrial areas, etc (%)	8
Infrastructure (%) b)	3
Other land (%) c)	1
Total surface (4.152.800 hectare)	100
a) Gardens, small roads and waterways, houses and buildings in agricultural areas etc.	

b) This concerns 116.000 km roads (3% of the Central Government, 6% of the Provinces and 89% others, mostly of municipalities), 19.000 km bike-roads, 2.800 km railways and 5.000 km waterways; c) Most of this land has the future destination: new buildings and traffic.  
 Source: Statistics Netherlands; Statistics Use of the Land and Agricultural Statistics; CBS/LEI Land- en Tuinbouw- cijfers-2007.

The total surface of the Netherlands is just over 4m ha (41.500km<sup>2</sup>). Table 1.1 shows that a large part of the surface area is made up for water and agricultural land. There are not many forests or natural areas. The built-up area (housing, roads, industry, etc) occupies about 12% of the total surface. Excluding water, the surface of the Netherlands is about one third of the Republic of Korea (FAO-Statistical Yearbook, 2004).

At the moment (2008) the total population is 16.4m. The annual growth of the population at the moment is 0.2% per year. The average population density of the Netherlands is amongst the highest in the world. The country land surface counts 34.000 km<sup>2</sup>. This means an average of almost 5 inhabitants per hectare.

The national income has increased to €457b in 2006. In 2007 the national income has increased with 2.5%. The prospects for 2008 are about 1.5%.

<b>Table 1.2</b>	<b>Population, density and income in the Netherlands</b>		
	<b>2000</b>	<b>2006</b>	<b>2008</b>
Population (x 1m, per 1 January)	15,864	16,334	16,401
Density (inhabitants per km <sup>2</sup> of land)	468	483	485
National income (x €1b) a)	360	457	475 b)
Average income per inhabitant (x €1,000)	22.6	28.0	29.0 b)
a) Net against market prices.			
b) Estimation CPB/LEI.			
Source: Central Statistics Office (CBS) and Land- en Tuinbouwcijfers (LEI/CBS, 2000 - 2007).			

## 2 Differences between the Netherlands and the Republic of Korea

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In this chapter, we will highlight some basic differences between the Netherlands and the Republic of Korea.

Paragraph 2.1 provides an overview of some of the main differences in the current situation of the two countries. Paragraph 2.2 outlines some important developments of the last 20 years, in comparison to world development.

### 2.1 Present situation in the two countries

The area of the Republic of Korea is about 3 times larger than that of the Netherlands. Also three times more people (table 2.1) live in the Republic of Korea. In other words: the density is about the same. Both are one of the most dense countries in the world.

The average per capita income, in the Netherlands, is about double that of the Republic of Korea.

In addition, the income in agriculture in Korea is about 40% below the average per capita in Korea. In the Netherlands the difference is not much less (10%).

The agricultural surface in both countries is about the same: almost 2m ha. In The Netherlands 58% of the land is used for agriculture. In Korea it is less: only 20%. In Korea there are a lot of mountains.

In the Netherlands the cultivated area per farm household is 16.4ha and in Korea 1.5ha. Also the cultivated area per worker in the agriculture is less in Korea (0.8ha against 7.9ha in the Netherlands).

The average earnings on 1ha are in Korea almost three times more than in the Netherlands (USD5,600 against USD2,000).

Partly due these good average earnings at one hectare the prices of agricultural land in both countries are very high.

<b>Table 2.1 Differences between the Netherlands and the Republic of Korea</b>		
	<b>The Netherlands</b>	<b>Republic of Korea</b>
Population, 2004 x 1m a)	16.2	48.0
Surface land, x 1,000ha b)	3,388	9,873
Density, inhabitants per km <sup>2</sup> d)	478	486
Per capita income, 2002 x USD1,000 a)	31.3	14.3
Per capita agricultural income, 2002 x USD1,000 a)	28.2	8.8
Total export - import, 2002 x USD1b a)	24.8	10.3
Rainfall, 2002, mm a)	893	1142
Agriculture land, x 1.000ha a)	1,956	1,973
% agriculture land of total surface land b)	58%	20%
Total people working in agriculture, 2004 x 1,000 b)	221	1,944
Agriculture as % of all economic activities b)	3%	8%
Total farm households, 2005, x 1,000 c)	119	1,273
Cultivated area (ha) per farm household, 2004 d)	16.4	1.5
Ha per worker in agriculture, 2000 d)	7.9	0.8
Income per farm per year, '03-'05 (x USD1,000)	58.8	12.2
Agric. income on 1ha agric. land, 2005 x USD1,000 d)	2.0	5.6
a) Source: FAO Statistical Yearbook, 2004; b) FAO-Rome statistics; c) Source: The Netherlands: LEI, Land- en Tuinbouwcijfers, 2007, table 21-g. Republic of Korea: Korea National Statistic Office; d) FAO Rome-statistics, LEI calculation. Source: The Netherlands: LEI, Land- en Tuinbouwcijfers, 2007, table 83-p. Republic of Korea: Korea National Statistic Office, LEI calculation. The total earnings were USD30,600: 40% direct farm income =12,200; 34% non-farm income, 12% transfer income and 14% irregular income).		

## 2.2 Developments

### 2.2.1 Agricultural land

Between 1980 and 2000, the total surface of agriculture land decreased in both countries (table 2.2). In the Republic of Korea more so than in the Netherlands (-12% against -3%). On a global scale, the total agricultural surface of land increased by 6%.



	<b>Table 2.2 Agricultural land as % of the total land used in the Netherlands, Republic of Korea and the world</b>						
	<b>Surface of land (x 1,000ha)</b>				<b>Agricultural as % of total land use</b>		
	<b>Total</b>	<b>Agricultural</b>					
	<b>2000</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
The Netherlands	3,388	2,020	2,006	1,956	59.6	59.2	57.7
Rep. of Korea	9,873	2,247	2,179	1,973	22.8	22.1	20.0
World (x 1b ha)	13.0	4.69	4.89	4.98	36.1	37.6	38.3

Source: FAO-statistics.

### 2.2.2 Use of the agricultural land

The Netherlands has much more pasture land than Korea. Korea has more arable land and more land with permanent crops. In the Netherlands the surface area of arable land has increased over the past 20 years and the surface of pasture land decreased. In Korea the surface of arable land decreased and especially the surface area of permanent crops increased (table 2.3).

	<b>Table 2.3 Arable land, permanent crops and pasture in the Netherlands, Republic of Korea and the world as % of the total agriculture land</b>								
	<b>Percentage (%)</b>								
	<b>Arable land</b>			<b>Permanent crops</b>			<b>Pasture land</b>		
	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
The Netherlands	39.1	43.8	46.5	1.6	1.5	1.7	59.3	54.7	51.7
Rep. of Korea	91.7	89.6	87.0	6.0	7.2	10.1	2.3	3.2	2.8
World	28.8	28.6	28.1	2.1	2.5	2.8	69.1	68.9	69.0

Source: FAO-statistics.

### 2.2.3 Working population in the agriculture

In both countries, the working population in agriculture has decreased. In the Netherlands since 1980 this has decreased by 30% and in the Republic of Korea, by 66%. In the whole world, the agricultural population has increased by 17%.

	<b>Working population in agriculture</b>			
	<b>Working population in agriculture x 1,000</b>			
	<b>'79-'81</b>	<b>'89-'91</b>	<b>'99-'01</b>	<b>2004</b>
The Netherlands	315	312	248	221
Rep. of Korea	5,725	3,611	2,384	1,944
World (xm)	2,220	2,442	2,573	2,600

Source: FAO-statistics.

#### 2.2.4 Surface per worker in agriculture

In the Republic of Korea the surface area per worker is now twice that of twenty years ago. In the Netherlands, the surface area per worker is a little bit more (table 2.5).

	<b>The surface area per worker in agriculture</b>		
	<b>Surface area per worker (ha)</b>		
	<b>1980</b>	<b>1990</b>	<b>2000</b>
The Netherlands	6.4	6.4	7.9
Rep. of Korea	0.4	0.6	0.8
World 2.1	2.1	2.0	1.9

Source FAO-statistics, LEI-calculation.

#### 2.2.5 Importance of agriculture to the whole economy

In both countries, the economic importance of agriculture decreased in relation to the whole economy. At the moment the primary agricultural sector in the Netherlands is responsible for 3% of all the economic activities in the country. In the most countries of the world the agriculture is the most important activity (table 2.6)

Table 2.6	Development of primary agriculture as part of all economic activities			
	Primary agriculture as part of all economic activities			
	'79-'81	'89-'91	'99-'01	2004
The Netherlands	6	5	3	3
Republic of Korea	37	18	10	8
World	52	49	45	43

Source: FAO-statistics.

In the Netherlands the economic activities related to agriculture are also important. The total agricultural complex has a share of 10% of national employment and 9.4% of the total national value added. (Source: het Nederlandse Agrocomplex, Myrna van Leeuwen et al., LEI 2008) Later on in this report, a further description of these activities will be given.

## 2.2.6 Production

The type of production is different in both countries (table 2.7). There is a much greater production of cereals, fruit and vegetables in Korea. Most of the cereal production in Korea involves rice. In the Netherlands, most cereal production relates to maize and wheat. The Netherlands is a large producer of milk and roots and tubers (especially potatoes). Meat production is also rather high in the Netherlands.

Table 2.7	Main agricultural production in the Netherlands and Korea	
	X 1m tonnes (year-average 2000-2002)	
Production	The Netherlands	Republic of Korea
Cereals	1.7	5.2
Meat	2.7	1.6
Fruits and vegetables (2003)	4.4	13.9
Roots and tubers	7.5	1.0
Vegetarian oils	1.3	0.3
Sugar and sweets	2.2	0.8
Milk	11.1	2.4

Source: FAO- Statistical Yearbook, 2004.

## 2.2.7 Imports and exports

The Netherlands import many agricultural products. The import of cereals (especially wheat/barley) is 4 times more than the national production. Many roots and tubers (tapioca) are also imported. Most of these products are used as feed for animals for the meat production. Korea is a net importer of all the product groups (except for fruits and vegetables?)

The agricultural balance of export minus import is USD13b positive in the Netherlands and USD7b negative in Korea (table 2.8).

In the Dutch total trade balance, which is almost USD25b positive, the agricultural sector is responsible for more than half.

In 2002, with a positive of USD13.1b, the Netherlands was the number 1 country in the world in terms of the balance of the net agricultural export. The second was the United States (USD13.0b) and third France (USD9.2b). (Source: FAO Statistical Yearbook, 2004)

<b>Table 2.8</b>	<b>Agricultural and other imports and exports in the Netherlands and Korea</b>	
	<b>x USD1b (2002)</b>	
	<b>The Netherlands</b>	<b>Republic of Korea</b>
Agricultural imports	19.4	9.0
Agricultural exports	32.5	1.7
Agricultural exports- agricultural imports	13.1	-7.3
All imports	219.4	152.2
All exports	244.2	162.5
Balance: all exports - all imports	24.8	10.3
% Agric. import in total imports	9	6
% Agric. export in total exports	13	1
% Agric. contribution in total balance	53	negative
Source: FAO- Statistical Yearbook, 2004.		

Also, currently, the agriculture and horticulture sector is very important to Dutch economy and trade-balance. In 2007, the total agriculture import was €35.3b and the total agriculture export was €53.7b. The agricultural trade balance was €23.2b positive. In 2007, the total Dutch trade-balance was €40.9b positive. So, the agriculture contribution in the total trade balance was 57%. In 2006, this percentage was 68%. (Source: LEI, Agrimonitor, June 2008)

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## 3 History and condition of the agricultural and rural areas

### 3.1 Short history of the agriculture in the Netherlands

During the last centuries and the time before that, the total surface area of the land and additionally, the agricultural land, of the country grew. The country became larger through the reclamation of land from the sea. Also, the land above sea level - the natural land of sand, clay and peat land - was developed into agricultural land. The population grew and needed more space, but nevertheless there came more land, plus more agricultural land. This process came to an end in 1948. After 1948, the land being used for agricultural purposes decreased. In the years 1948-1960, the total surface area of the Netherlands was increased through new polders and developments of peat and sand areas, but more areas were also used for infrastructure and urbanisation.

Nevertheless, at the moment the agricultural land is still about the half of the total surface area of the country.

A few centuries ago, most of the working population worked in agriculture. In 1850, almost half of the population worked in agriculture (table 3.1).

After 1850, the total population grew further, as did the working population in agriculture. Only the share of the agricultural population decreased.

Until 1947 the total number of farms increased until there were more than 400,000 and the total number of people working in agriculture increased until more than 750,000 (table 3.1).

The development expressed in table 3.1, was possible through ongoing industrialisation, urbanisation and a yearly increasing labour productivity in agriculture.

During the past 60 years, the total number of farms decreased to 79,400 in 2006 and the working agriculture population decreased to 200,000.

The size of the average farm grew during the past eighty years, from 5ha to 24ha. The average size per agricultural worker grew from 3 to 9 ha.

This was possible through a strong specialisation and mechanisation.

The people who formerly worked in agriculture now mostly work in industry, trade or the service industry. In addition, many people, especially in the fifties or during the former century, emigrated abroad. Most of them emigrated to France, Canada, Australia, New Zealand and Brazil.

<b>Table 3.1 Farms, agriculture land, agricultural population and land productivity</b>						
<b>Year</b>	<b>Agr. land x 1,000ha</b>	<b>Farms x 1,000</b>	<b>Ha per farm</b>	<b>Agr. population x 1,000</b>	<b>Ha per agric. worker</b>	<b>Agric. % as total population</b>
1849				543	3.5	43.4
1910	1,910	209 a)		617	3.1	27.3
1920	1,958	222 a)		623	3.1	22.9
1921	2,001	361 b)	5.5	623	3.1	22.9
1930	2,150	372 b)	5.8	640	3.4	20.1
1947	2,348			758	3.1	19.6
1950	2,335	410 c)	5.7			
1960	2,317	301 c)	7.7	438	5.3	10.5
1970	2,143	225 c)	9.5	329	6.5	7.0
1970	2,133	185 d)	11.6			
1980	2,082	163 d)	12.8	266	7.8	5.5
1990	2,006	125 d)	16.0	249	8.0	4.8
2000	1,955	97 d)	20.0	227	8.6	3.5
2006	1,920	79 d)	24.1	202	9.5	3.1

a) Farms > 1ha; b) Farms > 0.05ha; c) Farms =>0; d) Farms > 10 sbe; 1 sbe, (standard business unit) is about 0.33 dsu: See paragraph 3.2.3 for an explanation.  
Source: LEI-Zakboekje t/m 1953 and Landbouwcijfers LEI/CBS 1954-2007, LEI calculations.

In the former days, most farms were mixed: arable and animal together on one farm. During the last decades, most farms specialised in specific directions, within agriculture or horticulture.

Also during the same period, described in table 3.1, the production of one hectare of a specific crop grew fantastically. Therefore, the production of wheat per hectare increased from an average of 1,448kg per hectare per year in the period 1851/1860, 2,205kg per hectare (1901/1910), 3,334kg per hectare (1950), 5,100kg per hectare (1975), 7,700 (1990) until, currently, an average of 9,050kg per hectare per year (average 2003/2006). From 1950 to date, this means that there is 2.7 more production of wheat from one ha.

The animal meat production also became more efficient. For example, the milk production per cow increased: from 3,260 kg per cow in 1933, 3,770kg per cow (1950), 6,897kg per cow (1990) until 8,429 (2006). The milk production per cow increased from 1950 to date by a factor of 2.2.

## 3.2 Present situation of the Dutch agriculture

### 3.2.1 Crops and animals

Table 3.2 and 3.3 demonstrate the present situation and the recent developments of the surface areas of the most important crops and animals.

Concerning the arable surface area, the most important crops are maize, wheat, potatoes and sugar beet. The arable-crop product with the most average profits is seed potatoes. This product is exported to the whole world. Onions and grass seed are also big export products. Many of the consumer potatoes (as frozen final product) and products of the starch potatoes are sent abroad.

Maize is used as feed for the grazing animals. The majority of wheat and other cereals is also used as feed for the intensive livestock.

The total surface of arable land has decreased a little during recent years.

In the recent years, the total surface of horticulture has increased a little. The most profitable products, such as flower bulbs and trees for nurseries have increased. The surface area for vegetables has also grown (profit changes).

The surface area of pastureland is just the same as the past years. The total surface area of horticulture under glass was also the same. This doesn't mean that there were not any changes in the horticultural under glass sector: a lot of old greenhouses disappear and new greenhouses arise.

Almost a quarter of all greenhouses in the world are in the Netherlands. The products (flowers/vegetables) were exported all over the world.

With regard to the dairy sectors, over the past years there were on average fewer animals. The reasons for this are a mix of the present milk quotation system, environmental issues, diseases in the poultry and pig sector, and not particularly good profits a few years ago.

The Netherlands also remains a large exporter of animal products.

<b>Table 3.2 Development of the surface area of crops</b>				
<b>Crop</b>	<b>x 1,000 ha</b>		<b>Percentage (%)</b>	
	<b>2000</b>	<b>2006</b>	<b>2000</b>	<b>2006</b>
Wheat	127	141		
Other cereals	62	80		
Seed potatoes	42	37		
Consumer potatoes	87	70		
Starch potatoes	51	50		
Grass seed	22	26		
Sugar beets	111	83		
Onions	20	25		
Maize	205	218		
Other arable crops	79	53		
Set aside (fallow) land	22	1		
<i>Total arable land</i>	<i>828</i>	<i>784</i>	<i>42.3</i>	<i>40.7</i>
Vegetables	39	45		
Fruit	20	19		
Flower bulbs	23	24		
Flowers	3	3		
Horticulture seed	1	1		
Tree-nurseries (incl. container)	14	15		
<i>Total open-air horticulture</i>	<i>103</i>	<i>109</i>	<i>5.3</i>	<i>5.7</i>
<i>Pasture land</i>	<i>1,012</i>	<i>1,019</i>	<i>51.7</i>	<i>52.9</i>
<i>Fast growing trees</i>	<i>4</i>	<i>4</i>	<i>0.2</i>	<i>0.2</i>
Vegetables under glass	4.2	4.5		
Flowers under glass	5.9	5.4		
Fruit and tree nurseries glass	0.4	0.5		
<i>Total greenhouses</i>	<i>10.5</i>	<i>10.4</i>	<i>0.5</i>	<i>0.5</i>
<b>Forces</b>				
Pull of chicory a)	3	2		
Tulips (x 1b pieces)	1.1	1.7		
Narcissus (x 1m kilo)	3.2	3.2		
Mushrooms (x 1m m <sup>2</sup> )	0.95	0.70		
<i>Total agriculture and Horticulture</i>	<i>1,958</i>	<i>1,926</i>	<i>100</i>	<i>100</i>

a) Ha chicory of which chicory has been pulled up.



<b>Table 3.3 Development of the total animals</b>		
<b>Animal</b>	<b>x 1,000</b>	
	<b>2000</b>	<b>2006</b>
<i>Grazing animals</i>		
Dairy cows	1,504	1,420
Milk quota (x 1m tonne)	11.0	11.0
Milk quota per cow	7.3	7.7
Young cattle	1,299	1,100
Other large grazing cattle	485	382
Horses	118	128
Sheep	1,308	1,376
Goats	179	
<i>Intensive livestock</i>		
Pigs	13,118	11,356
Chicken (slaughter)	59,979	48,760
Chicken (eggs)	143,060	133,424
Calves for meat	783	844
Turkeys	1,523 a)	1,140
Rabbits	392	324
Minks	585	694
a) 2001.		

### 3.2.2 Type of farms

Most farms in the Netherlands are dairy farms. One quarter of the farms are specialised in dairy cows and one quarter in other cattle. 9% are specialised in intensive livestock. Furthermore: 18% are specialised in horticulture and 15% are arable farms.

The size (in ha) of the dairy cow farms and arable farms are, with 39-44 ha, much larger than other farms. However, in an economic sense, the figure is different: the economic outputs and profits of the horticulture farms are on average much more.

Type farm	Farms to specialisation direction				
	Number of farms 1)	%	Total land per type x 1,000ha	%	Average size per type (ha)
Arable	12,171	15	478	24	39
Horticulture - open air:	6,961	9	49	3	7
- vegetables	1,123	2			
- flowers (bulbs)	1,829	2			
- fruits	1,760	2			
- nurseries	2,249	3			
Horticulture in greenhouses:	5,658	7	14	1	2
- flowers	3,815	5			
- vegetables	1,843	2			
Others and mixed	1,578	2			
Total horticulture	14,179	18			
Dairy cows	19,697	25	864	45	44
Other cattle at pasture	19,101	24	271	14	14
- pig farms	4,160	5			
- calf farms	1,159	2			
- poultry (eggs)	972	1			
- poultry (slaughter)	434	1			
- others 366	366	0			
Total intensive livestock	7,091	9	55	3	8
Mixed farms	7,178	9	198	10	28
<i>Total</i>	<i>79,417</i>	<i>100</i>	<i>1,929 2)</i>	<i>100</i>	<i>24</i>
1) 2006.					
2) 2003.					



A dairy farm in the peat area (Shutterstock).

### 3.2.3 Size of farms and income

There are also many differences in size between the various farms (table 3.5). Of all the farms, 8% have a surface less of than 1 ha. This was the same as in the recent past. Almost one-third has a surface area of less than 5 ha. The majority of them specialise in horticulture (greenhouses). The number of farms and the section within farms, with a size more than 50 ha, has increased.

<b>Table 3.5 The size of the farms (in ha)</b>				
<b>Ha</b>	<b>Number</b>		<b>Percentage</b>	
	<b>2000</b>	<b>2006</b>	<b>2000</b>	<b>2006</b>
0	1,769	1,586	2	2
0.01-1	6,086	4,711	6	6
1-5	22,536	16,245	23	21
5-10	14,819	11,418	15	14
10-20	16,592	12,686	17	16
20-30	12,325	8,784	13	11
30-50	14,800	13,184	15	17
50-100	1,231	1,845	1	2
> 100	1,231	1,845	1	2
<i>Total</i>	<i>97,483</i>	<i>79,435</i>	<i>100</i>	<i>100</i>

The economic size of a farm can be expressed in dsu<sup>1</sup> Table 3.6 shows that there are a lot of differences between the economic sizes of the farms: 30% of all the farms have a size lower than 20 dsus (gross surplus of €28,000). The size of such a farm generates an income that is not enough to live from. They must have an additional income. Most of them have another job or receive a pension.

dsu's	Number		Percentage	
	2000	2006	2000	2006
3-20	27,706	23,865	28	30
20-40	13,183	10,523	14	13
40-70	16,222	12,156	17	15
70-100	15,121	11,458	15	14
100-150	13,523	10,676	14	14
> 150	11,728	10,757	12	14
Total	97,483	79,435	100	100

The farm incomes earned relate to the dsu size. The size of the income for the farm family is dependent on the type of farm and the specific year.

For example the average farm income for a dairy cow farm (average size: 97 dsu) was €48,000 per year (average 2002-2006 with 1.8 entrepreneurs). The calculated earned income was €495 per dsu.

In the same period, in the arable sector, the average total earned family income was €32,000 per year with 1.8 entrepreneurs (average size: 78 dsu, earned family income: €410 per dsu).

In the greenhouse sector the total average family-income (average size: 258 dsu with 1.8 entrepreneurs) was €63,000 per year (€267 per dsu). The reason

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<sup>1</sup> Dsu, Dutch economic size unit): 1 dsu corresponds with a gross surplus of €1,400 (USD1,200; in this gross surplus the indirect costs are not calculated, for example the costs of buildings, machinery, land, etc. The direct costs of a crop (such as, for example, fertilizer, pesticides, seed) or animal (for example feed), are subtracted from the total monetary profits. Hereby, each crop or animal is given a value. This value is based on the average of profits over the past years. At LEI, every 3 years we calculate new standards of the value of the dsu for the several crops and profits of the several animals. So, for example, the dsu value of wheat is 0.74 (gross profits: 0.74 x €1,400 = €1,036 per hectare; these profits cannot be used for an exact income figure, because you first of all have to calculate the indirect costs of the farm such as the costs for the land, the farm buildings and the machinery), grass is 0.90 (gross profits: 0.9 x €1,400 = €1,260 per hectare and a dairy cow is 1.21 (gross profits: 1.21 x €1,400 = €1,694. in this way you can calculate the economic size of a farm. At LEI, we have a Farm Accountancy Data Network of about 1,500 enterprises.

why the calculated family income per dsu is lower, is because not many family workers work in the greenhouses. The labour income of these not family workers they earned, is already deducted. (Source: see table 3.7)

The farm incomes vary from year to year. Nowadays, the prices of the final products are not guaranteed. The prices are mostly free market-driven. Weather conditions in the Netherlands and other countries are important for the total production. The costs of inputs (animal feed, energy, fertilizer, pesticides) also differ each year. The most important determinant of income for a specific farm is its type of production, its size and the knowledge of how to achieve the best production with the lowest costs.

Table 3.7 gives an overview of the average size in ha and dsu of each farm type and the earned family incomes per farm (with an average of 1.8 family). There are many differences between the family income in the various farm types and over the various years. The farm entrepreneurs need the good income-years to compensate for the poor income years.

<b>Table 3.7 Average size and income per type a)</b>			
	<b>Ha (2006)</b>	<b>dsu (2006)</b>	<b>Income b) x €1,000</b>
Arable	55	78	32
Dairy cow	44	97	48
Intensive livestock	8	109	c)
Other dairy	29	65	
Horticulture open air	19	201	d)
Greenhouse	1.5	258	63
Other and mixed	22	117	
Total >20 dsu	26	119	40
Farms < 20 dsu	6	9	
<i>Total, all farms</i>	23	87	

a) Farms >16 dsu, 2006.  
b) Average total family farm income per farm per year, years 2002-2006; in these calculations the family income of 2006 is based on temporary data.  
c) The average farm income varies per intensive livestock type: pig farms: €45,000 veal farms: €49,000 (2004-2006), laying-hen farms: €17,000, broiler farms: €6,000.  
d) The average farm income varies per horticulture open- air type: vegetable: €33,000, bulb growing: €36,000, fruit: €32,000, tree nurseries: €59,000 For the year 2006, the temporary calculations are used.  
Source: LEI-information Network and C. de Bont, A. v.d. Knijff, 2003, 2006, 2007 and P. Berhout en C. van Bruchem (2005-2007). Plus calculations based on this information.

In the years 2002-2006, the family incomes of the greenhouses entrepreneurs were the highest, with an average family income of €63,000 per year; the lowest were the broiler farms with an average of €6,000 per year. In other years, the picture can be completely different and this has been the case in the recent past. In comparison: the minimum wages of a worker during this period were €17,000 per year. The Collective Agreement wage for a manager in horticulture is about €30,000 per year.

### 3.2.4 Education

The majority of farmer entrepreneurs are well-educated and specialise in agriculture or horticulture. Two-thirds of them have specialist education in agriculture or horticulture (table 3.8).

<b>Table 3.8 Education of the farmer entrepreneurs and agricultural students in 2005</b>							
<b>Education, 2005</b>	<b>Agriculture level</b>		<b>Other education level</b>			<b>Total %</b>	<b>Number entrepreneurs</b>
	<b>high</b>	<b>medium</b>	<b>high</b>	<b>medium</b>	<b>others</b>		
Level of education (%)	5	61	3	21	9	100	118,569
<b>Present students</b>	<b>Secondary schools</b>					<b>total</b>	
	<b>university</b>	<b>high</b>	<b>medium (MBO)</b>	<b>lower (VBMO)</b>			
Students x 1,000	5.6 a)		8.5	25.5	6.7		46.3
Percentage (%)	12		18	55	15		100%

a) 2007.

#### *Concerning education*

There is one University (Wageningen University), and there are 6 schools at a higher level (HBO; college level).

Furthermore, there are in total 13 AOCs (Agricultural Education Centers). This is a regional cooperation of a number of secondary agriculture schools (MBO; age 16-20) and lower level schools (Green VBMO; age 12-16). There are in total 110 of these types of schools. Besides these 110 locations, there are 40 regular school communities, which have a Green VBMO (lower level).

The total number of students at the different schools and the University are:

- Green VBMO 37,500

- MBO 25,000
- HBO 8,300
- Wageningen University 4,500
- Wageningen University-Phd 1,100

Of these total numbers of students, about 10% become farmers. The others work in the business around the primary sector (agribusiness). Nearly all of the 13 AOCs and the 6 HBOs provide adult education.

Every year, around 70-80,000 adults follow specific courses. The total number of employees involved in this education system is 9,300:

Divided between:

- Wageningen University 2,200 (include research);
- HBO 800;
- AOCs 6,300.

There are also two special Practice Training Institutes (PTC+ and IPC Green Space) for adults. This in the public education system. There are perhaps even more in the private/commercial system.

The Practical Training Centre (PTC+) has 5 training locations:

- location Oenkerk: Dairy (cows) and horses;
- location Dronten: arable and agricultural contractors;
- location Barneveld: animal welfare, horses, intensive livestock, pigs and poultry;
- location Ede: Technical training, horticulture, retail and communication;
- location Horst: development rural areas, dairy (cows) and animal welfare.

The Direction and Services of the PTC is in Barneveld.

Each year 30,000 people undertake training in the PTC+. The total number of employees involved is 250. Het IPC Green Space (IPC Groene Ruimte) provides training courses and advice on the domain of green utilities, the maintenance of nature and landscape, forestry, environment and safety.

### 3.2.5 Important structural facts

This paragraph provides a summary of important issues in terms of the structure of the present Dutch agriculture. Most data originates from the years 2005 to 2008.

### *Family-run farms*

Almost all the farms are family-run farms (95%). Almost 4,000 farms are not family-farms (BVs or NVs).

With a BV (Besloten Vennootschap), the enterprise is a closed partnership. When you have a rather large enterprise, it can be fiscally profitable to make your enterprise into a BV; the individual persons are employed by the enterprise and therefore pay less taxes. But the enterprise should also pay taxes. The property of the BV belongs to the involved persons.

A NV is a public corporation. It has shares and the property is divided between all the shareholders).

### *Age of the farm entrepreneur and successors*

Looking at all of the family farms, 60% of the eldest entrepreneurs is 50 years or older. Even on almost 20% of the farms, the eldest entrepreneur is older than 65 years. Of the farms with an entrepreneur with an age of 50 years or more, one third has a successor.

When the farm doesn't have a successor, the farmer doesn't usually invest in new land, machinery and buildings. Usually, when he is around 65 years of age, he sells or rents out his land to other farmers. Sometimes, the land is used for other purposes (nature, infrastructure or new houses). Mostly, the farmer continues to live at his house and the building is used for other purposes.

### *Part-time farming and extended agriculture*

13% of the farms are exploited as part-time farms. The entrepreneur works more than half of his time in another profession. The other profession is mostly in the related agribusiness.

Besides part-time farming plus, sometimes, the work in another small profession, a lot of farmers have extended activities related to the farm. Considering all of the farms (year 2005) 11.3% of them have nature-contracts, 5.5% sell agricultural products on the farm, 3.6% have multiple use of the farm-buildings, 3.5% recreation related activities (mini campsite, bed and breakfast, rental of a room, etc.), 1.3% processing of farm products, 0.7% have a social-care farm (care of people with special needs: mental handicaps, addicts) and 0.6% energy production (windmill or bio-energy).

### *Ownership*

On 59% of the total used agricultural surface, the user is also the owner of the land and 28% of the land is rented land with a contract of more than one year. 13% of the agricultural surface is rented for mostly one year. Only a small part



of all the farms is completely owned (40% of all the farms with 17% of the agricultural land) or completely rented (9% of the farms with 9% of the agricultural land). Half of the farms have a mixture of owned land and rented land. Over the past decades, the total area of rented land with contracts of more than 1 year has very much decreased.

#### *Price of agricultural land*

Land prices, which declined greatly during the years from 2001 to 2005, have increased recently. This is primarily due to the upturn in the economy. In 2007, the average land price was almost €30,000 per hectare, about 10% below the peak in 2001 (Berkhout, 2007). At the moment (2008) the land prices are increasing further.

#### *Size of the various parcels*

An important issue to enable efficient work is for the farm to have fewer parcels and that the parcels lie as close as possible to the house, near to the farm buildings and the farmhouse. Also of importance is the large parcel of land on which the farm-building is placed, especially for dairy farms.

On average, the farms have 5.7 parcels with a size of 4.1 ha. (2004). Over the past years, the average total parcels per farm increased and the size of the parcels decreased. This was because the total investments in Land Reconstruction Plans with tools for better positioning of the parcels, better roads, replacements of farm buildings and better water conditions, decreased. Also, the size of the total farm grew. In the past, there have been important Land Reconstruction Plans; 75% of the land has been under reconstruction. There are currently more investments in recreation and nature.

#### *Water control*

A good control system for the water is necessary. During a period of too much rain, good drainage on the land and water transport system to the waterways is necessary. In The Netherlands there is a system of district water boards. There are 27 of them in total; all linked to a regional water system. In periods of too little rain, there are drought problems with the crops. Nowadays, it is possible to irrigate a quarter of the agriculture surface during periods of drought

### 3.3 The Dutch agricultural complex

Besides the primary agriculture, many companies are directly connected to agriculture. They deliver services and materials to the agricultural sector or have a business which processes or distributes agricultural or horticultural products.

Of the total working population, 3% work directly in agriculture or horticulture and 7% work in the businesses involving agriculture or horticulture,

<b>Table 3.9 Gross values added of the total agricultural complex, 1995 and 2005</b>				
	<b>Value added (x €1b)</b>		<b>Employment (X 1,000 labour units)</b>	
	<b>1995</b>	<b>2005 c)</b>	<b>1995</b>	<b>2005 c)</b>
Total agricultural complex a)	32.3	41.9	659	648
<i>Share in national total (%)</i>	12.0	9.4	11.6	10.0
Agricultural domestic complex b)	20.2	22.6	430	387
<i>Share in national total (%)</i>	7.5	5.1	7.6	6.0
of which:				
agriculture and horticulture	8.4	7.2	189	174
delivering industry	6.5	8.8	135	126
processing industry	3.0	3.9	54	43
distribution	2.3	2.6	53	44
Gardening, agricultural services, forestry	1.0	3.7	39	62
<i>Share in national total (%)</i>	0.4	0.8	0.7	1.0
Processing, delivering, distribution of foreign based agricultural raw materials	11.1	15.9	190	199
<i>Share in national total (%)</i>	4.1	3.6	3.3	3.1
a) Based on domestic and foreign agricultural raw materials, including gardening, agricultural services, forestry.				
b) Based on domestic agricultural raw materials.				
c) Estimates for 2005.				
Source: General and agriculture input-output tables, LEI calculations (van Leeuwen, 2007).				

Like delivering and make inputs, processing, transport, research and development, extension, education and so on.

The gross value added of the Dutch agricultural complex (including the primary agriculture and horticulture) has risen the last ten years from €32.3b in 1995 to €41.9b in 2005. However, the share of the agricultural complex in the national total economy has decreased in this period to 9.4%, as did the share in the employment to 10.0% (table 3.9). Looking at table 3.9 we will provide an explanation about the various sectors relating to agriculture and horticulture:

- the supply industry: they produce products such as machinery (for planting, maintenance, harvest machinery, tractors), farm buildings, greenhouses, and farm equipment in the buildings or greenhouses, fertilizer, pesticides/herbicides);
- distribution: people working at the various auctions and distribution of agricultural and horticultural centres, truck drivers and companies that transport the products from the farms/greenhouses to the auctions and the distribution centres and from here to the trade centre or shops or processing industry, or to other countries (export of the products);
- gardening: enterprises that do work in the gardens of other people, companies or organisations (also a form of horticulture);
- agricultural services: enterprises that do work for farmers, for example specific work for the harvest of crops (specific machinery), specific plant machines, specific machinery for herbicides and pesticides for crop protection. In addition, the administration business (accountancy, administration for the government tax and for the people employed at the farms/horticulture enterprises) belong to the agricultural services. Also people working in consultancy and extension, research and education form part of this category;
- forestry: people who work in the forests.

#### *Sub agro-complexes*

When we look more specifically at the various sub-complexes behind the total agro complex, calculated according to the value added, the agricultural domestic complex is the most important: 54% of the total value. In 1995 this was 63%. Nowadays, the other complexes have become more important.

Within the agricultural domestic complex the grassland-based livestock complex is the most important: 32% of this complex. Then, thereafter, greenhouse gardening (22%), intensive livestock farming (21%), arable farming (17%) and open ground gardening (8%).

## 4 The success of the Dutch agriculture and horticulture

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As described in paragraph 2.2.7, the Dutch agriculture and horticulture is very strong in terms of exports. Many products from the Netherlands are number 1 in the world in terms of export. These include: cut flowers, flower bulbs, potted ornamental plants, (48% of the total world export trade of floriculture products is done by Dutch exporters) tomatoes (23% of the world export), potatoes (22%), eggs in shell (29%), dry curd cheese (16%), barley beer (19%), cocoa cakes and cocoa butter (37%). For some products, the Netherlands are number 2 in the world: pork (12% of the world export), chocolate products (7%) and tobacco, unmanufactured (17%). The tobacco, cocoa and chocolate products are based on import from other countries. (Data 1997-1999; Source: International Statistics, Flowers and Plants, 2002 and calculations according to the data from Trade Yearbook of the FAO; Zhang, 2008)



Bulbs are an important export product (Shutterstock).

The success of the Dutch agriculture and horticulture is based on several items and factors. Especially the interaction and cooperation between the various factors has been very important.

We summarised the most important issues. In the following chapters we analyse some specific items.

### 1. Trade and sea and river transport

The Netherlands has been a trade nation for centuries. This is because it is a narrow territory at the end of a delta of a few rivers. Harbours are on the coast and along the rivers. Via the rivers, you can further go into the country and into the neighbouring countries Belgium and Germany. Sea and river transport by boat is relative cheap. Rotterdam is the second largest harbour in the world. There is a big import of cereals, oil-seeds, cacao, tapioca, tobacco and fruit. The import products are used for own use, food for animals (intensive livestock farming), processing and export to other countries. The harbours are also used for export (potatoes, onions). Trading has a long tradition. A few hundred years ago, the Dutch 'Golden Age' (1602-1672), The Netherlands traded with many countries both inside and outside Europe. We also had specific bridge cities in North and South America, Africa and Asia. New York, Indonesia, Surinam which formed a Union with the Netherlands.

### 2. Balanced policy and democracy

Investments in land, factories, machinery can be made without high risks. There is also a balanced economic national policy for farms and businesses. At national level, there are agreements between the government and the unions of workers and the union of employers. The work climate is therefore stable.

An important role for a stable work climate is played by the Social Economic Council (SER). Represented on this Council are the most important social-economic groups in Dutch society. Amongst them, the Union of Farmers. Also represented on this Council are the various Federations of Dutch Employees and various Federations of Dutch Enterprises.

Another strong point is the ability of the many social groups to communicate with the Ministries and the various Commissions of the Parliament. Chapter 6 also gives a good overview of this process.

### 3. Good level of infrastructure

The whole country has a good network of roads, railways, and the opportunity for transportation by boat. The governments still invest a lot in new infrastructure (recently: the high-speed train and a new railway to Germany).

The logistic processes are optimised. The world's largest flower auction 'Aalsmeer' is, for example, located closely to Schiphol airport.

#### 4. Good level of education

The level of education of the whole population is generally good. In addition, the present and future farmers mostly have good specialised education. After their education there are plenty of opportunities for specialised courses.

#### 5. Agriculture friendly policy and knowledge- infrastructure

An agriculture friendly policy is in place here. Besides stimulating agriculture infrastructure projects, specific loans, development and redevelopment funds, we had the OVO-system. OVO (Onderzoek, Voorlichting, Onderwijs) means Research, Information services and Education. It is based on good collaboration between research, information and education in the agriculture and horticulture sector. Additionally, when the Government (Ministry of Agriculture) wants to introduce a specific item to the agricultural or horticultural sector, they are able to use the system. In former days, this was free of charge. Nowadays, the entrepreneur has to pay for advice. (In former days 1,000 employees were involved in this organisation. Nowadays there are 500 employees).

#### 6. Unions and cooperatives

The many farmers unions were started in the past from a regional base. They also currently have regional divisions, boards and meetings. (Within the regions they communicate through meetings and papers. Furthermore, each organisation has its own national, most weekly, newspaper).

The Farmers Unions promote and look after the interests of the farmers/ horticultural enterprises. This is also done at regional, as well as national level.

At local, regional and national level, farmers has organised themselves. In former days, there were the Christian, Catholic and other more liberal unions. Through these having combined, nowadays we have three regional unions of farmers: LLTB in the South East (3,500 members), ZLTO (18,500 members) in the South and South West and LTO-Noord (North; 28,000 members). They are united in LTO Nederland (Land- en Tuinbouw Organisatie Nederland; Agriculture and Horticulture Organization The Netherlands). In total they have 50,000 members. They all are organised in local regional groups of about a few hundred members. There are also specific farm groups specialised in particular types of farming. The farmer unions also provide specific advice and help with problems with local governments or specific farm items. They also have an estate agency.

The umbrella organisation LTO Nederland has close contact with the policy and political decision commissions (see chapter 6). LTO Nederland is a discussion partner with the Ministry of Agriculture and is also a member of the Social Economic Advisory Council of the Dutch Government; this is the highest Council

and Top Level Consultation between the National Government and all the social economic partners in the country.

This Council is probably very specific to the Netherlands. It provides foundation to and commitment between all the partners within the society. It is a form of continuation of the former consultation of the many partners that managed the water system and safety in the polders: you had to have an agreement, otherwise your safety was not guaranteed.

The LTO is not responsible for implementing and monitoring the rules or policies. Sometimes they can help with specific projects and can help with implementing some specific issues.

Besides the farmer unions, there are many other unions and cooperatives of entrepreneurs in agriculture and horticulture. There are cooperatives for the sale of horticulture products (auctions of flowers, nurseries, bulbs, fruit, and vegetables), arable products (consumer starch and seed potatoes, sugar, wheat and others), milk and several meat-sale cooperatives.

A cooperative bank has also been founded: the Boerenleenbank (Farmers' Loan Bank). After a merger, it is currently the Rabo Bank. It is still a cooperative bank which continues to work at local level.

#### 7. Policy for a good infrastructure for farm land

A good infrastructure for the farm land is important. During the past fifty years there have been plans for land reconstruction and specific subsidies. The farmer needs to have a good water system for his land (drainage on the land and from the land to ditches and water courses, opportunities for water conservation and irrigation), land close to the farm, not so many land parcels and parcels that are close together, good paths on the land and good roads to the farm and the land. With integrated land reconstruction plans, it is possible to achieve an improved total infrastructure for the agriculture and horticulture. Other interest groups can also be served by such plans.

#### 8. The agribusiness round the agriculture and horticulture is very well organised.

The level of education and innovation of the delivering and processing agribusiness is very good. The logistics and trade business is very good.

9. Last but not least: integration and cooperation between the agriculture, horticulture, agribusiness, and government policies

It is very important that the whole agro-complex work collaboratively. It is sometimes good that there is a sound competition, but narrow cooperation and working together, each with their strong points is a very good alternative.

Two examples of a good cooperation within the various unions/institutions/authorities will be given:

#### *Stimulating the flower agribusiness*

At the moment, Flora Holland is the largest Flower Auction in the world. It has about 3,500 members (all flower enterprises), 4,000 employees and has a trade volume of €4b per year.

The research system (practical research) for flowers in greenhouses is also close to the region of most flower enterprises. For example, research has been carried out into new systems/glass/equipment/new system for reducing pesticides and insecticides/new heat-power and other low-energy systems. Anything new is developed in close cooperation with the entire floriculture business.

The related business of equipment for the greenhouses and construction of the greenhouse are also close together.

There is also a system for new plans and reconstruction of 'old glass'. New areas can be constructed. In close cooperation, the Service Rural Areas meet with the regional authorities (municipalities and provinces), make plans and ensure good design and construction of the area.

The head office cooperates very well with the local municipality in terms of expanding their area of buildings. This also applies to other infrastructure (roads, various cables). To export the flowers throughout the world, there is close cooperation with the Plant Protection Service and Protection Services of other governments, of the protocols of other countries which are developed to handle and export flowers abroad.

In addition, the national airport -Schiphol- has developed a special transport system to take the flowers on board the planes quickly.

The entire flower- horticulture greenhouse sector also works closely with the vegetable-horticulture greenhouse sector on some specific issues. One of these issues is, for example, the price of the national gas. Together, the enterprises all use a large amount of gas. Joint centralised negotiations were carried out in order which resulted in a contract for cheap gas. The contract is comparable to a very large industrial complex.



### *Introducing new equipment and buildings for the milk-cow business*

The OVO system, the various milk factories- cooperative and private, the Food and Commodities Safety Authority, and several practical research stations looking into these issues, have worked together closely in the past to encourage the farmers to deliver the milk in tankers, and also build new buildings and equipment to make the work easier. The Government has also encouraged this process by means of subsidies and has reduced the interest rates on borrowed money.

### *Concluding observations*

Above we described the success factors for the successful Dutch agriculture and horticulture.

In comparison to the countries neighbouring the Netherlands, probably the most successful issues are the Dutch trade tradition (including the position of the Dutch harbour of Rotterdam), the well-functioning unions and cooperatives, and the OVO-system.

Other neighbouring countries have not so much tradition in these issues.

The good infrastructure of farmland also plays an important role. (Some surrounding countries have this too, such as Germany and France)

However, the other issues described in this chapter also play an important role, in combination with each other.

Personally, we think that during past years, the system did not function as well as in the 40 years between 1960 and 2000.

At the moment there are a few minor points:

- there is an increasing system of bureaucracy and administration for all the enterprises in the agriculture and horticulture. Too much paperwork and forms have to be filled in;
- the scale of the unions and cooperatives has been too large. A certain concurrency between the several cooperatives is good;
- the OVO-system is not as active as before, through the privatisation of the extension sector;
- at the moment, there less investments are made in the infrastructure for the primary sector in the rural areas.

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## 5 Agricultural policies in the past and the lessons from them

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The policies for the Dutch agriculture have not been only a policy of the Dutch Government of the Ministry of Agriculture, but have been influenced by neighbouring countries in former days and, later on, by the European Union.

In the past, there have been a number of events that have influenced the Dutch policy on agriculture. In this chapter we will cover the most important past policies. We start in the middle of the 19-th century (Douw and Post, 2000).

The Dutch policy on agriculture in the past has, to a large extent, influenced the development in agriculture in the past, but also in the future. For example: through relatively low prices for animal food (free import by the Port of Rotterdam) the Dutch intensive livestock farms could grow rapidly. This gives prosperity but also many environmental problems in certain regions. Over the past ten years, many government expenses for reconstruction have been necessary in order to move these farms to other regions. This was especially the case in the south-east and east of the country.

This chapter on the history is essential in order to provide an understanding of the current situation. In terms of agriculture and horticulture, the Netherlands is a rather progressive modern country. For countries that are at another stage of development it is necessary to understand this Dutch history.

### 5.1 Period 1843-1957

#### *The repeal of the Corn Laws in 1843 in England; period 1843-1880*

In the middle of the 19th century about the half of the Dutch population worked in agriculture (table 3.1). The prices of food were relative high and rose at that time. For instance, the labour-workers outside the agriculture spent 58% of their total expenditure on food (van Zanden and van Riel, 2000). Almost one third of spending was on potatoes and bread alone.

In England the Corn Laws were in force until that time, which were intended to protect British agriculture through taxes on imports. This pushed up wages. At that time the price of food was a major item in the costs of living. The industrial revolution also started in that period. To bring down wages and to promote

industrialisation, the British Government repealed the Corn Laws and soon afterwards also liberalised British imports of other products. The other European countries followed the British example. The Dutch agriculture benefited from this change. Thanks to the increased foreign demand, the prices of agricultural products, particularly those of livestock products, increased sharply. Exports of livestock and meat to England rose considerably, as did those to Germany and Belgium. The export of dairy products like butter and cheese increased too, as well as that of arable and horticulture products. About three quarters of agricultural exports in this period (excluding tropical products) consisted of livestock products, more than half of which were unprocessed. The growing demands for exports between 1850 and 1880 were, in turn, the result of the industrialization in the countries near the Netherlands, especially England, and of the liberalisation of trade. The rising standard of living in the neighbouring countries led to an increase in the demand not only for meat and eggs, but also for vegetables and fruit. This made the composition of the Dutch production and export package more varied. So the positive development of the Dutch production and export in the period 1850-1880 was partly due to the industrial development elsewhere in Europe.

*The reaction on the import of grain and the low grain prices from America 1880-1929*

Around 1880 the technology of the industrial revolution of 1840-1880 was so much raised that it was possible to build steamships. In addition, the United States and Canada had cultivated a vast area of new agriculture land. New maritime transport made it possible to ship large volumes of grain cheaply to Europe. Within a few years the European import of American grain took off dramatically, which led to a drastic drop of grain prices. Other arable producers were dragged along in this downward spiral, though other factors played a part in this as well. For instance, the chemical industry developed substitutes for some arable products such as madder and oil seed.

The import of cheap American grain in particular provoked a call for protection in Western Europe. The governments of some countries responded, while those of others did not. England chose for free trade, because their high level of industrialization. Germany opted for protective measures (they just start the industrialization).

The Dutch economy was strongly orientated towards trade and agriculture. The Netherlands chose for free trade, but together with improving the level of knowledge in agriculture through research, extension and education as well as improving land as a factor of production. The Netherlands try to improve all the

factors of production in agriculture and improving what we call nowadays the chains of production. In other words, bringing down cost prices and improving quality of products was the instrument deployed to improve international competitiveness.

The Government played a key role in improving the quality of the factors of production. It was mainly a question of improving the level of knowledge in agriculture through research, extension and education as well as improving land as a factor of production. The improvement of the chains of production was a large extent left up to private initiative, in which the formation of agricultural cooperatives played an essential role. The latter was also true of the provision of capital in the short term. The choices made at the time have been of fundamental importance for the development of modern Dutch agriculture.

The Dutch decision to maintain free trade naturally meant that grain could continue to be imported at a low price. In Germany on the other hand, the domestic grain price rose because of the restrictions on grain imports. However, German grain imports of pork and eggs were only restricted to a small extent (Schwartzberger, 1981). This meant that Dutch farmers who could use the cheap foreign grain had a competitive advantage over the German farmers who had to rely on the more expensive German grain. This enabled a further increase in the export to Germany of these grain-based products. This growth in exports was further stimulated by the rise in the standard of living as the result of the industrial development of Germany, particular in the Ruhr region near the Netherlands.

In the First World War (1914-1918) the Netherlands remained neutral. In the war and the first years after this war the food prices were relatively high. The food-policy system of its own was the same.

#### *The economic crisis of 1929-1940*

As a result of the crisis the prices of all products fell dramatically, including those of agricultural products. In response of this development, the governments of the Western European countries resorted to import restrictions in order to protect their own producers. As a result, the protection of agriculture rose to a historic level. Not only were import tariffs increased, but fixed and variable import duties were also introduced.

Although the Netherlands supported free trade because of its dependence on exports, it had no choice but to intervene in the economic process. This concerned in the first instance trade measures such as import duties, import levies, export subsidies and import quota. In so far as these measures were insufficient, production quota were also introduced. Policy measures were even

introduced with regard to consumption in order to protect agriculture. For instance, flour for bread had to contain a certain minimum of Dutch-produced grain.

*War and recovery: 1940-1957*

In the Second World War (1940-1945) and after the war there was still a system of protection. Other countries in Western Europe also decided to continue a policy of agricultural protection after the Second World War.

After the world war a planned wage policy was followed in the Netherlands to maintain the purchasing power of the Guilder (the Dutch currency until 2002). This meant that all collective wage agreements between employer's organizations and employees organizations required the approval of the government. In the agricultural sector employers and employees organizations cooperated to improve the wages of agricultural employees, since their interest were not opposed but similar. This was because the government had determined that the prices of agricultural products were fixed on the basis of the cost price of well run representative farms plus 20% for management.

Higher wages resulted in higher costs not only because of the work that was carried out by the employees, but also because the labour costs of the farmer and the members of the family appreciated at the same rate as the labour of employees.

After a few years, however, the growth of the agriculture and other factors made the agricultural policy too expensive, and it had to be revised. First of all the market of horticultural products was liberalized, followed by the same measure for the products of arable and livestock farming. As far as arable products are concerned there were still price guarantees for grain and sugar beet. The markets with important products for Dutch agriculture like seed potatoes and potatoes for consumption were not regulated by the government. In the course of 1950 the dairy policy in particular ran into deeper and deeper trouble. An increasing share of the production, especially the production of butter, had to be exported with the help of export subsidies, and thus of loss. A fund was set up to compensate that loss which was financed from a tax on every kilogram of processed milk.

The establishment of the EEC (European Economic Community) saved the dairy policy.

Before the establishment of the EEC in 1957 the Netherlands had already signed an agreement with Belgium and Luxembourg for a customs union. It starts in January 1948. The plan was already born in London during the Second World War by the three governments in exile.

There was a free trade possible within the three countries and there were common tariffs on the outside border of the three countries. It was the lowest tariffs of Europe. Just to stimulate the export so much as possible.

## 5.2 The founding of the European Union

*The agricultural policy of the EEC (European Economic Community); start and growing (1957-1983)*

Six years after the Second World War, in 1951 (Treaty of Paris) six countries (the Federal Republic of Germany, France, Italy, Belgium, Luxembourg and the Netherlands) signed a treaty about an arrangement about the intern market of coal and steel. This was the first trendsetter of the European Economic Community.

In 1957 in The Treaty of Rome the European Economic Community (later the European Union, EU) was set up. The Community had the same six signatories. Brussels in Belgium became the administrative capital of the EEC. Nowadays Brussels is still the capital of the EU with 27 member-states.

The treaty was also a reaction on the Second World War: to bring together the former enemies (Germany/Italy against the other countries).

The participation of the Netherlands in it was of crucial importance for the development of the Dutch agriculture. It was particularly important for agriculture that the treaty laid down that a common agricultural policy (CAP) and a common market for agricultural products would be created.

At the start of the EEC the EEC was not self/sufficiency for all the agriculture products. It was not for grains, fruits, eggs, beef and veal. For the rest of the products the EEC was just self/sufficiency or a little bit more. (Source: Ministry of Agriculture and Fisheries, 1972)

The agricultural policy of the EEC was to be based on the following objectives (Meester, 1980):

- the promotion of agricultural productivity;
- guaranteeing a reasonable standard of living of the farmers;
- the stabilization of the markets for agricultural products;
- guaranteeing the food supply;
- guaranteeing reasonable prices for consumers.

A common agricultural policy was developed at the start of the sixties on the basis of this treaty. This policy had three components: a common structural policy, a common market and a common fund, the European Orientation and

Guarantee Fund for Agriculture, from which the costs of the community policy were to be paid. The most important was the common market and price policy, which replaced national market organizations. A large number of common market regulations were implemented. The most important for the Netherlands were those affecting grain, sugar, milk and beef. Other important products for the Netherlands were only affected by limited common market regulations.

The basis principles of the common market regulations were:

- unity of the market;
- trade preference for the participants;
- financial solidarity.

The market regulations for the most important products, such as grain, milk and beef, were characterized by two main features: a minimum import price and an intervention price.

A duty had to be paid on imports from non-EEC countries amounting to the difference between the (lower) price on the world market and the minimum import price. The intervention price can be seen as a minimum market price: if the market price in the EEC is lower than the intervention price, the products can be sold to one of the intervention agencies in the EEC. Also there is the instrument of export subsidies: they facilitate exports for products to the world market during periods of surplus.

The creation of the EEC has been of crucial importance for the Dutch agricultural sector. The most important was the formation of a large common market without restrictions on trade within borders. That common market gradually expanded over the years. When a country on a voluntary basis want to join it must be a democratic land and respect the human rights. The first expansion took place in 1973 when the United Kingdom, Denmark and Ireland joined. (Later on, in the 1980's and 1990's followed by Greece, Spain, Portugal, Finland, Sweden and Austria. After the democratic process in Eastern Europe (1988-2003), in 2004 joined ten countries: Czech Republic, Estonia, Latvia, Lithuania, Cyprus, Hungary, Malta, Poland, Slovakia and Slovenia. In 2007 Bulgaria and Romania joined. At the moment 27 countries are member of the European Union).

The level of the international market prices stimulated the growth of the Dutch production, especially of milk, as a result of the relatively high level of productive of the Dutch agriculture. Without the Common Agricultural Policy a further growth of the dairy sector would only have been possible at the price of high rising costs for the Dutch taxpayer because of the increasingly high subsidies that would have been necessary to be able to finance dairy exports.

Important for the Dutch agriculture was the import of raw materials for animal feed. A number of products could be freely imported to the EEC. This can be seen as a concession by the EEC to gain international acceptance for the protective character of its agricultural policy. These products were cheaper than grain and were good substitutes for grain as a raw material for animal feed. Their share in the composition of animal feed grew rapidly. The lowest price for these products was recorded in the import ports, of which Rotterdam enjoyed the most favourable location. From Rotterdam much products go per small ship up to the rivers to other harbours in the country and further transported by trucks to the farmers. This was one of the factors by which the production of pork, eggs and milk was strongly encouraged in The Netherlands.

During the years 1958 until 1983 about 80-90% of the money of the European Orientation and Guarantee Fund for Agriculture went to the common agriculture price and food policy. The rest of the money went to structural policy and others. After 1983 this changed. Less money went to the price and food policy and more money went to other purposes. In 1992 this percentage was 52% and in 2002 46%. In 2013 is expected less than 40%. (Vanheukelen M, Meester G. e.a., 2005)

Nevertheless the Netherlands has its own structural policy. The Netherlands had from 1945 until nowadays its own land reconstruction projects. This is as mentioned in chapter 4.7 of this report. This was partly subsidized by the EEC.

Waterworks-projects, changes of land, new farms in empty areas, new in-road-infrastructure and paths on the land were parts of this plans. This with new nature and landscape. This was sometimes together with other regional and national roads. There had been a land-reconstruction plan for about three-quarters of the land in the country.

*The agricultural policy of the EEC (European Economic Community); reforms of the policy (1983-2008)*

Over the course of time, the production in the EEC grew faster than the population. Also, the costs of the Common Agricultural Policy increased. One remark on this point: the budget of the Common Agricultural Policy of the EEC has taken on average 1% of the total national income of the member states. This was in the past and also nowadays (Vanheukelen M, Meester G, e.a., 2005).

It was not possible to break the growth of production sufficiently through price policy without affecting the incomes of the farmers in an unacceptable way. So other solutions had to be found.



### *1984: Milk quotation*

The first change concerned the dairy policy. As a result of the growing dairy surpluses, an increasing proportion in the EU was exported to the world market by means of subsidies or sold on the internal market by means of subsidies as animal feed. The burden on the taxpayers increased and the other exporters to the world market began to step up their complaints about the European dairy policy. This all led to a quota system for milk production in 1984. Each of the member's states was allocated a production quota, and each farmer within a member state was assigned a quota based on the scale of milk production in the period preceding the introduction of the quota system. The production quota could not be traded between the member states. In the course of the time the scale of the quota has been fixed at a lower level. So in 1997 the total milk quota in The Netherlands was 87% of the milk quota of 1983.

### *1992: MacSharry reforms*

A second important fundamental change took place in 1992. In principle the market and price policy of the EU was based on the idea that support for agricultural incomes would be paid by the consumer in the form of higher prices for food. Over the years that gradually changed, and the taxpayer had to cover an increasing share of the costs of the agricultural policy. In 1992 within the framework of the MacSharry reforms direct payments per hectare were introduced. These reforms of the agricultural policy must be seen in close connection with the international trade consultations in the Uruguay Round. A reform of the Common Agricultural Policy was necessary in order to reach an agreement in these GATT (General Agreement on Tariffs and Trade) negotiations. The policy on grain in particular was profoundly changed. Over the years a growing grain surplus had been accumulating; partly the result of increased yield per hectare and partly because of the replacement of grain by substitutes in the production of animal feed. Three important changes were implemented in the grain policy:

- the institutional prices were considerably lowered;
- the negative consequences of these payments were compensated by direct payments per hectare;
- farmers were obliged to set a side of their land.

For the Netherlands it was above all important that the competitive advantage arising from the use of grain substitutes was reduced by the reduction in grain prices.

*1994: Changing of variable export levies into tariffs; reducing tariffs in 6 years*

With an agreement of the Uruguay Round in Marrakech, the EU has converted the variable levies into tariffs, which are subsequently reduced within a period of six years. This enabled that low world market prices can have a direct influence on the formation of prices on the internal market of the EU. The export subsidies became lower. This reduction concerned both the volume of subsidies and the volume that could be exported with a subsidy. This had negative consequences for the Netherlands regarding the export of cheese to third parties outside the EU.

*1999: Agenda 2000' accepted*

With the expansion of the EU with a large number of countries in Central and Eastern Europe it was necessary to reform the EU agriculture in a next step. The prices of agricultural products in these countries were much lower than those in the EU. The most important changes that were agreed upon in connection with Agenda 2000 were a further reduction in the institutional prices of grain and beef, and important for The Netherlands of butter and skimmed milk powder. The reduction of the institutional prices was partly compensated by direct payments per hectare and per animal. One of the effects for the Netherlands have been a further deterioration in the competitiveness in livestock production as a result of a further reduction in the comparative advantage in the use of grain substitutes in the production of animal feed.

*2005: Introduction of farm payments and 'good agricultural practice'; change of sugar policy*

In 2005, a start was made with the introduction of farm payments, which are or will be linked to conditions in the field of 'good agricultural practice', the environment, animal health, public health, crop protection and animal welfare. Countries can either opt for a payment per farm on the basis of historical reference or for an average payment per hectare, also known as the flat rate. Most countries have chosen the first option (the Netherlands included). In 2004, the payments amounted to almost 80% of the total annual budget of €38b for the market and income policy of the EU (P. Berkhout & C. van Bruchem, 2006).

Also, in 2005 there was a change to the sugar policy: the sugar price will be reduced by 36% over four years, with the growers receiving partial compensation.

In 2005 there was a change in the agricultural production: the agricultural production volume in the EU-25 declined by more than 5%. This reduction took place entirely within crop production, amongst other things as a consequence of

drought. The prices declined slightly and the value of the purchased means of production remained at approximately the same level.

#### *2006-2008: Increasing prices*

In 2006 international prices of agriculture produce increased by an average of about 10%. This was in part due to a decline in production (of produce such as grain) and in part due to increasing demand. Human consumption of animal products is increasing, whilst the growing interest in bio-fuels plays a major role in the increasing demand for plant products such as sugar and maize. The increasing demand for biomass for the production of energy can be to the detriment of food production. FAO forecasts indicate that by 2050 the increasing demand for animal products will have resulted in 100% growth in global meat production and a slightly smaller increase in milk production. (P. Berkhout & C. van Bruchem, 2007)

In 2007 the international prices increased again (for instance wheat-prices in December 2007 were 51% higher than in December 2006; milk was 49% higher). (Source: Bolhuis, 2008)

The set aside rule for grain was abolished by the European Commission. This with the start of the growing season (spring) in 2008.

#### *Current EU-policy and prospects*

In 2006, an agreement was reached regarding the EU's total multi-annual budget for 2007-2013. The share of agriculture in the total budget of the European Commission changes from 43% to 42%. Nearly 81% of the agriculture budget (€293b for seven years) is earmarked for the market and income policy of the EU. Nineteen percent is earmarked for the second pillar of the agricultural policy: the rural policy. But this is relatively more compared to the available budget in the period 2000-2006 (P. Berkhout & C. van Bruchem, 2006). This total rural policy budget of €77b for 2007-2013 can be used for purposes such as diversification of the rural economy, landscape management, and care for the environment. For almost all the projects in this program the several individual countries and also sometimes the farmers must pay a part of the total costs. In a lot of the projects within this program the EU co-financed 50%.

Receipts and costs of the European Union must be in balance. The total budget is maximized on 1.24% of the total Brute National Income of the whole Union. The total budget of the European Union come the most from contributions of the brute national product of the several countries; in 2005: 74%. Taxes on BTW (brute added value tax) and customs duties contribute respectively 14% and 10%. Other taxes and rules contribute 2%. (Vanheukelen, 2005)

Until 2013 the present system of payments per farm will be continued. This is with about the same policy for the various products, regarding price and quota system. This means: a quota system for milk, sugar and starch potatoes. In the years 2013-2015 the quota system for milk will probably be abolished. Also, there will be an evaluation of the sugar and starch potatoes quota system.

The farmers must to adapt the 'good agricultural practice.'

The EU will encourage the production of bio-fuels and has launched an action plan for the improved welfare of animals in the field of livestock production. The European Commission also submitted a proposal to limit the number of animals per square meter of floor surface in broiler farming. The harmonization of the regulations within the EU in this field is proving difficult due to the diversity of visions regarding animal welfare between the member states. It would be appear that in the event of the continuation of the current market and income policy the EU-27's self-sufficiency in vegetable products will increase significantly in the years until 2015, and will decline slightly in meat products other than pork. In the years since the end of the nineteen-eighties the EU's agricultural prices have come much closer to the international prices. (P. Berkhout & C. van Bruchem, 2007).

*An example: changes in policy for specific products*

On request is given more specific an example for the policy concerns the removal of the trade barrier in the past for a specific crop. As an example the policy for wheat is more specific given in Appendix 2 during the period 1983-2008

### **5.3 The Dutch agricultural policy (1957-2007)**

As described above, the policy of the European Union has been very important for the price and income policy of the Dutch agriculture. But for some specific products there were no price and income regulations at all. This was in the case of the arable products potatoes (consumer and seed) and onions. Also, there were no regulations for flowers and for most vegetables. Through the internal market and the export to countries outside the European Union of these 'free' products, and the good agricultural system (described in chapter 4) the Dutch agriculture and horticulture sector profited from the European Union.

Besides the European Union price, income and market policy, founded in 1958, The Netherlands had its own policy for agriculture and rural area.

At the moment the Ministry of Agriculture, Nature and Food quality is the Ministry that is responsible for policy for the agriculture and the rural area. (in former days the policy for nature was with another Ministry).

We now describe the most important policy issues for the agriculture and the rural area. In chapter 7 and 8 we described in more detail the recent and current policy for the agricultural sector and the rural areas.

#### *General 1957-1983*

In general, the period from 1957 until 1983 was the period of further build up of the agriculture and horticulture sector. It was a growing business, that could grow through a good economic climate and the systems described later in this chapter (OVO, funds, fiscal facilities and reconstruction plans). There were not so much limitations from the Dutch society, or from the European Union.

#### *General 1983-2008*

After 1983 the productivity and the total production of the European Union was too much. It was generally too much for the country's own population. Also, the world market prices outside the European Union were much lower than in the European Union. The costs became too high to export the products to the countries outside the European Union. The European Union decided to reform the policy to a system more in line with the market. As described in chapter 5.2 (with quota, set aside rules, less export restitutions, etc).

At around the same time, the society in the Netherlands began to be more critical about the environmental problems caused by the agricultural and horticultural sector. The society want to have more nature and landscape, less use of pesticides and insecticides, better quality of the food, better welfare for the animals. The society also wants to have more space for recreational activities (walking, cycling, sports, forests). Especially the pig-sector in some areas (especially in the South and the East part of the country) causes a lot of problems because of the manure. The smell also gives local problems.

After 1983, many rules came into force to reduce the disadvantages of the agricultural and horticultural activities. The policy became more environmentally friendly.

#### *Specific items in the Netherlands*

*OVO (Onderzoek, Voorlichting, Onderwijs: Research, Extension and Education)*

The policy was partly based on the OVO-system (Research, Extension and Education, number 5 of chapter 4). With these system new subjects, innovations and new policies quickly went to the agricultural sector.

Good cooperation between the research system, the extension system and the education system was essential to bring some new developments to the various sectors. Also the Government, as the Ministry of Agriculture, Nature and Food Quality (in former days has this Ministry other names, but the name Agriculture was always present) could finance the research and the extension services, and provide guidelines to certain developments.

The OVO-system has played a large role in the past by, for example, testing and introducing new buildings, machinery, better crops, biological agriculture and horticulture, learning by groups, etc.

At the moment the research-sector is privatised, but the Ministry of Agriculture, Nature and Food Quality partly financed this (42%) by setting out research programmes and specific research projects.

The extension services are completely privatised. Only for some specific projects do they do work for the Ministry of Agriculture, Nature and Food Quality. Fifteen years ago the Extension Service was complete financed by the Government. During the first year (around 1991) the Government made a decision to start to privatise the Extension Service: the first year the Extension Service was based on 50% Governments payments and 50% by the farmers. Each year thereafter the payment of the Government was 5% less. In year ten all payments were made by the farmers.

In the same period the total numbers of employees of the Extension service reduced from 1,000 to 500.

The big advantage of an Extension Service financed 100% by the Government is that the employees are independent: they act purely in the interest of the farmer. That also happens in the new system, but there can be other interests, of which the farmer isn't aware.

The education sector (schools) is fully financed by this Ministry. Chapter 3.2.4 provides an insight into the agricultural school-system. Chapter 8 gives more information about the present agricultural research and development policy.

#### *Cooperatives and Loan Guarantee Fund*

Development of the agricultural sector has been and continues to be a hot issue. Farmers need money for new investments for buildings, machinery, land etc. Cooperative local banks (Raiffeisenbank and Boerenleenbank) were founded. The first cooperative bank for agricultural loans had already been set up in 1886. In 1980 both cooperative banks were incorporated into Rabobank Nederland.

In order to develop Dutch agriculture in the widest sense, the Agricultural Loan Guarantee Fund was set up by the Government. This is within the framework of the Marshall Plan (1951, after the Second World War). This Fund targeted profitable investments with inadequate securities, in order to promote development, aimed at increasing the productivity and profitability of the agricultural enterprises. The fund was supplementary in character, so that all of the normal avenues for sureties for loans had to have been exhausted first. In the period 1952-1999 a total of 62,000 loans with a sum of more than €2.5b guarantees was given.

Enterprises could have profits from the Loan Guarantee Fund and from the Agricultural and Reorganization Fund (see next paragraph). This concerning their development. For some farms this also means an end to their farm.

In particular, enterprises or farms where the father was about 50-55 and had a son who wanted to succeed his father by working on the farm or enterprise, profited from these funds.

The funds became stronger and made even more profits a few years later. Also, after a time they also bought new land from other farms for further development.

The public and society have accepted this; there were no problems in terms of the acceptance of the amount of money. This was also because the costs of the Ministry of Agriculture, Nature and Food Quality are not as high in relation to other public financed issues, financed through other Ministries or bodies.

A portion of the financing also came from the European Union.

#### *Agricultural Development and Reorganization Fund*

In 1963 the Agricultural Development and Reorganization Fund was established. This Fund played a key role in the funding of agricultural enterprises. The purpose of this government fund was to promote the development and reorganization of agriculture. There were specific regulations and subsidies for the items below:

- regulations governing the closure of farms: an amount of money for closing and regulations concerning the land and the buildings. The regulation encourages other farms to grow. They can buy or rent more land;
- modernization and innovation on the farms: regulations to encourage new technique, equipment, buildings, encourage closure of old glasshouses and the building of new greenhouses, encouragement of new dairy buildings and intensive livestock;
- interest subsidies.

A farmer must draw up a plan in order to obtain the subsidy. The most important aspect of the fund's schemes in terms of scale and duration was the interest subsidy (1972-1985). The number of applications granted before 1985 was almost 23,000 amounting total subsidized loans of €2b. Twenty five percent of the support granted, a subsidy on the interest on loans, was compensated by the European Orientation and Guarantee Fund.

The competitive strength of Dutch agriculture has risen sharply thanks to this interest subsidy. Thus 60% of the expansion of dairy livestock and 30% of the increased area under greenhouse cultivation related to enterprises that were in receipt of the interest subsidy. The wave of modernization has led to an appreciable increase in the production and added value per employee.

A follow-up scheme was introduced in 1985 that focused on improving the agricultural structure. Both the old and the new scheme had extra facilities to enable company development for entrepreneurs who were starting up.

Programmes continue to be available at the moment, but interest in these has to be shown in the short term. The budgets are limited. For example there was a subsidy for investments between €25,000 and €100,000. You could recoup 20% of the money for the investment.

There is also a subsidy for young farmers: they can get a subsidy of 1% for the interest rate of the loaned money. (For young farmers there is in general not much specific help from the Government). They can only obtain this subsidy for the interest rate and, plus subsidies to follow specific courses at the agricultural schools).

#### *Fiscal facilities*

During the period 1978-1990 the WIR (Wet op de Investerings Rekening), the law on the investments account, was an important reason for investment. There were fiscal opportunities for all enterprises in the country (including farm enterprises) to pay less tax, when you made an investment. Also, there were sometimes special regional bonuses. The total premium for investments was from 12% (basic) up to 50% (specific regions). The agricultural sector receives, in total, a sum of €1.5 to €2b.

Another fiscal facility is the ability to transfer the company within the family for an amount that is lower than the free economic value. The usual tax is lower or sometimes zero.

There is also a legal facility that tenants can buy leased land from the owner for its value in leased state, which averages about 60% of its value without any conditions attached. There is a law that guarantees the prices of long-leased land.



### *Reconstruction Plans*

As described in paragraph 3.2.5 (important structure facts) Land Reconstruction Plans have been and continue to be important to bring down production costs and make land more profitable.

It concerns the issues below:

- revalorization of the land which is well-controlled in terms of water: internal system (drainage, irrigation) and external (ditches and water courses); good water level in the ditches and watercourses;
- incidental: the turning of soil because the lower layer gives more production than the upper layer;
- try to get parcels of land closer to the farm (less costs for transport);
- reduce the total number of parcels of land and create large parcels (less border, less weed, better production);
- better roads (external to the farm and on the farm: paths).

In the plans it was/is frequently necessary to establish a new farm in an area where there were previously no farms, i.e. to make an overall better plan for all the farms.

The first real Dutch land consolidation took place 1916. Until about 1960 land consolidation- later referred in 'land reconstruction' focused virtually entirely on the improvement of the agricultural sector's production conditions. However, since then objectives relating to nature, the landscape, recreation and water management have become more important.

Land reconstruction has now been completed in about 60% of the rural areas, and some areas have been the subject of a number of these projects.

In the past there have been several laws for reconstruction of land: there have been systems with votes of individual farmer-user and land-owner's for a specific plan. Also local unions of farmers could apply for a land reconstruction. A commission at country-level decided each year which areas could be developed by a reconstruction plan.

Later on with more nature and landscape and other non-agricultural purposes the local government (provinces) has also a vote.

The European Union financed for a small part the Land Reconstruction Plans: once, following the plan many more farmers could earn a good income the EU financed this part of the plan. Our institute (LEI) had also played a role in this. In 1987 the EU stopped this subsidy, because of the surplus of food at that time. It was no longer necessary to stimulate agricultural production.

The Service Rural Areas (DLG: Dienst Landelijk Gebied) is the company that implements most of the plans on behalf of the central government and the provinces. Chapter 7 gives more information about the recent developments around these reconstruction plans.

## 6 How policy is formulated and implemented in the Netherlands

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For a good understanding of the environmental and rural policy we first need an insight in the way that policy is shown in laws and regulations. The way that policy happens is not specific to environmental and rural issues, but all other policies for other issues (for example health, welfare, education, retirement) - all is dealt with similarly.

First off, to ensure good understanding, the Netherlands is a parliamentary democracy. In normal circumstances every four year there are elections for the municipalities, provinces and the National Parliament. The elections for these three government councils are not held together, but at separate dates during these four years. (Also for the Council of the Water Boards there are elections every four years, but they are not based on political parties).

The National Parliament (official: Second Chamber of the State-General: Tweede Kamer der Staten-Generaal) totals 150 members.

There is also the First Chamber. This Chamber has 75 members. They were chosen by the council of the provinces. All the laws and regulations must be approved by the First Chamber. Also they must ensure that laws can be implemented properly in society (check the laws and regulations). Being a member of the First Chamber is not a full-time job - only about 2 days a week.

At the moment there are 12 several parties in the Second Chamber (National Parliament). These parties are: CDA (Christen Democratic Party, 41 members), Party of the Labour (33), Socialistic Party (25), Party for Liberal and Democracy (21), Party for the Freedom (9), Green Left (7), Christian Union (6), Democracy 66 (3), Party for the Animals (2), Stately Reformed Party (2) and Verdonk (1).

After the elections a new National Government has to be set up. The Queen appoints an *informateur* (politician who investigates on behalf of the Queen, whether a proposed cabinet formation will succeed). A new Government is formed after a time. A new Government is almost always based on formal majority of the several parties in the National Parliament. At the moment (July 2008) the Government is based on the CDA, Party for the Labour and the Christian Union (together 80 members in the National Parliament of the 150).

When the Government is elected for a new term of 4 years they make a General Government Agreement ('Regeerakkoord'). The plans and issues that

they want to change are in this Agreement. The plans are not regulated in detail but in headlines. The Parliament discusses the plans after this Agreement.

At the moment there are 13 Ministries. Most Ministries must have one State Secretary. A few have none and a few have two State Secretaries. The Government is the team of the Minister-President, the Ministers and the State Secretaries (about 15). Also the Queen is a participant in the Government. The role of the Queen is Counsellor-member, but she signs all the laws and rules. The Minister President is responsible for the Queen.

Also the Queen plays an important role with issues with other countries and Communicates with the many embassies in the Netherlands.

Within the Parliament there are several Commissions. One of them is the Commission of Agriculture, Nature and Food Quality. Each party has one or more members in these commissions. They discuss the issues that are important at a specific time.

These commissions have consult with the various important groups with common interests on these issues. There is a kind of interaction with these groups and the members of these commissions and also through these commissions with the Parliament.

The policy on a specific Ministry (for example the Ministry of Agriculture, Nature and Food quality) is prepared by the policy civil servants within the Ministry. The civil servants manage the specific issues in the society and bring them in the policy of the Ministry: is it necessarily for specific issues to change? If so, what has to happen? What kind of law or rules must be implemented?

Sometimes it is a specific policy of the European Union that must be implemented, sometimes these are specific regional issues and sometimes some specific issues in a specific sector or crop. Interest groups can also raise issues to employees in the Ministry and in the Commissions in the Parliament. They can discuss these issues. After this type of interaction the Ministry brings this to the Ministry Council. They discuss these issues, draw up a principal policy on this issue and take it further within the Parliament (Second Chamber). After that, they discuss the issues, changes are made where required, and after these discussions, they vote on this specific issue.

After the voting of the issues the results are given in the State Journal (Staatsblad). After publication, the laws and the rules are legally valid.

All the Ministries have their own methods, procedures and services to implement and monitor the several questions and the new laws and rules.

On some specific issues, the policy of the European Union guides National rules.

Chapter 7 (plus parts of chapters 8 and 9) gives an insight in the current policy of some specific issues of the Ministry of Agriculture, Nature and Food Quality and the bodies that are involved in these issues.

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# 7 Current policies: environmental agricultural and rural policy

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In this chapter we will focus on environmental and rural policy. In terms of environmental policy, we will discuss how agriculture affects the environment, and which regulatory measures have been undertaken in order to mitigate these effects. We will also present how environmental regulation is being enforced and organized.

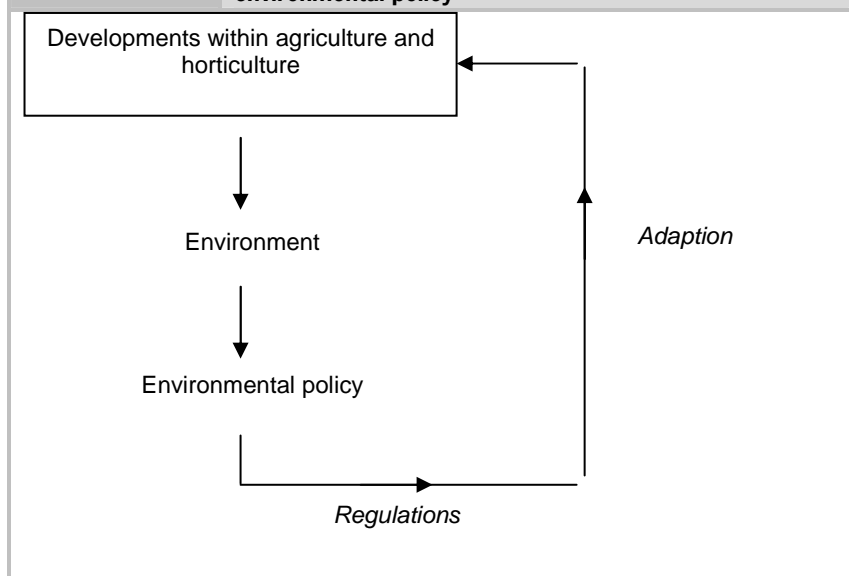
We will then discuss rural policy, such as nature development and other reconstruction planning.

## **7.1 Environmental policy**

### 7.1.1 Introduction

Agriculture and horticulture have some adverse effects on the environment. In order to reduce these effects, policy making has initiated environmental protection measures. Subsequently, farmers have been adapting their agricultural activities as to satisfy these regulations. As a result, the impact of agriculture on the environment has been mitigated. Figure 7.1 illustrates this process of interaction between agriculture, the environment and environmental policy.

**Figure 7.1** The interaction between agriculture, the environment and environmental policy



In this section on environment, we firstly present the environmental impact of agriculture and horticulture in physical terms. Next, we present the main regulations for agriculture, and how the enforcement of these policies is being organized in the Netherlands.

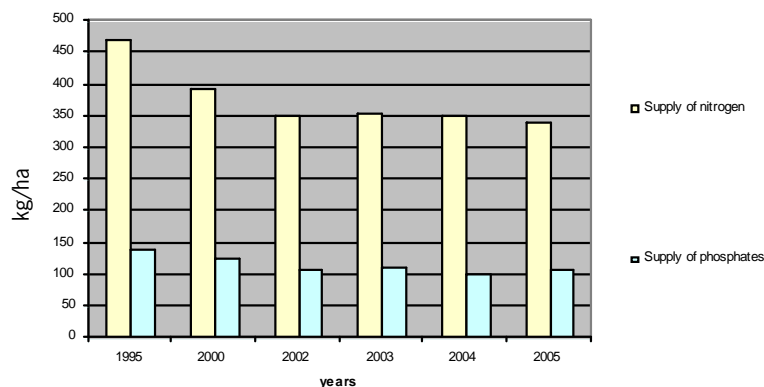
#### 7.1.2 Environmental impact of agriculture and horticulture

The main effects of agriculture and horticulture on the environment concern:

- Greenhouse gas emissions;
- Nitrogen, phosphates and ammonia emissions;
- The use of pesticides.

Figure 7.2 and table 7.1 show that for all types of environmental effects, the adverse impact reduced in the period 1995-2005.

**Figure 7.2** Development of environmental impact of agriculture and horticulture (1995-2005): nitrogen and phosphates



Source: RIVM/CBS (Statistics Netherlands), Milieucompendium, various years (adapted LEI, Agricultural Report 2007).

**Table 7.1** Development of environmental impact of agriculture and horticulture (1995-2005): active substance, greenhouse gases and ammonia

	1995	2000	2002	2003	2004	2005 <sup>1</sup>
Use of crop protection agents (x 1m kg of active substance) <sup>2</sup>	12.61	11.38	9.70	9.55	10.66	10.70
Greenhouse gas emissions (x 1b kg CO <sub>2</sub> equivalents) <sup>3</sup>	31.7	29.1	27.4	27.1	27.0	27.2
Ammonia emissions (x 1m kg)	179	139	123	122	120	121

Source: RIVM/CBS (Statistics Netherlands), Milieucompendium, various years (adapted LEI, Agricultural Report 2007).

### *Greenhouse gas*

agricultural and horticultural sectors account for 12-13% of the total Dutch emissions of the greenhouse gases. Besides CO<sub>2</sub>, other main components of greenhouse gasses are N<sub>2</sub>O and CH<sub>4</sub>.<sup>4</sup> In the years since 1995 the agricultural

<sup>1</sup> Tentative.

<sup>2</sup> Source: Plant Protection Service.

<sup>3</sup> Revised series.

<sup>4</sup> Source: <http://www.cbs.nl/nl-NL/menu/methoden/toelichtingen/alfabet/c/co2-equivalenten.htm>.



sector's emissions of greenhouse gases have been reduced by almost 20%, although the level has stabilized in recent years (table 6.1).

The high energy prices and the more stringent climate policy offer the agricultural sector also opportunities to serve as a producer of renewable energy, for example by the collection of solar heat in greenhouses and the generation of energy from manure and biomass.

#### *Nitrogen, phosphates and ammonia*

During the past 15-20 years the production of cattle and pig manure has declined by about one-third. This has resulted in a similar decline in the supply of minerals to agricultural land. However, the concentration of minerals in some regions' groundwater is still too high. In comparison with other countries, Dutch phosphate and nitrogen surpluses fell sharply since the mid nineteen-eighties, in part due to the Dutch system of minerals accounting. However, the level has not fallen further in recent years (figure 7.2). The EU target for ammonia in the Netherlands, a maximum emission of 114m kg in 2010, will probably be achieved.

#### *Pesticides*

Although the use of chemical crop protection agents was roughly halved during the period from the mid nineteen-eighties until the turn of the century, its use has once again increased slightly in recent years (table 7.1).

Environmental policy making has contributed to the overall reduction of the adverse impact of agriculture and horticulture on the environment. Therefore, in the next subsection we will present the main environmental regulations for Dutch farmers.

### 7.1.3 Environmental regulations for agriculture and horticulture

#### *Greenhouse gas*

Greenhouse gases induce adverse climate changes. The Dutch Federal government aims to have reduced the emission of greenhouse gases with 30% by the year 2020, compared to the emission level of 1990. A major instrument for greenhouse gas reduction is the trade in CO<sub>2</sub> emission rights. The idea behind this instrument is that it stimulates entrepreneurs to reduce their emissions, so that part of their emission rights become redundant and can be sold on the emission market. The official emission trade has been instituted by the EU in 2005 for the industrial and energy sectors only. The intention is that a number of major greenhouse horticulture holdings will also take part in this trade as

from 2008. It is possible that emission trade can also become interesting for agricultural farming that reduces CO<sub>2</sub> emission by manure fermentation.

#### *Nitrogen, phosphates and ammonia*

The Dutch manure policy was subjected to a fundamental amendment under pressure from the EU two years ago, when the former loss standards were replaced by supply standards for nitrogen and phosphates. This amendment results in increased costs for manure. Costs of manure include the costs of spaying manure in the ground, storing manure, buying manure emission rights, et cetera (see also the measures below). In 2005 the pig-manure disposal costs amounted to €5-€10 per cubic meter, and in 2006 to as much as €15-€20. A new element is what is referred to as 'derogation', whereby 250 kg nitrogen from the manure of grazing animals may be applied per hectare rather than the standard quantity of 170 kg. However, farms may use derogation only when at least 70% of their land is grassland. This condition has resulted in an increase in the area of grassland.

Both the generic component (focused on low emission stalls) and the spatial component (the reduction of emissions in the vicinity of vulnerable areas) of the ammonia policy have been relaxed in recent years. Major farms that greatly expand their ammonia emissions will however be required to achieve a reduction of 90%, a target which can be achieved solely by installing ammonia scrubbers. Other types of measures concerning manure are: ban on manure spreading during certain periods of the year, spaying manure in the ground, make new stables suited for storing manure, introducing manure emission rights. The manure emission rights for pigs were introduced in the year 2000. A few years later such an emission rights system was also introduced for poultry farming. (Source: Harry Luesink, LEI) This emission right system aim to stabilize manure supply.

#### *Pesticides*

Although the consumption of chemical crop protection agents was roughly halved during the period from the mid nineteen-eighties until the turn of the century, consumption has once again increased slightly in recent years (table 6.1). The environmental impact of these agents has been greatly reduced, primarily due to restrictions on their application such as the mandatory use of low-drift nozzles. The government's target for the use of chemical protection agents stipulates that by 2010 the environmental burden chemical crop protection agents impose on the surface waters shall have been reduced to 95% of the level in 1998. Until about 2000 the Netherlands conducted a more stringent

authorization policy for these agents as compared to the majority of the EU member states; in the years since then endeavours have been made to ensure for the harmonization of the Dutch authorization policy with EU policy. During the course of the nineteen-nineties the number of authorized products decreased from more than 300 to less than 200. However, the number has once again increased since 2001. Studies have revealed that the crop-protection agent policy has only limited unfavourable economic consequences for the growers.<sup>1</sup>

Concerning the use of pesticides, regulation is specifically provided for agriculture and horticulture. Finally there is the *Nuisance Act Legislation* ('Hinderwet vergunning'), which is a general law for noise, light and smell that also holds for agri -and horticulture. The municipalities give licenses under the Nuisance Act.

#### 7.1.4 The organization and enforcement of agriculture environmental regulations

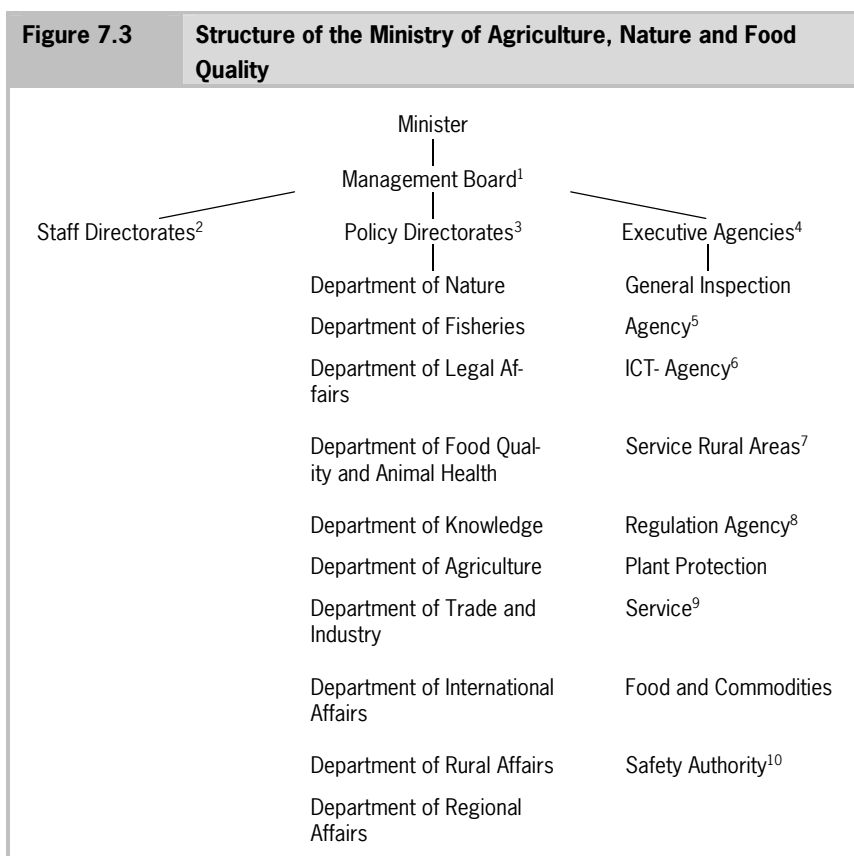
Environmental policy making is a task for the Federal government. The national environmental policy is based on, or at least consistent with, EU policy. Depending on the type of regulation, the actual enforcement of agricultural environmental policies can be either a task for a Federal government agency or for local governments like municipalities. In this subsection we present how agricultural environmental enforcement is being organized in the Netherlands. We will give an overview of the various Federal Agencies that participate in the enforcement of environmental policy in the Netherlands, which part of environmental policy enforcement they are involved in, and what their tasks concern. We will also concern other authorities that have a role in environmental enforcement, such as municipalities.

The Federal Agencies concerned here are part of the Ministry of Agriculture, Nature and Food Quality and are referred to as Executive Agencies. Besides Executive Agencies, there are also Staff Directorates and Policy Directorates.

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<sup>1</sup> Main source: Berkhout and Van Bruchem (2007).

The following figure gives an overview:



<sup>1</sup> 'Bestuursraad'.

<sup>2</sup> 'Stafdirecties'.

<sup>3</sup> 'Beleidsdirecties'.

<sup>4</sup> 'Uitvoerende diensten'.

<sup>5</sup> 'Algemene inspectiedienst'.

<sup>6</sup> 'Dienst ICT uitvoering'.

<sup>7</sup> 'Dienst Landelijk Gebied'.

<sup>8</sup> 'Dienst Regelingen'.

<sup>9</sup> 'Plantenziektenkundige Dienst'.

<sup>10</sup> 'Voedsel en Waren Autoriteit'.

The Minister is the political manager of the Ministry. Head of the civil servants is the Secretary General with his three General Directors. In the Policy Directorates the policy is developed on a specific issue.

The tasks of the agencies or services are as follows:

#### *General Inspection Agency*

This agency is in charge of enforcing regulation concerning the environment, nature conservation, food safety and animal health. The main instruments there to are inspection, investigation and communication. The number of employees working at the AID was about 800 in the year 2006. (Source: annual report GIA 2006) The General Inspection Agency is a Federal Agency with establishments in various regions. Concerning the environment, the GIA enforces Federal regulation for manure and pesticides. In addition, the GIA inspects on other rules like type of crop, land use surface, type of animals, etc.

#### *ICT-Agency*

This agency is concerned with ICT-activities of all Agencies and Directorates of the Ministry and does not have any enforcement tasks.

#### *Regulation Agency*

This Agency implements National and European regulations. The RA is a European payment authority and it responsible for allocating subsidy payments. The RA is also responsible for the identification and registration of land, animals and farmers. This agency issues licences and exemptions. The number of employees working at the RA was 1.127 in 2006. (Source: annual report Regulation agency 2006)

Together with the Dutch Central Bureau for Statistics, this Agency is also responsible for the yearly provision of numerous statistics about agriculture and horticulture. In the spring of every year each farmer in the Netherlands is obliged to provide the information for this purpose. This information is also used for research and is the main source for the attribution of income subsidies for crops and animals.

#### *Plant Protection Service of the Netherlands*

The main objective of the Plant Protection Service is safeguarding plant health. Principle elements of this policy include: preventing the spread and introduction of pests of plants and plant products and to promote appropriate measures for their control. As a result of restricting and preventing the introduction of plant pests, both the use and dependence on (chemical) pesticides should be further

reduced. The number of employees working at the Plant Protection Service was 356 in 2006. (Source: annual report Plant Protection Service 2006)

#### *Commission for the Permission of pesticides.*

Besides the Plant Protection Service there is the Board for the Release of Pesticides, which is part of the Department of Agriculture. This Board formulates regulations on the allowance of pesticides (70 employees are involved). This Commission is an independent commission. Decisions are made on based policy of five Ministries: the Ministry of Agriculture, Nature and Food Quality; Ministry of Health, Well-being and Sports; Ministry of Housing, Space and Environment, Ministry of Social Affairs and the Ministry of Traffic and Waterways.

#### *Food and Commodities Safety Authority*

The task of the Food and Commodities Product Safety Authority is to protect human and animal health. It monitors food and consumer products to safeguard public health. The Authority controls the whole production chain, from raw materials and processing aids to end products.

The Food and Commodities Safety Authority is an independent agency of the Ministry of Agriculture, Nature and Food Quality and a delivery agency for the Ministry of Health, Welfare and Sport.

The three main tasks of the Authority are: (i) supervision, (ii) risk assessment and (iii) risk communication. The number of employees working at this Authority is 1647. (Source: annual report Food and Consumer Product Safety Authority 2006) Appendix 1 includes the addresses of the referred agencies.

The next boards are independent of the Ministry of Agriculture, Nature and Food Quality:

#### *Commodity Boards*

The Commodity Boards play a role in the many regulations and laws among a group allied products in the chain of production, trade and consumption. Regulation and implementation of the many laws and rules go into the chain in cooperation with the several bodies and interest groups in the sector. Also the Commodity boards have a role in the public relations and in the direction of the specific research in a sector.

### *Water Boards*

The 27 Water Boards in the Netherlands are responsible for the water quantity and water quality. They make sure that water drains quickly enough and in periods of drought that there is sufficient water.

Ditches and dikes are responsible for water quantity and ensure safety (half of the country lies below the level of the sea). For the water quality the Water Boards have waste-water treatment equipment, installations and buildings.

Each family pays about €250 per year for the Water Board. Farmers pay also an amount per hectare (about €70 per hectare).

The Water Boards are the oldest Authorities in the Netherlands. They existed before the national State and the provinces and the municipalities. Every 4 years there are elections for the Water Boards.

### *Other enforcing authorities*

Besides these agencies of the Ministry of Agriculture, Nature and Food Quality, the Commodity Boards and the Water Boards other authorities are also involved in environmental enforcement. In particular municipalities play an important role, as they are the main authorities which enforce the aforementioned Nuisance Act Legislation. The regulations are for all habitants and enterprises, including the agricultural and horticultural sector. The total number of municipalities in the Netherlands is 443. (Source: [www.vng.nl](http://www.vng.nl))

Besides the impact of agriculture on the environment and the subsequent consequences of environmental policy on agriculture, there is also rural policy making that affects agriculture. We will elaborate on rural policy in the next section.

## **7.2 Rural policy**

### 7.2.1 Introduction

Until about 1960, rural policy focused virtually entirely on the improvement of the agricultural sector's production conditions. However, since then objectives relating to nature, the landscape, recreation and water management become more important. The demand for new homes, commercial and industrial estates and infrastructure will increase in the future as the population size, economic activity and mobility continue to rise. Without rural policy all these developments will lead to a further loss of open countryside. And a disappearing countryside is a problem as rural areas are highly valued by the Dutch: see also appendix 3.

In this section we will discuss rural regulation policy and how its implantation is organized. Examples of rural policy are the development of a *National Ecological Network* (NEN: 'Ecologische Hoofdstructuur'), the subsidy measures for Agricultural Nature Conservation (ANC: 'Subsidieregeling Agrarisch Natuurbeheer') and the Reconstruction. We will also discuss other forms of rural policy making, such as landscape policy and stimulating income from non-primarily agricultural production.



Spring (Shutterstock).

#### 7.2.2 The organization and enforcement of rural regulation policy

Rural regulation policy in the Netherlands involves various layers of government: the Federal Government, the regional government (Provinces) and the local government (municipalities). The Federal government formulates its national rural policy in global terms. The Ministries that are mainly involved here concern the Ministry of Housing, Spatial Planning & the Environment and the Ministry of Agriculture, Nature & Food Quality. While the latter Ministry is leading here, both Ministries cooperate closely when providing regulations for rural development. An example of a rural policy act of the Ministry of Agriculture, Nature and Food Quality concerns the *Nature for People, People for Nature Act* ('Natuur voor mensen, mensen voor natuur') of the year 2000. This Act formulated for 10 years the policy targets on nature, forests, landscape and biodiversity. The essence of this Act is that society should not only take care of nature, but that



nature should also be beneficial for its citizens, for instance as a place to live and to recreate. An example of a more recent Act is the *Rural Areas Development Act* ('Wet Inrichting Landelijk Gebied', WILG), which came into force on 1 January 2007. According to this Act, the Provinces take over the leading role from the national government concerning reconstruction. This Act also constitutes the statutory basis for the *Investment Budget for Rural Areas* ('Investeringsbudget landelijk gebied'), which combines the various national budgets for the development and management of the rural areas. Within the scope of this budget a total of almost €4b is available to rural areas from the period from 2007 to 2013.

For the Ministry of Housing, Spatial Planning & the Environment, rural policy is part of spatial planning policy. Regulation policy is based on mandates like the *Spatial Planning Act* ('Nota Ruimte', 2006), which formulates future objectives for the spatial outline of the Netherlands in general terms. Part of the Act focuses on rural policy, such as restoring the peat meadow areas in the Netherlands. Another element of such an Act might be planning of new living areas, like was the case in the *Fourth Spatial Planning Act Extra* ('Vierde Nota Ruimtelijke Ordening Extra', in short: Vinex) of the year 1993. With this Act the Ministry has allocated Vinex - locations on the borders of various Dutch cities ([www.vrom.nl](http://www.vrom.nl)).

Just as other fields of policy making in the Netherlands, rural policy making is a dynamic process as it is sensitive to developments of the Dutch society. For instance, the demands and needs of the Dutch voters may change over time, and rural policy making must respond to this. As a result of such developments, rural policy making might in certain periods focus on the ecological value of rural areas, whilst in other period it may stimulate its recreational value.

The rural policy of the Federal government acts as a guidance for the lower governments. When the national policy is being formulated, it is up to the 12 Provinces to translate it into *regional plans* ('streekplannen'), which include operational targets of, for instance, the size of the nature areas that have to be developed. In practice this implies that the realization of important rural projects, like the Ecological Main Structure, is mainly the task of the Provinces. The number of employees that work on rural policy at a Province are a few tens in small Provinces like Drenthe and Zeeland. In larger Provinces like Zuid-Holland this might be higher. See also Appendix 1 for a list of all Provinces and their addresses.

**Figure 7.4****Location of the twelve provinces in The Netherlands**

Subsequently, the regional plans of the Provinces are being transformed into practical *destination plans* ('bestemmingsplannen') by the municipalities. A destination plan of a municipality is made in close cooperation with the Province. These destination plans describe for instance the exact location where a nature area has to be developed. The municipalities are also responsible for the enforcements of the destination plans. Destination plans include law -and order instructions for inhabitants and companies of a municipality, including farmers. Also compensations for lost land and other properties for new destinations like new houses and new enterprises, are mostly the responsibility of the municipalities.

The Inspection Service of the Ministry of Housing, Spatial Planning & Environment inspects and monitors the several plans.

This just before global described planning system is a part of the Law Town and Country/Environmental Planning (WRO; Wet op de Ruimtelijke Ordening), founded in 1965). 1 July 2008 a new Law Town and Country/Environmental Planning started. The most important change is that provinces and municipalities have more possibilities to give an own interpretation on the plans of the

national government. The role of the province changes from a more passive supervisor (by sanctioning of a destination plan of the municipality) into an active participant.

### 7.2.3 Implementation of Rural Plans

The main Federal Agencies that are involved with the implementation of the rural policy are the Service Rural Areas and the Regulation Agency.

#### *Service Rural Areas (SRA)*

The main tasks of this Agency concern the acquisition of land (financing, coordination & transaction) and developing rural areas. Since the *Wet Inrichting Landelijk Gebied* ('Rural Areas Development Act', WILG), the SRA became more decentralized and managed by the Provinces. It is the Provinces who determine the tempo of important rural development projects and who receive the federal funding for this. The SRA is responsible for managing the processes. The number of employees working at the SRA was about 1.300 at the end of the year 2006. (Source: annual report SRA 2006)

#### *Regulation Agency*

In reference to rural policy, this Agency implements National and European regulations and is responsible for allocating subsidy payments to farmers. The Subsidy measure for Agriculture Nature Conservations done by farmers is such a payment.

### 7.2.4 National Ecological Network (NEN)

The construction of the NEN started in 1975 and should result in an enlargement of the Dutch nature by 728.500ha in the year 2018. There are two ways to achieve the NEN. The first approach is to acquire (agricultural) land and transform it into nature areas, such as forests or wetlands. Second, there is the Subsidy measure for Agricultural Nature Conservation (ANC), which implies that a farmer receives specific subsidy amounts when he is farming in a nature friendly way or takes certain measures that is beneficial for the ecosystem. In the first case, agricultural land disappears while in the second case the farmer can stay on his land where he is both a farmer and a nature conservator.

**Figure 7.5 Ecological Main Structure**

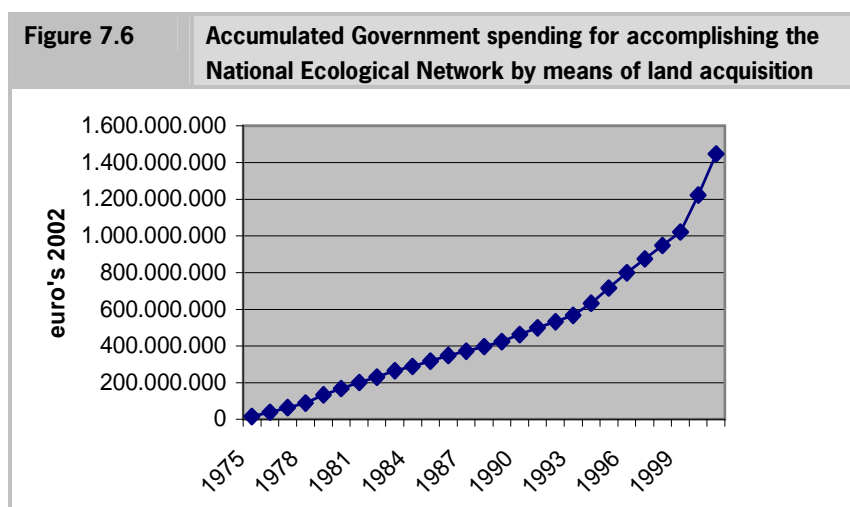


Source: Rijk, 2002; Structuurschema Groene Ruimte2, Ministerie van LNV, The Hague, 2002.

### 7.2.4.1 Land acquisition

The overall target of the NEN is to stop the decline of biodiversity. Although much has been achieved on this front, particularly regarding environmental conditions, further efforts will be needed to stop the decline of biodiversity. For example, ecosystems and habitats remain fragmented and as a result, the number of birds and butterflies that are being classified as endangered or vulnerable is still too high. The key to solve the problem lies in the creation of large contiguous ecosystem networks.

The average yearly costs of the construction of the NEN by means of land acquisition is about 0.1% - 0.2% of total governmental spending. In the year 2001, the total accumulated costs for the NEN was more than €1.4b: see also the figure below.



After land is being acquired it is transferred to a nature conservation organization, which then becomes responsible for developing and conserving it as a nature area. Thereby, land is equally being distributed among each of the following nature conservation organizations: (one of the twelve) *Foundations Provincial Landscapes* ('Stichtingen Provinciaal Landschap'), *Nature Monuments* ('Natuurmonumenten'<sup>1</sup>) or the *Federal Forest Service* ('Staatsbosbeheer'). All these organizations are nongovernmental, although the latter organization used to be

part of the Ministry of Agriculture, Nature & Food Quality. The other thirteen organizations have members whose payments are one of the financing sources for their nature conservation activities. When an area is being transferred to a nature conservation organization, the development and conservation of the area has to satisfy certain conditions. For instance, the type of nature that is being developed has to correspond to the regional plans for the NEN. If it concerns recreational nature, the area has to be open for all visitors and not only for paying members.

As the NEN is being developed, the total area of nature reserves and protected wildlife habitats is expanding. The large areas provide the space for natural processes to operate, to offset the effects of extreme weather caused by climate change, and to provide the space for species that can only survive in large areas, such as the Sea Eagle. Moreover, it is both easier and cheaper to secure the right environmental and water quality conditions in larger areas. Besides the NEN, another important ecological network project concerns Natura 2000. Natura 2000 is additional to the NEN policy and also aims to create an interconnected network of large contiguous ecosystems. In consultation with the European Commission, the Netherlands as specified 162 Natura 2000 areas with habitat types and specific species of flora and fauna that shall either need to be brought up to or kept in 'good condition'.<sup>1</sup> The realization of Natura 2000 will mainly take place in the future.

The *Netherlands Environmental Assessment Agency* ('Milieu- en Natuurplanbureau') has developed a variant of the NEN built around a core formed by the Natura 2000 areas. This is the *Robust Nature* ('Robuste Verbindingen') variant in which almost all Natura 2000 species as well as nationally important species can be sustainably supported. Species that are not guaranteed a sustainable future, even under the Robust Nature variant, are mainly the species that require such a large area of habitat that they are also dependent on areas outside the Netherlands.

To achieve the objectives of national and international nature conservation policies the environmental and water quality constraints will also have to be resolved. This could be achieved by designating zones adjacent to the Natura 2000 areas where agricultural activities and urban development would be adapted to meet the requirements of the Natura 2000 areas. This would often involve hydrological restoration or raising water levels, which is difficult to combine with conventional agricultural practices. Financial compensation and long-

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<sup>1</sup> Reinhard et al. (2006).

term security would be required so that farmers could adapt their management practices. Nature also benefits from continuity.

*A critical issue from us, authors, is that through this policy of the NEN the scope on nature and landscape in some specific areas is very intensive (mostly far away from cities and people). In the other hand in some other areas (close by the cities) there are no nature projects. Looking from inhabitants-side and recreation-side this is a mismatch.*

*Various species, such as Montague's Harrier (grauwe kiekendief), need large areas of habitat for their long-term survival.*

#### 7.2.4.2 Agricultural Nature Conservation

Since 2002, when financing of the NEN by acquired land became problematic due to economic decline, for the realization of the NEN, there was an increase of subsidizing Agricultural Nature Conservation (ANC). This besides acquiring land for nature purposes.

In the Netherlands, policymaking concerning the conservation of nature areas is based on the so-called *Program Conservation Act* ('Programma Beheer'). One of the regulations of this Act concerns the Subsidy measures for Agricultural Nature Conservation (ANC). ANC implies that a farmer receives specific subsidy amounts when he is farming in a nature friendly way or takes certain measures that is beneficial for the ecosystem. ANC is based on conservation packages, which describe the type of nature targets that have to be achieved in order to obtain the subsidy<sup>1</sup>. They are also referred to as nature contracts. The contracts are on a voluntary basis for six years. The agreement is signed with the Ministry of Agriculture, Nature and Food Quality. At the moment The Service Rural Areas take care for signing and monitoring the contracts. The Regulation Agency pays the farmers.

##### *Participation for the subsidy measures for Agricultural Nature Conservation (ANC)*

For the past almost 30 years (end of the seventies of the last century) farmers have had the choice to sign Agriculture Nature Conservation Contracts.

Currently, farmers have signed contracts for a surface area of about 76,000ha (Land- en Tuinbouwcijfers LEI, 2007). The total farms involved with

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<sup>1</sup> Source: Nature balance 2006.

such contracts was, in 2005, 9,311 (Berkhout, 2006). This corresponds with 11% of the farms and 4% of the land.

These Nature Conservation Contracts are not only signed between farmers and the National Government but also between farmers and the Provinces, Municipalities and Water Boards and other Authorities.



Mixed farm in the south-east hills (Shutterstock).

Furthermore, this Nature Contract encourages farmers to protect nests of birds (a net is placed above the nest to care that machinery and cows will not destroy the nest). The farmers with special nest protection are given money for each type of bird nest. A lot of farmers are members of a Union of Agricultural Nature Farmers. There are 123 local unions in the whole country. In 2003 a total number of 18,540 farmers protected nests. This is 22% of all the farmers. (Source: CBS) Half of these farmers probably have a nature contract.

During the past 15 years, the total surface of nature contracts increased greatly (table 6.2).



<b>Table 7.2</b>		<b>Development of the Surface with Agriculture Nature Conservation Contracts</b>
<b>Year</b>	<b>Hectare (x1,000)</b>	
1990	16	
1995	39	
2000	65	
2005	76	
Source: Land- en Tuinbouwcijfers, 2007.		

At the moment (2008) there is a some doubt about the farmers who have now had the opportunity to sign a new contract for six years. This because the prices of feed (also animal feed) are now much higher than a year ago. When the various governments don't wish for a decrease, the contract prices must probably be adapted.

Figure 7.7 gives an overview of in which municipalities the farmers have the most nature contracts. In the peat areas in Friesland, South and North Holland, the farmers have the most nature contracts. These contracts are mainly contracts to protect the nests of meadow birds.

*An example of a nature contract*

*Contracts to maintain and develop a good bird population on grassland in the peat area, especially to protect bird nests at the beginning of the growing season (spring)<sup>1</sup>. The rules are, for example: keep as grassland during the whole period, no chemical pesticides, herbicides or fungicides. No treatment at all of the grassland before 22 June, and no use of the grassland by cattle before that date. After 22 June, the farmer can use the grassland. The farmer gets about €450 per year for this contract.<sup>2</sup>*

*Other examples are:*

*Arable land packages*

This concerns various subsidy measures for arable land.

*Fauna borders*

This subsidy measure focuses on the habitat of specific species.

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<sup>1</sup> The protection of the Black-tailed godwit is especially important because half of its world population breaths in the Netherlands.

<sup>2</sup> Rijk (2002).

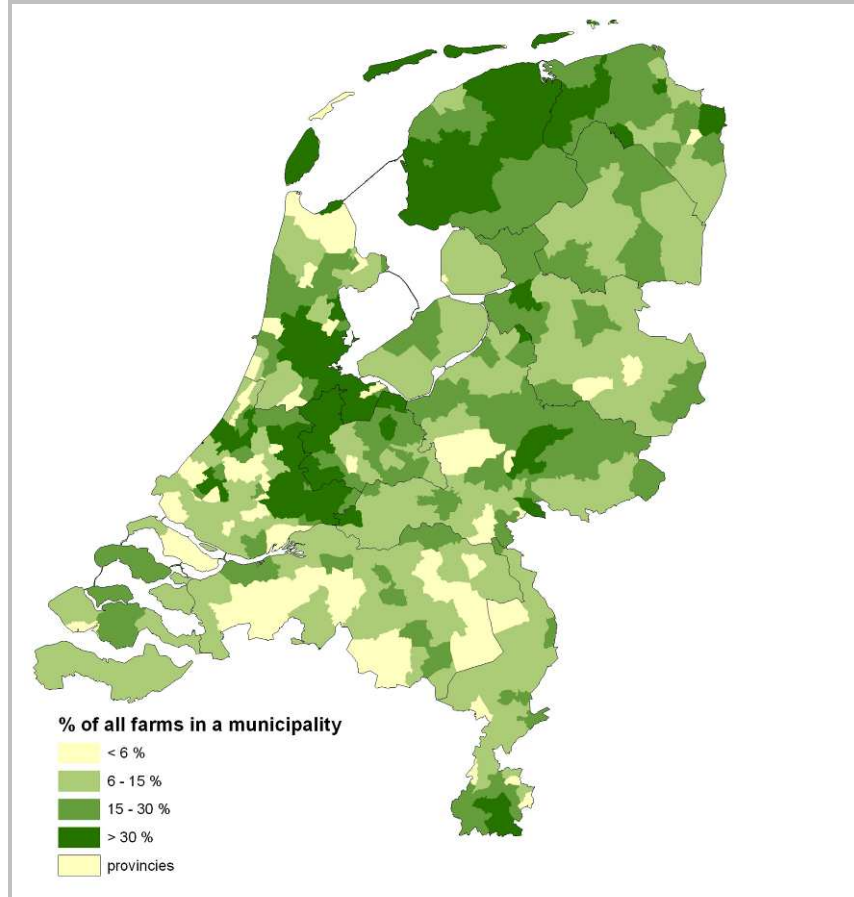
*Long-term out of crop for nature*

Amongst others, this measure implies limitations for mowing.

*Goose packages*

This subsidy compensates farmers for the damage that grazing geese do to farmland. Compensation to farmers, means they tend not to chase away the geese.

**Figure 7.7** Farms with nature contracts or nest protection, 2005



### *Landscape packages*

This subsidy aims at an active conservation of landscape elements.

### *Development for maintenance*

This involves, for instance, subsidizing hydrological measures for creating wetlands.

## 7.2.5 Other rural policy

### 7.2.5.1 Land Consolidation and Land Reconstruction

The first real Dutch land consolidation took place in 1916. Until about 1960 land consolidation- later referred to as 'land reconstruction' focused virtually entirely on the improvement of the agricultural sector's production conditions. This concerns a good water-control system (inside the land parcels and between the several farms), good roads and paths, and parcels bring together close to the farm building and consolidation of the parcels. However since then objectives relating to nature, the landscape, recreation and water management have become more important.

Especially after the Land Use Development Law (Landinrichtingswet) of 1985 the policy of reconstruction land is spread out to nature, landscape, environment, recreation and green zones in and roundabout the cities. Within this law several types of projects can be developed. Land reconstruction projects have now been completed in about 60% of the rural areas, and some areas have been the subject of a number of these projects. On about 40% of the rural areas are projects in execution and about 20% are projects in preparation (Berkhout, 2007).

Nevertheless, the land-division situations have deteriorated: for example during the period from 1993 to 2004- in part to increases in scale- the number of farms operating on more than five plots has increased from 25% to 37%. During the same period the proportion of dairy farms with more than 60% of the land close to the farm building- of great importance to the ability to bring the cows to pastureland- has decreased from 47 to 39%.

### 7.2.5.2 Reconstruction of Intensive Livestock Areas

Besides the Land Use Development Law and sometimes integrated with this came The *Concentration Areas Reconstruction Act* ('Reconstructiewet Concentratiegebieden') five years ago in force. This Law is intended to assist the inten-

sive-livestock farming sector (specially the pig sector) concentrated in specific regions. This Act aims to offer more (production) opportunities to the sector, whilst simultaneously safeguarding the nature and landscape value. Zoning is an important element of the reconstruction; the intensive-livestock farming sector may expand in the 'agricultural-development regions', but not in the 'extensification regions.' Although work has since begun on the reconstruction, little progress has been made in an essential element, namely the relocation of livestock farms. This is in part due to the resistance of the residents in the relevant regions.

#### 7.2.5.3 Development of the horticulture sector

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

#### 7.2.5.4 Overview of Plans

Table 7.3 gives an overview of the main plans for reconstruction, nature, recreation and forest in Dutch rural areas for the next years. In chapter 8 is represented a figure with a map of the country with the coming years Land Development and Reconstruction projects.

<b>Table 7.3</b>		<b>Reconstruction, nature, recreation and forest plans in rural areas<sup>1</sup></b>	
	Period	Plan	
		Ha	Km
Land reconstruction projects	1945-2018	2,504,000	
Land reconstruction projects	2003-2015	610,000	
Rules of parcels	1980- a)		
Reconstruction pig sector	2003-2012		
Green and forests around Cities	1995-2020	26,500	
Green connections around Cities	2002-2013		450
Recreation in rural areas	2002-2018	2,130	
New bike- and footpaths	2002-2018		1,700
New, signposted network (foot, bike, bridle paths)	2002-2018		12,000
Farm nature contracts	1983-2018	100,000	
New nature reserves	1983-2018	100,000	
Nature development	1990-2018	50,000	
<i>Total</i>		<i>3,392,630</i>	<i>14,150</i>

a) Period 1980 onwards.  
Source: Ministry of Agriculture, Nature and Fisheries: Government budgets 2002; Structuurschema Groene Ruimte 2, 2002; RIVM, Natuurbalans 2001.

#### 7.2.5.5 Landscape policy<sup>2</sup>

Landscape policy aims to protect the remaining landscape. Dutch landscape policy is based on the *National Spatial Planning Act* ('Nota Ruimte'). The National Spatial Planning Act Strategy contains very general definitions of the core qualities of the National Landscapes. Every National Landscape has its own core qualities. The National Landscapes offer (limited) protection against house building. A number of major regional housing plans have been kept outside the National Landscapes. Finally.

The introduction of the new Spatial Planning Act in 2008 will give central and provincial government the tools they need to achieve the goals of landscape policy. They will be able to attach conditions to plans to build in the National Landscapes, such as compensatory measures and limits to the scale of housing and commercial sites. The initiative for this lies strictly with Federal and Provin-

<sup>1</sup> Rijk (2002).

<sup>2</sup> Source: Nature balance 2007.

cial government. Protection and development of the landscape can be considerably speeded up under the new Spatial Planning Act. Central government and the provincial councils can use the new planning act to bring these plans more into line with the core landscape qualities.

#### 7.2.5.6 Income from non-primarily agricultural production

Besides primarily agricultural production and the Agriculture Nature Contracts, Dutch farmers also practice other activities to get an income from other activities related to the farm. Also, these activities influence the rural areas. Some of the main secondary sources of farm- broadening income are:

- nature conservation activities;
- agro -tourism: exploiting a camping site or bed and breakfast;
- multiple use of the farm-building (mobile home, other goods);
- processing the product;
- selling the products direct of farm;
- care for handicapped and psychological handicapped people.

As part of rural policy, the federal government provides regulation and stimuli for these developments in order to conserve the Dutch countryside. (For instance, a camping is allowed for maximal 25 places for a caravan, a camper or a tent). The government also educates farmers on how to generate these specific sources of income.

Table 7.4 gives insight in the total numbers of farms involved in farm broadening activities.

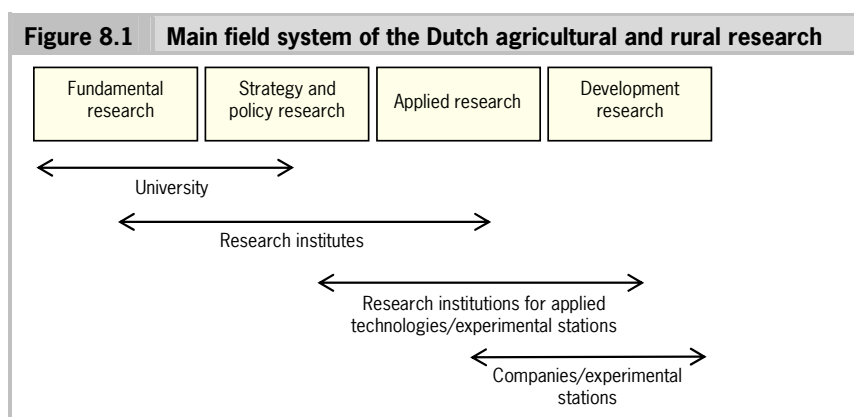
	<b>Number</b>	<b>Percentage (%)</b>
Nature activities (2003)	18,450	21.7
Agro-tourism (2005)	2,857	3.6
Multiple use farm-building (2005)	2,933	3.6
Processing products (2005)	1,057	1.3
Selling products (2005)	4,532	5.5
Care (2005)	542	0.7
Total (2003) a)	21,568	25.2
a) About one quarter of all the farms have farm related activities. A lot of farms have more than one farm related activities.		

## 8 Current policies: agricultural research and development policy

### 8.1 General research system

The Dutch agriculture and rural research can be sub-divided into fundamental research, strategy and policy research, application research and developing research. Related to each other, they have particular emphasis, as well as different research topics and financing sources.

Figure 8.1 gives an insight into the scope of the type of research and the institutions involved in it.



The Wageningen University, founded almost 100 years ago, is the leading University on the direction of Agriculture/Horticulture/Nature and Rural development. It has 5,750 students (December 2007: BSc-students: 2,550; MSc: 2,100; PhD: 1,100) and carried out considerable fundamental and strategic and policy research.

At the Wageningen University 2,200 employees (2006, calculated in full time units) are involved. The total budget in 2006, €225m is financed for 63% by the Ministry of Agriculture, Nature and Food quality, 5% of Scientific Funds, 19% contract-research for companies, 5% of student-college contributions and 8% of other profits.

Furthermore, the Wageningen University, scientific research and applied research is carried out at 9 Scientific Research Institutes. Each Institute has its own scope of research. Besides the 9 Scientific Research Institutes, there are 10 Plant Experimental Stations and 9 Animal Experimental Stations. At these experimental stations, a lot of the research is close to the farm and is mostly in a region with many of that type of farms.

On the Scientific Institutes and Experimental Stations together 2,800 employees are involved. Our Institute, the LEI (300 employees, budget €25m) is one of them.

The total budget, in 2006 €315m of the total Scientific Research Institutes and Experimental Stations, is financed for 42% by the Ministry of Agriculture, Nature and Food Quality, 9% of Funds, 34% contract research for companies, 1% patents and licenses, 5% sales, 3% advices and 6% others.

The Research institutes are individual holdings (BV's: Besloten Vennootschappen), Ltd's. All together they are formed and connected in the Foundation DLO (Foundation Service Agriculture Research). Since 1998 the Wageningen University and the Scientific Research Institutes and the Experimental Stations work together on the field of knowledge. A common name is chosen: Wageningen University and Research Centre (Wageningen UR).

In 2004 the Hogeschool Van Hall Larenstein (higher education level on agricultural and rural sciences) joined Wageningen UR. (4.000 students are involved at 4 locations). The total budget in 2006 was €50m and 400 employees are involved.

Figure 8.2 gives an insight in the several Business Units of the Wageningen UR organization. The Research Institutes are connected on the basis of specific knowledge with comparable groups within the Wageningen University. In paragraph 8.2 more insight is given in the several types of Research Institutes and Experimental Stations.

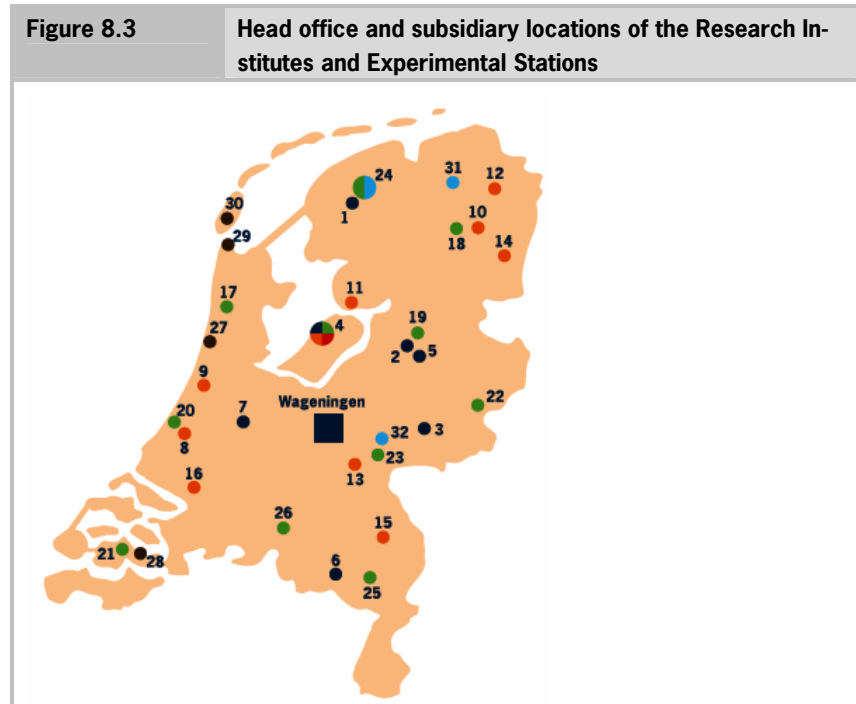
The total number of employees involved in the several Institutes and Experimental Stations is represented between brackets (mostly in full-time units, FTEs; sometimes the total employees involved, because the FTE figure was not known).



<b>Figure 8.2 The Wageningen University and Research Organization (WUR)</b>			
<b>Name of the group</b>	<b>Wageningen University</b>	<b>DLO Scientific Research</b>	<b>Applied Research</b>
Agrotechnology & Food Sciences Group (850)	Department of Agrotechnology & Food Sciences (600)	Agrotechnology & Food Institute (ATO) (205)	
Animal Sciences Group (760)	Department of Animal Sciences (180)	- Business Unit Veehouderij, excl. Experimental Stations (175) - Business Unit Production (50) - Business Unit Services (60) - Central Veterinary Institute (250)	Nine Dairy Experimental Stations (45)
Environmental Sciences Group (910)	Department of Environmental Sciences (510)	Alterra (Landscape, Nature, Soil, Water) (400)	
Plant Sciences Group (1280)	Department of Plant Science (690)	Plant Research International (PRI) (310)	Ten Plant Experimental Stations PPO (280)
Social Sciences Group (670)	Department of Social Sciences (370)	Agriculture Economics Research Institute (LEI) (300)	
Allied Institutes but not in a group (430) and Allied School Van Hall Larenstein (560)		- Institute for Food Safety (RIKILT; 170) - Wageningen IMARES (170) - Wageningen International (70) Wageningen Business School - Wageningen Business (10) Generator	
Concern Staff and Facility Services		275 (?)	
Total 5,420 fte's incl. Van Hall, 31-12-2006	2,200	2,500	325

## 8.2 Locations of the Research Institutes and Experimental Stations

The Research Institutes usually have their head office at one location and sometimes they have further subsidiary establishments. Figure 8.3 shows all of the places in the Netherlands with an establishment of an Institute or an Experimental Station.



Locations:

*Agrotechnology and Food Sciences Group:*

Wageningen

*Animal Science Group:*

Lelystad (nr 4: Head office), 1 Goutum, 2 Heino, 3 Hengelo (Gld.), 5 Raalte, 6 Sterksel, 7 Zegveld)

*Environmental Science Group:*

Wageningen

*Plant Sciences Group:*

Wageningen (Head Office), 4 Lelystad, 8 Bleiswijk, 9 Lisse, 10 Marwijksoord, 11 Nagele, 12 Noordbroek, 13 Randwijk, 14 Valthermond, 15 Vredepeel, 16 Westmaas

*Social Sciences Group:*

Wageningen/ 20 The Hague (LEI), 17 Alkmaar, 18 Assen, 19 Dalfsen, 21 Goes, 22 Haaksbergen, 23 Huissen, 24 Leeuwarden, 4 Lelystad, 25 Meijel, 26 Oisterwijk

*Hogeschool Larenstein (Allied to):*

Wageningen, 31 Groningen, 24 Leeuwarden, 32 Velp

*Wageningen IMARES:*

27 IJmuiden (Head office), 28 Yerseke, 29 Den Helder, 30 Texel

The nine Animal Experimental Stations are part of the Animal Science Group and the ten Plant Experimental Stations are part of the Plant Science Group. The Experimental Stations are close to the several farms and horticulture enterprises in a specific region.

### **8.3 Research Institutes and Experimental Stations**

This paragraph gives an insight in the scope of the several Research Institutes and Experimental Stations. Also the total number of employees will be given. The address of the Research Institutes and the Experimental Stations is given in appendix 1.

The following Research Institutes are involved:

*Agrotechnology and Food innovations (205 employees)*

The institute is a part of the Agro Technology & Food Science Group (together with the Wageningen University work in the total Agrotechnology and Food Group 850 employees).

The Institute is located in Wageningen.

Scope: the technologies, processes and chains of the agriculture and nutrition sectors.

Business units:

- Bio based products;
- Fresh, food & chains.

### *Central Veterinary Institute (250 employees)*

The Institute is a part of the Animal Sciences Group and is located in Lelystad. Scope: animal diseases in all the aspects. The Institute is the National Institute for Animal Diseases. Research for diagnosis and developments for vaccines, marks, infectious diseases has been carried out. Also, the institute refers labour to the World Organization for Animal Health.

### *Business Unit Livestock Breeding*

This Business Unit is also a part of the Animal Sciences Group and is mainly located in Lelystad.

Scope: all the functions that livestock, fish and domestic animals fulfil in society. All kind of research (outside diseases) around milk-cows, pigs, poultry and other agriculture-animals.

This Business unit counts several groups:

- scientific researchers Livestock Breeding (*175 employees*);
- production (*50 employees*);
- services (*60 employees*);
- the nine Experimental Livestock Breeding Stations (*total 45 employees*).

Most of the Scientific Research takes place in Lelystad (head office and research facilities).

The nine Experimental Stations are located in:

- Lelystad, Waiboerhoeve: Practical Centre for milk-cow farming;
- Lelystad, Waiboerhoeve: Low cost milk-cow farming;
- Lelystad, Het Spelderholt: Practical Centre for poultry-breeding;
- Goutum, Nij Bosma Zathe: Practical Centre for milk-cow farming in the north of the country;
- Heino, Aver Heino: Practical Centre for biological milk-cow farming;
- Hengelo, Gld.: Practical Centre for milk-cow farming and environment;
- Raalte: Practical Centre for biological pig-farming;
- Sterksel: Practical Centre for pig-farming;
- Zegveld: Practical Centre for milk-cow farming in the peat-area.

In each Experimental Dairy Station on average about 4 employees are involved. This is with the exception of Sterksel (pig farming). At this Station, 15 employees are involved.

*Alterra (400 employees)*

The Institute is a part of the Environmental Sciences Group and is located in Wageningen.

Scope: design, planning and utilization of a green environment.

The research of Alterra is divided in five Centres:

- soil;
- eco-systems;
- geo-information;
- landscape;
- water and climate.

*Plant Research International(PRI) (310 employees)*

The Institute is a part of the Plant Science Group and is located in Wageningen.

Scope: the Institute develops knowledge of the biology of plants, plant-related organisms and plant production systems.

The several Business Units are:

- agro-systems;
- bio-diversity and Plant- Upgrading/Breeding;
- bio- interactions and Plant Health;
- biometrics;
- bioscience.

*Plant Experimental Stations (PPO: Praktijkonderzoek Plant & Omgeving)*

These Experimental Stations are also part of the plant Science Group. The ten Experimental Stations are located close to the regions and the sector they do research for. The total employees involved in all the Stations are 281 fte's. The ten stations are further classified into three groups:

- AGV: Arable farming, Green space and Vegetables in the open air (131 employees);
- BBF: Bulbs, Trees and Fruit (85 employees);
- GTB: Greenhouse Horticulture (65 employees).

The ten Experimental Stations are located in:

- Lelystad: Arable farming, Green Space and Vegetables in the open air;
- Marwijksoord: Arable farming, Green Space and Vegetables in the open air;
- Nagele: Arable farming, Green Space and Vegetables in the open air;
- Valthermond: Arable farming, Green Space and Vegetables in the open air;
- Vredepeel: Arable farming, Green Space and Vegetables in the open air;
- Westmaas: Arable farming, Green Space and Vegetables in the open air;

- Noordbroek: Bulbs and trees;
- Lisse: Bulbs and trees;
- Randwijk: Fruit;
- Bleiswijk: Greenhouse Horticulture.

*Agricultural Economics Research Institute (LEI) (300 employees)*

The Institute is a part of the Social Sciences group and is located in The Hague. Scope: business and social-economic knowledge about agriculture, horticulture, fisheries, forestry, nature, food and the environment. The LEI has ten regional offices in the country. The employees collect economical and other data from the farms and horticultural enterprises. The LEI has about 1.5% of all these enterprises in the country in a data-system. It is a random sample in the several types of enterprises. The LEI has this kind of offices in Alkmaar, Assen, Dalfsen, Goes, Haaksbergen, Huissen, Leeuwarden, Lelystad, Meijel and Oisterwijk. In each office a few employees are involved. Also on other Research Institutes work employees of the LEI. About 15 employees work on several Institutes in Wageningen (on economic issues) and a few in Lelystad on the Business Unit live stock breeding.

The LEI has three Research Divisions:

- Plant;
- Animal;
- Public Issues.

*Institute for Food Safety (RIKILT; 170 employees)*

The Institute is part of the Wageningen University and Research Organization but further on it is an independent Research institute on the issues of safety and healthy food. It is located in Wageningen.

Scope: research into the safety and quality of the Dutch food. Advise to National and International Governments. The research is concentrated on the safety of feed for animals, food & healthy and food quality.

*Wageningen IMARES (170 employees)*

Wageningen IMARES is the Research institute for Marine Resources & Ecosystem Studies. The head office is in IJmuiden.

Scope: the Institute is focused on strategic and applied marine ecological research. The research is done for a sustainable management, use and exploitation of coast and living resources in the sea and the rivers. The research is done for National and International Government and Authorities and for business

communities. The institute has also research centres in Yerseke in the South-west of the country and in Texel and Den Helder in the North of the country.

*Wageningen International (70 employees)*

Wageningen International is the front office for the international activities of Wageningen University and Research Organization. The office of Wageningen International is located in Wageningen.

Scope: Wageningen International aims at realizing Wageningen UR international ambition, scientific and corporate social goals, through:

- networking with partners, connecting to clients and linking to international policy agenda's;
- enlarging/broadening international activity portfolio
- increasing effective/efficient use of resources

This report (responsibility with the LEI) for example is also partly financed by a specific research programme managed by Wageningen International.

*Wageningen Business School (10 employees) is located in Wageningen*

The Wageningen Business School organises post-academic courses and in-company projects based on the knowledge and research themes of the Wageningen UR.

Scope: the Wageningen Business School organises courses on the issues policy, management, entrepreneurship, food-, space-, water-, animals- and environmental sciences.

*Wageningen Business Generator (10 employees) and is located in Wageningen*

Scope: this organisation, within Wageningen UR, is responsible for the foundation of new companies. It is responsible for the development of these and making them sufficiently commercial for the market. Experts are involved in the issues of business administration, science, financial, legal and patent laws. The intention is to stimulate entrepreneurship with the experts of the total Wageningen University and Research Organization.

#### **8.4 Planning Offices and other Research Institutes**

Besides the Research Institutes and Experimental Stations, described in paragraph 8.1 and 8.2 there are a few other important Research and Advice Insti-

tutes doing also research and advice for the rural area. Also the addresses of this Research and Advice institutes are given in the appendix.

Space Planning Office (Ruimtelijk Planbureau, 80 employees) is located in The Hague.

The Space Planning Office is one of the four Planning Advice Offices of the National Government. The other Planning Offices are the Central Planning Office-CPB; the Social and Cultural Planning Office- SCPB and the Environmental and Nature Planning Office MNP). The Space Planning Office explores developments in the rural and non-rural areas. The subjects lie in the past and the future. New subjects are observed and new pictures and designs are developed for new purposes in the rural and town areas.

*Environmental and Nature Planning Office (Milieu- en Natuurplanbureau, 200 employees) is located Bilthoven (head location) and in Wageningen*

This Office supports the political and social comparative assessment between economical, ecological, spatial and social cultural qualities. It manages evaluation studies of common policies. Also the MNP Office does studies or manages these research studies to explore future developments. This all with a special scope on the ecological quality.

*Counsellor of the Rural Area (12 employees) and is located in Utrecht*

This Office gives advice on the issues on developments in the rural areas. This advice is mostly to the Ministry of LNV or Ministry of VROM (Housing, Planning and Environmental). Also the Office carries out or manages research issues.

*Farmers Laboratory for soil and plant research (Bedrijfslaboratorium voor grond en gewasonderzoek; BLGG, 250 employees)*

The head office of this laboratory is in Oosterbeek and it also has locations in Naaldwijk and Wageningen. The individual farmer or horticulture entrepreneur can ask the laboratory for research and advice for his soils and his crops. The laboratory scans the soil and or the crops on the several elements for growing or quality and gives an advice on it. This enables the farmer to make the correct decisions about manure or/and chemical fertilizer.

The individual farmer or horticulture entrepreneur is charged for this research.



*Nutrient Management Institute  
(Nutriënten Management Instituut (NMI), 10 employees) and is located in  
Oosterbeek*

This institute is a daughter company of the BLGG in Oosterbeek.

Scope: independent research and advice on the issues of soil quality, fertilizer  
and feed for animals.

## 9 Budget of the Ministry of Agriculture, Nature and Food Quality and payments coming from the European Union

This chapter provides information about the various patterns of spending of the Ministry of Agriculture, Nature and Food Quality and gives an insight into the payments coming from the European Union.

### 9.1 Budget of the Ministry of Agriculture, Nature and Food Quality

The data source is the estimates of the National Government for the Ministry of Agriculture, Nature and Food Quality for 2008 (Second Camber, 2007).

<b>Table 9.1 Expenses and receipts of the Ministry of Agriculture, Nature and Food Quality (Estimations for 2008, x €1m)</b>			
<b>Policy</b>	<b>Expenses</b>	<b>Receipts</b>	<b>Nett expenses</b>
Sustainable enterprising	302	10	292
Agriculture Space	43	43	0
Nature	517	86	431
Landscape and recreation	178	28	150
Food Quality and animal health	91	13	78
Knowledge and innovation	920	24	896
<i>Of which</i>			
- DLO research	170		
- Wageningen University	147		
- HBO-schools green	58		
- MBO-schools green	111		
- VMBO-schools green	292		
- others	142		
Soil, water and reconstruction sand areas	64	0	64
Others and not-specific	208	425	-217
Total	2,323	629	1,694

Table 9.1 shows that the total net expenses of the Ministry of Agriculture, Nature and Food Quality are almost €1.7b. Many of the total net expenses are for knowledge and innovation (about 53%) and nature (25%). Sustainable enterprising (17%) and landscape and recreation (9%) are the next expenses.

Within knowledge and innovation, most expenses go to the VBMO-schools (12-16 years) with 17% of the total Ministry-budget. DLO-research financed by the Ministry is 10% of the total expenses of the Ministry.

The costs of the various services allied to the Ministry and departments within the Ministry of Agriculture, Nature and Food Quality are all expenses for this Ministry. These costs are all shown in the several policy issues in table 9.1.

Table 9.2 gives an insight into the costs of the various allied Services of the Ministry of Agriculture, Nature and Food Quality.

<b>Table 9.2 Total costs of the allied Services of the Ministry of Agriculture, Nature and Food Quality (in 2008)</b>	
<b>Service</b>	<b>x €1m</b>
General Inspection Agency	67
ICT-Agency	98
Service Rural Areas	120
Regulation Agency	129
Plant Protection Service	17
Food and Commodities Safety Authority	159
Total	590

## **9.2 Payments coming from the European Union**

Besides the expenses of the Ministry of Agriculture, Nature and Food Quality the European Union make payments to the farmers and other companies/bodies (e.g. premium for slaughtered animals) and contribute to investments within the rural areas.

### **9.2.1 Payments to farmers and other companies**

In 2007 the payments to the farmers in the Netherlands amounted to €700m (LEI-notitie C. van Bruchem, 22-11-2007) and to the other companies/bodies about €300m. These payments are not made via the Ministry of Agriculture, Nature and Food Quality but go directly to the official payment authority, the

Regulation Agency and from this Agency directly to the farmers and other companies.

In 2008, the Expenses and receipt report of the Ministry of Agriculture, Nature and Food Quality came to a total amount of €1.1b.

#### 9.2.2 Investments in the rural areas

In 2008, the European Union will contribute an amount of €72m for investments in the rural areas. This amount is paid directly to the Service Rural Areas (and not to the Ministry). In order to acquire this amount, other bodies have to match the (same) amount, otherwise the European Union will not contribute this amount. Provinces, the Ministry of Agriculture, Nature and Food Quality and others therefore contribute this same amount of money. (Source: Expenses and receipt of the Ministry of Agriculture, Nature and Food Quality for 2008)

# 10 Challenges ahead and the solution

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In this chapter we look towards the future in terms of the various items. In the previous chapters we have also looked towards the future - in this chapter we will also refer to this.

The future developments in agriculture and horticulture and the rural area in the Netherlands are influenced by the future developments and policies:

- the policy of the European Union;
- the developments on the world market for agricultural and horticultural products;
- the policy of the Dutch Government with a focus on the agriculture, horticulture and rural area;
- ongoing processes within the agribusiness.

## 10.1 The future policy of the European Union

With reference to chapter 5.2, the European Union's policy is currently planned through to 2013.

For the products quantities and prices, there are several systems:

- a system of free world market products, with free production and free prices: onions, potatoes, flowers, vegetables, fruits; too, for pigs and poultry there are no EU-regulations;
- quotations of production with world market prices and with income- contributions per farm or factory: milk, sugar, starch potatoes;
- quotation of area (set aside scheme) with world market prices with income- contributions (wheat and other cereals); in 2008 the set aside scheme is not active.

All the former specific contributions for the specific crops are now given in one contribution per farm (based on former crops).

The farmer must adapt the rules for 'good agricultural practice' (environmental friendly farming). This system as just described will continue to exist, at any rate, until 2013. The period after 2013 is uncertain. At the moment, the prospects are that the production in the EU after 2013 will become more free. The quotation of milk, for example, will probably be abolished.

At the moment it is uncertain whether the income contributions per farm will still be there after 2013. The higher prices for the various agricultural products on the world market of the last year will probably continue. In 2013 there might be no reason to give income support to the farmers. In addition, in the Netherlands, discussions are underway about a flat rate: a contribution of an equal amount of money for each hectare agricultural or horticultural land.

As written in chapter 5.2, during the coming years up to 2013, the EU will make more monetary investment in the second pillar of the agricultural policy: the rural policy. It can be used for diversification of the rural economy, landscape management and care for the environment.

As an example for the Netherlands: half of the budget for the farm Nature Contract currently comes from the second pillar Funds of the European Union.

The European Commission will also encourage the production of bio-fuels and has launched an action plan for the improved welfare of animals in the livestock production.

## **10.2 The developments on the world market for agricultural and horticultural products**

Over the last year, the average prices of many of the products have been much higher than previous years. The main reason for this is the use of agricultural products such as bio-fuels (in combination with drought areas in some regions, and consumption of more meat through increased prosperity in some parts of the world).

It is expected that this trend will continue in future years. Probably, within a few years the trend for a growing world population will become the most important development.

### *Population developments and food*

Despite the growth in the world's population, the average quantity of food per world citizen has increased by 4% in the past ten years. This was made possible through an increase in productivity per hectare by an average of 7% and an expansion of the total agricultural area by 2% (mainly at the expense of the area of tropical rainforest).

In the LEI-publication about the analysis of recent and future profits of crops, population development and environmental reflects, based on FAO prospects, that the coming 30 years the number of people in the world will increase by 30% to 8.3b in 2030 and 9.3b in 2050 (Rijk, 2008).

The greatest population increase is expected to take place in Sub-Saharan Africa (where the population is expected to triple) and the Near East/North Africa (where it is expected to double). In South Asia (including India) and Central and South America, growth percentages of 60-80 are expected. A decline in the population is expected in Europe, Japan and the former Eastern Bloc countries.

Europe is predicted to increasingly become a food production region for other parts of the world. For many countries it will become necessary to invest more in an intensive use of the land, like, for example: more manure, efficient land close to the farm, better water control, good seed, good storage after the harvest and a good knowledge system in the agribusiness.

### *Energy*

Fossil fuels will become scarcer and more expensive. Alternative forms of energy will become increasingly important. Residual products and by-products from the agricultural sector (manure, foliage, straw, parts of the main product not intended for consumption as food) will increasingly be used for the production of bio-energy. Locally, the cultivation of energy-crops will become an option.

In the Netherlands, the cultivation of energy crops will probably not really take off; the production of food will be a more logical choice as there is a large urban population within the Netherlands and in other neighbour-countries. In addition, the Netherlands has a high level of productivity for food crops. Nevertheless through a greater demand of products for food and bio-fuels elsewhere, it can be expected that the basic prices of food will be higher.

## **10.3 The policy of the Dutch Government with a focus on the agriculture, horticulture and rural areas**

In this chapter we provide initial information about possible claims on the rural area over the next 30 years. These claims will influence the total rural and agriculture area. Afterwards we look specifically at the rural and agriculture areas for the coming ten years.

### *Claims on Dutch rural areas*

In the next 30 years, the claims on rural areas in the Netherlands will be determined by the following factors (Rijk, 2008):

- lower growth rate of the population than in the past 30 years;
- a further decline in the number of residents per home;
- a further increase in the areas of woodland and nature;

- a further increase of recreation areas;
- an increase in the areas covered by industrial estates;
- an increase of built-up areas and the associated infrastructure.

The area used as agricultural land will decline further as a result of these developments. However, this decline will be much less marked in the next 30 years than it has been for the last 30 years (4% as opposed to 8%).

#### *Environmental issues*

Looking at the environmental issues such as protection agents, emissions, ammonia, manure and so on, no large changes are forecast: the policy on these issues has to be continued.

#### *Developments in the rural areas*

As described in chapter 6, there are currently few significant plans for the rural areas:

#### *National Ecological Network*

The initial plan is the ongoing plan to implement the *National Ecological Network* (NEN) in 2018, as described in paragraph 7.2.4 and figure 7.5. By implementing this plan, the current policy is to do more work with Nature Contracts than has been the case in the past.

#### *Memorandum National Landscapes*

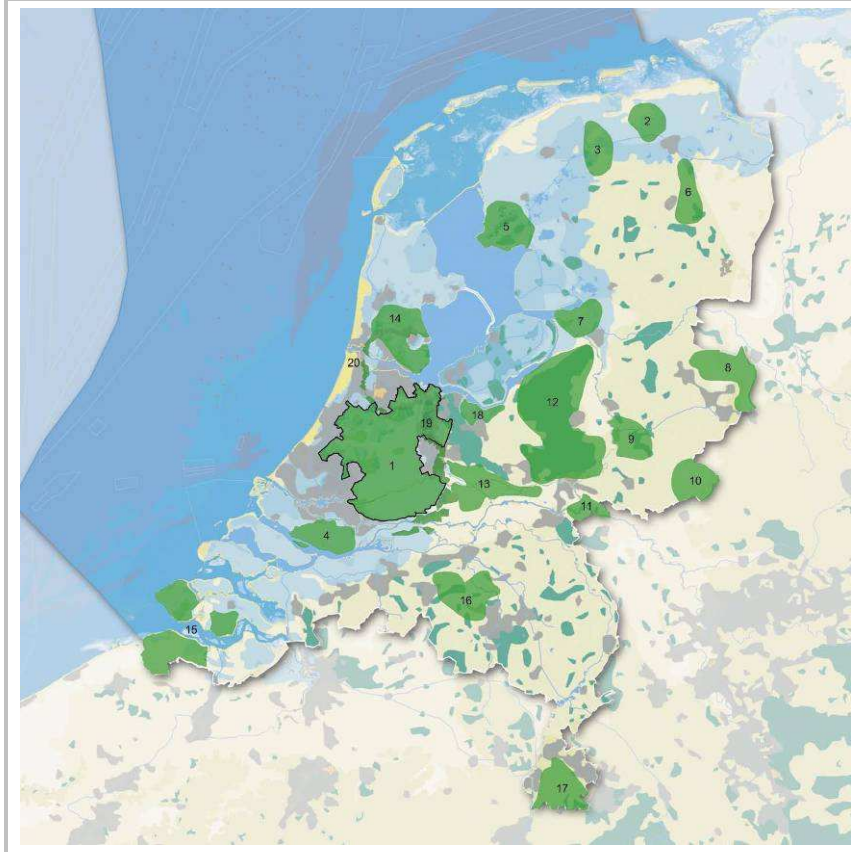
The second plan, which is also an important issue for the coming years, covers the consequences of the new Memorandum of the national government 'National Landscapes' ('Nota Nationale Landschappen'; Ministry of Agriculture, 2006). This Memorandum is an elaboration of the Memorandum Space (Ministry of VROM and other Ministries, 2004).

In this Memorandum, the national government has outlined twenty National Landscapes. These National Landscapes each have special qualities on the issue of landscape (soil, water, nature, flora, fauna, cultural heritage, integrated issues, etc) of special values. The provinces outline these special qualities in their provincial regional plans. An additional task for the provinces is to allocate the exact borders of these 'National Landscapes.' The starting point of the policy is that core values in the specific landscape are being conserved or boosted.



Also in the National Landscapes are opportunities for developments in the rural area, but the developments must be in harmony with the specific values of these landscapes.

**Figure 10.1** Locations of the National Landscapes



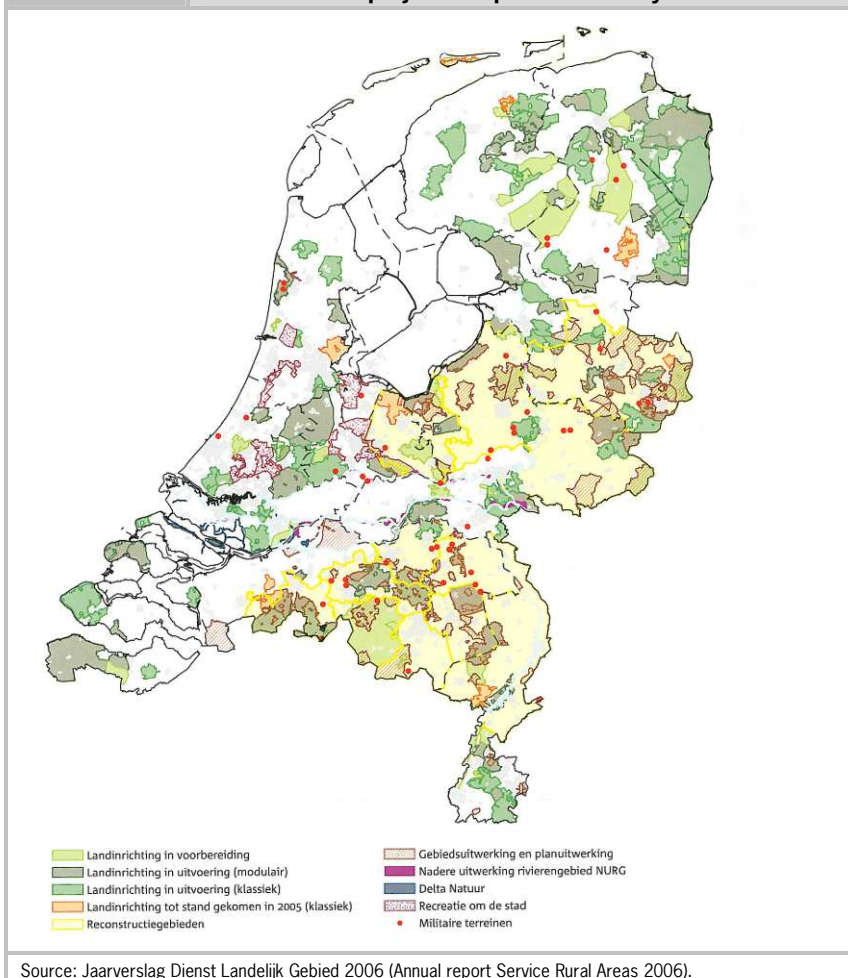
In the Memorandum from the national government, it is decreed that only new houses for the local population may be built in the National Landscapes. Some provinces are not in agreement with this.

### *Land Reconstruction Plans*

As described in paragraph 7.2.5 there are many plans for land changes, from agricultural land to nature, landscape, new cycle and footpaths, green areas and forest areas around the cities, plus the reconstruction of the pig sector. Table 7.3 provides an insight into these issues.

In terms of the implementation of these plans, the various governments (national, provincial or in a municipality) have decided that this should be done on a project-driven basis. Further on, subsidies are outlined to help to implement these plans. As described in paragraph 7.2.3, the new Rural Areas Development Act gives more responsibility and money to the provinces to implement these plans. Figure 9.2 gives an insight into the areas with specific reconstruction plans. The yellow areas are the reconstruction areas of the pig sector. The green areas are the reconstruction plans of the combined agricultural/nature/recreation projects. For the development of agriculture and horticulture, some specific areas are also indicated: 'green ports' and 'agriculture intensive areas.'

**Figure 10.2 Present and future years Land Development and Reconstruction projects. Implementation by 31-12-2006**



Source: Jaarverslag Dienst Landelijk Gebied 2006 (Annual report Service Rural Areas 2006).

## 10.4 Ongoing processes in the agriculture, horticulture and agribusiness

The processes in agriculture and horticulture on the issues of scale and productivity will also continue in the future.

These processes are:

- less farms and horticulture enterprises;
- less employees;
- more ha per employee;
- higher crop production per hectare through better seed, crop protection and better external production circumstances;
- innovations with a special focus to the greenhouse-sector.

In addition, the developments of more environmentally friendly agriculture and horticulture will continue. More farmers will have biological products (consumers are more than willing to pay for these) and many farmers will have a nature contract.

The process of creating activities to broaden the farms will continue. The process of more communication between the agriculture sector, nature, landscape, recreation and the population in the surrounding cities that has already started, will continue. Also outside the primary agriculture and horticulture, the processes of scale will continue.

At the moment, there are, for example, a few new developments on this issue:

- since 1 January 2008 the two largest cooperative flower auctions in the world have merged into a single organization: the organization now has 6 locations with 4,000 employees and a volume of trade of €4b per year;
- in addition, the two Boards of the two largest cooperatives for milk product sales organizations intend to merge. The new organization will have 22,000 employees and 17,000 dairy cow farmer members. The cooperative will process 8.7b kilos of milk, with a trade volume of €8.3b per year.

Other (potential) intended mergers: the national government (Ministry of Agriculture, Nature and Food Quality) has the intention to merge the Food and Commodities Safety Authority, the Plant Protection Service and the general inspection Service. But, at the moment, the National Audit Service (Algemene Rekenkamer) is against this intention.

Also the National Government has decided to bring together the Space Planning Office and the Environmental and Nature Planning Office. The new name is the Planning Office in favour of the Environment.

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# Appendix 1

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List of addresses of the most important Research Institutes, Authorities and Organisations that are involved

*Scientific Research Institutions*

*Agrotechnology & Food Institute (ATO)*

Wageningen Campus  
Bornsesteeg 59  
(Building nr. 118)  
6708 PD Wageningen  
Tel. 0317-480084

*Alterra*

Wageningen Campus  
Droevendaalsesteeg 3 and 4  
(Building nr. 100, 101 and 104)  
6708 PB Wageningen  
Tel. 0317-480700

*Animal Sciences Group*

*Business Unit Livestock Breeding*

Edelhertweg 15  
8219 PH Lelystad  
Tel. 0320-238238

*Central Veterinary Institute*

Houtribweg 39  
8221 RA Lelystad  
Tel. 0320-238800

*LEI*

Alexanderveld 5  
2585 DB The Hague  
Tel. 070-3358330



*Plant Research Institute (PRI)*

Wageningen Campus  
Droevendaalsesteeg 1  
(Building nr. 9)  
6708 PB Wageningen  
Tel. 0317-486001

*RIKILT-Institute for Food Safety*

Wageningen Campus,  
Bornsesteeg 45  
(Building nr 123)  
6708 PD Wageningen  
Tel. 0317-480400

*Wageningen Business School*

Lawickse Allee 11  
(Building nr 425)  
6701 AN Wageningen  
Tel. 0317-484093

*Wageningen Business Generator*

Lawickse Allee 11  
(Building nr. 425)  
6701 AN Wageningen  
Tel. 0317-486827

*Wageningen International*

Lawickse Allee 11  
6701 AN Wageningen  
(Building nr 425)  
6701 AN Wageningen

*Wageningen IMARES*

Haringkade 1  
1976 CP IJmuiden  
Tel. 0255-564646

*Wageningen UR Management Centre*

Costerweg 50  
(Building nr 400)  
6701 BH Wageningen  
Tel. 0317-482211

*Experimental Research Stations (Applied Research)*

*Praktijkonderzoek Plant & Omgeving (Practical research Plant & Environment)*

*Head office:*

*Praktijkonderzoek Plant & Omgeving (PPO; Practical Research Plant and Environment)*

Wageningen Campus  
Droevendaalsesteeg 1  
(Building nr 7)  
6708 PB Wageningen  
Tel. 0317-486001

*Direction PPO*

'De Haeff'  
Droevendaalsesteeg 1  
6708 PB Wageningen  
Tel. 0317-480300

*Arable farming, Green space and Vegetables in open air, location Lelystad*

Edelhertweg 1  
8219 PH Lelystad  
Tel. 0320-291111

*Arable farming, Green space and Vegetables in open air, location Marwijksoord*

'Kooijenburg'  
Marwijksoord 4  
9448 XB Marwijksoord  
Tel. 0592-241220

*Arable farming, Green space and Vegetables in open air, location Nagele*

Attn H. Oosterhuis  
P.O. Box 430  
8200 AK Lelystad  
Tel. 0320-291200

*Arable farming, Green space and Vegetables in open air, location Valthermond*

't Kompas'  
Noorderdiep 211  
7876 CL Valthermond  
Tel. 0599-662577

*Arable farming, Green space and Vegetables in open air, location Vredepeel*

Vredeweg 1  
5816 AJ Vredepeel  
Tel. 0478-538240

*Arable farming, Green space and Vegetables in open air, location Westmaas*

Groenweg 3  
3273 LP Westmaas  
Tel. 0186-579930

*Bulbs and trees, location Noordbroek*

Sappemeesterweg 1a  
9635 TL Noordbroek  
Tel. 0598-451486

*Bulbs and trees, location Lisse*

Prof. van Slogterenweg 2  
2161 DW Lisse  
Tel. 0252-462121

*Fruit*

Lingewal 1  
6668 LA Randwijk  
Tel. 0488-480600

*Greenhouse Horticulture*

Violierenweg 1  
2665 MV Bleiswijk  
Tel. 0317-485606

*Experimental Livestock Breeding Research Stations*

*Waiboerhoeve*

*Practical Centre for milk-cow farming*

Runderweg 8  
8219 PK Lelystad  
*Unit High-tech farm* Tel. 0320-293318  
*Unit Milk-Cow* Tel. 0320-293270

*Waiboerhoeve*

*Low cost milk-cow farming*

Wisentweg 55  
8219 PL Lelystad  
Tel. 0320-293412

*Het Spelderholt*

*Practical Centre for poultry-breeding;*

Wisentweg 53  
8219 PL Lelystad  
Tel.0320-293470

*Nij Bosma Zathe*

*Practical Centre for milk-cow farming in the north of the country*

Boksumerdijk 11  
9084 AA Goutum  
Tel. 058-2167592

*Aver Heino*

*Practical Centre for biological milk-cow farming*

Lemelerveldseweg 32  
8141 PV Heino  
Tel. 0572-391264

*De Marke*

*Practical Centre for milk-cow farming and environment*

Roessinkweg 2  
7255 PC Hengelo (Gld)  
Tel. 0575-467323

*Practical Centre for biological pig-farming*

Drosteweg 8  
8101 NB Raalte  
0572-352174

*Practical Centre for pig-farming*

Vlaamseweg 17  
6029 PK Sterksel  
Tel. 040-226376

*Practical Centre for milk-cow farming in the peat-area*

Oude Meije 18  
3474 KM Zegveld  
Tel. 0172-409543

*Practical Training Centers*

*PTC+ (Practical Training Centre) with 5 training locations*

Central address:

Wesselse weg 32  
3771 PC Barneveld  
P.O. Box 64  
3770 AB Barneveld  
Tel. 0342-406500

*IPC Green Space (IPC Groene Ruimte BV)*

Koningsweg 35  
6816 TG Arnhem  
P.O. Box 393  
6800 AJ Arnhem  
Tel. 026-3550100

*Departments of the Wageningen University and of Hogeschool Van Hall  
Larenstein*

*Wageningen University*

*Agrotechnologie & Voedingwetenschappen  
(Agrotechnology & Food Science)*

Bomenweg 2  
(Building nr 307)  
6703 HD Wageningen  
Tel. 0317-480200

*Dierwetenschappen  
(Animal Science)*

Marijkewe 40  
(Building nr 531)  
6709 PG Wageningen  
Tel. 0317-483952

*Omgevingswetenschappen  
(Environmental Science)*

Wageningen Campus  
Droevendaalsesteeg 3 and 4  
(Building nrs.100, 101 and 104)  
6700 AA Wageningen  
Tel. 0317-477844

*Maatschappijwetenschappen  
(Social Science)*

Hollandse weg 1  
(Building nr. 201)  
6706 KN Wageningen  
Tel. 0317-483639

*Plantenwetenschappen*  
*(Plant Science)*  
Wageningen Campus  
Droevendaalsesteeg 1  
(Building nr. 107)  
6708 PB Wageningen  
Tel. 0317-477001

*Hogeschool Van Hall Larenstein*

*Location Groningen*  
Zernikeplein 11  
9747 AS Groningen  
Tel. 050-5954550

*Location Leeuwarden*  
Agora 1  
8934 CJ Leeuwarden  
Tel. 058-2846100

*Location Velp*  
Larensteinselaan 26 a  
6882 CT Velp  
Tel. 026-3695695

*Location Wageningen*  
Wageningen Campus  
Droevendaalsesteeg 2  
(Building nr. 102)  
6708 PB Wageningen  
Tel. 0317-486230

*Planning Offices and other Research Institutes*

*Central Office for Statistics*  
*Centraal Bureau voor de Statistiek*  
Kloosterweg 1  
6412 CN Heerlen  
Tel. 045-5707070

*Space Planning Office*  
*Ruimtelijk Planbureau*  
Oranjevuitensingel 6  
2511 VE The Hague  
Tel. 070-3288700

*Environmental and Nature Planning Office*  
*Milieu- en Natuurplanbureau*

Amongst other things, this office is responsible for monitoring the policies of the various Ministries on the issues of environment, quality of air, water and soil, and health.

They also carry out or initiate research into these issues. Much of the research is done by the WUR institutes (mostly Alterra and LEI).

The report from this office was distributed to the Government and the Parliament.

Address:  
Head Office  
Anthonie van Leeuwenhoeklaan 9  
3721 MA Bilthoven  
Tel 030-2744479  
and  
Droevendaalsesteeg 3  
(Building 3)  
6708 PB Wageningen  
Tel. 0317-477845



*Council for the Rural Area*  
*Raad voor het landelijk gebied*

On specific issues the Ministry of Agriculture, Nature and Food Quality ask advice for specific issues on this Counsellor.

Address:  
Catharijnesingel 54  
Building Trindeborch (6e floor)  
3511 GC Utrecht  
Tel. 030-2307870

*Innovation Network Green Space and Agrocluster*  
*Innovatienetwerk Groene Ruimte en Agrocluster*  
Bezuidenhoutseweg 73  
2594 AC The Hague  
Tel. 070-3785653

*Farmers Laboratory for soil and plant research*  
*Bedrijfslaboratorium voor grond en gewasonderzoek; BLGG*  
Mariendaal 8  
P.O. Box 115  
6860 AC Oosterbeek  
Tel. 026-3346346

*Nutrients Management Institute*  
*Nutriënten Management Instituut; NMI*  
Mariendaal 8  
6861 WN Oosterbeek  
P.O. Box 250  
6700 AG Wageningen

*Centre for Agriculture and Environment (CLM- Research and Advice)*  
*Centrum voor Landbouw en Milieu*  
Godfried Bomansstraat  
Culemborg  
P.O. Box 62  
4100 AA Culemborg  
Tel. 0345-470700

*Ministries*

*Ministry of Agriculture, Nature and Food Quality  
(Ministerie van Landbouw Natuur en Voedselkwaliteit, LNV)*  
Bezuidenhoutseweg 73  
P.O. Box 20401  
2500 EK The Hague  
Tel. 070-3786868

*Ministry of Housing, Spatial Planning and Environmental Issues  
(Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieu, VROM)*  
Rijnstraat 8  
2515 XP The Hague  
Tel. 070-3393939

*Other important Authorities working at National level:*

*Social Economic Council (SER; Sociaal Economische Raad)  
Independent Council for the National Government for social-economic issues  
(125 employees involved)*

The Social Economic Council is the most important top-level Council which ensures agreements on main points for the coming years. All the important unions and society-groups are involved in this Council

Address:  
Bezuidenhoutseweg 60  
2594 AW The Hague  
P.O. Box 90405  
2509 LK The Hague  
Tel. 070-3499499

*Ministry of Finance, Direction Domains  
Directie Domeinen*  
(Administrator of properties of the Government, including 90.000ha agriculture land)  
Prinses Beatrixlaan 512  
2595 BL The Hague  
Tel. 070-3427009

*Inspection Service Rural Development (with five regional offices) of the Ministry of Housing, Spatial Planning and Environmental Issues  
(Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieu, VROM)*

This inspection look in the several rural areas and also in the towns or the plans from the several municipalities is in line with the plans of the national and regional authorities.

Address:  
Rijnstraat 8  
2515 XP The Hague  
P.O. Box 16191  
2500 BD The Hague  
Tel. 070 3393939

*Related Services of the Ministry of Agriculture, Nature and Food Quality*

*General Inspection Agency (Central division)*

Postal address:	Visitors address:
Bezuidenhoutseweg 73	Bezuidenhoutseweg 73
2594 AC The Hague	2594 AC The Hague
The Netherlands	The Netherlands
Tel. +31 0455 466222	E-mail:
Fax: +31 317-421701	Internet: <a href="http://www.aid.nl">www.aid.nl</a>

*Service Rural Areas (Central division)*

Postal address:	Visitors address:
P.O. Box 20021	Herman Gorterstraat 5
3502 LA Utrecht	3511 EW Utrecht
The Netherlands	The Netherlands
Phone: +31 30 275 66 00	E-mail: <a href="mailto:infocentrumDLG@minlnv.nl">infocentrumDLG@minlnv.nl</a>
Fax: +31 30 275 69 997	Internet: <a href="http://www.dienstlandelijkgebied.nl">www.dienstlandelijkgebied.nl</a>

*Regulation Agency (Central Division)*

Postal address:	Visitors address:
P.O. Box 20401	Bezuidenhoutseweg 73
2500 EK The Hague	The Hague
The Netherlands	The Netherlands
Phone: +31 70 3786868	Internet: <a href="http://www.minlnv.nl">www.minlnv.nl</a>
Fax:	

*Plant Protection Service of The Netherlands*

Postal address:	Visitors address:
P.O. Box 9102	Geertjesweg 15
6706 EA Wageningen	6706 EA Wageningen
The Netherlands	The Netherlands
Phone: +31 317-496911	E-mail: pd.info@minlnv.nl
Fax: +31 317-421701	Internet: www.minlnv.nl

*Food and Commodities Safety Authority (Central division)*

Postal address:	Visitors address:
P.O. Box 19506	Prinses Beatrixlaan 2
2500 CM The Hague	2595 AL The Hague
The Netherlands	The Netherlands
Phone: +31 70 448 48 48	E-mail: info@vwa.nl
Fax: +31 70 448 47 47	Internet: www.vwa.nl

*Commission for the Permission of Pesticides*

*Commissie voor de Toelating van Bestrijdingsmiddelen (CTB)*

Stadsbrink 5  
6707 AA Wageningen  
P.O. Box 2217  
6700 AE Wageningen  
Tel. 0317 471810

*Rural Area Agency: regional divisions*

*Groningen (region North)*

Trompsingel 1  
9794 CZ Groningen  
P.O. Box 30027  
9700 RM Groningen  
Tel. +3150 317 85 00  
Fax +3150 317 85 85

*Leeuwarden (region North)*

Tesselschadestraat 7  
8913 HA Leeuwarden  
P.O. Box 2003  
8901 JA Leeuwarden  
Tel. +3158 295 52 55  
Fax +3158 215 75 47

*Zwolle (region East)*

Lübeckplein 34  
8017 JS Zwolle  
P.O. Box 10051  
8000 BG Zwolle  
Tel. +3138 427 19 99  
Fax +3138 427 12 42

*Arnhem (region East)*

Rosendaalsestraat 64  
6824 CM Arnhem  
P.O. Box 9079  
6800 ED Arnhem  
Tel. +3126 378 12 00  
Fax +3126 378 12 50

*Utrecht (region West)*

Graadt van Roggenweg 400  
3531 AH Utrecht  
P.O. Box 8520  
3503 RM Utrecht  
Tel. +3130 234 45 55  
Fax +3130 234 45 08

*The Hague (region West)*

Oranjevuitensingel 25  
2511 VE The Hague  
P.O. Box 19275  
2500 CG The Hague  
Tel. +3170 337 12 00  
Fax +3170 369 44 85

*Goes (region South)*

Piet Heinstraat 77b  
4461 GL Goes  
P.O. Box 6  
4460 AA Goes  
Tel. +31113 23 79 11  
Fax +31113 23 73 50

*Tilburg (region South)*

Prof. Cobbenhagenlaan 125  
5037 DB Tilburg  
P.O. Box 1180  
5004 BD Tilburg  
Tel. +3113 595 05 95  
Fax +3113 595 05 00

*Roermond (region Southth)*

Godsweetersingel 10  
6041 GL Roermond  
P.O. Box 1237  
6040 KE Roermond  
Tel. +31475 35 67 56  
Fax +31475 35 67 77

*Provinces*

*Umbrella organisation of the provinces*

*Interprovinciaal Overleg Orgaan (IPO)*

Muzenstraat 61  
2511 WB The Hague  
P.O. Box 16107 2500 BL The Hague  
Tel. 070-8881212

*Groningen*

Martinikerkhof 12  
P.O. Box 610  
9700 AP GRONINGEN  
+3150-3164911  
info@provinciegroningen.nl  
www.provinciegroningen.nl

*Friesland*

Snekertrekweg 1  
P.O. Box 20120  
8900 HM LEEUWARDEN  
+3158-2925925  
info@fryslan.nl  
www.fryslan.nl

*Drenthe*

Westerbrink 1  
P.O. Box 122  
9400 AC ASSEN  
+31592-365555  
post@drenthe.nl  
www.drenthe.nl

*Overijssel*

Luttenbergstraat 2  
P.O. Box 10078  
8000 GB ZWOLLE  
+3138-4998899  
postbus@overijssel.nl  
www.provincie.overijssel.nl

*Gelderland*

Markt 11  
P.O. Box 9090  
6800 GX ARNHEM  
+3126-3599111  
post@gelderland.nl  
www.gelderland.nl

*Flevoland*

Visarenddreef 1  
P.O. Box 55  
8200 AB LELYSTAD  
+31320-265265  
www.provincie.flevoland.nl

*Utrecht*

Pythagoraslaan 101  
P.O. Box 80300  
3508 TH UTRECHT  
+3130-2589111  
[www.provincie-utrecht.nl](http://www.provincie-utrecht.nl)

*Noord-Holland*

Florapark 5 en 6  
P.O. Box 123  
2000 MD HAARLEM  
+3123-5143143  
[post@noord-holland.nl](mailto:post@noord-holland.nl)  
[www.noord-holland.nl](http://www.noord-holland.nl)

*Zuid-Holland*

Zuid-Hollandplein 1  
P.O. Box 90602  
2509 LP THE HAGUE  
+3170-4416611  
[zuidholland@pzh.nl](mailto:zuidholland@pzh.nl)  
[www.zuid-holland.nl](http://www.zuid-holland.nl)

*Zeeland*

Abdij 6  
P.O. Box 6001  
4330 LA MIDDELBURG  
+31118-631011  
[provincie@zeeland.nl](mailto:provincie@zeeland.nl)  
[www.zeeland.nl](http://www.zeeland.nl)

*Noord-Brabant*

Brabantlaan 1  
P.O. Box 90151  
5200 MC 's-HERTOGENBOSCH  
+3173-6812812  
[info@brabant.nl](mailto:info@brabant.nl)  
[www.brabant.nl](http://www.brabant.nl)



*Limburg*  
Limburglaan 10  
P.O. Box 5700  
6202 MA MAASTRICHT  
+3143-3899999  
postbus@prvlimburg.nl  
www.limburg.nl

*Organized interest groups*

*Agricultural and Horticultural Organisations in the Netherlands  
(Umbrella Organisation of the various Farmers Unions)*

*Land- en Tuinbouworganisatie Nederland (LTO Nederland)*  
Bezuidenhoutseweg 225  
2594 AL The Hague  
Tel. 070 3382700

*Union of farmers in the north of the Netherlands*

*LTO-Noord*  
*Headoffice (former GLTO)*  
Keulensstraat 12  
7418 ET Deventer  
P.O. Box 126  
7400 AC Deventer  
Tel. 0900 2020550

*Office North (former NLTO)*  
Lavendelheide 9  
9202 AD Drachten  
Tel. 0512 305000

*Office West (former WLTO)*  
Fonteinlaan 5  
2012 JG Haarlem  
Tel. 023 5162200

*Union of farmers in the south of the Netherlands*  
*ZLTO (Zuidelijke Land- en Tuinbouworganisaties)*  
Sporlaan 350  
5038 CC Tilburg  
Tel. 013 5836583

*Union of farmers in Limburg (south-east of the Netherlands)*  
*LLTB (Limburgse Land- en Tuinbouwbond)*  
Wilhelminasingel 25  
6041 CH Roermond  
Tel. 0475 381779

*Dutch Agricultural Youth Contact (young farmers organization)*  
*Nederlands Agrarisch Jongeren Kontakt (NAJK)*  
Besmuurde Weerd O.Z. 12  
3514 AN Utrecht  
P.O. Box 816  
3500 AV Utrecht  
Tel. 030 2769869 of 06 13601142

*Dutch Arable Farming Union*  
*Nederlandse Akkerbouw Vakbond*  
Groeneweg 62  
4759 BB Noordhoek  
Tel. 0168 329130

*Dutch Dairy Farming Union*  
*Nederlandse Melkveehouders Vakbond*  
Tabakslaan 73  
4031 MH Ingen  
Tel. 0344 655336

*Federation of private ownership of land*  
*Federatie Particulier grondbezit*  
De Klomp 5,  
De Klomp  
P.O. Box 870  
3900 AW Veenendaal  
Tel. 0318 578550

*Union of land leasers and own land users*  
*Bond van Landpachters en Eigengrondgebruikers; BLHB*  
Secretary:  
Hoofdweg 68  
7782 PP de Krim  
Tel. 0524 571850

*Federation Dutch Employees Green Agriculture*  
*Federatie Nederlands Vakverbond (FNV; Agrarisch Groen)*  
Varrolaan 100  
3584 BW Utrecht  
P.O. Box 9208  
3506 GE Utrecht  
Tel. 0900-9690

*Union of Christian employees in de agriculture and horticulture*  
*CNV Land- en Tuinbouw*  
Pr. Bernhardweg 69  
3991 DE Houten  
P.O. Box 327  
3990 GC Houten  
Tel. 030 6348348

*Counseling and information*

*Dutch Food Centre (counseling and information for each inhabitant)*  
*Stichting Voedingscentrum Nederland*  
Eisenhowerlaan 108  
2517 KL The Hague  
Tel. 070 3068888

*Foudation Environment Hallmark*  
*Stchting Milieukeur*  
Eisenhowerlaan 150  
2517 KP The Hague  
Tel. 070 3586300

*Service Counseling and Advise Group Agriculture, Horticulture and Green Space  
(former Extension Service of the Ministry of Agriculture, Nature and Food  
Quality)*

*DLV Adviesgroep NV*  
Agro Business Park 65  
6708 PV Wageningen  
Tel. 0317 491511

*Commodity Boards*

*Commodity Board of Arable Crops*  
*Hoofdproductschap Akkerbouw*  
Stadhouderslaan 12  
2571 JL The Hague  
Tel. 070 3708708

*Commodity Board of Animal Feed*  
*Productschap Diervoeder*  
Stadhouderslaan 12  
2571 JL The Hague  
Tel. 070 3708503

*Commodity Board of Milk Products*  
*Productschap Zuivel*  
Louis Braillelaan 80  
2719 EK Zoetermeer  
Tel. 079 3681500

*Commodity Board of Dairy, Meat and Eggs*  
*Productschap Vee, Vlees en Eieren*  
Louis Braillelaan 80  
2719 EK Zoetermeer  
Tel. 079 3687100

*Commodity Board of Margarine, Fats and Oils*  
*Productschap voor Margarine, Vetten en Oliën*  
Ampèrelaan 4d  
2289 CD Rijswijk  
Tel. 070 3195195

*Commodity Board of Horticulture*  
*Productschap Tuinbouw*  
Louis Pasteurlaan 6  
2719 EE Zoetermeer  
Tel. 079 3470707

*Commodity Board of Fish*  
*Productschap Vis*  
Treubstraat 17 (3e etage)  
P.O. Box 72  
2280 AB Rijswijk  
Tel. 070 3369600

*Commodity Board of Wine*  
*Productschap Wijn*  
Stadhoudersplantsoen 12  
2517 JL The Hague  
Tel. 070 3708326

*Commodity Board for distilled beverages*  
*Productschap voor gedistilleerde dranken*  
Westmolenstraat2  
3111 BS Schiedam  
Tel. 010 4269340

*Other organisations around the Agricultural and Horticultural sector*

*Dutch Inspection Service for seeds of arable crops and seed potatoes*  
*Nederlandse Algemene Keuringsdienst voor zaaizaad en pootgoed van land-  
bougewassen (NAK)*  
Randweg 14  
P.O. Box 1115  
8300 BC Emmeloord  
Tel. 0527 635400

*Dutch Inspection Service for tree nurseries*

*Nederlandse Algemene Keuringsdienst voor Boomkwekerijgewassen (NAKB)*

Joh. De Wittlaan 12  
2517 JR The Hague  
Tel. 070 3614777

*Organisations of the surrounding Agribusiness*

*National Cooperative Council for the agriculture and horticulture (Umbrella organization of all the cooperatives)*

*Nationale Coöperatieve Raad voor land- en tuinbouw (NCR)*

Groenmarktstraat 37  
3521 AV Utrecht  
Tel. 030 2840490

*Union of entrepreneurs working in the various farms with machinery and labour  
Cumela (Vereniging van loonwerkers)*

Nijverheidsstraat 13  
3861 RJ Nijkerk  
Tel. 033 2474900

*Union of Horticulture Delivery Enterprises in The Netherlands*

*Vereniging van Tuinbouw Toeleveringsbedrijven in Nederland*

Brederolaan 34  
2692 DA 's-Gravenzande  
Tel. 0174 415388

*Auctions and Sales Organizations*

*Horticulture*

*Greenery International*

*(Specialized in vegetables)*

Head location  
Spoorwegemplacement 1  
2991 AB Barendrecht  
Tel. 0180 648000

*Fruitmasters Geldermalsen*

*(Specialised in fruit)*

Deilseweg 7

4191 NX Geldermalsen

Tel. 0345 578800

*Flower Auction Aalsmeer VBA*

*Bloemenveiling Aalsmeer VBA)*

Legmeerdijk 313

1431 GB Aalsmeer

Tel. 0297 393939

*Cooperative Flower Auction FloraHolland Ua*

*Coöperatieve Bloemenveiling FloraHolland Ua*

Middel Broekweg 29

2675 KB Honselersdijk

Tel. 0174 633333

*Milk products*

*Friesland Dairy Foods*

Head office:

Blankenstein 142

7943 PE Meppel

Tel. 0522 276276

*Campina*

Head office:

NCB-laan 80

5462 GE Veghel

Tel. 0413 372222

*Nature and Landscape Organizations*

*Staatsbosbeheer (National Government Organisation for the maintenance of forests and nature)*

Princenhof Park 1  
3972 NG Driebergen  
P.O. Box 1300  
3972 NG Driebergen  
Tel. 030 6926111

*Vereniging Natuurmonumenten (Society for the Preservation of Nature)*

Schaep en Burgh  
Noordereinde 60  
1243 JJ 's-Graveland  
Tel. 035 6559933

*Central office of the twelve provincial landscape-organizations*

*'De Landschappen'*

Bunnikseweg 27  
3732 HV De Bilt  
P.O. Box 31  
3730 AA De Bilt  
Tel. 030 6017205

*Central office of the twelve Provincial Foundations Landscape Maintenance*

*'Landschapsbeheer Nederland'*

Kaap Hoorndreef 26  
Utrecht  
P.O. Box 9756  
3506 GT Utrecht  
Tel. 030 2345010



*Union of Agricultural Nature Farmers Unions*

*Agrarische Natuurverenigingen*

*Natuurlijk Platteland West*

P.O. Box 649  
2003 RP Haarlem  
Tel. 023 5343255

*Natuurlijk Platteland Nederland*

*Umbrella organization for North, East and Southeast*

P.O. Box 186  
9200 AD Drachten  
Tel. 0512 305205

*Boeren Natuur (North)*

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## Appendix 2

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An example of changing policy concerns the removal of the trade barrier in the past; with a special focus on wheat

In the Netherlands there were and are fully free products such as onions, potatoes, flowers and there were protected products with a price guarantee. There were also products with a price guarantee and a quota after a year (for example: milk with a quotation after 1985).

In 1992, there was a change in price guarantee (Mac Sharry- rules in the European Union) for the product, to direct income support.

For each product or product group there were different rules:

### *For example for wheat*

Total production exceeding 92 tonnes of wheat per farm - in 1993/1994, you must have: set aside 15% of your land. In later years, this changed to 12% in 1994/95 and to 10% in 1995. The producer prices reduced over three years by 30%. The compensation for the fall in prices was €446 per hectare (areas with productive soils) to €310 per hectare (areas with less productive soils). The compensation covers all of the wheat on the farm. Depending of the stocks of wheat in the EU and world market, plus the total costs, the % set aside scheme was different every year. Between 1995 and 2005, the price fell almost to the level of the world market. The compensation per hectare remained about the same.

Currently, for 2008, an obligation has not given; the price is at the world market level and the compensation for the income is almost the same. (the total profit resulting of wheat is currently very good). This is also because the world market is high!). For other products, there are also systems of price reduction, quotation and systems for compensation of income.

*For example for milk*

In 2006 the premium on the milk was €3.50 per litre. The producer farm price was €31.50. In general, for all of the products, the prices reduced over a period of 15 years (1992-2007) to the world market prices (2007). The income compensation in the beginning, together with the level of the product prices, gave around 90% compensation. The level of compensation has remained the same during the past 15 years, or perhaps changed a little.

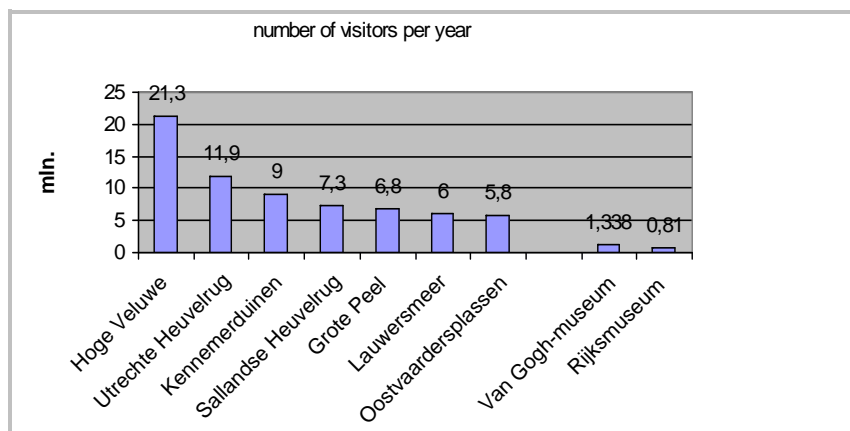
From 1 January 2006, all the various systems were amalgamated for an individual farm: the farmer receives a sum of money per farm: he receives an average amount of money for 1 ha of his total surface area. This amount relates to his personal history in terms of the various products.

## Appendix 3

### Nature is important to the Dutch and their economy

Rural areas are highly valued by the Dutch and these areas also generate income, for instance, for the recreational sector. The level of public support for nature conservation is also high. About three-quarters of the Dutch people support nature conservation, about half are occasional visitors to natural environments and about 15% are nature conservation volunteers. Different people want different things from nature.

The figure below shows the annual number of visitors to some of the most well-known Dutch Nature areas<sup>1</sup>. It follows that these nature areas attract far more visitors than the well-known Van Gogh -and Rijksmuseum together.



An agricultural landscape that is worthy of mention are the bulb-growing areas in the western part of the Netherlands<sup>2</sup>. The expenditure by visitors to these bulb-growing areas is one of the most important sources of income from agricultural tourism in the Netherlands.

<sup>1</sup> Most of the areas are forests, wetlands or dunes; the 'Grote Peel' area concerns agricultural nature.

<sup>2</sup> Source: Kamphuis and Volker (1995).

As land is scarce in the Netherlands, we have to carefully evaluate where to plan land and for this purpose use scenarios such as the NEN and ANC areas. In this context, the use of evaluation tools is inevitable. In the Netherlands, the main tool for evaluating land use scenarios in general and rural land in particular is Cost Benefit Analysis (CBA). Specific guidelines have been developed to apply CBA to scenarios for rural areas.