

**TWO CENTURIES OF STATE INVOLVEMENT IN
THE DUTCH AGRO SECTOR
AN ASSESSMENT OF POLICY IN A LONG-TERM HISTORICAL
PERSPECTIVE**

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1 INTRODUCTION

1.1 Goal and Organization of the Paper

This paper addresses the development of Dutch government policies on the agro sector¹ in a long-term historical perspective. Agro policies touch upon a wide range of matters, from export, competitiveness and employment to sustainability, animal welfare and food security. Unsurprisingly, they are a topic of heated debate. Aspects of Dutch agro policies have received both praise and condemnation. A long-term assessment of agro policies shows that policy priorities have shifted quite radically over time. States' concerns about food supply and food security have existed for as long as states themselves, and remain of key relevance to this day. In addition, the agro sector has always employed a large section of the working population and played an important role in economic life. Even today, the agro sector accounts for a considerable share of GDP (10%) and an even larger share of exports. To ensure an economically healthy and competitive agro sector, policies specifically designed to improve productivity and competitiveness have been developed over the past two centuries.

Additionally, since the 1970s the sector's sustainability has increasingly become a key policy concern, as the negative aspects of agricultural production for people, landscape and environment became clear. This paper attempts to fully acknowledge the fact that both the historical context in which the agro sector operates and the state's policy priorities towards the sector have changed radically over time. The key question driving the analysis is as follows:

To what extent have Dutch state policies (1795-present) been successful in enabling the agro sector to cope with emerging challenges?

Clearly, this paper can only touch broadly on the many historical and contemporary complexities involved in agro policy. Rather than attempting a full account, the paper aims at providing the reader with a comprehensive literature overview and proposes an *overarching narrative* that places agro policy in a long-term historical perspective, with a focus on *agricultural* policy. The paper has been written as a background document for a research project about economic policy, conducted by the Netherlands Scientific Council for Government Policy (WRR).² The paper also addresses the question of the extent to which we can learn from historical policies to inform today's policymaking.

The paper is divided into an Introduction that summarizes the key arguments, two ‘core’ chapters that give a historical overview of Dutch agro policies, and a conclusion which synthesizes the arguments. The chapters are organized chronologically: the first chapter deals with the period from 1795 to 1930, the second the period from the 1930s to the present. Both chapters include a *first section* focusing on the most important challenges for the agro sector.³ It also discusses the way in which the agro sector has responded institutionally to emerging challenges in terms of collective organization. The chapters then move on to a *second section* describing the actions of the state in relation to the agro sector. Each chapter concludes with a *third section* reflecting on the causes and effects of state policies.

Throughout the chapters, international comparisons are made in order to place the Dutch situation in a wider context. The final chapter synthesizes some of the key conclusions resulting from these two chapters. In terms of periodization, other choices could have been made. Some would point out that a cut-off point in the late 19th century would be appropriate, as the Netherlands quickly industrialized and state policies changed rapidly. Others might argue that the 1980s or the 2000s are crucial cut-off points, the first as sustainability became a key concern in this period, the second because food prices seem to be rising and concerns about food scarcity on a worldwide scale have returned. However, the chosen periodization is justified, since in a long-term historical perspective the 1930s can be considered to be the key turning point for both agriculture and agricultural policy, as will become clear.

In order to analyze the spectrum of policy instruments that has historically been applied to the agro sector, a policy typology constructed by H.-J. Chang (2009) is used.⁴ Chang introduces this typology in a paper discussing possible lessons from historical agricultural policies for current developing countries. Chang draws a basic distinction between *input policies* and *output policies*. Input policies include land policies, knowledge policies, credit policies and the delivery of physical inputs such as irrigation and electricity facilities, but also fertilizers, seeds and machines. As such, input policies directly affect the factors of production (land, labour, capital).⁵ Among output policies, Chang includes measures that affect markets and prices, such as price guarantees and trade protectionism, as well as policies on marketing (propaganda) and enhancement of product quality. Output policies thus affect what happens to products when they go from producer to the market.⁶ In practice, the distinction between different policy instruments is often hard to make very sharply, and works better in some contexts than in others.⁷ The policy typology should therefore not be interpreted in a fully comprehensive approach, but is used rather to structure the argument.⁸

Policy instruments cannot be isolated and abstracted from those who formulate and execute policy and those who are on the receiving end of the policy. Therefore, it is important to acknowledge that neither ‘the state’ nor ‘the agro sector’ are stable and well-defined entities.

The state obviously consists of multiple ‘actors’⁹ itself, and what makes up the state also changes quite radically over time. Equally, the agro sector consists of different actors¹⁰ and develops over time. It should be acknowledged that actors *within* the state as well as the agro sector can have, and often have had, conflicting interests.¹¹ This paper tries to take into consideration the diversity within the agro sector whenever this is necessary for the argument, and further problematizes this issue in the concluding chapter. As regards the state, the paper focuses on the role of the Ministry of Agriculture and a range of organizations that are closely related to it. To reduce complexity, the paper pays less attention to other ministries. Nevertheless, the fact that the state has been a champion of – often conflicting – specific interests is acknowledged,¹² even though the state, in its most abstract conceptualization, is supposed to embody a collective interest, or at least execute policies on the basis of broadly and publicly defensible grounds. Conflicts, ambiguity and dilemmas arising from this dual role of the state are discussed whenever necessary for the argument. Where necessary, the paper also attempts to take into consideration the broader institutional context affecting the agricultural sector.

1.2 Brief outline of the arguments

At the time when the first significant state agro policies were enacted around 1800, Dutch farmers (especially in the coastal provinces) were already highly specialized, export-oriented and competitive. The state recognized the importance of the agro sector (at that point more or less synonymous with agriculture) for the national economy and enacted new policies with revolutionary fervour, making up for a ‘policy lag’ that had developed in the latter years of the Dutch Republic. However, state capacity was still limited and agriculture was not yet sufficiently organized (certainly not on a national level) to cooperate effectively with the state.

Moreover, *laissez-faire* ideology diminished the enthusiasm for agro policies, especially as the sector was flourishing and seemed in little need for help. Only at the end of the 19th century did the state begin to focus its attention on the agricultural sector again. Although the belief in a *laissez-faire* approach was still strong, state capacity had significantly increased (a more robust legal framework, larger state budget and more manpower), and the agro sector was better organized (through societies, unions, cooperatives and a national organization). Most importantly, the agro sector was confronted with serious competitive challenges, which

not only endangered the future of a key export sector and the profitability of a large number of individual farmers, but which also threatened to lead to large-scale rural poverty.

The state reacted to these challenges by initiating a range of input policies (building a knowledge infrastructure, stimulating availability of credit and fertilizers) as well as quality control measures to stimulate productivity and exports. Many of these policies already existed abroad, but were now rolled out proactively by the Dutch state. At the same time, the state refrained from introducing market and pricing policies, recognizing the importance of exports and holding on to its *laissez-faire* ideals. The outcome of these early policy interventions, which remained in place up until the 1920s, can be (and often is) assessed as generally positive. The sector flourished and agricultural employment remained high. State policies were conducive to a shift to high-value added products in horticulture and livestock farming, and productivity levels increased considerably. This success can be explained by the fact that the state was well equipped to deal with the imperatives of the day, such as emancipation of small farmers, access to credit, large-scale implementation of modern fertilization methods and the establishment of reliable quality standards. The close relationship with the sector contributed to the effectiveness of policies. It also increased the general commitment of the state to the sector.

The 1930s signify a break in terms of both agricultural development and state policies towards the sector. In the early 1930s, saturating markets and decreasing export opportunities squeezed margins in the agro sector, and a total collapse of the sector loomed. Convinced of the exceptional nature of – and anticipating improvement in – the situation and pushed by a proactive agricultural lobby, the state abandoned its *laissez-faire* principles and intervened in agro markets and prices. It also stepped up its input policy efforts to support the large number of small farmers who owed their existence to the conditions that prevailed in the preceding period, in which smallholdings had thrived. The imperatives of the Second World War reinforced the state's directive role.

However, when the situation returned to normal, the state did not withdraw from agriculture, but instead stepped up its efforts on both the input and output side. As agro prices did not keep up with general price levels and the role of non-agricultural players in agro chains increased, the agricultural sector came under considerable pressure to increase productivity. Committed to post-war reconstruction and growth and the maintenance of a productive and competitive agricultural sector, the state stepped up its efforts. The state 'managed' a rapid restructuring of agriculture, involving a process of scaling up, land consolidation and outflow

of labour. It did this in close cooperation with the sector. Again, the state was well equipped to take up this role as the challenges facing the sector required coordinated, top-down efforts.

From the 1970s onwards, the situation began to change. Although competitive pressures continued to challenge the sector to produce more efficiently, ecological challenges, more vocal consumers and pressure on government expenditures began to challenge the existing pattern of agricultural development and the role of the state therein. Moreover, the 'traditional' agricultural sector in which the existing policy regime had been conceived in earlier decades no longer existed. The number of farmers had decreased drastically, and those remaining had become skilled agro-entrepreneurs with more diverse interests than before, while the power of large corporate players in the agro sector had increased. Moreover, the market demanded diverse products rather than bulk, and product diversification and innovation had become more important. This new set of societal and competitive challenges undermined the logic of the existing, 'top-down' policy regime.

However, the close relationship between state and sector and the strong focus on productivity were deeply engrained. A difficult period of crisis and transition ensued. In recent decades, a new relationship between state and agro sector has been developing, in which the state takes a different role. No longer is the state primarily committed to the development of the economic potential of the sector; instead it focuses on the one hand on implementing policies to reduce negative externalities produced by the sector, and on the other on stimulating innovation and cooperation between private parties.

It should be noted that despite the policy regime shift since the 1970s, there has always been a constant underlying policy goal of maintaining a competitive and export-oriented agro sector. Considering the current competitiveness of the agro sector, operating with little in the way of market interventions in competitive international markets, this underlying policy goal seems to have been pursued successfully, though it has to be acknowledged that the agro sector is under continuous pressure to continue innovating. When measured in terms of environmental impact or other criteria, the success of agro policies is more contested.

1.3 Scholarly contextualization

Secondary literature forms the backbone of this paper.¹³ Hundreds of relevant books and numerous articles and book chapters have been written on various aspects of the history of the Dutch agro sector and state policies towards it. While the historiography is voluminous and varied, it is unfortunate that most of the literature has been written only in Dutch,¹⁴ thus limiting the pool of potential readers and inhibiting the international dissemination of

knowledge about the ‘Dutch case’ that is necessary for comparative investigations. The literature also shows a clear preference for specific sub-topics, while neglecting others. Besides a well-developed literature on Dutch agricultural history in general,¹⁵ well-studied policy-related topics include biographical sketches of key figures in Dutch agricultural history,¹⁶ the history of regional and national agricultural organizations and political representation,¹⁷ the history of farmer cooperatives,¹⁸ the history of agricultural research, education and extension policy,¹⁹ the post-World War II structural policy,²⁰ the role of the Netherlands in the formation of European agricultural policy²¹ and the recent history of the Dutch Ministry of Agriculture²². Still lacking are long-term, comprehensive and critical reviews of agricultural policies embedded in the wider historical – political, institutional and economic – context.²³ Such reviews could be of great value to a growing comparative literature on agriculture and agricultural policy,²⁴ or in informing wider debates about the relationship between states and markets. Moreover, as different authors have argued, a better understanding of historical policies not only leads to a better comprehension of the past, but can also contribute to our knowledge of economic development processes more broadly and yield relevant information for current policymakers.²⁵

Remarkably scarce are investigations into the historical development of the agro-food chain in its totality, and especially the relationship between agriculture and the agro-food industry, which includes producers of feeds, seeds, fertilizers, machines and technologies, as well as the processing industry, wholesalers and retailers. ²⁶ The historical development of the interaction between the food chain and consumers also seems to be a relatively unexplored field.²⁷ Nor has much been published about government policies towards the agro sector as a whole, as opposed to policies focusing on agriculture specifically.

This hiatus in the literature is remarkable, given that the relationship between the state, agriculture and the agro-food industry has changed immensely over time under the influence of factors such as the marked internationalization and industrialization of the food chain, and warrants more research. The hiatus is also remarkable from a contemporary Dutch perspective, since the agro sector is considered to be one of the crown jewels of the Dutch economy, accounting for more than 10 percent of gross national product and an even more impressive share in export statistics.²⁸ As no primary sources were consulted for this paper, the degree to which it can adequately tackle the issue of ‘agro policy’ rather than the more specific ‘agricultural policy’ is necessarily constrained, although attempts are made to achieve as broad a perspective as possible.

2 THE STATE GETS INVOLVED (1795-1930)

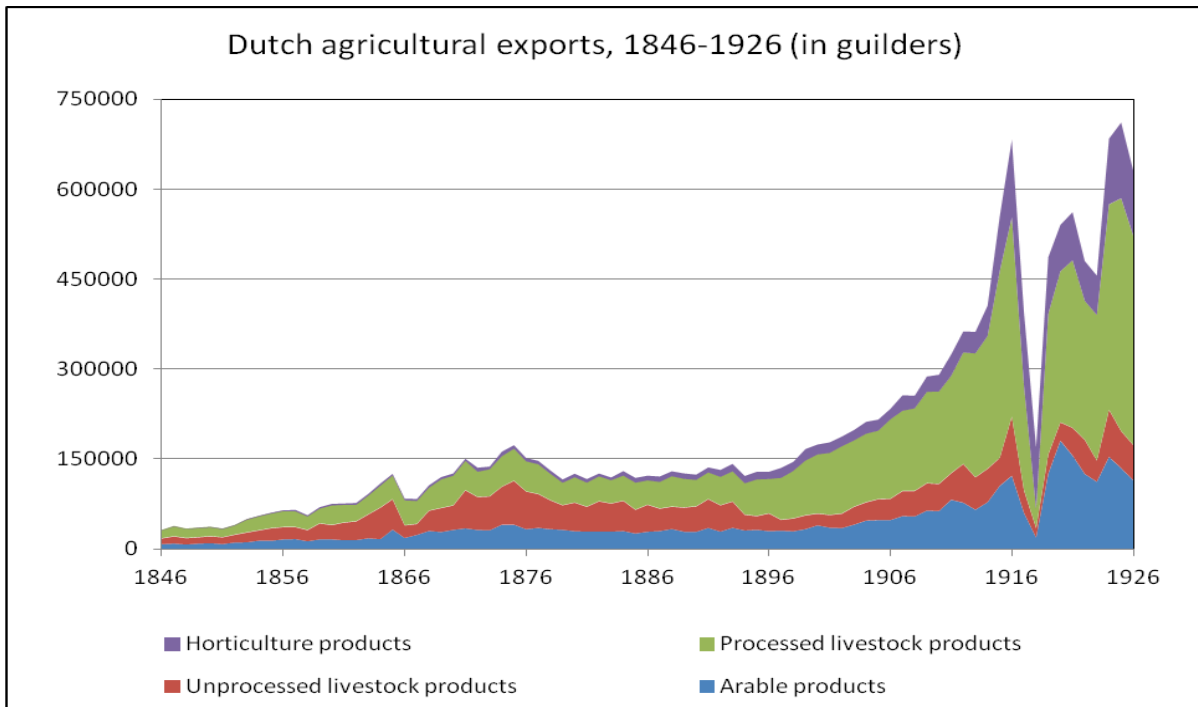
2.1 The agro sector: challenges and responses

2.1.1 Historical context and key trends

State agro policies in the Dutch Republic were chiefly focused on taxing production and exports. Other issues were left to the provincial or local levels of government, or to the private sector. The Dutch state began to get actively involved in agriculture for the first time around the turn of the 19th century. It encountered a large number of well-established, competitive and resilient farmers, especially in the coastal provinces.²⁹ Dutch agriculture, along with British and Flemish agriculture, was the most productive in north-western Europe, both in terms of labour and land productivity (Van Zanden 1997: 364-5; Allen 2000: 20). This observation should be understood in the broader context of well-developed markets and a good institutional climate for growth that had existed in the Low Countries since the 16th century. Also important was the fact that agriculture had been able to adapt in the face of economic stagnation in the late 17th and 18th centuries, thanks in part to labour-saving innovations, scaling up and new export opportunities to the growing British market.

In the complex and all-encompassing process of economic change that characterizes the 19th and early 20th century, two developments stand out as having the biggest impact on agriculture: the *industrialization* of the economy and the *integration of markets*.³⁰ The process of sustained economic growth that began in Britain in the second half of the 18th century and subsequently took hold in Germany, Belgium and the United States, had a marked effect on agriculture. In an industrializing economy, agriculture played a lesser role in terms of added value or share of employment. At the same time it also became more specialized and productive, delivering essential foods and raw materials to a broad range of highly productive industries.³¹ Domestic products were increasingly supplemented by imports from (former) colonies, such as wood, tropical oils and foods (Federico 2005). As a result, food prices remained low, while overall consumption levels rose. No longer was food the most important expenditure for the majority of people.³²

Figure 2.1 Development of total exports of agricultural products in the Netherlands, showing the increasing importance of unprocessed livestock products in the second half of the 19th century and processed livestock products in the late 19th and early 20th century



Source: Pilat (1988)

2.1.2 Reacting to market integration

The Dutch agro sector became more export-oriented in the period 1800-1930.³³ The percentage of total agricultural output produced for export rose from 9 percent in 1810 to between 25 and 30 percent in 1910 (Van Zanden 1986: 88). When seen in the context of the broader Dutch economy, too, the export of agricultural products was important. In 1920 half of total Dutch exports consisted of agricultural products, compared to a quarter of imports, of which a considerable proportion was imported for further processing in the agro-industrial sector.³⁴ The fact that the Netherlands became and remained an important agro exporter must be seen in the context of its late industrialization in the 19th century (see next section).

In the 19th century, the British market was the most important outlet for cheese, butter, margarine and meat. Around the turn of the century, France, Belgium and, most notably, Germany became more important.³⁵ As transportation possibilities over land and sea expanded with the introduction of steam trains and ships, the Netherlands gained the status of exporter of processed and unprocessed food and raw materials to surrounding industrial centres. This role persisted even after the Netherlands itself began to industrialize rapidly.

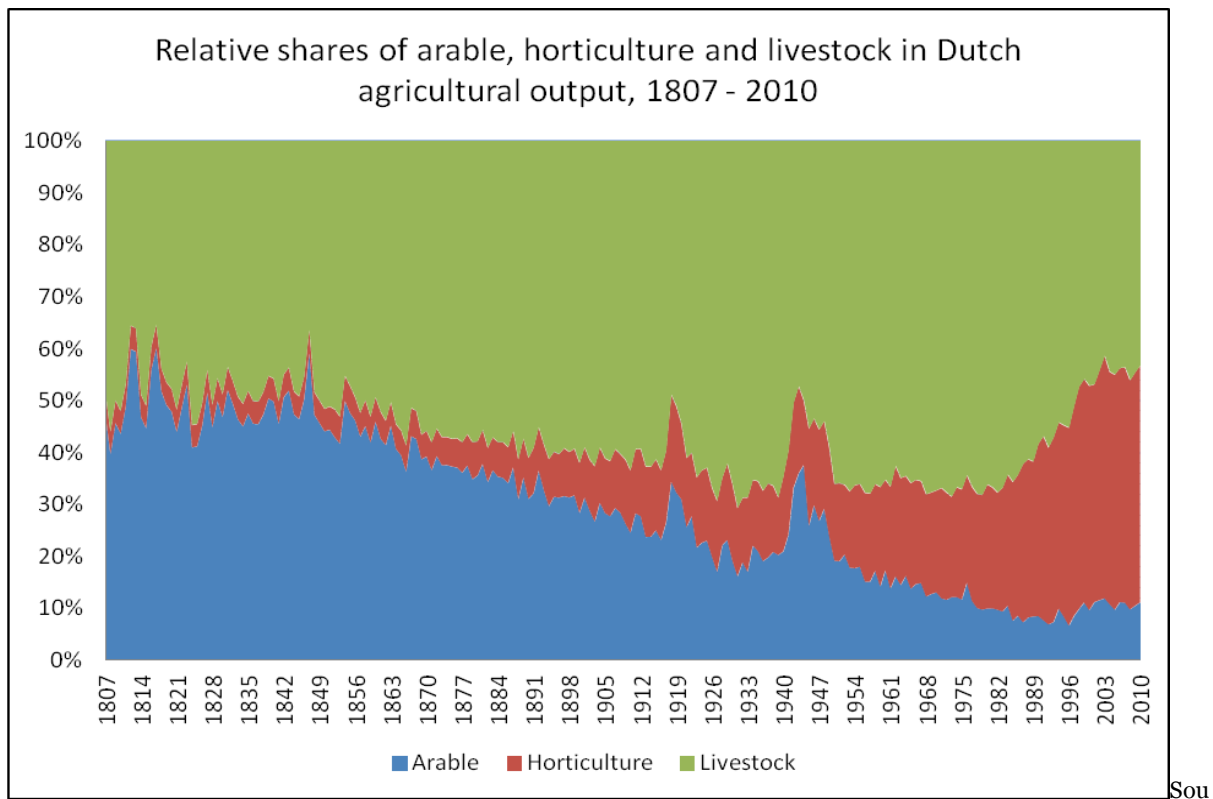
The integration of markets in the 19th century not only expanded export opportunities, but also increased the competitive pressure on the Dutch agro sector, as international competitors profited from the same development towards increased market integration. After the Napoleonic wars (1803-15), arable farmers, who at that time accounted for approximately half of all agricultural output, were confronted with falling prices due to a large influx of grain from the fertile 'black soil' of Ukraine and Russia. However, profits returned as periods of war made the 'black soil' supply irregular, and because demand grew due to rapid population growth and failed potato harvests in north-western Europe. Moreover, arable farmers profited from low wage costs and managed to increase yields through a series of innovations.³⁶ Agricultural export opportunities rapidly increased after Britain's protective *Corn Laws* were abolished in the 1840s and the British market demanded increasing amounts of raw materials and foods from abroad.³⁷ For arable farmers in the Netherlands, especially those in Groningen, the years between 1840 and 1870 were so successful that they were later referred to as the 'champagne years'.

However, when a second wave of cheap grain flooded the north-western European market in the 1870s – this time from the United States, which was able to ship bulk products profitably due to significant improvements in steam ship technology – prices plummeted and the profitability of arable farming was again put under serious pressure, leading to what is generally referred to as the 'Great Agricultural Crisis' (1876-1895).³⁸ Although *land* productivity in north-western Europe was very high, farmers were confronted with the problem that it was almost impossible to achieve similar levels of *labour* productivity as their American colleagues as land was scarcer, agricultural holdings smaller and opportunities for labour-saving mechanization more limited. This time, therefore, the fall in prices was not just incidental or temporary but structural, as European arable farmers were now confronted with a completely different overseas agricultural system which could produce at lower cost.³⁹

When cheap cereals hit the European market in the 1870s, some arable farmers managed to sustain their profitability by cutting costs, scaling up or switching to the production of raw materials for new industries.⁴⁰ They also benefited from new imports, such as saltpetre fertilizers from Chilean mines.⁴¹ More spectacular, however, was the rise of livestock production that had begun earlier in the 19th century.⁴² Livestock farmers profited from increasing demand, while not suffering from harsh competition from Eastern European or overseas competitors. Most notably, a very large number of small farmers and farm labourers in the sandy inland regions found new opportunities in the export market for butter, cheese, pig meat and eggs.⁴³

Just as remarkable as the rise in exports of livestock products was the rapidly increasing significance of horticultural exports – flowers, fruit and vegetables – produced in a number of specialized horticultural regions throughout the country. Despite these beneficial circumstances, Dutch livestock and horticultural farmers faced a competitive challenge, coming mostly from other agricultural export countries such as Denmark, competing to supply the biggest import markets, most notably Britain.⁴⁴ In the late 19th century, for example, Dutch butter was pushed out of the British market by Danish butter which was considered to be of better quality, as Dutch butter suffered from a bad reputation as a consequence of large-scale adulteration (tellingly referred to as ‘Dutching’). As a result, Dutch butter producers had to find markets elsewhere (Germany) or switch to other products, such as pig meat, a market in which they again had to compete with the Danish.

Figure 2.2 Dutch agricultural output 1807-2010. A clear shift from arable to horticulture and livestock production can be discerned



2.1.3 Reacting to industrialization

The industrialization of Europe, in full swing in the second half of the 19th century, greatly affected the agro sector. Characteristic of the process of industrialization is a decline in the percentage of the workforce employed in agriculture. Approximately 40 percent of the Dutch workforce was still employed in agriculture in 1850. In the middle of the 19th century, the

Netherlands itself was confronted with a stagnant economy and impoverization, though was also endowed with a high initial wealth level. The Dutch ‘take-off’ towards industrialization and sustained per capita growth took place only from the 1860s onwards, and took a different form from that in most surrounding countries.⁴⁶ This is illustrated by the fact that by the eve of the First World War, a substantial 30 percent of the Dutch workforce was still employed in agriculture. The percentages in Denmark were even higher, and France and Germany were also still largely rural economies.⁴⁷ Nonetheless, these figures are more remarkable in the case of the Netherlands as it had long been the most urbanized country in Europe and thus started from a relatively low rural share in the economy.

The Dutch figures are also telling when compared to those for Britain. Just under half the British working population were employed in agriculture in 1750, a higher percentage than in the Netherlands at that time. In the 18th and 19th centuries, the British percentage declined rapidly, to 22 percent in 1850 and just 9 percent in 1900 (less than a third of the Dutch figure). Even more informative in understanding the continuing importance of agriculture in the Netherlands is the fact that the *absolute* number of people engaged in agriculture continued *rising* until the 1910s and remained at a very high level until 1950, when a rapid decline set in.⁴⁸ The fact that agricultural employment in the Netherlands grew and settled at a high level until after the Second World War is an anomaly in the north-western European context.

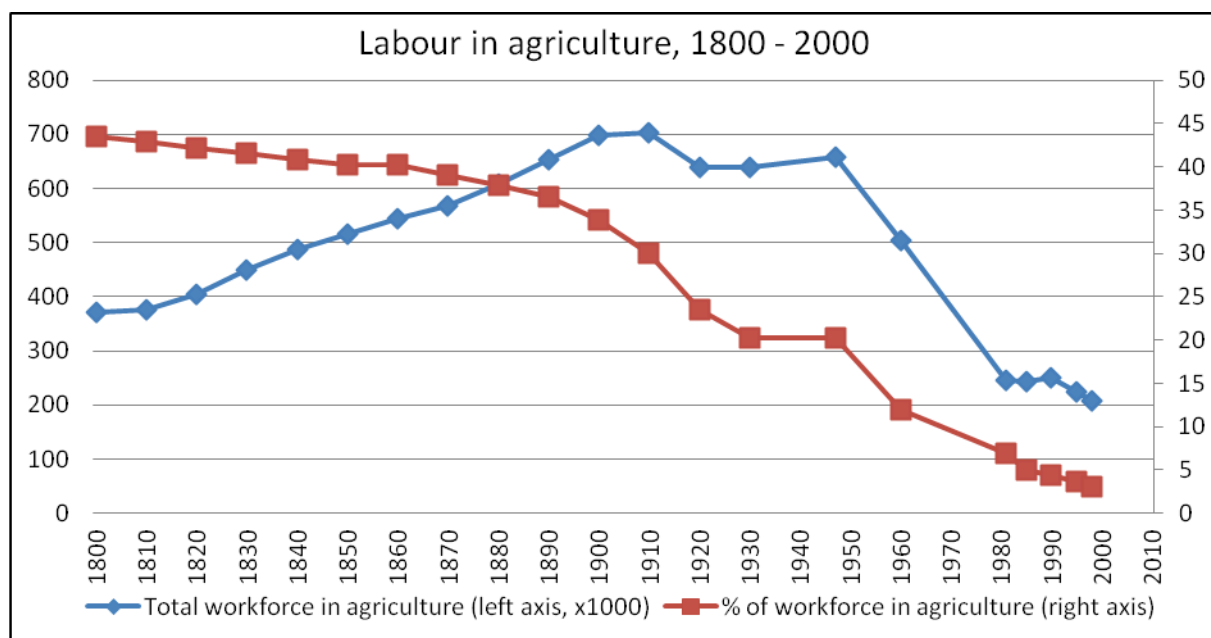
As long as Dutch agriculture retained its small-scale, labour-intensive structure, farmers had no choice but to adopt new methods, in order to keep up with their competitors. Agriculture became more capital-intensive, and as a result farmers became more integrated in (and dependent on) new markets for credit, inputs and outputs. An important change was the mechanization of the processing of agricultural products. For example, a large number of potato starch, sugar beet, strawboard, dairy and meat processing factories were established.

The industrial processing of dairy products (thanks largely to the invention of the centrifugal separator) was especially spectacular as it shifted the production of cheese and butter from farm to factory. On the farm itself, a range of new technologies, techniques and inputs unlocked enormous potential for labour- and land-productivity growth in the half-century leading up to World War I.

The ‘industrialization of agriculture’ took hold in the second half of the 19th century, in the context of an emerging Dutch chemical and food industry. The Great Agricultural Crisis (see above) temporarily slowed the process of adoption of innovations in agriculture, but when

prices increased again around 1895, a period of considerable productivity growth ensued. A key change was the increasing use of fertilizers⁴⁹ and fodder,⁵⁰ often bought off the farm from the newly established chemical industry, which was in turn able to profit from (and therefore encouraged) fertilizer use in Dutch agriculture. Compared to their colleagues in the surrounding countries, Dutch farmers adopted artificial fertilization and fodder rapidly and on a large scale after 1895.⁵¹ They also began to cooperate to create superior breeds of cereals and cattle.

Figure 2.3 Labour in agriculture, 1800-2000, in absolute numbers and as a share of the working population. The importance of agriculture in the 19th century can be seen clearly from the rising absolute number of people employed in the sector



Source: CBS

Like the integration of markets, technological innovations and industrialization also had a dark side for Dutch farmers, and in some cases for the agro sector as a whole. Dairy farmers now had to compete with margarine entrepreneurs, who largely took over the British export market and laid the foundation for the later Anglo-Dutch multinational Unilever. The centuries-old madder (red colorant) business completely collapsed when German chemists found a chemical substitute, alizarin. Chains of production grew longer and farmers often had to engage in hostile price negotiations with suppliers and buyers in the agro chain on whom they had become highly dependent. Although different links in the chain shared in the success of the agro sector, their interests were far from uniform and harmonized. Most importantly, farmers had no choice but to adopt the most important innovations, because

otherwise their competitive position would be seriously endangered. In other words, in the late 19th century farmers were already having to adapt to industrial society or perish.

In conclusion, it can be said that industrialization offered new opportunities to farmers, but also intensified the competitive challenge: it was only by adopting new inputs, techniques and technologies (mostly land-saving innovations (Van Zanden 1991)) that the large number of small farmers were able to stay competitive and maintain their level of earnings. In practice, this did not always work out. Agricultural work was very time-consuming, leaving little time for leisure, and was also increasingly less rewarding in purely financial terms than work in industry. This has led economic historians to use the term ‘self-exploitation’ (willingness ‘to work on the land for incomes below the going wage rate’) to describe the work attitude of farmers (Van Zanden 1991: 236) The fact that no large-scale agricultural firms developed in this period (although such firms did develop in the inputs and processing industry) also testifies to the limited possibilities to make a profit in the primary sector.⁵² During the Great Agricultural Crisis of the late 19th century, in particular, conditions for farmers were dire, as the need for development increased while the means to achieve it (capital, time for training, etc.) were squeezed.

2.1.4 Institutional changes in the sector

The competitive challenges described above induced the development of new institutions. Most notably, from the 1870s onwards farmers and the rural communities surrounding them initiated a whole range of cooperative initiatives, including cooperative purchasing associations, cooperative processing factories, rural credit cooperatives and auctions. These initiatives helped to solve problems of collective action, improved the reputation of products, increased the confidence, interest representation and market power of small farmers and opened up new possibilities for pooled investment.⁵³ The period between 1880 and 1920 was especially fertile in terms of the number of agricultural cooperatives conceived. Sometimes cooperatives managed to become powerful players in the market and compete with or even push aside private firms, as happened in the dairy and potato starch processing industries.

Besides cooperatives, a range of other organizations contributed to a more collective, well-represented and self-conscious farming population in the Netherlands. As mentioned before, the first agricultural organizations had been established in the late 18th century, but they were usually populated by members of the (urban) elites and perhaps some of the largest and wealthiest farmers. From the 1830s onwards, new agricultural societies were founded on a regional level.⁵⁴ These agricultural societies established a solid position over time and, especially after they began to cooperate on a national level in the ‘Dutch Agricultural

Committee' (*Nederlandsch Landbouw Comité*- NLC) in the 1880s, strengthened their voice in national politics.⁵⁵ Cornelis Jacob Sikesz, founder of the NLC, used the argument that 'collective, concerted and powerful action' would show 'people and government' that agriculture was 'an important source of wealth for the Netherlands and that agricultural interests were the interests of the nation' (Vermeulen 1966: 47-48).

In the half century leading up to World War II, the organizational density in agriculture increased, while, in line with other social and economic spheres in the Netherlands, a process of pillarization took place, with liberal, Catholic and Protestant farmers,⁵⁶ as well as Catholic, Protestant and socialist farm labourers, represented in different organizations.⁵⁷

By 1920, the framework of three overarching agricultural associations, *Collectieve Landbouw Organisaties* (CLOs) and a number of labour unions was established. This organizational framework remained intact until the late 20th century. The agricultural societies greatly contributed to the diffusion of knowledge through competitions, courses, exhibitions and publications. In addition, agricultural education became more institutionalized and knowledge institutions were established in various locations.⁵⁸

2.2 The state: policy regimes and instruments

The involvement of the Dutch state in agriculture increased to unprecedented levels after 1795.⁵⁹ The Batavian/French reforms in the first decade of the 19th century imposed a new set of institutions on the Netherlands to regulate the economy, including a more powerful and proactive central government and a clearer legal (property rights) regime. The reforms also included an initial period of proactive agricultural policy initiatives. However, state involvement with agriculture was not sustained and strongly diminished in the second and third quarter of the 19th century. Important general policies on infrastructure, regulation and education that also benefited agriculture were however enacted and even expanded further.

From the 1880s onwards, the state again became increasingly active in supporting agricultural development. It funded a growing range of activities in education, extension and research, set up a system of quality control and facilitated the development of agricultural societies and cooperatives. This time, the efforts were sustained, and the first foundations were laid for later agricultural policy. Throughout the period 1795-1930, very little market intervention took place to support agriculture, which sets the Netherlands apart from most other countries in north-western Europe.

The state policies in relation to agriculture should be seen in the context of the increasingly urgent competitive challenge faced by this important sector. The actions of the Dutch government should also be seen in an international context, as the governments in surrounding countries were also stepping up their efforts to support their domestic agricultural sectors, in a variety of ways. This section discusses the development of state activities with regard to agriculture,⁶⁰ highlights the most important activities and policies, places Dutch agro policies in an international context and assesses the effects of Dutch agricultural policies.

2.2.1 Reformist policy: the first state initiatives (1795-1815)

Policies in the Dutch Republic had been conducive to the development of a specialized, productive and competitive agro sector. The trade-minded policies of the Republic facilitated the import of low value-added agricultural products such as lean cattle and grain, so that farmers in the coastal Dutch provinces were able to specialize in high value-added products at an early stage. At the same time, the state did not actively support agriculture (rather the opposite, through high taxation and export levies). By the second half of the 18th century, the idea that agriculture was an important source of wealth began to take root in intellectual circles,⁶¹ thanks both to progressive thinkers who were inspired by the Enlightenment, especially the Physiocrats, and aristocratic Dutch landowners who, in the context of increasing importance of agriculture in an economy that was otherwise not very dynamic, saw their public power increase.⁶² Until 1795, however, few policies were enacted for the benefit of agriculture.

The rise of a more powerful, centralized state during the Batavian/French period (1795-1815) led to the emergence of agricultural policy on a national scale. A range of regulations was enacted affecting aspects of the input side of agriculture, including breeding practices, cattle disease prevention,⁶³ crop protection, reclamation, the use of manure and quality protection of important export products. Centralized policy was also stimulated by the Napoleonic continental system, which temporarily limited imports and exports, creating a need for a policy to stimulate reclamation and the production of cereals and sugar beet. Policy efforts were also aimed at reforming land ownership, to make it easier to raise taxes, and to improve the efficiency of land use.⁶⁴ In 1832, the process of land registration was completed, although elements of common land use remained in some places into the 20th century.

As there was hardly any experience with agricultural policy, the necessary administrative apparatus had to be built from scratch, a task that was taken up with fervour by Jan Kops who, from 1800 to 1815, became the first state agricultural civil servant.⁶⁵ Kops argued that

‘agriculture is one of the most important sources of domestic wealth and must therefore be well cared for by the state.’⁶⁶ He saw it as one of his most important tasks to eliminate the knowledge gap in the civil service that hindered an effective policy on agriculture. He acknowledged that many efforts were needed to achieve this.

Not only was an extensive survey sent to all regional agricultural societies and key individuals, but Kops also joined Johannes Goldberg, who fulfilled the position of ‘agent of the national economy’ (Minister of Economic Affairs), on a five-month tour around the country to gain a good overview of the state of Dutch agriculture. To improve the organization of agriculture, Kops founded ‘provincial agriculture committees’ (*Provinciale Commissiën van de Landbouw*), which met a few times between 1806 and 1823 to discuss agricultural matters, founded an agricultural magazine (*Magazijn der Vaderlandsche landbouw* 1805), established a yearly report on the state of agriculture in the Netherlands (1806) and organized a permanent exhibition of agricultural machines and tools for farmers (*Kabinet van landbouw* 1810) (Vermeulen 1966: 3-5).

2.2.2 Laissez-faire policy: the primacy of private initiative (1815-1886)

After 1815, in the early years of the Dutch monarchy, the government took a more distanced stance on economic affairs and the efforts in relation to agriculture also subsided. Many of the measures taken before 1815 petered out, others continued at a low ebb. The provincial state committees, for example, were not very active, unlike the privately organized regional agricultural societies, and were finally abolished in 1851, as Parliament was no longer willing to fund them. In the early years of the Kingdom of the Netherlands, under the reign of William I (1815-1840), there were differing views on the economic policy to be followed.

Some – among them Thorbecke, who was then a Member of Parliament – preferred a liberal course of free trade, while others – among them King William I – preferred a more mercantilist approach in which the development of a domestic industry and agriculture would be the central aim. In relation to agriculture, the discussion revolved around the question of grain tariffs. At first, fairly benign contra-cyclical tariffs were put in place to protect Dutch arable farmers against price fluctuations. In 1835, a protectionist law was introduced in reaction to the cheap ‘black soil’ grain imports from Russia and Ukraine. At the same time, however, the argument for free trade was gathering strength. An open economic policy was perceived as crucial to maximize export opportunities for meat, butter, cheese, fruit and vegetables. When grain prices started to rise again, the potato blight epidemic caused serious food shortages and Britain abolished its Corn Laws, the Dutch protectionist laws were again repealed in 1847. The debate about economic policy was largely an

ideological one in which farmers themselves, except for the large arable farmers in the provinces of Zeeland and Groningen, played virtually no part (Vermeulen 1966: 9-28).

From the 1840s onwards, the philosophy of free trade ushered in by the abolition of the Corn Laws was fully embraced by the Dutch government, and also determined its stance on agriculture. The initiative was with the private sector, and the government adhered to a rather strict *laissez-faire* policy. On a personal level, King William III was very interested in agriculture and tried to establish a national organization. However, his initiative failed due to a lack of support from farmers. The government limited its activities to putting in place the broad preconditions necessary for growth, such as general education, setting a good regulatory framework and creating the right physical parameters through the sale of land for reclamation and building an infrastructural network (Vermeulen 1966: 31-35).

The government actively worked to unlock inland regions by building a network of railways (approx. 1840-1880), increased its role in reclamation efforts (e.g. *Haarlemmermeer*, the sandy soil regions in the east of the country and large parts of the *Veenkoloniën*), reformed taxation laws, established a general educational framework⁶⁷ and facilitated the foundation of new types of organization such as cooperatives. One of the few special measures directed towards agriculture were the efforts to fight cattle diseases.⁶⁸

2.2.3 Facilitating policy: 'Enlightened liberalism' (1886-1930)

The policy of *laissez-faire* began to be questioned when farmers started to feel the competitive challenge during the Great Agricultural Crisis (1876-1895) and to organize themselves on a national level. The concerted efforts of the agricultural sector and the perception that governments in surrounding countries like Germany, Belgium, France and Denmark (but not Great Britain) were actively and successfully supporting the development of their agricultural sectors began to soften the strict *laissez-faire* attitude of the Dutch government. The fear of an exodus from the countryside, a negative trade balance and potential harvest failures also contributed to a willingness to reassess the policy of 'benign neglect' towards agriculture and move to a more engaged and active policy. A recent extension of the franchise in 1887, which increased the political power of the agricultural population, also made Members of Parliament more keen to look after agricultural interests.

Far reaching output-side policies in the form of protectionism, a road taken in France and Germany, was one of the options considered. Some agricultural societies from Dutch provinces that were dependent on arable farming, like Limburg and Groningen, lobbied for tariffs, while others, like the society from the provinces of Zuid-Holland and Noord-Holland,

where dairy farmers relied on cheap feed for their animals, argued for free trade. Outside agriculture, most voices called for free trade. One prominent Dutch economist argued that falling grain prices ‘were one of the most joyful events that future historians will record about our times’, another that ‘cheap bread is a blessing that cannot be appreciated enough.’

Prominent politicians agreed. Pierson, later Prime Minister, argued that low grain prices would reduce the price of land, fostering greater equality in the countryside. Cort van der Linden, at that time a professor at the University of Groningen, argued that the crisis was a ‘symptom of progress’ (Vermeulen 1966: 40-41). A third way was formulated by Sickesz. He argued that protection ‘kills all energy’ and ‘stands in the way of finding one’s own strength’ (Vermeulen 1966: 47). At the same time, however, he argued that farmers needed assistance to react adequately to the new challenges they were facing. Therefore, in his view, the government had a responsibility to educate farmers.

In 1886, the state installed a committee, led by Sickesz, with the brief of investigating the depressed state of Dutch agriculture.⁶⁹ The committee was active for four years. Its main conclusion was that, on the one hand, the Netherlands should maintain its policy of free trade and, on the other, it should step up its efforts to stimulate education, extension, research, systematic breeding and cooperation between farmers. To couch it in the terms of this paper: the state should refrain from most output policies (except for export promotion and quality control measures) and focus on input policies. The committee used the following expressive phrases to make this point:

“State assistance is not something that may be relied upon in general, but in every single exceptional case, it is important to establish whether state intervention will have the desired effect, not in ceating or reviving by itself, but in safeguarding that which private initiative has wrought, and to keep alive that which has proven to be viable. Intervention by the state must therefore not become a prop to shore up decrepit and decaying forms of life; not ease the consequences of permanent causes, but it shall only be justifiable when it cuts off the root of evil and facilitates and prepares the way for healthy development and growth.”⁷⁰

On the initiative of the private regional agricultural societies, the first steps had been taken since the 1870s to build an organizational framework around agriculture that would stimulate development in different ways. The new attitude of the state significantly quickened the pace at which this framework was established. Education, extension and research became the three key areas in which the government tried to make a difference, leading to the introduction of the term *OVO Drieluik*, (Education, Extension and Research Triangle in the early 20th century. The *OVO Drieluik* served different goals, including the diffusion of innovations, improving hygiene and creating a collective quality standard for export products, and creating applied agricultural knowledge to improve productivity.

The means to achieve these goals ranged from practical courses to cattle breeding regulation and from product quality control to research at experiment stations. The state cooperated actively with the agricultural organizations, and especially the *NLC*, which was officially instated as an advisory organ of departments, provinces, municipalities and water boards in 1893. From 1898, the government activities were directed from the newly established Directorate for Agriculture (*Directoraat voor Landbouw*). Civil servants at the Directorate undertook regular study trips abroad. As such, the new government activities were capable of tackling a wide range of problems with which Dutch farmers were confronted and facilitate development to overcome pressing competitive challenges. Some state activities and the process of their establishment are highlighted in more detail in the next section.

From the 1890s until the 1920s, the activities of the state grew, with the gradual development of new regulations and consolidation of activities, but the nature of state policy did not change. The budget of the Directorate remained small,⁷¹ and market intervention was hardly even considered a serious option until the 1920s. However, a change in rhetoric from purely economic to a mix of social and economic concerns can be discerned already in the 1900s.

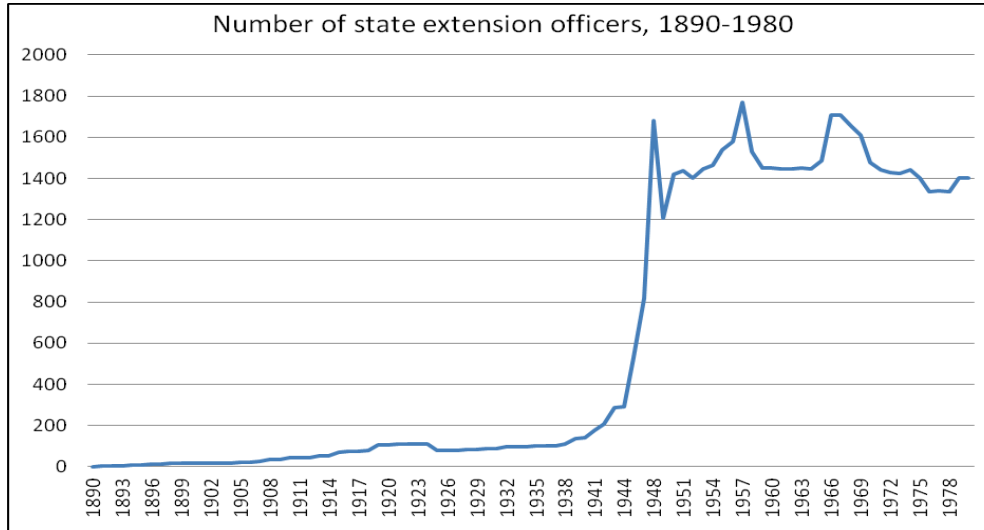
When a new state committee was installed in 1906, the Minister of Agriculture, Industry and Trade clearly argued for a policy regime geared towards fair distribution of agricultural income whilst focusing on an economically healthy sector: ‘the state interference (in agriculture) surely cannot be directed only towards attaining the highest possible development of production, but must also be aimed at a fair distribution of the fruits (of that production) among the agricultural population.’⁷²

Although distributive measures, such as land rent regulations, were not proposed yet, the work of the committee signalled the increasing willingness of the state to support the growing group of small farmers and agricultural labourers in the Netherlands. One of the areas in which state intervention made little progress was land reform, or what later came to be called ‘structure policy’. With the rise of small farms, land had become increasingly fragmented, especially in the inland regions where smallholdings thrived. The earliest draft laws to stimulate land consolidation date from the early 20th century. In 1924 the Land Consolidation Act (*Landinrichtingswet*) was passed, but it had only minor effects on land ownership as a majority of stakeholders was needed in order to initiate a land consolidation project, and this majority was rarely achieved.⁷³

2.2.4 Case study: the early development of knowledge policy for agriculture

Agricultural education and extension rapidly developed in the first decades of the 20th century, thanks to the concerted efforts of the agricultural societies, farmers' unions and the state. Lower and middle education was formalized in winter courses and lower and middle agricultural schools, with a curriculum geared towards specific target groups.⁷⁴ In the late 19th and early 20th century, students who had the ambition to continue their education were sent to German higher education institutes, where they were trained to become agricultural teachers, after the German example of the *Wandellehrer*. Paid by the state, these teachers, later known as 'agricultural extension officers', actively visited farmers and gave them advice in a wide range of ways on various topics. The first extension officers were hired in 1890, after which their number increased steadily and they each became more specialized and focused on a smaller area and number of farmers.

Figure 2.4 Showing the development of the state extension efforts. A steady increase takes place between 1890 and 1920 and remains more or less constant until just before World War II. Immediately after World War II the number of state extension officers increases rapidly and remains constant until 1980. From the 1980s onwards, the number of state extension officers decreases significantly as a result of privatization



Source: Zuurbier (1984: 85)

Another important development for the Dutch agricultural knowledge infrastructure was the development of the agricultural college in Wageningen (1877). In 1904 the college was designated as an official state school, and expanded with the addition of departments for horticulture and forestry, as well as new research facilities.⁷⁵ In 1918, Wageningen was officially designated as an institute for higher education. At that time it had 30 professors, 37 other scientific personnel and 219 students, trained for agricultural employment in the

Netherlands and the Dutch East Indies. By then, the education was of high enough quality that it was no longer necessary to send students to Germany for higher education.

Another development in which the Dutch government made significant headway was the foundation of agricultural experimental research stations. The first of these stations were established from midway through the 19th century in several European countries. In 1890, the Netherlands only had one station, in Wageningen, but the state stepped up its efforts and several more stations were established.⁷⁶ The experiment stations were conceived as fundamental research institutes to increase agricultural knowledge, which would become available to all farmers and thereby increase the overall productivity of Dutch agriculture.

The experiment stations were also to form the backbone of an extensive research infrastructure that was partly in the hands of the Directorate for Agriculture, partly in private hands and subsidized by the state. The knowledge acquired at the experiment stations would be diffused through experiment plots, gardens and farms. The system of experiment stations became very successful, as the facilities were intensively used by farmers. The fact that between 1889 and 1910 more than a thousand experiment plots were established illustrates this point.

The original idea of this knowledge infrastructure was that the government would be responsible for the development and diffusion of knowledge, while experimentation with and diffusion of technological innovations would remain a task for the private agricultural organizations, which in turn would be facilitated and partially subsidized by the government.⁷⁷ In practice, however, the different functions in the knowledge framework turned out to be very difficult to separate. For example, after a failed attempt to set up the experiment stations for both regulation and research, in 1910 it was decided that four experiment stations would focus on regulation,⁷⁸ while the others would concentrate on specific areas of research: one for arable farming, one for dairy farming and later also one for forestry and one for poultry farming. The original scientific mission of the experiment stations was overshadowed by a pressing practical demand for regulation, testing and administration of inputs such as seeds and fertilizers, as well as agricultural output.⁷⁹

The demand-driven work of the experimental stations led to a fierce discussion about the scientific qualities of these institutions. Similar discussions surrounded the college in Wageningen, since it had officially been recognized as an institute for higher education. Some felt that the practically oriented departments of the institute should be transferred to a separate overarching organization for practical research, which was finally founded in 1932

as the Netherlands Organization for Applied Scientific Research, TNO (*Nederlandse organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek*). The professors in Wageningen, however, saw many advantages in their applied approach and close links with the sector. The genesis of the agricultural research infrastructure shows that the original linear model – from science to practice – envisioned by the state also did not fit the more interactive, and trial-and-error nature of the actual research process. Applied rather than fundamental research turned out to be in greatest demand during the first decades of active government agricultural knowledge policy.

Regulation, facilitation of knowledge diffusion and quality testing were the most pressing concerns of farmers, who were greatly concerned with diseases, problems with their export reputation and knowledge about the new (expensive) inputs like seeds and fertilizers. The state, from the turn of the century embodied in the Directorate for Agriculture, was willing to listen to these concerns and facilitate farmers. This is also shown by the fact that not only the experiment stations, but also a number of specialized research and inspection stations,⁸⁰ state inspection services⁸¹ as well as state laws⁸² and state quality marks⁸³ were established in that period. The state cooperated closely with agricultural societies and farmers' unions, private companies⁸⁴ and cooperatives.⁸⁵ The initial goal of government policies was the development of a strong, healthy sector that was capable of competing on an international market.⁸⁶

2.3 Assessing the role of the state

2.3.1 Causes of state intervention

Having mentioned the most important state interventions in agriculture in the period 1795-1930, this paper will now attempt to assess the consequences of those interventions. As discussed in this chapter, the role of the state in agriculture remained rather limited until the final decade of the 19th century. The first boost to agricultural policy around the year 1800, stemmed from a combination of intellectual ideas regarding the importance of agriculture that had sprung up in the late 18th century; the centralizing, reformist impulse emanating from the new state after years of decentralization; internal disagreement and inertia in the former Dutch Republic; and the special circumstances that resulted from the Napoleonic wars and the directives from France.

The fact that the policies were not sustained is related to the lack of an organized and supportive sector as a counterpart to state policies, the lack of urgency as agriculture flourished midway the 19th century, and the ideology of *laissez-faire* that dominated the

subsequent period. In contrast, the state intervention in the *late* 19th century took place in the face of urgent competitive challenges to the agricultural sector as a result of the Great Agricultural Crisis, in the context of the integration of markets and the process of industrialization. The actions of the government were also the result of a more actively organized agricultural sector due to the development of cooperatives, societies and unions, which increased the effectiveness of and support for policies. Moreover, the Dutch economy offered the right conditions for rapid productivity growth, including increased availability of capital, agriculture-related industries and transportation possibilities.

Many of the developments in Dutch agriculture and the government responses to them are strikingly similar to developments in surrounding countries in north-western Europe. These similarities (present in most but not all cases) include the increasing relative importance of livestock and horticulture and the rise of smallholders in the final decades of the 19th century; the founding of regional agricultural societies in the first half of the 19th century and of cooperatives and farmers' unions around the turn of the 19th/20th century; the development of state research, extension and education facilities; the establishment of a directorate or ministry of agriculture; the founding of veterinary and agricultural colleges; and the introduction of quality control measures.

However, in addition to these similarities there are also numerous differences in the nature, depth and timing of developments, related to specific economic and political constellations in the different countries. In north-western Europe, the agricultural development patterns in Denmark⁸⁷ and Belgium⁸⁸ are most similar to the pattern in the Netherlands. British agricultural development took a very different course due to the early industrialization of the British economy.⁸⁹ The French⁹⁰ and German⁹¹ (as well as Italian and Swedish⁹²) cases reveal similarities with the Netherlands but also large differences, which can be partly explained by their large internal diversity and resultant different economic and political structure. Structural change in Southern and Eastern Europe took place much later, making historical comparison more complex,⁹³ while the overseas cases (e.g. United States, Canada, Argentina, New Zealand, Australia, Brazil) are characterized by a very different initial situation of land abundance, which explains a large part of the different developmental paths there compared to Europe (Federico, 2005).

Some specificities of the Dutch case stand out in an international context. Firstly, Dutch agriculture was very productive throughout the whole period. Only Britain (high labour productivity) and Belgium (high land productivity), which both shared the inheritance of a high level of urbanization and high productivity levels, and Denmark, which achieved

remarkable labour productivity increases throughout the 19th century due to far-reaching land reforms, were able to match the Dutch agricultural sector in terms of productivity throughout the period 1800-1930.

Secondly, a rapid productivity increase can be observed in Dutch agriculture in the period 1870-1910, matched only by Germany, Belgium and Denmark, while Great Britain fell behind (Van Zanden 1993; Van Zanden 1991: 215-239). Thirdly, Dutch agriculture stands out for employing an increasingly large number of farmers and labourers throughout the 19th and early 20th centuries, which also meant that a large agricultural electorate emerged. Fourthly, the Netherlands was producing surpluses of most agricultural products (except for cereals), which were destined for export. Agriculture was therefore an important source of national wealth, in a way only comparable to Denmark.

With regard to the role of the state, the Netherlands was not the first nation to develop experiment stations, agricultural schools or a state extension service. It was also rather late with the development of interest representation on the national level and with the emergence of the various cooperatives. Many of the Dutch measures were modelled on Danish, British, French or German examples. The Netherlands, however, does stand out for the rapid and far-reaching implementation of institutional reforms from 1886 onwards, and the strong and well-organized agricultural sector that emerged around the turn of the century.

2.3.2 Effects of state intervention

Compared to other sectors of the Dutch economy, the government took a proactive role in agriculture remarkably early and on a large scale.⁹⁴ The government's activities were not a necessary intervention in a passive and stagnant sector. Farmers had already begun to adapt to new circumstances in the decades before the state stepped in (exports rose, the first cooperatives and factories were established), but due to the small-scale nature of farming (family farms, smallholders) and the rapidly changing economic reality, more coordination was desirable. Thus, the state *reacted* to a request for help that came from the sector itself.

Interestingly, the state took the side of farmers in the agro chain, as it stimulated the development of cooperatives to strengthen the market position of farmers vis-à-vis suppliers and purchasers. However, the role of the state should also not be overstated. The fact that positive changes took place rapidly from the 1890s onwards had as much to do with the waning of the agricultural crisis (leading to higher availability of capital) as with the help from the state. Just as important as the actions of the state were those of other actors, including the regional societies, farmers' unions, cooperatives and commercial parties with a

stake in agriculture. The government's actions took place in a broader institutional framework in which these other forces and actors also operated, and were at least as much the result of practical experience gained through trial and error as of conscious and directive top-down planning.

Although the effects of state intervention in agriculture should not be overstated, agricultural policies clearly contributed to the development of agriculture in a specific direction. The policies contributed to solving some of the most urgent problems farmers were facing. The decision was taken not to ease the competitive pressure by protecting Dutch agriculture. This meant that farmers had to face the competitive challenge by specializing in profitable niche markets, achieving high productivity and building on comparative advantages. As a result, a structural change took place, from the increasingly unprofitable arable sector to the booming livestock and horticultural sector.⁹⁵

The state agricultural policies facilitated this shift, and were especially helpful to small farmers, who were given the means to fully exploit the possibilities of the export market. The facilitation of farmers' organizations and cooperatives improved the market position of small farmers; inspections, quality marks, research and education improved the tarnished export reputation of Dutch agricultural products, and cooperatives, education, extension and research ensured the application of new technologies, including the use of artificial fertilizers. Small farmers also gained a stronger position in politics, through the extension of the franchise, and better representation through agricultural societies and farmers' unions. As a result, a well-organized and large group of farmers developed, with a collective identity and operating in a strong institutional framework.

State intervention in agriculture has often been described as a success. As early as 1906, the German agricultural economist Julius Frost wrote an admiring account of Dutch agriculture, *Agrarverfassung und Landwirtschaft in den Niederlanden*. In 1921, the Wageningen professor Salomon Koenen wrote that:

With state intervention, a new era has begun for our entire agricultural sector. Not only because of state intervention: that would not have been possible. But at the same time, a new spirit has caught the Dutch farming sector, a spirit of energy, determination and courage, and also a spirit of cooperation that has overtaken the old, ultra-individualistic spirit.⁹⁶

In a classical comparative thesis on government and agriculture, Michael Tracy (1989: 3-118) argues that the success of Dutch and Danish agriculture in the early 20th century is to be understood as the result of the maintenance of free trade despite the agricultural crisis in the late 19th century, which opened the way for the shift from arable farming to livestock and

horticulture (with its relatively higher land productivity and based on cheap inputs, including imported grains) to take place. Free trade policy was successfully combined with supportive government measures. On the other hand, German and French agriculture was held back by protectionist tariffs which eased the competitive challenge and removed incentives for change.

As a result, farmers in these countries continued to rely on cereals and made only modest productivity gains. The British case is an example of pure free trade combined with government neglect, resulting in a collapse of the agricultural sector and an exodus from the land. Only a few large, labour-intensive farms were able to survive in the face of harsh international competition. Although this decline in British agriculture was cushioned by the availability of employment for former farm labourers in the urban industries, and by cheap food and raw material imports, it led to the decline of British 'high farming', admired in the 19th century for its high level of mechanization and profitability. Tracy argues that the 'positive response' of the Dutch and Danish states, combining free trade with policy that faced the competitive challenge and was geared to boosting competitiveness, has had the most positive results, compared to the 'negative (protectionist) reaction' in France and Germany, and the neglect in Great Britain:

“Denmark and the Netherlands showed the possibility of meeting the crisis by adapting the pattern of agricultural production to the new situation, and thereby laid the basis for a prosperous agriculture making an important contribution to export earnings and to general economic progress.” (Tracy 1989: 26).

Tracy's conclusions come close to the initial objectives of Dutch policymakers in the period up to 1930, as formulated by Sickesz in 1886, and fit with the common-sense idea that too much competition stifles, too little competition breeds complacency, and the state should facilitate a fruitful middle way. However, some criticism can be mounted against this conclusion. First, the empirical evidence is not entirely supportive. Koning (2007: 204) refers to figures from Jan Luiten van Zanden which show that Germany, which Tracy puts in the protectionist category, was actually characterized by rapid productivity increases. A similar argument could be made for Belgium which, despite moderate protectionism, also prospered, although falling behind somewhat after 1910. In fact, both Germany and Belgium developed a strong institutional framework to develop agriculture, including a knowledge infrastructure and quality control measures, on top of the protectionist measures.

Secondly, it is questionable to what extent the different economies discussed by Tracy can be usefully compared: they were highly interdependent (the Netherlands fulfilling the role of supplying the British and German industrial centres with food and some raw materials) and

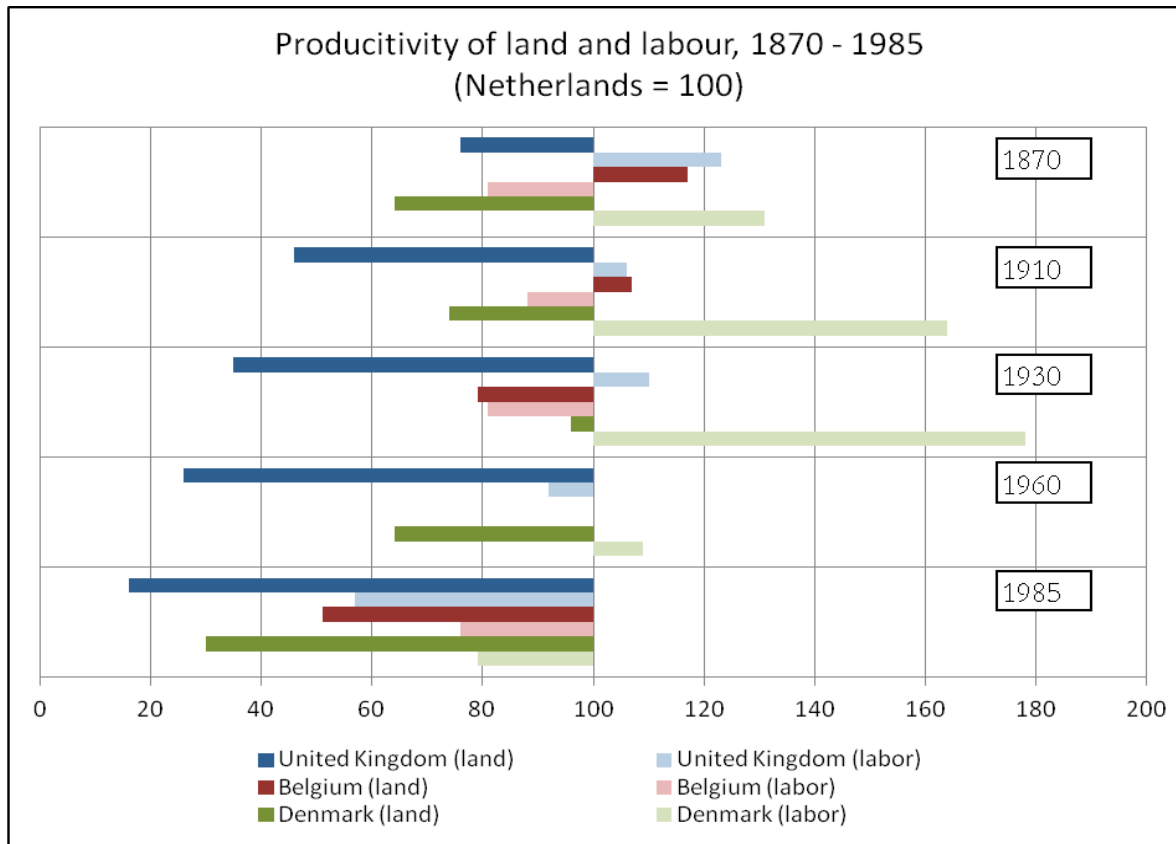
policy choices were strongly influenced by local factors. The Dutch and Danish economies specialized in the delivery of foodstuffs and raw materials for industrial processing and consumption, while Britain did the opposite. Belgium aimed for self-sufficiency, while rural policies in France and Germany were deeply influenced by political rather than economic factors. In addition to the late-19th-century policies, other factors, including politics, initial conditions and timing of industrialization, also largely explain the different developmental paths.

Nevertheless, Tracy's key point that Dutch agricultural policy in the late 19th and early 20th century provided an effective developmental response to a pressing competitive environment fits the story told in this chapter. On the other hand, although the positive effects of Dutch state intervention in agriculture are clear, there are also some obvious downsides to the policy direction taken that need to be taken into account.

First, the increasing importance of exports made Dutch agriculture more vulnerable to changes in the international market, while Belgian farmers, who focused on the domestic market, were not so dependent on capricious and unpredictable international developments. Secondly, the 'peasant-friendly' policies, focusing on land-saving (rather than labour-saving) innovations and stimulating the development of smallholdings, led to the emergence of a fragmented sector with clear limits to its potential for further productivity growth. In other words, the labour-intensive growth path would at some point face limits (a 'small-farmers' problem' – as acknowledged in the 1930s) and necessitate a considerable outflow of labour from the sector (as happened after the Second World War, see Chapter 3).

Thirdly, the fact that the government listened to and cooperated with farmers' organizations led to the development of a well-organized, powerful farming lobby which on the one hand improved coordinated implementation of policies, but on the other gave the organized farmers considerable power to influence current and future policy decisions to ensure it was in line with their own interests and ideas and therefore instigated at least some degree of policy inertia (also see Chapter 3). This fact would render agricultural policy more rigid and less adaptable to changing circumstances in later periods. Overall, it can be argued that the success of Dutch agricultural policies in the period described above was based on the premise that a large and economically healthy agricultural sector was desirable. However, as the next chapters will make clear, this premise is not fully justified in the long run.

Figure 2.5 Land and labour productivity in British, Belgian and Danish agriculture compared to that of the Netherlands in the period 1870-1985



Source: Van Zanden (1993: 364-65)

3 THE STATE DIRECTS DEVELOPMENT (1930-PRESENT)

3.1 The agro sector: challenges and responses

3.1.1 Historical context and key trends

Since the 1930s, and especially since the end of the Second World War, the world economy has changed on an unprecedented scale. Processes of global integration of markets and industrialization have shifted to a higher gear, GDP per capita in Western countries has soared and population numbers have boomed. Since the 1970s, however, the reality of the limits to growth and issues relating to the sustainability of production systems have radically changed our ideas about future economic development. All of this has fundamentally affected the place occupied by agriculture in the wider economy and society.

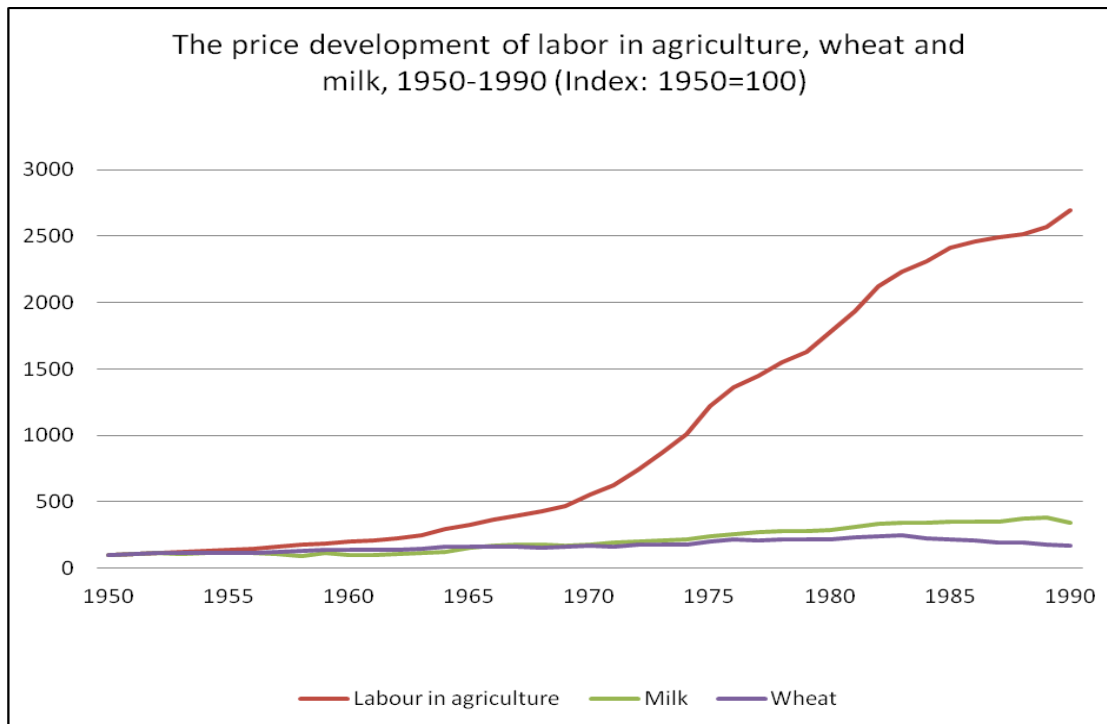
The Depression in the 1930s marked a turning point for agriculture. With national and international markets collapsing, farmers were confronted with rapidly declining demand and faced a serious profitability crisis. The crisis was sparked off by a specific set of conditions that lay largely outside the agro sector. However, the roots of the severe impact of the 1930s crisis on agriculture are also to be found in the structural changes in production in the agro sector that had taken place in the preceding half-century. There had been extraordinary growth in agricultural production, not just in the Netherlands or Europe, but on a global scale.⁹⁷ Products like butter, sugar and grain were now produced and traded worldwide. Additionally, the supply of cheap substitutes for agricultural products (margarine, synthetic fibres and dyes, petroleum) increased.

Generally speaking, although demand for agro products had grown rapidly, this growth was outstripped by the even stronger growth in demand for other (industrial) products and services. Food had become an increasingly marginal expenditure for most inhabitants of the developed world and, in a context of rising living standards, prices of agricultural products stagnated relative to other products, and especially the most basic consumption goods such as wheat or milk. As overall income level were rising quickly, the terms of trade for farmers worsened (figure 3.1 illustrates this point).⁹⁸

A key strategy for farmers to survive under these conditions was to increase their labour productivity by cutting costs or increasing the volume of production. In practice, it was only by increasing production that farmers were able to achieve incomes comparable to those in other sectors and remain competitive on international markets. A classic problem is the fact that, as long as no labour flows out of the sector, this incentive to produce leads to a vicious

cycle: as supply grows, markets saturate further and prices for agricultural products are squeezed even more. Whereas many sectors, including agro-processing and retail went through a process of mergers, a similar process only took place in agriculture after the Second World War.

Figure 3.1 Development of the price of labour in agriculture, milk and wheat in the period 1950–1990. The relative increase in the price of labour (i.e. labour costs and farmers’ incomes) in relation to the price of basic agricultural commodities becomes strikingly clear. This fact explains a large part of the labour-saving developments in agriculture in the period after the Second World War



Source: Bieleman (2010)

3.1.2 Achieving higher labour productivity

The agro sector, and agriculture specifically, reacted to the new economic conditions it had faced since the 1930s: whereas the total number of people employed in agriculture had risen for centuries, it now began to decline. The share of agriculture in the total added value in the Dutch economy has declined steeply in recent decades, from approximately 15 per cent of total national income in the late 1940s to under 2 per cent today (Van Bruchem and Silvis 2005: 18). In absolute terms, the size of the Dutch agricultural workforce reached its peak in the first two decades of the 20th century, remained stable during the Depression and the Second World War and then began to shrink quickly and persistently, from over 600,000 just after the War (one fifth of the total labour force) to less than 200,000 today (only a small percentage of the total labour force; see figure 2.3).

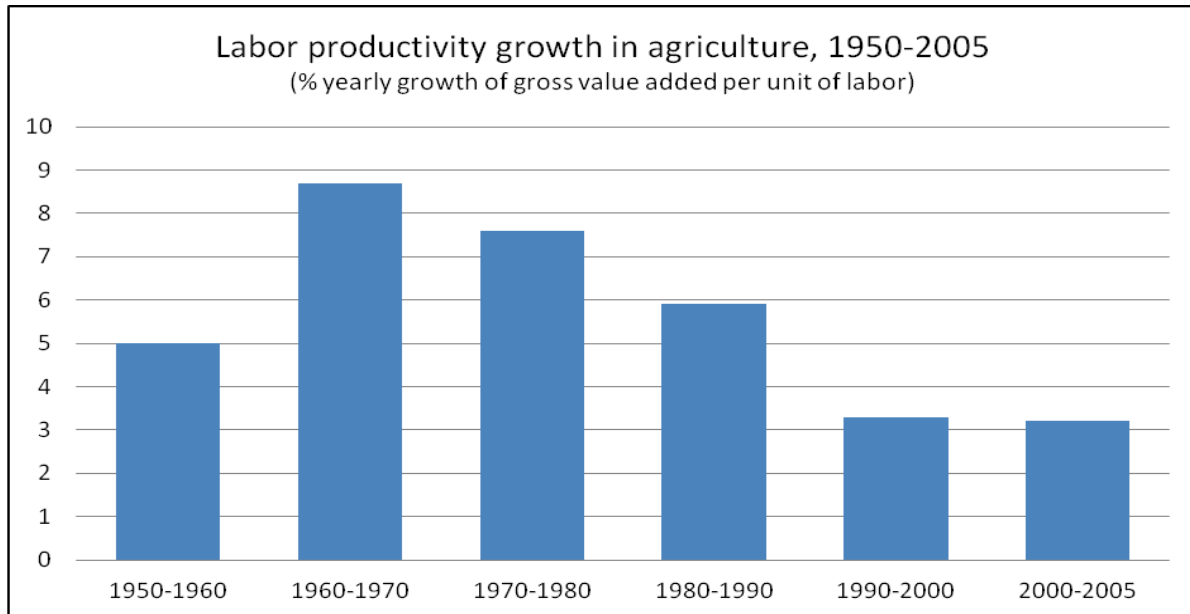
This outflow of labour was a multifaceted process. Some farmers scaled up their individual production, cut costs (especially labour wages) and became successful, independent and well-educated entrepreneurs. The fact that an increasingly small numbers of farmers managed to achieve high production of good quality at relatively low cost is largely explained by the numerous innovations in farm practice. New technologies had been developed in the first half of the 20th century and were still in the process of refinement. When the conditions were right, and through coordinated efforts, these technologies could now be implemented on a large scale. In the decades after the Second World War, the tractor quickly replaced the horse as the most important source of power, numerous innovations were adopted in dairy farming (such as the cooling tank and milking machine), the harvesting of sugar beet, potatoes and green maize was mechanized and new stalls and greenhouses boosted output in horticulture and livestock farming.

While parts of the developing world experienced a 'green revolution' in the 1950s and 1960s with the expansion of high-yielding varieties and artificial fertilizers, the amount and quality of inputs used in agriculture in the Netherlands, and the developed world more broadly, also expanded rapidly. The process of productivity increase as a result of new techniques, technologies and inputs was especially remarkable in the first post-war decades. In the words of Dutch agricultural historian Jan Bieleman: after the 1950s, 'farming became agri-business'.⁹⁹

The success of agricultural entrepreneurs is reflected by the fact that the growth of labour productivity in agriculture was actually stronger than in services and industry, so that the productivity gap compared with these sectors that had reached problematic proportions in the 1930s was already closing in the 1960s.¹⁰⁰ In recent decades, the development of new technologies and related gains in labour productivity has stagnated somewhat (see figure 3.2). However, as this is a more general international development, Dutch agriculture still remains among the most productive and innovative in the world.

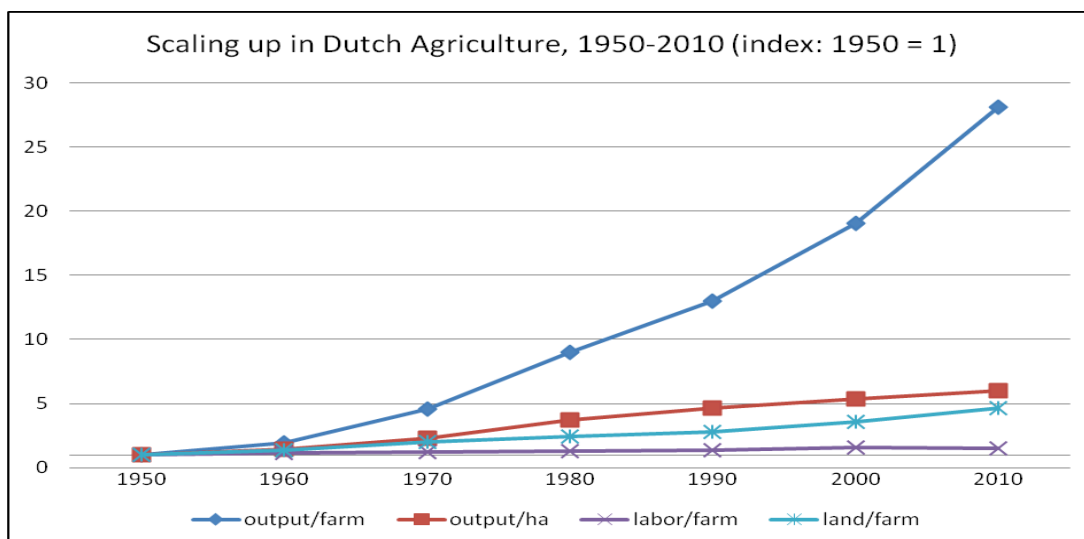
There was also a flipside to these rapid productivity gains. In the process of labour outflow, many farmers had no option other than to give up their business and sell the farm to which their families had been attached for generations and which had not just been a source of income, but also a house, home and lifestyle.¹⁰¹ At present, despite the fact that farmers have begun to broaden their activities, a large number remain unable to continue their business or to find a successor, and the number of farm holdings continues to decline in a rapid pace.¹⁰² Another flipside of rapid productivity growth was the neglect of the environmental impact, something which is discussed in more detail below.

Figure 3.2 Labour productivity growth in Dutch agriculture in the period 1950-2005. Labour productivity growth was especially rapid in the 1960s and 1970s and slowed considerably from 1990 onwards



Source: Van Bruchem and Silvis (2008: 62)

Figure 3.3 The scaling up process in Dutch agriculture in the period 1950–2010. Both in terms of output per hectare and number of hectares per farm, a steady increase can be observed, leading to dramatic growth in the total output per farm. At the same time, the amount of labour per farm has barely increased, indicating that the output per unit of labour has risen rapidly as well



Source: Van Berkhoust and Van Bruchem (2008: 40)

Despite the rise in productivity and per capita production in agriculture, farming largely retained its family-oriented business model, in contrast to most other links in the agro chain which came to be dominated by a few large firms with a large number of employees. The

seed, feed and fertilizer business, as well as the processing, distribution and retail sector, have become concentrated in the hands of a few powerful international players such as OCI Agro (formerly DSM Agro), Unilever, Heineken and Ahold. Moreover, the inputs industry, processing industry and distribution sector have increased their share in the agro value chain, while increasingly relying on imported raw materials (such as fodder, cocoa, barley, hops and oils) and foods. The growing importance of these players in the agro sector is illustrated by the fact that employment as well as value added as a share of GDP in the agro sector as a whole has fallen much less steeply than in agriculture, from just over 20 percent of the total economy in 1960 to 10 percent today.¹⁰³

Around the year 1970, the share of ‘agro-business’ in total GDP began to exceed the share of agriculture itself.¹⁰⁴ It is also worth noting that the further internationalization of markets and chains of production disentangled the Dutch agriculture and the Dutch agro sector. In 1970, approximately two-thirds of Dutch agricultural production ended up in the Dutch food industry, while around the turn of the century this share had declined to only one third. While the Dutch food industry was increasingly importing its raw foodstuffs from abroad, Dutch agricultural products ended up in different places.¹⁰⁵ An important effect of the industrialization and internationalization of the agro chain and the increased power of large players (especially retail and the processing industry) has been to exert even greater pressure on farmers to sell their products at competitive prices.

3.1.3 Finding international markets

In 1930, the Netherlands was among the key agricultural exporters in Europe. Not only did it account for a disproportionately large share of international agricultural trade, but the Dutch sector was also strongly geared towards export, and agricultural exports contributed significantly to total exports. The Depression in the 1930s seriously challenged the export-oriented nature of Dutch agriculture as demand diminished and prices plummeted.

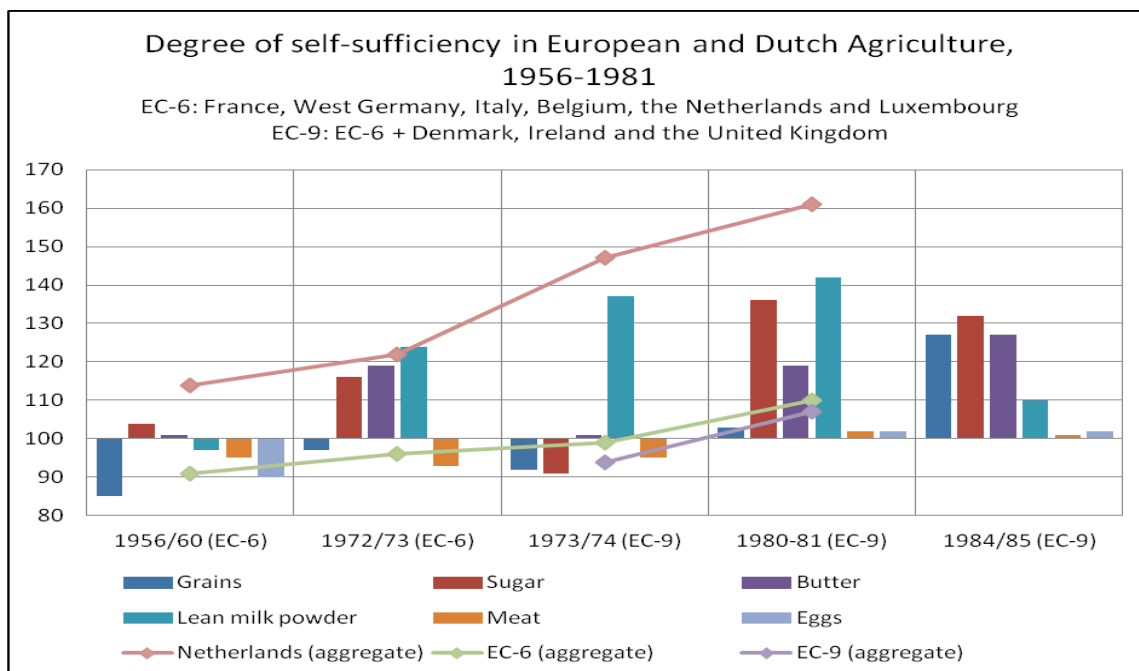
Nevertheless, the sector and government worked hard to design measures geared towards maintaining the specialized and intensive character of the agricultural sector that was required for export (see next section). After the Second World War this strategy paid off, as export opportunities returned. In these post-war decades, Dutch farmers were able to profit from excellent export conditions in a partly protected European market which at that point was still characterized by an export deficit.

It is well known that European agricultural markets have become saturated over recent decades and the growth in production for export has stagnated (see figure 3.4). Despite this,

the Netherlands has retained its position as a key agricultural exporter. The following statistics illustrate this point. The share of agricultural production destined for export rose from 45 per cent of total agricultural production in 1950 to 55-60 per cent in 1970 and 75 per cent in 1995, after which the export dependency stabilized at just under 75 per cent (Van Zanden 1986: 88; Van Bruchem and Silvis 2011: 23). The relative importance of agricultural exports in total Dutch exports steadily decreased but remains significant. In 1950, 46 per cent of total Dutch exports consisted of agricultural products, and these products currently still account for approximately 15 per cent of exports, not including agro-related products like fertilizers, vaccines, beer and chocolate (Douw and Post 2000: 12).

Moreover, the agricultural trade balance has remained positive throughout, with unprocessed horticultural products such as bulbs, flowers and plants and processed livestock products including meat, eggs and dairy as the most important export products. Most Dutch agricultural exports end up on the European market, most notably Germany.¹⁰⁶

Figure 3.4 Degree of self-sufficiency in a number of key agricultural products in the European Community (EC-6 and EC-9) and the weighted aggregate of Dutch agricultural self-sufficiency in various years over the period 1956-1981. The figures shows a shift towards self-sufficiency in the 1970s and 1980s, despite an enlargement of the Community. Despite shortfalls in cereals, fruit and fodder, the Netherlands was a surplus country throughout the whole period thanks to large surpluses of potatoes, sugar, vegetables, dairy, meat and eggs



Sources: Meester and Strijker (1985: 37) and Burger (1993: 109)

As noted in the preceding chapter on the pre-1930 period, one response of Dutch agriculture to international market integration was to shift away from arable production to livestock and horticulture. After a temporary return to arable farming in the 1930s and during the Second World War as a result of the specific circumstances, in the post-war period the structural shift from relatively extensive arable to intensive livestock and horticultural farming resumed (see figure 2.2), although some arable sectors (most notably sugar beet and potatoes) remained important, as did dairy farming, which was more profitable and intensive than arable farming, but less so than pig and poultry farming and horticulture.

The general trend was that markets for livestock and horticultural products still offered potential for growth, while markets for arable (and dairy) products were extremely competitive (and due to their land-intensive character, not very suitable for Dutch conditions). To ease some of the competitive pressure on arable and dairy farmers and to ensure their continuation in the light of food security concerns, market and pricing policies were put in place, first on a national level and later on a European level. No such protection was provided for pig and poultry farmers or horticulturalists, who continued to be faced by a competitive challenge, having to survive in an open and competitive international market (see next section).

Dutch farmers managed to claim a considerable share of regulated markets for products like starch potatoes, sugar beet and milk, building on their international competitiveness in terms of productivity. However, many farmers specialized in the growth markets for poultry, pig and horticultural products. As a result, a very efficient, internationally competitive and large-scale 'footloose' horticultural and livestock sector developed. To illustrate the magnitude of this development: the total number of pigs in the Netherlands rose from 1,9 million in 1950 to a peak of 14,3 million in 1987, while the poultry stock rose from 23,5 million to 96,8 million animals (Van Zanden and Verstegen 1993: 85).

The concentration of production is illustrated by the fact that the average number of pigs per holding rose from 7 to 700 between 1950 and 1997, while the number of chickens per holding rose from 100 to more than 21.000 in that same period (Douw and Post 2000: 25). The number of animals per holding continues to rise today. The horticultural sector has also rapidly increased its production in the last three decades, increasing its share in total agricultural production from 23 per cent in 1980 to 45 per cent in 2010. The value added in floriculture (flowers, plants, bulbs and trees), in particular, has increased significantly.

One way to measure the relative success of Dutch agricultural entrepreneurs in terms of productivity is by looking at their competitiveness in international markets. Based on a methodology developed by Michael Porter, Jacobs, Boekholt and Zegveld (1990: 29) calculated that in 1986 for 11 agro products, the Netherlands had a share in total world trade of more than 30 per cent (!), illustrating the competitive strength of the Dutch sector.¹⁰⁷ These shares have decreased somewhat since then, but Dutch agricultural exports have remained important in the world market. Snijders, Vrolijk and Jacobs (2007) calculated that in 2005, of the 100 most competitive Dutch export sectors, more than half were agro-related, and that the Dutch share of cut flowers, mussels, potatoes, cocoa, pigs and animal vaccines still added up to over 25 per cent of total world trade in these commodities throughout the 1990s and 2000s.¹⁰⁸

The concept of ‘footloose farming’ serves well to illustrate the strengths and limitations of the Dutch situation: ‘footloose farmers’ were no longer dependent on scarce and expensive land¹⁰⁹ and fickle environmental conditions, but on the availability of external inputs and on the technology and management skills needed to build and regulate artificial stables and greenhouses. Footloose farming developed particularly in the urbanized coastal regions (horticulture) and in the southern sandy soils which were traditionally characterized by smallholdings (pig and poultry). The growth of the livestock (especially pig and poultry) sector was also stimulated by the fact that duty-free feedstuffs could be imported through the Port of Rotterdam.

This so-called ‘Rotterdam Loophole’ had developed as a result of concessions given to the United States in the early 1960s in the wake of the establishment of a regulated European market for agricultural products. Due to their proximity to the Port of Rotterdam, Dutch intensive livestock farmers on the southern sandy soils were blessed with an extra competitive advantage. The growth of the horticultural sector was also boosted by the discovery of large natural gas deposits in the northeast of the Netherlands (Slochteren). Energy-intensive sectors, in which glasshouse horticulture (as well as production of fertilizers) figured prominently, were able to profit from cheap energy.

Despite the competitiveness of the Dutch agro sector, a continuation of export success cannot be taken for granted. In recent decades, the intensive livestock and horticultural sector have faced new problems, resulting from difficulties in adapting to the new sustainability challenges. A large manure surplus built up due to the growing intensive livestock sector, leading to environmental problems, social outrage and strict regulations in the 1980s,, effectively curbing further expansion of the sector (Termeer 1993; Frouws 1994) Disease

epidemics such as mad cow disease, foot-and-mouth disease, swine fever and avian influenza have not only hit the livestock sector hard in recent decades, but also posed a real danger to human health. The horticultural sector has been criticized for its high energy use and dependence on cheap (foreign) labour. The vulnerable export reputation of the horticultural export sector was exposed in the 1990s, when Dutch tomatoes were nicknamed *Wasserbombe* (water bombs) by German consumers for their tastelessness.

In the late 1980s, the term *Dutching*, which had been used to describe the adulteration of Dutch agricultural products in the late 19th century, re-emerged (Krajenbrink 2005, 324). Health dangers remain a key concern for international trade: in 2012 the trade in fresh vegetables collapsed due to the alleged discovery of EHEC-bacteria on vegetables of Dutch origin. Similar disease-related crises have struck the livestock sector. Besides such incidents, the Dutch horticultural and livestock sectors also have to cope with increasing low-cost foreign competition, for example from producers in China or Latin American countries, and the prospects for the future remain uncertain.

3.1.4 Sustainable production?

The era between 1945 and 1973 is often referred to as the ‘golden age of European economic growth’. An awareness that there were limits to economic and demographic growth generally, and to agricultural growth specifically, was yet to develop. Achieving economic growth and appropriate levels of income for the workforce were central concerns, while overproduction as well as the negative consequences of production increases were largely neglected. Agriculture was considered a key sector as it was vital to food security and held the key to putting an end to hunger and misery. Society generally took a positive view of agriculture.

Agriculture was mostly seen as a sector that was confronted with competitive challenges, which could be remedied by stepping up efforts to achieve technical advancement and productivity increases. The belief in the importance of agricultural growth was reflected in the execution of large-scale land consolidation projects, the use of large amounts of pesticides and fertilizers and the focus on technical aspects in agricultural research. Nature, on which agricultural production (or any production for that matter) obviously largely depends, was generally perceived as benign and versatile.

The first problem that confronted the ‘growth paradigm’ in agriculture were the surpluses of products like butter and milk that began to appear in the 1950s. The earliest warning signs of the negative side-effects of pesticide use date from the early 1960s,¹¹⁰ and those regarding

manure surpluses from the late 1960s.¹¹¹ Of monumental importance was the report *Limits to Growth* (1972) by the Club of Rome, which ushered in a new public and political consciousness about the relationship between humans and natural resources. The visible agricultural surpluses of the 1970s and 1980s and their negative consequences also became a widely discussed topic. The surplus problem was at least partially solved in the 1980s and 1990s, but since the 1970s a whole string of new issues has emerged. Ecosystems, animals and landscapes have come to be appreciated as more than a source of agricultural production, and consumers have developed a demand for a diverse and tasty supply of agricultural products.

In recent decades, recurring outbreaks of animal disease have again focused attention on the limits to growth in agriculture. Agriculture has also increasingly been seen as a sector that upholds cultural-historical and landscape values, rather than pure economic value. These new perspectives on agriculture can be summed up in the overarching assertion that agricultural supply was no longer accepted as being of intrinsic importance in itself. Instead, farmers and other players in the agro chain have had to focus more on the demand side and develop more sensitivity to the variety of wishes, tastes and values of consumers and citizens.

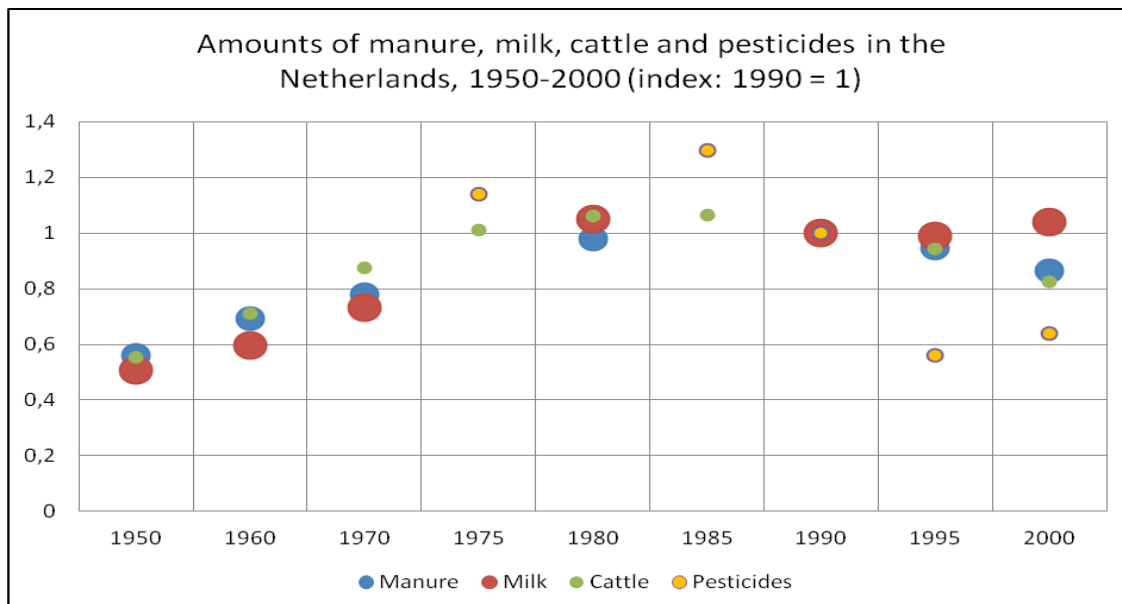
The agricultural sector was relatively late to acknowledge the newly discovered limitations and had to be forced by external pressure from the media, civil society and politics to reduce its impact on the environment and acknowledge the limitations set by society at large. Total agricultural production in the Netherlands (in terms of units of production and to a lesser extent value of production) continued to increase in absolute terms until the 1980s, after which it stagnated.¹¹² The environmental impact of agriculture also began to decrease from the 1980s onwards. The number of animals, the output of manure and the amount of pesticides have been limited.

In reaction to these new restricting conditions, some farmers have begun to diversify their sources of income and to step off the bandwagon of continued production and productivity increase. For example, the number of organic farms increased to 1.8 percent of the total number of farming operations in 2010.¹¹³ Approximately 15 per cent of all farms currently extend their income with extra activities.¹¹⁴ Nonetheless, diversification of income and organic farms remains rather marginal, and the process of scaling up the average farm size continues today.¹¹⁵

The hesitation in the sector to reform in the face of new sustainability challenges has given agriculture a rather negative reputation in Dutch society (Broersma 2011). The tense

relationship between the agricultural sector and its natural and social environment remains a hotly debated topic today.¹¹⁶ The future course of agriculture remains controversial, as some speak of a crisis and call for a fundamental reorientation, while others point to the success of past productivity increases and the need to continue on this path against the backdrop of a world population that continues to grow.¹¹⁷

Figure 3.5 The production of manure and milk, the number of cattle and the amount of pesticides used in the Netherlands in the period 1950-2000. A clear reversal from growth to stagnation and decrease can be observed in the 1980s for all four indicators. The decrease in the cattle stock and stagnation of milk production are the consequence of the milk quotas introduced in 1984, the reduction in the cattle stock and in manure production are the consequence of manure laws introduced from 1984 onwards, and the reduction in pesticide use is the result of increasing social and political pressure on farmers to limit their negative impact on the environment



Sources: CBS Statline, Bieleman (2010) and Krajenbrink (2005: 322-24)

The period from 1930 to the present is characterized first by an increasing organizational density in the agricultural sector and an alignment of interests, followed by a disintegration and fragmentation from the 1980s onwards. The collective agricultural organizations that had been established by 1920 long retained their position as major forces in the agricultural sector, as did cooperatives and the increasingly interwoven research, extension and education institutes. From the 1950s onwards, the collective organizations aligned their interests through a new semi-public organization, the Agricultural Board, that was established after the Second World War. Product chains were organized with vertical commodity boards.

Throughout, critical farmers have spoken out against the overarching organizations 3.1.5. Institutional changes in the sector and founded their own. Despite this, large sections of the agro sector, and especially the agricultural sector, had organized rather effectively until most of its organizational framework collapsed in the 1980s and 1990s.

The crisis policies of the 1930s and the wartime policies during the Second World War made farmers and farm labourers more aware of their reliance on the institutional framework in which they operated. An increasing percentage of farmers subscribed to one of the existing collective agricultural organizations (see chapter 2). The need for well-coordinated sectoral cooperation was also reflected in the foundation of new organizations. The 1930s crisis policies and the food supply measures taken during the Second World War necessitated an organized sector and an intensified relationship with the state. To this end, a considerable number of crisis foundations were established in the 1930s and 1940s.

After the War, the rapid adoption of innovations and the changing structure of the agricultural sector required effective coordination. The Foundation for Agriculture (Stichting voor de Landbouw) was established in 1945, a collective agricultural foundation in which the different farmers' and farm labourers' organizations cooperated. In 1954, an even more powerful collective organization was founded: the Agricultural Board (Landbouwschap), comprising the three collective agricultural organizations as well as the different unions of farm labourers. All farmers were obliged to become affiliated. The Agricultural Board was a 'horizontal organization', representing the agricultural sector as a whole, while numerous 'commodity boards' (productschappen), 'vertical organizations', represented the production chains for individual products (poultry, horticulture, dairy, etc.).

Cooperatives harmonized their interests and founded the National Cooperative Council (Nationale Coöperatieve Raad) in 1934. They also went through a process of scaling up and concentration. The number of cooperatives decreased from thousands to just a few. Those that remained grew enormously in size through mergers and acquisitions. Well-known examples of cooperatives that experienced a long history of mergers and acquisitions and became large players include Avebe (potato starch), FrieslandCampina (dairy) and Rabobank (credit) (Strijker 2008; Van Bruchem and Silvis 2005: 38; Sluyterman et al. 1998). Farmers' organizations and cooperatives have also organized themselves on a European level. National farmers' organizations are represented by COPA (Committee of Professional Agricultural Organisations, founded in 1958) and cooperatives by COGETA (General Confederation of Agricultural Cooperatives, 1959).¹¹⁸

The horizontal and vertical boards (schappen) can best be described as ‘corporatist’. They were in fact public organizations with regulatory powers, but they mostly functioned as representative organizations of the sector they represented. Boards were installed at a time when the economy was highly regulated. The idea was that they would be implemented throughout the Dutch economy, with the aim of achieving a high level of industrial organization with only limited government interference. Although they barely spread at all in other sectors, the Agricultural Board functioned rather well as a platform for agricultural cooperation. The success of the Agricultural Board is explained by the fact that the idea of sectoral responsibility outside the direct orbit of the state resonated in the agricultural sector, which cherished both its independence and its political influence. The Board became a powerhouse, with an influential political network and close direct connections to the Minister of Agriculture. The commodity boards took up the tasks of implementing regulations, streamlining cooperation and marketing products in specific agricultural production chains.

Underlying the actions of the Agricultural Board and its institutional predecessors was the assumption that the agricultural sector had more or less uniform interests that could be represented adequately by a collective organization. The Agricultural Board endorsed the modernization of Dutch agriculture and saw the growth of production and productivity as a necessary development for the Dutch agricultural sector. However, not all farmers felt represented. As early in the 1930s, a critical fourth large agricultural organization, ‘Agriculture and Society’ (Landbouw en Maatschappij) developed in reaction to the emerging crisis laws and policies (see next section). At its height in the late 1930s, this organization represented more than 10 percent of all organized farmers, before moving to the extreme right and losing much of its legitimacy (Krajenbrink, 2005: 21). Criticism re-emerged in the 1950s and 1960s, when the Agricultural Board received harsh criticism from a group of independent farmers who refused to go along with the obligations imposed by the Board.¹¹⁹

These farmers called themselves ‘Free Farmers’ (Vrije Boeren), a movement led by Hendrik ‘Boer’ (‘Farmer’) Koekoek, who was also the leader of the rightist populist ‘Farmers’ Party’ (Boerenpartij), which occupied seats in the Dutch parliament from 1963 to 1981. This movement, however, never outgrew its marginal position in agricultural interest representation.

In the 1970s and 1980s, the representation of farmers in an increasingly complex environment became more difficult. The Agricultural Board operated under increasing pressure from various quarters, both internally and externally. Social conflicts between farmers and farm labourers, represented by their own organizations in the Board, became

more tense. The legitimacy of the Board was affected by the fact that farmers themselves were much more highly educated than in the 1950s and had a more individualistic outlook, while the sector as a whole had become more diverse and difficult to categorize and manage as a whole.

Moreover, top-down innovation was no longer as effective as it had been, the focus on production and productivity growth was no longer universally accepted, and sustainability challenges were imposed on the sector from outside. The latter laid bare the problematic dual role that the Agricultural Board played as both a representative sectoral organization and a regulatory body that was supposed to represent the public interest. Also problematic was the fact that the Agricultural Board had no counterparts in other European countries, which complicated its position in the framework of increasing European cooperation.

Ultimately the above changes led to a serious legitimacy problem for the Board, vis-à-vis both farmers and society, and finally to its demise and abolition in the 1990s. At the same time, the three collective agricultural organizations had merged as the Dutch Agricultural and Horticultural Organization (Land- en Tuinbouw Organisatie Nederland – LTO) in 1995. The LTO has also experienced the difficulties of formulating a clear and uniform course and its short history has been characterized by internal struggles (Broersma 2010). The commodity boards, which have played a less controversial role, continue to exist today, although their legitimacy has been repeatedly challenged and abolition seems near.

3.2 The state: policy regimes and instruments

Compared to earlier periods, the Dutch state began to play a more central role in the development of Dutch agriculture from the 1930s onwards. According to agricultural historian Jan Bieleman, the legislation that was enacted in the 1930s signified a ‘key turning point in the relationship between farmer and government’ because ‘since then, the state has never released its hold on agriculture’ (Bieleman 2008: 314).¹²⁰ While state policies had already facilitated input-side development of agriculture since the late 19th century (see chapter 2), these policies were supplemented by output-side market interventions in the 1930s, and were themselves strongly intensified in the post-war decades. As such, the state both intensified its efforts to help the sector cope with competitive challenges, and attempted to ease some of the competitive pressure by intervening on the output side. To achieve its aims, the state cooperated closely with sectoral organizations. In general, the role of the state became much more directive and forceful in the 1930s and the post-war decades.

From the 1970s onwards, the social, ecological and economic sustainability challenges that confronted the agricultural sector and society as a whole introduced a new dynamic into the sector-state relationship. The close cooperation within the sector disintegrated, and the state took a more distanced, corrective role. It could no longer afford to have as close a relationship with the sector as it had before, since the state was now expected to represent wider public values that often clashed with the narrower agricultural interests. Moreover, the earlier strategy of top-down coordinated development no longer brought the hoped-for benefits. The state had to re-evaluate its strategies in supporting the competitiveness of the agricultural sector. Economic conditions had changed, and the potential for development no longer lay mainly in the adoption, adjustment and upscaling of existing production methods, but shifted towards the generation of cutting-edge innovations and diversification of end-products. The next section discusses the development of state activities in relation to agriculture,¹²¹ highlights the most important activities and policies, places Dutch agro policies in an international context and assesses the effects of Dutch agricultural policies.

3.2.1 Crisis policy: depression and war (1930-1945)

Into the late 1920s, the state was hardly willing to sustain, let alone step up, its support for agriculture.¹²² However, when the crisis erupted in the early 1930s, small farmers, who had been so successful since the 1890s partly thanks to state policies (see chapter 2), were badly affected. Export-oriented smallholdings turned out to be especially vulnerable in the event of an economic downturn and collapse of international trade, which meant that the prospects for a large portion of the Dutch workforce (and of the Dutch electorate) were gloomy.

From 1927 to 1933 a state committee, led by F.E.H. Ebels, was active, investigating the state of Dutch agriculture. One of its key conclusions was that there was a serious mismatch between the production factors land and labour in agriculture. The fact that there were too many small farms would become known as the ‘smallholders’ issue’ (*Kleine Boeren Vraagstuk*). As a result of the economic problems, agriculture became a key political concern.

At first, the belief dominated that with some adaptation and patience, the crisis would be overcome and no interference would be needed. However, as the situation in the early 1930s became increasingly alarming, a continuation or even intensification of existing efforts by the Directorate of Agriculture was no longer considered enough to maintain the agricultural sector at pre-crisis levels. The pressure on the state to introduce output-side policies and intervene in agricultural markets increased.

In 1930 some temporary measures were taken, such as cheap credit for potato farmers in the *Veenkolonien* peat district in the northeast of the country and support for sugar beet and wheat farmers. However, it was not long before the situation began to escalate further and temporary but extensive crisis laws were introduced for wheat, dairy and pigs. The measures taken included excise duties, export subsidies, guaranteed minimum prices and the obligatory processing of Dutch agricultural products (including a set percentage of Dutch wheat in bread, and of real Dutch butter in margarineproducts). A law was also introduced to alleviate the rent burden with which many farmers were struggling.

In 1933 an overall crisis law was adopted and a centralized crisis organization was established. The Minister of Economic Affairs (who took over agricultural affairs from the Ministry of Interior Affairs) was given the power to designate crisis products, limit production, monopolize trade, force producers to become members of centralized organizations and impose indirect taxes. In the mid-1930s, the relationship between agriculture and the state had altered radically. At this point, the total costs of the agricultural crisis laws amounted to about 20 per cent of the total state budget (Knibbe 1993: 201).¹²³ The state support contributed as much as some 40 per cent to the total value added in agriculture (Bieleman 2008: 314). The number of employees of the agricultural crisis organization had grown explosively, adding up to what contemporaries referred to as ‘an army of civil servants’. The first attempts were made to establish an independent Ministry of Agriculture (Minderhoud 1947: 198). The switch from limited input policies to full blown output-side state intervention in the early 1930s was remarkably rapid. According to the agricultural economist Michael Tracy, ‘the Netherlands thus became one of the first countries to have an extensively planned organisation of its agricultural markets’ (Tracy, 189: 126).

Intervention in agricultural markets was uncharted territory for the government. Therefore, the state relied heavily on representatives from the agricultural sector, most notably Stephanus Louwes,¹²⁴ who was closely involved in the establishment of the wheat and pig crisis laws.¹²⁵ Louwes also became head of the centralized crisis organization. The idea was to establish an effective but temporary organization with close links to the sector, which was expected to smooth the implementation of crisis laws. The crisis laws led to increased organization of the agricultural sector. Subsectors such as pig farming and dairy farming began to cooperate more closely, opening the way for the establishment of industrial organizations (boards) after the Second World War. Political parties also became more involved in agriculture and appointed their own agricultural experts. The basis was laid for a ‘Green Front’ of representatives of agricultural organizations, agricultural civil servants and

parliamentarians, who had a shared background and fought for a common cause: the maintenance of a strong, export-oriented agricultural sector.

The long-cherished course of free trade without market intervention was not abolished without objections. Industrial interests pointed to the higher bread prices resulting from market intervention, and the importance of the principle of *laissez-faire* as a cornerstone of Dutch trade policy. Despite continued criticism of the crisis laws, agrarian interests were successful in arguing their case for intervention. The sector, represented most vocally by arable farmers from Groningen, pointed to the distress in the countryside and the intrinsic importance of agriculture to justify government intervention. According to Stephanus Louwes, doing nothing would result in a 'survival of the fittest rather than the fittest' (Krips-Van der Laan 1985: 70).

In response to criticisms concerning the unequal treatment of agriculture and industry, the fact that consumers were paying for the crisis measures through higher prices and the high government expenditure to pay for the agricultural crisis laws, Louwes also argued that agricultural policy was a 'compromise between economically desirable outcomes and social considerations' (Krips-Van der Laan 1985: 98).

Influenced by the urgency of the situation, the arguments of the agricultural organizations, the size of the agricultural electorate and the fear of social unrest as a result of high unemployment, the state continued to support agriculture and to perceive the crisis measures as a temporary but necessary intervention to keep the many small family farms in business. The wish to maintain an export-oriented agricultural sector was strong enough to overrule the problems of higher consumer prices, a deterioration in the competitive position of Dutch industry, and considerable expense for the state. Neither the extensification of agriculture nor a reorientation towards the (protected) domestic market with a smaller and less competitive sector were considered as serious options.

Although the introduction of output-side policies was most characteristic for the state activities in relation to agriculture in the 1930s, some developments took place on the input-side as well. In 1936, a 'Small Farmers' Bureau' (*Dienst Kleine Bedrijven*) was established to improve the situation for small farms, for example through extension efforts aimed at teaching farmers to run their businesses better. In 1937 a new Farm Lease Act (*Pachtwet*) was passed, strengthening the legal position of farmers vis-à-vis landowners (Douw and Post, 2000: 88). To improve the agrarian structure, and also to provide work for unemployed farm labourers, projects were started to increase the area of agricultural land. A large number of

new institutes and foundations for a wide range of purposes was founded in the 1930s, leading in turn to the establishment of new supervising organizations like the Directorate for Agricultural Research (*Directoraat voor Landbouwkundig Onderzoek*) in 1939. The Directorate for Agriculture remained the key supervising organization for agricultural research, rather than the recently established organization for applied scientific research (TNO) that was supposed to represent all the different sectors of the Dutch economy.

Meanwhile the agricultural college in Wageningen kept expanding and growing¹²⁶ and relations between science and agricultural practice – between professors, experiment stations and extension officers – had become closer (Maat 2002: 101). In this way a closely interwoven network grew up around Dutch agriculture, strengthening its special, sectorally organized position in the Dutch institutional landscape.

In the late 1930s, the crisis organization that had grown out of the agricultural crisis was used to prepare for a situation of food shortages and limited export opportunities in the event of war. Stephanus Louwes became the head of the National Agency for the Preparation of Wartime Food Supply (*Rijksbureau voor de Voorbereiding van de Voedselvoorziening in Oorlogstijd*) in 1939), which later became the Food Supply Agency (*Dienst der Voedselvoorziening*) and which employed approximately 20,000 people (Huizinga and Strijker 1983: 36). The organization was based largely on self-regulation, a lesson that had been learned during the First World War when animosity between farmers and the state developed as a result of the temporary market intervention that took place.¹²⁷

In order to produce enough food for the domestic market, the organization prescribed the conversion of arable into grassland, the cultivation of potato and cereals, and a reduction of the cattle stock. The Food Supply Agency managed to retain much of its independence from the Nazis during wartime occupation, and was rather successful in feeding the Dutch population until the final winter of the War (1944-45).¹²⁸ During the War, the institutional development of the agricultural sector continued. Six new research institutes were established, among them the Agricultural Economics Research Institute (*Landbouw Economisch Instituut* (LEI) in 1940, which was established to calculate prices, wages and production as a basis for regulation (Minderhoud 1952:248).

3.2.2 Developmental policy: pushing for productivity growth (1945-mid-1980s)

In the post-war decades, policies towards agriculture were intensified and the state became involved in almost all aspects of agriculture, on both the input and output sides. The state – more specifically the Ministry of Agriculture – continued to play an active and facilitating

role in the development of the agricultural sector until at least the mid-1980s when, as will be discussed in the next section, priorities shifted. In order to contextualize the initiation of the increased state activity in relation to the development of agriculture, several factors that shaped the states' actions need to be considered.

First of all, recovering from the damage resulting from the War required a collective and coordinated effort.¹²⁹ Of central concern was the recovery of the food supply, which became a key task of the newly established Ministry of Agriculture, Fisheries and Food. Another priority was to restore the overall balance of payments through export of agricultural products so as to obtain the necessary foreign currency to buy capital goods. An important factor contributing to the recovery was the availability of capital and technology from the United States, as part of the Marshall aid plan.

As the damaged production capacity was restored within a few years,¹³⁰ the state policies could be redirected towards further economic development and growth. A reliable and continuous food supply at fair consumer prices, as well as fair compensation for farmers,¹³¹ became the key priorities of this post-recovery state policy. The countryside was still regarded as being of intrinsic value and importance, but it was felt that farmers should integrate as much as possible into 'modern' society (Karel 2005; Karel 2007)

Administrators at the Ministry and the various agricultural organizations were strongly persuaded by the idea that state and sector should cooperate closely to coordinate and speed up this modernization process. Few thoughts were devoted to alternative future pathways.¹³² A key 'modernization' concern was that, as agricultural prices lagged behind relative to other consumer goods, the production per farmer needed to increase drastically if their incomes were not to fall behind in the long run.

Moreover, wages would have to be suppressed at least temporarily, so that productivity gains did not dissipate but could be used for investment. In order to keep wages low, and also to cushion volatility, prices had to be regulated. As such, extensive state efforts on all these fronts were considered to be justified. The whole arsenal of agricultural policy instruments developed in the preceding decades was deployed and expanded further, while new instruments such as investment subsidies, wage policies and new market and pricing policies were introduced.

To direct its activities, the state could build on the experience gained from experiments with coordination of the economy in the 1930s and 1940s. It could also build on the intensive

cooperation with the organized sector that had been established in this period. By way of illustration of this continuity and the importance of the agricultural network, the brothers Stephanus and Herman Louwes, both key figures in the 1930s response to the crisis and food supply during the War, took up central positions in the Ministry of Agriculture and the Foundation for Agriculture, respectively. Sicco Mansholt, who was a descendant of a gentleman farmer family from Groningen and a distant relative of the Louwes brothers (and had been a reputed resistance fighter during the War) became the first post-war Minister of Agriculture.¹³³ Mansholt held the post for 13 years (1945-1958) before moving to Brussels to become the first European Commissioner for Agriculture. Mansholt played a key role in shaping post-war agricultural policy, both in the Netherlands and in Europe.

The relationship between agricultural organizations and the state was institutionalized through the Foundation for Agriculture and its successor, the Agricultural Board (see first section of this chapter). These organizations and the Minister met monthly, while civil servants from the Ministry and staff of the agricultural organizations cooperated intensively on many levels and in many areas. The state-sector cooperation in the post-war decades has often been referred to as a 'Green Front'¹³⁴ of interest organizations, the Ministry of Agriculture and the Parliamentary Committee on Agricultural Affairs, which consisted mostly of Christian-Democrat politicians. Characteristic for this Green Front was an atmosphere of consensus and a closely interwoven network, to which the cooperatives, knowledge institutions and agro-businesses also belonged. At the same time, it was an 'elite' network in which many small farmers who were pushed towards modernization did not feel represented.

In the following paragraphs, the arsenal of policy instruments used by the state in the post-war period will be discussed in more detail. Input policies (focused on affecting production capacity) will be discussed first, followed by output policies (aimed at affecting prices and markets). It is important to note that the role of European politics and policy became increasingly important in this period. Its influence on output policy was especially marked, while the national state retained much of its control over input policies.

In the first post-war years, government input policies focused mostly on the facilitation of development of both small and large farmers. Tractors and other new machines were adopted on a large scale, new land was taken into use (most notably the reclaimed *Flevopolders*), existing land was improved and production for export was stimulated. In order to allow for the application of technical innovations, the structure of the agricultural sector (in terms of land use and capital availability) had to improve. The government contributed to this improvement through an 'adjustment policy', for which some new policy instruments were

introduced. An important was the installation of the *Borgstellingsfonds*, a fund that provided security for loans and therefore encouraged farmers to invest. The fund was established in 1951, in cooperation with farmers' organizations and credit cooperatives, and endowed with considerable capital.¹³⁵ Also, the state made efforts to slow down the general rise in land prices by buying up agricultural land, to improve the legal rights of leaseholders and regulate the price of land for rent and purchase.¹³⁶ An important role was played by the Land Consolidation Agency (*Cultuurtechnische Dienst*), a government service that focused on a range of issues including land improvement.

In the 1950s it became increasingly clear that, in order to achieve higher labour productivity, additional efforts were necessary to improve the agricultural structure, and especially an improvement in the land:labour ratio. This issue of land use had been a relatively neglected aspect of agricultural development policy in preceding decades. At this time, however, the large number of small farmers, working on small and fragmented plots, was perceived as a key bottleneck to further productivity gains in the agricultural sector. This 'smallholders' problem' was especially pressing in the sandy soil areas, where the agricultural workforce had grown quickly in the preceding century and a relatively small-scale and inefficient agricultural structure had developed.¹³⁷ So far, the experience had been that without a forceful government role, this problem could not be solved. To improve land use, two main policy strategies were pursued.

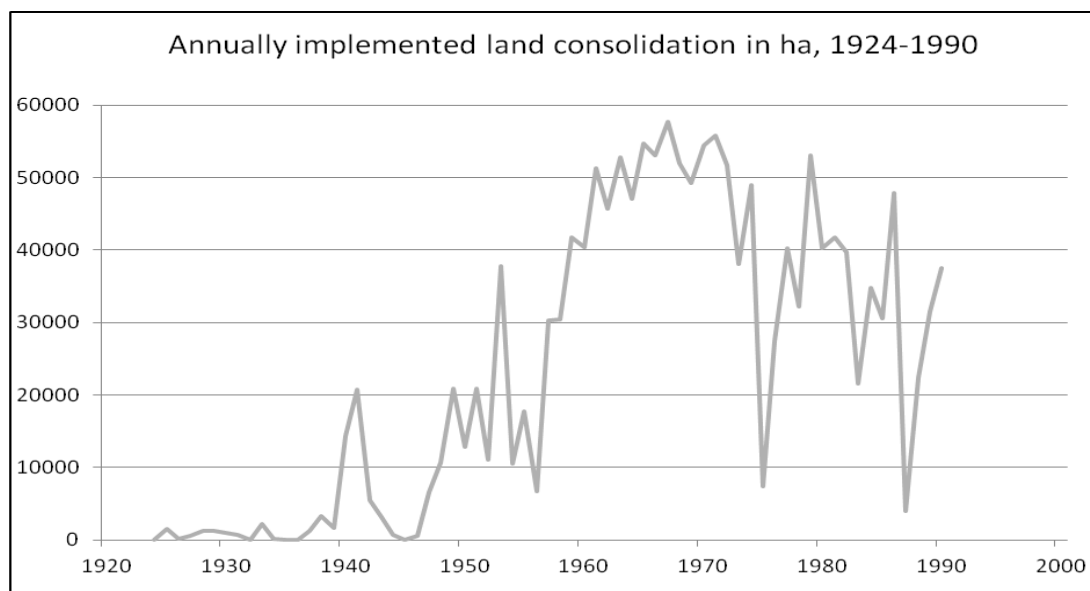
On the one hand, the extensive efforts to achieve land consolidation were important. Key to the rapid implementation of land consolidation was the Long-term Land Consolidation Plan (*Meerjarenplan Ruilverkaveling*), which was adopted in 1958). The Plan not only encouraged land consolidation (*ruilverkaveling*) but also broader land improvement efforts, including the improvement of dykes and roads, the construction of canals, the building of bridges and relocation and modernization of farms. The Plan was very effective in increasing the acreage of land consolidation projects implemented each year (see figure 3.6). However, little attention was paid to the effects of land policies on nature and landscape (see next section). The first memorandums on such issues only began to circulate in the mid-1970s.

However, to increase labour productivity and achieve economies of scale, land consolidation by itself was not enough. It was also considered necessary to concentrate agricultural production in the hands of fewer but larger agricultural holdings. The need for this became increasingly clear not only because the availability of land was limited, but also because markets for products like milk began to saturate in the 1950s.¹³⁸ In other words, both in terms of physical space and in the market for agricultural markets, there was not enough

room for all. This meant not only that some farmers had to scale up, but also that others had to give up farming. To achieve this dual aim of development and outflow, the Agricultural Development and Rationalisation Fund (*Ontwikkelings- en Saneringsfonds, O&S Fonds*) was established in 1963.

The Fund was initially created in order to help older farmers sell their business on reasonable terms, but it became especially important as an instrument to help young farmers to set up a successful business.¹³⁹ The *O&S Fonds* remained in place for a long time and made a significant contribution to the development of the agricultural sector. An important measure that was implemented within its framework was the interest subsidy scheme (*rente-subsidieregeling*), which operated from 1972 to 1985 and which contributed significantly to the development of the dairy and horticultural sectors.¹⁴⁰ Some special arrangements to encourage investment in a particular direction were made in specific sub-sectors. Glasshouse horticulturalists, for example, were able to benefit from low natural gas prices to foster a transition away from the more obviously polluting coal, but also to stimulate production in this successful growth sector.

Figure 3.6 Acreage of land consolidation projects implemented annually from the 1920s to the 1980s. The rapid pace of land consolidation after the Second World War can be clearly seen, as can the effect of the 1958 Long-term Land Consolidation Plan



Source: CBS (with thanks to Jan Bieleman for compiling these figures).

Whereas output policies (as discussed later in this section) became largely a matter of common European policy, input policies – including those affecting land use, development and outflow – remained largely in the hands of national governments.¹⁴¹ In 1968, EEC

Commissioner Sicco Mansholt had proposed a far-reaching structural policy at European level, focusing on the dual aim of development and outflow. The goal was to cap total production and prevent the escalation of a looming surplus problem through the extensification of large farms and setting aside land. By increasing the scale of agricultural holdings, the income and competitiveness of individual farms would also be improved. Mansholt envisioned a sector that would be capable of operating without output (market and price) policies within ten years.

However, Mansholt's plans met with fierce resistance from farmers all over Europe. As a consequence, efforts to implement a high-impact structural policy agenda at European level were largely abandoned. Nonetheless, some structural policies were enacted (the fewest among those focused on capping production, the most among those focused on productivity increases). These European policies were of some consequence to the Netherlands; the interest subsidy scheme, for example, was partly financed from the European budget (Meester, Oskam and Sivils (eds.) 2005: 21).

To achieve modernization of agriculture, the tried and tested knowledge policy recipe of education, extension and research was also rapidly intensified and expanded in the post-war decades. The agricultural research infrastructure further developed its integrated and collective character, relatively separate and independent from the rest of the Dutch knowledge infrastructure. The Ministry of Agriculture played a key role in the design and execution of this agricultural knowledge policy. It founded directorates to manage education, research and extension, expanding and rationalizing its organizational structure over time.

The three elements of the knowledge infrastructure were clearly intertwined. Research, at both the practical and the fundamental level, contributed to the development of useful knowledge; education prepared the next generation of farmers to work with this knowledge; and extension fostered the diffusion of knowledge among farmers, increased the scientists' awareness of practical problems, and played an important role in narrowing the gap between the knowledge infrastructure, policymaking and agriculture. This state-instigated and state-controlled agricultural innovation system began to function rather effectively as a tool for productivity growth, as the linking of theory and practice was now achieved through an integrated knowledge policy (Maat 2003: 260).

Especially notable was the large extension apparatus that was put in place in a concerted effort by the Ministry, farmers' organizations, cooperatives and commercial parties. Extension officers working for farmers' organizations focused on socio-economic matters,

while the state officers focused on business administration and technical aspects. The staff of the state extension service tripled from approximately 500 to 1,500 in the first post-war years (see figure 2.4). The farmers' organizations themselves employed almost 2,000 extension officers in 1956. The state extension service consisted of two levels and was organized in such a way as to connect policy, science and practice.

The first layer targeted farmers directly, through decentralized extension in over 100 specific regions. Regional extension officers maintained close contact with specialists and engineers and were active in a wide range of local agriculture-related organizations. The extension service was thus able to maintain a close connection to local issues. The second layer focused on linking the extension efforts to relevant research, politics and administration. To encourage cooperation, a National Extension Council (*Nationale Voorlichtingsraad*) was founded in 1953 and capacity was increased at the Ministry of Agriculture.¹⁴²

The number of agricultural schools also grew quickly in the post-war decades, and a dense and multilayered institutional framework developed, consisting of lower, middle and higher agricultural education with the Agricultural College in Wageningen topping the pyramid (Goudswaard, 1986). Something similar can be said about the research infrastructure. Agricultural research was effectively organized in three layers, with the Agricultural College in Wageningen focusing on fundamental research while the research institutes carried out strategic research and the experiment stations performed applied research.¹⁴³

To coordinate and structure agricultural knowledge production at a wide range of agricultural research institutes, the National Agricultural Research Council (*Nationale Raad voor Landbouwkundig Onderzoek - NRLO*) was established in 1957. The Council was placed within the sector-overarching Netherlands Organizations for Applied Scientific Research (*TNO*). The NRLO, however, developed a distinctively agricultural character, functioning mostly as a science policy instrument of the Ministry of Agriculture.¹⁴⁴ The majority of the Council board was made up of administrators from the Ministry of Agriculture, Wageningen University and the agricultural organizations.

Initially, NRLO was responsible for the research agenda of the three dozen research institutes that fell under the executive responsibility of the Ministry of Agriculture. From 1970 onwards, the NRLO was responsible for the coordination of an even wider spectrum of agricultural research agendas, including those of Wageningen University, the faculty of veterinary sciences at the University of Utrecht, the food division of TNO and more. Over time, the Council lost power to the Ministry of Agriculture, before being (temporarily)

incorporated into the Ministry in 1985, again highlighting the central role played by the Ministry.¹⁴⁵

While the state expanded its efforts on the input side of agriculture in the post-war decades, it arguably did so even more on the output side, through policies affecting the internal as well as international trade in agricultural products (market policies) and the prices at which agricultural goods were traded (pricing policies). The state also intensified its efforts to promote consumption and exports.¹⁴⁶ Immediately after the Second World War, the Dutch market for agricultural products was highly regulated. Prices were controlled by the Agricultural Price Equalization Fund (*Landbouw-Egalisatie Fonds* – a LEF). The state guaranteed farmers a price that was 20 percent above the calculated production costs, as determined by the LEI using a number of ‘model farms’.

To keep consumer prices low, the state bridged the gap with consumer subsidies if the prices guaranteed to farmers or imports were too high. As prices on the world market declined in the 1950s and the production capacity of Dutch agriculture grew, the situation changed completely, and the state switched from subsidizing consumers to subsidizing producers. The goal was to maintain acceptable price levels for agricultural producers (Van Zanden and Griffiths 1989: 76). However, as world agricultural prices, especially for dairy products, continued to decline while the production capacity of Dutch farmers kept on growing, state expenditure grew explosively. Some adjustments were made to the level of guaranteed prices, but it was clear that the policy could not be maintained in the long run.

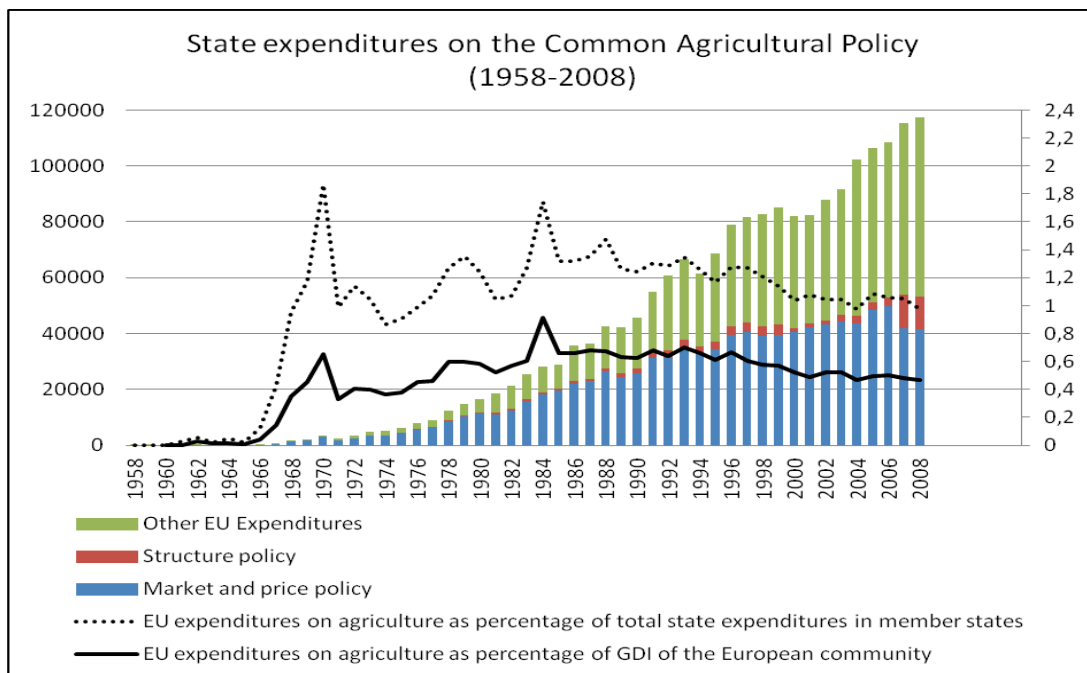
The solution for this problem was sought in the direction of a common European market, which would give Dutch farmers an outlet for their surplus production at regulated price levels. However, such a common market was not easy to achieve. A wide range of protective regimes operated in the different European countries, each of them fiercely guarded by entrenched vested interests. Several early attempts by Mansholt to achieve international market integration did not succeed.¹⁴⁷

Nevertheless, there was a willingness to integrate the agricultural markets as part of a wider agenda of European cooperation, as long as national agricultural interests were not negatively affected. In 1957, the leaders of the six European countries that ratified the Treaty of Rome¹⁴⁸ agreed on the inclusion of an agricultural clause that called for the creation of a European agricultural policy. The next year, Mansholt moved from The Hague to Brussels and began to work on the Common Agricultural Policy (CAP). Notoriously lengthy deliberations were necessary to achieve consensus among the six participants in the

negotiations. Especially problematic was the necessity to grant French arable farmers beneficial export conditions, while assuring German farmers of the continuation of the high prices that had developed on the highly protected German market.

The final compromise guaranteed a common price level that was considerably higher than the world market price for a wide range of products. The CAP was based on three principles: market unity, Community preference and financial solidarity (Tracy 1989: 257). The first measures were enacted in 1962, and the Common Agricultural Policy became fully operational in 1968. The actual policy instruments were complicated and diverse, having to take into account a wide range of national legacies, six independent currencies and different regulations for numerous different products. Some products, including grains and dairy, were heavily regulated, while others, such as floricultural products, pig and poultry meat and eggs, were only slightly affected.

Figure 3.7 Development of state expenditures on the CAP in the period 1958-2008. The figure shows clearly the rapidly rising expenditures on the CAP in the first decade of enactment and up to the mid-1980s. Since then, the expenditure as a percentage of the total state expenditures of member states, as well as of GDI, has stagnated and decreased somewhat, but not in proportion to the declining importance of agriculture in terms of employment or its contribution to GDI (although the greater importance of agriculture in the new member states in Southern and Eastern Europe counterbalances this argument somewhat)



Source: EU Commission

The CAP had an immediate and profound impact. By 1967 approximately half the agricultural income consisted of transfers. In 1968, the Common Agricultural Policy accounted for 90 percent of the EC budget, equivalent to 1,1 percent of the total government expenditure of the combined member states and 0,4 percent of the Community's combined GDI. Especially costly was the pricing policy for milk and subsidies to dairy farmers, which accounted for 85 percent of the expenditures on the Common Agricultural Policy by 1970 (Meester et al.(eds.) 2005: 68). Whereas the CAP was initially established to solve the problem of surpluses that had developed at national level, the actual policies had rather the opposite effect. Guaranteed prices stimulated production, while the problem of overproduction was insufficiently recognized and acknowledged. In those cases where it was acknowledged, farmers lobbied effectively against a rigorous structural policy to curb increases in aggregate production – as Mansholt experienced in 1968 (see above).

3.2.3 Corrective policy: a renewed sector-state relationship (mid-1980s-present)

In the first post-war decades, the fact that agricultural policies were conceived in an atmosphere of consensus within a tightly knit agricultural network (the Green Front) also depended on a broader consensus in society about the merits of agriculture. This consensus is articulated by the following statement from a 1970 report by the *Wiardi Beckmanstichting*, the think-tank of the Dutch labour party:

“Apparently, the goals of agricultural policy have become so commonly accepted among the Dutch people that there are no longer fundamental disagreements between the most important political groups in society about them.”¹⁴⁹

Influenced by the heated debates about the limits of growth that developed in the 1970s, this consensus was broken, and the Green Front was confronted with new realities. Not only the focus on agricultural production to the detriment of landscape, animal welfare and ecology was criticized, but the relationship between state and sector also came under growing pressure.

A first turning point was the *Relatienota* (1975), a cabinet proposal aimed at involving farmers in nature conservation. Farmers were fiercely critical of the proposal; they did not want to become ‘park rangers’.¹⁵⁰ On a more general level, towards the end of the 1970s state expenditures were placed under increased scrutiny, and new ideas about a leaner state apparatus, most famously articulated by Reagan and Thatcher, reached the Netherlands. The close relationship between the state and the agricultural sector was increasingly seen as undesirable, and the generous expenditures on input and especially output policies were no longer taken as read. The Green Front began to fall apart under pressure from both the

outside and the inside. Individual farmers became more critical of the collective arrangements and payments and became more commercially-minded, while the role of large businesses vis-à-vis government on the one hand and farmers on the other steadily grew. In the mid-1980s, these new realities could no longer be ignored, and the relationship between the state and sector began to change. This change would turn out to be a difficult process with far-reaching consequences.

The first institutional change that notably broke with preceding decades was the migration of civil servants concerned with environmental issues from the Ministry of Culture, Recreation and Social Work (*Ministerie van Cultuur, Recreatie en Maatschappelijk Werk*) to the Ministry of Agriculture in 1982, breaking the monopoly of agricultural interests at the Ministry. Seven years later, the presence of environmental interests had become so institutionalized that 'nature' had become one of the Ministry's key domains and its name was changed into the Ministry of Agriculture, Nature Conservation and Fisheries (*Ministerie van Landbouw, Natuurbeheer en Visserij*).

Another turning point was the secret introduction of manure legislation in 1984. Equally important was the introduction of European milk quotas in that same year, designed to curb the rise in milk production that had led to surpluses in the preceding decade and put increasing pressure on the EC budget. In 1989 the Van der Stee Committee (*Commissie Van der Stee*), which had the brief of examining the Dutch agricultural sector, concluded that there was too much focus on cheap production and too little sensitivity towards the market, thereby pointing up the limitations of the central philosophy driving Dutch agricultural policy. The key assumptions about production and productivity growth that had prevailed in the preceding decades were no longer automatically accepted in the second half of the 1980s.

The hierarchical organizational structure and culture of the Ministry, focused mainly on the effective implementation of technical aspects, turned out not to be very suitable for the wide range of new tasks. The new measures to limit growth and negative external effects were perceived as unpredictable, unfeasible and unpopular in the various ranks of the agricultural sector. As the Ministry's key task had been to increase productivity by incentivizing farmers, the new focus on curbing negative effects of agricultural production meant a radical break with the past. For example, it was feared that foreknowledge among pig farmers about the new manure legislation of 1984 would have led to an undesirable wave of investment. To prevent information leaking out, the regular network of agricultural policymakers was circumvented, leading to a serious crisis of trust.

It was not only farmers who were displeased with the new situation; civil servants also resisted change. A serious crisis of trust among farmers, civil servants in executive positions, policymakers and administrators ensued. Also vulnerable were the extension service and the Agricultural Board, both of which functioned as intermediates between policymakers and farmers and which now found themselves having to play with a difficult mediating role (Wielinga, 2001).

The transformative process in agricultural policymaking continued into the 1990s. In its process of reorientation and reorganization, the Ministry of Agriculture went through a period of interpersonal problems, organizational crises and negative media attention (Bekke, De Vries and Neelen 1994). Minister Gerrit Braks was forced to resign following the discovery of fraudulent practices in the Fisheries department.

A committee led by Neelie Kroes concluded in 1992 that there was a culture of not accepting criticism and too much top-down management at the Ministry (Commissie Kroes, 1992). At the same time, the Agricultural Board went through a deep crisis. On the one hand it lost some of its power vis-à-vis the Ministry, while on the other its legitimacy towards farmers also began to crumble. The outcomes of its deliberations with the Ministry were no longer accepted by the different agricultural organizations, which opened their own, independent negotiations with the Ministry and later joined forces in the federative LTO. Stripped of most of its responsibilities, the Agricultural Board was formally abolished in 2001. The Commodity Boards have continued to exist, but their role has shifted from interest representation to implementation of regulations, and their legitimacy has been continuously questioned since the 1990s.¹⁵¹

An important move away from the traditional Green Front and the definitive shift towards a new period came when a new government took office in the form of the 'purple coalition' of the liberal, social =liberal and labour parties (1994-2002), the first coalition since 1918 to exclude the Christian Democratic party. Jozias van Aartsen, the first liberal Minister of Agriculture (1994-1998) and an outsider to the agricultural network, made clear that the Green Front was a thing of the past when he declared that, 'no longer will policy be made in intimate cooperation with the agricultural organizations'.¹⁵²

When the crisis at the Ministry of Agriculture began to subside in the mid-1990s a new reality emerged. Agricultural interests had lost their central position within the Ministry, while environmental issues as well as broader agribusiness issues had become more important. The Ministry moved away from being sector-specific and representative of the agricultural sector

to being responsible for a section of the public interest. Following this period of 'normalization' of relations between the Ministry and the sector, the Ministry experienced a period of relative stability in the late 1990s and in the 2000s. In 2010 the Ministry of Agriculture and the Ministry of Economic Affairs were merged to form one overarching Ministry of Economic Affairs, Agriculture and Innovation (*Ministerie van Economische Zaken, Landbouw en Innovatie - EL&I*).

The loosening of the ties between agriculture and the state can also be seen at European level. Public and political support for the CAP has declined and broader agriculture-related issues, including countryside development, nature conservation, food security and disease prevention have become more important (Oskam, Silvis and Meester 2011). Despite this, the CAP continues to swallow up a considerable proportion of the European budget and manpower, and the subsidizing of farms remains an issue of controversy and debate.

The whole gamut of state policies in relation to agriculture has been affected by the changes since the 1980s. In the next paragraph, developments in a number of input and output policy areas will be discussed in more detail. First of all, input policies, including investment subsidies and land policies that stimulated production were now radically revised to curb further production growth. For example, a 'slaughter and switch regulation' (*slacht- en omschakelingsregeling*, or SLOM-regeling) was introduced to curb dairy production. Another example was the new Land Use Act (*Landinrichtingswet*) which was introduced in 1985 and shifted power away from the agricultural sector towards provincial governments, which were considered the proper guardians of the public (rather than agricultural) interest (Douw and Post 2000: 85). EU output policies were similarly reformed to curb production.

Moreover, the EU came under pressure to liberalize the agricultural market within the framework of international trade negotiations. In addition to the milk quotas, which affected the dairy sector, EU Commissioner for Agriculture Raymond MacSharry introduced reforms in 1992 that affected arable production. The measures included a shift from subsidies based on production to subsidies based on acreage, forced set-aside measures, and a reduction in guaranteed prices and export subsidies.

The effect of the MacSharry reforms on Dutch farmers was limited, as the role of heavily supported arable products in Dutch agriculture was small anyway, but livestock farmers lost some of their previous competitive advantage that had resulted from their privileged access to cheap grain substitutes as a result of the 'Rotterdam Loophole' (Douw and Post, 2000: 67, also see above). The milk quotas and the MacSharry reforms were only the beginning of a

gradual process of reform of the CAP which continues today. This process of reform has meant a reduction in transfers to farmers and a shift from transfers based on production to direct income supplements, sometimes linked to specific criteria relating to nature management, countryside conservation or sustainability efforts (meaning that ‘output’ no longer meant food or other products from the land, but instead services such as nature or landscape conservation).

However, although European agricultural policies have changed, the agricultural market is still far from being fully liberalized, and farmers throughout Europe still receive considerable support from the CAP. It is important to bear in mind that a majority of Dutch farmers are not affected directly by the changes in EU output policy, as they (especially ‘footloose’ poultry and pig farmers, horticulturalists and arable farmers producing consumption potatoes) were already operating in an open, competitive market and did not receive income support anyway. For them, new environmental regulations concerning manure production and pesticide use were of much greater consequence.

The agricultural research infrastructure which had long been the crown jewel in Dutch agricultural policy also went through a process of transformation. The integrated knowledge policy of the *OVO Driehoek* (Education, Extension and Research Triangle) had been particularly effective in the post-war decades in improving efficiency, reducing costs and increasing productivity in agriculture. An early example of awareness that the knowledge policy needed to change in the face of changing circumstances is a passage from the 1971 budget proposal of the Ministry of Agriculture, stating that:

“increasingly, agricultural research needs to take account of other sectors within our society, and to ensure that the results of this research are also applicable, or can be made applicable, to more goals outside the direct sphere of agriculture.”¹⁵³

Despite the existence of such early warnings, it would take the turmoil of the mid-1980s before the knowledge infrastructure entered a period of fundamental reorganization. The timing of this change is explained by a combinations of factors, including the growing importance of new research areas, the fact that agriculture had become a smaller sector with more individualistic, assertive farmers,¹⁵⁴ the increasing importance of private R&D efforts and the emergence of a new state philosophy of corporatization and privatization.

The fact that the knowledge infrastructure had grown in a relatively organic way, resulting in a plethora of committees, directorates and institutes with overlapping agendas, contributed to the perceived need for change. From the early 1980s onwards, the Ministry began to draw

a sharper distinction between policymaking at the Ministry and implementation through corporatized and later privatized organizations. The Ministry reorganized its directorates several times, simplifying its organizational structure and centralizing coordination of and responsibility for research, extension and education. The NRLO was incorporated into the Ministry and stripped of most of its activities¹⁵⁵. A similar process of centralization and coordination took place in the extension infrastructure. The numerous decentralized extension organizations were reorganized into two (later three) centralized Information and Knowledge Centres (*Informatie en Kennis Centra – IKC*). Regional extension units were scaled up to provincial level (later four regions) under the direct supervision of the Ministry.

While the Ministry stepped up its efforts to coordinate the knowledge infrastructure, it also let go of the implementing organizations that were involved in the actual execution of research and extension. The numerous semi-public research institutes, including ten experiment stations and approximately 50 experimental farms and gardens, were placed under the control of the Agricultural Research Service (*Dienst Landbouwkundig Onderzoek – DLO*), which was established in 1989. In subsequent years, the DLO organizations went through a process of reorganizations and mergers, in which the number of institutes decreased. The actual extension to farmers was reorganized into a new body, the Agricultural Extension Service (*Dienst Landbouw Voorlichting – DLV*), which was corporatized in 1989.

Agricultural education and the Agricultural College in Wageningen, which had already developed a relatively independent position vis-à-vis the Ministry, also went through a process of reorganization. The number of agricultural schools decreased as the number of students declined. The Agricultural College moved towards a more integrated research agenda and became increasingly dependent on research funding from outside the Ministry.¹⁵⁶ In 1986 it was officially given the status of a university. While the total number of students declined throughout the 1980s and 1990s, the number of research positions and international students began to increase (Roseboom and Rutten 2001: 228).

The changes in the 1980s and early 1990s were far-reaching enough for the Ministry to deliberately abandon the term *OVO Drieluik* and replace it with the term ‘agricultural knowledge infrastructure’ (Wielinga 2001: 77). However, although the break with the past was radical, a new equilibrium had not yet been found.

In 1996 Bram Peper was asked to advise the Minister of Agriculture about the future of the knowledge infrastructure. He presented his findings to the report *Duurzame kennis, duurzame landbouw* (‘Sustainable knowledge, sustainable agriculture’) in which he

concluded that the knowledge system was characterized by unnecessary competition and overlap. He also concluded that research facilities should be merged under the banner of Wageningen University and Research Centre (WUR), which should broaden its research agenda and strive for an international reputation for excellence (Peper 1996).

In 1998, the WUR was officially established through the merger of the privatized DLO institutes and the Agricultural University. The DLV was privatized in 1998, while the practical research at experimental gardens and farms was removed from direct government funding and placed under the control of regional agricultural organizations (Roseboom and Rutten 2001: 223). In 2000, the NRLO was incorporated into the Innovation Network (*Innovatienetwerk*). In 2004 the merged Van Hall and Larenstein colleges (*hogescholen*) became part of WUR. With the founding of WUR, most agricultural research activities, both practical and fundamental, were concentrated in one overarching organization. This structure is unique in the Netherlands, as other practical research organizations are funded through TNO. Moreover, WUR retained its funding from the Ministry of Agriculture (and is currently still funded by the Ministry of EL&I), rather than the Ministry of Education like all other Dutch universities. This means that a choice has been made to retain some of the specific characteristics of the agricultural knowledge framework.

The link between theory and practice, and thus between science and business, which had always been an important characteristic of agricultural knowledge in the Netherlands, has been retained and further intensified in the last two decades. Whereas the costs of research had formerly been met mainly by the Ministry, the agricultural organizations, the Agricultural Board and the Commodity Boards, in recent decades new constructions have developed. Whereas research and extension expenditures were formerly characterized by fixed institutional structures and collective payments, they are now increasingly characterized by temporary project-based collaborations and ‘user pays’ arrangements. Also, market incentives and competition on the basis of output criteria or tender constructions have become the norm.

Moreover, instead of carrying out research projects itself, the state has encouraged private parties (small, medium-sized and large enterprises) to step up their research efforts, for example by offering tax breaks.¹⁵⁷ Finally, different forms of cooperation between public and private parties have become more important. Examples include a wide range of consortia assembled to investigate specific issues, the two agro-related ‘Technological Top Institutes’ (*Technologische Topinstituten – TTIs*) *Green Genetics (Groene Genetica)* and *Food and*

Nutrition, in which research activities are coordinated, and cooperation on a project basis aimed at the valorization of knowledge is facilitated.

The most recent example of public-private cooperation and research coordination is the establishment of two agro-related ‘Top Sectors’ (*Topsectoren*), Horticulture and Propagation Materials (*Tuinbouw en Uitgangsmaterialen*) and Agri&Food (*Idem.*) Together with 7 other economic clusters, these sectors have been chosen on a competitive basis by the Ministry of EL&I as key areas of innovation and cooperation between science and business. Although the new forms of cooperation in practical research described above differ significantly from the classical *OVO Drieluik*, they are often framed as typical for the agro sector. To point up the close and productive relations between the state, private business and research institutes in the agro sector, the term ‘Golden Triangle’ (*Gouden Driehoek*) has been coined, which now serves as a model for Dutch industrial policy (Verhagen 2011: 3-4).

3.3 Assessing the role of the state

3.3.1 Causes of state intervention

The foregoing sections provide an overview of agricultural development and state policies in the period after 1930. The following paragraphs will focus on putting the state policies into perspective and assessing their consequences. The reactions of the Dutch state to the crisis in the 1930s signified a clear break from the policy of refraining from market interventions which characterized the preceding period. From the early 1930s onwards, the Dutch government, hesitantly at first,¹⁵⁸ gradually began to aid farmers financially, to regulate the import and export of specific agro-commodities such as sugar, wheat and dairy products, and even to intervene in the domestic market for agro-products such as bread and butter. These actions by the Dutch state, although radical in a Dutch historical perspective, are part of a wave of protectionist measures that spread across the developed world.

As these measures threatened the export-oriented character of Dutch agriculture, it comes as no surprise that the Dutch state responded. In fact, compared to the policies in surrounding nations, the Dutch output policies were actually mild. To give one example, the Dutch laws forcing bakers to incorporate a set amount of Dutch wheat into their bread flour mix (‘milling ratio’) was relatively modest compared to similar laws in other European countries.¹⁵⁹

The state interventions across the developed world in the early 1930s had a profound impact on the relationship between agriculture and the state. Once in place, protectionism was not removed, even when the Depression waned somewhat in the second half of the 1930s. At that

point, the impending war was looming as the next challenge, again requiring a strong and directive government role. Government interventions in the agricultural markets remained intact after the Second World War, not just during the years of reconstruction, but also in the subsequent post-war decades. Again, the persistence of state intervention in agricultural markets was not a typically Dutch phenomenon, but could be observed in all developed countries in the world, especially so in Japan and Europe. Federico (2005: 196) argues that the 1930s crisis signified a ‘quantum leap forward in state intervention’ and argues that:

“... (a) t the end of the war, in theory, “developed” countries could have decided to phase out the support to agriculture, as a temporary response to the exceptional circumstances of the 1930s and 1940s, and to return to the pre-1929 low intervention, if not to nineteenth-century laissez faire. This did not happen. The United States did discuss a reform of their agricultural policy, but no one questioned the principle that farmers deserved special support. At the end of the day, all “advanced” countries opted for strengthening the emergency support to agriculture and making it permanent.”

On this wider international playing field, the Netherlands transferred its output policies to the supranational European Community. The national interests were weighted, compromises made, and a Common Agricultural Policy was established in the 1960s and 1970s. The basics of these policies are still largely in place today.

Besides the intervention in markets and prices, the commitment of governments to increase farmers’ incomes and stimulate productivity growth through structural and knowledge policies can be widely observed, as can the intensive cooperation with the agricultural sector through a wide range of semi-public and corporatist governance organizations.¹⁶⁰ The shifting relationship between governments and agriculture since the 1980s, entailing a concern for the ecological, social and financial consequences of policy, a more corrective government attitude, more focus on competition and a larger and more powerful role for private enterprise, is also not a typically Dutch phenomenon but can be observed across the developed world.

The key question is why governments have been so actively involved with agriculture, on both the input and output sides, and why state policies were in place more or less continuously from the 1930s to the mid-1980s, after which they were largely abandoned and transformed and a ‘normalization’ of the relationship between state and sector took place. A first explanatory factor is the more general historical role of the state in economic affairs. Anton Schuurman (forthcoming), using a typology introduced by Lash and Urry (1993), frames Dutch agricultural policy in terms of the development of ‘organized capitalism’ from the 19th century to the 1980s, subsequently followed by a period of ‘disorganized capitalism’.

The shift from a close sector-state relationship to a more distanced government role also fits in with the theoretical framework of Barry Eichengreen (2004). Eichengreen argues that post-war Europe is characterized by ‘coordinated capitalism’, with a central role for the state. Coordinated capitalism was effective in this period, because the European economy was converging with the technically and organizationally more advanced American economy. To move closer to the American ‘technology frontier’, Europe relied on implementing imported technology. A strong government was particularly well suited to achieve this goal as it could regulate and coordinate the economy to create a proper institutional climate for rapid productivity growth through convergence. However, once Europe moved closer to the frontier in the 1970s and 1980s, more private, bottom-up initiative was required to maintain growth, and the government-led model no longer functioned adequately.

Although these models serve rather well to explain the development of agricultural policies over time, they do not explain why states have become so actively involved in agriculture compared to other sectors of the economy.¹⁶¹ To explain this ‘agricultural exceptionalism’, one can point first of all to the importance of agriculture to the wider economy. Generally, increasing agricultural productivity means that surplus labour becomes available for industrial sectors. This development was particularly desirable in the booming post-war decades, characterized by tight labour markets.

For the Dutch state, agriculture was of extra importance, as the Netherlands had developed into an agro-specialist and had become a key agricultural exporter (see chapter 2). In recent decades, however, this argument for agricultural policy has largely lost its appeal, as the agricultural sector has itself become a highly productive ‘agribusiness’ and labour for industry is no longer required.

Other factors also played an important role in the development of agricultural policies. One important factor historically has been the goal of achieving (partial) self-sufficiency in food production and thereby increasing the level of food security for the population. This argument was especially valid after episodes of hunger and shortages, such as the Great Famine of the 1840s and the First and Second World Wars, and played an important role in state motivations to establish an agricultural policy. In recent decades, food security has become a less convincing argument to justify (expenditure on) agricultural policies, as new generations of citizens in the developed world no longer have memories of hunger and food shortages, but it continues to play a role in policymaking.

Another important factor in the development of agricultural policies has been the desire to increase the income level of farmers to bring them up to parity with income levels in industry. The experience of the Great Agricultural Crisis of the late 19th century and the crisis of the 1930s had left the impression that agricultural incomes would fall behind, leading to rural poverty, a large gap between city and countryside and a breeding ground for political radicalism. In recent decades, this argument has lost much of its validity as farmers have scaled up and emancipated to become modern entrepreneurs.

The active role of the state can also be justified by pointing out the specific characteristics of the agricultural sector. First, the agricultural sector traditionally consisted of a large number of small businesses. Because of its fragmented nature, the sector has developed a need to organize an overarching knowledge infrastructure and join forces to increase market power. Direct state involvement and corporatist arrangements were two ways of achieving these goals, in addition to cooperatives and agricultural organizations. These arguments have become less valid as cooperatives have scaled up, large agribusiness complexes have developed with considerable research capacity, and farmers themselves have increasingly preferred 'user pays' arrangements over collective research.

Other specific characteristics of agriculture that have prompted state activity include dependence on unpredictable ecological conditions, the importance of agriculture for landscape, nature and biodiversity, the fact that agricultural production factors are relatively immovable, the volatility of agricultural prices and, as stated earlier, the importance of agriculture for the food supply.¹⁶² These arguments have recently been increasingly undermined by the development of footloose farms, no longer dependent on natural conditions, of no value to the landscape and producing for export rather than the domestic food supply.

Another important factor that contributed to the willingness of the state to get involved in agriculture was the well-organized character of the sector. Agricultural lobbies were particularly effective in framing and expressing the interests of the sector and putting them on the political agenda. Agricultural policy was conceived within a 'Green Front', consisting mostly of agricultural insiders, and implemented through an 'Iron Triangle' of agricultural organizations, the Ministry of Agriculture and the agriculturally-minded politicians in parliament. The crumbling of the Green Front in the 1980s and the fragmentation of the agricultural sector have diminished the capacity to speak with one voice to defend agricultural interests.

3.3.2 Effects of state intervention

This section attempts to draw some conclusions on the effects of state intervention by linking challenges to and developments in the Dutch agricultural sector to the various state policies. Whereas assessments of agricultural policies from the 1930s onwards are often focused on protectionism and the distortion of market forces that resulted from it, the Dutch case reveals a different picture.

One key issue that stands out is the fact that the Netherlands retained its highly productive and competitive agricultural sector focused on production for export throughout the whole period, despite difficult competitive challenges and limited opportunities for growth. Productivity in dairy farming increased considerably, and the development of highly productive, technology-intensive footloose pig farming, poultry farming and horticulture stand out. In this process, Dutch agriculture managed to achieve higher levels of productivity than its foremost competitors Denmark, Great Britain and Belgium (see figure 2.5). Although productivity growth has slowed in recent decades, Dutch agriculture is still at the forefront in terms of export share, productivity and innovation. Of course, the role of state policies should not be overstated as an explanation for this success story.

The fact that Dutch agriculture has developed a highly innovative character, builds on a long tradition and benefits from the position of the Netherlands as an open and geographically well-situated export economy are all part of the explanation. Nevertheless, state policies have played an important and largely conducive role in the development of the agricultural sector since the 1930s.

Dutch output policies have generally been less protectionist and trade-averse than in countries such as Germany or Italy. Rather, output policies in the Netherlands have generally been used to increase export opportunities. Moreover, compared to surrounding countries, market interventions have generally been relatively modest. Rather than fully shielding farmers from competitive pressure, the Dutch state applied market and pricing policies on only a modest scale in the 1930s and 1950s, and tried to retain some competitive elements.

The focus on export opportunities and productivity growth continued even when output policies were arranged at European level through the CAP. Right from the earliest discussions, the CAP was highly politicized and criticized. The participating countries fought hard to have their interests represented as well as possible. Deals were struck, compromises made, the broader goals of European integration were brought to the negotiating table. The terms of the CAP were generally quite favourable for the Dutch agricultural sector. The dairy sector

received price support and export subsidies, boosting export opportunities at good prices for Dutch farmers. It should be noted that, though beneficial to Dutch farmers in the short term, these dairy policies turned out to be a disaster in the longer run as they provoked a serious surplus problem.¹⁶³

It should be emphasized that, apart from dairy products, the most important products of Dutch agriculture (pig, poultry, vegetables, consumer potatoes and floricultural products) were not supported with CAP market and pricing policies, but continued to operate in a competitive market environment. Despite this, the way in which the CAP was arranged was generally favourable for these products, too. Dutch farmers benefited from the agreements on preferential trade between the CAP countries, to the detriment of their Danish competitors who were not included in the common market.

Moreover, as Dutch agriculture was characterized by higher productivity levels than in the surrounding countries, it was beneficial for the Netherlands that input policies were not transferred to the European level. This enabled the Dutch state to continue to implement its own input policies rather than having to transfer payments for structural policy to less productive Italian, French or German farmers, thereby indirectly supporting competitors. Moreover, the Netherlands reinvested monetary compensations received from Brussels, rather than paying them direct to farmers.

Agricultural input policies by the Dutch state stand out for their strong focus on productivity growth and competitiveness in international markets. The state played a proactive role in establishing a highly effective knowledge infrastructure which was exceptionally well able to link theory and practice and contribute to productivity growth in the post-war period. It also contributed to a rapid outflow of labour from the sector and a transformation of land use through land consolidation projects. These measures were all conceived and executed in close cooperation with the agricultural sector. Effective institutional structures like the Agricultural Board and the Commodity Boards were established, as well as a wide range of semi-public institutes, and the state and sector cooperated in an atmosphere of consensus.

The fact that the Netherlands managed to achieve income parity in agriculture by 1960, which was exceptional in a European context and was matched only by Belgium and Britain,¹⁶⁴ and the fact that Dutch agriculture is still among the most productive in the world, should be at least partially attributed to these input policies. Input policies also contributed to the ability of Dutch agriculture to retain its position as an internationally competitive agricultural exporter to this day.

As well as these strengths, Dutch agricultural policies also had some weaknesses. First, the focus on productivity growth had some serious negative side-effects. For example, land consolidation fundamentally altered the face of the countryside and damaged vulnerable ecosystems. The scaling up of agricultural production to raise labour productivity forced large numbers of farmers out of their occupation (as well as their homes and lifestyle) and increased the use of scarce resources like fossil fuels (natural gas) in agricultural production.

These negative effects were barely acknowledged in the post-war decades and were only seriously criticized in hindsight. The first signs that agriculture was moving in an unsustainable direction (ecological impact, surpluses) were ignored. One could therefore argue that, by focusing too heavily on one domain (productivity growth) without being able to oversee the consequences of its actions on other domains, the state was taking a large risk.

Sustainability problems might also have occurred if the state had played such a central role, but the fact that it did probably aggravated unintended negative consequences of production, made the agricultural sector less sensitive to societal sentiment and made it more difficult to change course, as illustrated by the agricultural policy crisis in the 1980s and 1990s. At the very least, it prevented the state from correcting the sector at an early stage, thereby inhibiting a smooth transition.

The close cooperation between state and sector is often invoked to explain the lack of adaptive power of agricultural policies.¹⁶⁵ Although this cooperation contributed to achieving the goal of productivity growth, it also complicated the move towards a new agricultural policy in response to new realities in the 1980s and 1990s. This inability to reform in the face of changing circumstances was problematic for both the sector and the state. The sector had to reinvent itself in order to switch from a supply-led to a more demand-focused business model, and to develop its innovative capacity.

However, state interventions had made the sector complacent and dependent. The state was confronted with a dilemma of supportive sectoral policy on the one hand, and corrective policy to benefit broader public interests like ecological sustainability, animal welfare, consumer health and healthy state finances on the other. Its close relationship with the sector meant that agricultural interests prevailed for a long time and the state failed to fully represent the public interest. Despite the validity of these arguments, and the considerable scholarly and public attention they have received, a new, more balanced relationship between state and sector seems to have developed in the last decade.

4 DISCUSSION AND CONCLUSIONS

The foregoing two chapters discuss developments in the agro sector, describe state policies towards it and attempt to interpret the state policies in terms of causes and effects. A brief summary of the arguments was already presented in the introduction (see 1.3. 'Brief outline of the arguments'). The paper concludes with a synthesis of the overall arguments.

As already stated in the Introduction and throughout the foregoing chapters, the nature and composition of the agro sector has changed substantially over time. For example, the number of primary producers has declined considerably, farms have become knowledge and capital-intensive enterprises, and other links in the agro chain, often large multinational corporations, have gained in strength. Secondly, the state has shifted its policy priorities and instruments to match the imperatives and interests of the day. For example, the challenges within the agro sector have changed, as has the relationship between the agro sector and society at large. These shifts over time raise a number of questions:

How has the agro sector been defined historically in policy terms? On which interests and actors within the agro sector have policies focused? How does the sector policy relate to the government's broader public role?

Until the latter decades of the 20th century, policies towards the agro sector were almost synonymous with policies towards agriculture. Some specific challenges, characteristics of agriculture and the way the sector has been organized help to explain the special treatment agriculture has received from the state. The fact that the agricultural sector consisted of a large number of independent smallholders, and as a result also a large number of potential voters (as well as possibly unemployed and potentially radicalizing citizens) and a formidable organized lobby (especially in the post-war decades, even though the number of farmers began to decline) probably also played a crucial role in this special treatment.

For example, farmers were clearly favoured by late 19th-century state policies that promoted cooperatives and farmers' organizations and increased the market power of primary producers relative to other players in the agro chain. The 1930s law forcing bakers to use Dutch flour and margarine producers to mix in Dutch butter signifies a similar commitment to the agricultural sector. Dutch, and later European, market and pricing policies in the post-war period had a similar effect of protecting primary producers (especially arable and dairy farmers), even though a large number of farmers were forced to leave the sector.

It is important to note, however, that even though the agricultural sector was organized and approached collectively, there have always been considerable internal differences. Arable farmers and livestock farmers have often had conflicting interests (cheap grain is bad for the profitability of arable farmers but good for livestock farmers who use the grain as feed); horticulturalists have often not felt fully represented by agricultural organizations; and large farmers and smallholders were affected in very different ways by developments.

In the post-war decades, what was considered good from a sector perspective was not necessarily good from the perspective of individual farmers, many of whom had to terminate their business and sell their land to a bigger, more productive neighbour. State policies (often conceived in close cooperation with agricultural organizations) have generally favoured the most competitive sections of the agricultural sector and taken them as a standard to be emulated. Some have argued that this has been an overly narrow, one-dimensional view of sector development, which has caused problems in the long run (Van der Ploeg 2003).

The idea that the state should not serve a narrow sectoral interest at the expense of its broader public role was already recognized in the 19th century. During the 1930s, in particular, this discussion flared up as the state spent considerable sums on agriculture and bread prices rose due to price interventions to support arable farmers. Afterwards, and partly due to the food shortages in the Second World War, the discussion receded, and in the post-war decades it was generally felt that what was good for agriculture was also good for the country as a whole. From the 1970s onwards, the legitimacy of a focus on agriculture within the agro sector was increasingly undermined by the fact that farms scaled up, government took a more distant role in economic life and new public interests criticized the 'agriculture-minded' attitude of the state.

Since then, policies have become more focused on agro chains as a whole, now also including producers of inputs (seeds, fertilizers, pesticides, etc.), processing industries, the retail sector and knowledge institutes. The new 'top sector' policy, as well as the merger of the Ministry of Economic Affairs and the Ministry of Agriculture, are illustrative of this integrated, agro chain approach. At the same, the state's sector policies have increasingly clashed with its larger public role. State policies have become more oriented towards ecological sustainability, animal health and welfare and consumer safety. In general, the policy focus has shifted from producers to consumers of agro products. Nevertheless, agriculture still has a special place in the European Common Agricultural Policy. The state has also maintained its focus on the most competitive sections of the agricultural sector, though it has also introduced policies to limit further growth and ecological pressure in pig farming and horticulture.

The Introduction has already given a brief summary of the historical argument. This conclusion will not repeat that exercise, but instead attempts to produce a synthesis to answer the main question addressed in this paper, perhaps enabling us to draw some lessons from historical experience.

To what extent have Dutch state policies (1795-present) been successful in enabling the agro sector to cope with emerging challenges?

First of all, it can be stated that the Dutch agro sector has been able to cope with challenges, as Dutch agriculture has remained highly productive and internationally competitive up to today (Jacobs et al. 1990; Snijders et al. 2007). Considering that the Dutch agro sector was already renowned in the 18th century, there seems to be a remarkable continuity, which can be attributed to factors other than state policy.

At the same time, however, the long-term success story of Dutch agriculture was not a foregone conclusion, as the agro sector has been confronted with a continuous array of challenges, such as the agricultural crisis of the late 19th century, two high-impact wars (three if one includes the Napoleonic wars), the depression of the 1930s, stagnant agricultural prices and repeatedly saturating markets from the 1930s onwards, and ecological limitations and legitimacy problems from the 1980s onwards. Each of these challenges could have seriously harmed the sector. It would be a gross overstatement to conclude that the state is wholly responsible for guiding the agro sector through these challenges, but it certainly seems to be the case that the state repeatedly played a constructive role. It has generally cooperated closely with the sector, has been sensitive to the possibilities and imperatives of the day and has acted expeditiously to respond to emerging challenges. The state contributed to building a strong knowledge network, stimulated close cooperation between different players in the sector and fostered a climate of technological development and innovation.

As agriculture had traditionally consisted of a large number of smallholders, economists have noted that a key market failure of the sector has been “a low level of private investments in appropriate research and development” (Federico, 2012: 28). The Dutch state has successfully mitigated this market failure in a long-term perspective.

On the other hand, state interventions have not been without their downsides. Two criticisms are often heard in relation to agro policy. First, the close state-sector relationship is criticized as leading to policy rigidity; and secondly, the relationship is criticized for causing an overly narrow interest representation at the expense of the common good.

These criticisms are at least partly justified. In the late 19th century, state policies improved the position of small farmers but as a result also removed the incentive to scale up, leading to what in the 1930s became known as the ‘smallholders’ problem’. The agricultural problems of the 1930s and fact that in the post-war decades a particularly rapid and painful dual process of labour outflow and scaling-up of the remaining holdings was necessary (to maintain profitability and competitiveness), can therefore be framed as outcomes of the successful state interventions in the late 19th century.¹⁶⁶ One could thus argue that the state did not react to the ‘imperative of the day’, as has been argued so far, but in effect acted to correct its own damage done in an earlier period.

A similar argument can be made for what happened next. The labour outflow and upscaling of the post-war decades was again supported by state policies. From the 1970s onwards these policies were severely criticized for being too drastic and producing a range of negative externalities (for landscape, nature, rural development, etc.), requiring a subsequent wave of state interventions to artificially correct what had gone wrong. Again, these interventions were painful, and the state was confronted with unwillingness within the sector (as well as within its own Ministry of Agriculture) to adopt more ecologically sustainable and consumer-oriented approaches. A second market failure in agriculture, namely the ‘damage to the environment from modern technologies’ has clearly been less successfully tackled through state policies (Federico, 2012: 28).

The overall pattern that emerges from the argumentation above is one of excessive oscillation, caused by a narrow focus of state policies and a lack of sensitivity to a wide range of circumstances in market and society. Such a conclusion would however be too simplistic for a number of reasons. First, the state often had little choice but to act in order to prevent serious damage to (or perhaps even a full-scale collapse of) the sector and related problems of unemployment and disorder. This was especially the case during the crucial episodes of the Great Agricultural Crisis (1876-1895) and the Great Depression (1929-1933).

Moreover, the state did not act in isolation, but was often confronted by similarly active state policies in neighbouring countries. Moreover, the idea that state policies completely shielded agriculture from market incentives is mistaken. The Dutch state always allowed market incentives to reach agro producers at least partially, even after it introduced market and pricing policies in the 1930s. It did so at a time when other countries often chose to protect their agricultural sector more extensively.

Finally, one should generally not overstate the impact of state policies, as the state was only one actor (or rather a composite actor, itself encompassing a range of organizations and interests) in a broad spectrum of actors, including large corporations, knowledge institutions, cooperatives, unions, foundations, societies and individual farmers. It was also just one force in a historical arena of technological change, market integration, social and political disruptions and environmental change.

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Notes

- ¹ The agro sector is loosely defined as the complex of businesses that are involved in agriculture (consisting of the sub-sectors arable farming, livestock farming, horticulture), as well as those businesses that are involved in the chain of supply to agriculture and processing of agricultural products. This paper is mostly focused on agriculture itself, while the other links in the agro chain are discussed more peripherally. Although closely related, and in many ways similar, to the agro sector, the fishery sector is left out of the analysis.
- ² Working titles of the project: 'Waar verdienen wij over 20 jaar ons brood mee?' ('How will the Dutch earn their bread 20 years from now?'). The author of the paper also engaged with the authors of the project 'Voedsel' (Food). See www.wrr.nl/projecten for more information on both projects.
- ³ The term 'challenges' is meant to include economic challenges, affecting supply, demand and prices that impact on the competitiveness, employment and profitability of the sector. It is also intended to include societal challenges such as environmental awareness and food safety concerns that affect the agro sector's social legitimacy (its 'licence to produce').
- ⁴ A wide range of alternative agricultural policy typologies have been suggested by other authors, each with their own merits and weaknesses (See for example Louwes (1980: 240), Van Bruchem (2005: 6) and Federico (2004: 187)). The typology of Chang stands out for its clarity and applicability in different historical periods.
- ⁵ The term 'structural policies' is often used in this context, but because it has a strong connotation with land consolidation in the post-Second World War period, the term is avoided here to avoid confusion.
- ⁶ The term 'market and price policies' is often used in this context, but because that term excludes marketing and product quality enhancement, Chang's broader 'output policies' is preferred in this paper.
- ⁷ For example, policies to encourage farmers to improve the quality of butter and cheese in the late 19th century included input policies (extension and training efforts to improve hygiene) as well as output policies (quality control marks, inspection services, export propaganda).
- ⁸ Chang himself has introduced the typology, based on the historical experience in developed countries, to increase the 'policy imagination' of policymakers who are involved in agricultural policies in the developing world (Chang 2009: 35).
- ⁹ Think of: different ministries, a parliament, state-mandated organizations, etc.
- ¹⁰ For example, one could zoom in to the level of sub-sectors: horticulturalists, livestock farmers, arable farmers, or distinguish between different types of enterprises such as large commercial farmers, biological farmers, mixed farmers, or different actors in the agro chain such as seed companies, farmers, processing industry and retailers.
- ¹¹ For example, the ministries representing agriculture (LNV) and the environment (VROM) often clashed in the 1980s and 1990s.
- ¹² That of a sector, or a specific interest group, for example. This point is made most famously by Olson (1965).
- ¹³ In an early phase of the research project, the author also greatly benefited from conversations with a number of experts. I especially wish to thank dr. Jan Bieleman, dr. Huib Silvis, prof. Cees Leeuwis, prof. Katrien Termeer, prof. Arie Oskam, Krijn Poppe, dr. Anton Schuurman, dr. Harro Maat and prof. Frans van Waarden. Their ideas and literature suggestions have been very valuable.
- ¹⁴ Although often accompanied by a short English summary.
- ¹⁵ Most productive have been scholars at the Rural History Group of Wageningen University and Research Centre (WUR; formerly the agricultural university), which formerly published its series *Bijdragen Agrarische Geschiedenis* (A.A.G. 'Contributions to Agrarian History') and at the Netherlands Agricultural Historical Institute, a collaborative research institute of the universities in Wageningen and Groningen, which publishes the series *Historia Agriculturae*. Bieleman (2010) has written a comprehensive overview of Dutch agricultural history (1500-2000) in English. Other historical monographs on Dutch agriculture and countryside (in English) include De Vries (1974) on the 16th and 17th centuries and Knibbe (1993) and Van Zanden (1994) on the 19th and early 20th centuries. For more concise treatments see Knibbe (2000) and Smits (2008). General economic histories of specific periods in Dutch history (all written in English) include Van Bavel (2010) on the period 500-1600, De Vries and Van der Woude (1997) on the period 1500-1815, Van Zanden and Van Riel (2004) on the period 1780-1914 and Van Zanden (1998) on the period 1914-1995. All pay considerable attention to agricultural development.
- ¹⁶ Van der Poel (1959) on Van Brakell van der Eng; Veldink (1970) on W.C.H. Staring; Krips-van der Laan (1985) on S.L. Louwes; Hoppenbrouwers (ed.) (1991) on ten key figures in agricultural history; Krips-van der Laan (1999) on D.R. Mansholt; De Bruin and Werkman (2001) on M. Ruppert; Geurts (2002) on H.D. Louwes; Merriënboer (2006) on S.L. Mansholt; Kamp (2009) on D. Hoetink (a civil servant at the ministry of agriculture during the 1930s crisis).
- ¹⁷ Vermeulen (1966) on 19th century agricultural interest representation; Munters (1989) on farmers' influence in local politics; De Ru (1980) on radical farmers' organization in the 1930s; Van Loon (1951), Van der Poel (1949), Bieleman et al. (1995) and Van Cruyningen (2010) on 19th-century agricultural societies; Croesen (1934), Piers (1959), Manders (1984) and Siemes (2004) on the Dutch Agricultural Committee (KNLC);

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- Diepenhorst and Van den Heuvel (1948), Niemeijer (1964), Vermaat (1994), Duffhues (1996), Korsten (1996), Smits (1996), Smits (1997) and Van der Woude (2001) on different regional and national farmers' unions; Krajenbrink (2005) on the Agricultural Board (Landbouwschap); Frouws (1994), Van Dijk, Klep and Merckx (1999) and Broersma (2010) on agricultural interest representation and legitimacy in recent decades; Schuurman (forthcoming) on the long-term development of agricultural interest representation.
- ¹⁸ Minderhoud (1957) on cooperatives in general, De Boer (1976) and Veldman, Van Royen and Veraart (1999) on purchasing cooperatives (Cebeco); Geluk (1967) and Dekker (1996) on dairy cooperatives; Plantenberg (1987) and Kemmers and Gijsberts (1992) on horticultural auctions, Sluyterman et al. (1998) on credit cooperatives (Rabobank), Stuivenberg (1977) on the general development of the cooperative movement. See also Rommes (forthcoming) on the rise of the cooperative movement.
- ¹⁹ Verkaik (1972), Maltha (1976), Vijverberg (1996), Roseboom and Rutten (1999), Maat (2001), Maat (2003) and Dijksterhuis and Van der Meulen (2007) on agricultural research; Smit (1966), Van der Poel (1976), Goudswaard (1986), Van der Burg (1988) and Duijvendak, Karel and Kooij (2008) on agricultural education, Offringa (1971) and Van der Haar (1993) on agricultural higher education, Zuurbier (1984) on agricultural extension services. Van der Poel (1983) on the role of government in Dutch agricultural mechanization in general.
- ²⁰ Andela (2000), Van den Bergh (2004) and Molema (2009) on land consolidation, Van den Brink (1990) on structural policy, Karel (2005) and Karel (2007) on rural policies in the post-WWII decades.
- ²¹ Robinson (1961) on the representation of Dutch agriculture in international politics; Vermeulen (1984) and Vermeulen (1989), Molegraaf (1991) and Burger (1993) on the (role of the Netherlands in the) formation of EU agricultural policy; Sørensen (2008) on the role of Denmark and the Netherlands in the formation of EU agricultural policy.
- ²² Bekke, De Vries and Neelen (1994) and Bekke and De Vries (2001) on the history of the Ministry of Agriculture in recent decades, Wielinga (2001) on leadership and change at the Ministry of Agriculture in recent decades. Also see Termeer (1993), Frouws (1994) and Krajenbrink (2005).
- ²³ Schuurman (forthcoming) contributes to filling this gap. Recently, Karel (2013) has written on post-1945 Dutch agriculture in a broader societal context, though unfortunately in Dutch and without a theoretical framework or broader international outlook.
- ²⁴ The comparative literature includes Tracy (1989), Koning (1994) and Ingersent and Rayner (1999) on agricultural protectionism, Hayami and Ruttan (1971) and Lains and Pinilla (eds.) (2008) on agriculture and economic development, Federico (2008) on the economic development of world agriculture, 1800-2000, Vivier (ed.) (2008) and other works in the series 'Rural History in Europe' on a variety of topics in European rural history, Van Bavel and Hoyle (eds.) (2010) and other works resulting from the 'Comparative Rural History of the North Sea Area' (corn) project (see www.corn.ugent.be) on a variety of topics in European rural history. Also see the work of agricultural economists like Swinnen et al. (2000) and Olper (2001) and many others on the causes and effects of agricultural market policies on a European level.
- ²⁵ See for example Lindert (1991), Koning (2007), Chang (2009), Lains and Pinilla (2009), Smedshaug (2010) and Harwood (2012).
- ²⁶ Exceptions to this general statement include general studies by Lintsen et al. (eds.) (2000), Den Hartog (2001), Scholliers, Van Molle and Sarasua (eds.) (2005), Van Bruchem and Silvis (2008), Segers, Bieleman and Buyst (2009) and Van Molle and Segers (2011). Detailed studies on corporate players in the agro-food chain include Terlouw (1969), Bakker (1989) and Sluyterman (1996) on the sugar industry, Knaap (2000) on the potato starch industry, Homburg and Van Rooij (2004) on DSM Agro, Boersma on Philips Nat. Lab. (2002: 161-81) and Fieldhouse (1978), Wilson (1984) and Langenhuyzen (1988) on Unilever. See Arnoldus (2002) for case studies on family firms in the food industry. Studies on cooperative players in the agro-food chain include Strijker (2008) on Avebé, De Wit (1990) on Windmill, Veldman, Van Royen and Veraart (1999) on Cebeco and Sluyterman et al. (1998) on Rabobank.
- ²⁷ Exceptions: Van Otterloo (2000) and Van Otterloo (2012).
- ²⁸ To illustrate the (perceived) importance of the Dutch agro sector: in 2010, two out of nine sectors that were chosen by the Dutch government as top sectors are closely related to the agro sector: 'horticulture and propagation materials' and 'agro & food'. These sectors can since count on extra government support ('a seat at the table', allocation of public R&D efforts).
- ²⁹ As the degree of organization was limited, it would be anachronistic to apply the term 'agricultural sector'
- ³⁰ See also Lains and Pinilla (2009: 1-27).
- ³¹ For a general treatment of agriculture in the Netherlands in the period 1850-1950 and further references, see Bieleman (2010: 149-235), on which this section is loosely based. Other sources used are referred to explicitly. See also Van Zanden (1986: 85-140), Van Zanden (1985), Jansma and Schroor (1987) and Van Zanden (1994).
- ³² The potato blight of 1846-1847 devastated Ireland but also the Netherlands. Nevertheless, hunger became less of a concern in the 19th century. Some historians refer to the potato famine as the last great subsistence crisis in Europe.

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- 33 A temporary exception are the final years of the First World War. The War and its consequences for agriculture and agricultural policy are discussed in the next chapter of this paper together with the crisis in the 1930s and the Second World War.
- 34 The exact figures are 48 percent of exports and 23 percent of imports (Douw and Post 2000: 12).
- 35 See Bos (1978: 226-277) and Pilat (1989) for more detailed information about Dutch agricultural exports in this period.
- 36 Such as pipe drainage, steam threshing, steam pumping stations.
- 37 Davis (1979) has calculated that British imports of raw materials and foodstuffs from north-western Europe increased from just under 1,8 million pounds per year in the mid-1780s to 13 million pounds in the mid-1840s, doubling to 27 million pounds in the mid-1850s. While this is already an impressive increase, it was only a prelude to extensive imports of raw materials and foodstuffs into the British market in the second half of the 19th century. See also Bos (1978).
- 38 Due to its great significance this 'Grain Invasion' (O'Rourke 1997) has been a topic for elaborate debate on agriculture since the late 19th century.
- 39 See Federico (2005: 16-82) for an in-depth treatment of changes in world agricultural production and trade since 1800.
- 40 Some important Dutch examples were strawboard in Groningen and potato starch in the Veenkoloniën (Strijker 2008). Sugar beet was another crop to be introduced on a large scale (Zeeland). The initiative was taken not by farmers, but by private sugar factory owners, who convinced farmers to switch to this new crop (Bakker 1989).
- 41 An informative documentary (in Dutch) has been made about this impact of the saltpetre mines on arable farming in Groningen, *Het Witte Goud*, produced by Stichting Beeldlijn.
- 42 According to Van Zanden (1993: 362) the export of livestock products was one of the corks which kept the 19th century Dutch economy afloat.
- 43 Mixed farmers shifted from arable 'cash crops' to selling their livestock products and using the arable land to produce fodder for their animals. Additionally, the low grain prices also meant that cheap fodder could be bought off the farm. By 1930, the collective production of eggs in the sandy soil areas was so great that the German agronomist Frost referred to it as a 'decentralisierte Großindustrie'.
- 44 In the late 19th century, European farmers profited from the fact that cooling and transportation techniques were not yet sophisticated enough to enable transportation of perishable products across oceans, although this began to change in the first quarter of the 20th century and overseas competition for meat and dairy products increased as well.
- 45 Knibbe (1993) has constructed a series for the period 1850-1950. Smits et al. (2000) have constructed a series for the period 1807-1913. The estimates differ somewhat, as Knibbe's dataset assigns a larger share to livestock and horticulture compared to arable than the dataset of Smits et al.. In this figure, the Knibbe dataset has been taken as a starting point and the percentages for the year 1913 have been used to extrapolate back to 1807, based on the Smits et al. dataset pre-1913. Post-1950 data were obtained from CBS/LEI Land- en Tuinbouwcijfers (1951-2010). Thanks to Jan Bieleman for providing the data for the period 1950-1997. See also Knibbe (2000: 48) for a slightly different but broadly comparable interpretation of the data on sectoral shares in output (1807-1997).
- 46 For a general treatment of the Dutch economy in the nineteenth century and further literature on Dutch industrialization, see Van Zanden and Van Riel (2004).
- 47 See Mitchell (2005) for comparative historical statistics.
- 48 The large number of land reclamations, especially in the eastern parts of the Netherlands in the second half of the 19th century and the first decades of the 20th century, testify to the importance of agriculture in this period.
- 49 To supplement traditional manure, farmers could purchase artificial fertilizers (guano and saltpetre from South America, Thomas slag as the by-product of the iron industry and, from the 1910s onwards, chemically produced ammonia). Prices of fertilizers declined rapidly after 1880, stimulating their use (Van Zanden 1985: 262)
- 50 In addition to traditional types of fodder such as grains, potatoes and dairy by-products, Dutch farmers had used oil cakes (based on hempseed, linseed and winter rape) since the 17th century. From the 1890s onwards, large amounts of cakes based on tropical oils (copra, ground nut, soya bean and palm kernel) were imported, as well as large amounts of maize and bran from the United States. Feed cakes were also a by-product of the emerging margarine industry. See Knibbe (1993: 282-85) and Van Zanden (1991; 232).
- 51 According to Van Zanden (1991; 231) who has calculated the fertilizer consumption in different European countries in 1910, the Netherlands (36 kg/ha) and Belgium (47 kg/ha) were clearly in the lead in terms of fertilizer consumption per hectare, followed by Germany (29 kg/ha) and, at a considerable distance, Denmark (9 kg/ha), Britain and Ireland (9 kg/ha) and France (11 kg/ha). The low amount of fertilizer used in Denmark, considering its competitive agricultural sector, can be explained by the low labour/land ratio compared to the Netherlands.

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- ⁵² See Koning (1994) for a detailed treatment of this topic.
- ⁵³ The first cooperative was founded in 1877 under the illustrious name Welbegrepen Eigenbelang ('well-understood self-interest').
- ⁵⁴ More efforts were made to engage local farmers, but large farmers remained strongly overrepresented in these organizations.
- ⁵⁵ In 1884, the Geldersche Maatschappij van Landbouw (Gelderland Agricultural Society), under the leadership of C.J. Sickesz, initiated a national agricultural exhibition in Amsterdam. The exhibition, which drew large numbers of international visitors and government representatives, brought the different regional organizations and other interested parties together, leading to the establishment of the NLC in that same year.
- ⁵⁶ The NLC was criticized as too elitist by small farmers, especially in the southern sandy soil regions, resulting in the establishment of the Nederlandsche Boerenbond (NBB, Dutch Farmers' Union) in 1896, modelled on the German Rhenische Bauernverein (1882). The NBB was a confessional organization, supporting farmers on a professional as well as a religious level and stimulating the cooperative movement. In 1897 the NBB was incorporated into the NLC, which in 1913 represented approximately 130,000 members. In 1918, however, the confessional farmers again left the Koninklijke NLC (KNLC, the predicate Royal (Koninklijk) was added in 1917) and established their own societies, the Protestant Nederlandse Christelijke Boeren- en Tuindersbond (NCBTB, Dutch Christian Farmers' and Horticulturalists' Union, established in 1918) and the Katholieke Nederlandse Boeren- en Tuindersbond (KNBTB, Catholic Dutch Farmers' and Horticulturalists' Union).
- ⁵⁷ The agricultural labourers also organized themselves in pillarized unions: the Nederlandse Landarbeiders Bond (NLAB 1907), the Rooms-Katholieke Bond van Bloemist- Tuin- en Landarbeiders 'Sint Deusdedit' (RKL 1909) and the Nederlandsch Christelijke Landarbeidersbond (NCLB 1914).
- ⁵⁸ In 1842 an agricultural school was established in Groningen, and from 1846 onwards a yearly agricultural congress took place. Pioneering work was done by the geologist W.C.H Staring and others who actively lobbied for the establishment of an agricultural school in Wageningen in 1876. In 1877, the first Dutch agricultural experimental station was founded in Wageningen, modelled on earlier British (Rothenhamsted 1843) and German (Möckern 1852) examples. On the initiative of agricultural societies, the first agricultural courses were established in the 1870s, a development that was given a strong impetus when in the 1880s the government started to facilitate and stimulate this development, and when private companies, such as the Dutch State Mines, which had an interest in the rapid diffusion of artificial fertilizers, became active in agricultural research and extension (Homburg and Van Rooij 2004).
- ⁵⁹ This section is largely based on Vermeulen (1966), unless noted otherwise.
- ⁶⁰ The focus of state policies was on agriculture rather than on the agro sector as a whole. The literature also focuses heavily on agricultural policy. Therefore, this section will be strongly focused on agriculture.
- ⁶¹ For example, in 1776 the Maatschappij ter Bevordering van de Landbouw' (Society for the Advancement of Agriculture) was founded. When the Hollandsche Maatschappij der Wetenschappen (Holland Society for the Sciences), added an Oeconomische Tak (economics branch) to its organization in 1777, agriculture became an important theme on the agenda. See Brusse and Mijnhardt (2011: 93). Some academics also began to become interested in agriculture, although their work remained rather isolated (Maat 2001: 39).
- ⁶² Brusse and Mijnhardt (2001: 89) even go so far as to say that: 'Until 1848, the Netherlands can rightly be called a state ruled by the nobility, in which agricultural interests held sway.'
- ⁶³ The earliest measure (1799) was the creation of a fund for farmers who were struck by the Rinderpest.
- ⁶⁴ In the eastern parts of the country, this led to a push to move from the collective open field system which had existed for centuries to a more individualized system of land ownership.
- ⁶⁵ After which he moved to Utrecht to become professor of agriculture and botany.
- ⁶⁶ 'De landbouw maakt één der voornaamste bronnen uit van het binnenlands welvaren en moet derhalve onder bestendige zorg zijn van het bestuur', quoted in Vermeulen (1966: 3).
- ⁶⁷ There was already some room for agriculture in the ideas about higher education. A reorganization of higher education in 1815 included the installation of a chair in landhuishoudkunde (agricultural sciences) at the various Dutch universities, one of the few vocational elements in higher education (Maat 2001: 40-41). Another major reorganization of higher education in 1863 led to the decision to establish an agricultural college in Wageningen.
- ⁶⁸ A veterinary school was established for this purpose in Utrecht in 1821. In 1865-66 a severe Rinderpest pandemic plagued Dutch cattle farmers. The government reacted with a policy of eradicate cattle in infected areas and managed to contain the disease much better than in earlier outbreaks in the 18th century. In 1870, the state further professionalized its efforts to fight animal diseases by installing a state veterinarian inspectorate (1870).
- ⁶⁹ The government's hesitation to take an active role is illustrated by the initial objections in parliament to the establishment of a committee because of the costs of such an initiative.
- ⁷⁰ 'Niet in het algemeen mag op staatshulp worden gesteund, maar in ieder bijzonder geval moet worden onderzocht, of de staatsbemoeiing de gewenste werking zal uitoefenen, niet om zelf te scheppen of het leven te wekken, maar om datgene te beveiligen wat het particuliere initiatief wrocht, en in het leven te houden, wat

toont levensvatbaar te zijn. De staatsbemoeiing zal daarom niet een stut mogen worden voor afgeleefde of vermolmd levensvormen; niet de gevolgen mogen verzachten van blijvende oorzaken, maar zij zal alleen te rechtvaardigen zijn, wanneer zij de wortel van het kwaad afsnijdt en een gezonde ontwikkeling en groei mogelijk maakt en voorbereidt.’ (Vermeulen 1966: 73)

- ⁷¹ The expenses of the Directorate for Agriculture show a modest upward trend between 1898 and 1940, but in that period never exceeded 10 million guilders, except for two exceptional years (1915, 1921) (VMDL 1911-1940). The crisis legislation in the 1930s, discussed in the next chapter of this paper, was paid for from a different budget (Krips-Van der Laan 1985).
- ⁷² “De regeringsbemoeiing (met de landbouw) mag toch niet alleen op de bevordering van de grootst mogelijke ontwikkeling der cultuur, maar moet evenzeer op een billijke verdeling der vruchten daarvan onder de landbouwende bevolking gericht zijn.” Quoted in Jansma and Schroor (1987).
- ⁷³ To illustrate the limited success of this Act: in 1929 2,000 hectares had been consolidated, another 2,000 were in progress. In the decade after 1958, when a new law was adopted, 50,000 hectares were consolidated annually (Huizinga and Strijker 1983: 146).
- ⁷⁴ By 1920, there were 20 agricultural winter schools and 10 horticultural winter schools. By 1927 there were also ten lower agricultural schools.
- ⁷⁵ Including: sugar (1903), agricultural machinery (1905), phytopathology (1906), plant breeding (1910) and bulb research (1917).
- ⁷⁶ Three new experiment stations were established in 1890, in Groningen, Hoorn and Breda (later moved to Goes). Later, three more stations were established, in Maastricht (1908), Wageningen (1919) and Beekbergen (1921)
- ⁷⁷ The following section about the agricultural knowledge infrastructure is largely based on Maat (2003: 233-262) and Roseboom and Rutten (1999). For a further elaboration, also see Maat (2001: 56-93) on agricultural research and Goudswaard (1986) and Maat (2001: 94-141) on agricultural education.
- ⁷⁸ For example, the Maastricht experiment station tested the quality of agricultural inputs such as artificial fertilizers by developing new methods of analysis, introducing standardized procedures and carrying out tens of thousands of actual tests every year. It also arbitrated in trade conflicts. Private companies like the Dutch State Mines, DSM (Nederlandse Staatsmijnen), which supplied artificial fertilizers, wanted to be involved and seconded their own employees to the experiment station.
- ⁷⁹ The importance of the pressing demand for these specific services rather than others in determining the direction of a new institute is also illustrated by the history of the Instituut voor Veredeling van Landbouwgewassen (Agricultural Crop Breeding Institute, 1912). A number of biology professors and regional societies founded this private institute with the aim of pursuing fundamental knowledge. Once again, however, the scientific principles did not lead to the expected results in terms of useful knowledge. The Institute shifted its focus to the categorization of new crops and, in the 1920s, began to register new breeds, a practice that became obligatory for farmers (Maat, 2003: 254). For livestock farmers, the Rijksseruminrichting (State Vaccination Institute, 1904) played a key role in preventing and combating a wide range of animal diseases.
- ⁸⁰ Such as the Botercontrolestation (Butter Inspection Station 1903).
- ⁸¹ Such as the Veeartsenijkundige Dienst (Veterinary Inspectorate, 1870) and the Plantenziektkundige Dienst (Phytopathological Inspectorate, 1901).
- ⁸² Such as the Boterwet (Butter Act, 1890), Wet Uitvoerkeuring Vlees (Meat Export Inspection Act 1907) the Landbouwkwaliteitswet (Agricultural Quality Act 1912) and the Wet tot bestrijding van bedrog in den handel in meststoffen zaaizaden en veevoer (Trade in Fertilizers, Seeds and Feed (Prevention of Fraud) Act 1920)
- ⁸³ Such as the Rijksbotermerk (1904) and Rijkskaasmerken (1913, 1918).
- ⁸⁴ Which, because their sales were at stake, were also involved in the establishment of research facilities and experiment plots.
- ⁸⁵ Cooperative dairy factories performed quality inspections themselves, because of their expertise. Animal diseases were fought in close cooperation with cooperative herd book societies. The state also encouraged the growth of the cooperative credit movement.
- ⁸⁶ An important policy that does not easily fit into the other state policies was the state’s increasing role in reclamation of the rangelands (Thissen 1993). First attempts were also made to stimulate land consolidation.
- ⁸⁷ See Christensen (1983) for a detailed account and Henriksen (2009: 117-147) for a concise account of Danish agricultural development. See Tracy (1989: 107-115) and Olsson and Morell (2010: 315-347) for Danish agricultural policy.
- ⁸⁸ See Blomme (1992) on Belgian agricultural development and Van Molle (2008: 159-176) on Belgian agricultural policy.
- ⁸⁹ There is an extensive literature on British agricultural development. For a concise comparative account, see Broadberry (2009: 76-94). Also see Tracy (1989: 35-56), Brassley (2008: 259-278), Brassley, Hoyle and Turner (2010: 81-110) on British agricultural policy.

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- ⁹⁰ See Vivier (2009: 210-233) on French agricultural development, and Tracy (1989:57-82), Cleary (1989), Vivier (2008:57-76), Boulet (2008: 247-258) and Jessenne and Vivier (2010:139-168) on French agricultural policy.
- ⁹¹ See Grant (2009: 178-209) on German agricultural development, and Tracy (1989: 83-106), Kulhawy (2008: 77-94), Harwood (2008: 135-58) and Brakensike and Mahlerwein (2010:253-83).
- ⁹² For these and more country studies, see articles in the volumes edited by Vivier (2008) and Lains and Pinilla (2009).
- ⁹³ For country studies, see articles in the volumes edited by Vivier (2008) and Lains and Pinilla (2009). The latter volume tries to develop a theoretical understanding of the role of agriculture in economic development that transcends the differences in region and timing.
- ⁹⁴ Van Rooij (2007: 142) shows that the first industrial state laboratory was founded in 1910, at which point there were already 18 agricultural laboratories (including the abovementioned experiment stations).
- ⁹⁵ The term 'structural change' or 'structural shift' is often used by development theorists to denote the development from low-productivity sectors, mostly agriculture, to high-productivity sectors in industry and services. However, as the Dutch experience shows, such a shift to high-productivity can also (partially) take place within agriculture, and certainly within the agro sector as a whole, in which agriculture then plays a key role.
- ⁹⁶ "Wij kunnen zeggen, dat met die overheidsbemoeiing tegelijk ook een nieuwe tijd begonnen is voor onze gehele landbouw. Niet door de overheidsbemoeiing alleen, natuurlijk: dat zou niet mogelijk zijn geweest. Maar tegelijkertijd is er in de Nederlandse boerenstand een nieuwe geest gevaren, een geest van energie, van wil en van durf, een geest ook van samenwerking, waardoor de oude, ultra-individualistische geest op de achtergrond gedrongen werd." Quoted in Vermeulen (1966: 92)
- ⁹⁷ Due to the exploitation of large swaths of land in the Western settlement countries (USA, Canada, New Zealand, Australia) as well as a revolution in transportation and the use of inputs.
- ⁹⁸ This fact is often referred to as 'Engel's law' in the literature.
- ⁹⁹ For a detailed account of technological change in agriculture in the period 1950-2000, see the chapters by Bieleman and Priester in Schot et al. (2000). For a more concise account in English see Bieleman (2010).
- ¹⁰⁰ Maddison (1991: 150-51) calculated that in 1987, the level of output per person in agriculture was 97% of the average output per person in the whole economy, while this percentage was lower for France (68%), Germany (42%), Japan (34%), the UK (86%) and the US (92%), illustrating the relatively high productivity of the Dutch agricultural sector. The productivity of the sector was the result of persistent productivity growth since the 1950s, which was higher than the productivity growth in industry and much higher than the productivity growth in services.
- ¹⁰¹ Many refused to accept defeat and kept their businesses going, despite economic losses, only to concede at a later moment. See Schnabel (2001). The fact that farmers often actually live on their farms and have often been closely attached to both their land and their business for generations distinguishes farmers from small-scale entrepreneurs in most other sectors.
- ¹⁰² In 2010, there were 72,324 farm holdings in the Netherlands, a decrease of over 25% compared to 2000.
- ¹⁰³ Van Bruchem and Silvis (2008: 18-19), using the following definition of 'agrosector': primary agri- and horticulture and those industries that are occupied with delivery or processing of agrarian products and foods. Part of this delivery or processing relates to products that are imported from abroad.' (Van Bruchem and Silvis, 2008: 13)
- ¹⁰⁴ Van Zanden (1998: 141) Seen with an even broader lens, large sections of the Dutch economy – from consulting to transportation, and from scientific research to tourism – are also still closely associated with and dependent upon the agro sector. Van Bruchem and Silvis (2008: 17) use the term 'agro complex' to denote this broader interpretation. They (2008: 37) also note that in 2005 the food, drinks and tobacco industry accounted for and a fifth of employment and a quarter of the total value added in Dutch industry.
- ¹⁰⁵ The latter can also be partly explained by the fact that products from the rapidly growing horticultural sector need little processing and are not part of the agro-food chain.
- ¹⁰⁶ At present, approximately 80 percent of agricultural exports go to EU member states (Silvis 2009: 90).
- ¹⁰⁷ Flowers (63.9), eggs (61.1), pigs (56.6), bulbs (56.4), milk (53.1), cocoa powder (48.6), tomatoes (43.4), potatoes (35.5), cocoa butter (32.4), pig meat (31.8) and artificial fertilizers (31.8).
- ¹⁰⁸ Figures for 1994/95 and 2004/05 in parentheses: Cut flowers (67, 59), mussels (58, 47), seed potatoes (67, 57), consumption potatoes (18, 11), cocoa butter (42, 33), cocoa powder (55, 38), piglets (51, 29), pigs (37, 23), animal vaccines (27, 19), beer (22, 19).
- ¹⁰⁹ To illustrate this point: the price of land for arable farmers and dairy farmers, respectively, increased from 5 and 6 times the net value added in the early 1970s to 20 and 15 times in the late 1990s (Van Bruchem and Silvis, 2008: 57).
- ¹¹⁰ The international bestseller *Silent Spring* (1962) by the biologist Rachel Carson.

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- ¹¹¹ In the memorandum *Problemen rond de organische mestproductie* ('Problems relating to organic manure production', 1969) by the extension officer C.H. Henkes (Wielinga 2001: 60)
- ¹¹² Berkhout and Van Bruchem (2011: 40) calculated that the production value increased fivefold between 1950 and 2010. The percentage growth declined from 4% yearly in the 1970s to almost no growth in the 2000s. Nevertheless, production growth has been stronger throughout the whole period than in France, Germany, Belgium and Denmark (Van Bruchem and Silvis, 2005: 47).
- ¹¹³ LEI/CBS Land- en tuinbouwcijfers (2011: 53).
- ¹¹⁴ Agro-tourism, stalling goods and animals, processing of products, selling at home, healthcare tasks (LEI/CBS Land- en tuinbouwcijfers, 2011: 37).
- ¹¹⁵ The percentage of 'mega-farms' in total production rose from 5% of total agricultural production capacity in 1994 to 17% in 2004. The minimum threshold for classification as a 'mega-farm' is defined as: 320 milk cows, 12,500 slaughter pigs, 160,000 breeding chickens, 340 hectares of arable production or 3.5 hectares of glasshouse horticulture (Van Bruchem and Silvis 2008: 79).
- ¹¹⁶ E.g.: Public outrage resulted from the large-scale use of antibiotics in Dutch livestock farming, prescribed by veterinarians with financial interests. The debate started after the Dutch newspaper *NRC Handelsblad* published an article on the topic, 'Het antibioticasyndicaat' ('The antibiotics syndicate'), on 9 April 2011. See also: The denial of the existence of the relationship between pesticide use and high bee mortality by a Bayer Cropscience-sponsored institute at Wageningen University and Research Centre (WUR) has stirred up journalistic research and public outrage. The investigative journalism television programme *Zembla* aired the documentary 'Moord op de honingbij' ('Murder of the honeybee') to address this issue. WUR has also received criticism for distorting the findings of research conducted on the health benefits of milk consumption. See for example the article 'Hoogleraar: Wageningen Universiteit verdraait onderzoek over melk' ('Professor: Wageningen University distorts research on milk') in the Dutch newspaper *De Volkskrant* of 26 September 2011.
- ¹¹⁷ See for example Van der Ploeg (2003), Van der Ploeg (2008) and Mazoyer and Roudart (2006), who speak of a worldwide 'agricultural crisis'. From a completely different perspective, the Dutch Party for the Animals (Partij voor de Dieren) also objects to the agricultural system of production, especially the continuing process of upscaling in the intensive livestock sector. The party has held two of the 150 seats in the Dutch Lower House of Parliament since 2006 and one of the 75 seats in the Upper House since 2007. The debate about the need for and desirability of intensive agriculture also flared up at Wageningen University in early September 2012 in reaction to a plea by the University's president and chairman Aalt Dijkhuizen. See the articles 'Of intensieve landbouw, of honger' ('Intensive farming or starvation') in the Dutch newspaper *Trouw* of 3 September 2012 and 'Dijkhuizen bedrijft geen wetenschap, maar politiek' ('Dijkhuizen engaged in politics, not science') in the same newspaper on 5 September 2012. Despite the relevance and importance of these issues, an evaluation of the different position falls outside the scope of this paper.
- ¹¹⁸ The first COPA chairman was Dutch, but since then the influence of Dutch farmers in the European representative organizations has decreased.
- ¹¹⁹ The protest against the Agricultural Board came to a head in 1963 when three farmers were evicted from their farms in the village of Hollandscheveld because of (deliberate) 'overdue' payments to the Agricultural Board, leading to a large, widely publicized farmers' protest. For a more detailed account, see Ten Caat (1994) and Krajenbrink (2005).
- ¹²⁰ Author's translation.
- ¹²¹ As in the previous chapter, the focus of state policies was on agriculture rather than on the agro sector as a whole.
- ¹²² From 1925 to 1930 a committee, the *Commissie Haffmans*, investigated the possibilities of reducing state involvement in and expenditures on agriculture.
- ¹²³ It should be noted that there were also revenues for the state, so that the net costs of agricultural policy were not as high (for example: 17 million guilders deficit in 1937) (Huizinga and Strijker 1983: 148).
- ¹²⁴ Louwes was chairman of the *Geldersche Maatschappij van de Landbouw* (Gelderland Agricultural Society), brother of KNLC president and later chairman of the Agricultural Board, H.D. Louwes and nephew of S.L. Mansholt, later a Dutch minister and European Commissioner for Agriculture.
- ¹²⁵ With some boldness, Knibbe (1993: 198) even argues that Louwes can be seen as the first agricultural man to enter an administration which had previously been dominated by bureaucrats, industrialists and tradesmen from the provinces of Holland.
- ¹²⁶ In 1940, the number of students at Wageningen had grown to 659 and the University offered programmes in agriculture, colonial agriculture, horticulture, forestry and colonial forestry.
- ¹²⁷ The state intervened in agriculture to ensure the availability of food, while farmers did not want to give up their lucrative export opportunities and felt that their business freedom was being violated (Krajenbrink, 2005: 23-24).
- ¹²⁸ Krajenbrink (2005: 41-49). For an extensive account of Dutch agriculture during the Second World War, see Trienekens (1985), Trienekens (1995) and Klemann (2002).

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- ¹²⁹ 29% of total Dutch production capacity, and 14% of the agricultural production capacity, had been destroyed by the War (Wielenga 2009: 214). There were serious shortages of prepared land, labourers and horses. Because of the destruction of infrastructure, the western part of the Netherlands had become isolated.
- ¹³⁰ The production levels of 1939 had been reached as early as 1950 (Wielenga 2009: 220).
- ¹³¹ Parity of income with other sectors was the guiding principle.
- ¹³² Van der Ploeg (2003) even goes so far as to say that the state pushed its ideas of unilinear modernization so far that it could only see a 'virtual farmer', rather than acknowledging the variety which actually made up Dutch agriculture.
- ¹³³ Remarkable about the Mansholts was their socialist inclination, while practically all other gentlemen farmers from Groningen were staunch liberals.
- ¹³⁴ For an early description, see Louwes (1980).
- ¹³⁵ The initial capital of the fund was 25 million Dutch guilders. Until 1999 it provided security for approximately 64,000 loans to a total amount of 5 billion Dutch guilders (Douw and Post 2000: 106).
- ¹³⁶ Some fragmented information on land prices may be found in Van der Meer et al. (1991: 37), Van Bruchem and Silvis (2008: 57) and Douw and Post (2000: 88).
- ¹³⁷ Key to the formulation of this problem was the publication of an LEII report in 1951, an exposition of the 'smallholders' issue' in the sandy soil districts (Maris, Scheer and Visser 1951).
- ¹³⁸ The expansion of export markets thanks to a common European market in the 1960s eased some of the pressure, but it returned in the 1970s and 1980s as markets again began to saturate as production capacity in Europe approached and then achieved self-sufficiency and even overproduction. See first section of this chapter.
- ¹³⁹ The latter was mainly a result of a successful lobby of the agricultural organizations. The balance between development on the one hand and outflow on the other remained a contested issue between the state and agricultural organizations – which saw their constituency shrink as a result of labour outflow.
- ¹⁴⁰ Between 1972 and 1985, approximately 23,000 loans were extended within the framework of the interest subsidy scheme to a total amount of 4 billion Dutch guilders. 60 percent of the expansion of the dairy cattle stock as well as 30 percent of the greenhouse acreage took place on farms that received loans through the interest subsidy scheme (Douw and Post 2000: 107).
- ¹⁴¹ The Dutch state mainly lobbied against a European-level structural policy. The reason for this was that Dutch agriculture was relatively productive compared to European competitors. The benefits of structural policy would therefore go mainly to farmers outside the Netherlands, increasing foreign competition and draining Dutch state expenditures on agriculture.
- ¹⁴² A detailed account of the organizational development of the state extension service is given by Zuurbier for the post-war period until 1980 (1984: 50-78).
- ¹⁴³ In 1970, the research infrastructure consisted of an Agricultural College with 95 academic staff and over 60 research units and laboratories, 21 specialist research institutes and nine experiment stations (Maat 2001: 72, 74).
- ¹⁴⁴ Maat (2001: 69).
- ¹⁴⁵ For a detailed account of the history of the NRLO (including a brief English summary), see Dijksterhuis, Van der Meulen and Van der Most (2007). For agricultural research policy more broadly, see Verkaik (1972), Maltha (1976) and Maat (2001: 67-73).
- ¹⁴⁶ The latter issue has not yet received much academic attention.
- ¹⁴⁷ See Vermeulen (1989) for a detailed account of Mansholt's plans on European agricultural policy in the period 1945-1953. Also see Burger (1993: 26-29).
- ¹⁴⁸ France, Germany, Italy, the Netherlands, Belgium and Luxembourg.
- ¹⁴⁹ 'Blijkbaar zijn de doelstellingen van het landbouwbeleid zozeer gemeengoed geworden van het Nederlandse volk, dat hierover thans tussen de belangrijkste politieke maatschappelijke groeperingen geen principieel verschil van meningen meer bestaat.' as quoted in Louwes (1980: 237).
- ¹⁵⁰ For a recent and well-researched account of this period, see Karel (2013: 155-84).
- ¹⁵¹ For a positive assessment of Industry Boards and Commodity Boards, see Van Waarden (2011).
- ¹⁵² 'beleid zal niet meer samen onder de warme deken met de landbouworganisaties gemaakt worden.' As quoted in Wielinga (2001:87).
- ¹⁵³ '(dat) het landbouwkundig onderzoek in versterkte mate rekening moet gaan houden met de andere deelgebieden van onze samenleving, en dat de resultaten van dit onderzoek ook voor meer doeleinden buiten de directe sfeer van de landbouw toepasselijk zijn of toepasselijk gemaakt kunnen worden.' As quoted in Van der Meer (1991: 37).
- ¹⁵⁴ For example, horticulturalists had already developed their own private advisory organization, the Stichting Nederlandse Tuinbouw Studieverenigingen (Dutch Horticultural Study Association) (Wielinga 2001: 73).

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- ¹⁵⁵ The organically developed nature of the agricultural research infrastructure is nicely illustrated by the fact that, even after earlier reorganizations, the NRLO still consisted of over 100 committees in which some 1,000 individuals were involved (Roseboom and Rutten 1999: 224).
- ¹⁵⁶ The amount of research funding coming directly from the University's budget ('eerste geldstroom') decreased from 70 percent in 1976 to 43 percent in 1994, while the amount coming from competitive public research funds ('tweede geldstroom') increased from 10 to 14 percent and the amount coming from private research funds ('derde geldstroom') increased from 20 to 44 percent. (Roseboom and Rutten 2001: 243).
- ¹⁵⁷ The share of public R&D expenditure on agriculture declined over time. In 1995, 55.6 percent of agricultural research in the Netherlands was conducted by public organizations (52 percent by the Ministry of Agriculture, 16.2 by other ministries, with the remainder coming from the EU, levies to the Commodity Boards and the Netherlands Scientific Research Council), while the remainder was conducted by private parties (Roseboom and Rutten 1999: 245).
- ¹⁵⁸ In the first crisis years the Dutch government stubbornly pursued a course of free trade and long refused to abandon the Gold Standard.
- ¹⁵⁹ A milling ratio of 20-35 percent was in force in the Netherlands, whereas the ratio in France, Germany, Italy and Sweden was close to 100 percent (Tracy 1989: 124).
- ¹⁶⁰ See for example Sheingate (2001).
- ¹⁶¹ Although state involvement in agriculture has taken a much more limited and different form since the 1980s, it is still quite considerable in comparison to other sectors.
- ¹⁶² Van Bruchem (2004: 5-6) sums up a range of arguments that make agriculture special and justify a role for the state. See Meester (2004: 16-17) for a critical reply.
- ¹⁶³ Clearly, the CAP was not a neatly designed technocratic instrument, but rather the outcome of a political process. This perhaps explains its contradictory, short-sighted and heavily criticized nature. The CAP has been the subject of extensive academic debates among historians, economists and political scientists. Given this abundance and the scope of this paper, these debates are largely left out of this paper and the CAP is only discussed on a very general level. For more information, see Vermeulen (1989), Tracy (1989: 215-356), Burger (1993), Molegraaf (1999) and Oskam and Meester and Silvis (2011).
- ¹⁶⁴ Tracy (1989: 218-19).
- ¹⁶⁵ In line with the classical argument of Olson (1965).
- ¹⁶⁶ Bieleman (2000: 228) and Van Zanden and Van Riel (2000: 371) argue along similar lines.