

Chapter 18

Agriculture and Foods: Overproduction and Overconsumption



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Abstract In the period 1970–2010, environment, landscape and healthy nutrition were core issues in the supply chain of agriculture and foods. Concern for the environment put pressure on agriculture. Since the 1950s, agriculture had oriented itself to ever higher levels of production. This had seduced farmers into extreme specialisations with consequences for the environment, both domestically and elsewhere. In order to reveal these dynamics, this chapter follows developments in cattle husbandry. In the early 1980s, European measures to restrain overproduction and increasing concern about acidification and over-fertilisation destabilised the established agricultural world.

In the wake of changing ecological insights, new issues emerged in regard to the landscape. Nature management and agricultural interests had to be harmonised. Though the Netherlands laid the basis for the European Natura 2000 directive, it encountered great difficulties in implementing them domestically. Food consumption also presented new challenges; for example the problem of overweight. The chapter analyses how government, private firms and consumers responded to this issue. Consumers appear to have great difficulty grasping the complex issues of sustainable and healthy nutritional patterns.

Keywords Agriculture · Over-fertilisation · Acidification · Overproduction · Landscape · Nutritional patterns · Overweight

18.1 The Bolt Out of the Blue

On Friday, November 2 1984, the Minister of Agriculture Gerrit Braks announced:

that, in view of the manure surplus situation in the Netherlands, and in anticipation of the passage of the new Manure Law and the Law on Soil Protection, it is necessary to forbid the creation and expansion of hog and poultry farms in the Netherlands, or in certain designated regions in the Netherlands.¹

The interim law was to go into immediate effect and it hit the agricultural organizations like a steamroller. Many farmers rushed to acquire permits to expand their farms and their livestock. In various town halls in the province of Brabant, home to numerous hog farms, civil-servants burned the midnight oil in order to be able to handle all the applications.²

The government deemed quick action essential because of the introduction of a European milk quota, aimed at limiting the production of milk. In view of this constraint on dairy farming, many farmers were considering switching to hog and poultry farming. This threatened a huge increase in the volume of animal manure. The Netherlands faced a quandary: 'drowning in the milk or otherwise choking in a manure surplus' according to a parliamentarian who championed the adopted course.

Agricultural organisations denounced the sudden decision. In the words of the secretary of the Society for Agriculture in the province of Gelderland: 'This is certainly a fatal stab in the back for a great number of agrarian enterprises.' According to him it deprived countless young farmers of the opportunity to develop a future: 'In this way the countryside is doomed to death.'³ The chairman of the Poultry Section of the Agricultural Board saw hog farming as the chief culprit. 'We have to prevent poultry farming from having to foot the bill.'⁴ The North-Brabant Christian Farmers' Union (NCB) characterised the measures as 'a raid.' But not all the farmers were in mourning. As a pig breeder from Boekel in Brabant put it: 'There are more than enough pigs. The measure may have a positive effect on the price of pork.'⁵

More legal restrictions in subsequent years provoked many agricultural enterprises to switch to other types of animal husbandry. In 1989, due to manure regulations, the number of pigs had increased by 28% and that of chickens by 16% relative to 1984. The number of sheep had also increased significantly. After the introduction

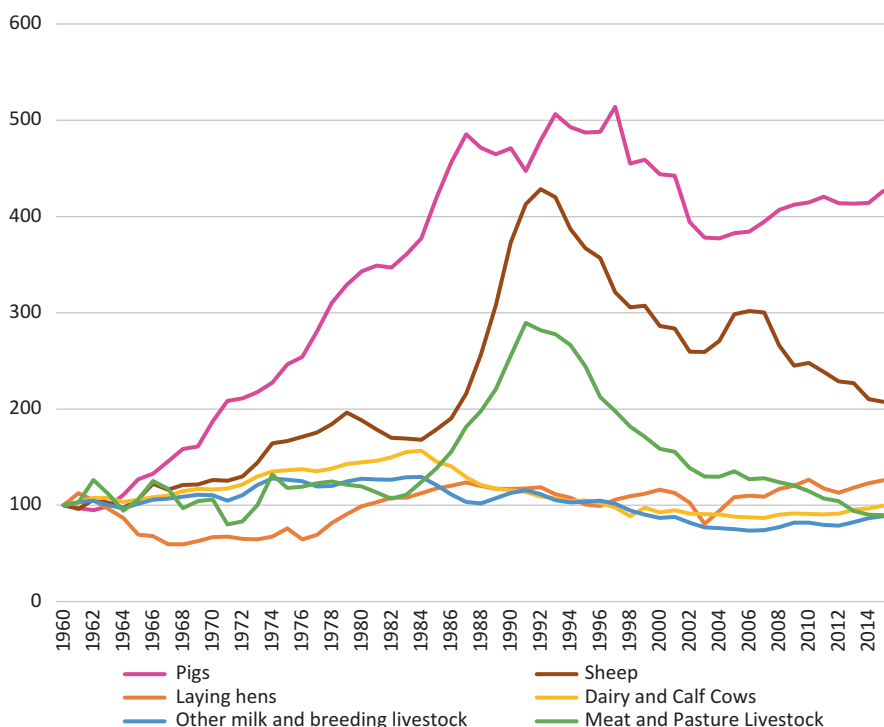
¹Koninklijke Boodschap, 'Verbod tot vestiging en uitbreiding van varkens- en pluimveehouderijbedrijven in Nederland dan wel bepaalde delen daarvan (Interimwet beperking varkens- en pluimveehouderijen)' Kamerstuk Tweede Kamer 1984–1985 kamerstuknummer 18695 ondernummer 1, 's Gravenhage, 1 november 1984.

²Frits Bloemendaal, *Het Mestmoeras* (Den Haag: SDU Uitgeverij, 1995), 7.

³P. Jongeling et al. 'Opzetten nieuwe varkens- en pluimveebedrijven verboden' in *Nederlands Dagblad: Gereformeerd Gezinsblad*, 03-11-1984 p. 1.

⁴Anoniem. 'Landbouwschap volslagen verrast', *Leidsch Dagblad*, 3 november 1984, p. 9.

⁵Max Pauwmen, 'Boeren kwaad over beperking varkens- en pluimveeteelt', in *NRC Handelsblad*, 03-11-1984, p. 11.



Graph 18.1 Development of most common livestock (excluding broilers) 1960–2015 (1960 = 100)

Source: CBS – Landbouw; from 1851

of the ‘super-levy’ in 1984 the number of dairy cows decreased and the number of cows destined for beef production increased (see Graph 18.1).

The measures taken by the Minister of Agriculture without prior consultation with the farming world betrayed the changing relationship between the government and the agrarian sector after the mid-1980s. It turned out to be one of the first nails in the coffin of the ‘Green Front’ with the Agricultural Board (*Landbouwschap*) as a powerful actor. Specialisation within agriculture had also served to fragment the sector into conflicting interest groups. In this respect the recriminations among different livestock sectors were revealing. The strong corporatist character of the agrarian sector as a whole with strong bonds among farmers, administrators and civil-servants began to fall apart, as the further analysis of the manure problem below will show. In addition, agriculture in this period was also confronted by new issues like nature, landscape and biodiversity to which we shall also devote attention. Tensions were not limited to agriculture. In this period the entire food chain was under pressure. The availability of great quantities of cheap food raised new questions for public health, like obesity and heart and circulatory diseases. What handholds were found to combat the new welfare diseases?

18.2 The Shifting Perspective on Agriculture

18.2.1 Specialisation and Over-Fertilisation

The modernisation of agriculture after the Second World War was a great success. Mechanisation, rationalisation and the structural policies of the government led to an increase in yields per hectare and per farm. It proved possible to maintain farmers' incomes at satisfactory levels. Agricultural organisations and the government were happy bedfellows and aimed at increased production and the stimulation of export. The problem of surpluses was accepted as a given. Throughout the 1970s Dutch agriculture was oriented entirely to competition with the other member states of the European Community.⁶

Further specialisation was the guiding principle. Livestock farmers abandoned the mixed farm, that provided for the needs of its own livestock. In 1961 the government rescinded the 'poultry regulations' that had been introduced in 1953 to limit the number of animals to the amount of land available. This opened the door for the so-called non-land-coupled husbandry of especially chickens and pigs. This livestock was now maintained on the basis of purchased (mostly imported) feed. These changes led to an enormous increase in livestock for meat production. The number of broilers increased from 4,5 million in 1960 to almost 50 million in 2015. In the same period the pig population increased from 3 to almost 13 million. (see Table 18.1)

Specialisation also transformed other agricultural sectors. The sale of vegetables and greenhouse export crops like tomatoes and peppers increased, as did that of flower bulbs, while the national fruit production decreased.⁷ In the dairy sector, refrigerator tanks, box stalls and milking and feeding robots further industrialised farming. The

Table 18.1 Development of livestock 1960–2015 (× 1000 animals)

	1960	1970	1980	1990	2000	2010	2015
Goats	.	13	.	61	179	353	470
Laying hens	37,886	25,315	37,455	44,320	44,036	47,904	47,684
Broilers	4525	30,060	38,609	41,172	50,937	44,748	49,107
Dairy and calf cows	1628	1896	2356	1878	1504	1479	1622
Bulls	25	37	44	43	37	22	26
Other milk and breeding cattle	1495	1650	1908	1686	1299	1225	1324
Meat and pasture livestock	281	298	336	718	446	322	252
Veal calves	78	434	582	602	783	928	909
Sheep	456	575	858	1702	1305	1130	946
Pigs	2955	5533	10,138	13,915	13,118	12,255	12,603

Source: CBS - Landbouw; from 1851

⁶Jan Bieleman, *Boeren in Nederland, Geschiedenis van de Landbouw, 1500–2000* (Amsterdam: Boom, 2008), 476.

⁷Bieleman, 543–66.

introduction of plastic foils made ensilage an attractive option. With this technique the annual yield of raw fodder could be doubled compared to traditional haymaking. New technologies and materials accommodated an increasingly intensive exploitation of farming land.⁸

The strategy of specialisation and export was of a piece with the common agricultural policy developed within the EEC in the 1960s. A complex funding system shielded a stable internal market from global price fluctuations, among other things by guaranteeing minimum prices for agricultural products. This system worked well in times of scarcity, but by the end of the 1970s had lost its polish. New policy instruments were needed to put an end to the unprecedented growth of milk lakes and butter mountains. In addition, global negotiations under the umbrella of the General Agreement on Tariffs and Trade (GATT) put European policy under pressure.⁹ By the end of the 1970s a European quota on milk production was in place. Farmers had to pay a levy on the production of excess milk. The levies set bad blood between domestic policy makers and agricultural organisations. And new environmental constraints only increased the pressure on the agricultural world

The shifting perspective was clearly visible in relation to the problem of over-fertilisation. At the end of the 1960s the Institute for Soil Fertility had already expressed concern about over-fertilisation of the soil. In 1972, the Foundation for Nature and Environment compared the bio-industry with the mythological Augean Stables and lambasted the effects of unregulated spreading of animal manure, especially on the sand grounds. The agricultural world responded irritably and pronounced it a shame that a prosperous sector should be hindered in its development.

The Ministry of Agriculture sought succour in technical solutions. It played down the problems, among other things by pointing the finger at phosphates associated with the use of laundry detergents. The message was that agriculture was not the sole polluter. Nonetheless, the ministry established manure banks. Matching the supply of manure with the demand was only partly successful. In the event, it appeared that by expanding the cultivation of fodder corn the government and farmers could kill two birds with one stone. Not only was this crop easy to cultivate and harvest and excellent as fodder, it also grew exceptionally well on the abundantly fertilised sand grounds. Between 1970 and 2010 the acreage of fodder corn grew steadily from 6000 to 231,000 hectares.

New knowledge about the relationship between acid substances in the air and soil totally undermined the permissive policy of the Ministry of Agriculture. In 1982 researchers at the Wageningen Agricultural University published new findings about the role played by ammonia in acidification.¹⁰ These findings added a new dimension

⁸Bieleman, 531–33.

⁹Bieleman, 511; A.H. Crijns, 'De Grote Ommekeer in de Agrarische Sector', in *Geschiedenis van Noord-Brabant, Dynamiek En Expansie, 1945–1996*, ed. H.F.J.M. van den Eerenbeemt, vol. 3, 3 vols., *Geschiedenis van Noord-Brabant* (Boom, 1997).

¹⁰N. van Breemen et al., 'Soil Acidification from Atmospheric Ammonium Sulphate in Forest Canopy Throughfall,' *Nature* 299, no. 5883 (October 7, 1982): 548–50.

to the manure problem.¹¹ The newly appointed Minister of the Environment, Pieter Winsemius, saw acidification

'as one of the biggest problems we have to deal with. ... New data ... show that acidification in the Netherlands is caused for 20% by NO_x, for 45% by SO₂ and for 35% by NH₃. ... We know where the handles ... are located, namely road traffic, electrical power plants and most probably intensive livestock husbandry.'¹²

Winsemius hesitated due to a brief controversy at Wageningen about the data being presented, but possibly also because he feared reactions from the agricultural sector. In the end, together with prime-minister Ruud Lubbers, Winsemius was able to convince the Minister of Agriculture of the seriousness of the situation. The latter, in the person of Gerrit Braks, took the unexpected and in agricultural circles incomprehensible measure to limit the number of hogs and chickens – the affair with which we began this chapter. The incomprehensibility was among other things rooted in the apparently one-sided manner in which the measure had been conceived. Moreover there had been no prior consultation with the agricultural organisations with the result that the ministry now appeared to be opposed to the powerful agricultural lobby. For the first time, agricultural organisations felt their influence waning in The Hague.

The incident also revealed the vulnerability of agrarian cooperation. There was no consensus in agricultural circles about possible solutions. Specialisation had fomented different interests in different agricultural sectors. The lack of unity finally broke the power of the Agricultural Board and made it possible to introduce new measures that privileged ecological interests above those of production. But, though the power of the Green Front and the Agricultural Board might be broken, a divided sector with many new specific interest groups made the introduction of policy measures more difficult. Due to fraudulent practices by municipalities and farmers, dispensations and lack of cooperation by administrative organs, the number of pigs increased substantially even after restrictive measures came into force.¹³

The Ministry of Agriculture continued to put its faith in technical and bureaucratic solutions that could tackle the manure problem while at the same time permit the growth of animal husbandry. This approach was only partly successful. From 1987 on, funds were pumped into the industrial processing of manure. Promest in Helmond focused on the processing of pig manure. After several difficult years the factory folded in 1990. The industrial processing of chicken manure was more successful. In addition to the production of manure pellets, the late 1990s saw the introduction of manure incinerators. In this process, nitrogen was released into the

¹¹ G.H. Dinkelmann, *Verzuring En Broeikaseffect, de Wisselwerking Tussen Problemen En Oplossingen in Het Nederlandse Luchtverontreinigingsbeleid (1970–1994)* (Universiteit van Amsterdam, 1995), 84–90.

¹² P. Winsemius in *Vaste commissie voor milieubeheer*, 1983, p. 34, geciteerd in H. Dinkelmann, *Verzuring en Broeikaseffect, de Wisselwerking Tussen Problemen en Oplossingen in het Nederlandse Luchtverontreinigingsbeleid (1970–1994)*, (Universiteit van Amsterdam, 1995), 90.

¹³ John Grin, Jan Rotmans, and Johan W. Schot, *Transitions to Sustainable Development, New Directions in the Study of Long Term Transformative Change* (New York: Routledge, 2009), 295–97.

atmosphere and phosphate was reclaimed from the ashes, to be used for non-agricultural purposes.¹⁴

In 1991, goaded by the European Nitrate Directive, an accounting system for the emission of minerals was set up. In 1998 a mineral denotation system (MINAS) was introduced. In addition, the scale of production was fixed per farm in terms of so-called ‘animal-allotments’ for pigs (1999) and poultry (2001). In 2002 this was followed by the Manure Disposal Agreements (MAOs). These administrative measures were coupled to financial sanction mechanisms. These measures, however, appeared inadequate to meet the targets of the European Nitrate Directives. In 2003 the Minister of Agriculture, Veerman, characterized the problem succinctly: ‘We import feed, we export pigs and keep the mess here. That system has seized up.’¹⁵ In 2006 under European pressure a new Fertiliser Substance Law came into effect. Among other things the law mandated a meticulous accounting of the fertilisation of the soil and of soil use. Thanks to this detailed accounting, Dutch agriculture was granted a European exemption, a so-called derogation, with respect to its manure use.¹⁶

In addition to measures like these, after 1997 the Ministry of Agriculture also developed plans to reduce the size of especially the hog-farming sector. By purchasing excess livestock, a so-called ‘warm restructuring’ was initiated. Dramatic epidemics like swine fever (1997, 1998), hoof and mouth disease (2001), and bird flu (2003) accelerated the warm restructuring and eventuated in a reduction of the size of pig and poultry stocks (see Graph 18.1 and Table 18.1). In 2001 the manure problem seemed solved, but this turned out to be only a temporary victory.

With the Fertiliser Substance Law and the derogation arrangement breathing down its neck, the Dutch cattle husbandry sector remained under continuous pressure to meet the targets of the environmental directives. This was a precarious balancing act. In 2014 new European derogation guidelines were negotiated, which emphatically included the dairy sector. The suspension of the milk quota in 2015 felt like ‘Liberation Day’ for the dairy sector. Many of the dairy farmers had invested in new stalls for more animals. Despite warnings by the ministry and environmental organisations, increased manure production quickly became a problem. The Netherlands even threatened to lose its favourable exemption arrangement and it would be unable to satisfy the demands of the strict general European directives. New ad hoc measures by the ministry and negotiations with the dairy farmers were supposed to bring profitability for the dairy sector and enforcement of environmental directives into alignment again.

The manure question is illustrative of the way in which, from the 1970s on, specialisation and specific interests caused the agricultural conglomerate to fall apart into smaller units, each with its own interests. The Ministry of Agriculture, from the perspective of the farmers, became more of an opponent than the ally it had always been. The Ministry searched for an ecological balance in food produc-

¹⁴ Ben Hermans, *De Mestmarathon, Kroniek van Ruim 42 Jaar Nederlands Mestbeleid* (Utrecht: Natuur & Milieu, 2016), 20.

¹⁵ Minister Veerman cited in Hermans, 25.

¹⁶ Hermans, 28.

tion and created strict frameworks within which agriculture was to be practiced. At the same time the ministry continuously kept an eye out for ways to increase scale and profitability.

The disquiet and new directives turned out to provide fertile soil for other forms of agriculture. In crop farming sophisticated technologies were used to implement so-called ‘precision agriculture’ in which fertilisers and crop protection substances were applied at the right place and in the most optimal amounts.¹⁷ In addition, some farmers followed a new path: organic farming. The number of certified organic farms grew from 835 in 1998 to 1412 in 2014. Organic acreage grew in the same period from 22,268 ha to 49,333 ha. In 2014 this was only a modest 2.7% of the total agricultural acreage.¹⁸ The transition to a more sustainable – not necessarily organic – agriculture is one of the great challenges for the twenty-first century.

18.2.2 *Room for Agriculture, Nature and Public Health*

In the 1970s a new approach to nature development emerged. Conservation evolved into a new, more ecological approach to nature. The unintended and unexpected spontaneous nature development in the area around the *Oostvaardersplassen* (a marshy remnant within the new polder Flevoland) was in this respect a revelation. Nature conservation now became a matter of restoring plant and animal ecotopes. The ‘nature restoration’ notion was accorded a wondrously warm reception by nature, environmental and tourist organisations as well as by provincial and national governments and even by agricultural organisations.¹⁹

In 1975 the Ministries of Agriculture and of Public Housing, Spatial Planning and Environment presented the so-called ‘Relation Memorandum’ (*relatienota*) in which they described the points of departure for nature and landscape conservation in agricultural landscapes. This policy defined two types of management. In so-called reservation areas agricultural activities were all but banned. In the course of about three decades approximately 100,000 hectares of farming land in these regions were to be purchased by the state and brought under the management of the State Forestry Service and environmental protection organisations. Additionally the ministries designated about 100,000 hectares as so-called ‘management zones.’ In these zones farmers would be compensated for nature management, like the restoration of hedgerows, planting flowers along drainage canals and protecting

¹⁷ Bieleman, *Boeren in Nederland, Geschiedenis van de Landbouw, 1500–2000*, 573.

¹⁸ Compendium voor de Leefomgeving, *Biologische landbouw: aantal bedrijven en areaal, 1998–2014*, (Indicator, 21 mei 2015), www.clo.nl/indicatoren/nl0011-biologische-landbouw; CBS, *Ruim 1,4 duizend biologische landbouwbedrijven (19-12-2014)*, www.cbs.nl/nl-nl/nieuws/2014/51/ruim-1-4-duizend-biologische-landbouwbedrijven

¹⁹ Arjen Buijs, Thomas Matthijssen, and Bas Arts, “‘The Man, the Administration and the Counter-Discourse’: An Analysis of the Sudden Turn in Dutch Nature Conservation Policy,” *Land Use Policy* 38 (2014): 678.

field birds. Constrained in the 1980s by European measures to limit production, farmers were in search of extra income. Despite the fact that little profit was to be had, about half the farmers in the management zones participated.²⁰

In 1990 the ecological approach was codified in the first Nature Policy Plan published by the Ministry of Agriculture, Fisheries and Nature Management. Particular attention was called to the changes considered necessary in the domain of agriculture.

The extension of agricultural production will have to be in agreement with, for example, contributions to protecting the environment, the conservation and development of nature values and the maintenance of the habitability of the countryside.²¹

The Nature Policy Plan entailed a spatial vision of nature development, namely the so-called Ecological Main Structure (EHS). Within this structure, important nature areas were connected with each other via ecological transition zones. One example was the ‘wet axis’ from the Lauwerszee and the German Ems in the north to the Biesbosch and the Zeeland Delta in the south. The EHS comprised a continuous network of more than 700,000 hectares of nature zones, landed estates, nature development areas and connective corridors. With these plans, the Netherlands, together with Estonia and Flanders, propelled itself into the European vanguard. The EHS together with already existing habitat directives was the direct inspiration for the European Natura 2000 policy, that was codified into new European rules at the turn of the century.²²

The originally broad support was among other things based on the perception in agricultural circles that the new measures were a further elaboration of the policy embodied in the Relation Memorandum. And the exemplary role that this policy had played in the realisation of the Natura 2000 directives was also presented with a certain pride.

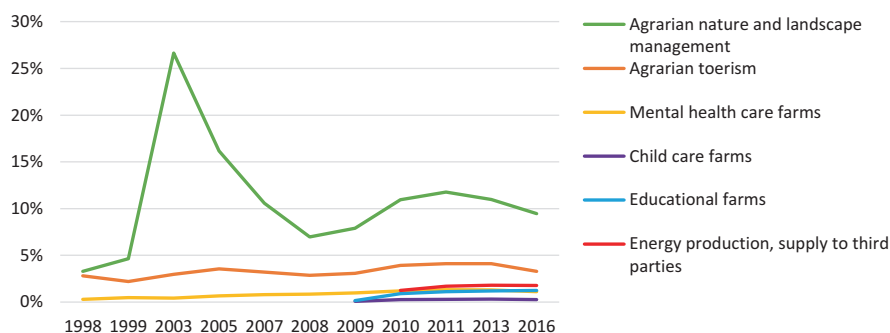
But in 2000 the mood changed abruptly. In that year, basing its case on the new legislation, the conservation association *Das en Boom* (Badger and Tree) commenced legal proceedings against the construction of an industrial park in Heerlen. The construction threatened the habitat of the *Korenwolf*, a type of hamster rare in the Netherlands. The lawsuit stopped the construction of the prestigious industrial park. This example was followed by other nature organisations to put a stop to other undesirable construction and agrarian activities. Between 2001 and 2010 the number of legal actions rooted in the nature conservation laws grew apace.²³

²⁰ C.M. Volker, *Boeren in Betwist Landschap, Strategische Keuzes van Boeren in een Waardevol Agrarisch Landschap* (Wageningen Universiteit, 1999), 56–59.

²¹ *Natuurbeleidsplan*, Pub. L. No. TK 21149, 1989–1990 Handelingen Tweede Kamer 2 (1990), 191.

²² Rob H.G. Jongman, ‘Nature Conservation Planning in Europe: Developing Ecological Networks,’ *Landscape and Urban Planning* 32 (1995): 196–183.

²³ Raoul Beunen, Kristof van Assche, and Martijn Duineveld, ‘Performing Failure in Conservation Policy: The Implementation of European Union Directives in the Netherlands,’ *Land Use Policy* 31 (2013).



Graph 18.2 Supplemental activities in farming 1998–2016

Source: CBS- Landbouw; bedrijven met verbredingsactiviteiten

The confounded local politicians, real estate developers and agricultural organisations vented their spleen on the Natura 2000 policy. They saw this as an impediment to economic growth. Policy makers mobilised the weapon of ‘substantial societal interest’ in order to gain the upper hand in lawsuits. Societal unrest and political dissatisfaction undermined the legitimacy of the nature conservation rules. In 2009 prime minister Balkenende wrote a letter to the chairman of the European Commission, Barosso, in which he requested more ‘equilibrium among ecological values, economic interests and other uses.’²⁴ No adjustments were forthcoming, but subsequent Dutch cabinets persisted in seeking weaker regulations. The environmentalist directives were framed as elite and ‘left-wing hobbies’ that impeded the economic development of the Netherlands.²⁵

‘There is only a very small elite that gets their kicks from the unique nature that you’re supposed to be able to find in Natura 2000 zones. You almost need an academic degree to be able to appreciate it,’

as Minister of Agriculture Henk Bleker put it in 2011.²⁶ Ever fewer farmers saw profit in nature development (see Graph 18.2). On the other hand, nature developers did succeed in finding new partners, for example in the domain of gravel mining (see Chap. 19).

Nature development was only one of the challenges facing the agrarian world. At the end of the twentieth century the countryside acquired new functions. It was no longer the exclusive domain of agriculture. Due to the increasing urbanisation of the countryside, by 2016 some 3 million people lived in rural neighbourhoods. Of these, only 173,000 worked in agriculture. Farmers saw the opportunities in these developments and combined their farming with health care, child care, recreation, education and energy production (see Graph 18.3).

²⁴ ‘Balkenende wilde andere natuurwet’ in *NRC*, 11 januari 2010.

²⁵ Buijs, Matthijssen, and Arts, “‘The Man, the Administration and the Counter-Discourse’: An Analysis of the Sudden Turn in Dutch Nature Conservation Policy.”

²⁶ Klaas van der Horst, ‘Bleeker wil van elitenatuur naar boerenatuur’, in *Boerderij*, 18 januari 2011.

But the increasing population of the countryside also brought new tensions with it. Circles defining zones of odour nuisance were a spatial illustration of the conflicts between the old and new uses. The Q-fever epidemic of 2007–2011, involving microbes that could be transmitted from humans to animals, exhibited the tensions between economic agrarian interests and the public health of recreational visitors and Dutch residents in the countryside. The spatial challenge facing the large-scale and technologically advanced agrarian enterprises was to integrate intensive animal husbandry within a densely populated country, while also paying due respect to issues of ecology and energy.

18.3 The Wages of Excess – In Search of Tasty Healthy Food

Netherlanders are losing control of their diet. In the 1950s most of the Dutch had adopted a clear nutritional pattern: each day two bread meals and a warm meal, ideally constituted according to the ‘disk of five.’ Since then, the Dutch eating pattern has changed dramatically. Although food comprises a substantially smaller portion of the household budget, it has by no means become less important. In 1960 more than 30% of the household budget was spent on food. By 1980 this had declined to 16% and by 2011 to a mere 11%. At the same time the attitude to food shifted. For most of the Dutch population, food is not so much a necessity of life as it is a means of expression, an element of a lifestyle: ‘You are what you eat.’ More luxurious foods became available and new exotic nutritional patterns emerged, visible, among other things, in the increased consumption of meat and dairy products.²⁷ And also in the increasing patronage of restaurants.

The classic nutritional pattern and the ‘disk of five’ was consonant with the epoch of the wage-earner model, in which the man of the family earned the money and the woman devoted her labour power to care for the home and family. Women’s organisations, businesses and governments aimed at the housewife in their informational and educational campaigns. This model gradually lost its force. In 1973 only 21% of the married women worked for wages; this increased to 44% in 1997.²⁸ By 2016 women in 60% of the couples had paid employment.²⁹ Meanwhile the number of single persons increased due to individualisation and an increasingly aged population.

Changes in nutrition were also related to globalisation. The decolonisation of Indonesia and Surinam, labour migration from Southern Europe, Turkey and Morocco and the growing number of foreign vacation destinations introduced new

²⁷ Ronald van der Bie et al., *Smakelijk Weten, Trends in Voeding en Gezondheid* (Den Haag / Heerlen: Centraal Bureau voor de Statistiek, 2012), 40–41.

²⁸ A.H. van Otterloo, ed., ‘Voeding,’ in *Landbouw & Voeding*, vol. Voeding, Techniek in Nederland in de Twintigste Eeuw 3 (Zutphen: Walburg Pers, 2000), 282.

²⁹ CBS Statline: Arbeidsdeelname Paren

food habits. The reliance on potatoes diminished and was replaced in evening meals by rice, pasta and pizzas.³⁰

The Dutch diet became much more varied thanks to an ever-more elaborate selection of foodstuffs. The food industry developed a broad range of instant foodstuffs, of consistent quality and homogeneous taste. Conservation techniques and additives regulated taste, color, smell, appearance and shelf life. All of this was aimed at the needs of the consumer and supported by a media offensive controlled by the food sector. The supermarket giant, Albert Heijn, developed the door-to-door magazine *Aller Hande* (1954) available for free in all its stores since 1983. During the 1990s, multinational Unilever started worked with commercial television stations to develop cooking programs.³¹ Magazines, television and books became important channels for the diffusion of new eating patterns and knowledge about foods.

18.3.1 *Snacks Everywhere*

During the 1960s, the food-processing industry made inroads into the ever-expanding household food budget. Riding the wave of the popular fascination with American culture it initiated research into new snacks and new ‘eating moments.’ Their introduction was not a foregone conclusion. In 1971, Unilever researchers concluded that the consumption of snacks in the Netherlands took place chiefly within the home between the hours of 20:00 and 22:00, during TV viewing and the entertainment of guests. The Dutch hearty breakfast and the early warm meal interfered with earlier snack moments, according to the investigators.³²

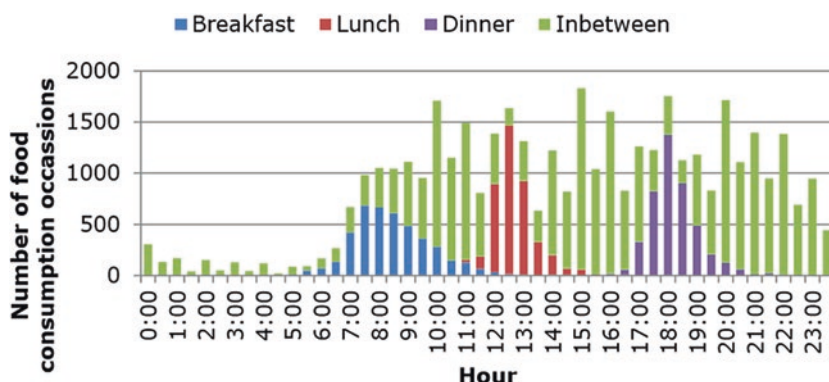
Changing established food patterns turned out not to be a simple task. It required many experiments and much research. Market research became ever more elaborate and aimed at an ever larger variety of subgroups with their own customs and tastes. This made it possible to gradually define new eating moments for a variety of breakfast, lunch, sport, happy hour, desert and casual snacks. From small ‘in-betweens’ consisting of relatively simple products like potato chips and nuts, snacks developed into more complex products like pizzas, hamburgers and breakfast bars. Gradually the pattern of the day with its three meals transformed into one in which food and drink were consumed throughout the day at different moments (see Graph 18.3).³³

³⁰ Marlou Schrover et al., ‘Lekker,’ in *Verandering van Het Alledaagse, 1950–2000*, ed. Isabel Hoving, Hester Dibbits, and Marlou Schrover, Cultuur En Migratie van Nederland (Den Haag: Sdu Uitgevers, 2005), 77–112.

³¹ Schrover et al., ‘Lekker,’ 106–12.

³² Otterloo, ‘Voeding,’ 366.

³³ C.T.M van Rossum et al., *The Diet of the Dutch, Results of the First Two Years of the Dutch National Food Consumption Survey, 2012–2016*, RIVM Letter Report 2016–0082 (Bilthoven: National Institute for Public Health and the Environment (RIVM), 2016), 37–39.



Graph 18.3 Number of food consumption occasions of the Dutch population by hours of the day $n = 2237$ stratified by age-gender groups, weighted for socio-demographic characteristics, season and day of the week

Source: Van Rossum et al. (2016) RIVM – DNFCs 2012–2014

Outside of the home, eating habits also changed. Restaurants were increasingly frequented. In bistros, French cuisine from the vacation could be re-experienced and in ‘Chinese restaurants’ the pleasures of the former colony. American culture could be tasted starting in 1969 at Kentucky Fried Chicken (KFC) and from 1971 on at McDonalds.³⁴

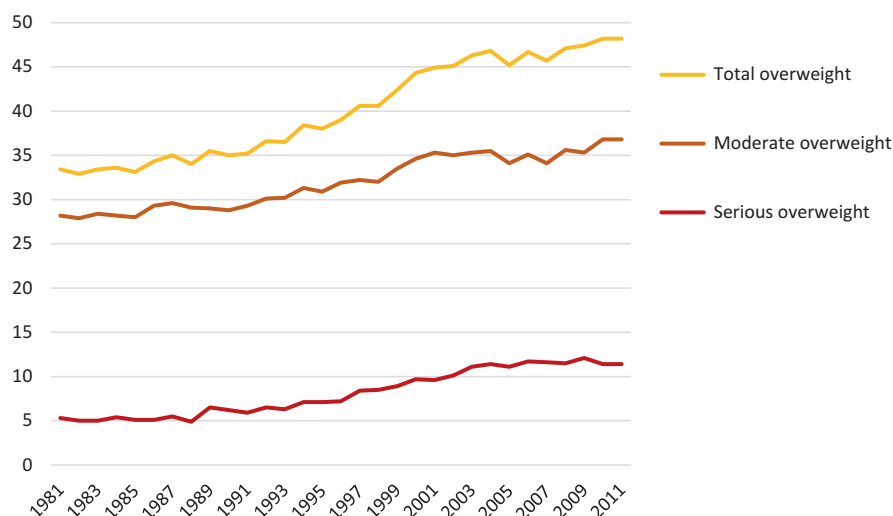
Despite the increasing number of eating establishments the majority of meals in 2016 (78%) were still eaten at home. But the age group between 9 and 50 also ate more frequently at school or at work (15%–18%), in restaurants or on the road (5%–6%) or at other locations (2%–3%).³⁵ Food and fast foods were available at more and more places and times.³⁶ This included not only fast food restaurants in cities, transportation hubs and along highways, but also increasingly coffee corners in garden centres, bookstores and home furnishing stores.

The ever expanding assortment, the increasingly ready availability and increasing welfare had different effects on health. Sufficient and sufficiently healthy food had an unmistakably positive effect on the general health of the Dutch. Longevity and average height continued to increase. The incidence of so-called deficiency-diseases also declined. Malnutrition disappeared, but was rapidly replaced by over-

³⁴ M. van Rotterdam, *De 70's, Alles over de Jaren Zeventig* (Utrecht/Antwerpen: Kosmos, 2005), 85–93; W. Schreurs, *De Jaren Zeventig van Abba Tot Zitkuil* (Amsterdam: Balans, 2016), 57–58. The first McDonalds restaurant in Europe opened its doors in Zaandam in 1971. The concession was set up in cooperation with the Dutch supermarket chain Albert Heijn. In 1975 the cooperation between McDonalds and Albert Heijn was ended.

³⁵ Rossum et al., *The Diet of the Dutch, Results of the First Two Years of the Dutch National Food Consumption Survey, 2012–2016*, 63.

³⁶ Anneke H. van Otterloo, ‘Healthy, Safe and Sustainable, Consumers and the Public Debate on Food in Europe and the Netherlands Since 1945,’ in *Food Practices in Transition*, by Gert Spaargaren, Peter Oosterveer, and Anne Loeber, *Studies in Sustainable Transitions 3* (New York / London: Routledge, 2012), 71.



Graph 18.4 Percentage overweight people in the Netherlands, 1980–2011

Source: CBS

consumption (see Graph 18.4). The new food regime of abundant, fat and sweet created new health concerns. Combined with decreasing physical exertion at work this led to increasing overweight, heart and circulatory disease and diabetes. The increasing incidence of different forms of cancer was also attributed to the new eating and lifestyle habits.³⁷ Governments, business and consumers responded differently to the changes in food consumption and lifestyles.

18.3.2 Government: Informing the Public and Research

In 1983 the Dutch government published a first Memorandum on Food Policy. This was above all a continuation of the existing agenda supplemented with concerns about hygiene. The core was a robust supply of safe foods along with the encouragement of good eating habits.

Until the 1980s the Law on Food Commodities had been the means to guarantee food quality in the Netherlands. In 1982, harmonisation with European food directives was experienced as a step backward. The Netherlands could not turn its back on the more liberal European policy, that was more lenient in regard to the use of additives and the making of health claims by the food processing industry.³⁸ However, unrest among consumers gave rise to a supplemental European directive

³⁷ C.F. van Kreijl and A.G.A.C. Knaap, *Ons Eten Gemeten, Gezonde Voeding En Veilig Voedsel in Nederland* (Bilthoven: Rijksinstituut voor Volksgezondheid en Milieu (RIVM), 2004), 55–56.

³⁸ Otterloo, 'Voeding,' 309.

in 1989. With the mandatory publication of ingredients on the packaging it became possible for consumers to make conscious choices.³⁹

In more recent decades, the big challenge has been combatting the new welfare diseases. In the 1980s ‘reducing fat consumption’ was the main issue. Policy aimed above all at preventing heart and circulatory disease and cancer. By the end of the 1990s the government had become more concerned about food habits and lifestyles. The Nutrition Centre and public campaigns targeted both the general public and specific subgroups. Young people were apprised of healthy eating habits through school-based programs. From the 1990s on the government sought to enlist the business community using the instrument of covenants. Research monitored the effects of this food policy.⁴⁰

In 2004 the National Institute for Public Health and Environment measured the health effects of food and lifestyle. The effects were expressed in terms of so-called Disability Adjusted Life Years (DALY), an indicator that cumulated the number of lost and dependent years over a lifetime. From the calculations it followed that a dearth of physical exercise, bad nutritional habits and overweight were the most significant factors in the health and longevity losses. Compared to these factors, the losses due to food allergies, infections or chemical substances were trivial.⁴¹ In the first decades of the twenty-first century government policy therefore shifted from regulating foodstuffs to influencing lifestyles, with food consumption as a specific target. Varied and healthy foods and sufficient attention to physical exertion were the main ingredients.

18.3.3 *Private Enterprise: New Functional Foodstuffs*

Overconsumption was indirectly the result of the success of the agrarian sector and the food processing industry. This laid the basis for the enormous assortment and the low prices. This did not mean that nutritional problems left the business community cold. For them the problems in a certain sense meant a new challenge to produce tasty foods, but now, for example, containing less fat, sugar and calories.

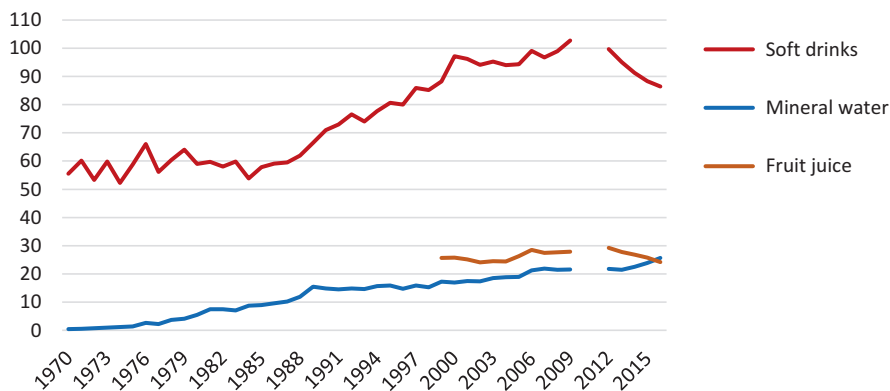
The 1980s saw a proliferation of research into so-called ‘functional foods,’ foodstuffs developed in order to promote health. A firm like Unilever already had a lot of experience in this area. As early as the 1960s the company had already developed the cholesterol-lowering margarine Becel, aimed in the first place at heart patients.⁴²

³⁹ Otterloo, *Healthy, Safe and Sustainable, Consumers and the Public Debate on Food in Europe and the Netherlands Since 1945*, 71.

⁴⁰ Kreijl and Knaap, *Ons Eten Gemeten, Gezonde Voeding En Veilig Voedsel in Nederland*, 104–9.

⁴¹ Kreijl and Knaap, 283–90. The results of the calculations for health loss were as follows for these aspects: unfavourable diet (245.000 DALY), overweight and obesity (215.000 DALY), insufficient exercise (150.000 DALY), food allergies (1000 DALY), food infections (1000–4000 DALY) and chemical substances (500–1000 DALY).

⁴² Mila Davids, ‘Technology as the New Frontier: Unilever and the Rise of Becel Margarine,’ *Journal of Modern European History* 14, no. 1 (2016): 101–18.



Graph 18.5 Annual consumption of soft drinks, mineral water and fruit juice (in l/cap.), 1970–2015

Source: CBS and after 2011 FWS (CBS Statline – Voedings- en genotmiddelen; consumptie per Nederlander, 1899–2009; Nederlandse Vereniging Frisdranken, Waters, Sappen (FWS) – *Kerngegevens/Basic Statistical information 2016* via www.frisdrank.nl)

In the early 1970s the same firm introduced halvarine, a margarine with half of the usual fat percentage.

The link between food consumption and lifestyle was evident in the consumption of soft drinks. After the introduction of ‘family size’ bottles in the mid-fifties this market expanded steadily. In 1970 the average Netherlander drank about 55 litres of soft drinks per year. At the end of the 1980s consumption increased markedly and around the turn of the century per capita soft drink consumption was almost a hundred litres per year, nearly a can (30 cl) per day (see Graph 18.5).

With the development of synthetic sweeteners like cyclamate (1951) and saccharine (1958) sugar-free soft drinks could be developed and tentatively marketed. Initially they were aimed above all at the market for diabetics. The Dutch Food Commodities Law was conservative when it came to such artificial additives. But for diabetics exceptions could be made. Only a few manufacturers, at the end of the 1960s, developed sugar-free soft drinks. Advertisements in which these were presented as diet products were challenged in the 1970s by both the Ministry of Public Health as well as by manufacturers of soft drinks containing sugar.

In 1984 European regulations admitted saccharine, cyclamate and the new artificial sweetener aspartame as safe sugar substitutes for sweetening foods. This was the origin of the so-called ‘light’ products. Gradually sugar-free soft drinks established a position in the soft drink market. The market share grew from 3% in 1985 to 13% in 1992 to 30% in 2015.⁴³ The soft drink industry also promoted the sale of bottled mineral water by playing on emergent consumer preferences for healthy and low-calorie nutrition. The consumption of mineral water increased from a half litre per

⁴³ Peter Zwaal, *Frisdranken in Nederland, Een Twintigste Eeuwse Productgeschiedenis* (Rotterdam: Stichting BBM, 1992), 314–31.

Table 18.2 Consumption of soft drinks, mineral water and fruit juice (in litres per capita per year)

	Soft drinks		Mineral water	Fruit juice
	Sugared	Light		
1984	53	1	9	
1992	67	10	15	
2012	69	31	22	29
2016	56	26	26	24

Source: CBS and after 2011 FWS

capita per year in 1970 to more than 30 litres per capita per year in 2015, almost as much as light soft drinks (see Table 18.2).

European regulations that came into force at the end of the 1990s expanded the possibilities for the use of additives and vitamin preparations. They also increased leeway in making health benefit claims.⁴⁴ Using claims about the reduction of cholesterol, the prevention of heart and circulatory disease and better health through less sugar consumption and the use of natural colour and taste substances, the food industry played to the increasing concerns about health and overweight. In the meantime a lively debate has emerged about the grounding of those claims.

Welfare diseases and a lifestyle of excess have silently been transformed into a new market for the sale of craftily designed foodstuffs.

18.4 Crisis in Nutrition

A portion of the consuming public was extremely critical of the increasing industrialisation and commercialisation of agriculture and foodstuffs. This criticism had already been ventilated in the anarchistic program of the Provos and the Kabouters around 1970 (see Chap. 17). They laid the foundations for numerous so-called macro-biotic stores with organic products. This created an important link between organic farming and consumers.⁴⁵

The sale of organic products was limited until the 1990s, in part because of the high prices consumers had to pay for them. The new regulations for synthetic additives in 1989 and the debates between 1998 and 2002 about allowing genetically modified agricultural products in the EU initiated a new discussion about healthy and sustainable food production. The outbreak of ‘mad cow disease’ (BSE) in 1987, the compulsory hog slaughter in connection with hoof and mouth disease in 2001 and the subsequent chicken slaughter after outbreaks of avian flu in 2003 added fuel to the fire. Environmental and animal welfare associations joined in the public debate about food safety and the food chain. They provided a perspective on more

⁴⁴ Otterloo, ‘Voeding,’ 374.

⁴⁵ Dick Hollander, *Tegen Beter Weten In. de Geschiedenis van de Biologische Landbouw En Voeding in Nederland* (Hurwenen: 4 Heuvels, 2012), 105–6.

sustainable food patterns via publicity campaigns aimed at the products available in supermarkets and the behaviour of consumers.

The international ramifications of the food chain make the debate even more complex. Concepts like ‘food kilometre,’ ‘ecological footprint’ and the associated ‘footprint of our food’ are intended to give consumers insight into the problems of the international character of the food chain.⁴⁶ Raw materials and food are dragged hither and thither. That costs energy, produces emissions and makes it more difficult to monitor food safety. Food kilometres attempt to express this. Dutch pigs, for example, are transported to the Italian city Parma in order to be processed into Parma ham, a product that can bear this name only if it is produced in that city. The ham subsequently finds its way to the Netherlands. The footprint is supposed to give us an idea of the ecological effects, for example the effects of cattle husbandry on logging, reclamation, draining of swamps and disproportionate water use. Social aspects are often also at issue, like fair trade with the developing world and the working conditions of farm workers. A variant is a calculation by the Dutch Nature and Environment Federation of the size of the claim a consumer makes on the amount of land annually necessary to provide his or her food.⁴⁷ For a Dutch person that would be 6.2 hectares, while the rest of the world population makes do with an average of 2.7 and while there is only 1.8 hectare per person available. Their conclusion is that the Dutch use disproportionate amounts of land and that nature is being disproportionately abused. While the concepts and calculations may be contested, they do express concerns about the biological capacity of the earth and the habitability of the planet for future generations.

How is a consumer to get a grip on the complex issues of sustainable and healthy nutritional patterns? Among his resources are the trademarks, certificates and labels.⁴⁸ These are supposed to provide him with information about, among other things, environmental effects, animal-friendly production, fair trade and health effects. Despite this, the certificates only partly succeed in winning the confidence of the consumer in sustainable, healthy and responsible food. A comprehensive and unambiguous image of healthy and sustainable food is lacking. The variety is overwhelming. Doubt is often cast on the objectivity of the information provided. The claims made are not always grounded. The organisation providing the information is not always independent. Even information based on extensive scientific research is a cause of confusion. Notorious in this respect are the discussions about E-numbers, a European system for the coding and classification of supplements to food, like dyes, coagulants, anti-oxidants and vitamins.

The consumer faces many dilemmas. In this way eating becomes an act of knowing and conscience, of believing and hoping.⁴⁹

⁴⁶L.O. Fresco, *Hamburgers in het paradijs. Voedsel in tijden van schaarste en overvloed* (Amsterdam 2012), 364–369.

⁴⁷<http://voetafdruk nederland.nl/over-de-voetafdruk/> (geraadpleegd op 20–11-2017).

⁴⁸Fresco, *Hamburgers in het paradijs*, 369–373.

⁴⁹See also the section ‘Dilemma’s in de menselijke voedselvoorziening’ in: Fresco, *Hamburgers in het paradijs*, 362–373.

Literature

- Anoniem. (1984, 3 November). 'Landbouwschap volslagen verrast', *Leidsch Dagblad*, p. 9.
- Beunen, Raoul, Kristof van Assche, and Martijn Duineveld. (2013). 'Performing Failure in Conservation Policy: The Implementation of European Union Directives in the Netherlands.' *Land Use Policy* 31.
- Bieleman, Jan. (2008) *Boeren in Nederland, Geschiedenis van de Landbouw, 1500–2000*. Amsterdam: Boom.
- Bloemendaal, Frits. (1995). *Het Mestmoeras*. Den Haag: SDU Uitgeverij.
- Buijs, Arjen, Thomas Matthijssen, and Bas Arts. (2014). "The Man, the Administration and the Counter-Discourse": An Analysis of the Sudden Turn in Dutch Nature Conservation Policy.' *Land Use Policy* 38: 676–84.
- Crijns, A.H. (1997). 'De Grote Ommekeer in de Agrarische Sector.' In *Geschiedenis van Noord-Brabant, Dynamiek en Expansie, 1945–1996*, edited by H.F.J.M. van den Eerenbeemt, Vol. 3. *Geschiedenis van Noord-Brabant*. Boom.
- Davids, Mila. (2016). 'Technology as the New Frontier: Unilever and the Rise of Becel Margarine.' *Journal of Modern European History* 14, no. 1: 101–18.
- Dinkelmann, G.H. (1995). 'Verzuring en Broeikaseffect, de Wisselwerking Tussen Problemen en Oplossingen in Het Nederlandse Luchtverontreinigingsbeleid (1970–1994).' Universiteit van Amsterdam.
- Fresco, L.O. (2012). *Hamburgers in het paradijs. Voedsel in tijden van schaarste en overvloed*. Amsterdam: Prometheus.
- Grin, John, Jan Rotmans, and Johan W. Schot. (2009). *Transitions to Sustainable Development, New Directions in the Study of Long Term Transformative Change*. New York: Routledge.
- Hermans, Ben. (2006). *De Mestmarathon, Kroniek van Ruim 42 Jaar Nederlands Mestbeleid*. Utrecht: Natuur & Milieu.
- Hollander, Dick. (2012). *Tegen Beter Weten In. de Geschiedenis van de Biologische Landbouw en Voeding in Nederland*. Hurwenen: 4 Heuvels.
- Jongman, Rob H.G. (1995). 'Nature Conservation Planning in Europe: Developing Ecological Networks.' *Landscape and Urban Planning* 32: 196–183.
- Natuurbeleidsplan, Pub. L. (1990) No. TK 21149, 1989–1990 Handelingen Tweede Kamer 2.
- Otterloo, Anneke H. van. (2012). 'Healthy, Safe and Sustainable, Consumers and the Public Debate on Food in Europe and the Netherlands Since 1945.' In *Food Practices in Transition*, by Gert Spaargaren, Peter Oosterveer, and Anne Loeber, 60–85. *Studies in Sustainable Transitions* 3. New York/London: Routledge.
- Rossum, C.T.M. van, E.J.M. Buurma-Rethans, F.B.C. Vennemann, M. Beukers, H.A.M. Brants, E.J. de Boer, and M.C. Ocké. (2016). "The Diet of the Dutch, Results of the First Two Years of the Dutch National Food Consumption Survey, 2012–2016." RIVM Letter Report 2016–0082. Bilthoven: National Institute for Public Health and the Environment (RIVM).
- Schreurs, Wilbert. (2016). *De Jaren Zeventig van Abba Tot Zitkuil*. Amsterdam: Balans.
- Schrover, Marlou, Ineke Mestdag, Anneke H. van Otterloo, and Chaja Zeegers. (2005). 'Lekker.' In *Verandering van het Alledaagse, 1950–2000*, edited by Isabel Hoving, Hester Dibbitts, and Marlou Schrover, 77–112. *Cultuur en Migratie van Nederland*. Den Haag: Sdu Uitgevers.
- Breemen, N. van, P. A. Burrough, E. J. Velthorst, H. F. van Dobben, Toke de Wit, T. B. Ridder, and H. F. R. Reijnders. (1982, October 7) 'Soil Acidification from Atmospheric Ammonium Sulphate in Forest Canopy Throughfall.' *Nature* 299, no. 5883: 548–50. <https://doi.org/10.1038/299548a0>.
- Bie, Ronald van der, Brigitte Hermans, Cor Pierik, Lieke Stroucken, and Elma Wobma. (2012) *Smakelijk Weten, Trends in Voeding en Gezondheid*. Den Haag/Heerlen: Centraal Bureau voor de Statistiek.
- Kreijl, C.F. van, and A.G.A.C. Knaap. (2004). *Ons Eten Gemeten, Gezonde Voeding en Veilig Voedsel in Nederland*. Bilthoven: Rijksinstituut voor Volksgezondheid en Milieu (RIVM).

- Otterloo, A.H. van, ed. 'Voeding.' (2000). In *Landbouw & Voeding*, Voeding: 234–74. *Techniek in Nederland in de Twintigste Eeuw* 3. Zutphen: Walburg Pers.
- Rotterdam, Marjolein van. (2005). *De 70's, Alles over de Jaren Zeventig*. Utrecht/Antwerpen: Kosmos.
- Volker, C.M. (1999). *Boeren in Betwist Landschap, Strategische Keuzes van Boeren in een Waardevol Agrarisch Landschap*. Wageningen Universiteit.
- Zwaal, Peter. *Frisdranken in Nederland, Een Twintigste Eeuwse Productgeschiedenis*. Rotterdam: Stichting BBM, 1992.

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