

Focus on Bird Flu

2023



Netherlands
Court of Audit

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1. About this investigation

Since 2021, Europe has been experiencing its worst outbreak of bird flu (avian influenza) since 2003. In the Netherlands alone, 6.9 million poultry and other captive birds were culled between January 2021 and May 2023 in an effort to control the outbreak.

In the Netherlands, the Minister of Agriculture, Nature and Food Quality (LNV) is responsible for preventing, monitoring and controlling animal diseases. He also manages the associated income and expenditure of the Animal Health Fund (DGF). The livestock industry, the Minister of LNV and the European Union pay into this budgetary fund to prevent and control animal diseases such as bird flu. The minister is spending substantially more taxpayers' money on controlling bird flu than in the past. As the agreed ceiling on the poultry industry's share of the costs has been reached and the EU has reduced its funding, even more taxpayers' money is expected to be spent on controlling bird flu in 2023 and 2024 than in 2022.

1.1 Our conclusions

Structural increase in cost of controlling bird flu; bill to be paid by the minister in the coming years

Before 2021, bird flu was a sporadic disease. Since the end of 2021, however, it has been endemic, and experts and the Minister of LNV fear it will remain so. Since 2022, bird flu has been present in wild birds all year round and poultry are at permanent risk of infection. Between 2015 and 2021, the total cost of combating bird flu (prevention and control) was about €10 million per annum. In 2022, it climbed to €55 million. The Minister of LNV expects the cost of controlling bird flu to remain

structurally higher than in the past. Under the current funding system, a higher proportion of the costs will be for the account of the Minister of LNV. Between 2015 and 2020, the poultry industry bore 83% of the costs, the EU 10% and the minister 7%. In 2022, the industry bore 54% and the minister 46%. In 2016, bird flu had cost the minister €0.7 million but the figure soared to €26 million in 2022. It is not yet known how much the EU will contribute.

Endemic bird flu exerting pressure on LNV, NVWA and contractors

The process of culling large numbers of poultry is in danger of stalling if several outbreaks of bird flu occur in quick succession at more than one poultry farm or if there is a simultaneous outbreak of a second animal disease, such as African swine fever. The Netherlands Food and Consumer Product Safety Authority (NVWA), which coordinates cullings, states in its 2022 annual plan that it is approaching the limits of its capacity to control animal diseases. An internal risk analysis by the Ministry of LNV acknowledges this risk, and the handful of companies contracted to cull poultry are facing the same problem. Effective control of bird flu in poultry is therefore at risk.

Resistance to preventive vaccination

One method proposed by the Minister of LNV to strengthen prevention of bird flu is vaccination. The Netherlands is expected to hold field tests and pilot 2 vaccines against the current virus strain (H5N1) in 2023 and 2024. Whether they will lead to the large-scale vaccination of poultry, however, is uncertain. Several EU member states object to the vaccination of poultry owing to the potential risks of an ineffective vaccine. Many member states think culling is more effective. Given the lack of enthusiasm for vaccination in both the member states and among private parties (traders and retailers), Dutch poultry farmers have not been in favour of poultry vaccination up to now. Not only will the mandatory intensive surveillance programme be expensive but, they fear, they will sell less poultry meat and fewer eggs.

Fragmented responsibility for bird flu in wild birds

The current bird flu epidemic also affects wild birds. For the first time, wild birds were infected throughout the year in 2022. It has not yet been established in law who is responsible for the disposal of dead wild birds and who must bear the cost. Disposal accordingly differs from place to place. The Minister of LNV has been contributing to the cost of testing live wild birds since 2022, in part to learn more about how bird flu spreads and the possible emergence of new strains in the Netherlands. The minister had initially stopped cofinancing this research programme in 2018.

Negotiation of financial agreements

Negotiations between the minister and the poultry industry about the industry's contribution to the Animal Health Fund are planned to start at the end of 2023. The negotiations will result in a new covenant for 2025-2029 to fund the prevention and control of infectious animal diseases. It was agreed in the 2020-2024 covenant that negotiation of the 2025-2029 covenant would reconsider the industry's financial contribution. Representatives of the poultry industry had argued in 2019 that poultry farmers should not be held responsible for bird flu outbreaks because the virus was spread by wild birds. This should be taken into account, they claimed, in any financial agreements.

1.2 Our investigation

Background

During the debate of the Ministry of LNV's draft 2023 budget, the rapporteurs of the House of Representatives' LNV Committee stated that they had received too little financial information on the prevention and control of bird flu. They observed that the draft budget provided no insight into estimated expenditure on the prevention of bird flu in 2023 or on EU funding to control the disease. The committee also noted that it was unclear why more money is spent on control than prevention reasons for assuming more would be spent on prevention than on control were uncertain (House of Representatives, 2022).

We decided to investigate government measures to prevent and control bird flu and how the measures were funded in light of the budget debate and numerous news reports on the culling of poultry and the impact of bird flu on wild birds.

Objectives

Our objective is to provide an insight into expenditure on the prevention and control of bird flu between 2003 and early 2023 and the proportion of expenditure that was borne by the government, the EU and the poultry industry. We also wish to clarify what the policy on the prevention and control of bird flu entails. We chose 2003 as the initial year as that was the year in which the Netherlands experienced its worst bird flu epidemic.

Our findings provide parliament, the Minister of LNV and the poultry industry with factual information for use in the negotiation of a new covenant to fund the control of infectious animal diseases. The Minister of LNV and the livestock industry use 5-year covenants to make agreements on the compulsory control of animal diseases

and its funding through the DGF. It is important for parliament to know that if the European Commission, the House of Representatives or the Senate had objected to certain provisions in the 2020-2024 covenant, the minister could have unilaterally declared them or their implementation not applicable (LNV, 2019). The minister and industry representatives expect to start negotiation of a covenant for 2025-2029 in autumn 2023.

Scope of the investigation

Besides birds, mammals are also susceptible to bird flu. In theory, people, too, can become infected, as was the case with Q fever and COVID-19. Diseases that can be transmitted from animals to humans are known as zoonoses.

In our 2021 Accountability Audit we investigated the policies implemented by the Minister of LNV and the Minister of Health, Welfare and Sport (VWS) to prevent zoonoses (Netherlands Court of Audit, 2022). We concluded that the ministers had improved their strategies since the Q fever outbreak but we expressed our concerns for public health that the Minister of VWS could not exercise overriding authority during a zoonotic crisis (Netherlands Court of Audit, 2022).

This report focuses principally on the Minister of LNV's responsibility for the prevention and control of bird flu. The Expert Panel Consultation Zoonoses estimates the risk of bird flu infecting people in the Netherlands as 'low' (LNV, 2023e). The risk of zoonoses was therefore not our primary concern. The fact that bird flu can be transmitted to humans, however, underlines the importance of prevention and control.

Focuso investigation

This report presents the findings of a focus investigation carried out by the Netherlands Court of Audit. A focus investigation differs from an audit in that it is carried out in a considerably shorter period of time, looks at current events and answers specific, well-defined questions. A focus investigation culminates in a clear, concise report without opinions or recommendations.

See <https://english.rekenkamer.nl/about-the-netherlands-court-of-audit/what-wedo/innovation-in-audit/focus-investigations>.

2.

Bird flu in poultry

Since October 2021, the Dutch poultry industry has been experiencing its worst outbreak of bird flu since 2023. In this chapter we look at the strategy taken to control it so far.

2.1 Bird flu

Low and highly pathogenic strains

Bird flu (also known as avian influenza) is an infectious type of influenza. The virus has low pathogenic strains and highly pathogenic strains. Wild birds infected with low pathogenic bird flu display few if any symptoms. However, the virus can mutate into highly pathogenic strains that cause illness. A mutation can occur (a) where wild birds and captive birds come into contact with each other, and (b) where birds are kept in close contact with each other, e.g. at poultry farms. Dozens of highly pathogenic bird flu strains have emerged worldwide in recent decades (Dhingra et al., 2018). They can cause illness and high mortality rates in both poultry and wild birds. In the Netherlands, a highly pathogenic strain was first detected in wild birds in 2014.

Highly pathogenic bird flu is an animal disease that EU member states are required to combat. The Netherlands' policy is a combination of prevention and control. One of the preventive measures is a monitoring programme in which poultry are sampled for low pathogenic bird flu at least once a year and free-range poultry every three months. The most important form of control is the culling of infected birds. The culling process is described in the next section.

The bird flu strain infecting wild birds, poultry and other captive birds in the Netherlands since October 2021 is the highly pathogenic H5N1. In 2022, this strain also infected birds that migrated to the Netherlands in the spring to breed. The virus is a member of the Goose/Guangdong lineage, named after the first place it was detected: a commercial goose farm in the province of Guangdong, China, in 1996. Spring and autumn migrations of wild birds subsequently spread the virus throughout the world (Global Consortium for H5N8 and Related Influenza Viruses, 2016).

Susceptibility of mammals to bird flu

Besides birds, mammals are susceptible to highly pathogenic bird flu. In theory, people, too, can be infected, as was the case with Q fever and COVID-19. Infectious diseases that can be transmitted from animals to humans are known as zoonoses.

In its most recent advisory report (May 2023) to the Minister of LNV and the Minister of Health, Welfare and Sport (VWS), the Expert Panel Consultation Zoonoses estimated the risk of bird flu infecting the general population in the Netherlands as 'low' and the risk to people who were in contact with poultry or wild birds professionally as 'low to moderate'. The consultation panel said, however, that the increased incidence in animals and the global outbreak have increased uncertainty about the risk. In light of the regular reports of infection in mammals, the consultation panel has urged the Netherlands to become more vigilant, especially as the country has one of the highest densities of animals in the world (LNV, 2023e). The World Health Organisation reported 11 human cases of H5N1 bird flu worldwide between 2021 and April 2023. Of these 11 infections, 3 were fatal. No human H5N1 infections were detected in the Netherlands during this period (WHO, 2023).

In our 2021 Accountability Audit we investigated the policies implemented by the Minister of LNV and the Minister of Health, Welfare and Sport (VWS) to prevent zoonoses (Netherlands Court of Audit, 2022). We concluded that the ministers had improved their strategies since the Q fever outbreak but we expressed our concerns for public health that the Minister of VWS could not exercise overriding authority during a zoonotic crisis (Netherlands Court of Audit, 2022).

2.2 Culling of poultry

The bird flu virus has infected poultry farms in Europe and many other parts of the world in recent years. In the Netherlands alone, 6.9 million birds – mainly hens – were culled between January 2021 and May 2023 to prevent the virus spreading further. This bird flu epidemic is the worst since 2003, with one outbreak in poultry and other captive birds quickly following another.

The cost of controlling the virus has risen sharply since the end of 2021, mainly because of the many cullings (see chapter 4). In October 2022, the Minister of LNV called the situation untenable and extremely serious for the animals, bird keepers, nature and society. The virus is spread to poultry mainly by wild birds when, for instance, poultry drink water with infected wild bird droppings. There have been very few if any farm-to-farm infections in the current epidemic; they had been a common occurrence during the 2013 epidemic.

Endemic bird flu

The Minister of LNV believes highly pathogenic bird flu will be a permanent presence in wild bird populations. Endemic bird flu will be a continuous threat (LNV, 2023a). Before 2021, the virus had been present chiefly in the winter months.

Government measures at infected farms

The Ministry of LNV prepared an implementation plan in 2018 setting out the measures the government would take if bird flu was detected at a farm. The plan was updated in 2023 (LNV, 2023a). It is based on European animal health law (Regulation (EU) 2016/429), the European prevention and control regulation (Regulation (EU) 2020/687) and the Dutch Animal Act. Besides culling infected birds, the measures include transportation bans within 10 kilometres of an infected farm, poultry housing orders and visitor restrictions. These measures have been applied several times during bird flu outbreaks. In some parts of the country, poultry have had to be kept indoors since the end of June 2022. In October of the same year, the measure was extended to the whole of the country; it was still in force in May 2023.

Poultry keepers and farm vets are required by law to report suspected cases of bird flu to the NVWA. The culling procedure is initiated immediately a case is reported. Wageningen Bioveterinary Research in Lelystad analyses the samples taken from birds at the poultry farm. If a sample is positive, the NVWA declares the farm to be infected. The Minister of LNV then puts a restricted zone in place around the farm. The measures taken in this zone include a ban on transportation and the culling of all birds on the farm.

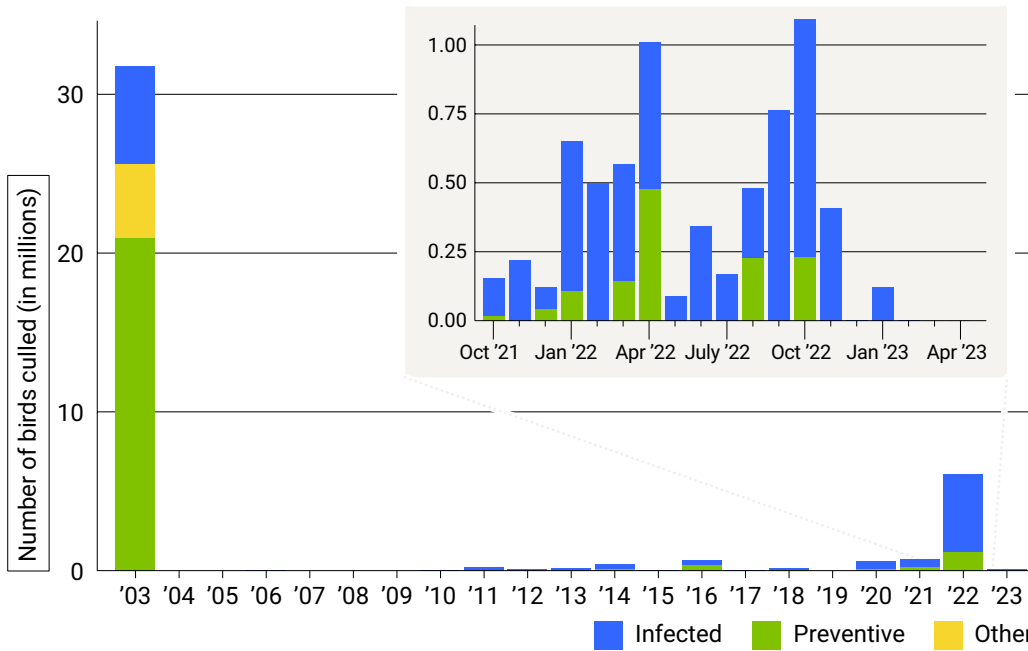
Cullings

Before the birds are culled, their value is assessed to calculate the compensation to be paid to the poultry farmer. The amount depends in part on the type and number of birds. A team from the NVWA culls out the farm in cooperation with contractors. The birds are gassed with carbon dioxide (CO₂), their carcasses are disposed of and the farm is disinfected (LNV, 2018).

Figure 1 shows the number of poultry and other captive birds culled per annum since 2003. The period between October 2021 and April 2023 is shown on the right-hand side of the figure. The number of poultry and other captive birds culled peaked sharply at the end of 2021 and weakened again in early 2023. The Expert Group on Animal Diseases, however, still estimates the risk of infection at poultry farms in the Netherlands as high (LNV, 2023c). A total of 6.6 million birds, mainly hens, were culled at 136 farms and 21 other captive bird locations during this period.

Figure 1 Number of birds culled per annum between 2003 and 2023

Number of birds culled per annum, 2003-2023



The 'Other' category comprises birds culled for welfare or similar reasons where the birds have grown too large for their housing but cannot be moved on account of the transportation ban.

Bird flu epidemic in 2003

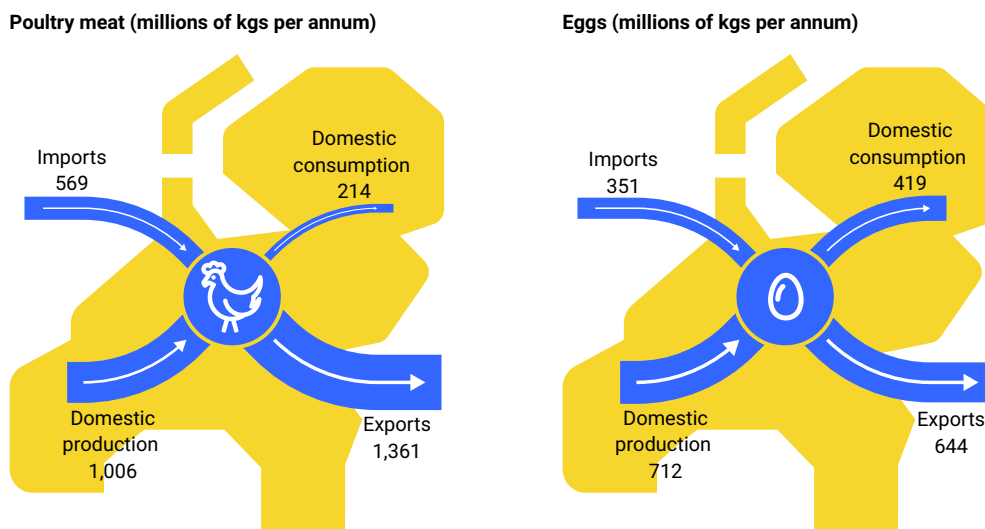
The Netherlands experienced its worst bird flu epidemic in 2003. The highly pathogenic H7N7 virus was detected at poultry farms in Gelderse Vallei and Limburg in February 2003. Restrictions were finally lifted 7 months later, in August 2003. In the meantime, 227 poultry farms and 14 other captive bird locations became infected and 1,381 poultry farms and 16,521 other captive bird sites were culled out (including preventive culling). In total, more than 31 million birds were culled. It is not known how the first poultry farm became infected. Genetic analyses of viruses found in wild waterfowl suggest highly pathogenic H7N7 probably mutated in poultry from a low pathogenic H7N7 virus detected in wild ducks (Fouchier et al., 2004). The virus then spread from farm to farm.

2.3 Impact of bird flu on the Dutch poultry industry

The poultry industry is an important economic sector in the Netherlands. The production of eggs and poultry meat is considerably higher than domestic consumption. About three-quarters of the production is exported, chiefly to other European countries. Figure 2 shows that the country imports and exports far more poultry products than it consumes. The industry produces 1,006 million kilograms of poultry meat (mainly chicken) but consumes only 214 million kilograms. Substantial volumes of eggs and poultry meat are also imported.

Figure 2 Poultry trade in the Netherlands

Most poultry products produced in the Netherlands are exported



The Netherlands has the highest poultry density per hectare in Europe: in 2022 there were 1,790 farms with nearly 100 million birds on a land area of 3.4 million hectares (excluding open waters). More than 500 million birds were slaughtered for consumption in 2022 (CBS, 2023). Poultry density based on the number of birds per hectare (excluding open waters) is 7 times higher in the Netherlands than the EU average. Regional differences within countries are shown in figure 3. The highest concentrations of poultry farms in the Netherlands are located in Limburg, North Brabant and Gelderland (see figure 4).

Figure 3 *European poultry density*

The Netherlands has the highest poultry density in Europe

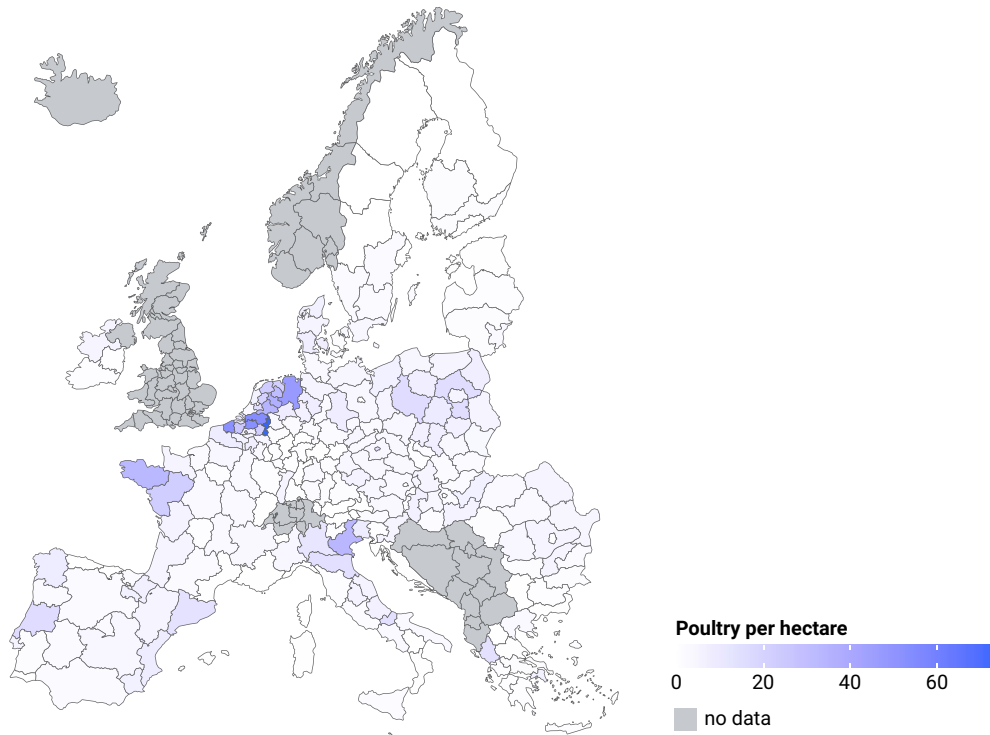
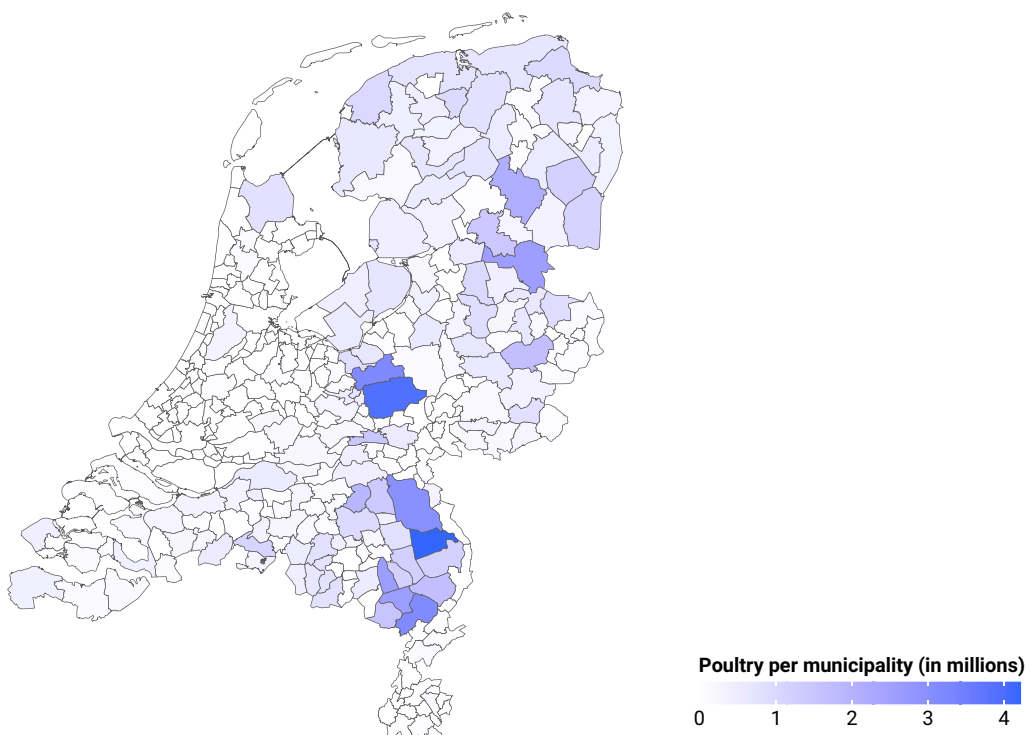


Figure 4 *Poultry density in the Netherlands*

Poultry density highest in Limburg, North Brabant and Gelderland



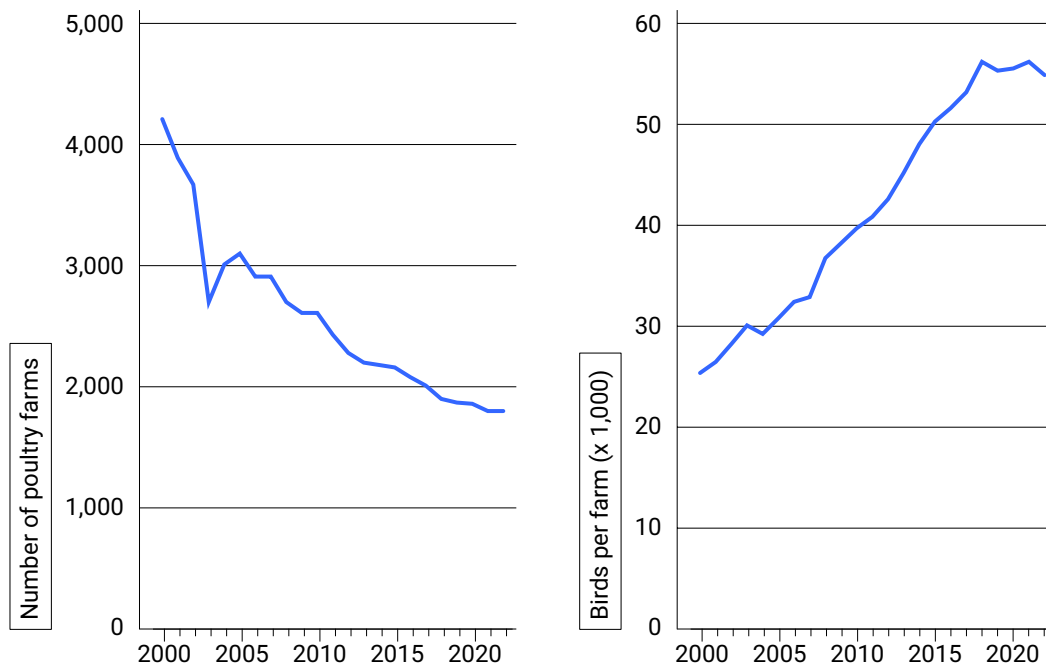
Owing to the high poultry density, the Minister of LNV implements a stricter bird flu prevention and control policy than required by the EU. Areas with a high poultry density have a higher risk of farm-to-farm infection. In accordance with EU rules, the Minister of LNV puts mandatory 3 and 10 kilometre restriction zones in place at farms where bird flu is detected. If necessary, he can also take additional measures (EU, 2020). The minister can, for instance, order the preventive culling of all birds at farms within 1 kilometre of an infected farm. He can also have birds culled preventively if a neighbouring farm has had high-risk contact with an infected farm. The minister decides which additional measures are necessary each time there is an outbreak. By way of illustration, in August 2022, 8 farms in and around Lunteren were preventively culled out because they were located close to an infected farm. In total, more than 200,000 hens were culled.

Larger farms and more birds culled per farm

The average number of birds culled per farm has risen steadily over the past few years. This is due to the type of poultry farm culled out and the higher number of birds per farm. More broiler farms are being infected in the current epidemic than in 2003. These farms tend to have more hens than laying farms. Furthermore, farm sizes have grown throughout the industry since 2000. The number of poultry farms has fallen by more than half, from 4,210 to 1,790, while the number of birds per farm has increased (see figure 5).

Figure 5 Number and size of poultry farms, 2000-2022

Fewer poultry farms, more birds per farm



There has been an increase in the average number of birds killed per culling. In the 2003 epidemic, 2,000 birds were culled on average per poultry farm. In the current epidemic an average of 49,000 birds are being culled per farm (figures: October 2021 – April 2023).

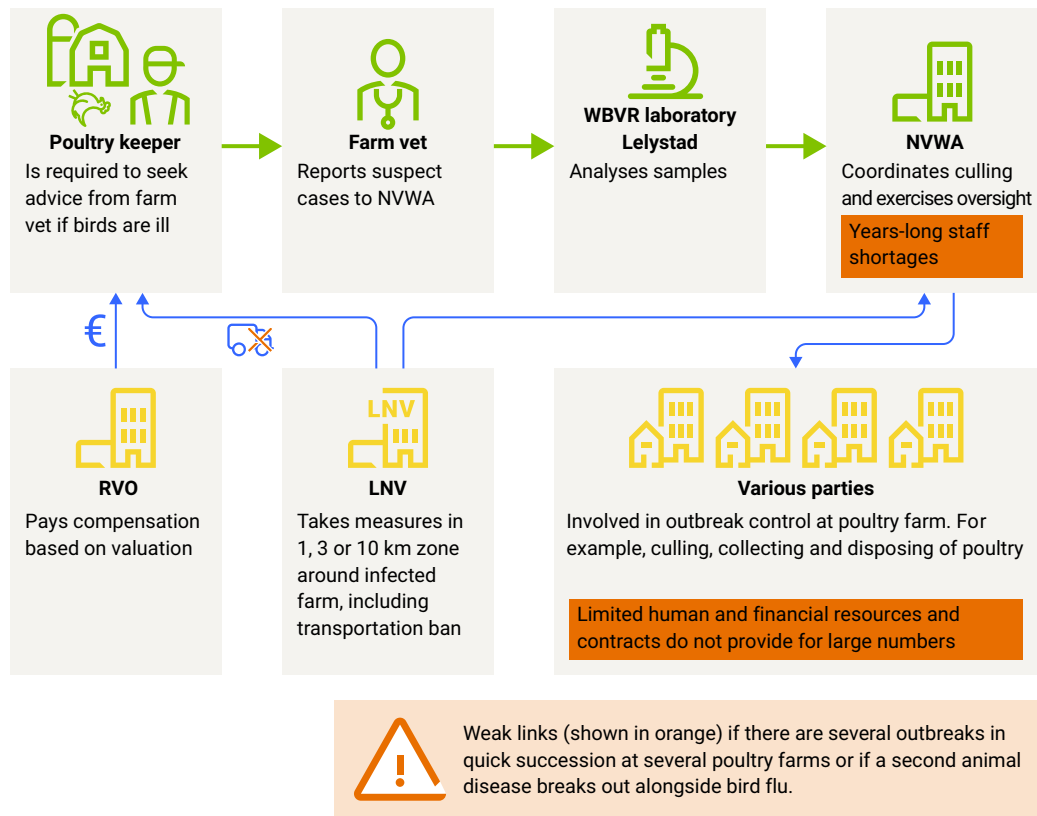
Weaknesses in control capacity

Risk analysis by the Ministry of LNV in 2022 and interviews we held at the NVWA for our investigation indicate that culling is in danger of stalling if several infections occur at several farms in quick succession or if a second animal disease occurs at the same time.

This is due principally to capacity problems at the organisations and contractors concerned. The capacity agreements made by the Ministry of LNV with the businesses that destroy dead birds are inadequate if several cullings take place in quick succession or if there is an outbreak of a second animal disease. Furthermore, the company that supplies CO2 cannot always guarantee sufficient volumes of the culling gas. At most, 2 farms can be culled out on the same day. These problems are difficult to overcome by engaging capacity from elsewhere because the 2 companies concerned dominate almost all the Dutch market. At times, there are also shortages of personnel to collect the large number of gassed birds. Figure 6 shows the weaknesses in the culling process.

Figure 6 Poultry culling process

Weaknesses in culling process



The NVWA’s coordination of cullings and related measures has experienced staff shortages for many years (NVWA, 2022). In autumn 2022, a staff shortage coincided with temporary unavailability of CO2 and urgent cullings could not take place. Consequently, 5 farms in a 1-kilometre zone around an infected site in Lunteren could not be preventively culled out. It was eventually decided that culling was no longer necessary as the birds had not been infected and so could not spread the virus.

Risk of human infection from cullings

People involved in a culling must be vaccinated against influenza and take a 10-day antiviral course after the culling.

In the past, when cullings were sporadic, the Municipal Health Service (GGD) provided antiviral medicine and information on its use. In the current epidemic, where outbreaks are no longer sporadic, however, the GGD thinks it should no longer be responsible. In 2022, the Expert Panel Consultation Zoonoses recommended a reorganisation of the provision of antiviral medicines. A working group set up by the RIVM, NVWA and GGD GHOR Netherlands recommended that the NVWA’s own

health and safety system should provide preventive care for culling staff. At the time of our investigation (early 2023), the reorganisation of the NVWA was still underway. The National Institute for Public Health and the Environment (RIVM) is examining whether culling staff should take antiviral medicines in all circumstances or whether their provision should be based on the risk of a particular virus infecting people.

In the report *Zoonosen in het vizier* (Bekedam, 2021), the zoonoses expert group recommended that the Ministers of LNV and VWS offer an annual flu vaccination to all poultry keepers and other people in regular contact with poultry, wild birds or pigs. This would reduce the risk of the human flu virus combining with the bird flu virus. Through a health and safety organisation in the agriculture sector, the Ministry of VWS recently highlighted the importance of vaccination. To date, however, poultry keepers are not registered as such with their GPs and so are not recognised as a risk group or invited for a flu jab. Increasing the care sector's awareness of the risks of bird flu, according to the Ministry of VWS, is a priority.

2.4 Vaccination of poultry against bird flu

One way to limit or prevent culling is to vaccinate poultry against bird flu. Field tests are expected to take place in the Netherlands in 2023 and 2024 with 2 vaccines against the current H5N1 strain. The Minister of LNV wants to introduce a reliable method of vaccination against bird flu as soon as possible (LNV, 2023d). Whether a vaccine will be rolled out nationwide, however, is uncertain, even if an effective vaccine is available. So far in the current epidemic, lack of support within the EU has raised fears that the Dutch poultry industry will be subject to trade barriers.

Resistance to vaccination in EU Member states

Successive Dutch ministers have argued since 2000 that the EU should allow preventive vaccination against highly pathogenic bird flu. The meat and eggs of vaccinated poultry could then be freely traded throughout the bloc. To date, their attempts have been in vain. Most of the member states are opposed to vaccination on account of the potential risk if a vaccine is ineffective and only suppresses the symptoms. The virus could then continue to spread undetected ('silent circulation'). Many EU countries find culling more effective than vaccination. Without the support of both the member states and private parties (traders and retailers), the Dutch poultry industry itself is opposed to vaccination against bird flu. It fears high costs and the loss of sales.

Hopes pinned to recently developed vaccines

A Dutch laboratory has recently tested the efficacy of 4 animal vaccines. 2 proved to be very effective in the laboratory. They prevented the virus's spread in hens. The next step is to hold field tests at 1 or 2 farms. If the results are positive, a voluntary pilot scheme will be organised at more poultry farms to determine whether the 2 vaccines can stop or limit outbreaks.

Before the vaccines can be rolled out nationwide, they must first be approved by the EU. The European Commission's delegated regulation 2023/361 lays down the conditions that preventive vaccination of poultry against highly pathogenic bird flu must meet. One of them is an intensive surveillance programme. Poultry keepers must take weekly samples from dead birds and have them analysed in a laboratory to determine the cause of death, and a vet must check that live birds are free of highly pathogenic bird flu every 30 days (EU, 2023). The EU has set these conditions as silent circulation could lead to infected meat coming into circulation. A surveillance programme is also necessary to detect new zoonotic strains that could endanger public health. Compulsory surveillance of vaccinated poultry will require more involvement by farm vets, which will increase the costs. Together with France, Hungary and Italy, the Netherlands is at the forefront of EU countries that want to study the possibilities of vaccination against bird flu. These are countries that have experienced many bird flu outbreaks (LNV, 2022).

Development of EU policy: from non-vaccination to vaccination under surveillance

The EU introduced its non-vaccination policy for infectious animal diseases in the 1990s. The non-vaccination policy benefited Dutch exports on account of the safety status awarded by the World Organisation for Animal Health to countries with and without animal vaccination (see box).

Difference in safety status with and without vaccination

'Disease-free without vaccination' is the safest status a country can have for trade purposes. A country with this status faces the fewest barriers to exports of animals and animal products. Disease-free with vaccination has a lower status because vaccinations are not always 100% effective. The presence of infected animals in an exporting country cannot be ruled out (LNV, 2021). Out of fear that imported products will bring an animal disease with them, importing countries can impose trade restrictions on countries that vaccinate animals.

1997-2003: animal disease outbreaks in the Netherlands

One outcome of the EU's non-vaccination policy is that livestock in the member states is susceptible to infectious diseases (RDA, 2018). The first epidemic in the Netherlands after the non-vaccination policy came into force – classical swine fever – was in 1997. This epidemic was followed by outbreaks of foot and mouth disease in cattle in 2001 and highly pathogenic bird flu in poultry in 2003.

2003: the Netherlands decides against emergency vaccination

Under existing EU rules, member states can apply for an exemption allowing them to vaccinate livestock in a crisis. The Netherlands, however, has never made widespread use of emergency vaccination against highly pathogenic bird flu, not even during the 2003 pandemic. There are several reasons for this. Vaccination with the 2 vaccines available at the time was very labour intensive. Each bird had to be handled individually. Furthermore, the vaccine was effective only after 3 weeks. There were therefore doubts whether vaccination of broiler chickens was worthwhile as they were slaughtered at 5-6 weeks. Moreover, emergency vaccination would mean products from vaccinated animals could not be sold in the EU owing to the trade barriers put in place out of fear that imports would spread the virus. Italy had the same problem in 2003, when eggs (hatching and consumption) from vaccinated birds could not be sold in the EU (LNV, 2003).

In the years since 2003, too, the Netherlands has lobbied to have vaccination accepted in the EU. Between 2006 and 2009, the EU allowed the preventive vaccination of commercial free-range poultry and other captive birds in the Netherlands and France on a voluntary basis. Zoos in particular made eager use of this opportunity. Commercial poultry farms, however, rarely opted for vaccination because their products would be harder to sell and would fetch lower prices – even if there was no ban on sales. Furthermore, vaccination of large numbers of poultry would have been very labour intensive and the vaccine would take too long to be effective against the viruses in circulation, even if an effective vaccine was available. Other EU member states remained convinced that preventive culling was more effective and the potential risks for Dutch exports were never entirely dispelled. The Minister of LNV wrote to the House in 2021, 'Sales barriers can arise from the decisions taken by international market parties and the government plays only a minor role in them. Despite this minor role, I will continue to work both nationally and internationally for better acceptance of these products wherever possible' (LNV, 2021).

2.5 Vaccinated diseases

Fear of trade barriers has frustrated the development of a bird flu vaccine for many years, but poultry are already being vaccinated against other animal diseases. The EU, for instance, has long allowed preventive vaccination against Newcastle disease, which can cause inflammation and respiratory problems in hens and turkeys. It can also cause eye infections and flu symptoms in people. Hen and turkey keepers in the Netherlands are required to vaccinate their birds against Newcastle disease (government animal health website). In contrast to highly pathogenic bird flu, there has been an effective vaccine against Newcastle disease since 1976.

In addition, depending on the species, type of housing and farm-specific conditions, poultry have for decades been vaccinated against several viral diseases, including Marek's disease, which can cause tumours in poultry. Poultry keepers can also vaccinate their birds against several bacterial infections, including salmonella enteritidis and mycoplasma gallisepticum. For an effective immune response, multiple vaccines should not be administered simultaneously or in quick succession. Otherwise, the vaccines will influence each other and weaken their efficacy. It has to be determined whether vaccines that are effective against highly pathogenic bird flu can be included in the current vaccination programme (WUR, 2023). This, too, is being investigated in the field tests and pilots of the 2 vaccines.

3.

Bird flu in wild birds

Wild birds are also susceptible to the current bird flu epidemic. When infected, they become ill and die in large numbers. It is unclear who is responsible for disposing of diseased and dead wild birds and who must bear the costs.

3.1 Dealing with infected wild birds

Wild birds with bird flu were detected throughout the entire year for the first time in 2022. Wild birds can quickly infect each other, especially if they live in close contact. Several bird species, such as the sandwich tern and the common tern, were badly affected by the disease in 2022. It is thought that between 60% and 70% of the breeding population of sandwich terns died of bird flu in just a few weeks (Ballmann & Lilipaly, 2023). How many wild birds have been infected with bird flu in total is not known. What is known is that the situation is alarming. The State Forest Service, Natuurmonumenten, Vogelbescherming and other nature organisations said they were very worried that certain wild bird species were in danger of extinction in the Netherlands (see, for instance, Vogelbescherming et al., 2022). Other animals are also at risk, mammals for instance that eat infected dead birds.

Uncertain rules on disposal of dead birds

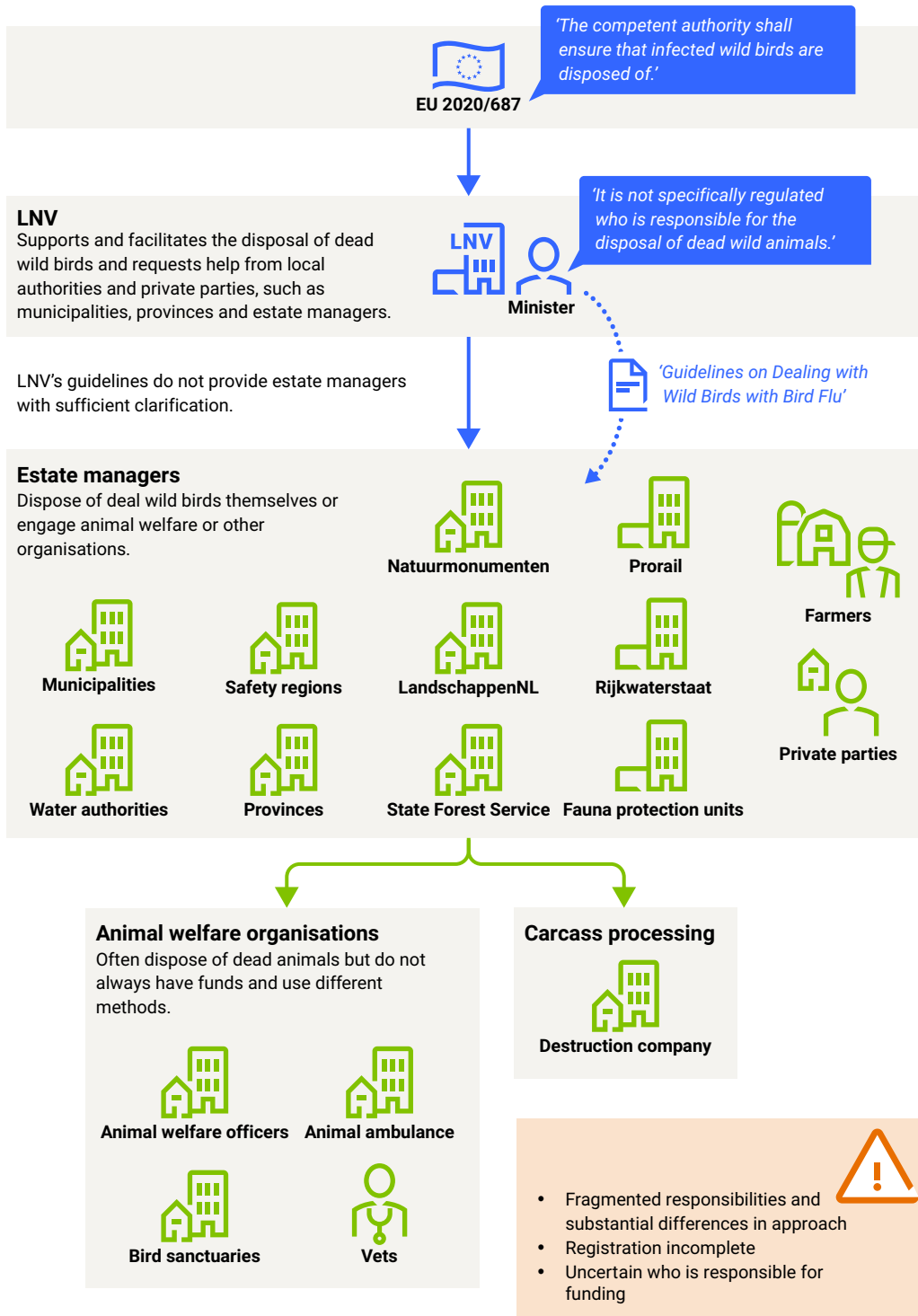
The Minister of LNV published Guidelines on Dealing with Wild Birds with Bird Flu in November 2022 (LNV, 2022b). The guidelines are a response to calls from estate management organisations for clarification about the disposal of dead wild birds with bird flu. They state, 'It is not specifically regulated who is responsible for the disposal of dead wild animals'. Without a specific regulation, say the guidelines, it is up to the landowner (or manager) to decide who disposes of carcasses on their

property. That can be a private party or, for instance, the State Forest Service or Natuurmonumenten.

The guidelines state that if wild bird carcasses are infected with a regulated infectious disease, such as bird flu, the government must oversee their disposal and the Ministry of LNV must be satisfied that carcasses are disposed of correctly. It does not mean that the ministry has sole responsibility for disposing of them in practice. This fragmentation of responsibilities is shown in figure 7.

Figure 7 Responsibility for the disposal of wild birds with bird flu

Fragmented responsibility for disposal of wild birds with bird flu



National estate managers such as Natuurmonumenten and the State Forest Service say the absence of clear guidelines means each region has its own approach to the disposal of potentially infected wild birds. In practice, disposal depends on whether a party feels responsible and whether it has the time, money and personnel to dispose of the birds. The estate managers we spoke to said they did not know enough about

bird flu in wild birds or about the reasons and need to dispose of them. Disposal of potentially infected birds can prevent the disease spreading further, but it can also disrupt a breeding colony. Estate managers also said they were concerned about the health of the people who removed potentially infected birds without protective equipment.

Greater clarification of approach to bird flu

In mid-2023, the Minister of LNV was working on a programme to clarify the approach to bird flu. A national working group has been set up with representatives from a wide range of organisations to clarify how infected and dead wild birds should be dealt with. An app is being developed for the ministry of LNV to make it easier for organisations to report dead birds. However, it does not explain what should be done or who is responsible when a report is made.

The national working group will also discuss how the disposal of dead wild birds should be funded. The Ministry of LNV is not currently providing funds for, for instance, protective equipment but he has awarded a one-off payment of €68,000 to the Fryslân Safety Region in view of the lead it took in controlling bird flu in wild birds in Friesland. The safety region had asked several parties to reimburse the costs it had incurred.

The Ministry of VWS has provided some of the protective equipment remaining from the COVID-19 crisis to the Ministry of LNV. In reply to motions in the House of Representatives in March 2023, the Minister of LNV said he would pass on the protective equipment to animal welfare organisations. It can also be used by other volunteers who come into contact with infected wild birds (LNV, 2023c).

The Minister of LNV has also indicated that he and the Minister of VWS would release €100,000 to help animal welfare organisations in 2023. This funding is intended to cover the cost of recovering and disposing of dead birds and disinfecting vehicles (LNV, 2023c).

Estate managers told us that they, too, had incurred costs to dispose of wild birds. The hours spent on the disposal of carcasses, for instance, could not be spent on their normal activities (crowding out of activities). In addition, if an organisation itself did not have staff available, companies had to be contracted to dispose of the birds.

3.2 Monitoring bird flu in wild birds

To keep track of the incidence and spread of highly pathogenic bird flu in wild birds, the Minister of LNV is contributing financially to the following 2 programmes to monitor dead and live wild birds.

Funding of laboratory tests of dead wild birds

Dead wild birds are monitored by means of laboratory tests paid for by the Minister of LNV (through the Animal Health Fund). The tests for highly pathogenic bird flu are coordinated by the Dutch Wildlife Health Centre. Estate managers and animal welfare organisations can send dead birds to the Wageningen Bioveterinary Research laboratory in Lelystad for testing.

Reintroduction of government contribution to test live wild birds for bird flu

According to the Ministry of LNV, monitoring only dead wild birds does not provide enough information about the incidence of highly pathogenic bird flu in wild birds. Not every wild bird infected with bird flu dies from the disease and not every dead bird is reported and sent to the laboratory for testing.

Since 2022, the ministry has therefore been paying €150,000 per annum to have live wild birds tested by the Erasmus Medical Centre. The tests will increase the ministry's insight into the circulation of bird flu and the possible emergence of new virus strains in the Netherlands.

Between 2006 and 2010, the government contributed €270,000 per annum to this monitoring programme for live wild birds. The minister lowered the government contribution in 2012 and again in 2013 and ended it altogether in 2018. The then Minister of LNV explained that the monitoring was principally scientific in nature and its results were not politically relevant.

4.

Cost of combating bird flu

The cost of combating bird flu (prevention and control) is increasing and will become more structural in the years ahead owing to the endemic risk of infection. Between 2015 and 2021, the cost amounted to about €10 million per annum. In 2022, it jumped to €55 million. The Minister of LNV is therefore anticipating structurally higher expenditure on controlling bird flu than in the past. Under the current funding system, the Minister of LNV has to meet more of the cost in 2022-2024. In 2015-2021, poultry farmers bore 83% of the costs, the EU 10% and the Minister of LNV 7%. In 2022, poultry farmers paid 54% and the minister 46%. In 2016, the cost to the Minister of LNV had been €0.7 million, but it jumped to €26 million in 2022. It is not known how much the EU will contribute. This chapter looks at how these costs are funded. The Animal Health Fund (DGF) plays a key role in the funding system.

4.1 Funding via the DGF

The DGF was set up in 1998. It pays the costs incurred for the control, monitoring and prevention of infectious animal diseases and zoonoses. The DGF was established in response to a major and very costly outbreak of classical swine fever in 1997 (LNV, 2020). Every five years, the sectors concerned and the government negotiate a covenant with agreements on how measures to control infectious animal diseases will be funded via the DGF. The DGF then receives the agreed contributions from the Ministry of LNV, levies collected from the agriculture sectors and budgets released by the EU.

Levies paid by agriculture sectors

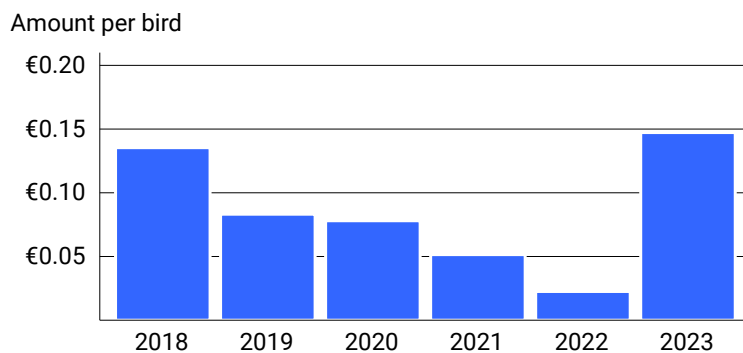
The DGF receives funding and pays costs to control various animal diseases (not only in poultry but also in pigs, cattle, sheep and goats). The government and agriculture sectors agree on the allocation of the costs. There is a balance between:

- business risk (farmers);
- sector protection (government and farmers);
- public health protection (government).

The farms in the various agriculture sectors contribute levies to the DGF. The Netherlands Enterprise Agency (RVO) collects the levies on behalf of the Minister of LNV. The levy per kept poultry bird fell in recent years but rose sharply from €0.03 to €0.15 per bird in 2023; see figure 8.

Figure 8 Average levy per poultry bird paid to DGF, 2018-2023

Increase in poultry levy in 2023



The cost of controlling a poultry disease is initially met from a compulsory emergency reserve for the poultry industry amounting to €7.4 million. When the reserve is exhausted, which has been the case since 2022, the Minister of LNV advances funds to cover expenditure from the DGF. The advances are later repaid from the levies paid by the poultry industry to replenish the emergency reserve. The reserve's ceiling is agreed every 5 years (see below).

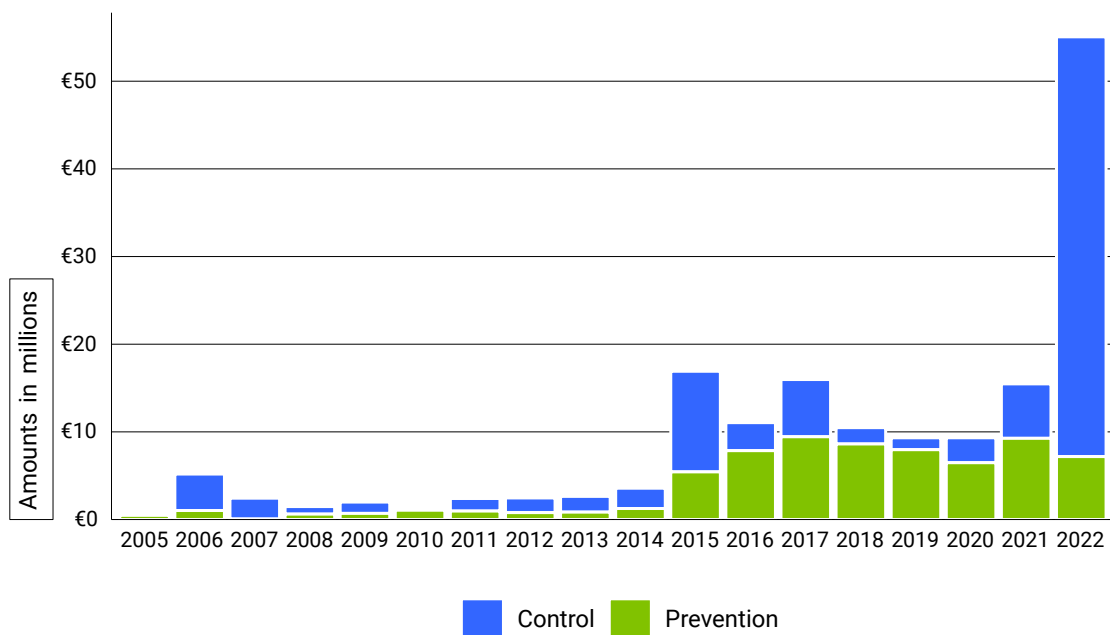
Relationship between prevention and control costs

It is agreed in the covenant what proportion of each cost item in the DGF will be met by the sector and what proportion by the Minister of LNV. The costs are broken down into prevention costs and control costs. Prevention costs include the cost of monitoring and crisis preparedness (e.g., the availability of deployable culling equipment). Control costs include the cost of compensation paid to culled-out poultry farms, the cost of using culling equipment and culling teams and the cost of placing warning signs in areas with a transportation ban.

Figure 9 shows that prevention costs are more stable and predictable than control costs. Control costs can escalate rapidly when a disease such as bird flu breaks out. Control costs amounted to €49 million in 2022.

Figure 9 Bird flu prevention and control costs, 2005-2022

By far most of the money spent in 2022 went to controlling bird flu



The increase in costs in 2015 was due in part to the axing of the marketing boards on 1 January 2015. Some of the tasks they performed have since been funded via the DGF.

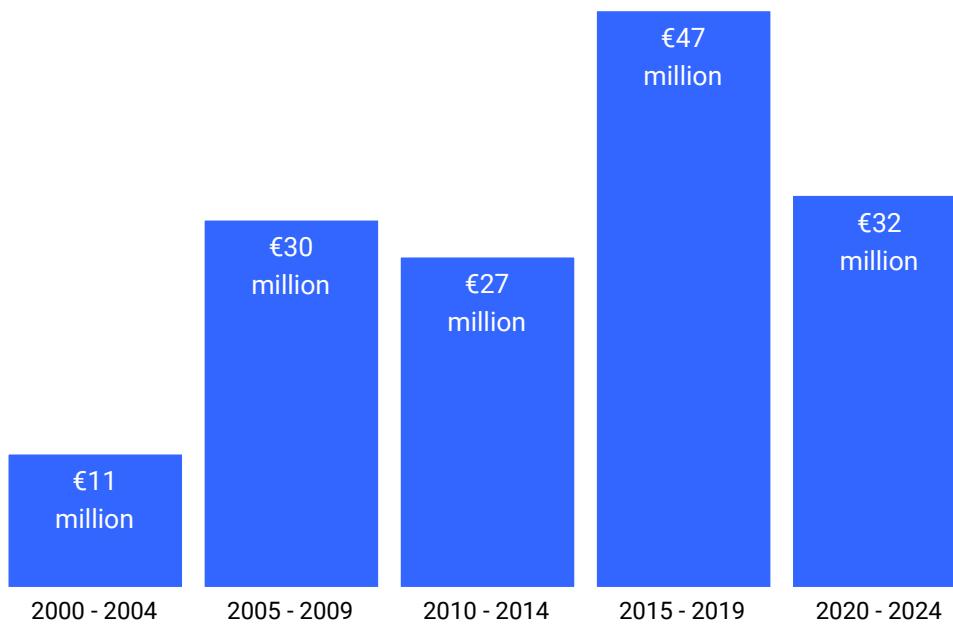
Five-year ceiling on industry's contribution to control costs

Ceilings on how much the poultry industry must contribute for the prevention of animal diseases are set in the funding covenant every 5 years. If control costs exceed the ceiling, the Minister of LNV bears the excess costs until the end of the covenant. The ceilings take account of the industry's ability to pay and ability to

recover financially from a major animal disease outbreak (LNV, 2022b). Figure 10 shows the ceilings in all covenants since 2000. In 2000-2004, the ceiling amounted to €11 million and in 2020-2024 to €32 million.

Figure 10 Poultry sector ceilings for control costs, 2000-2024

Control cost ceilings vary per covenant



The covenants' ceilings for the poultry industry are negotiated by the industry and the minister based on the estimated risk of the emergence and spread of an animal disease and estimated control costs. Since 2005, risk and cost estimates have been made by Wageningen University & Research (WUR). Researchers at WUR say the cost of controlling animal diseases is difficult to estimate accurately and can rise very rapidly during an outbreak of highly pathogenic bird flu, which has been the case since 2021 (WUR, 2019).

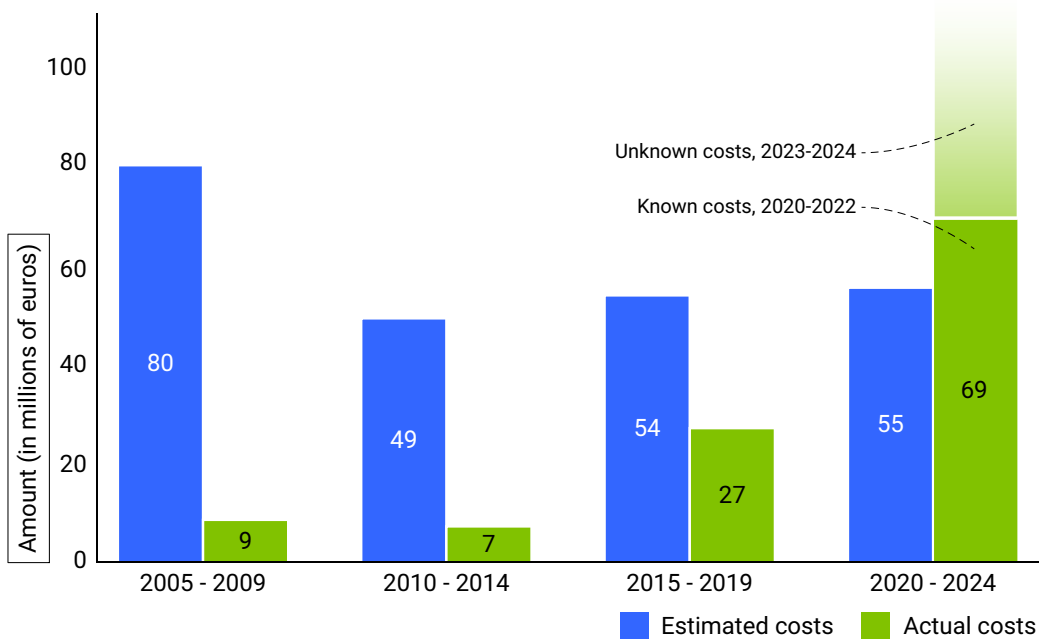
Current covenant underestimates cost of controlling bird flu

The WUR estimated in 2019 that outbreaks of highly pathogenic bird flu would be smaller in size than in previous years. It assumed that more cases would be detected than in the past but each outbreak would be less severe. On balance, therefore, control costs would be lower (WUR, 2019).

Figure 11 shows the average estimated cost to control highly pathogenic bird flu per covenant versus the actual control costs. The estimated costs include EU contributions (previously 50%, currently 20% of prevention and control costs, see below).

Figure 11 *Estimated versus actual control costs*

Control costs overestimated for many years, underestimated in current covenant



The estimated costs in the figure above have been adjusted for the expected EU contribution. This is explained further in the methodology section (appendix 1).

It can be seen that the control costs were overestimated for many years but have been underestimated in the 2020-2024 covenant. Moreover, the €69 million shown for 2020-2024 is not yet the full amount for the period. It includes only control costs in 2020-2022, as the costs in 2023 and 2024 are not yet known.

We consider previous and forthcoming covenant negotiations and the estimated cost to control bird flu outbreaks in § 4.3.

Average culling cost

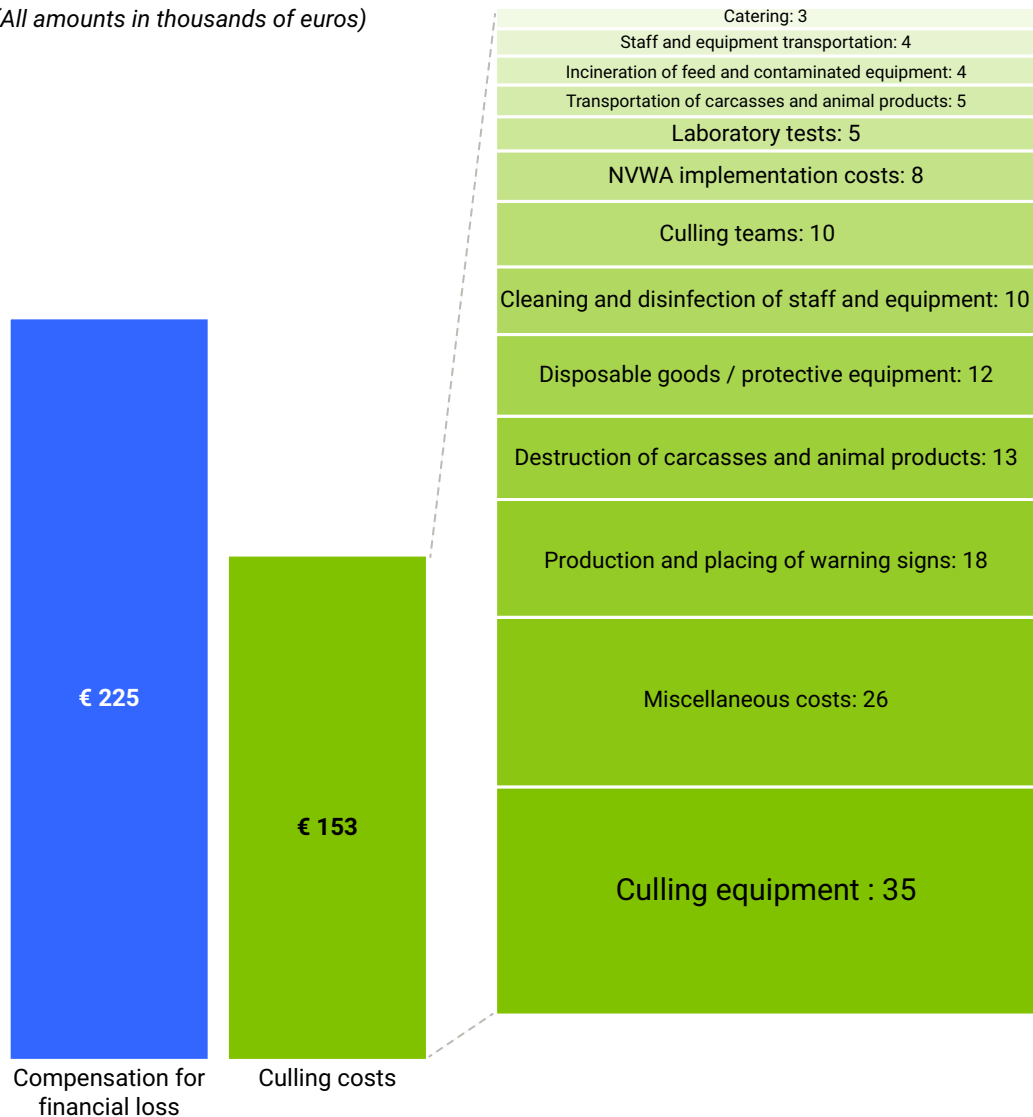
A large proportion of the cost to control a bird flu outbreak is spent on culling out the infected poultry farm and neighbouring poultry farms (preventive culling). Figure 12 shows the average culling cost in 2020-2021 per cost category and in total. In total, an average culling in these years cost €378,000. The cost per culling varies significantly depending on the size of the farm. Figure 12 shows that the average cost consists of compensation for financial loss and culling costs. The direct culling costs are broken down into subcategories, ranging from catering to culling equipment.

Figure 12 Cost to cull out a poultry farm

An average culling cost €378,000 in 2020-2021

Variation is high owing to the size and type of farm

(All amounts in thousands of euros)



4.2 Cost allocation: EU, LNV and industry

We investigated who had contributed what to control animal diseases in the poultry industry in recent years. We looked at the contributions made by the industry (poultry farmers), the Minister of LNV and the EU. Owing to the design of the funding system, the Minister of LNV will bear more of the costs in 2022-2024. Between 2015 and 2021, the industry had borne 83% of the costs, the EU 10% and LNV 7%. In 2022, the industry contributed 54% and LNV 46%. It is not known whether and how much the EU will contribute.

Uncertainties about the EU contribution

The EU allocates funds to control bird flu in the member states. It decides on the amount after the epidemic ends. This creates uncertainty among the member states, as they do not know how much the EU will contribute. The longer the epidemic, the longer their uncertainty. The EU makes its contribution this way because it believes an outbreak has a clear start and end. The current epidemic, however, is more or less continuous. On 31 December 2022, the Commission declared that the first wave of the epidemic had ended in 2021. Financial settlement for this period still has to be made and the Netherlands does not know how much it will receive.

Change in cost breakdown for poultry industry, Minister of LNV and EU

Until the end of 2022, the EU had cofinanced 50% of the costs incurred by member states (EU, 2021). The contribution to member states with low gross domestic products (GDP) was 75%.

EU cofinancing will be lower as from 2023; the contribution to the Netherlands will be reduced from 50% to 20%. The reduction is due to the exhaustion of the EU budget owing to the many outbreaks of bird flu and African swine fever in recent years. The Commission has informed the Minister of LNV about the reduction.¹ In May 2023, the Netherlands still had to receive the EU contribution for 2020, 2021 and 2022.

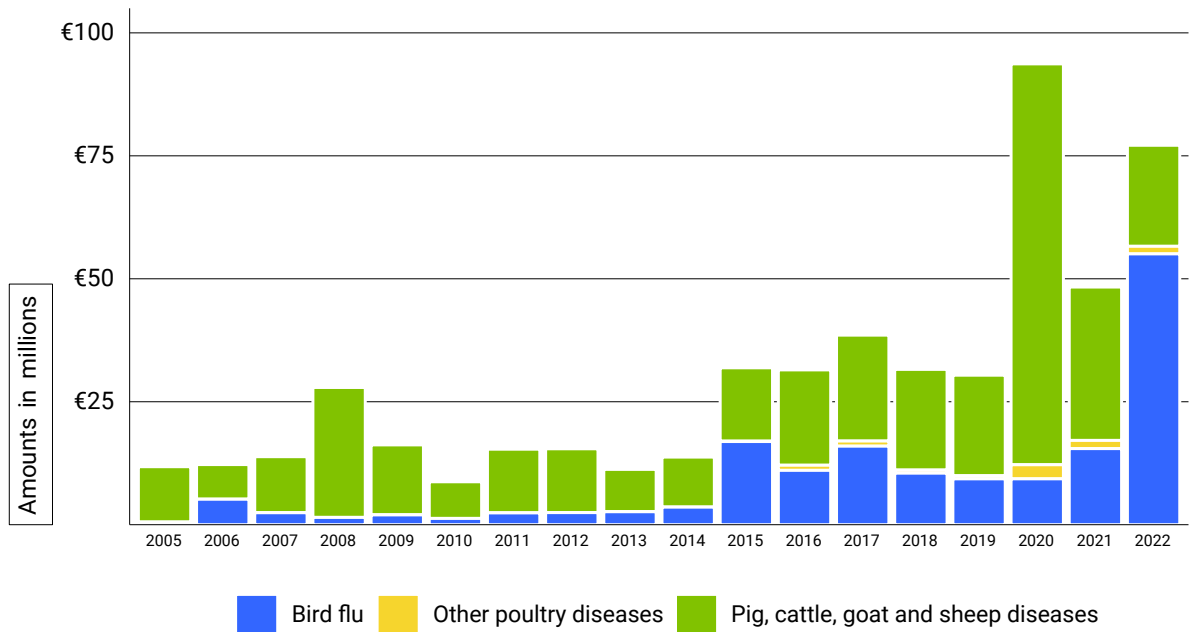
Limited insight into bird flu costs

RVO is responsible for the financial management of the DGF on behalf of the Minister of LNV. It can provide only limited insight into the cost to the Minister of LNV, the industry and the EU of controlling animal diseases. The DGF's annual reports do not include a comprehensive breakdown of income and expenditure by species or disease. Income from the EU, for instance, is not specified at poultry level. It is also not disclosed what proportion of the costs borne by LNV itself relates to poultry or to bird flu. Furthermore, RVO does not have comprehensive data for all years. Some data series go back to 2005, others to 2015. Insight is further limited because EU contributions for a particular year are sometimes paid to the Netherlands one or more years later.

Figure 13 shows the cost of bird flu, other poultry diseases and other animal diseases based on available information in the non-public financial accounts of RVO.

Figure 13 Prevention and control costs of bird flu and other animal diseases

Increase in the cost of preventing and controlling bird flu

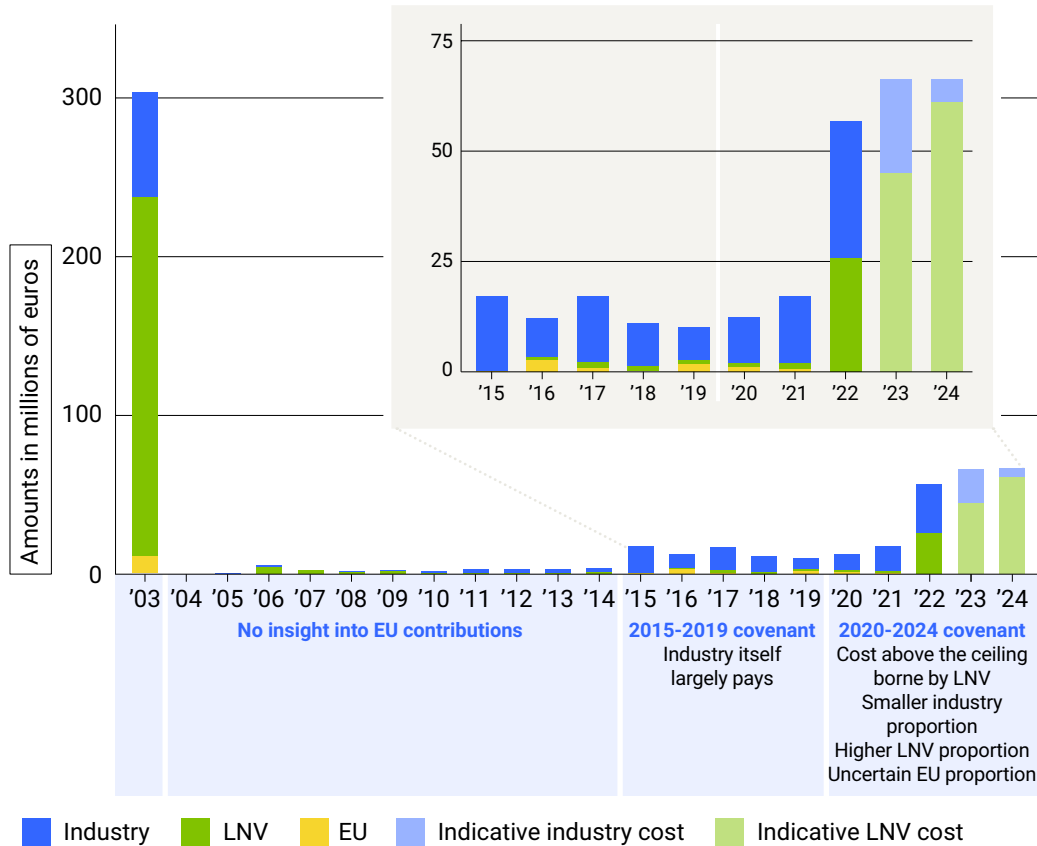


It can be seen that the cost of preventing and controlling bird flu, and other poultry diseases, has risen over the years from about €10 million per annum in 2015-2021 to €55 million in 2022. As noted above, the cost increase in 2015 was due in part to the axing of marketing boards on 1 January 2015. Marketing boards were public-law associations of businesses that produced a particular product. Certain tasks they performed have since been funded via the DGF.

From RVO's financial accounts, we could partially reconstruct which parties bore which costs; see figure 14.

Figure 14 Breakdown of costs across the industry, Ministry of LNV and EU

More bird flu prevention and control costs for the account of the Minister of LNV, as in the 2013 epidemic



The breakdown in figure 14 relates to all poultry diseases, not to bird flu alone. Bird flu, however, accounts for most of the costs to prevent and control poultry diseases.

Figure 14 shows that the industry bore most of the costs until 2021. The situation changed in 2022. In 2023 and 2024, the Minister of LNV will meet all the control costs because the five-year ceiling agreed with the industry has already been reached. The industry will still contribute to prevention costs. The EU contributions as from 2022 are currently unknown and are not included in the figure.

The 2 figures above do not include data for 2000-2004, as they are not available from RVO. The 2003 bird flu prevention costs in figure 14 are taken from DGF's annual report (LNV, 2008). Then, like now, the costs were met mainly from the public purse.

4.3 Negotiation of cost allocation

Strictly speaking, the Minister of LNV does not need a covenant to have the industry provide some of the funding for DGF. Under the Animal Act, the minister can set the rate of the animal welfare levy by means of general order in council. It is important for parliament to know that if the European Commission, the House of Representatives or the Senate had objected to certain provisions in the 2020-2024 covenant, the minister could have unilaterally declared them or their implementation not applicable (LNV, 2019).

Negotiation of the 2020-2024 covenant

In the negotiation of the 2020-2024 covenant to fund the control of infectious animal diseases, the industry and the Minister of LNV agreed that the industry would contribute no more than €30 million to bird flu control costs over the entire covenant period (AVINED, 2019), instead of the €36 million estimated by WUR (WUR, 2019). In addition, the poultry industry wanted to renegotiate the proportion it contributed. The financial agreements, it argued, should recognise that the greatest risk of a bird flu outbreak in poultry came from wild birds (AVINED, 2019). The minister did not accept this argument but promised to reconsider it in the negotiation of the next covenant.

Negotiation of the 2025-2029 covenant

The Minister of LNV is expected to start negotiation of the covenant for 2025-2029 at the end of 2023. The rising cost of bird flu, the reduction of the EU contribution and the possible additional cost of vaccination will be key negotiating points. In 2023, the Minister of LNV will test the poultry keepers' ability to pay prevention and control costs and what proportion. The minister is expected to inform both the industry and the House in autumn 2023 about the outcome of this test.

5. Response of the minister

We sent our draft report to the Minister of LNV. He responded to it in detail and informatively. He also referred to a plan to step up control of bird flu that he intended to launch in June 2023. His response gave us no cause for an afterword. The letter has been published (in Dutch) on our website (www.rekenkamer.nl).

Appendices

Appendix 1 Methodology

What did we investigate?

The key question in our investigation was: What measures is the government taking to stop the spread of bird flu and how and by whom are they funded?

Investigation questions

We designed the investigation to answer the following questions:

1. How has the size of the poultry industry and poultry trade in the Netherlands changed in the past 2 decades?
2. How many outbreaks of bird flu have there been in the Netherland in the past 2 decades and where and when did they occur?
3. What policy has the Minister of LNV implemented to combat bird flu in poultry and wild birds?
4. How often and when has the Minister of LNV taken measures (culling, transportation bans, housing orders) to prevent and control bird flu in the past 2 decades?
5. What agreements are there between the Ministry of LNV, the poultry industry and the EU on the allocation of costs and income to prevent and control bird flu?
6. What expenditure has been agreed in the 2000-2022 covenants to prevent and control bird flu outbreaks in the Netherlands, and how is their funding borne by the poultry industry, the Ministry of LNV and the EU?

We were unable to answer question 4 in full because detailed, multiyear data on transportation bans and housing orders were not available. We had not posed a

separate question pertaining to the final chapter. During the investigation, however, the negotiation of covenants proved relevant to understand the funding system. We therefore dedicated a chapter to it in the report.

Focus investigation

This report presents the findings of a focus investigation carried out by the Netherlands Court of Audit. A focus investigation differs from an audit in that it is carried out in a considerably shorter period of time, looks at current events and answers specific, well-defined questions. A focus investigation culminates in a clear, concise report without opinions or recommendations. See <https://english.rekenkamer.nl/about-the-netherlands-court-of-audit/what-wedo/innovation-in-audit/focus-investigations>.

The activities we carried out for this investigation are summarised below.

Approach

We held interviews with:

- Ministry of Agriculture, Nature and Food Quality (LNV)
- Netherlands Food and Consumer Product Safety Authority (NVWA)
- Netherlands Enterprise Agency (RVO)
- Ministry of Health, Welfare and Sport (VWS)
- DG Health & Food Safety of the European Commission
- AVINED (Dutch poultry foundation)
- Poultry farmers
- State Forest Service
- Natuurmonumenten
- Vogelbescherming
- Fryslân Safety Region
- Academics at Utrecht University and Erasmus Medical Centre

We also analysed and processed data and documents requested from the Ministry of LNV, NVWA and RVO. We drew on public sources and open data for certain parts of the investigation. The public sources are listed in the references section in appendix 2. Non-public sources, such as official memoranda, preparatory memoranda for the minister and risk analyses, are not included in the references because they are not made public.

We put our findings to the Ministry of LNV, NVWA and RVO (in full) and to the Ministry of VWS (only relevant sections) for verification of the facts.

Data sources

Where relevant, the data sources used for the figures are given below. For each figure, we go as far back in time as possible. This was more successful in some cases than in others, as we were reliant on the party providing the data (e.g., the Ministry of LNV, NVWA and RVO). Data availability was therefore decisive.

Figure 1 Number of animals culled per annum, 2003-2023

Data provided by the NVWA.

Figure 2 Poultry trade in the Netherlands

Data from <https://www.fao.org/faostat/en/#data/FBS>.

Figure 3 European poultry density

Poultry density is calculated as the number of poultry birds per hectare of land (excluding open waters). Data on the number of poultry birds were taken from the Eurostat dataset EF_LSK_MAIN (Main livestock indicators by NUTS 2 regions). Land area (excluding open waters) is taken from the Eurostat dataset REG_AREA3 (Area by NUTS 3 region).

Figure 4 Poultry density in the Netherlands

Data from <https://opendata.cbs.nl/#/CBS/nl/dataset/80781ned/table>.

Figure 5 Number and size of poultry farms, 2000-2022

Data from <https://opendata.cbs.nl/statline/#/CBS/nl/dataset/80780ned/table>.

Figure 6 Poultry culling process

No data.

Figure 7 Responsibility for wild birds with bird flu

No data.

Figure 8 Average levy per bird in the poultry sector paid to DGF, 2018-2023

Data from the tables in annual Animal Health Levy Decrees.

Figure 9 Bird flu prevention and control costs, 2005-2022

Based on processed data from the financial accounts of RVO. The figure shows the aggregate costs to LNV, EU and the industry.

Figure 10 Poultry sector ceilings for control costs, 2000–2024

Amounts taken from successive covenants.

Figure 11 Estimated control costs versus actual costs

Based on processed data from RVO's financial accounts. The figure shows control costs funded by LNV, the industry and the EU. We compare the average control costs estimated by WUR per covenant period with the actual costs per covenant period. WUR estimated the control costs per covenant period at €52, €32, €35 and €36 million respectively. It also assumed that the EU would contribute an additional 35%. Its estimates therefore represented 65% of the total estimated control costs. We extrapolated these amounts to 100%, to produce the €80, €49, €54 and €55 million respectively shown in the figure. Actual costs are taken from RVO's financial accounts.

Figure 12 Cost to cull out a poultry farm

Based on processed data from RVO.

Figure 13 Prevention and control cost of bird flu and other animal diseases

Based on processed data taken from RVO's financial accounts.

Figure 14 Breakdown of costs across the industry, Ministry of LNV and EU

Based on processed data taken from RVO's financial accounts.

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Animal Act. In force from 22 December 2022 to the present.

Appendix 3 Endnotes

- 1 This section was edited following ministerial clearance .

Netherlands Court of Audit

PO Box 20015

2500 EA The Hague

The Netherlands

Phone +31 70 342 44 00

voorlichting@rekenkamer.nl

www.courtofaudit.nl

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Translator: Alan Hyde

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