

Culling the Herds?

Regional Divergences in Rinderpest Mortality in Flanders and South Holland, 1769-1785

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Abstract

The cattle disease rinderpest devastated Europe throughout the eighteenth century. The practice of preventative slaughter, or stamping out, has been seen as the most effective method of containing the disease. Historians frame this strategy as a measure of the effectiveness of centralized bureaucracy in handling epidemic outbreaks. The Austrian Netherlands, which enacted a stamping out policy during the rinderpest epidemic of 1769-1785, is often cast opposite the decentralized Dutch Republic, which did not. That mortality was more severe in Holland than in Flanders is interpreted as a consequence of this difference. This article compares the disease management of Flanders and South Holland as well as the differential mortality of cattle in the initial years of the outbreak. We argue that stamping out should not be used as the standard for evaluating effective management. Both South Holland and Flanders relied on a high degree of state intervention. No strategies were universally effective. Explanations must be sought in regional socio-ecological structures. Rather than a consequence of state action or inaction, rinderpest mortality responded to the movement of cattle for pasturing and trade, structural differences in land use, and the resultant divergences in agricultural practices and herd management. Rather than state intervention, extensive commercial cattleholding explains the highly variable mortality.

1 Introduction

The cattle disease rinderpest has left a deep imprint on farming societies for millennia. The virulence of this plague, which could kill upwards of



*Illustration 1: Jan Smit's 1745 print 'Gods Slaandehand over Nederland door de Pest-Siekte onder het Rund Vee' can be read in two ways. The most common interpretations have been moralizing and fatalistic, emphasizing the helpless farmers and state ineptitude in combatting the rinderpest pandemic. An alternate reading acknowledges the diversity of land use and animal mortality in the middle and background. Source: Jan Smit, *Boeren getroffen door runderpest*, 1745 (Rijksmuseum, Amsterdam).*

ninety per cent of infected animals, lends itself to breathless descriptions of catastrophic losses. This is equally true of the eighteenth-century European epidemics as it is of the later 'Great African rinderpest epizootic' of 1887.¹ Yet the tribulations of nineteenth-century Southern Africa or eighteenth-century Friesland,² where rinderpest ran wild, are sometimes taken

1 C. Spinage, *Cattle plague: a history* (New York 2003) 133; T. Barrett et. al., *Rinderpest and Peste Des Petits Ruminants: virus plagues of large and small ruminants* (London 2006) 100.

2 For the situation in Africa, see e.g. P. Phoofole, 'Epidemics and revolutions: the rinderpest epidemic in late nineteenth-century Southern Africa', *Past & present* 138 (1993) 112-143; R. Waller and K. Homewood, 'Elders and experts: contesting veterinary knowledge in a pastoral community', in: A. Cunningham and B. Andrews (eds.), *Western medicine as contested knowledge* (Manchester 1997) 69-93; H. Weiss, '“Dying cattle”: some remarks on the impact of cattle epizootics in the central Sudan during the nineteenth century', *African economic history* 26 (1998) 173-199; G. Marquardt, *Open spaces and closed minds. A socio-environmental history of rinderpest in South Africa and Namibia, 1896-1897* (Unpublished PhD-thesis, Madison 2007); W. Beinart, 'Transhumance, animal diseases and environment in the Cape, South Africa', *South African historical journal* 58 (2007) 17-41; D. Gilfoyle and K. Brown, *Frontiers of knowledge: veterinary science, environment, and the state in South Africa, 1900-1950* (Saarbrücken 2009); K. Brown and D. Gilfoyle, *Healing the*

as *pars pro toto* for all experiences with the disease. The infamous lithograph, 'God's striking hand over the Netherlands', is the thread running through many texts and presentations today. The received image of rinderpest's dread march throughout history is overwhelmingly one of helpless farmers, hapless management, and cattle keeling over from back to front.³

When deviations from this standard scenario occurred and losses from rinderpest remained in fact mild or manageable, this is commonly explained by human interference – particularly that of the state.⁴ Historiographical analysis has largely focused on the national level and/or on the action (or inaction) of policymakers. The introduction of so-called stamping out policies in some European countries during the eighteenth century – most notably in England in 1718 and the Austrian Netherlands in 1769 – involved the state-directed preventative slaughter of not only infected, but also suspected animals. In both of these cases, preventative slaughter capped a policy encompassing a wider range of measures, including import restrictions and certification of livestock. Some countries restricted themselves to the latter policies, avoiding preventative slaughter. State intervention was therefore not a binary choice, but must be thought of as a spectrum of potential policy measures. Nevertheless, preventative slaughter was seen both by contemporaries as well as by later historians as a measure of singular effectiveness as well as singular intrusiveness, requiring action on a scale that dwarfed any other effort.⁵ Historians have, thus, presented stamping out as an example of successful state intervention. Where such a policy had *not* been implemented, historians blame the lack of a strong central government and its inability to overcome particular interests or 'irrational' viewpoints. It is accepted as self-evident that stamping out would have been implemented everywhere if governmental elites had had both sufficient knowledge of the disease and the ability to fully implement their views.

herds: disease, livestock economies, and the globalization of veterinary medicine (Athens OH 2010); W. Beinart and K. Brown, *African local knowledge & livestock health: traditional, environmental & biomedical approaches in South Africa* (Oxford 2013).

3 J. Smit, *Boeren getroffen door runderpest, 1745 and Gods slaande hand over Nederland, door de pest-siekte onder het rund vee* (Amsterdam 1745).

4 Historians also often note the significance of trade networks in the spread of the disease. Rinderpest outbreaks in Europe in the eighteenth century (and Africa in the nineteenth) were associated with the international oxen trade and urban markets for beef. The state was heavily invested in the policing of this trade. Karl Appuhn, 'Ecologies of beef: Eighteenth-century epizootics and the environmental history of Early Modern Europe', *Environmental History* 15 (2010) 268-287; W. Gijbers, *Kapitale Ossen. De internationale handel in slachtvee in Noordwest-Europa* (Hilversum 1999).

5 As such, we use 'stamping out' to refer only to those programs that incorporated preventative slaughter.

The Dutch Republic, on the one hand, and the Austrian Netherlands on the other, are commonly positioned at opposite ends on this spectrum. Peter Koolmees, Jan Bieleman, Eric Jones, Ronald Rommes, and Johannes Faber all explain the repeated rinderpest outbreaks in the eighteenth-century Dutch Republic by ‘the lack of a strong central government’, which hindered the imposition of effective measures.⁶ Jan de Vries and Ad van der Woude contrast the Dutch experience of the disease with England when they argue that ‘in the decentralized Republic, no organ of government was adequate to the task of forcing all farmers to take this drastic step’.⁷

The Austrian Netherlands, along with England, are described in more glowing terms. The introduction of stamping out in both countries is hailed as rational and the reason for the relatively mild impact of rinderpest.⁸ John Fisher, for instance, states that ‘the slaughter programmes against rinderpest in the eighteenth century were attended by a high degree of success in most cases, a tribute to the growing power and competence of the European states in undertaking what Eric Jones has called ‘disaster management’⁹ and links the

6 P.A. Koolmees, ‘Epizootic diseases in the Netherlands, 1713-2002’, in: K. Brown and D. Gilfoyle (eds.), *Healing the herds: disease*, 23-25; J. Bieleman, *Boeren in Nederland. Geschiedenis van de landbouw 1500-2000* (Amsterdam 2008) 214; E. Jones, *The European Miracle: Environments, economies and geopolitics in the history of Europe and Asia* (Cambridge 1987) 143; R. Rommes, ‘Geen vrolyk geloei der melkzwaare koeijen: Runderpest in Utrecht in de achttiende eeuw’, *Jaarboek Oud Utrecht* (2001) 123; J.A. Faber, ‘Cattle-plague in the Netherlands during the eighteenth century’, *Mededelingen van de Landbouwhogeschool te Wageningen, Nederland* 62:11 (1962) 5. Cf. J.W. Buisman, *Tussen Vroomheid en Verlichting: Een cultuurhistorisch en -sociologisch onderzoek naar enkele aspecten van de Verlichting in Nederland (1755-1810)* (Zwolle: 1992) 117-118. Similar sentiments are expressed in France and German examples. For France, see E. Shakeshaft, *Epizooties sur les betes a cornes en Flandres, Hainaut et Cambresis au XVIIIe siecle* (Unpublished PhD-thesis, Lille 2006) 746; F. Vallat, ‘An outbreak in France in the XVIIIth century: rinderpest’, *C.R. Biologies* 335:5 (2012) 347-348. For Germany, see K. Hünemörder, ‘Zwischen “abergläubischem Abwehrzauber” und der “Inokulation der Hornviehseuche”. Entwicklungslinien der Rinderpestbekämpfung im 18. Jahrhundert’, in: K. Engelken et al. (eds.), *Beten, Impfen, Sammeln. Zur Viehseuchen- und Schädlingsbekämpfung in der Frühen Neuzeit* (Göttingen 2007) 21-56.

7 J. de Vries and A. van der Woude, *The first modern economy: success, failure, and perseverance of the Dutch economy, 1500-1815* (Cambridge 1997) 214.

8 J. Broad, ‘Cattle plague in eighteenth-century England’, *Agricultural History Review* 31:2 (1983) 104; R. De Herdt, ‘Het uitroeien van de runderpest in Vlaanderen (1769-1785). Regeringsmaatregelen en oppositie ertegen’, *Tijdschrift voor Industriële Cultuur* 83 (2003) 76; F. Vallat, ‘Les Pays-Bas autrichiens précurseurs européens en police sanitaire 1769-1776’, *Scientific and technical review of the OIE* 25:3 (2006) 951-960. Cf. R.A. Dorwart, ‘Cattle disease (Rinderpest?) – Prevention and cure in Brandenburg, 1665-1732’, *Agricultural history* 35 (1959) 79.

9 Referring to Italy, Britain, and the Austrian Netherlands. J. Fischer, ‘To kill or not to kill: the eradication of contagious bovine pleuro-pneumonia in western Europe’, *Medical history* 47:3 (2003) 315.

differential evolution of government policy to variations in political culture.¹⁰

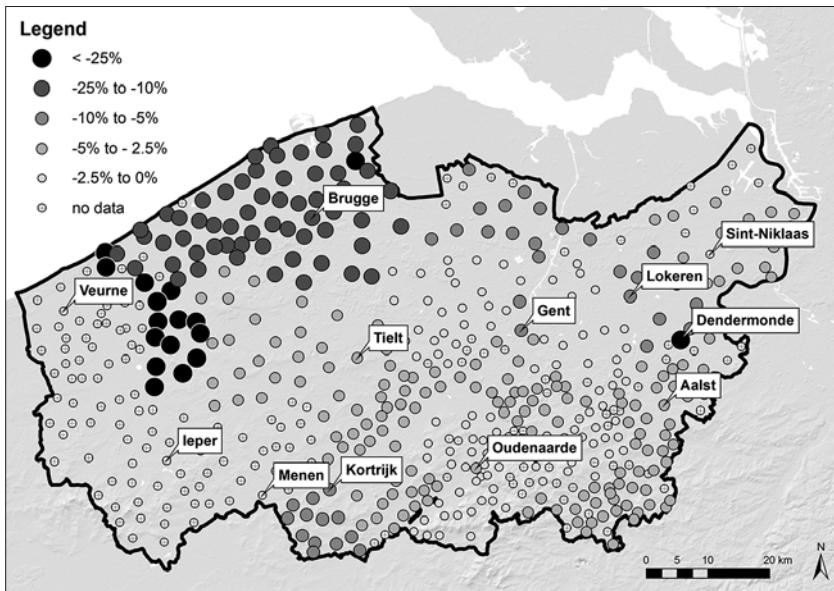
From another angle, historians have produced exhaustive studies of the Dutch rural economy that often note the significance of rinderpest in regional and provincial contexts. Yet few consider the viability of medical or administrative strategies to combat epizootics, or treat them to comparative international analysis.¹¹ While regional divergences in the impact of rinderpest are sometimes noted, this never seems to bring the importance of state intervention into question.¹²

We argue this is unjustified. Not only do these patterns show that state intervention was not effective everywhere, they raise the question as to what extent it can even be considered the causative factor in those regions where the impact of rinderpest was limited. In this paper, we will first examine both the county of Flanders within the Austrian Netherlands, and the southern part of the province of Holland within the Dutch Republic. Both regions experienced significant regional differences in cattle mortality during the rinderpest outbreak of 1769-1785. Furthermore, a deeper analysis shows that state intervention was neither universally effective in the Austrian Netherlands, nor absent in the Dutch Republic. As such, the fundamental reasons behind the divergences in mortality must be sought in socio-agricultural structures, which either abetted or hindered the impact of rinderpest. We argue that death and destruction were not universal, but overwhelmingly associated with extensive, commercial cattleholding, and that there was little that the early modern state could realistically do to change this.

10 *Ibidem*, 316. See also M. Ferrières, *Sacred cow, mad cow: a history of food fears* (New York 2006) 212-216.

11 For instance B.H. Slicher van Bath, *Een samenleving onder spanning: geschiedenis van het platteland in Overijssel* (Utrecht 1957); J.A. Faber, *Drie eeuwen Friesland: economische en sociale ontwikkelingen van 1500 tot 1800* (Wageningen 1972); A.M. van der Woude, *Het Noorderkwartier: Een regionaal historisch onderzoek in de demografische en economische geschiedenis van westelijk Nederland van de late middeleeuwen tot het begin van de negentiende eeuw* (Wageningen 1972); J. Bieleman, *Boeren op het Drentse zand, 1600-1910: een nieuwe visie op de 'oude' landbouw* (Wageningen 1987); Rommes, 'Geen vrolyk geloei', 123. For a short overview see A. Sundberg, *Floods, worms, and cattle plague: nature-induced disaster at the closing of the Dutch golden age, 1672-1764* (Unpublished PhD-thesis, Lawrence 2015) 53-54.

12 See for instance the remarks in R. De Herdt, *Bijdrage tot de geschiedenis van de veeteelt in Vlaanderen, inzonderheid tot de geschiedenis van de rundveepest 1769-1785* (Louvain and Ghent 1970) 116-117; J.R. Fischer, 'The economic effects of cattle disease in Britain and its containment, 1850-1900', in *Agricultural history* 54:2 (1980) 288; S. Matthews, 'Explanations for the outbreak of cattle plague in Cheshire in 1865-1866: "Fear the Wrath of the Lord"', *Northern history* 43:1 (2006) 119; Faber, 'Cattle-plague in the Netherlands'.



Map 1: Relative decline of revenues of *bestiaalgeld*, 1769-1771/1772. Twelve cities are named to aid orientation. Map courtesy of Sven Vrielinck (POPPKAD UGent, Vakgroep Geschiedenis), with alterations made by Jason Jongepier (University of Antwerp).

2 Cattle mortality

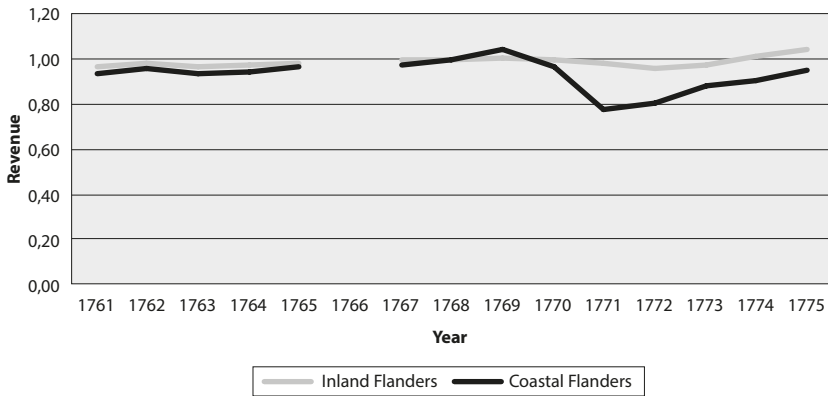
The impact of rinderpest in the county of Flanders can be assessed by looking at revenues of *bestiaalgeld*: a tax on certain categories of bovines (cattle kept on pastureland and older than three years) and horses. Sporadic district records exist from 1702 onwards, becoming more regular from 1746 up until 1797. These records cover the cantons Bruges and Ghent.¹³

The general imposition of this tax throughout the county of Flanders allows us to reconstruct regional divergences in the impact of rinderpest. Figure 2 shows the reduction in *bestiaalgeld*-revenues across the cantons of Bruges and Ghent. The district (*comptoir*) functioned as an administrative supra-local unit, grouping the revenues of several neighbouring parishes, collected by several receivers. Revenues were listed per parish up until 1754, but were grouped per district thereafter. Thus, while we know which parishes belong to which district, it is not possible to disaggregate district revenues for this later period.

To account for temporal differences in the impact of the disease, the

¹³ Rijksarchief Gent (hereafter RAG), *Estates of Flanders* (hereafter *EF*), 4400-4413 and 5959-5990.

Figure 3. Adjusted aggregated revenues of bestiaalgeld and heads of cattle, relative to index year (1768)*



Revenues of the bestiaalgeld, adjusted to account for income derived from horses. Bestiaalgeld was levied on cattle kept on pastureland and older than three years as well as horses. Source: Rijksarchief Gent, Staten van Vlaanderen, 4400-4414 & 5959-5990.

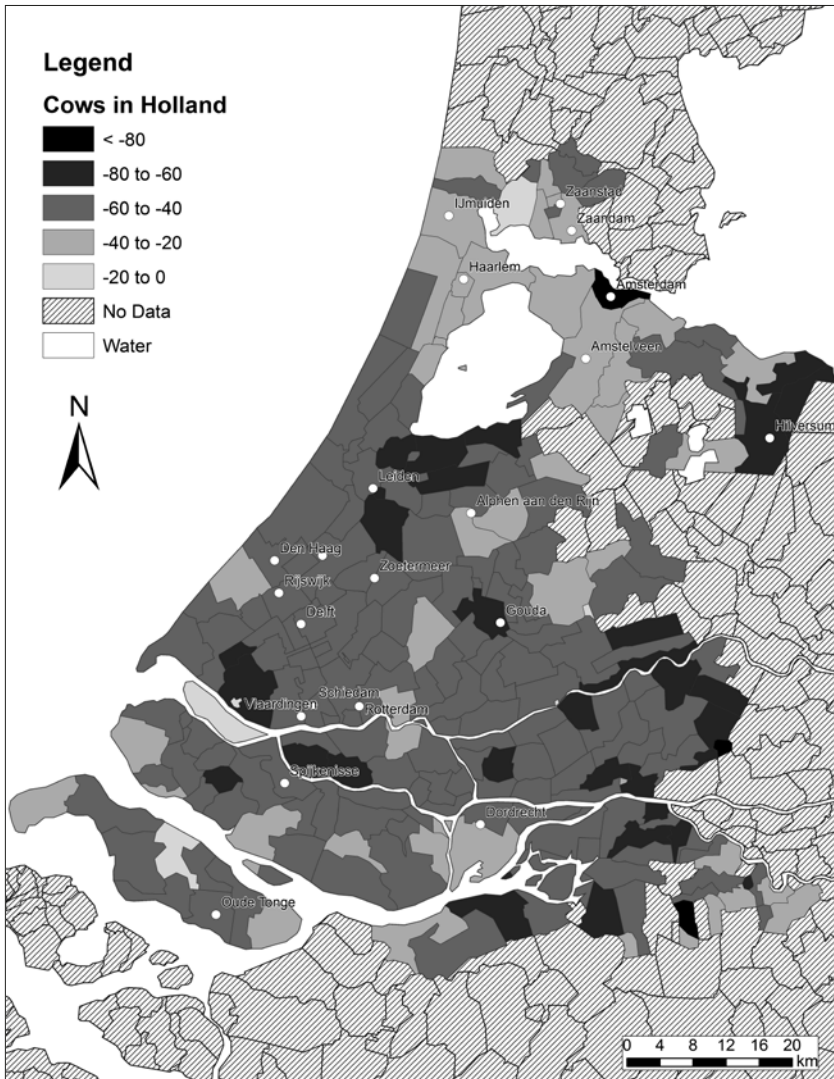
decline was calculated by comparing the revenues of 1769 with the lowest point of the period 1771-1772. As can be seen on the map, there is a clear and notable difference between coastal Flanders – the fertile polder area to the north and west of Bruges – and inland Flanders – characterised by dense bocage and mixed farming – as the other districts showing declines of more than ten per cent were predominantly located within this first region. By contrast, all districts located within inland Flanders suffered declines of less than 10 per cent (with the exception of Dendermonde¹⁴). Only eight suffered a decline of more than five per cent.¹⁵ The difference between these regions is striking and is shown in figure 3. Revenues stemming from inland Flanders declined only four per cent, while those of coastal Flanders reached a low of minus 22 per cent, compared to 1768.

Turning towards South Holland, the *hoorngeld* tax, which was due on bovines older than two years, allows us to assess the damage wrought by rinderpest at a local level and to compare this with the situation in Flanders. The outbreak of rinderpest prompted the regular publication of the number of cattle on which this tax was paid per parish, twice a year starting from October 1768.¹⁶ We compared the lowest level reached in the worst affected period of 1769-

14 This can probably be explained by the extremely small size of this district, comprising only one parish with low levels of revenue.

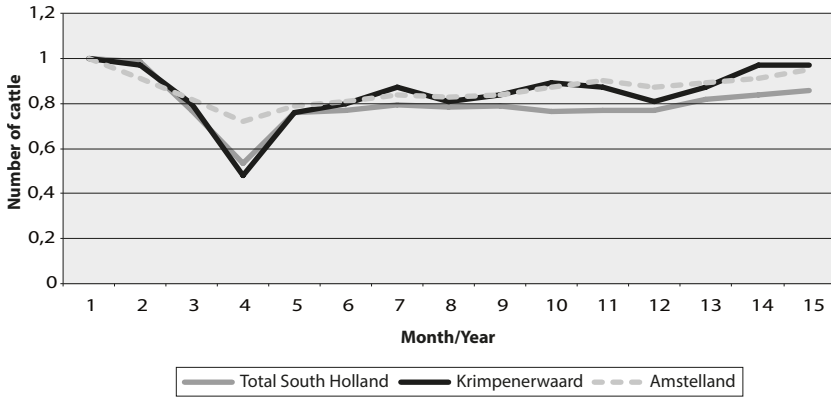
15 Namely Zelzate, Bassevelde/Boekhoude, Eeklo, Aalbeke, Ghent, and Zele.

16 Nationaal Archief Den Haag, *Collectie Goldberg* (hereafter CG), inv. no. 51. Gedrukte lijsten van het getal van het rundvee in het Noorder- en Zuiderkwartier van Holland. 1768-1805.



Map 2: Relative decline of the numbers of cattle in South Holland as described in the revenues of winter and summer hoorngeld 1768-1769/1770. Twenty cities are named to aid orientation. Source: Hoorngeld data from Nationaal Archief Den Haag, Collectie Goldberg, inv. no. 51. Gedrukte lijsten van het getal van het rundvee in het Noorder- en Zuiderkwartier van Holland. 1768-1805. South Holland municipalities adapted from: O.W.A. Boonstra (2007): NLGis shapefiles. DANS. <http://dx.doi.org/10.17026/dans-xb9-t677>.

Figure 5. Number of cattle (April & October), relative to index year (1768)



Source: Nationaal Archief Den Haag, Collectie Goldberg, inv. no. 51. Gedrukte lijsten van het getal van het rundvee in het Noorder- en Zuiderkwartier van Holland. 1768-1805.

1770 to the pre-outbreak level of October 1768 in order to eliminate misleading divergences caused by the uneven onset of the outbreak. Cattle numbers declined by almost half overall, reaching a low of 53 per cent of the 1768 level in April 1770. As we can see in figure 4 however, this aggregate figure hides considerable regional differences, with mortality being concentrated in the heart of South Holland and some outlying regions suffering comparatively milder losses. Villages in Amstelland, to the south of Amsterdam, saw maximum declines of minus 25.4 per cent on average, while the Zaanstreek, to the north of Amsterdam and Haarlem recorded minus 30.6 per cent and the southern island of Goeree-Overflakkee minus 24 per cent. While obviously severe, losses were far more severe in the Rijnland-region around Leiden (54.7 per cent) and the heartland of dairy production: the Krimpenerwaard (52.7 per cent).¹⁷ Figure 5 shows the aggregate figures for all of South Holland, the Amstelland, and the Krimpenerwaard.

South Holland experienced a high degree of region variation. Amstelland saw herds decline by 25 per cent, whereas the Krimpenerwaard in the dairy heartland of Holland saw declines of 52 per cent. South Holland published lists of the number of cattle per municipality upon which the *hoorngeld* tax could be levied (bovines over the age of two).

Both Flanders and South Holland thus witnessed substantial regional differences in rinderpest mortality. But how can we explain these divergences? Was there a difference in how regulations were imposed or enforced, or should we look at other factors?

¹⁷ Cf. *infra*.

3 State intervention

While the Austrian Netherlands are often contrasted with the Dutch Republic as a simple case of state intervention versus no state intervention, a closer look at the outbreak in both countries reveals a more complex reality. In the Austrian Netherlands, after an initial appearance in Marche-en-Famenne in 1769, the disease subsequently spread to the county of Flanders, near Ghent. After an initial period of disagreement, an interventionist policy including preventative, mandatory slaughter and indemnifications was quickly implemented. However, when the disease spread to coastal Flanders in 1770, this stamping out policy was abandoned when rinderpest spread out of control. Preventative slaughter proved ineffective at stemming the region's heavy losses in 1770 and 1771. Affected areas were instead surrounded by cordons of troops and isolated.

The abandonment of stamping out was temporary, however. When stamping out was reinstated in 1772, losses remained limited. Both contemporary elites and later historians saw a causal connection between this reinstatement and the absence of further losses. René De Herdt, for instance, assigns a substantial portion of the blame to the castellanies of Furnes and the Franc of Bruges for their 'negligent attitude'.¹⁸ In our view, however, this is mistaken. It was not the lack of enforcement of stamping out that led to rinderpest spiralling out of control in 1770-1771. Rather, it was the other way around. The response of the castellanies and the rural population to the initial outbreak lacked neither enthusiasm for stamping out nor an absence of enforcement. Disease mortality, or the lack of it, cannot have been caused by state action or inaction. A close look at the chronology of the first coastal outbreak will make this clear.

Even before the disease's arrival, the Franc of Bruges was keen to stress its approval of stamping out and to demonstrate the severity with which it enforced measures.¹⁹ When in May 1770 it became clear that the disease was spreading within the French castellany of Bergues, the *raadsfiscaal* (the representative of the central government in Flanders) F.J. Dierickx sent word that regulations concerning the import of cattle were to be strictly enforced.²⁰ The Franc of Bruges subsequently required all cattle coming from the neighbouring castellanies of Ypres and Furnes to be accompanied by a health certificate and sent a brigade of armed guards to guard the border

¹⁸ De Herdt, *Bijdrage tot de geschiedenis*, 117.

¹⁹ RAG, *EF*, inv. no. 11175. Letter of the Franc of Bruges, 16 December 1769.

²⁰ Rijksarchief Brugge (hereafter RAB), *Bundels Brugse Vrije* (hereafter BBV), inv. no. 597. Letter of Dierickx, 12 may 1770.

with Furnes. A delegation was also sent to liaise with both castellanies in order to coordinate various measures.²¹ Local governments went even further: the bailiff of Diksmuide, a town bordering the castellany of Furnes, asked for – and received – permission to halt import of all hides and cattle from Furnes, even if they came accompanied by certificates of good health.²²

On 1 September, the aldermen of Furnes reported that an outbreak had taken place in a village close to their border with the Franc and it is clear that both the aldermen and the population of the Franc were worried that the disease might soon cross over into their castellany.²³ While Furnes had slaughtered all affected and suspected animals on the farm itself, because of the great openness of the surrounding land, a subsequent cordon sanitaire to prevent further communication had to enclose approximately 400 animals. In response to this message, the Franc formed a cordon along the border to prevent any importation of animals.²⁴ A fortnight later, the castellany of Furnes informed the Franc that the disease had spread to other places both within the cordon sanitaire and without, ‘which is rendering the execution of her majesty’s edicts impossible.’²⁵ Subsequently, the border was reinforced with forty dragoons.²⁶ Representative of the Franc were sent to border parishes; they were responsive to rumour, asking priests or pharmacists if they had heard of any cattle falling ill within their parish.²⁷ The instructions of the Franc were unequivocal: there was no better course to take than that which the edicts prescribed.²⁸

Meanwhile, in the castellany of Furnes, even central government officials reported that the disease seemed to have been contained in five parishes by a prompt slaughter of the affected animals. In six other parishes, however, this measure had proved unsuccessful. All affected villages had

21 RAB, *BBV*, inv. no. 597. Letter of the Franc of Bruges, 18 May 1770. The answer of the castellany of Ypres indicates that this was by no means exceptional behaviour: RAB, *BBV*, inv. no. 596. Letter of the castellany of Ypres, 23 May 1770.

22 RAB, *BBV*, inv. no. 597. Letter of de Doncquers, 28 May 1770; Letter of the Franc of Bruges, 30 May 1770.

23 Alderman de Onate van Zuytcote reported that he had no trouble finding people to guard the cordon, as farmers themselves considered them to be extremely necessary. RAB, *BBV*, inv. no. 599. Letter of de Onate van Zuytcote, 7 October 1770.

24 RAB, *BBV*, inv. no. 599. Letter of the Franc of Bruges, 3 September 1770.

25 ‘het welcke d’executie van ’s majesteys placcaeten ontrent onmogelyck is maeckende’. RAB, *BBV*, inv. no. 599. Letter of the castellany of Furnes, 18 September 1770; Letter of the castellany of Furnes, 23 September 1770.

26 RAB, *BBV*, inv. no. 599. Letter of de Pelichy, 19 September 1770.

27 RAB, *BBV*, inv. no. 599. E.g. Letter of de Doncquers, 1 October 1770; Letter of de Doncquers, 07 October 1770; and Letter of Simon, 15 October 1770.

28 RAB, *BBV*, inv. no. 603. Letter of de Doncquers, 3 October 1770.

been surrounded by a cordon sanitaire, which they hoped would contain the illness.²⁹ Within these zones, only sick animals were slaughtered while healthy animals were kept as isolated as possible.³⁰

In early October, rinderpest crossed the border into the Franc of Bruges. Although initially the full measures of stamping out were instituted, it quickly became apparent that, as in Furnes, it would be impossible to slaughter and indemnify all sick or potentially sick animals. Even where only six or eight showed symptoms, as many as 500 or 600 would have to be slaughtered – a task that exceeded the limits of what was logistically and financially possible. As the disease slowly advanced east, the Franc threw in the towel on 4 November, asking the Estates of Flanders for permission to abandon the entire western part of the Franc and to redirect all manpower there to form a cordon separating it from the rest of the territory. The many internal cordons proved ineffective and overly burdensome.³¹ At this point the *raadsfiscaal* disagreed and, each party keen to shift the blame that had begun to accumulate, a bitter argument raged until the disease temporarily disappeared during the winter months.

As this investigation into the chronology of the outbreak makes clear, there is no indication that coastal castellanies in the early days of the outbreak were in any way recalcitrant or negligent. Nevertheless, even central government officials conceded that stamping out often failed to contain an outbreak of rinderpest in the polders, while requiring rigorous measures that very quickly became too intrusive and too expensive. When the disease kept spreading regardless of any intervention, the castellanies, the Estates of Flanders, and the *raadsfiscaal* and his subordinates each tried to deflect blame.

A resurgence of the disease in the spring and summer of 1771, now focused on the north of the Franc of Bruges, gave rise to the same cycle of abandonment of whole regions, the formation of cordons, and recriminations. These accusations of malpractice and incompetence must be seen in the context of a power struggle between competing levels of government and constant attempts to win the patronage of superiors rather than as a clear reflection of reality.

If we were to assume, as De Herdt does, that incompetence and recalcitrance explain the divergent outcomes between regions, we are faced with the task of explaining not only why local authorities or the rural popula-

29 RAB, *BBV*, inv. no. 599. Letter of Joris, 9 October 1770.

30 RAG, *EF*, inv. no. 749. Resolution by the Estates of Flanders, 19 October 1770.

31 RAG, *EF*, inv. no. 1178. Letter of Onraedt, 4 November 1770.

tion would suddenly become more amenable after the reintroduction of stamping out in 1772, but also why similar problems did not thwart efforts inland. There is no evidence that enforcement efforts suffered from a deficit before 1772, or underwent a qualitative change after 1772.³² In our view, the abandonment of regions and complaints about malfeasance were a consequence, not a cause, of rinderpest running wild. As such, we cannot consider stamping out to have been an unqualified success in Flanders, nor can it be the cause behind the regional divergences in mortality.

Turning towards Holland, it is equally clear that it is simply wrong to suggest that either local or central governments were unwilling to intervene to prevent rinderpest from spreading. While Holland did not experiment with stamping out, we can see a whole range of measures – from export and import bans to trade interdictions – being imposed (and more importantly, enforced!)³³

By the time rinderpest reappeared in Holland in 1768, preventative measures were already in place. Dutch provincial and municipal authorities implemented a variety of strategies to limit the spread of the disease, such as import and export restrictions on oxen and cattle products, certifications for cattle transportation, and mandatory quarantine for animals crossing provincial borders. The Estates of Holland and West Friesland took a leading role in instituting these policies, many of which had been pioneered during the previous two waves of rinderpest in the eighteenth century (1713-1720; 1744-1765). The virulence and long duration of the second outbreak in particular ensured that many of these restrictions endured long after the epidemic had subsided. Although many of these restrictions were between 1764 and 1768, when plague reappeared, Holland could draw on recent experience to respond quickly to the threat.

News reports of the spread of the disease confirmed the return of the plague in 1768.³⁴ In response, the *Gecommitteerde Raden* of Holland quickly turned to a 'redeveloped and amplified' set of prophylactic restrictions es-

32 See also F. Van Roosbroeck, *To cure is to kill? Cattle plague, state intervention, and veterinary knowledge in the Austrian Netherlands, 1769-1785* (Unpublished PhD-thesis, University of Antwerp 2015) 48-50.

33 E.g. Stadsarchief Amsterdam, *Archieven van de Schout en Schepenen, van de Schepenen en van de Subalterne Rechtbanken*, inv. no. 968. Minutes of requests to the aldermen's bench, fo. 17 & 226, 1769.

34 'dat de Sterfte onder het Rundvee zederd eenigen tyd zich hebbende geopenbaard in de Landen, grenzende aan de Frontieren van den Staat, onlangs ook in dezelve is doorgedrongen, en tot naby de Grenzen van deeze Provincie genaderd, waar door met reden te duchten is, dat die Plage eerlang tot binnen deeze Provincie zal worden overgebracht,' *Haerlemse courante*, 21/6/1768.

established during the previous epizootic in 1751 and 1764.³⁵ Holland instituted a complete ban on the import of cattle from outside the province under penalty of 2000 guilders and the forfeiture of the animals. Driving cattle along public roads was likewise banned without proper certification of health. Holland depended on local officials like city magistrates, sheriffs, or municipal secretaries to confirm that cattle had been stalled or pastured for two weeks without sign of sickness.³⁶ The decentralized structure of Dutch governance was reflected in the responsibility that the province placed on local authorities to manage the disease. The complex system of penalties ranging from fees, to forfeiture, to the banishment of offenders reassured readers that ultimate authority remained in provincial hands, however.

Despite these preventative strategies, rinderpest re-emerged in Holland in the fall of 1768 and spread unevenly through the next spring. In March of 1769, the *Gecommitteerde Raden* issued instructions to its districts ordering increased surveillance of livestock within their borders. If cattle fell ill, they were to send weekly reports.³⁷ This decentralized strategy of accounting for cattle morbidity and mortality was not new in 1769,³⁸ but served to record the continuing diligence of local officials instituting provincial policy.

Without abandoning their efforts to limit new exposure to the disease from outside its borders, by the spring of 1769 Holland shifted attention to managing the outbreak within the province. Knowledge about the origins and types of animals moving across the province was critical. Much of the infrastructure for this information gathering was already in place. Already in the spring of 1764, for instance, the Estates of Holland had required the branding of cattle horns to track their movement, including the location of quarantine when entering the province and their destination.³⁹ This strategy was immediately re-implemented, although instead of branding, the

35 'Renovatie en Ampliatie,' Noord Hollands Archief (hereafter NHA), Ambachtsbestuur van Velsen (hereafter AV) inv. no. 490. Publicatie Gecommitteerde Raaden van de Staten van Holland en West-Friesland, 16 June, 1768.

36 'de Sterfte onder het Rundvee dewelke te vooren soo sterk in deese Provincie heeft gegrassseert tot groot nadeel van de goede Ingezeetenen,' NHA, inv. no. 3701.490. Placaat Staten van Holland en West-Friesland, 14 October 1768.

37 'in gevallen eenige besmettelijke siekte onder Rundvee in UL District word bespeurt ... alle week ons by Missive van de toestand dier besmettelijke siekte naauwkeurige informatie te geeven; speciaelyk of de Beesten aan de besmetting zyn gestorven,' NHA, AV, inv. no. 490. Placaat Staten van Holland en West-Friesland, 21 March 1769.

38 TRESOAR, Verzameling Handschriften, afkomstig van de Provinciale Bibliotheek, inv. no. 261; Nederlandsche jaerboeken, inhoudende een verhael van de merkwaardigste geschiedenissen, die voorgevallen zyn binnen den omtrek der Vereenigde Provintiën, sederd het begin van 't jaer 1757, Volume 2, (Amsterdam 1757) 693-698.

39 NHA, AV, inv. no. 490. Publicatie Staten van Holland en West-Friesland, 6 April 1764.

Estates of Holland required district bailiffs to provide certificates of health in order to use public roads. Holland also depended on local officials like sheriffs and municipal secretaries to confirm that cattle had been stalled or pastured for two weeks without sign of sickness.⁴⁰

In April of 1769, the Estates of Holland published a list of seventeen regulations to either limit the severity or prevent the spread of rinderpest. These included restricting the sale and transport of cattle products like hides and fat, reporting sickness to local authorities, limiting the slaughter of animals, and managing the burial and disposal of bodies. The Estates also outlined penalties for non-compliance, which varied in severity from fifty guilder fines for falsifying health certificates, to a seven hundred-guilder fine, plus a premium of twenty guilders per head of cattle illegally imported into Holland.⁴¹

The Estates of Holland never attempted to implement stamping out, but they nevertheless encouraged new strategies or remedies for the disease. In 1769, the Estates offered a reward of ten thousand guilders for the development of a cure for rinderpest.⁴² Trials and independent experiments with inoculations were also being closely monitored.⁴³ Although decentralized, Holland and the Estates General actively supported innovation and monitored independent activity.

The province of Holland was far from a passive or inefficient manager when rinderpest re-emerged in 1768. This was the third epizootic outbreak of the eighteenth century and Holland actively capitalized on its prior institutional experience managing the disaster. Historians often point to Holland as an example of the failure of decentralized governance, drawing attention to the absence of stamping out as evidence of their inability to enact interventionist policies. Indeed, there is little evidence that it was even considered.⁴⁴ This was despite the systematic efforts of national, provincial, and local governments, practiced over five decades and two previous rinderpest outbreaks. However, the ease of disease transmission and difficulty of isolating sick from healthy animals made this type of response unfeasible, both economically and logistically. Given that we see abandoned state intervention in parts of Flanders, and active intervention in Holland, it is increasingly clear that neither its absence nor its presence can explain mortality rates.

40 Ibidem, Placaat Staten van Holland en West-Friesland, 14 October 1768.

41 Ibidem, 15 April 1769.

42 Plakkaat of 15 April 1769, cited in Buisman, *Tussen Vroomheid en Verlichting*, 119.

43 Buisman, *Tussen Vroomheid en Verlichting*, 120.

44 Not only was there no institutional support for stamping out, but very few medical authorities recommended it.

3 Regions in the Low Countries

If not state intervention, then what can? In our opinion, we should look to the very different patterns of agriculture and cattleholding in these different regions. We have already seen the observable difference between inland and coastal Flanders, and it seems no coincidence that rural historians have increasingly made clear that regional differences in agriculture were much more prominent than national ones. Erik Thoen and Bas van Bavel in particular have done much to promote this viewpoint.⁴⁵ Recent research has done much to enlarge our understanding of these different regions, and shows clearly that agriculture in the Low Countries took many different forms.⁴⁶

Inland Flanders was dominated by peasant smallholders participating in a so-called 'commercial survival economy' in which many sources of income were combined.⁴⁷ Village society was dominated by a few (relatively) large-scale farmers and a large amount of peasant smallholders.⁴⁸ These small holdings, most no larger than 1-5 hectares, were intensively worked.⁴⁹ In many localities, these small plots of land were surrounded by a dense

45 E. Thoen and T. Soens, 'The family or the farm: a Sophie's choice? The late medieval crisis in Flanders', in: J. Drendel (ed.), *Crisis in the later Middle Ages. Beyond the Postan-Duby paradigm* (Turnhout 2015) 196. See also E. Thoen, "Social agrosystems" as an economic concept to explain regional differences. An essay taking the former county of Flanders as an example (Middle Ages-19th century), in: B.J.P. Van Bavel and P. Hoppenbouwers (eds.), *Landholding and land transfer in the North Sea area (late Middle Ages-19th century)* (Turnhout 2004) 47-66. B.J.P. Van Bavel, *Manors and markets. Economy and society in the Low Countries 500-1600* (Oxford 2010). See also the special issue of *Tijdschrift voor Sociale en Economische Geschiedenis* 8:2 (2011) 61-138.

46 See esp. T. Soens, *De spade in de dijk? Waterbeheer en rurale samenleving in de Vlaams kustvlakte (1280-1580)* (Gent 2009); T. Lambrecht, *Een grote hoeve in een klein dorp. Relaties van arbeid en pacht op het Vlaamse platteland tijdens de 18de eeuw* (Gent 2002); T. Lambrecht, 'Reciprocal exchange, credit and cash: agricultural labour markets and local economies in the southern Low Countries during the eighteenth century', *Continuity and change* 18:2 (2003) 237-261; R. Vermoesen, Markttoegang en 'commerciële' netwerken van rurale huishoudens – de regio Aalst 1650-1800 (Gent 2011); R. Vermoesen, 'Paardenboeren in Vlaanderen: middelaars en commercialisering van de vroegmoderne rurale economie in de regio Aalst', *Tijdschrift voor sociale en economische geschiedenis* 7:1 (2010) 3-37; L. Vervaeet, *Goederenbeheer in een veranderende samenleving: het Sint-Janshospitaal van Brugge, ca. 1275-ca. 1575* (Unpublished PhD-thesis, Ghent 2015); K. Dombrecht, *Plattelandsgemeenschappen, lokale elites en ongelijkheid in het Vlaamse kustgebied (14de-16de eeuw): case-study: Dudzele ambacht* (Unpublished PhD-thesis, Ghent 2014).

47 The starting point for any study of this area remains E. Thoen, *Landbouweconomie en bevolking in Vlaanderen gedurende de late Middeleeuwen en het begin van de Moderne Tijden. Testregio: de kassebrijen van Oudenaarde en Aalst (eind 13de-eerste helft 16de eeuw)* (Louvain 1988).

48 Vermoesen, 'Paardenboeren in Vlaanderen'; Lambrecht, *Een grote hoeve*.

49 Soens, *De spade in de dijk*, 90-96;

bocage.⁵⁰ Cattle were kept to support this mixed farming strategy: although surplus animals might occasionally be sold on the market, their main importance was their supply of dairy, traction power, and manure.⁵¹ In the eighteenth-century, individual herds within inland Flanders only very seldom consisted of more than ten animals.⁵² In the village of Ursel, for instance, 162 households owned bovines; the largest herd consisted of only 12 animals. Just three others consisted of ten or more; on average, cattle owners possessed 2.98 animals.⁵³

The situation in the coastal region was, by the eighteenth century, very different from regions further inland. Farms were larger, employed wage labour, and engaged in commercial, specialised agriculture.⁵⁴ Coastal society had become increasingly polarised and shifted towards a strategy of extensive cattleholding.⁵⁵ Cattle were held mostly for dairy in Furnes, while beef cattle were also important in the Franc.⁵⁶ In spring, farmers would purchase lean bovines in inland Flanders, put them to pasture, and then sell them towards autumn – leaving only a much smaller herd to be stabled and fed during winter.⁵⁷ Herds here were much larger than in inland Flanders.⁵⁸ Compared to inland Flanders, the landscape in these polders was much more open, and population densities much lower.⁵⁹

50 Thoen and Soens, 'The family or the farm', 196; C. Vandebroek, 'De problematiek van de energievoorziening in: de zuidelijke Nederlanden en inzonderheid in Vlaanderen (15de-19de eeuw)', in *Revue belge de philologie et d'histoire* 73:4 (1995) 967-981.

51 P. De Graef, *Urbs in rure? Urban manure and fertilizer improvement in 18th century Flemish farming* (Unpublished PhD-thesis, Antwerp 2016).

52 RAG, *EF*, inv. no. 1169-1174.

53 Based on RAG, *EF*, inv. no. 1174. Cattle count of 15 January 1772, Ursel.

54 Soens, *De spade in de dijk*, 90-96.

55 E.g. Soens, *De spade in de dijk*; T. Soens, 'Floods and money. Funding drainage and flood control in coastal Flanders (13th-16th centuries)', in: *Continuity and change* 26:3 (2011) 333-365; E. Thoen, 'Clio defeating Neptune: a pyrrhic victory? Men and their influence on the evolution of coastal landscapes in the North Sea area', in: E. Thoen et al. (eds.), *Landscapes or seascapes? The history of coastal environment in the North Sea area reconsidered* (Turnhout 2013) 397-428. Also Vervae, *Goederenbeheer* and Dombrecht, *Plattelandsgemeenschappen*.

56 P. Vandewalle, *De geschiedenis van de landbouw in de Kasselrij Veurne (1550-1645)* (Brussels 1986); E. Thoen and T. Soens, 'Elevage, prés et pâturages dans le comté de Flandre au moyen âge et au début des temps modernes. Les liens avec l'économie rurale régionale', in: F. Brumont (ed.), *Prés et pâtures en Europe occidentale* (Toulouse 2008) 79-99.

57 P. Lindemans, *Geschiedenis van de landbouw in België* (Antwerp 1994 [1952]) 346.

58 Based on cattle counts in 20 coastal parishes of the Franc of Bruges. RAB, *BBV*, inv. no. 614.

59 Vervae, *Goederenbeheer*, 4; T. Soens, D. Thys and E. Thoen, 'Landscape transformation and social change in the North Sea polders, the example of Flanders (1000-1800 AD)', in: *Siedlungs-forschung. Archäologie, Geschichte, Geographie* 31 (2014) 133-160.

The core area of South Holland was characterised by fenland. In the Middle Ages, peasants drained and exploited its massive peat reserves, ultimately leading to soil subsidence and increasing risks of flooding. In response, the rural population migrated towards towns or shifted towards livestock, often in combination with other activities or the production of specialty crops, which thrived on relatively wet soil conditions.⁶⁰ Although institutional and technological changes increased the capacity to win new land and to improve existing fields, the influx of urban capital this entailed only strengthened pre-existing trends. By the eighteenth century, South Holland had transformed from peasant-dominated landholding to a predominance of larger holdings held in lease from urban landowners. Rural society was extremely polarised, with a small number of large, mostly tenant farmers employing a proletarianised mass of labourers.⁶¹ By the eighteenth century, this entire area was much more dependent on cattleholding than even coastal Flanders, and herds were concomitantly larger.⁶²

In the periphery around this centre, the agricultural economy focused less exclusively on cattleholding.⁶³ Cattleholding was smaller in scale and aimed at the nearby urban markets of Haarlem and Amsterdam, providing e.g. meat, milk and butter for immediate consumption rather than producing cheese for more distant markets.⁶⁴ In the south and especially on the islands of South Holland and Zeeland, arable was more important as well as the cultivation of madder and flax.⁶⁵ Nowhere in Holland, however, was the inland Flemish pattern of intensive stabling supported by heavy use of fodder crops repeated.⁶⁶

60 De Vries and van der Woude, *The first modern economy*, 16-31.

61 J.L. Van Zanden, 'De prijs van de vooruitgang? Economische modernisering en sociale polarisatie op het Nederlandse platteland na 1500', in: *Economisch- en sociaal-historisch jaarboek* 51 (1988) 80-92; M Van Tielhof, 'Turfwinning en proletarisering in Rijnland, 1530-1670', *Tijdschrift voor sociale en economische geschiedenis* 2 (2005) 95-121.

62 J. De Vries, *The Dutch rural economy in the Golden Age 1500-1700* (New Haven and London 1974) 139; De Vries and van der Woude, *The first modern economy*, 214-216.

63 *Ibid.*, 205.

64 Van der Woude, *Het Noorderkwartier*, 566; J.E. Abrahamse et al., '1600-1800 – Metropolitaan landschap', in: J.E. Abrahamse et al. (eds.) *Atlas Amstelland. Biografie van een landschap* (Bossum 2012) 43-62.

65 J. Bieleman, *Boeren in Nederland*; P.J. van Cruyningen, *Behoudend maar buigzaam. Boeren in West-Zeeuws-Vlaanderen 1650-1850* (Unpublished PhD-thesis, Wageningen 2000).

66 De Vries, *The Dutch rural economy*, 149.

4 Structural differences

Why should regional differences rooted in the distribution of power and property have had an effect on the behaviour of rinderpest? We will point to differences in the structure and purpose of cattle-holding and its effects on the landscape that would have affected the spread of rinderpest, and to different priorities among cattle owners that led to divergent ways of coping with outbreaks.

The characteristics of the disease are relevant here: rinderpest is not a disease that can spread by airborne or vector transmission. Instead, it is spread by close contact with infected animals or their bodily fluids. Just a few metres are sufficient to safeguard against the risk of infection. In addition, animals that recover from the disease gain lifelong immunity. As such, the ‘contact rate’ – the number of contacts between infected and susceptible individuals – as well as the herd immunity rate are the most vital parameters in determining both the duration as well as the amplitude of an outbreak. Simply put, the more contact between infected and susceptible animals, the faster the disease will spread and the more animals it will affect.⁶⁷ As such, as the speed of transmission decreases, the outbreak will tend to be more drawn-out and claim less lives. Conversely, given the same infectious agent, outbreaks that cause fewer casualties are often linked to a lower contact rate. This is affected by the agricultural system in which a particular outbreak takes place.

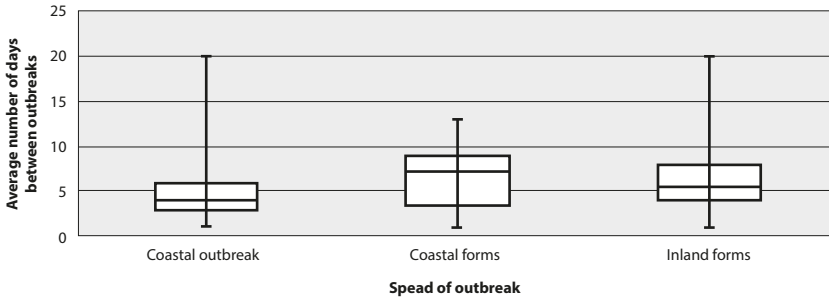
Rinderpest spread faster in coastal Flanders than in inland Flanders. Using 853 forms, which were used to report on individual outbreaks between 1771-1775, as well as separate tables formed during the abandonment of the coastal region in 1771, it is possible to see how quickly the disease spread from herd to herd in parishes in different regions. The individual data points in figure 6 are the average number of days between outbreaks within a particular parish.⁶⁸ They have been organised into three box plots: the first one examines a period and place in which stamping out was abandoned (cf. supra): the coastal region in 1771, for which this figure could be calculated for 39 parishes. The second one shows this for 21 coastal parishes in forms dating after the 1771 outbreak, while the third one concerns all 69 inland forms.⁶⁹

67 P.B. Rossiter and A.D. James, ‘An epidemiological model of rinderpest. II. Simulations of the behaviour of rinderpest virus in populations’, *Tropical animal health and production* 21 (1989) 73-74.

68 For instance, the value for the datapoint ‘Wakken’ is 5.5, as it had cattle owners reporting outbreaks within their herds on 16 October 1773, 30 October (14 days), 1 November (2 days), 3 November (2 days), and 7 November (4 days).

69 This includes data from 1771, but removing this data from the calculation had no significant effect on the median values mentioned directly after this footnote.

Figure 6. *Speed of rinderpest outbreak**



* Boxplots showing the average number of days between individual outbreaks per parish. These averages have been calculated for the coastal region in 1771 (N=39), the coastal region in 1772-1775 (N=21) and the inland region in 1771-1775 (N=68) (Source: Rijksarchief Brugge, *Bundels Brugse Vrije*, 602; Rijksarchief Gent, *Staten van Vlaanderen*, 11156A-11165; Rijksarchief Gent, *Raad van Vlaanderen*, 32007-32009.)

The difference can be spotted immediately: during the 1771 coastal outbreak, the median time between outbreaks was 3.9 days. However, in the inland forms, the median was 5.5 days, while in the post-outbreak coastal forms, it even reached 7.1 days. A statistical test confirms that this difference is significant.⁷⁰

The lower speed of subsequent coastal outbreaks can be readily explained by the high number of immune animals post-1772. In a summary of March 1772, for instance, Furnes reported the presence of 18,621 bovines on its territory, 7,777 (41.8 per cent) had recovered from the disease. This would have had the effect of lowering the contact rate, as immune animals can neither be infected again nor transmit the disease.⁷¹ At the same time, the disease gradually disappeared from neighbouring regions of France and the Dutch Republic. Together, this meant that fewer outbreaks of rinderpest spread at a lower rate and were thus easier to manage and claimed far fewer victims.

Similarly, mortality rates were lower in inland Flanders primarily because of a lower contact rate and hence a slower speed of the outbreak. A first factor that played a role in reducing this rate was the landscape. The differences in landholding patterns and energy needs between inland and coastal Flanders led to very different landscapes: a high population density, scattered landholding and a high need for firewood led to farms and fields that were small in size and often separated by dense bocage in in-

⁷⁰ An ANOVA-test indicates that the 1771 coastal outbreak group is significantly different from both the later coastal outbreaks as well as the inland outbreaks (with a p-value of respectively .048 and .049), while no significant difference was found between both latter groups.

⁷¹ Rossiter and James, 'An epidemiological model', 73.

land Flanders.⁷² Coastal Flanders, on the other hand, was more sparsely populated and land more extensively held; the agricultural economy was more explicitly geared towards commercialised cattleholding. As a result, the landscape here was more open making isolation much more difficult to achieve⁷³ – a problem that must have also posed itself in South Holland, which was similarly open. Representatives of the Franc of Bruges stressed that its entire polder region, in its west and north, was essentially one giant pasture, criss-crossed by small paths and ditches in which it was impossible to prevent contact between animals.⁷⁴ This ease of transmission and the difficulty of isolating infected animals made stamping out logistically and financially impossible because too many bovines would need to be slaughtered if regulations were to be followed, and stands in stark contrast to the situation in inland Flanders.

The landscape, however, was not the only factor. The commercial system of the coastal polders was based on the seasonal flow on bovine bodies. Cattle gorged on pastureland in summer, gaining weight and value until they were ready to be sold in the autumn. A breeding stock of cattle and a small number of beef cattle (mostly oxen) was kept alive in winter, fed with a minimal supply of hay and straw. As the grass greened the pastures in spring, herd numbers were again augmented by newly imported lean cattle and the fields were again filled.

By all accounts, this was not a system that left much room for error. Multiple complaints were made that stabling animals in places where disease had broken out was not possible in the Franc, as there would not be enough room in the stables and not enough fodder to feed them, to the extent that even ‘during the heart of winter, [animals had to be kept on pasture] everywhere in the Franc where cattle had to be retained due to the prohibition of exports and because of obstacles thrown up because

72 L. Vervaeet, ‘Agrarisch woon-werkverkeer in zeventiende-eeuws Sinaai. De ruimtelijke organisatie van landerijen op het vroegmoderne Vlaamse platteland’, *Tijdschrift voor sociale en economische geschiedenis* 9:3 (2012) 2-26. For the need for firewood, see e.g. Vandenbroeke, ‘De problematiek van de energievoorziening’. The effect on the landscape is discussed in N. Picavet, *De houtvoorraad in de regio rond Gent tijdens de 14de, 15de en 16de eeuw. Een economische en landschappelijke studie* (Unpublished licentiate’s thesis, Ghent 1996). Divergent landscapes within inland Flanders are discussed in E. Thoen, ‘Een “re-Marc-able landscape”: het Land van Waas, de bolle akkers en de Vlaamse landbouw in de Middeleeuwen en het Ancien Régime’, in: V. Van Eetvelde, M. Sevenant and L. Van De Velde (eds.), *Re-Marc-able landscapes. Marc-ante landschappen. Liber Amicorum Marc Antrop* (Ghent 2008) 132-142.

73 Soens, Thys and Thoen, ‘Landscape transformation’. The development of these two agrosystems, with a focus on cattleholding, is described in Thoen and Soens, ‘Elevage’.

74 RAG, EF, inv. no. 749. Resolution by the Estates of Flanders, 19 October 1770.

of the malady'.⁷⁵ This seems to be supported by the many complaints of cattle owners who had felt forced to slaughter the part of their stock they would have ordinarily exported to France as they lacked the fodder to support them in winter.⁷⁶

In addition, this apparent desire to minimise costs and prioritise trade seems to have manifested itself in other areas as well. Vilain XIII reported how in these coastal regions:

The farmers, the merchants and the landowners in these cantons follow the same principle of political calculation. Out of 100 animals in an infected area, half are not infected by the contagious disease. Of the 50 others, 25 die and these are replaced. Of these replacements, another 10 or 12 will die and are also replaced, and so on until the full number is reached again. In the end, he is forced to sacrifice a third but still two thirds remain unaffected by the illness and will have increased in value by at least a third. By this means the farmer conserves resources, the village is protected from insolvency, trade continues with foreign countries, and most of the owner's property is protected. It is through this natural reasoning, corroborated by experience, that the owner is generally disposed to take part in the risk of the loss of the farmer and is willing to advance the funds to purchase new animals, and the farmer glad to continue his lease with the same conditions.⁷⁷

This somewhat cavalier attitude to risk was intimately linked to coastal social relations and the commercial orientation of its cattle-holding. As long

75 'au cœur de l'hiver surtout ou pais du franc ou le betail est retenu par la defense de l'exportation et par les obstacle mis à son passage à cause de la maladie'. Algemeen Rijksarchief (hereafter AR), *Geheime Raad* (hereafter GR), inv. no. 1247/B. Manuscript by the Estates of Flanders, not later than 6 December 1770. See also RAG, *EF*, inv. no. 749. Resolution of the Estates of Flanders, 29 November 1770. Cf. RAG, *EF*, inv. no. 751. Manuscript entitled 'Observations sur la maladie epizootique, parmi le gros betail; le centre de ses déprédations, et les differences locales au País du Franc', December 1770.

76 RAB, *BBV*, inv. no. 604. Letter of the Franc of Bruges, 22 November 1770. See also a variety of letters addressed by the local authorities of e.g. Hoeke, Oostkerke, and Westkapelle in the same collection.

77 'Le fermier, le negotiant et le propriétaire se conduisent dans ces cantons par un meme principe du calcul politique. De cent bêtes dans un país infecté, la moitie n'est point attaquée du mal contagieux des 50 autres, 25 autres meurent et ce nombre remplacé, il en meurt 10 à 12 ces dernieres remplacées il en meurt encore une partie et ainsi jusqu'au nombre complet il est obligé d'en sacrifier au plus 1/3 de sorte qu'il lui reste 2/3 à l'abri de la maladie augmentées en valeur au moins d'un tiers. Par ce moyen le fermier conserve les ressources, le village se trouve à l'abri des insolabilités, le negoce continue avec l'étranger et le fond du propriétaire à l'abri d'une chute. C'est par ce raisonnement naturel et corroboré par l'experience que le propriétaire est generalement disposé a partager le risque de la perte de fermier et pret d'avancer les deniers pour l'achat des nouvelles betes et le fermier content de continuer son bail au meme prise'. RAG, *EF*, inv. no. 1180B. Manuscript entitled "Observations sur les moyens la plus propres à employer dans l'etat present des choses relativement à la maladie contagieuse qui regne parsiu les betes à cornes", 05 December 1771.

as losses could be compensated by higher sale prices on the one hand, and advances and loans by landlords on the other, commercial cattle holders had no real incentive to avoid them. On the other hand, it would make sense for inland farmers to pay more attention to the health of their stock: cattle, in their system, were not quickly fattened and sold but were kept for longer periods and also valued for their manure. It is worth keeping in mind too that leasehold was not as prevalent here as in coastal Flanders, where up to 90 per cent of land was held in lease (although an (informal) credit market certainly existed).⁷⁸

These factors likely contributed to both the spread and lethality of rinderpest in the coastal region during the 1770-1771 outbreak. The minimal fodder provided to animals throughout winter would have weakened their immune systems while the greatly expanded size of herds during summer made it difficult if not impossible to stable animals thus making isolation more difficult. Finally, the larger herds and more distant cattle-owners would have meant that outbreaks of disease were spotted later, while the commercial attitude that losses could be acceptable as long as the aggregate monetary value of the herd was not affected may have led to less effort invested in disease prevention.

While similar data is sadly lacking for Holland, the vital importance of the contact rate and the speed of the outbreak in the Flanders does give us a vital clue to the extremely high mortality rates in South Holland, and particularly in its core regions.⁷⁹ In April 1769, there were 148,231 bovines in South Holland on which *hoorngeld* was due. The following year alone, as many as 156,119 animals would fall ill with rinderpest; 115,665 would die.⁸⁰ While it should be taken into account that no *hoorngeld* needed to be paid for animals younger than two years and that this massive number is also indicative of the fast rate at which Dutch cattle owners could replenish their herds, it nevertheless shows the tremendous rate at which rinderpest

78 C. Desplat, 'Le crédit et la reconstruction des campagnes Béarnaises à la suite de l'épizootie de 1774-1776', in: M Berthe (ed.), *Endettement paysan & crédit rural dans l'Europe médiévale et moderne* (Toulouse 1998) 339-346. For credit on the countryside, see e.g. P. Schofield and T. Lambrecht, 'Introduction. Credit and the rural economy in north-western Europe, c.1200-c.1850', in: P. Schofield and T. Lambrecht (eds.), *Credit and the rural economy in north-western Europe, c.1200-c.1850* (Turnhout 2009) 1-18 and other chapters within that volume.

79 In contrast to Flanders, records from South Holland do not offer the resolution necessary to perform a similar analysis. *Hoorngeld* records were reported bi-annually. Records from North Holland list morbidity and mortality data on a local, monthly basis, however that level of detail does not extend beyond 1769 and crucial, regional lists for the North are lacking between the years 1770-1773.

80 NA, CG, inv. no. 51. Gedrukte lijsten.

was able to spread here.⁸¹ Data from North Holland, which is more detailed and shows the number of deaths per month, is even more conclusive: there were 45,955 bovines on which *hoorngeld* were due in this area. In September 1769 alone, 35,504 animals fell ill. This number dropped dramatically over the following months: in October, 13,912 fell ill; in November, 6,222. By September 1770, there were only 22 sick animals.⁸² We may surmise that, as in coastal Flanders, the fundamental problem in Dutch regions was that rinderpest spread too fast and too far to be controlled.

As in coastal Flanders, the commercial nature of cattleholding combined with the open expanse of the landscape seems the prime reason for this easy transmission. Throughout South Holland, cattle were raised for the market. Herds were large and extensively held, while landscapes were open and lacked shelter. It seems inevitable that the problems that existed in coastal Flanders – the limited diet of herds in winter, more distant oversight, the inability of cattleholders to isolate their herds by moving them indoors as well as the primordial importance of the continuation of trade both to secure an income as well as to replenish diminished herds – were also present in South Holland, even to a greater extent.

5 Conclusion

Rinderpest devastated the Austrian Netherlands and the Dutch Republic during the second half of the eighteenth century, but its effects were highly dependent on regional differences. Inland Flanders saw only a very limited impact, while coastal Flanders witnessed destruction on a grand scale. This cannot be explained by an unwillingness to enforce stamping out in coastal Flanders. While this policy was quickly abandoned, this was a consequence – not a cause – of the disease quickly spinning out of control. Indeed, it is the very speed with which the outbreak progressed that caused this high mortality in the first place.

South Holland was, on the whole, much more dependent on cattleholding than Flanders. Mortality was concurrently higher. Yet even here, considerable regional divergences could be found: mortality was twice as high

81 Holland developed a thriving cattle trade with Denmark and Northern Germany between the fourteenth and the mid-eighteenth centuries. After Holland established trade restrictions in 1686, the province relied increasingly on its own pastures as well as sources in Groningen, Friesland, Utrecht, and Overijssel. Gijsbers, *Kapitale Ossen*, 223.

82 Regionaal Archief Alkmaar, *Archief van de gemeente Alkmaar*, 1325-1815, inv. no. 2030. Generale lijst van de besmetting onder het rundvee over West-vriesland en den Noorder Quartiere.

in the dairy farming heartlands than in peripheral regions where cattle were held in smaller herds or those which focused less on the production of cheese. Here too, we cannot fault government officials for a lack of concern. Holland introduced a variety of measures intended to halt the spread of rinderpest, from import restrictions to the disposal of cattle bodies and certifications for travel. Much as in coastal Flanders, however, the structural characteristics of the region meant that the disease spread much faster than in inland Flanders and any attempt at control quickly became logistically (not to mention financially) untenable.

Although often employed as an illustration of powerlessness in the face of near universal disaster, it is useful to return to Jan Smit's eighteenth-century providentialist print *Gods Slaande Hand Over Nederland* for an alternate reading. Smit's message was not universalizing. In fact, the image depicts the local variability of rinderpest impacts. The foreground is strewn with cattle bodies awaiting burial, but the middle and background reveal a more complicated picture. Some farms are visibly affected by plague, others are spared. What conditions fostered this outcome? Differences in mortality were not due to effective state interference, whether the Dutch strategies depicted in Smit's print, or the stamping out policy enacted in Flanders. State intervention had only a limited utility in both contexts. Rather than a consequence of state action or inaction, rinderpest mortality responded to the movement of cattle for pasturing and trade as well as structural differences in land use. In the eighteenth century, stamping out was a strategy that still struggled to accommodate the resultant divergences in agricultural practices and herd management.

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