*Rural History* (2025), 1–14
doi:10.1017/S0956793325100046

CAMBRIDGE UNIVERSITY PRESS

RESEARCH ARTICLE

# Spring piglets or autumn piglets? Negotiating the role of nature in the spaces and practices of raising piglets in Finland, c. 1910s–30s

Eeva Nikkilä

Department of European and World History, University of Turku, Turku, Finland
Email: nikkila.eeva.m@gmail.com

**Abstract**

This article examines the role of nature in Finnish pig production in the first decades of the 1900s by focusing on two distinct types of pigs, namely spring piglets and autumn piglets, who were raised in physical surroundings that changed with the seasons. I will investigate how different seasonal changes, such as temperature variations and availability of natural feeds, impacted the spaces and practices within which piglets were raised. This article also includes the analysis of how humans attempted to substitute for nature at times when natural benefits, such as warm weather or sunlight, were not available. Furthermore, I will analyse how the bodies and experiences of spring and autumn piglets reflected the different sets of circumstances in which they were raised. Broadly, this article examines how an animal production system negotiated its relations to nature and natural phenomena in the early stages of commercialization and modernization.

## Introduction

In 1928, the head of the Finnish Pig Husbandry Experiment Station[1], Solmu Parkku, described the growth performance of piglets who had undergone a fattening performance test in the station in the previous year: 'This year the average daily growth has been 645 grams, whereas it was 660 grams in the previous year. The decrease in daily growth has not been caused by poorer health alone, but also because the majority of the tested animals have been autumn piglets'.[2] For a production system that placed high value on piglets' growth performance, any factor that could increase or decrease piglets' daily weight gain was important. Parkku's yearly report indicated that test piglets with lower daily weight gain had suffered from cough, but he also put importance on the fact that these piglets had been born in the second half of the year, hence the name, autumn piglets. He clarified that piglets who had been tested for better growth performance had all been spring piglets, born in the first half of the year, which further indicated that spring and autumn piglets were seen as two different types of pigs and that these differences could also be observed and measured.[3] At the same time, such terms suggested the existence of a production system in which seasons had a fundamental impact on the acts of raising piglets.

In this article, I investigate how the role of nature was negotiated in the spaces and practices of raising piglets in Finland in the early 1900s and how piglets' early lives differed from each other depending on the season they were born in. The process of negotiating nature refers to the manner in which pig husbandry shaped its practices in relation to natural phenomena, such as seasonal changes and weather, but it also includes contemporary perceptions of the natural behaviours of swine and how those were considered in the formation of a particular production system.

Historian Abigail Woods, who has studied the development of modern pig production in Great Britain from the 1910s to 1965, has noted that agricultural modernizers took an interest in the question of what was natural for pigs and sought to develop production methods that accommodated 'pigs' nature'.[4] This has been addressed more broadly, for example, in the works of environmental historians who have addressed how historical phenomena, such as capitalism or industrialization, have also included different arrangements of relations between humans and the natural world, and that natural world, in turn, has shaped historical phenomena – a dynamic that is also important for this article.[5]

Finnish pig production was increasingly developing as a commercial and modern business in the early decades of the 1900s, which made it necessary to shape and adopt practices that supported cost-effective and economically prosperous pig keeping in a country that had, up until then, kept pigs mainly as a part of subsistence agriculture.[6] Historians Jari Ojala and Ilkka Nummela have described the 20th century as an era during which labour-intensive farming was slowly transformed into capital-intensive agribusiness in Finland. The country gained independence from Russia in 1917, after which all exports to the east ceased. Agricultural produce constituted approximately two per cent of Finnish exports in the 1920s, but generally, the volume of exports grew in the 1920s and 1930s and relied heavily on forestry exports. Between the two world wars, Finland sought to strengthen its self-sufficiency in foodstuffs, which directly impacted the agricultural sector, along with the ambitions to export agricultural produce, such as bacon. Consequently, Finnish pig production grew to satisfy the domestic demand *and* Finland became an exporter of pork products at the turn of the 1920s and 1930s.[7] Thus, pig production was, according to historian Marja Jalava, a part of the survival strategy of the new Finnish nation.[8]

As Jalava has noted, shift to commercial modes of production did not change pigs or pig farming overnight to factory-style farming with confinement and concentration of animals, but 'the breakthrough of such industrial values as efficiency, productivity, and profitability took place' in a land of smallholders nonetheless and shaped the realities of pig husbandry anew.[9] Small-scale pig husbandry was a potential source of complementary income for many smallholders and promoted the spread of monetary economy.[10] At the same time, some of the wealthier farms, such as those owned by cooperatives and dairy plants, were already raising and producing hundreds of pigs per year and exemplified more efficient and scaled-up operations.[11] Historian Gabriel N. Rosenberg, who has examined pigs' reproductive lives in the United States in the nineteenth and twentieth centuries, has referred to the commercialization of pig production and food systems altogether as a development during which pigs' lives were 'more elaborately orchestrated [ . . . ] to keep both meat and money moving', as human wealth was increasingly dependent on animals' performance and reproduction.[12] Thus, this article examines to what extent nature, natural phenomena, and piglets' natural behaviours were included in such orchestrations in the early decades of commercially driven pig production.

## Seasonal changes in spaces and bodies

My article is based on qualitative and historical analysis of source materials that include agricultural magazines, newspaper articles, and guidebooks on pig husbandry. These texts were written by agricultural professionals, such as agronomists and farmers, who shared an interest in developing pig production and its practices. I will utilize the concept of *space* understood as 'geographic entities with distinct shapes, scales, and other properties that set the stage for certain kinds of [non-human and human] activities'[13] and in which 'a certain coming together of human and animal relations occur'.[14] In this article, the spaces examined are historical piggeries and related outdoor areas, such as pastures and outdoor pens. Additionally, I will employ the notion made by cultural scholar Michel De Certeau, according to whom space is 'composed of intersections of mobile elements',[15] with which I want to draw attention to the changing properties

https://doi.org/10.1017/S0956793325100046 Published online by Cambridge University Press

of indoor and outdoor spaces. In this study, the focus is on properties that were altered by seasonal changes, such as temperature variations or the availability of natural feeds, which, in turn, altered the certain coming-togethers of human-animal relations in the spaces examined. Finland is also a great example of a region that experiences 'extreme seasonality', which means, for example, that seasonal changes are highly observable in the landscape and that seasons are overall very distinguishable from each other.[16]

Besides analysing the role of nature as negotiated in the practices of raising piglets, I will also discuss throughout this article some of the early life experiences of piglets as shaped by the changing properties of space. In recent years, there has been an emergence of studies in which animals' experiences have been in the foreground of historical analysis, accompanied by a variety of methodological developments and interdisciplinary undertones.[17] Such works, along with studies that have explored pig histories or human-nature relationships in capitalism-driven agriculture, have been integral in the shaping of this article.[18] I approach piglets' early life experiences by focusing my attention on analysing their bodies and how their embodied existence reflected their lived realities. This follows the idea of animal historian Sandra Swart, who has suggested that the bodies of animals tell different stories about the past and reflect the life histories of animal individuals. These stories are further strengthened if bodies are observed together with behaviour – both behaviour and body – then supplying evidence of what animals have experienced.[19] Swart has likewise emphasized in her work that the bodies of animals communicate not only biology but culture as well.[20] Thus, I see piglets as corporeal manifestations of cultures that produced specific modes of animal production and included specific relations to the natural world, just as their bodies are evidence of how that particular culture impacted piglets' lifeworlds and experiences.

Finally, it is important to clarify the concept of *nature* as understood in this article. Intellectual historian Julia Adeney Thomas has remarked that nature 'seems to mean so much and therefore specify so little', which is a striking notion about the complexities present in the use of the concept.[21] It has many meanings, and yet it might even go undefined, the latter of which suggests that the concept of *nature* is something we can comprehend regardless of exact definitions. Cultural theorist Raymond Williams wrote in his essay, *Ideas of Nature*, that it is often most useful to focus on the history and complexity of meanings of nature, which indicate changes in the ideas of nature.[22] Thomas draws similar conclusions: she suggests that to define nature is to inspect particular historical moments and to ask what nature is taken to be and what it is not, which rejects the idea of nature as 'one thing' and, instead, establishes nature as 'a series of radically reconfigured ideas'.[23] I adopt this viewpoint in this article and approach the concept of nature as something that was defined, in part, in the contemporary discussions about the role of nature – discussions that made it observable what nature was taken to be. Thus, although this article focuses on the role of nature as well as piglets' early life experiences, it could also offer a glimpse into the idea of nature as understood at a particular time in a particular society.

## The seasonal rhythms of raising piglets

As such terms as *spring piglets* or *autumn piglets* indicate, seasonal changes had a significant role in Finnish pig husbandry practices in the early decades of the 1900s – to such an extent that piglets were categorized according to the seasons they were born in. Spring piglets were typically born in the first half of the year, and autumn piglets in the second half, although sometimes a third category, winter piglets, was employed to describe piglets born and raised during the coldest season. The seasonality of different agricultural practices was not a new phenomenon per se but rather an integral part of how agriculture functioned and how it was organized according to seasonal rhythms of the climate.[24] Pigs had traditionally fended for themselves in Finnish pig husbandry and grown for a few years before humans fattened them up and slaughtered them in

https://doi.org/10.1017/S0956793325100046 Published online by Cambridge University Press

late autumn, which was a typical season for slaughter in traditional agriculture. However, as more efficient methods of raising and feeding pigs were developed in the late nineteenth century – an endeavour that was further aided by the perceived economic potential of pig keeping – the seasonality of raising pigs was shaped anew. Laborious forestry work had increased domestic wintertime demand for fatty pork commodities, and as this demand was mainly satisfied with cheap, imported American lard in the early 1900s, commercializing and modernizing Finnish swine husbandry looked to increase its production according to the demands of the local and, additionally, the global markets. The so-called *spring piglets* were now in great demand as they could be raised and fattened up during advantageous summer months and then slaughtered before winter *and* for winter, when domestic demand was high.[25] The breeding and raising of pigs followed a highly seasonal pattern when organized in this manner. Sows were bred in late autumn, and they farrowed in spring. Piglets were sold and raised during the summer and then fattened up and slaughtered in autumn. Market demands and economic aspirations were not, however, invariable constants but shifting, dynamic ensembles that shaped, for their part, seasonal patterns of breeding and raising pigs. As the decades of the early 1900s went on, an ideal commercial pig farm was a year-round operation, although in practice, the seasonality of pig keeping was not easily changed, nor were practices of year-round pig husbandry easily adopted.

The so-called *autumn piglets* represented a shift from highly seasonal pig production to more even, year-round production that satisfied the demands of different markets, namely those of domestic urban consumers and export, both of which saw growth in the 1920s and 1930s and favoured leaner, bacon-type pigs.[26] The demand for bacon-type pigs necessitated the year-round production of piglets, and this development could potentially cheapen the costs of producing piglets altogether, as agronomist Aarne Salokangas wrote in 1932.[27] This view was based on the idea that sows' upkeep was tied to their capacity to produce piglets, and it was more economical to have sows farrow twice a year instead of feeding them year-round and having them farrow only once a year, in which case the production costs of piglets, and therefore also their selling price, were higher.[28] The demand for spring piglets was still a considerably prevalent feature of Finnish swine husbandry in the early 1930s, but agricultural experts also persistently encouraged the production of autumn piglets, even though their selling prices were often lower due to lesser demand. Then again, some of the autumn piglets were raised for the Christmas season, which was another growing market for pork products in the early 1900s.[29]

Spring piglets and autumn piglets had different economic significance, and they represented the seasonality of Finnish pig husbandry as well as attempts to shape the production of piglets into a year-round operation that satisfied different demands of the markets. They were not simply economic categories but also reflective of how piglets were raised and how the role of nature and its seasonal changes was negotiated in these practices.

## Thriving spring piglets

In an agricultural magazine in 1933, Yrjö Collan, the head of the Finnish Cattle Cooperative and a former consultant for the Finnish Pig Breeding Association, wrote a piece on pig keeping that reveals particularly well how the changing seasons and their distinct properties set the stage for raising piglets. He referred to summer as a season especially advantageous for both young piglets and their caretakers: 'There is plenty of sunlight, fresh air, and natural feed available for them [piglets], all of which make them thrive and grow faster. At the same time, they need only simple shelters, and the cost of their care is minimal'.[30] These advantages were certainly related to the raising of spring piglets, who were typically born in the first half of the year. The idea that summer was an ideal time to raise pigs was at the core of Finnish swine husbandry, as evidenced by another swine expert, Rurik Pihkala, who had written a few years earlier, in 1926, that pigs should thrive in piggeries just like they thrived outdoors 'in the wild' during summertime when they were kept on

https://doi.org/10.1017/S0956793325100046 Published online by Cambridge University Press

pastures.[31] In his writing, he criticized modern piggeries for their failures to provide pigs with satisfactory living conditions, and the examples of thriving pigs with better living conditions were those raised outdoors in the summer.

A similar stance was taken in guidebooks as well. Agronomist Salokangas, who wrote multiple pig husbandry guidebooks in his lifetime, advised that in summer it was downright unnatural to keep pigs indoors; instead, pigs should be kept outdoors day and night.[32] These examples highlight the significance and role of outdoor methods in raising pigs, but they also demonstrate the emerging need to defend methods of outdoor production. As more profit-oriented swine husbandry looked for efficient methods of raising pigs, one of the adopted practices was increased indoor production of pigs. The orientation towards raising leaner, bacon-type pigs supported this development, as these pigs required high-protein feeds for rapid muscle growth, and natural foraging on pastures did not constitute an economically significant part of their diet.[33] The indoor production, or stall-feeding, had originated in Denmark, a forerunner in intensive pig farming and a major exporter of agricultural products, such as bacon.[34] In Finland, the Danish pig production system was regarded as an exemplary case of a well-developed and efficient agricultural sector, and, as a result, Finnish production system adopted and experimented with similar practices to boost the profitability of their own pig farming.[35] However, the criticism towards year-round indoor production, also referred to as 'the Danish-type indoor system', indicates that new methods were not necessarily adopted as such, but instead, they were negotiated and applied to local conditions.[36] Finnish agricultural experts were usually well aware of the latest developments in swine husbandry in several other countries, such as Sweden, Germany, and the United States, and as pig production was modernized across countries, similar practices and problems often emerged.[37]

The positive properties of space that set the stage for the successful raising of spring piglets were those not easily replicated in piggeries, such as sunlight, fresh air, and the availability of cheap feed with enough necessary vitamins and nutrients. Appropriate weather conditions and temperatures further questioned the function of piggeries, as inexpensive and temporary shelters provided sufficient protection. Agronomist Salokangas further reinforced this view in his guidebooks by writing, for example, about the summertime possibilities to raise piglets without expensive piggeries.[38] The role of nature was evident and integrated into every aspect of summertime pig husbandry; it created spaces that were considered ideal for pigs and pig husbandry, but it also constituted an integral part of husbandry practices in which the active role of humans was lessened and the active role of nature emphasized. As such, there were fewer matters humans had to substitute for, as pigs could be given a more active role in fending for themselves in circumstances unique to the season that set the stage for positive outcomes. In this way, spring piglets were thought to be raised *with* nature and *in* nature, which shaped the overall human investments of time, money, materials, and work.

In summer, ideal pig husbandry spaces were a combination of different mobile elements, all of which influenced pigs and their vitality. Sunlight was particularly difficult to substitute for, as Finland was geographically a country situated in northern Europe with only a few hours of daylight available in winter. Spring piglets faced 'a warm summer with sunny days', as the pseudonym M. J–la, perhaps a bit glorifyingly, expressed in an agricultural magazine in 1926.[39] Sunlight was, indeed, one of the main factors that were considered to give spring piglets their healthy demeanour, together with fresh air and the availability to root, a behaviour that was considered natural and necessary for pigs to thrive.[40] The spring piglets' bodies reflected these behavioural possibilities and spatial properties: as they could be let outdoors to fresh air and to root in the soil as early as two weeks old, they developed noticeably better than autumn piglets, whose time spent outdoors, as I will later on show, was considerably reduced.[41] This is not all that surprising if we consider the effects of both sunlight and rooting. Sunlight exposure boosted vitamin D synthesis in pigs' bodies, and by rooting, pigs obtained iron, both of which made them less likely to develop deficiencies. This was further supported by the availability of fresh grass and

https://doi.org/10.1017/S0956793325100046 Published online by Cambridge University Press

plants, such as clover, timothy, meadow fescue, and bluegrass, as these plants were also rich in necessary nutrients, including vitamins.[42] Together, these seasonal elements of space shaped the early lives of spring piglets, who embodied the practices and spaces of pig husbandry as arranged at the human-nature interface of particular geographies.

Spring piglets and their bodies were most prominently described according to their better development and faster growth rate, which is indicative of the traits humans found economically important. However, spring piglets' bodies also reflected their lived realities, such as how they had been cared for or what kind of behaviours they had been able to perform. When these interconnections are analysed, they reveal, albeit partially, what kind of factors constituted spring piglets' early life experiences and what their lives were probably like in many cases. Surely, every spring piglet was not raised the same way, and individual life experiences were as varied as any, but analysing the common and shared factors in spring piglets' lives presents opportunities to see the common, and often economically biased, structures that shaped, in practice, piglets' experiences and possibilities to engage in different behaviours.

For spring piglets, the centrality of outdoor raising and the behavioural possibilities it generated cannot be underrated. For one, outdoor enclosures were *spaces of movement* and allowed, for example, piglets to explore and develop the full range of their locomotor abilities and play behaviour.[43] Exercise and outdoor spaces were frequently coupled together in pig husbandry guidebooks.[44] Daily exercising was defined as necessary and significant for young piglets, whose bodies were, as a result, more 'slender and beautiful', their backs were straight and muscles strong, and their lungs, hearts, and digestive systems were well-developed.[45] Certain types of bodies reflected the overall fitness of piglets, which was, in part, improved in outdoor spaces as they were less restrictive of movement compared to indoor spaces, such as pens and passageways in piggeries. Still, it was often recommended that piglets should be allowed to run in the passageways, at least if it was not possible to provide them with exercising opportunities outdoors. As far as spaces of movement went, the pen was the least ideal space for that, and piglets kept only in confined spaces were defined as unfit individuals more vulnerable to diseases.[46]

Piglets' bodies did not only reflect the results of movement, nor were the outdoor spaces merely spaces of such, but, moreover, the outdoor enclosures were also *spaces of rooting* and *foraging*. As is known, pigs are highly motivated to explore their environment, and rooting in the soil with their snouts forms part of this foraging-related and investigatory behaviour.[47] The summertime possibilities to root and forage were crucial for spring piglets for multiple reasons. Piglets kept outdoors during the summer did not develop iron deficiency (anaemia) as they could find sufficient iron in the soil 'just as well as their wild counterparts', as agronomist Artturi Penttilä put it in 1939.[48] Agronomist Salokangas advised in a guidebook that rooting was such an essential part of pigs' nature that they simply did not thrive if this pastime was denied to them.[49] Foraging nutrient-rich plants and rooting in the soil formed a solid base for the overall development of piglets, and it was emphasized that this was how the piglets would naturally behave or how they would naturally gain necessary nutrients, which further highlighted the role of nature and, like Penttilä mentioned, the ability of piglets to behave like their wild counterparts in nature would do. Together with movement, the possibilities to root and forage were important aspects in the lives of spring piglets, which shaped their bodies accordingly. However, from the point of view of piglets, the ability to perform these behaviours was meaningful in other ways as well.

What movement, rooting, and foraging already hinted at was that outdoor spaces were, in most cases, likely environments to offer piglets various stimuli, such as cognitive challenges, novel and manipulable materials to explore, or simply space for complex play. Animal scientists Helena Telkänranta and Sandra A. Edwards have written about the role of the early physical and social environments of piglets in shaping their early life and long-term life experiences and pointed out that the normal brain development of piglets requires 'a certain range of sensory stimuli, spatial dimensions, interaction with materials, novelty, and cognitive challenges'.[50] These were largely attainable in environments in which the cognitively engaging spatial properties were both plentiful

https://doi.org/10.1017/S0956793325100046 Published online by Cambridge University Press

and versatile, such as soundscapes, smells, tastes, visual stimuli, or various materials or individuals (of different species) to interact with. These sorts of spaces also set the stage for novel situations and sensory stimuli that were less dependent on human influence or initiation, as the outdoor spaces were moulded by, for example, different natural phenomena (weather, temperature, growth of grass, action of other species, and conspecifics) that made each outdoor space, to quote De Certeau, a unique 'intersection of mobile elements'.

Overall, spring piglets were seen as well-developed and healthy individuals with a greater potential to thrive, but spring piglets' lived realities were not as unambiguous as these sorts of narratives suppose. Spring piglets' bodies reveal more complex realities. For example, the earliest spring piglets were born in February or March, which meant that their early lives were defined by a different set of practices and spaces, namely those that resembled the care of autumn piglets.[51] Spring piglets' bodies also reflected the care that sows – their mothers – had received during the indoor seasons of autumn and winter, as they farrowed in spring after months spent in piggeries. Iron deficiency, also known as anaemia, was one of the threats that early spring piglets faced in piggeries, as they could not yet fulfil their iron stores by rooting. Anaemic piglets were pale and grey; their hair did not shine, and as agronomist Penttilä described, their lively demeanour was changed to that of suffering.[52] Without interference, iron deficiency increased piglet mortality and, reportedly, led to the deaths of entire litters in the most serious cases.[53] If farrowing sows themselves had insufficient iron stores or other deficiencies, this further increased the probability that piglets suffered from the same deficiencies early on. This decline in sows' iron stores as the winter progressed could concretely be seen in piglets: if sows farrowed two litters back-to-back in winter, the piglets in the second litter were more likely anaemic.[54] Spring piglets were also described as being smaller in size than autumn piglets, which further indicated the connection between sows' wintertime care and piglets' bodily conditions.[55] As long as it was not possible for piglets to root for the necessary nutrients outdoors, humans had to enrich their diets in alternative ways by providing them, for example, with iron supplements or soil blocks that they could root. Also, as the spring progressed, outdoor spaces were employed again, and even those piglets that had suffered disease had the potential to thrive as they could utilize the seasonal benefits of sunlight, rooting, and foraging.[56]

Although summertime benefits were highly praised, the methods of raising spring piglets varied, and some spring piglets were, in fact, raised indoors all through the summer. This was most likely the case for leaner, bacon-type pigs, as pastures did not constitute an economically significant part of their diet.[57] Additionally, pigs were kept indoors due to a lack of space for pastures or enclosures or simply because the areas where pigs rooted would soon look untidy, causing aesthetic damage in the eyes of humans.[58] However, several pig husbandry experts criticized the increased indoor production of pigs and strongly recommended that, if possible, pigs should be allowed outdoors to 'enjoy sunshine and natural life', as agronomist Toivo Hossola put it.[59] As agronomist Penttilä noted, all piglets who were kept exclusively indoors were threatened by iron deficiency regardless of the time of their birth.[60] The outdoor spaces and their summertime benefits were not automatically available for piglets but were made available in the process of negotiating nature and its role in pig husbandry. For autumn piglets, seasonal changes meant quite different realities and spaces.

## Autumn piglets and the unfavourable seasons for raising piglets

Autumn piglets did not necessarily have a particularly rough start to their lives. In fact, their bodies were defined as 'more robust at birth' than those of spring piglets, who were usually born at the end of a long indoor season. Autumn piglets' robust bodies were another sign of the favourable summer season that had provided their mothers with opportunities to root and nourish themselves.[61] In this way, the well-developed bodies of autumn piglets and the smaller bodies of

https://doi.org/10.1017/S0956793325100046 Published online by Cambridge University Press

spring piglets functioned as mediums through which the seasonal circumstances of their dams' lives were also depicted. However, autumn piglets' robustness was often temporary, and their lives seemed more precarious than those of spring piglets, who had a favourable season ahead of them. Overall, rearing autumn piglets was considered a challenging task, not least because of the unfavourable seasonal properties of Finnish autumn and winter.

Seasonal changes transformed the spaces of swine husbandry in multiple ways. Autumn piglets encountered 'cloudy days, wind, and sub-zero temperatures',[62] all of which described the unfavourable circumstances that seasonal changes brought about. As positive spatial properties were in decline, such as favourable weather conditions and temperatures, the significance of outdoor spaces as well as the role of nature were redefined and reassessed. The idea that piglets could be raised *with* and *in* nature did not apply to autumn piglets; instead, quite the opposite perception emerged. The pseudonym, M. J–la, wrote in an agricultural magazine in 1926 that 'nature and circumstances are, in a sense, against them [autumn piglets]'[63] and indicated, albeit briefly, that autumn piglets were practically raised *against* nature. The role of nature was now defined through its potential negative impacts on piglets, and as piglets could not be raised outdoors due to challenging natural circumstances, different husbandry practices and spaces were necessary, both of which continued to reflect the ideas of what was (un)natural for piglets.

The foundation for raising autumn piglets was a piggery, a shelter that was traditionally built from wood and, increasingly in the 1900s, from stone, clay bricks, and concrete. In this basic unit, the role of humans was enforced; it could be stated that humans had to not only protect piglets from nature but also substitute for it and find replacements for properties that were typically provided by nature during the warmer months of the year. Thus, negotiating indoor production methods was simply another matter in which the role of nature was also comprehended and negotiated. Although piglets in shelters were physically separated from nature and its seasonal properties, such as sub-zero temperatures, the circumstances in piggeries were not completely unaltered by the seasonal changes. Cold and draughty piggeries were fairly common during the early 1900s for a multitude of reasons, one of which was the shortcomings in construction, such as a lack of insulation or heating systems.[64] Therefore, many of the piggeries reflected the seasonal changes and properties of the surrounding nature instead of forming fully isolated units that separated their inhabitants from the outside world.

As such, piggeries set the stage for raising piglets during the colder months of the year, but their challenges were plentiful, and many of the natural benefits of outdoor spaces were harder to replicate in piggeries. For one, they were *spaces of confinement*, which meant that piglets had less room for play and movement. Lack of exercise was seen as a risk that threatened the development and overall health of piglets, and generally, autumn piglets were those who spent a notable amount of time in confined indoor spaces, such as pens.[65] While outdoor exercise was more restricted or even denied to piglets during the colder months, some husbandry practices reflected attempts to compensate for the lack of outdoor access. It was advised that piglets could be let out of their pens to run and roam in the passageways of piggeries, which formed important indoor spaces for wintertime exercise.[66] For piglets, access to passageways meant other possibilities as well; they experienced and investigated novel surroundings, but they were also often given additional feed in the passageways.[67] Although pen spaces formed the basic unit for piglets' wintertime care, additional spaces employed for the practical care of piglets, such as passageways, also reflected poverties of pen spaces and what they were unfit for. However, indoor exercise was always a secondary option if beneficial outdoor access was not completely out of the question. In the early autumn, daytime temperatures could still be warm enough for piglets, and agronomist Hossola advised that autumn piglets 'strictly need all the exercise' that can be given to them outdoors during this late season.[68] This was, of course, further emphasized by the fact that piglets did not only move about more freely outdoors, but they also engaged in other beneficial behaviours, such as rooting. This also reflects the complexities in defining the role of nature, as seasonal changes

https://doi.org/10.1017/S0956793325100046 Published online by Cambridge University Press

were not instant transformers of outside spaces; instead, the changes were most often gradual and allowed for nuanced practices in the raising of piglets.

The restricted outdoor access of piglets also affected the possibilities of rooting and foraging, as the properties of indoor spaces did not automatically set the stage for these kinds of activities. In this regard, piggeries could also be understood as *spaces of barrenness* due to their design, although there was considerable variation between different piggeries regarding, for example, the materials they were built from or the materials pigs were provided within a pen. If piglets were kept on dirt floors that were covered with layers of straw bedding, their chances of rooting were inherently greater than they were on concrete floors, which did not allow for such activity. Nonetheless, the amount and quality of bedding material, such as straw, impacted the piglets' living conditions and enriched the indoor spaces assigned for them by providing manipulable materials as well as more comfortable and preferred resting places. Pedigree pig breeder Rurik Pihkala advised in 1926 that pens should be thickly bedded with loose materials, such as straw or wood shavings, so that pigs, 'whose nature demands rooting before lying down', could satisfy their natural needs and push their snouts into the bedding.[69] While outdoor spaces should not be understood as unlimited spaces for rooting or foraging, indoors, the size and materiality of pens usually comprised a more restrictive living environment for piglets regarding the aforementioned activities.

Thus, depending on the materials available for piglets in the pens, they could, to some extent, use their snouts and practice rooting behaviour. Surely, the acts of rooting were rewarding for pigs as such, as they formed a part of their species-specific behavioural repertoire, but nutritionally, rooting in the straw did not suffice. In winter, their feed was often poor in iron, and as agronomist Penttilä pointed out, there was usually a lack of iron-rich substances available for pigs to root in pens.[70] From the point of view of agronomist Penttilä, the development of anaemia could simply be prevented the same way piglets prevented it when they were outdoors; they could be given soil blocks for rooting.[71] These were particularly important in pens with concrete floors; piglets kept in pens with dirt floors could usually root for nutrients in the soil, although this was not always the case.[72] Different practical variations were employed in the utilization of soil as a wintertime iron source for piglets. In addition to offering soil blocks for piglets, it was also possible to have a box of sand or dirt available for piglets to use. Sometimes iron supplements, such as iron sulphate, were mixed in the sand, which further supported the sufficient intake of iron in piglets.[73] When performed this way, the whole natural process from relevant behaviour to relevant sources of iron was replicated, which, in turn, provided piglets not only nutritional benefits but also important stimuli in the forms of exploration and rooting. Although piglets could not be let outside during the coldest months, the natural behaviour of pigs carried relevance in the arrangements and negotiations of indoor husbandry practices and spaces. This also meant, quite literally, the act of placing natural elements, such as soil blocks, into piggeries.

While pigs' natural behaviour functioned as an example of how piglets could be provided with iron, the practices of supplementing iron were rather diverse, and generally, the most important factor was to recognize the overall need for supplementation and to ensure the sufficient nutrient intake of piglets. This was also accomplished by simply adding iron supplements to their feed or water, in which case the process of rooting for minerals was left out. In the case of nursing piglets, proper iron intake was also aided by applying iron syrup to the teats of their mothers so that when piglets nursed, they would also receive additional iron.[74] However, while the different preventive measures could guarantee piglets a life without anaemia, they were not equally stimulating for piglets. If iron was primarily offered in the form of soil blocks or sandboxes, the possibilities to root were greater, as these features also combated the inherent barrenness of indoor spaces. The practical measures employed in the acts of substituting for nature created different circumstances that, in part, defined the early life experiences of piglets indoors.

Overall, the unfavourable natural circumstances emphasized the role and resources of humans; autumn piglets required more time, money, materials, and work, all of which were, to some extent, substituted by nature in more favourable times of the year. The increased activity of humans

https://doi.org/10.1017/S0956793325100046 Published online by Cambridge University Press

reflected not only the seasonal changes that required different husbandry practices, but it also reflected the shifting role of piglets as indoor spaces guided their activities and behavioural possibilities. In piggeries, the mobile elements of space that defined the cognitively and physically engaging environment were increasingly shaped by human activities, choices, views, and resources that determined, for example, the material conditions in which piglets lived, daily exercise patterns, feed composition and feeding rhythms, access to water, and the temperature, moisture, and lighting of their living environment. Whereas daily exercise opportunities in passageways, manipulable straw, or rooting for iron in soil blocks or in boxes of sand were examples of how human activities could support creating engaging behavioural opportunities for autumn piglets, the indoor spaces did not inherently contain these elements or allow for these sorts of behaviours but instead required constant human investments.

Thus, piglets' bodies and behaviours reflected the successes and failures of practical human efforts to substitute for nature in piggeries. Agronomist Hossola wrote in 1925 that 'if an autumn piglet is raised rationally, it will grow to be beautiful and proportionate. But if it is confined to a cold, dark, and damp piggery and it is not given appropriate feed nor enough exercise, it will not develop well and will not pay back its feed'.[75] The meaning of rational raising of piglets can be grasped if we look more closely at some of the practices that Hossola introduced in his writing. He advised that autumn piglets should be born in September, at the latest, so that it was still warm enough during the early period of their lives when they were most sensitive to the detrimental effects of cold temperatures. If raised this way, piglets would be older and physically stronger when the indoor season began, and they could endure lower temperatures. Another matter was to let piglets nurse their mothers until at least six weeks old, for nothing would aid their growth better than mothers' milk, as Hossola put it. Additionally, piglets would be slowly accustomed to other feedstuffs, such as skimmed milk, barley, rye, gruel, potatoes, and root crops. Outdoor exercise and rooting possibilities were to be utilized as long as practicable, and necessary minerals were offered in the form of ash and calcium. Living conditions in a piggery were also important; good lighting, a calm and dry environment, and decent warmth improved the growth of 'beautiful and proportionate' piglets.[76] Briefly, to raise autumn piglets rationally meant maximizing the possibilities to utilize nature while also recognizing the inevitable role of piggeries and indoor husbandry practices and the need to shape the quality of these human investments accordingly.

Utilization of nature did not only mean outdoor access and rooting, or, as in piggeries, substitutes for these matters, but it also entailed the emphasized role of maternal care, the presence of which secured the growth of piglets in challenging circumstances. The age at which piglets were separated from their mothers varied greatly; piglets were two to three weeks old at separation, at the earliest, and at the latest, eight to ten weeks old. The rough estimate of the suitable time for separation was between four and seven weeks old.[77] However, autumn piglets were more likely to spend a week or two longer in the care of their mothers. The age of separation was described as the most difficult period to care for piglets, as their development was often interrupted, their bodies were dirty and ruffled, and their 'zest for life was completely gone', as was expressed in an advisory book written by Hossola in 1926.[78] The stress of separation was experienced by every piglet despite their time of birth, but as autumn piglets encountered a set of other unfavourable circumstances, from cold to greater confinement, it was not a surprise that their age of separation was prolonged to compensate for other stressors in their lives.

The descriptions of piglets raised in piggeries complement the notion made by historian Sandra Swart that the bodies of animals tell different stories about the past.[79] They also connect bodies and practices, reflecting the reality in which piglets became 'slender and beautiful' or 'crook-backed and short-bodied'.[80] Hossola linked the successful raising of autumn piglets, reflected by their 'beautiful and proportionate' bodies, to rational husbandry practices that tackled the challenges of the more difficult time of the year by both utilizing nature and ensuring the quality of indoor spaces. Moreover, by writing in a newspaper about how autumn piglets should be raised,

https://doi.org/10.1017/S0956793325100046 Published online by Cambridge University Press

he used his expertise and advice to counteract the common conception in the early 1900s that raising autumn piglets was an arduous and unprofitable business.

Yet, what the bodies of autumn piglets often depicted was that, in many cases, it was difficult and arduous to raise them with certain resources and practices. Hence, when it was recommended, for example, that breeding pigs should be chosen among spring piglets because autumn piglets were weaker after having to spend a prolonged period of time in confinement indoors, or that before long, the joints of autumn piglets would get swollen and their legs deformed if they were kept strictly confined to their pens, in both cases, the bodies of piglets functioned as a medium through which two kinds of experiences were unfolded.[81] They conveyed the experiences of piglets themselves, as their bodies had been altered by certain husbandry practices, and they mediated the experiences of farmers who had employed a particular set of spaces and practices. These sorts of instances help to identify the different kinds of elements, such as seasonal changes and practices, that constituted the circumstances in which the different assumptions about the realities of raising piglets were shaped. The bodies of piglets who ran in the passageways, or rooted in the sandbox, or nursed their mothers, or suffered from deficiencies and diseases, or soaked in the sun, and so on, all connect us to the complexities and practices of raising piglets that shaped their lifeways and experiences from the very moment they were born at the human-nature interface of particular geographies.

## Conclusion

In this article, I have shown how the role of nature and natural processes was negotiated in the early modes of commercial pig production in Finland in the first decades of the 1900s and how spatial and practical aspects of raising piglets were altered by such negotiations. The examples have demonstrated different viewpoints of nature; depending on the season, piglets were considered to be raised with, in, and against nature, all of which further impacted the degree to which humans were expected to substitute for nature and natural processes. The acts of substituting for nature raised questions if and to what extent nature was substitutable, but they also made visible the complexities involved in such matters. The act of adding nutrients to feedstuffs in winter, for example, did not automatically substitute for the entire process of acquiring nutrients from natural origins if other aspects of the process, such as piglets' possibilities to root and explore, were disregarded. Thus, raising piglets with, in, and against nature created spaces and practices that shaped their lives on an experiential level.

I have followed the thinking of historian Sandra Swart, who has suggested that animals' bodies tell stories about the past and communicate past cultures.[82] The bodies of spring and autumn piglets have told quite different stories about the realities of raising piglets in Finland in the early 1900s. Their bodies were shaped in different circumstances, within spaces and practices that were, in turn, shaped by human conduct and natural phenomena, but also, to a certain extent, by piglets themselves. Piglets' bodies did not reflect any particular aspect of their lives as such, but instead, they embodied the circumstances of a certain lifeworld and production system and were, in a way, a sum of every aspect that unfolded in their lives, from sunlight to exercise and from lack of nutrients to that of a stimulative environment. Furthermore, piglets' bodies told stories about their mothers, who had experienced their own set of circumstances, which could then be seen in the bodies of frisky or anaemic piglets alike.

Hence, the usage of such terms as spring piglets or autumn piglets also reflected how a particular production system organized its relations to nature and natural conditions and how dependent the system was on natural systems, such as seasons and soils. The disappearance of such nature-oriented terms is equally significant; it is, perhaps, suggestive of a production system that does not see natural systems as integral to the existence and execution of its spaces and practices. Broadly, the case of spring and autumn piglets invites a critical examination of the

https://doi.org/10.1017/S0956793325100046 Published online by Cambridge University Press

different relations to nature in modern agriculture, and, as such, it contributes to the discussions about the place of nature within modern farming systems at present, for example, in the work of historian Abigail Woods.[83] It urges us to consider, for example, what our relationship with nature has included and what has been lost, what has been disregarded, what we have broken away from in regard to our relations with nature, and what we have substituted for nature and why. All such questions have historical and present-day dimensions, which will surely be important to understand, for we also have a future in which different kinds of relations to nature are formed. To what extent do we act with, in, and against nature will, after all, shape the world for all living beings.

## Notes

**1** Tests in the station focused on studying and comparing different pig breeds and bloodlines, pigs' fattening performance, and the effects of different feeds. Marja Jalava, 'Knowledge in the Service of Profit: Pig Fattening Performance Testing in the First Half of the Twentieth Century', in Taina Syrjämaa, Marja Jalava, Taija Kaarlenkaski, Otto Latva, Eeva Nikkilä and Tuomas Räsänen, eds., *Animal Industries. Nordic Perspectives on the Exploitation of Animals since 1860* (Berlin, 2024), pp. 63–79.

**2** Solmu Parkku, *Kertomus sikatalouskoeasemalla tehdyistä eri sikakantoja vertailevista ruokintakokeista v. 1927* (Helsinki, 1927), p. 10.

**3** Parkku, 'Kertomus', p. 10.

**4** Abigail Woods, 'Rethinking the history of modern agriculture: British pig production, c. 1910–65', *Twentieth Century British History* **23** (2012), 168.

**5** Sara B. Pritchard, 'Joining Environmental History with Science and Technology Studies: Promises, Challenges, and Contributions', in Dolly Jørgensen, Finn Arne Jørgensen and Sara B. Pritchard, eds., *New Natures: Joining Environmental History with Science and Technology Studies* (Pittsburgh, 2013), pp. 1–17.

**6** Jalava, 'Knowledge in the service of profit', pp. 63–70.

**7** Jari Ojala and Ilkka Nummela, 'Feeding Economic Growth: Agriculture', in Jari Ojala, Jari Eloranta and Jukka Jalava, eds., *The Road to Prosperity. An Economic History of Finland.* (Helsinki, 2006), pp. 72–3; Yrjö Kaukiainen, 'Foreign Trade and Transport', in Jari Ojala, Jari Eloranta and Jukka Jalava, eds., *The Road to Prosperity. An Economic History of Finland.* (Helsinki, 2006), pp. 148–49; Jalava, 'Knowledge in the service of profit', p. 72.

**8** Jalava, 'Knowledge in the service of profit', p. 72.

**9** Jalava, 'Knowledge in the service of profit', p. 79.

**10** Jalava, 'Knowledge in the service of profit', p. 72.

**11** Eeva Nikkilä, *Sikojen eletyt tilat ja paikat. Sikalat, siankasvatus ja sianhoito 1900-luvun alun Suomessa.* (Turku, 2024), pp. 73–4, 86–8.

**12** Gabriel N. Rosenberg, 'A race suicide among the hogs: the biopolitics of pork in the United States, 1865–1930', *American Quarterly* 68 (2016), 50.

**13** In their work, Chen, Orum and Paulsen specifically refer to human activities, but I would broaden this definition to include non-human activities as well. Xianming Chen, Anthony M. Orum and Krista E. Paulsen, eds., *Introduction to Cities: How Place and Space Shape Human Experience* (Chichester, 2018), p. 5.

**14** Julie Urbanik, *Placing Animals: An Introduction to the Geography of Human-Animal Relations* (Lanham, 2012), Chapter 1, para. 15. [E-book without page numbers.]

**15** Michel De Certeau, *The Practice of Everyday Life* (Berkeley, 1984), p. 117.

**16** Michael Jones, 'Seasonality and Landscape in Northern Europe: An Introductory Exploration', in Hannes Palang, Helen Sooväli and Anu Printsmann, (eds.), *Seasonal Landscapes* (Dordrecht, 2007), pp. 18–21.

**17** Andria Pooley-Ebert, 'Species Agency. A Comparative Study of Horse-Human Relationships in Chicago and rural Illinois', in Susan Nance, (ed.), *The Historical Animal* (Syracuse, 2015), pp. 148–65; Jennifer Bonnell and Sean Kheraj, (eds.), *Traces of the Animal Past. Methodological Challenges in Animal History* (Calgary, 2022); Michael J. Glover and Les Mitchell, (eds.), *Animals as Experiencing Entities: Theories and Historical Narratives* (Cham, 2024).

**18** Robert Malcolmson and Stephanos Mastoris, (eds.), *The English Pig: A History* (London, 1998); Sam White, 'From globalized pig breeds to capitalist pigs: a study in animal cultures and evolutionary history', *Environmental History* 16 (2011), 94–120; Aurélie Choné, Isabelle Hajek and Philippe Hamman, eds., *Rethinking Nature. Challenging Disciplinary Boundaries* (London, 2017); Brett Clark and Tamar Diana Wilson, eds., *The Capitalist Commodification of Animals* (Bingley, 2021); Julie McIntyre, 'Nature, labour and agriculture: towards common ground in new histories of capitalism', *Labour History: A Journal of Labour and Social History* 121 (2021), 73–98.

**19** Swart writes especially about horses and their bodies. Sandra Swart, 'Kicking Over the Traces? Freeing the Animal from the Archive', in Jennifer Bonnell and Sean Kheraj, (eds.), *Traces of the Animal Past: Methodological Challenges in Animal History* (Calgary, 2022), pp. 27–8, 38.
**20** Swart, 'Kicking over the traces?', p. 30.
**21** Julia Adeney Thomas, *Reconfiguring Modernity: Concepts of Nature in Japanese Political Ideology* (Berkeley, 2002), pp. 1–2.
**22** Raymond Williams, *Problems in Materialism and Culture* (London, 1980), pp. 67–8.
**23** Thomas, *Reconfiguring Modernity*, p. 2, 224.
**24** Jones, 'Seasonality and landscape', p. 19.
**25** Teppo Vihola, 'Pärjääkö pienviljelys?', in Matti Peltonen, ed., *Suomen maatalouden historia II. Kasvun ja kriisien aika 1870-luvulta 1950-luvulle* (Helsinki, 2004), pp. 169–73; Jalava, 'Knowledge in the service of profit', pp. 66–8.
**26** In the 1930s, there were also export markets for lard-type pigs, typically favoured in domestic markets. Jalava, 'Knowledge in the service of profit', p. 68.
**27** A. Salokangas, 'Porsastuotanto', *Maaseudun Tulevaisuus* (16.4.1932), 7; Aarne Salokangas, *Sianhoidon käsikirja* (Porvoo, 1933), p. 122.
**28** Salokangas, 'Porsastuotanto', p. 7; Aarne Salokangas, *Sianhoidon ohjekirja* (Kangasala, 1937), p. 62.
**29** Salokangas, *Sianhoidon käsikirja*, pp. 135–36; Y. C., 'Syksyistä sianlihatulvaa on tästä lähin vältettävä', *Pellervo* 34 (1933), 9–10; Salokangas, *Sianhoidon ohjekirja*, p. 62.
**30** Y. C., 'Syksyistä sianlihatulvaa', p. 9. Historian Abigail Woods has pointed out similar arguments in the British context; advocates of outdoor systems referred to fresh air, soil, sunlight, and a vitamin-rich diet as necessities that kept pigs healthy. Woods, 'Rethinking the history of modern agriculture', pp. 173–74.
**31** Rurik Pihkala, 'Sikaloistamme', *Karjatalous* 2 (1926), 41.
**32** Salokangas, *Sianhoidon käsikirja*, pp. 220.
**33** Yrjö Collan, *Sianhoidon oppikirja* (Porvoo, 1926), p. 84; Salokangas, *Sianhoidon ohjekirja*, pp. 21–2.
**34** Earl B. Shaw, 'Swine Industry of Denmark', *Economic Geography* 14 (1938), 27–8; David M. Higgins and Mads Mordhorst, 'Bringing Home the "Danish" Bacon: Food Chains, National Branding and Danish Supremacy over the British Bacon Market, c. 1900–1938', *Enterprise & Society* 16 (2015), 145; Veronika Settele, 'Bodies Made Agriculture: How Animals Shaped Intensive Livestock Farming', *Body Politics* 11 (2023), 141.
**35** Marja Jalava, 'Lihansyönnin edistäminen Suomessa 1900-luvun alkupuolella', in Taija Kaarlenkaski and Otto Latva, (eds.), *Tunteva tuote. Kuinka eläimistä tuli osa teollista tuotantoa?* (Tampere, 2022), p. 104; Jalava, 'Knowledge in the service of profit', pp. 69–73.
**36** Nikkilä, *Sikojen tilat ja paikat*, pp. 220–224.
**37** Eeva Nikkilä, 'Building a Nest in Human-Built Spaces: Tracing the Experiences of Finnish Sows, c. 1900–1930s', *Animal History* 1 (2025), 61; Nikkilä, *Sikojen tilat ja paikat*, p. 114; Jalava, 'Knowledge in the service of profit', p. 69.
**38** Salokangas, *Sianhoidon käsikirja*, pp. 219–20; Salokangas, *Sianhoidon ohjekirja*, pp. 69–70.
**39** M. J–la, 'Syysporsaitten hoito ja ruokinta', *Maa* 11 (1926), 437.
**40** E. K., 'Porsaitten vierottaminen', *Karjatalous* 7 (1931), 327; Salokangas, *Sianhoidon käsikirja*, pp. 118–19.
**41** T. H . . . nen, 'Sikojen hoidosta', *Maatalouden karjanhoitolehti* 3 (1914), 68.
**42** Vitamin D was not discovered until 1922, but observed health effects of sunlight date back at least to the Middle Ages. See Lee Russell McDowell, *Vitamins in Animal and Human Nutrition* (Ames, 2000), pp. 91–3. Salokangas, *Sianhoidon käsikirja*, p. 48, 119; Salokangas, *Sianhoidon ohjekirja*, p. 23.
**43** R. C. Newberry, D. G. M. Wood-Gush and J. W. Hall, 'Playful behaviour of piglets', *Behavioural Processes* 17 (1988), 205–16.
**44** Mikko Ilkka, *Sianhoitokirja* (Helsinki, 1912), p. 114; Collan, *Sianhoidon oppikirja*, p. 96; Toivo Hossola, *Sianhoidon opas* (Tampere, 1926), p. 56; Salokangas, *Sianhoidon käsikirja*, p. 225; Salokangas, *Sianhoidon ohjekirja*, p. 46.
**45** Ilkka, *Sianhoitokirja*, p. 144; Hossola, *Sianhoidon opas*, p. 56.
**46** Ilkka, *Sianhoitokirja*, p. 144; A. M–o., 'Imevien porsaiden hoidosta ja lisäruokinnasta', *Karjatalous* 15 (1939), 329.
**47** Anna Valros, 'Utelias sekasyöjä', in Anna Valros, Hanne Teräväinen and Jukka Helin, (eds.), *Hyvinvoiva tuotantoeläin* (Vantaa, 2005), 66; Richard B. D'Eath and Simon P. Turner, 'The natural behaviour of pig', in Jeremy N. Marchant-Forde, ed., *The Welfare of Pigs* (Dordrecht, 2009), 35.
**48** Anon., 'Talviporsaat tarvitsevat rautaa', *Ilkka* (09.03.1939), 6.
**49** Salokangas, *Sianhoidon käsikirja*, pp. 118–19.
**50** Helena Telkänranta and Sandra A. Edwards, 'Lifetime consequences of the early physical and social environment of piglets', in Marek Špinka, ed., *Advances in Pig Welfare* (Duxford, 2018), 107.
**51** A. Salokangas, 'Silavaa vaiko lihaa sikataloudessa tuotettava?', *Karjatalous* (1924), 36.
**52** Anon., 'Talviporsaat tarvitsevat rautaa', p. 6.
**53** A. Brander, 'Kuolemattomat porsaat', *Pellervo* 37 (1936), 358; A. Ojala, 'Miten talviporsaat saa hyvin menestymään', *Pellervo* 39 (1938), 106–07; Anon., 'Talviporsaat tarvitsevat rautaa', p. 6.
**54** A. Brander, 'Kuolemattomat porsaat', p. 358.

**55** M. J–la., 'Syysporsaitten', p. 437.
**56** E. K., 'Porsaitten vierottaminen', p. 327.
**57** Salokangas, *Sianhoidon käsikirja*, pp. 48–9.
**58** E. K–tti, 'Sikojen laiduntamista ei ole unohdettava', *Karjatalous* 10 (1934), 470.
**59** T. H., 'Sikojen kesäruokinta', *Karjatalous* 1 (1925), 257–58; Pihkala, 'Sikaloistamme', p. 41; E. K–tti, 'Sikojen laiduntamista', p. 470; Salokangas, *Sianhoidon käsikirja*, p. 220.
**60** Anon., 'Talviporsaat tarvitsevat rautaa', p. 6.
**61** M. J–la., 'Syysporsaitten', p. 437.
**62** M. J–la., 'Syysporsaitten', p. 437.
**63** M. J–la., 'Syysporsaitten', p. 438.
**64** Hossola, *Sianhoidon opas*, p. 44; Salokangas, *Sianhoidon käsikirja*, p. 211.
**65** A. M–o., 'Imevien porsaiden hoidosta', p. 329.
**66** Ilkka, *Sianhoitokirja*, p. 144; A. M–o., 'Imevien porsaiden hoidosta', p. 329.
**67** Ilkka, *Sianhoitokirja*, p. 145; Hossola, *Sianhoidon opas*, p. 34; Salokangas, *Sianhoidon käsikirja*, p. 93.
**68** T. Hossola, 'Syysporsaitten hoito ja ruokinta', *Karjalan Maa* (24.01.1925), 4.
**69** Pihkala, 'Sikalostamme', p. 745.
**70** Anon., 'Talviporsaat tarvitsevat rautaa', p. 6.
**71** Anon., 'Talviporsaat tarvitsevat rautaa', p. 6.
**72** Rooting in the soil in dirt-floored pens was not always preferred, as the functionality of the pen could suffer. In some pens, there were different layers of porous material on top of the dirt floor, and these layers functioned as a filter through which urine and liquids would be percolated, leaving the top layer dry. In these kinds of pens, pigs did not usually have access to the soil. Pihkala, 'Sikaloistamme', p. 745; Salokangas, *Sianhoidon ohjekirja*, p. 72; Anon., 'Talviporsaat tarvitsevat rautaa', p. 6.
**73** Hossola, *Sianhoidon opas*, p. 36; Salokangas, *Sianhoidon käsikirja*, p. 98; A. M–o., 'Imevien porsaiden hoidosta', p. 329.
**74** Salokangas, *Sianhoidon ohjekirja*, p. 44; Pellervo Saarinen, 'Rehujen sopimattoman kivennäiskokoonpanon aiheuttamista puutoshäiriöistä sioilla', *Sika: Suomen Sianjalostusyhdistyksen tiedonantoja* 53 (1938), 12–3; Anon., 'Talviporsaat tarvitsevat rautaa', p. 6.
**75** Hossola, 'Syysporsaitten hoito ja ruokinta', 4.
**76** Hossola, 'Syysporsaitten hoito ja ruokinta', 4.
**77** Hossola, *Sianhoidon opas*, p. 35; M. J–la., 'Syysporsaitten, p. 437; Salokangas, *Sianhoidon ohjekirja*, p. 44.
**78** Hossola, *Sianhoidon opas*, p. 35.
**79** Swart, 'Kicking over the traces?', pp. 27–8, 38.
**80** Ilkka, *Sianhoitokirja*, p. 144.
**81** T. H . . . nen, 'Sikojen hoidosta', p. 68; K. A., 'Syysporsaitten hoidosta', *Pellervo* 31 (1930), 618.
**82** Swart, 'Kicking over the traces?', pp. 28–30.
**83** About the need to rethink the place of nature, see Woods, 'Rethinking the history of modern agriculture', pp. 190–91.

**Cite this article:** Nikkilä E (2025). Spring piglets or autumn piglets? Negotiating the role of nature in the spaces and practices of raising piglets in Finland, c. 1910s–30s. *Rural History*, 1–14. https://doi.org/10.1017/S0956793325100046