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– RATHER COLLECTIVELY THAN BY LAW**

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THE DUTCH ROUTE TO IMPROVE COMMERCIAL RABBIT WELFARE – RATHER COLLECTIVELY THAN BY LAW ENFORCEMENT

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ABSTRACT

A desk study was performed to study welfare directed innovations in the Dutch Rabbit sector. Four innovations in the last two decades that have considerably affected the animal welfare conditions in commercial rabbit farms were identified. Introduction of a simple plastic mat to reduce painful foot lesions, and three housing systems adaptations (welfare cage, parks, and part-time group housing of does) have brought the animal welfare of all commercial rabbits in The Netherlands well above European standard levels. The key message is that, strikingly, the major welfare directed improvements were not primarily developed by science, and not primarily enforced by law. Rather, practical initiatives of farmers were the essential steps. Self-imposed regulation was used to maintain collectivity (prevention of free riding) and successes were enhanced by technical advantages and market benefits.

Key words: Rabbits, housing, welfare, innovation.

INTRODUCTION

As a response to societal expressions of unease, considerable efforts have been and are being made to improve the welfare of farmed animals. Especially housing conditions have received considerable attention in all farmed species, starting in north-west Europe. The routes taken to design, evaluate and implement such innovations vary considerably across countries. Current contribution highlights the main animal welfare directed innovations in the Dutch meat rabbit production system. Aim of this paper is to document and analyse innovations that have shaped the current Dutch rabbit production system, and explain why and how these animal welfare measures have been implemented.

SOCIETAL RESPONSE TO THE HOUSING CONDITIONS OF FARMED RABBITS

Currently, the world standard in housing of commercial rabbits (as summarised by Szendrő et al., 2019) is a wire cage of 38-45 cm x 87-102 cm (width x length), a height of 32-35cm. There have been considerable innovations in reproduction, nutrition, feeding and health management in the last decades, but the current global standard in housing design is quite similar to that of two decades ago. However, comparing current common practices in housing rabbits in the Netherlands to those of two decades ago reveals considerable differences. In 2000, the majority of the commercial rabbits in The Netherlands (about 40,000 reproducing does, in 100-150 farms) was housed in 30 cm high mesh wired cages of 38 x 87-100 cm. Now all animals are housed in either 'welfare cages' or parks, with higher space allowances, animal friendly flooring and structural enrichment.

This contribute aims to describe and analyse the essential steps in this change. From the nineteen eighties onwards, signals from animal sciences, NGO and pressure groups in The Netherlands indicated housing related undesired effects for the quality of life of the animals involved ('welfare problems'). Reference to Brambell's five freedoms revealed several shortcomings, especially in the possibilities to express natural behaviour and in the occurrence of painful lesions. From the nineties onwards, the Dutch government and livestock product boards initiated studies to discern and

understand these welfare problems and to test improvements to alleviate them. Most studies dealt with cage dimensions, floor design, environmental enrichment and especially group housing.

MAJOR RABBIT WELFARE INNOVATIONS IN THE LAST TWO DECADES

In hindsight, four major rabbit welfare innovations can be discerned in The Netherlands, all related to housing conditions.

1. Floor design

Since the nineties, a substantial incidence of lesions of foot pads (pododermatitis) in reproducing does at high parity orders was reported (ref?). These compromised both animal welfare and productivity (EFSA, 2005). Increase of the wire diameter gave no substantial improvement. Alternative flooring were tested. A quite practical solution, applicable in existing cages was introduced from contacts between rabbit farmers and cage manufacturers. A plastic mat, with perforations corresponding to the underlying cage wire was mounted on the wire. This resulted in a considerable reduction of the incidence of painful lesions (Rommers and de Jong, 2011). These plastic mats have now been adopted widely in producing countries, mostly referred to as footrests. This type of flooring (either a plastic mat or entire plastic slats) was introduced as the NL-standard for doe housing from 2006 onwards, by 2016 all reproducing does were housed in these conditions.

2. Welfare cage

A group of rabbit farmers combined a series of housing adaptations (aiming at welfare improvements) into a new housing system. A cage with at least 60 cm height and plastic flooring, provided with a platform and environmental enrichment was branded as the 'Welfare cage'. From a European perspective, this can be referred to as an enriched cage, as categorised by EFSA (2020). In interaction with the government, the organised farmers developed and implemented a (product board organised) self-imposed regulation to convert the whole Dutch sector towards that system, starting from 2006. By 2016, all reproducing does were housed in this system, providing footrest mats, at least 4500 cm²-space allowance, gnawing material as enrichment and a platform.

3. Park housing

Classically, most meat rabbits were fattened in their birth cage or in sheds with cages for 6-10 animals. Several attempts were made to design housing for larger groups of fatteners. This held the expectation of reduction of housing cost and improving welfare at the same time. In practice, systems were developed for 32-50 rabbits, containing plastic flooring, an elevated level ('plateau') and gnawing material as enrichment. Across Europe, these parks can be categorised as (enriched) elevated pens, as described by EFSA (2020). The larger group is thought to reduce limitations for free movement due to high dimensions and space sharing. The large group size and the absence of an upper deck both reduce the 'metal' appearance. In Belgium, the supermarkets, as a result of NGO-pressure, fully switched to meat from rabbits raised in parks, before obligation through legislation. The related price premium encouraged Dutch rabbit farmers to make a fast switch towards this system. At this moment, 60-70% of the meat rabbits is housed in certified parks that meet standards which are externally monitored.

4. Group housing of does

Around Europe, several efforts have been made to develop group-housing systems for does. These systems suffer from high levels of aggression and poor reproduction results. Research on this ended in 2005 in The Netherlands, based on absence of practical application perspectives, especially due to the behavioural and technical problems. In the collaboration between Dutch and Belgian research groups, the concept of part-time group housing was introduced, as an initially academic effort to bridge the gap between the impracticability of full-time group housing and the societal/policy desire to introduce group-housing for does. After the introduction of park housing for growing rabbits, the alternative approach for group-housing, based on the part-time concept, was tested. Does with their kits were transferred with their young to parks comprising 4-5 does per park at 18-23 days after parturition. Until weaning (35 d), this results in group-housing of does. Early pilots in the Netherlands were promising. Later on, an extensive series of pilots and experiments was undertaken to improve the layout of the park to reduce the effects of aggression. In 2017, the conclusion was drawn that the system was functioning, albeit that had to be accepted that about 5% of the does had aggression-induced wounds at weaning (Rommers and de Greef, 2018). The Dutch society of the protection of

animals (*'Dierenbescherming'*) developed a hall mark and certification system (*'Beter leven'* ~ better life) to market meat from this system in an added value market segment.

ANALYSIS FROM AN INNOVATION PERSPECTIVE

The above mentioned systematic innovations are clearly observable in practice and reasonably well documented. However, the development towards their success hasn't been analysed and described in much detail yet. Reflection at research and policy level revealed that the developments in the commercial rabbit sector follow another route than other intensive sectors with substantial welfare improvement initiatives like the pig and poultry sector. A systematic analysis and description of the innovation trajectory is valuable to understand the rationale of current systems and may be helpful in evaluation of policy interventions (see for example Bos et al. 2012). Current contribution is an early approach to document and analyse these.

Table 1. Drivers and success factors as mentioned by the sector of the four described innovations

(systems) innovation	Driver(s)	Success factor(s)
Plastic footrest pads	Societal/ethical urgency	Simple solution
Welfare cage	Evade legislation	Improved performance
Park housing	Market pull from Belgium	Price premium from B
Part-time group housing	Policy push & price premium opportunity	(NGO-hall mark)

In Table 1, the four described innovations are summarised from an innovation/ governance perspective: what drove the innovation and why was it successful in the Netherlands.

Plastic footrest mats: The driver for improvement of the flooring in the doe housing (generally wire) was the urgency due to expression of welfare worries by the government & society. The simple plastic mat placed on the wire flooring provided a cheap and easy solution. Key actors were farmers (in interaction with their equipment manufacturers) for the invention.

Welfare cage: the driver for this systems innovation was the farmers urge to evade legislation (possibly a cage ban) by the government. In fact, a covenant with society was made. The sector took its responsibility, and received a period of 10 years to realise a systems make over. Also, the absence of success of earlier innovation route with the government (doe group housing system) brought urgency to farmers for another step towards practical welfare improvement. After implementation, the benefits of the associated systems changes (esp. transfer to all in/all out in a 6 week system) were the readily observed success factors. The collective approach (self-imposed regulation) was essential to convince the government and to force each other in a gentle way. Key actor group were the (organised) farmers, using their opportunities through the product board. Government was the silent actor in the background, science the independent evaluator of components.

Park housing: the driver for the fast transition towards park housing in the Netherlands is clearly the market pull from the Belgian processors and NGO-forced market. The well-ensured market opportunity, brought forward by the Belgian law in 2014 and the Belgian retail demands provided enough certainty for farmers to invest in parks. The direct price premium was the essential success factor in this. Dutch government and research played only a minor role in the fast conversion towards parks, although the early role of researchers (B, NL) testing early farmers prototypes is mentioned.

Group housing of reproducing does: the driver for development of group housing for does was and is the ongoing pull from the government and the major Dutch and Belgian animal welfare organisation. The search for full time group housing was clearly no farmer hobby. Especially the signals from several failures reduced the outlook on a feasible system. After the restart, focussing on part-time group housing, the innovation trajectory is (formally and actually) a joint effort of government, sector and science. The fact that most technical problems could be overcome and the release of a (retail-)valued and (publicly-) well known certification system (by the animal NGO) were two factors that

made the innovation survive. Currently, the market initiative (meat with 'Beter Leven' label) is small. The societal and market strategies of the retail organisations will determine future degree of success.

CONCLUSIONS

A close look at the drivers and success factors could make science and government humble. The substantial changes were rather initiated and developed by farmer collectives than through research of legislation. Nevertheless, government action was relevant through its push (risk of undesired legislation) and its pull (decades of stimulating studies on doe group-housing). Research was involved in most developments, either by providing essential components of the innovations or by evaluation and fine tuning of the systems. The close relations between both the Dutch (NL) and Belgian sector and between their research groups seem to have been influential too, as several developments are interconnected between both countries.

ACKNOWLEDGMENT AND DISCLAIMER

The various contacts with several peer-rabbit scientists, farmers/chain partners and others involved in the innovation trajectories have been of great help to conceive and grow this (quite ad hoc) overview. The role of the various parties (and others) is substantially larger and wider than described here. Current contribution does not aim to describe their roles, but highlights four essential innovations in its headlines. A more in depth analysis will also bring forward government & research roles in more fundamental issues and for example inspiring trajectories.

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Rabbit welfare improvement: the Dutch route

Rather collectively than by law

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Rabbit welfare is a societal issue

Rabbit welfare concerns translate to housing demands

NL/B society voices ; EU research ; EFSA ; EU-ban the cage

Production sector response?

organise voluntarily? by law? by market?

Q: How do societal uneases translate to changes in rabbit housing?

A: In an elegant (& complex) interaction process

What is the process of change?

Several analyses of systems innovations
(fundamental changes)
in NL - animal production sectors

Pigs, Veal calves, Broiler chickens

2019: also for Rabbits



How do societal uneases translate to changes in husbandry?

NL: Polder (negotiation) culture

-> results in a unique & elegant combi of

Society (NGO)
&

Sector strategy
&

Market

&

Law



4 welfare-directed innovations in NL

innovation			Driver	Success factor(s)
Foot rests	2009	does	Societal/ethical urgency	simple
Welfare cage	2006 /2016	does & meat r.	Evade legislation	Improved performance
Park housing	(2014+)	meat rabbits	Market pull from Belgium	Price premium from B
Part-time group housing	(2017+)	does	Policy push & price ⁺	(NGO hall mark)

Conclusions on NL-changes in rabbit housing

Societal pressure on rabbit welfare in NL

→ Housing is clearly different from world standards

Pressure is not primarily translated into legal regulation

but forces/encourages parties to

voluntary & market supported initiatives
which generally become obligatory.....

What about Europe in the *Ban the cage* age?

