



Executive summary

Of rabbits and regulations

A report on the health- and welfare status of the pet rabbit in the Dutch companion animal sector

Over the last few decades, rabbits have become increasingly popular as pets. With 1.2 million rabbits being kept in the Netherlands, the rabbit – together with the dog and cat – belongs to the top 3 most popular companion animals (RDA, 2006; Feiten & Cijfers, 2015).

Previous research has shown that a considerable number of pet rabbits is kept under suboptimal conditions and/or is fed a suboptimal diet, leading to a variety of different health and welfare problems. These problems result in rabbits reaching an average life span of only 4.5 years (Caneel et al., 2000; Schepers et al., 2009), even though some rabbit breeds can potentially live to become 13 years (Altman & Dittmer, 1972). Moreover, in the Netherlands, approximately 12,000 small mammals (mainly rabbits and guinea pigs) wind up in rescue centers and shelters on a yearly basis as a result of impulsive and careless buying (Vinke et al., 2011).

While previous studies have evaluated the health and welfare status of various types of companion animals in general, little to no research has been carried out with rabbits as the primary focus. The current study was therefore set up with the goal to evaluate the health and welfare status of companion rabbits in the Netherlands across the full breadth of the companion animal sector (and each of the individual segments). During the evaluation, a comparison was made to guidelines such as established by the LICG (Landelijk Informatie Centrum Gezelschapsdieren – National Information Center for Companion Animals) and found in their rabbit information brochure (“huisdierenbijsluiter Konijn”). These guidelines are based on scientific studies and consultations with experts and specialists in the field of small mammal (rabbit) behaviour and medicine. For the most part, these guidelines exceed the minimal legal requirements such as established for e.g. laboratory and production rabbits. This is a result of the different purpose that animals in the companion animal sector serve compared to those in the aforementioned sectors.

In the companion animal sector, striving for optimization of housing, nutrition, management, and care for animals is important to increase the chances that an animal can live a long life in optimal mental and physical health; in other words that the companion animal is and can be a companion to us for as long as possible. For this purpose, living conditions need to be as optimal as possible, both within the home environment of the consumer as well as in the entire preparatory phase. This is due to the fact that early life conditions can negatively affect the health and behaviour of an animal in the later phases of life. For example, early socialization with people is deemed important to facilitate human-animal interaction later on in life. Because of aforementioned reasons, it was chosen to use the – often more generous – guidelines of the LICG as point of reference in the evaluation of the situation for companion rabbits.

On the following pages of this executive summary, the most important results and conclusions of the current study are summarized.

1. Commercial breeders (± 10)

Commercial breeders of companion rabbits were found to be difficult to approach and seemingly unwilling to share information with third parties. As a result, this segment may be considered intransparent. Only one breeder was found willing to share some information via a telephone interview. The information provided in this interview indicated that rabbits in this segment are kept under largely similar circumstances as rabbits in the industrial sector. Although these circumstances are in accordance with legal requirements, it is important to emphasize that the rabbits in the companion animal sector serve a different purpose (companion animal versus meat production), with the potential for negative impact on the rabbit's health and behaviour such as described above. Based on the information provided, the following bottlenecks were identified with regard to health, housing, nutrition and behaviour when using the LICG guidelines as a point of reference:

- Feeding of pellets rather than hay as the main component of the diet, resulting in a potential lack of dietary fiber provided to the animals, which might, in turn, lead to e.g. dental and gastrointestinal problems.
- Use of steel wire floors combined with synthetic mats for hygienic purposes and prevention of disease; these type of floors can pose a risk towards the development of pododermatitis / sore feet.
- Individual housing in cages with a floor surface $<0.5 \text{ m}^2$ and very limited choices, enrichment and opportunities to move around and hide, thereby hindering the animals in their ability to perform their species-typical behaviours (Note: the rabbit is a social species that is predated by e.g. foxes and badgers; social housing and hiding places are therefore of utmost importance).

Although the breeder indicated that health problems were hardly ever seen, there was no means of verifying this statement through objectively obtained information or observations (e.g. acquired through on-site visits). Given that other details regarding housing, care and nutrition at other commercial rabbit breeders are missing, no definite conclusions can be drawn regarding the health and welfare status of rabbits in this particular segment.

To gain further insight into the actual health and welfare status of commercially bred companion rabbits, and to maintain current and future policies with regard to the health and welfare of rabbits, an increase in transparency in this sector is considered essential. Provision of transparency towards the consumer regarding the production processes would be in line with current societal developments such as those taking place in the farm animal sector.

2. Rabbit fanciers (± 3,800)

Information was obtained from 368 rabbit fanciers through a questionnaire. These survey results were complemented with information obtained through a series of site visits (n=8).

Similar to the commercial breeders, a lack of transparency turned out to be an important bottleneck to obtain a clear image of the health and welfare of the rabbits in this segment. On the one hand, this is due to the defensive attitude that some rabbit fanciers have towards third parties; on the other hand this may be due to non-binding (= not regulated by law) registration and lack of control and enforcement in this particular segment.

When using the LICG guidelines for regarding the keeping of companion rabbits as a reference, results in this segment indicate that health and welfare may be compromised due to:

- **Housing conditions:** rabbits are often kept individually with very limited choices regarding enrichment and/or opportunities to move around and/or hide, which can hinder the rabbits in displaying species-typical behaviour patterns. Almost 50% of rabbit fanciers indicated that their rabbits are kept in enclosures of 0.30 m² or less. Only 10% of rabbit fanciers provides their rabbits with access to an area where they are allowed to roam freely. Sixty-one percent of rabbit fanciers indicated to not provide digging opportunities to their rabbit, while a mere 28% actually offers some type of enrichment. Just little over half of the rabbit fanciers houses part of their rabbits with other rabbits, with the potential for aggression between does being highlighted as the main reason for individual housing of rabbits.
- **Breeding:** one in six breeders indicates teeth abnormalities as one of the most common health problems encountered in their rabbits. These dental problems are often the result of nutritional deficiencies (e.g. feeding of muesli mixes) and/or a genetic component (e.g. breeding of dwarf breeds, which often have a shorter nose); once rabbits are fed according to common guidelines (as is seemingly the case based on the provided information), a genetic component becomes more likely as the underlying factor for the high incidence of dental disease seen.
- **Euthanasia methods:** the majority of rabbit fanciers indicated that they euthanize rabbits themselves, often through decapitation or a blow to the neck. However, the quality with which the technique is executed, as well as the expertise of the person performing the procedure are not guaranteed under these circumstances. Conversations with rabbit fanciers provided indications that serious abuse abounds in this particular sector. According to the rabbit fanciers who were interviewed, such abuse is predominantly taking place where rabbits with specific coat patterns are bred. Desirable coat patterns - and therefore the value of the rabbit to the showing

circuit - are usually distinguishable shortly after birth. It should be stated that we have not been able to verify these anecdotes, nor have we been able to support them with quantitative findings.

Current findings emphasize the importance of increased transparency in this segment to be able to monitor the health and welfare of rabbits. This, in turn, is essential to guarantee the optimisation of their health and welfare in the long-term. Stricter and clearer legal guidelines and regulations can offer a starting point to enable further control and enforcement of such regulations.

3. Traders (± 10)

Information was obtained from 4 traders through site visits and interviews (N=2) and the survey (N=2). In this particular segment, several bottlenecks became obvious. Only one of the participating traders was feeding hay/grass in addition to pelleted food, while three of the traders were keeping rabbits in cages of 0.30 m² or smaller. In these enclosures, rabbits did not have access to hiding places or enrichment and were kept either solitary or in groups of 8-10 animals on 0.3 m² or less. Cages were usually cleaned once per week or less (despite the continuously changing population of animals kept in them). Although animals generally stay at these locations for a short time only (often no more than a couple of days), the health and welfare of the rabbits might nevertheless be compromised due to:

- the relatively high density of rabbits as well as the mixing of rabbits from different sources, which means there is an increased risk of infection such as coccidiosis;
- environmental changes, which can lead to stress and thereby to decreased immunity in an already sensitive population (young rabbits);
- dietary changes, that can affect the developing intestinal microbial organisms, and potentially result in dysbacteriosis and gastrointestinal problems.

Despite the fact that, compared to the group of commercial breeders, more traders were reached and found willing to participate, the research team encountered similar resistance from some of the traders to share information and/or provide insight into living conditions of the animals. Increased transparency would therefore be equally desirable in this segment, both from an animal welfare point of view and given recent trends in consumer behaviour and demand for transparency on an animal's trajectory from producer to consumer.

4. Retail (1559 pet stores and 795 garden centers)

Information about the retail segment was gained from questionnaires combined with the information derived from on-site visits and in-depth interviews. Notably, the number of survey responses was surprisingly low (N=25).

Some obvious discrepancies were found for some of the parameters between the results obtained from the questionnaire versus those obtained during on-site visits, thereby rendering the reliability of the questionnaire results questionable. For example, during the survey, almost 90% of retailers responded that they offered at least one type of enrichment and housed their rabbits socially in the store. During on-site visits, however, these percentages turned out to be significantly lower: only 72% of the stores offered enrichment, while 48% housed rabbits individually.

Nonetheless, in the past year, retail businesses appear to have become more conscientious about keeping rabbits, with a greater percentage of stores keeping rabbits according to current guidelines for companion animals. This was exemplified by the following observations and developments:

- The branche organisation for the retail of pets, pet foods and supplies (Dibevo) has helped to promote the current study and provided numerous contacts and information to help gain insight into the structure of this segment as well as the trafficking of rabbits to and from this segment. Moreover, initiatives were taken to improve the living situation of rabbits in pet stores together with the Dutch Animal Protection Group, Dierenbescherming ('project Happy Rabbit').
- The diet offered to rabbits in retail stores is in accordance with current guidelines for rabbits (i.e. fiber-rich diet, mainly consisting of hay and/or grass with a limited amount of concentrate or grain mixes).
- Enrichment is offered in >70% of the visited shops and comprises largely of opportunities that allow rabbits to explore their environment (65 %), as well as sensory enrichment, e.g. radio (54 %). This constitutes an improvement compared to previous studies; however, the number of shops visited and the number of survey respondents was low (therefore potentially resulting in a positive bias)

Despite these positive developments there were also some aspects warranting further attention:

- 25% of rabbits examined in the stores during the on-site visits were diagnosed with a soiled perineum. Although further information

regarding the underlying cause was not obtained during this study, this finding could well be the result of diarrhea caused by dietary changes or coccidiosis.

- Housing of the rabbits in all stores visited was smaller than mentioned in the current guidelines for companion rabbits (LICG): in almost 50% of stores, rabbits were kept in enclosures with floor space of 0.3 m² or less. Although stores generally keep young, growing animals, which require less space than adult rabbits, this poses the risk that future owners inadvertently assume that this type of housing is an acceptable manner of keeping rabbits.
- Only 1 out of 3 stores offers rabbits a hiding place/retreat area, even though this is particularly important seeing that rabbits are prey animals.
- More than 95% of respondents claim to house rabbits socially, but in practice this was the case in only 60% of visited stores. Individual housing was noted to be particularly common in independent stores as opposed to those belonging to a franchise or chain.
- None of the 128 evaluated rabbit enclosures that were offered in the stores met the minimum standards as described in the information brochure of the LICG. In addition, none of the 127 evaluated nutritional products that were offered in stores contained all the necessary nutrients (as recommended by experts and current guidelines). Aforementioned products only meet these requirements when combined with additional products. It is therefore crucial for stores to adequately inform consumers adequately.

A remarkable finding of this study was that an increasing number of stores appears to have stopped selling live rabbits. Although the stores that do still sell rabbits appear to house their rabbits better in accordance to current guidelines for companion rabbits, paying extra attention to the aforementioned points of concern (e.g. by the branche organization or franchise/chains) could help bring about a positive effect on the health and welfare of rabbits. Given the exemplary role that stores have towards consumers, transparency on the source/origin and background of the rabbits sold in the store, as well as housing and feeding the rabbits according to current guidelines for companion rabbits (presentation of *best practices*) are important to maximize the chances of a rabbit enjoying optimal health and welfare. As such, it is vital that stores provide adequate information on housing and nutrition requirements. Similarly, branche organization and franchise/chains should take a leading position to stimulate stores to implement the recommended changes.

5. Consumers (1.2 million)

Results for the consumer segment are based on survey data (N=3541) as well as on-site visits and interviews (N=48). Comparison showed results of site visits and survey results to be largely similar. In comparison to previous studies, the current study clearly paints a more positive image of the way that companion rabbits are kept in the Netherlands:

- The diet offered to rabbits corresponds with current guidelines by the LICG in almost 100% of cases.
- Over two-third of the respondents houses their rabbits together with other rabbits and in enclosures that exceed guidelines as provided by the LICG; approximately 90% of respondents offers access to a pen or area for the rabbit to roam around freely, which is accessible to the rabbit continuously in approximately 50% of cases, and for at least an hour in 98% of cases. Only 5% of consumers houses rabbits in enclosures of 0.30 m² or less.
- More than 95% of respondents offer enrichment, comprising mainly of gnawing opportunities (>80% of respondents); other types of enrichment (tunnels, foraging enrichment, digging opportunities and opportunities to explore) are also offered by more than 50% of respondents. A hiding place or retreat area is almost always offered.
- The percentage of animals being vaccinated by private owners is surprisingly high (70.7% vaccinates against RHDV, 53.9% against RHDV2, and 69.5% against myxomatosis).
- The average reported life span of privately-kept rabbits is 6.7 years, which is considerably higher than the life span reported in previous studies (i.e. 4.2-4.5 years).

In the consumer segment, respondents were also questioned about the level of information they had received prior to purchasing the rabbit. Although approximately 70% and 80% of consumers indicated that the point of sale had provided them with sufficient information on housing and nutrition, respectively, a mere 15% of consumers indicated that they felt properly informed on the anticipated costs of (veterinary) care. In addition, less than one-third responded that they felt adequately informed on how much time is needed in order to care for a rabbit. Clearly, these topics are important to inform consumers about, in order to curb the number of rabbits that end up in rescue centers every year (approx. 12.000 small mammals, predominantly rabbits and guinea pigs; Vinke et al., 2011). Here lies an important role for retail, but also for veterinary practitioners and other organisations such as the LICG. Moreover, these groups, and especially retail, play an important role in preventing impulsive purchases which – compared to previous studies – still occur just as often as before (i.e. one in out of four to five cases).

6. Petting zoos (± 550)

Results are based on survey data (N=71) combined with information obtained through site visits and interviews (N=16).

The following trends could be observed in this segment:

- All petting zoos provide their rabbits with grass/hay. The offered diet is in accordance with current guidelines as outlined by the LICG.
- 15% of petting zoos house rabbits in enclosures of 0.3 m² or less, while 45% of participants house (at least) a part of the rabbits in enclosures that are smaller than the recommended guidelines. Although all respondents also house rabbits in larger enclosures (> 1.6 m²), and 60% of petting zoos also offers the animals access to an area to roam free, the aforementioned restriction of space for part of the rabbits remains an important area of concern.
- Shelter/hiding areas and enrichment (including gnawing and digging opportunities) are offered in >80% of cases.
- 92% of respondents indicates that they house their rabbits socially. Even though 41.3% of petting zoos house rabbits occasionally in solitary conditions (e.g. during a quarantine period), the majority of rabbits is kept with other rabbits.
- The average lifespan of rabbits in this segment was found to be 5 years (i.e. slightly higher than life spans reported in other studies). However, in the segment of petting zoos, annual mortality rates were reported to approximate 10%. This is the highest mortality rate reported across all segments. Further studies into the underlying causes for this high mortality rate would be helpful to help formulate specific advice on ways to reduce this mortality rate (e.g. vaccination policy or preventive health care in case mortality is the result of infectious diseases).

In summary, it appears that petting zoos are on the right track in terms of provision of enrichment, hiding opportunities and social housing of rabbits. If this segment were provided with adequate information, self-regulation might suffice to help continue this positive trend. Obviously, the percentage of small enclosures offered is an area of concern; similarly, causes for the high mortality rates warrant further investigation.

7. Rescue centers (\pm 140)

Results are based on survey data (N=67) combined with on-site visits and interviews (N=17). Important positive findings include the following:

- The offered diet in all rescue centers is in accordance with guidelines as established by the LICG.
- Both hiding areas and enrichment are offered in >95% of cases; types of enrichment include gnawing opportunities (84.6%), tunnels (74.4%) and opportunities for exploration (69.2%). Almost all rescue centers offer a hiding place to the rabbits.
- The percentage of rescue centers that vaccinate their rabbits is very high (94.9% RHDV, 66.7% RHDV2, 89.7% myxomatosis), thereby reducing the risk of spreading various infectious diseases.

In addition, several areas of concern were identified, i.e.:

- Reported mortality rates averaged 6.3% on a yearly basis, which is higher than the percentages reported in the commercial segment (<5%). This might be attributed to the health status of the rabbits brought to rescue centers: they are generally older animals, possibly suffering from health issues prior to admittance to the rescue center.
- Two-thirds of respondents house rabbits in enclosures that are smaller than those recommended by the LICG; 24% of rescue centers house rabbits in enclosures of 0.3 m² or smaller. Fifty-three percent of rescue centers does provide (temporary) access to an area to roam around freely.
- Although 86% of rescue centers indicated to house their rabbits socially, this turned out to be the case in only 52% of cases during the site visits. Ninety-five percent of rescue centers houses rabbits individually, whereby on average two out of three rabbits are housed solitary. In most cases, rabbits are housed solitary because of the necessity to house them separate from other rabbits during the quarantine period or because the animal is experiencing health problems. In addition, animals may be housed solitary because of difficulties encountered during introduction and matching of (mainly adult) animals.

In summary, rescue centers appear to be on the right track when it comes to nutrition and provision of enrichment. It should be taken into consideration that many rabbits brought into rescue centers are sick and/or were neglected by the consumer. This problem therefore warrants primary attention at the level of the consumer. The provision of adequate information to consumers and the prevention of impulse buying appear to be important focus areas to prevent animals – whether or not in suboptimal condition - from ending up in rescue centers at a later stage.

Important points that warrant further attention by the rescue centers themselves relate to the size of the housing and lack of social housing. Here, further studies would be warranted to evaluate what the underlying causes are for rescue centers to not meet the currently recommended standards. These underlying reasons will also help identify solutions. Should financial constraints be one of the reasons for the provision of restricted space, then provision of financial support would be advisable. A more detailed evaluation, focusing on mutual collaboration and communication between rescue centers, could be a first step towards identifying practicable solutions.