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Textiles — Animal welfare in the supply chain — General requirements for the production, preparation and traceability of Angora rabbit fibre, including ethical claims and supporting information

Textiles — Bien-être animal dans la filière — Exigences générales pour la production, la préparation et la traçabilité de la fibre de lapin angora, y compris les déclarations éthiques et les informations justificatives

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 38, *Textiles*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 248, *Textiles,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The World Organization for Animal Wealth, Terrestrial Animal Health Code (OIE TAHC) defines animal welfare as "*how an animal coping with the conditions in which it lives and dies. An animal is in a good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and if it is not suffering from unpleasant states such as pain, fear and distress. Good animal welfare requires disease prevention and veterinary treatment, appropriate shelter, management, nutrition, humane handling and humane slaughter/killing. Animal welfare refers to the state of the animal; the treatment that an animal receives is covered by other terms such as animal care, animal husbandry, and humane treatmen*t".

The domestic rabbit is a mammal pertaining to the Lagomorph order (with four incisors in the upper jaw). In particular, Angora rabbits come from Turkey (Ankara) and have always been prized for the production of quality animal fibre on a par with the Cashmere and Angora goat (mohair) and that of the South American camelids (Vigogna and Alpaca).

The production of animal fibre from Angora rabbits is an animal husbandry activity that is only practiced in certain parts of the world. The main producer of Angora rabbits today is China. These rabbits have the capacity to produce the very soft, warm fibre of a brilliant white colour known as: Angora. Rabbit pelts are double-coated, i.e. comprising a double layer of coarse fibres deriving from the primary hair follicles (guard hairs, which usually grow in groups of 3) and very soft underlying fibres that come from the secondary follicles (undercoat, located in proximity to the 3 primary follicles).

The Angora rabbit produces around 1 kg to 1,5 kg a year of fibre, or almost 30 % of its own live weight. The productive cycle of the rabbit lasts for around 3 to 4 years. Angora rabbit hair grows according to the classic model of follicular activity, which is divided into 3 main phases: the "anagen" or the full follicular activity phase, characterized by fibre growth; fibre the "catagen" or the phase of follicle regression and interruption of fibre growth; fibre and finally the "telogen" or follicle resting phase, characterized by fibre shedding fibre. For these reasons, Angora fibre is usually collected at regular intervals through combing or shearing. Said activities are greatly affected by the type of rabbit bred, how the business is managed, and obviously the nutritional conditions of the animals.

This document reflects national and international best practices in terms of animal welfare with specific reference to rabbit breeding and in particular to:

— production standards;

— animal housing conditions;

— transformation;

— packaging;

— transport;

— storage;

— ethical claims and supporting information;

— traceability;

— checks and inspections.

This document is aligned with the European Convention for the protection of animals kept for farming purposes and Directive 98/58/EC, concerning the protection of animals kept for farming purposes[11] and is based on five freedoms for the protection of animal welfare (see Table 1).

Textiles — Animal welfare in the supply chain — General requirements for the production, preparation and traceability of Angora rabbit fibre, including ethical claims and supporting information

1 Scope

This document specifies requirements for the management of farmed Angora rabbits in accordance with animal welfare principles.

This document applies to the management and control of critical activities in Angora rabbit farming, including accommodation, reproduction, feed and nutrients, health, fibre collection, ethical claims and supporting information.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/TS 17033:2019, *Ethical claims and supporting information — Principles and requirements*

ISO 26000, *Guidance on social responsibility*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
animal welfare
well-being of animals in the ethical conditions in which they are farmed

3.2
competent authority
veterinary authority or other governmental authority of a country having the responsibility and competence for ensuring or supervising the implementation of animal health and welfare measures, international veterinary certification and other standards and recommendations in the OIE TAHC

[SOURCE: ISO/TS 34700:2016, 3.7]

3.3
kit
baby rabbit from birth to weaning

Note 1 to entry: Rabbit aged from birth to 49 days.

3.4
young rabbit
rabbit that has not reached sexual maturity

Note 1 to entry: Rabbit aged after weaning to the adult age.

3.5
adult rabbit
rabbit that has reached sexual maturity

Note 1 to entry: Rabbit older than 6 months.

3.6
brood
group of kits from one female rabbit

4 Requirements

For all aspects of social and environmental responsibility not specifically addressed in this document, ISO 26000 shall be referred to.

This document defines requirements for the management of farmed Angora rabbits in accordance with animal welfare principles expressed in terms of five freedoms, to be ensured according to the areas of intervention expressed in Table 1.

NOTE This document is also aligned with European legislation on the welfare of farmed animals[11].

Table 1 — Five (5) animal freedoms

The 5 freedoms	Areas of intervention
Freedom from hunger, thirst and malnutrition	Feeding and watering
Freedom from physical and thermal discomfort	Animal housing conditions and farming practices
Freedom from injury and disease	Health management
Freedom to express normal species-specific behavioural patterns	Animal housing conditions and farming practices
Freedom from fear and stress	Animal housing conditions and farming practices Fibre management

5 Animal housing conditions and farming practices

5.1 Structures

The premises of breeding establishments where the rabbits are farmed shall be fully fenced in order to control the entrance of people, vehicles and unwanted animals that can compromise the health and wellbeing of the animals.

The spaces where the animals are farmed shall be subdivided into the following areas: breeding areas, adult breeding females (does), fattening males (bucks) (if present).

The structures housing the Angora rabbits shall be built to ensure their protection and guarantee the best conditions for the wellbeing of the farmed animals.

The structures shall be walled or enclosed in a manner that ensures a controlled internal environment (temperature, humidity, lighting, ventilation, etc.) that reflects as far as possible the physiological and ethological needs of the rabbit.

If possible, the structures shall be positioned in a tranquil area, in the shade, with no extreme changes in temperature, and with good air quality and ventilation.

All of the internal surface areas of the structures in which the animals are housed shall be made from suitable materials that are easy to clean and disinfect to reduce to a minimum the risk of disease.

All of the equipment, installations and tools present in the spaces where the animals are kept shall be installed and managed so as to ensure that they function properly and can be easily inspected, cleaned and disinfected in order to reduce the risk of disease and any negative impact on animal welfare.

All of the equipment, installations and tools shall be used and maintained in accordance with the relative instruction manuals.

All automatic equipment or other mechanical tools on which the welfare of the rabbits depends shall be thoroughly checked at least once a day. Any faults found shall be fixed immediately or, if this is not possible, specific measures to safeguard the health and wellbeing of the rabbits shall be put in place until the faults are fixed.

All of the openings to the enclosures where the animals are kept shall be equipped with mechanisms to prevent the entrance of unwanted animals or predators.

5.2 Animal housing systems

5.2.1 General

The barn method of farming Angora rabbits is impractical since, in addition to an increased risk of health issues, the uniquely developed hair of these animals can pick up various elements from the ground, forming knots with consequent skin injuries and preventing certain physiological functions such as urination and defecation; this process would ultimately compromise the wellbeing of the animal and the quality of the product.

For these reasons, the animals shall be housed in structures that promote good health, limit the risk of disease, injury or infection and ensure adequate living space that allows locomotion:

— standing up, lying down and turning around freely;

— fully stretching their legs;

— moving by hops;

— lying down in a "relaxed" position with the hind legs stretched out; and

— social species-specific behaviours, such as especially:

  — cleaning themselves;

  — hiding;

  — gnawing;

  — social interactions (where feasible);

  — holding themselves up with their ears erect (a "look-out" stance typical of the species).

5.2.2 Characteristics and materials

Rabbits should be kept in cages or preferably in pens (elevated or at floor level). These may be indoor or outdoor pens. In the case of outdoor pens, there shall be a roof to protect the rabbits from other animals and to stop them escaping. The animal housing structures shall:

— be made from comfortable material that does not cause any discomfort, harm, suffering or trauma, with no sharp edges or protrusions;

— have a floor made of rigid, flat, stable and not slippery material;

— have good drainage to ensure the removal of animal waste or any water leaks;

— let in adequate light, allow the animals to see each other, and be easy to clean and disinfect.

Rabbits should have access to an area with well-tended litter. Furthermore, an elevated platform (see 5.2.3) shall be installed occupying at least 30 % of the cage.

It shall be possible to make nests in the structures where pregnant animals are housed. These structures shall also be made from material that can be washed and disinfected (metal or plastic) and easily inspected. Moreover, the pregnant brood does shall be provided with suitable and sufficient material with which to build a nest (for example, straw, wood chips or other natural materials).

The animal housing structures shall be serviced by feeding and watering systems that are designed, positioned and managed to ensure the provision of sufficient quantities of food and water in all conditions. Said systems shall also be controllable and easily cleaned and disinfected. In addition, any loss, microbial contamination, or risk of causing injury to the animals shall be kept to a minimum.

The housing structures shall also contain devices that enhance the environment by allowing the animals to express their natural species-specific behaviours (see 5.2.4).

5.2.3 Size and density of the animal housing structures

Rabbits being gregarious animals shall be kept in stable groups in relation to the age and stage of development.

Density is a fundamental factor in animal welfare in the prevention of aggressive behaviours and the spread of disease on the farm (see Table 2).

The size of the animal housing structures depends on the animal category: adult and breeding animals, brood does with kits and rabbits weighing less than 1,5 kg reared in groups.

Table 2 — Animal housing structures

Adult females (does) and breeding rabbits that produce fibre	Width ≥60 cm, length ≥70 cm and height ≥60 cm. Each individual animal shall have an area of at least 4 200 cm^2 available to them in addition to a platform of 1 800 cm^2 (corresponding to 30 % of the usable floor area), amounting to a total of 6 000 cm^2. The platform shall be positioned at a minimum height of 30 cm.
Brood does with kits	Width ≥60 cm, length ≥70 cm and height ≥60 cm. Each individual animal shall have an area of at least 4 200 cm^2 available to them in addition to a platform of 1 800 cm^2 (corresponding to 30 % of the usable floor area), amounting to a total of 6 000 cm^2. The platform shall be positioned at a minimum height of 30 cm. In addition, a nest with the following minimum dimensions shall be present: between 1 000 cm^2 and 1 400 cm^2. This nest shall be darkened, at least receiving less light than the rest of the pen/cage through the walls and the lid. The cages in which the brood does are kept shall have a space reserved for the nest or an isolated nesting area provided at least three days prior to the date on which the does are expected to give birth, so that they can build a nest.
Rabbits weighing less than 1,5 kg reared in groups	A minimum surface area of 1 000 cm^2, better still, of 1 500 cm^2 shall be available to each individual animal.

5.2.4 Equipment promoting species-specific behaviours

Gnawing materials suitable for all production categories (breeding rabbits and growing rabbits) shall be supplied (compressed fodder, wooden block, etc.). Besides the gnawing materials, forage (hay) also shall be daily supplied (see 6.2.3).

Hiding places without dead-end shall be supplied to allow the rabbits to hide like in burrows (e.g. concrete tube).

5.3 Adequate management of the farming conditions

5.3.1 General

The structures shall ensure optimum conditions of temperature, relative air humidity, ventilation and lighting.

5.3.2 Temperature and relative air humidity

The structures shall possess temperature control systems that make it possible to maintain the temperature between 10 °C and 25 °C (optimum temperature from 15 °C to 20 °C) and the relative humidity level between 50 % and 80 % (optimum relative humidity 65 %).

The farmer is required to keep a daily record for each shed of the ambient temperature and the relative humidity in the morning and in the afternoon. Provision shall also be made for measures to be adopted in the event of any malfunction of the equipment in order to ensure these physical parameters are maintained.

5.3.3 Ventilation

The structures shall be equipped with an adequate ventilation system that makes it possible to maintain a comfortable and healthy environment for the animals, preventing any excessive heat rises, removing any harmful gases and dust and reducing humidity levels.

The ventilation inside the animal housing structures shall be at least in accordance with Table 3:

Table 3 — Ventilation

Category	Natural ventilation (m^3/animal)	Forced ventilation (m^3/animal)
Lactating brood does	3,5	3
Brood does	3	2,75
Bucks	2,75	2,5
Weaned animals	0,35	0,30
Source: See Reference [12].		

Good ventilation shall ensure a low concentration of harmful emissions (due mainly to animal waste) in accordance with Table 4.

Table 4 — Air quality

CO_2	NH_3	Dust
<0,15 %	<20 mg/kg	<5 mg/m^3

Excessive concentrations of NH_3 and dust can affect the wellbeing of the animal and lead to respiratory diseases or damage to the mucus membranes.

The farmer is required to keep a record for each shed of the periodic checks performed on the level of ammonia present inside the sheds where the animals are kept. Provision shall also be made for measures to be adopted in the event of any malfunction of the equipment in order to ensure these physical parameters are maintained.

5.3.4 Lighting

All buildings shall have sufficient lighting to allow rabbits to see each other and to investigate their surrounding area.

Natural light shall be provided and may be supplemented by artificial lighting. At least 10 lux to 20 lux should be provided by natural lighting, which can be generally achieved with openings corresponding to a minimum from 3 % to 5 % of the total floor area. The optimal level of lighting from different sources is 50 lux for young rabbits and 30 lux for adult rabbits, measured at the cage level.

In case of artificial light supplement, the light/darkness regime shall follow a circadian rhythm and include a period of light lasting 16 h for optimal reproductive function and 8 h of darkness to allow the animals to rest and carry out their nocturnal activities. The twilight period shall last for at least 30 min. Each farm shall have a register for each shed in which to record for every seasonal period the hours of light - darkness, the hours of artificial light, any maintenance performed, any lighting system malfunctions and the measures taken to resolve them.

5.3.5 Removal of animal waste and dead animals

Removal of animal waste is fundamentally important in order to maintain suitable air quality as it facilitates, along with good ventilation, minimization of concentrations of harmful emissions (for example, CO_2 and NH_3) and dust.

Dung may be removed manually or mechanically, and removal shall be performed twice a day or when conditions make it necessary. In the case of mechanical removal, the equipment shall be adequately positioned so that it can be easily inspected, cleaned and disinfected. Provision shall also be made for measures to be adopted in the event of any malfunction of the equipment in order to ensure these physical parameters are maintained.

The farm shall have a register for each shed in which to record any maintenance performed, any lighting system malfunctions and the measures taken to resolve them.

The animal waste shall be stored in a specific place away from the animal housing facilities until it can be disposed of.

Dead animals shall be rapidly removed and placed in a specific area equipped with freezers so that they may be kept frozen until their disposal.

5.3.6 Cleaning, disinfection and maintenance premises and equipment

Cleaning and disinfecting the premises, equipment and tools is fundamentally important in maintaining a high standard of hygiene on the farm and, therefore, in reducing the risk of infectious diseases and parasites and safeguarding the wellbeing of the animals.

The farmer shall, according to a defined schedule and using suitable and authorized products and appropriate methods, clean the areas where the rabbits are kept and the other areas of the farm in order to maintain an optimum level of hygiene as indicated in Table 5.

Table 5 — Cleaning and disinfecting

Area	Equipment	Type of operation	Frequency of operation
Rabbit shed	Animal housing equipment	Burning of residual hair, cobwebs, dust	Once a week or when conditions make it necessary
		Cleaning involving washing and disinfecting	At the end of each rearing cycle
	Aisles between the cages	Cleaning with a broom and/or mechanical tools	Daily
	Drinking troughs	Function check	Daily
		Cleaning and disinfecting the water supply network	Prior to each new input or at the end of each treatment
	Feeding troughs	Function check	Daily
		Cleaning and disinfection	Prior to each new input
	Light points, hoppers, etc.	Function check	Daily
	Equipment, walls, doors, windows	Burning of residual hair, cobwebs, dust	Once a week or when conditions make it necessary
		Cleaning involving washing and disinfecting	At the end of each rearing cycle
	Equipment for feeding and moving the rabbits	Prevention of the spread of parasites, pests and fungi	After each use or when conditions make it necessary
Food storage warehouse		Cleaning in the event it is dirty	Daily
		Sweeping	Daily
		Infiltration check	Each time it is restocked
		Checking for the presence of unwanted animals	Weekly
Food storage silos		Water infiltration check	Prior to each filling
		Checking they are clean and free from incrustations	After each emptying
External areas		Elimination of anything not used	Daily or when conditions make it necessary
		Tidying up	When conditions make it necessary

A room or a locker that can be locked with a key shall be available in which to keep all products and tools used for cleaning and disinfecting.

For cleaning and disinfecting products, a copy of the safety data sheet and on package label of products purchased and used shall be kept on site by the farmer for at least the period of time that the product is used.

A register shall be kept to record cleaning actions performed with the date and product(s) used in the sheds (floors, walls, windows, doors, ceiling), cages, feeders and waterers, animal waste collectors, etc.

5.3.7 Control of unwanted animals

The control of unwanted animals, such as insects, rodents and birds, is fundamentally important in ensuring a healthy farm environment and reducing the risk of infectious diseases and parasites.

The actions to be taken are aimed at both the active control and prevention of unwanted animals. Prevention is achieved by putting in place physical barriers and maintaining, as far as possible, a high level of cleanliness in the enclosures and adjacent areas, avoiding the accumulation of disorderly piles of packaging materials, or of food or animal waste. The enclosures shall be continuously monitored

and visually checked in order to detect any unwanted animals or traces of their presence (footprints, excrement, larvae).

In order to tackle rodent infestations, traps should be used, and extermination methods adopted, which entail the use of bait but which shall ensure the safety of the food for the animals and of the environment.

In order to tackle insect infestations (flies, mosquitoes, etc.), it is important to take action both against the adult insects and their larvae. If using a spray product, apply to the surfaces that are habitually frequented by the insects. The products shall be used in accordance with the relative instructions, taking care to avoid contaminating the food and the feeders.

Any points of entry to the food and feed storage areas shall be covered by grilles or sealed in order to prevent the entrance of parasites.

A room or a locker that can be locked with a key shall be available in which to keep all the products and tools used to tackle unwanted animals.

For pest control products, a copy of the safety data sheet and the package label of the products purchased and used shall be kept on site by the company for at least the period of time that the product is used.

A register shall be kept in which to record: the type of product used, the frequency and location of its use, as well as the user.

5.4 Staff training

The skill and training of staff working on the farm is vital in ensuring a high standard of hygiene and animal welfare.

The farmer shall provide ongoing training to staff in relation to animal welfare, hygiene, food, and breeding management and the management of rabbits to be used for Angora production.

A record should be kept of all the staff training activities by keeping a copy of the training attendance records or through a report given by the trainer in a specific register for this purpose.

While working, staff shall wear appropriate clothing and conduct themselves in accordance with standard hygiene and animal welfare practices.

More specifically, in order to maintain the farm hygiene and the wellbeing of the animals, staff shall:

a) control the entrance of unauthorized persons and vehicles;

b) check on the health of the animals, identifying any sick animals and removing any that have died;

c) handle and move the animals in a proper manner, without causing them any fear or harm;

d) manage the breeding activities (artificial insemination, nest preparation, pregnancy testing, birth, fostering, lactation and weaning);

e) check on the functioning of the equipment, especially equipment that affects the health and wellbeing of the animals;

f) manage the cleaning and disinfecting of the enclosures, equipment and tools, and the storage of the products used for this purpose;

g) manage the pest control activities and the storage of the relative products used;

h) manage the shearing and storage of the hair;

i) manage the warehouses and the food stored therein;

j) keep the various farm areas clean and free from waste materials;

k) see to the disposal of organic and non-organic residues produced on the farm;

l) regularly and correctly fill out all the record sheets on the farm;

m) properly manage the entrance and exit of animals on the farm;

n) assist the farm veterinarian with the activities for which he/she is responsible.

6 Diet management

6.1 Dietary requirements

Angora rabbits require a balanced diet that enables them to produce between 1 kg and 1,4 kg of Angora fibre per year. The production of fibre varies in the period between each shearing (on average 3 months) and the diet shall be able to cover the productive needs related both to the growth rhythm of the filament and the loss of heat experienced following shearing.

The food given to the rabbits in the various phases (pregnancy, lactation, growth, fibre production) shall be formulated in accordance with the needs of the species. The use of one type of feed for all categories is permitted provided such feed has the required nutritional characteristics.

NOTE For example, adult rabbits 2 times a day, young rabbits, pregnant or lactating rabbits 4 times a day, and kits 5 times to 6 times a day.

Table 6 shows the average compositional values of a complete feed regime for adult breeding Angora rabbits.

Table 6 — Feed regime

Digestible energy (MJ/kg)	Crude lipids (g/kg)	Crude cellulose (g/kg)	Crude protein (g/kg)	Calcium (g/kg)	Phosphorus (g/kg)
10,5	30	140	160	8,0	4,0
Source: See Reference [12].					

The Angora rabbit has a greater need of sulfur amino acids (methionine and cysteine) compared with other races due to its high production of fibre. The diet should therefore be supplemented with such additives. Supplementation with methionine is particularly important where fibre production exceeds 1 000 g.

The required, essential amino acids[6] for rabbits farmed for the purposes of fibre production are shown in Table 7.

Table 7 — Essential amino acids

Lysine	7 g/kg of feed as-is
Methionine + cystine	8 g/kg of feed as-is
Arginine	6 g/kg of feed as-is

The nutritional requirements of breeding does are higher than those who are not breeding. The concentration of protein in the diet should be increased by 10 g/kg and the level of digestible energy should reach 11,7 MJ/kg. Equally, the feed for breeding does should also have a higher concentration of amino acids such as lysine, methionine, cysteine and arginine.

The nutritional requirements of young growing rabbits and does intended for breeding are similar to those for the same category of animals bred for meat.

6.2 Feeding

6.2.1 Feed characteristics

The dietary base consists of fully supplemented compound feeds that cover all the nutritional needs of the animal during its various physiological phases.

The feed shall be administered in pellet form which is the ideal form (3,5 mm × 15 mm) to ensure the continuous intake of a balanced diet. The consistency of the pellets shall be such to ensure the healthy wearing down of the rabbit's incisors, which grow continuously throughout their lifetime.

6.2.2 Feed consumption

The concentrated feed shall be given to the rabbits in controlled quantities (except in the case of does during lactation) sufficient to satisfy their nutritional needs.

The weekly ration shall be divided into equal portions during the first six days of the week, with the last day of the week reserved for fasting. Fasting is useful in preventing the formation of trichobezoars in the stomach and facilitating the elimination of any ingested hair through the feces. On fasting days animals shall have hay and/or moderate amounts of fresh vegetables which facilitate intestinal peristalsis. It is important to ensure that feed is administered at the same time every day.

Taking into account the average concentration of nutrients in the most commonly used raw materials (cereals, oil and protein seeds, dry forage, and by-products, etc.), and considering that in the first 4 weeks following shearing the needs are greater (increased temperature regulation needs and an elevated pace of fibre growth), the level of complete feed to be administered to adult Angora rabbits is approximately as follows:

a) First month after shearing: 1 200 g per rabbit each week

b) Second month after shearing: 1 100 g per rabbit each week

c) Third month after shearing: 1 000 g per rabbit each week

Rabbits are not able to self-regulate their food intake. It is important, therefore, to avoid administering excessive quantities of feed that could lead to serious gastrointestinal imbalances and obesity.

6.2.3 Forage

The provision of forage (fresh or made into hay) is essential for the satisfaction and the welfare of the rabbit even if the initial food give all the basic nutritional components.

Providing the animals with small quantities of hay every day ensures that:

a) the proper functioning of the digestive tract is maintained;

b) the formation of trichobezoars is prevented;

c) the growth of the rabbits' teeth (which grow continuously) is controlled;

d) a higher level of animal welfare (environmental “enhancement”) is achieved.

Forage shall be distributed in feeding troughs located outside of the cages or in an elevated position in the cage so as not to touch the floor. This minimizes any contamination of the rabbit's coat with vegetable material and the formation of an excessive layer of bedding making it more difficult to clean the cage and increasing the risk of the spread of parasites and/or pathogenic microorganisms.

The forage shall consist of gramineous plant matter. Excessive quantities of legume hay, particularly alfalfa, shall be avoided owing to the nutritional imbalances caused by the high protein content and calcium/phosphorous ratio.

The forage shall have lignin levels of not less than 4 % in order to effectively assist in the stimulation of intestinal peristalsis and in preventing the formation of trichobezoars.

6.2.4 Treats

Certain supplementary foods such as carrots, fruit or fresh grass may be added to the usual diet, provided that the treats are given in small quantities in order to avoid any anomalous intestinal fermentation and any consequent digestive disturbances.

Any new foods shall be introduced into the diet of the animals very gradually. Fresh or stale bread or food products deriving from the pastry industry should be avoided.

6.3 Purchase and storage of food

Animal feed shall be purchased in accordance with stringent self-checking protocols that shall ensure observance of the expiry dates. The feed purchased (or produced in the breeding establishments feed mill) shall be stored in suitably ventilated and dry areas, above floor level, to prevent the development of moulds and possible contamination with mycotoxins.

The spaces, equipment, silos and containers used to produce, store, prepare and transport animal feed shall be regularly cleaned and, if necessary, disinfected in order to avoid contamination. The protocol to be followed for feed storage is important also in avoiding parasite infestations in foodstuffs.

The prevention program shall also include measures to tackle pests such as rodents and insects (e.g. windows fitted with netting) in order to prevent contamination resulting from feces and potentially pathogenic microorganisms. Regular cleaning and disinfestation shall be carried out.

If the feed is produced in-house, the raw materials that are introduced into the feed mill shall be checked in relation to their nutritional properties and also to ensure that they are clean and free from any physical, chemical or microbiological contaminants. To this end, all foodstuffs introduced shall be subjected to sample testing.

NOTE Legal requirements can apply.

It is important to ensure the complete traceability of the raw materials or finished feed that are introduced into the feed mill.

6.4 Drinking water

The drinking water shall be fresh and regularly checked to ensure it is clean and safe to drink. The animals shall have continuous access to drinking water.

The water shall be provided via automatic watering systems which ensure greater cleanliness and hygiene compared with bowls and prevent the animals from needlessly getting wet.

It is important to take all the necessary precautions to prevent the water from freezing inside the tubes.

The average water intake requirement is 0,33 l/day although this can vary greatly depending on the environmental conditions and the individual animal.

7 Breeding management

7.1 Artificial insemination

The productive cycle is based on managing the mating process every 49 days through artificial fertilization.

Only brood does that are suitable from a health, animal husbandry and receptivity point of view are inseminated.

Generally, hormonal treatments should be avoided. If it is necessary, they should be administered under veterinary control.

The semen used for insemination should be obtained from breeding bucks present on the farm or from external farms or genetic laboratories.

If the semen originates from internal breeding bucks, it shall be obtained by expert personnel using appropriate methods and handlings respectful for animals (bucks and teasers if used). Equipment shall be properly cleaned and sterilized (artificial vagina, tubes, etc.). The quality of the semen shall also be assessed from a macroscopic, microscopic and bacteriological point of view prior to use.

If the semen originates from outside the farm, it shall be accompanied by documentation attesting to its quality also from a bacteriological point of view.

Catheters used for the artificial insemination shall be sterile and used exclusively for one animal. The procedure shall be performed only by trained personnel in order to avoid as far as possible any stress for the animal.

Pregnancy can be diagnosed between 10 days and 14 days after insemination through palpation of the abdominal region.

7.2 Nest quality and control

The nests intended for giving birth shall be cleaned and disinfected prior to use and added to the structures where the brood does are housed on the 26th day following insemination. Inside, suitable material for nest construction by the brood doe should be added (wood chips, straw, shredded newspaper). Following the birth, they shall be constantly monitored and kept clean and free from any dead animals.

The brood does shall be checked postpartum and, if necessary, undergo further interventions in order to assess their health and to help them recover from the stress of giving birth.

7.3 Fostering

On the date of the birth, fostering arrangements may be put in place whereby kits should be moved from litters with many kits to those with fewer kits in order to ensure uniform growth of the kits and the improved wellbeing of the animals.

7.4 Lactation control

The suckling process shall be controlled and consistent in allowing access of the brood doe to the nest twice a day (morning and evening) in order to allow her young to suckle. The suckling method proposed relates to the fact that the doe has scarce parental care and she is also an animal that is easily scared. Sudden noises or unknown staff members can lead to excessive and uncontrolled access to the nest by the doe, which could result in injury to or death of the kits.

7.5 Weaning

During the first 49 days of their life, kits are kept in housing structures with nests together with their mother. After 49 days have passed, the animals are weaned and reared in stable groups of at least 20 individuals and in any case of more than 4 individuals until sexual maturity is reached. Data pertaining to the breeding cycle (date of insemination, pregnancy, date of birth, number of new-borns, number weaned, etc.) shall be recorded by the farmer in a specific register and also in individual record sheets attached to the animal cage.

7.6 External restocking

If animals are purchased, they shall come from registered breeders and be certified as free from any diseases that are dangerous to the species in question. Upon arrival, the company veterinarian shall

check the health of the rabbit and, if necessary, take samples for diagnosis. The farmer is required to keep the health documentation of the animals acquired.

Prior to being introduced into the farm, the purchased animals shall be placed in quarantine and recorded in a specific register.

All externally sourced rabbits shall be recorded in a specific register and upon arrival the documentation shall be checked as well as the health certificates attesting to the healthy condition of the animals and the vaccinations performed (transport document, certificate of origin of the breeding animals, health certificates including details of any vaccinations, etc.).

NOTE Legal requirements can apply.

7.7 Killing of rabbits

A study carried out by the European Food Safety Authority (EFSA), called “Scientific opinion concerning the killing of rabbits for purposes other than slaughter” can be taken into consideration for purpose.

The killing of the rabbit shall follow the “Killing of animals for disease control purposes"[7].

8 Health management

8.1 Company veterinarian

Health management at the farm is the responsibility of the farmer who is assisted by one or more veterinarians to keep the rabbits healthy and to control diseases, whether infectious or not, that can cause the animals to suffer or die; unhealthy conditions and disease can in addition cause economic damage to the breeding establishment. Furthermore, it is the responsibility of the farmer to prevent any biological or chemical issues that can be detrimental to public health and the environment.

The veterinarian should make use of specialized personnel working in the company in the performance of his or her duties.

The duties of the veterinarian include:

a) checking the health and welfare of the animal.

   The veterinarian shall check on the health of the animals on the farm, assess any sick animals or animals showing signs of suffering, check that the housing and shearing areas are clean and that the environmental parameters are kept within acceptable ranges for the health and welfare of the animals, inspect the systems and equipment that are essential for the health and welfare of the animals;

b) controlling biosafety;

c) managing medicines on the farm;

d) managing breeding-related activities;

e) checking activities carried out by staff;

f) checking the handling and transport of the animals;

g) checking on sick animals in quarantine.

8.2 Anti-parasite treatments

Programs to control and prevent internal and external parasites shall be properly planned and implemented.

8.3 Vaccination programs

Appropriate vaccination programs shall be planned and implemented based on the diseases prevalent in the area in which the farm is located.

The veterinarian shall check or carry out the necessary vaccinations and the relative booster vaccinations.

Any vaccination program shall respect international best practices.

NOTE For example, see Reference [10].

8.4 Farm medicines management

The company veterinarian is responsible for the prescription, storage and use of authorized medicines at the breeding establishment. Treatments shall entail the use of authorized medicines only, duly prescribed following a clinical examination by the company veterinarian.

A register of authorized medicines and prescribed treatments shall be held at the breeding establishment, under the responsibility of the legal representative. The register may be maintained in electronic format.

The company veterinarian who writes the prescription shall record it in the register, noting the date, the name of the medicine, the quantity and dosage and the identification of the animal being treated, as well as the withdrawal period. If the owner of the company is authorized to keep stocks of veterinary medicines on site, the veterinarian is responsible for said stocks and shall keep them in a suitable location under lock and key. He or she shall also keep a specific register in which replenishment and withdrawals of said medicines are recorded, authorized by the competent authority.

The veterinarian responsible for the medicine cabinet should authorize one or more other veterinarians to act in his or her stead at the farm premises.

Entries shall be recorded within 7 business days of completing the activities to which they refer. Prescriptions shall be accompanied by fiscal documentation such as receipts or invoices.

In the case of urgent treatments, subject to authorization given by the veterinarian responsible for the medicine cabinet, the person in charge should use medicines taken from the medicine stocks on site.

Vials containing pharmaceutical residues, along with expired medicines and other hazardous waste shall be collected in containers specific for this purpose and disposed of as special waste through specifically authorized companies and the holder shall retain the disposal documentation.

For the purposes of the traceability of the therapeutic treatments, it shall be possible to link the treatment to the batch or group of animals treated. There shall be a register of sick or injured animals that have been subjected to medical treatments which shall be kept by the company veterinarian.

8.5 Biosafety

8.5.1 General

The protection of livestock from the introduction of diseases, as well as the reduction of consequences of the diseases, shall be a priority in the management of the farms. For these reasons, the entrance of vehicles or of persons who move about the farm shall be controlled and plans shall be drawn up for the cleaning and disinfecting of the premises, equipment and tools, for tackling unwanted animals, for disposing of animal waste and dead animals, and for checking the quality of the food and water to be given to the animals.

Farmers shall attain a high degree of assurance that biological threats (e.g. infectious agents, parasites, weeds, pests and contaminants) shall be avoided; both the risk of transmission between operations and the risk of infections (viruses) potentially dangerous for humans shall be minimized.