

中国标准化协会标准

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STANDARDS OF CHINA ASSOCIATION

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FOR STANDARDIZATION

农场动物福利要求 蛋鸡

Farm animal welfare requirements: Laying hen

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前 言

中国标准化协会（CAS）是组织开展国内、国际标准化活动的全国性社会团体。制定中国标准化协会标准（以下简称：中国标协标准），满足企业需要，推动企业标准化工作，这是中国标准化协会的工作内容之一。中国境内的团体和个人，均可提出制、修订中国标协标准的建议并参与有关工作。

中国标协标准按《中国标准化协会标准管理办法》进行管理，按CAS 1.1《中国标准化协会标准结构及编写规则》的规定编制。

中国标协标准草案经向社会公开征求意见，并得到参加审定会议的75%以上的专家、成员的投票赞同，方可作为中国标协标准予以发布。

考虑到本标准中的某些条款可能涉及专利权，中国标准化协会不负责对其任何专利权的鉴别。

本标准为首次制定。

在本标准实施过程中，如发现需要修改或补充之处，请将意见和有关资料寄给中国标准化协会，以便修订时参考。

引 言

0.1 总则

为了保障动物源性食品的质量、安全和畜牧养殖业的良性可持续发展，填补我国农场动物——蛋鸡福利标准的空白，特制定本标准。

本标准基于国际先进的农场动物福利理念，结合我国现有的科学技术和社会经济条件，规定了农场动物——蛋鸡健康福利生产要求。

本标准为农场动物福利要求中蛋鸡的养殖、运输、屠宰全过程的要求。

0.2 基本原则

动物福利五项基本原则是农场动物福利系列标准的基础，五项基本原则为：

- a) 为动物提供保持健康所需要的清洁饮水和饲料，使动物免受饥渴；
- b) 为动物提供适当的庇护和舒适的栖息场所，使动物免受不适；
- c) 为动物做好疾病预防，并给患病动物及时诊治，使动物免受疼痛和伤病；
- d) 保证动物拥有避免心理痛苦的条件和处置方式，使动物免受恐惧和精神痛苦；
- e) 为动物提供足够的空间、适当的设施和同伴，使动物得以自由表达正常的行为。

农场动物福利要求 蛋鸡

1 范围

本标准规定了蛋鸡福利的术语和定义、雏鸡、饲喂和饮水、养殖环境、饲养管理、健康计划、运输、屠宰以及记录与可追溯。

本标准适用于蛋鸡的养殖、运输、屠宰全过程的动物福利管理。

2 规范性引用文件

下列文件对于本文件的应用是必不可少的。凡是注日期的引用文件，仅注日期的版本适用于本文件。凡是不注日期的引用文件，其最新版本（包括所有的修改单）适用于本文件。

GB 5749 生活饮用水卫生标准

NY/T 388 畜禽场环境质量标准

T/CAS 267—2017 农场动物福利要求 肉鸡

3 术语和定义

下列术语和定义适用于本文件。

3.1 动物福利 animal welfare

为动物提供适当的营养、环境条件，科学地善待动物，正确地处置动物，减少动物的痛苦和应激反应，提高动物的生存质量和健康水平。

3.2 农场动物 farm animal

用于食物（肉、蛋、奶）生产，毛、绒、皮加工或者其他目的，在农场环境或类似环境中培育和饲养的动物。

3.3 农场动物福利 farm animal welfare

农场动物在养殖、运输、屠宰过程中得到良好的照顾，避免遭受不必要的惊吓、疼痛、痛苦、疾病或伤害。

3.4 环境富集 environmental enrichment

农场通过提供自然和人造物体或环境，供动物社交、娱乐、觅寻和探究，以增强动物机体和心理刺激，达到满足动物行为、习性正常表达和心理、机体健康需要的管理方式。

3.5 异常行为 abnormal behavior

当蛋鸡的心理或生理需求未得到满足时，所表现的一类重复且无明显目的、或对自身及同伴造成伤害的行为。

3.6 散养 free-range farming

可自由出入鸡舍，自由活动、自由采食和饮水，并得以庇护的养殖方式。

3.7 网上平养 feeding on the net rack

在鸡舍内人工架设的网架（单层或多层）上饲养的养殖方式。

3.8 大笼饲养 feeding in the large cage

在鸡舍内单层或多层大笼内饲养的养殖方式。

4 雏鸡

4.1 来源

雏鸡应来源于具有种畜禽生产经营许可证的蛋鸡孵化场，其种鸡是经过疾病净化的健康鸡群。

4.2 处置

4.2.1 出雏当天宜对雏鸡实施雌雄鉴别，鉴别方法以伴性遗传鉴别法为宜。若采用翻肛鉴别法，鉴别员应做好消毒卫生工作。

4.2.2 出雏当天应实施相关疫苗的免疫接种。

4.2.3 宜在出雏当天采用红外线断喙技术实施断喙。断喙操作人员应经过专门的培训，掌握有关动物福利知识。

4.2.4 雏鸡应采用标准雏鸡箱存放、转运，每 100 只雏鸡所占面积不应少于 0.25m^2 。

4.2.5 存放雏鸡的室温在 $22^{\circ}\text{C}\sim 26^{\circ}\text{C}$ ，湿度在 60%~70%，存放时间不宜超过 4h。雏鸡转运宜采用专用运输车辆，车厢温度控制在 $22^{\circ}\text{C}\sim 26^{\circ}\text{C}$ ，且通风良好。

5 饲喂和饮水

5.1 饲料

5.1.1 鸡场使用的饲料和饲料原料应符合国家相关法律法规和标准的要求。

5.1.2 鸡场应根据蛋鸡品种特性和生理阶段的营养需求供给饲料，饲料提供的营养素应能满足蛋鸡维持良好的身体状况及正常的产蛋要求。

5.1.3 鸡场购入的配合饲料，应有供方饲料原料组成及营养成份含量的文档记录；自行配料时，应保留饲料配方及配料单，饲料原料来源应可追溯。

5.1.4 不应使用哺乳动物或禽鸟动物蛋白质源的饲料(不包括乳制品)。在产蛋期除治疗目的外，不应在饲料中使用抗生素或类似含抗生素的原料。

5.1.5 饲料应安全、卫生地运输、贮存和输送，防止虫害、潮湿、变质及污染。

5.2 饲喂

5.2.1 根据不同的生产系统和鸡只的个体大小及数量，应提供足够的饲喂空间，满足鸡只的采食需要。线性料槽成年鸡 5cm/只（单面）或 2.5cm/只（双面）采食空间；料盘或料桶的采食空间（以料盘或料桶的外圆周长计），不应少于 1.8cm/只。

5.2.2 喂料器应均匀分布在鸡舍，鸡只到达喂料器的距离不应超过 4m。应根据鸡只的日龄和大小设置喂料器的最佳高度（最佳高度以不超过鸡只的背部高度为宜）。

5.2.3 饲料线和饮水线应设有防栖线或套有滚动条。防栖线不应带电或连接任何电源。

5.2.4 应保持饲喂设备的清洁，及时清理剩余饲料，防止残余饲料的腐败变质。

5.2.5 每周应至少提供一次适量砂砾给产蛋鸡以助消化，产蛋期砂砾的直径宜 6mm~8mm，用量约为 7g/只·周。砂砾可掺入饲料中或采用独立砂槽。

5.2.6 鸡只预防、治疗用药及淘汰上市前的休药期应严格执行国家有关部门的相关规定。

5.3 饮水

5.3.1 应提供充足、清洁、新鲜的饮用水，水质应符合 GB 5749 的要求。

5.3.2 饮水器应均匀地分布，鸡只到达饮水器的最大距离应为 4m。

5.3.3 应确保每只鸡有足够的饮水空间，饮水器最低设置数量应达到：钟式饮水器 50 只/个~60 只/个，乳头饮水器 10 只/个。

5.3.4 饮水器高度应根据不同的生产系统和鸡只日龄及大小设置，乳头式饮水器以鸡只的眼线等高为宜，钟式饮水器以高于鸡只背部 2cm~3cm 为宜。

5.3.5 供水系统应定期检测、清洗、消毒和维护，并有完善的卫生管理措施。饮水系统中使用的蓄水设施应封闭，并定期清洗消毒。

5.3.6 散养系统应确保供水设施或水源地能够提供充足、干净、新鲜的饮用水。若使用天然水源，应对潜在疾病风险进行评估。

5.3.7 根据兽医医嘱，需在饮水中添加药物或抗应激剂时，应使用专用设备，并做好添加记录。

6 养殖环境

6.1 设施设备

6.1.1 鸡场建设的规划设计应满足国家相关法律法规和标准的要求。

6.1.2 鸡场的建设应符合生物安全要求，鸡场员工生活区、饲养区、运动场等分界明显，应设置围栏或隔网。鸡场外围应设置防疫隔离区，并有专门的净道和污道与外界相通，净道和污道不应交叉。

6.1.3 场区内应设置病死鸡剖检室、废弃物无害化处理设施。

6.1.4 鸡舍及舍内设施、设备应使用无毒无害的材料，舍内的电器设备、电线、电缆应符合相关规范，且有防护措施防止鸡只接近和啮齿类动物的啃咬。

6.1.5 鸡舍应能满足温度要求，且保温隔热，地面和墙壁应易于清扫、消毒。

6.1.6 鸡舍内外设备噪音应严格控制，舍内设备运行时总噪音不应超过 70dB。

6.1.7 鸡场安装的围栏、隔网、食槽、饮水器等所有与鸡群接触的饲养设施不应应对鸡群造成伤害。

6.1.8 应设置防止鼠、猫、犬等其他动物闯入的措施，避免鸡群恐慌或受伤等突发事件发生。

6.2 地面和底网

6.2.1 鸡舍地面应平整、干燥，方便有效清洁和消毒。

6.2.2 网上平养宜使用木制、竹制或塑料制品的底网，底网网眼直径或间距以1.5cm~1.8cm为宜。网面应分隔为若干个小区，每个小区的鸡只数量以300只左右为宜。

6.2.3 大笼饲养应满足鸡只的活动需求，每个笼底面积不少于3.6m²，笼前部高度不低于56cm，笼后部高度不低于46cm。每只鸡所占面积不少于660cm²。

6.3 照明

6.3.1 鸡舍应引入自然光照，并配备足够的照明设施，应确保光线均匀。

6.3.2 舍内饲养，每天应为产蛋鸡提供至少 8h 光照，累计光照时间不少于 16h。

6.3.3 除产蛋区和栖息区外，人工补充光照强度应在 10lx~15lx。人工光源的打开和关闭应以渐进方式进行，保证鸡群适应时间不应少于 15min。

6.4 温度、湿度与通风

6.4.1 应根据鸡只的不同生长阶段，控制和调整温度。产蛋鸡舍的夏季温度不宜超过 30℃，冬季温度不宜低于 13℃，应避免温度的骤变。

6.4.2 鸡舍应有效通风，舍内相对湿度宜在 50%~70%。

6.4.3 应保持舍内空气质量良好，有害成份符合 NY/T388 规定。

6.5 产蛋箱

6.5.1 每 4 只~6 只鸡应配备一个产蛋位，或每 120 只鸡应配备至少 1m²的产蛋空间。

6.5.2 产蛋箱入口和箱底应配备合适的挡帘和巢垫，巢垫应柔软、舒适、卫生，易于清洁消毒。

6.5.3 滚蛋式产蛋箱底网坡度应控制在 9°~11°。多层产蛋箱应在入口前设置跳跃架，且上下层跳跃架应平行错位设置。

6.6 饲养密度

6.6.1 应为蛋鸡提供足够的空间，鸡舍内区域应能保证鸡群同时起卧，并有必要的活动空间。

6.6.2 产蛋期最大饲养密度见表 1。

表1 蛋鸡产蛋期舍内最大饲养密度

饲养方式	舍内最大饲养密度
散养	≤6 只/m ² (≥1500cm ² /只)
网上平养	≤9 只/m ² (≥1100 cm ² /只)
大笼饲养	≤15 只/m ² (≥660 cm ² /只)

6.7 舍外场地

6.7.1 散养应设置足够空间的舍外场地，舍外面积不宜少于 2m²/只。

6.7.2 舍外场地应安全卫生，保持干燥，并有良好的排水措施。

6.7.3 在鸡舍周围 20m 范围内，应为鸡只提供不少于 8m²/1000 只的遮荫棚或人工庇护区域，且应布局合理。

6.7.4 每 600 只的鸡群，应至少设置 2 个出入口，出入口高度不应小于 45cm、宽度不应小于 50cm。

6.7.5 出入口基部有台阶时，应设坡道，便于鸡只轻松出入。

6.7.6 夜间应关闭出入口，以防兽害的侵袭。

6.8 环境富集

6.8.1 应提供环境富集物，如栖木（栖架）、沙浴池、啄食物（木块、悬挂并打结的粗吊绳）、玩具、以及芸薹类蔬菜或无毒植物。

6.8.2 沙浴池数量应达到每 500 只鸡至少提供 1 个。

6.8.3 栖木应保证鸡只能正常站立，栖木总长度至少应保证 20%的鸡群自由栖息，且每只鸡应至少有 15cm 的栖息空间，多排栖木之间相隔距离应至少为 30cm，与墙壁平行的栖木应距离墙壁至少 20cm，栖架垂直高度应为 30cm~40cm。栖木不应置于水槽、食槽上方。

7 饲养管理

7.1 人员

鸡场管理人员应接受过动物福利相关培训，掌握动物健康和福利方面的知识。饲养人员经过培训和指导，须具备辨识潜在福利问题的能力，对于一般疾病症状，能够找到原因并正确应对。

7.2 抓鸡

抓鸡应在低光照或夜间实施，握住鸡只的双翅或双脚，不应抓提鸡只的头部，轻抓轻放，动作温和，以减少鸡只的惊吓和应激反应。

7.3 捡蛋

散养和网上平养，每天捡蛋次数不宜少于3次，捡蛋过程中不应惊扰正在产蛋的鸡只。

7.4 日常管理

7.4.1 鸡群的日常管理应采用温和方式，所有活动应缓慢、谨慎，以减轻鸡群的恐惧、损伤及不必要的惊吓。

7.4.2 应每天对鸡舍进行卫生清洁，包括饮水、饲喂设施及地面等。

7.4.3 应随时清除鸡舍及周围环境中可能被鸡群误食的铁丝、塑料布、电线等杂物。

7.4.4 应每天对舍内设备如水线、料线、温控装置、通风设备、清粪系统等进行检查，发现故障，立即排除。

7.4.5 应尽量缩短对鸡群实施断喙、修喙、免疫接种、治疗（如注射）、称重、装车运输等过程的时间。

7.4.6 应对每天鸡群进行检查，发现健康不佳或受伤等福利问题，应及时查明原因，采取隔离、淘汰等措施妥当处置。

7.4.7 应记录并保存日常管理的内容。

7.4.8 应预先制定蛋鸡淘汰计划，并有效实施。

8 健康计划

8.1 鸡场应制定符合法律法规及相关标准要求兽医健康和福利计划，内容应至少包括：

- 生物安全措施；
- 疫病防控措施；
- 药物使用及残留控制措施；
- 病死鸡及废弃物的无害化处理措施；
- 其他涉及动物福利与健康的措施等。

8.2 鸡场应定期对健康计划的实施情况进行检查，并适时对计划进行更新或修订。

9 运输

9.1 管理

9.1.1 蛋鸡淘汰时的运输方应满足国家相关法律法规和标准的要求，并应制定运输应急预案措施。

9.1.2 捕捉、装卸和运输人员（司机和押运人员）应经必要的指导和培训，了解兽医和动物福利基本知识，能够胜任所承担工作。

9.2 捕捉

9.2.1 蛋鸡淘汰时的捕捉应在暗光或蓝光下进行，采取适当的隔挡，防止鸡群拥挤或踩踏。对于多层大笼饲养的鸡群，抓鸡时应防止鸡群从高空坠落。靠近鸡群时，应尽量降低噪音、灰尘和混乱，避免鸡群紧张和恐惧。

9.2.2 捕捉可采用单手法（抓握双脚）和双手法（抱胸扣翅）。不应抓提鸡只的头部，操作时应轻柔小心，避免鸡只大小腿及鸡翅充血、出血或骨折。

9.3 运输

9.3.1 运输车辆、运输笼及所有与鸡群接触的表面，装载坡台和护栏等，不应存在锋利边缘或突起物，使用前后应彻底清洗消毒，鸡笼清洗时鸡笼内不应有活鸡。

9.3.2 应采用标准运输笼，笼高不低于 28cm。装载密度（按笼底面积计算），每只鸡不应少

于 400cm²。

9.3.3 应避免在极端天气运输鸡只，如遇有恶劣天气应配有防护措施（挡风板、帆布）。气温高于 25℃（湿度大于 75%）或低于 5℃时，应采取适当措施，减少因温度过高或过低引起鸡群的应激反应。

9.3.4 司机应做到平稳驾驶，减少运输过程中的噪音，运输时间应控制在 2h 以内。押运人员在运输过程中应注意观察鸡只状况，避免死亡。

10 屠宰

按照 T/CAS 267—2017 中第 10 章的要求。

11 记录与可追溯

11.1 除通常的养殖管理记录外，鸡只养殖、运输、屠宰全过程的福利相关内容应予以记录，并可追溯。

11.2 记录可采用电子、纸质或其他可行方式。

11.3 鸡只养殖、运输、屠宰全过程的相关记录应至少保存 3 年。

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Farm animal welfare requirements: Laying hen

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Foreword

China Association for Standardization (CAS) is a nationwide public organization that organizes and carries out activities about domestic and international standardization. Developing CAS Standard to meet the needs of enterprises and promote the work of enterprise standardization is one of CAS' work contents. Both groups and individuals at home can offer the suggestion on developing or revising CAS standard, and participate in the relevant work.

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Given that some clauses of this standard may involve patent right, China Association for Standardization shall not be responsible for the identification of any of such patent rights.

It is the first time to issue the standard.

In the process of implementing the standard, please mail the opinion and relevant materials to CAS if you find something to be revised or complemented.

Introduction

0.1 General rules

In order to ensure the quality and safety of animal-derived food, healthy and good sustainable development of livestock husbandry industry, and fill the gaps in our farm animal – laying hen welfare standard, specially develop this standard.

Based on the international advanced farm animal welfare concept and by combining with China's existing scientific and technological and socio-economic conditions, this standard specifies the farm animal – laying hen welfare production requirements.

This standard is the requirements of the whole process of farming, transport and slaughter of laying hens in farm animal welfare requirements.

0.2 Basic principles

Five basic principles of animal welfare are the basis of the farm animal welfare standards, the five basic principles include:

- a) Provide animals with clean drinking water and feed needed for keeping their health so as to protect them from hunger and thirst;
- b) Provide adequate shelter and comfortable habitat for animals to protect them from discomfort;
- c) Carry out disease prevention for animals and implement timely diagnosis and treatment for sick animals so as to protect them from pain and injury;
- d) Ensure that animals have the conditions and disposal modes to avoid psychological pain so that they are protected from fear and mental pain;
- e) Provide adequate space, appropriate facilities and companions for animals so that they can freely express their normal behavior.

Farm animal welfare requirements: Laying Hen

1 Scope

This standard specifies the terms and definitions of laying hens welfare, chicks, feeding and drinking water, farming environment, feeding management, health plan, transport, slaughtering and record and traceability.

This standard applies to the animal welfare management of the whole process of farming, transportation and slaughtering of laying hens.

2 Normative reference

The following documents are essential for the application of this standard. For any dated reference, only the version dated will be applicable for this standard. For undated references, the latest version (including all amendments) applies to this standard.

GB 5749 Standards for Drinking Water Quality

NY / T 388 Environmental Quality Standard for the Livestock and Poultry Farm

T/CAS 267-2017 Farm animal welfare requirements: Broiler

3 Terms and definitions

The following terms apply to this document.

3.1 Animal welfare

Provide animals with appropriate nutrition and environmental conditions, scientifically treat animals, properly handle animals, reduce pain and stress reaction of animals and improve their life quality and health level.

3.2 Farm animal

Animals for the production of food (meat, eggs and milk), processing of hair, fur and skin or other purposes, and those bred and fed in the farm environment or similar environment.

3.3 Farm animal welfare

Farm animals are well taken care of in the farming, transportation and slaughter to avoid unnecessary scare, pain, suffering, illness or injury.

3.4 Environmental enrichment

Through the providing of natural and man-made objects or environment for social contact, entertainment, seeking and exploration of animals so as to enhance the animal

body and psychological stimulation and achieve the management mode of meeting normal expression of animal behavioral habits, psychological and physical health needs.

3.5 Abnormal behavior

A kind of repeated behavior without obvious purpose or that causing harm to themselves and companions when the psychological or physiological needs of the laying hen are not met.

3.6 Free-range farming

The farming mode that the laying hens are free to enter and leave the poultry house, free to run, free to eat and drink water and are sheltered.

3.7 Feeding on the net rack

The farming mode of laying hens bred on the net rack (single layer or multiple layers) that are manually installed in the poultry house.

3.8 Feeding in the large cage

The farming mode of laying hens bred in a single layer or multi-layer cage in the poultry house.

4 Chicks

4.1 Source

Chicks shall be from the laying hen hatchery with the breeding livestock and poultry production and operation license, the chicks are the healthy chick flocks after disease purification.

4.2 Disposal

4.2.1 Male and female identification should be carried out for chicks on the same day, the identification method of sex-linked inheritance identification method is appropriate. If the anal opening identification method is used, identification workers shall carry out sanitation and disinfection work.

4.2.2 Immunization of the relevant vaccines shall be implemented on the day of the brooding.

4.2.3 If the beaks of chicks should be trimmed it is appropriate to implement the beak trimming on the day of brooding. The infrared beak trimming technology is appropriate. The beak trimming operators shall be trained specially to master relevant animal welfare knowledge.

4.2.4 Chicks shall use the standard chick boxes for storage and transport, the occupied area of 100 chicks shall not less than 0.25m².

4.2.5 The room temperature for storage of chicks is between 22 °C~26 °C, humidity: 60%~70%, storage time should not exceed 4 hours. It should use special transport vehicles to transport chicks, the compartment temperature is controlled at 22 °C~26 °C and the ventilation is good.

5 Feeding and drinking water

5.1 Feed

5.1.1 All feedstuffs and raw materials must comply with relevant state laws and regulations.

5.1.2 The farm shall supply feed according to the characteristics of laying hen breeds and their nutritional needs in physiological phase, the nutrients of the feed shall meet the requirements for maintaining good physical condition and normal laying eggs of laying hens.

5.1.3 The formula feed purchased by the chicken farm shall have the document record of raw material composition and nutrient content of the feed of the supplier, when you formulate the feed by yourselves, you shall keep the feed formula and ingredient list, the source of feed raw material shall be traceable.

5.1.4 The feed of mammal or avian animal protein source (excluding dairy products) shall not be used. Except for the purpose of treatment, it shall not to use antibiotics or raw materials containing similar antibiotics in feed.

5.1.5 Feed must be safely and hygienically transported, stored and conveyed to prevent pests, moisture, deterioration and pollution.

5.2 Feeding

5.2.1 According to different production systems and the size and quantity of chickens, provide adequate feeding space to meet the feeding needs of chickens. Linear feed trough provides the feeding space of 5cm (single-side) or 2.5cm (double-side) for each adult chicken, the feeding space of feed tray or bucket (by outer circumference of the feed tray or the bucket): each chicken has 1.8cm of feeding space at least.

5.2.2 The feeders shall be evenly distributed in the poultry house. The distance from the laying hen to the nearest feeder shall not exceed 4m. The optimum height of the feeder shall be set according to the days of age and size of the chicken (it is appropriate for the optimum height not to exceed the back height of the chicken).

5.2.3 The feed line and drinking water line shall be equipped with habitat prevention line or scroll bars. The habitat prevention line shall not be charged or connected to any power supply.

5.2.4 The feeding equipments shall be keep clean, clean up the residual feed in time to prevent deterioration of residual feed.

5.2.5 The laying hens shall be provide a suitable amount of gravel to help digestion at least once a week, the gravel diameter should be 6mm~8mm in laying period, provide 7 grams or so per week for each hen. Gravel can be mixed into the feed or use the separate sand trough.

5.2.6 The drugs for prevention and treatment of laying hens and the withdrawal period before elimination and they come into the market shall strictly implement relevant provisions of the relevant state departments.

5.3 Drinking water

5.3.1 Provided adequate, clean and fresh drinking water, the water quality shall meet the requirements of GB 5749.

5.3.2 The drinkers shall be evenly distributed, the maximum distance from the chicken to the drinker shall be 4m.

5.3.3 It shall be ensured that each chicken has enough drinking space, the minimum number of drinkers: a bell-type drinker for 50~60 chickens, a nipple drinker for 10 chickens.

5.3.4 The height of the drinker shall be set according to different production modes, the days of age and size of chickens, it is appropriate for the height of the nipple drinker to be equal to the sight line of the chicken, it is appropriate for the height of the bell-type drinker to be equal to the back height of the chicken.

5.3.5 The water supply system shall be regularly detected, cleaned, disinfected and maintained, and has perfect health management measures. The water storage facilities used in the drinking water system must be closed and regularly cleaned and disinfected.

5.3.6 For the free range farming, it shall be ensured that water supply facilities or water sources provide adequate, clean and fresh drinking water. If natural water source is used, the risk of potential disease shall be assessed.

5.3.7 According to the advice of the veterinarian, when drugs or anti-stress agents need to be added in the drinking water, special equipments shall be used, and adding records shall be made.

6 Farming environment

6.1 Facilities

6.1.1 The planning and design of construction of the chicken farm shall meet the applicable state laws and regulations.

6.1.2 The construction of the chicken farm shall meet the requirements of biosafety, the boundary among the living area of the farm workers, feeding area and the sports ground shall be obvious, the fence or separation net shall be installed. The quarantine zone shall be set outside the chicken farm, there are special clean passage and polluted passage connected to the outside, the clean passage and polluted passage shall not cross.

6.1.3 The dead chicken autopsy room and harmless treatment facilities for waste shall be set at the farm.

6.1.4 Non-toxic and harmless materials shall be used for the poultry house and facilities in it, the electrical equipments, wires and cables in the poultry house shall be consistent with relevant specifications, and there are protective measures to prevent chickens from getting close to and being bitten by rodents.

6.1.5 The poultry house shall meet the temperature requirements, and has thermal insulation function, the floors and walls shall be easy to clean and disinfect.

6.1.6 Noise of equipments inside and outside the poultry house shall be strictly controlled, the total noise of the equipments shall not exceed 70dB at runtime.

6.1.7 All the feeding facilities contacting with the flocks, such as the fence, separation net, troughs and drinkers at the chicken farm, shall not cause injury to the flock.

6.1.8 The facilities preventing rats, cats, dogs and other animals from entering the poultry house shall be installed to avoid panic or injury and other emergencies of laying hen flock.

6.2 Floor and bottom net

6.2.1 The floor of the poultry house shall be smooth and dry, and is easy to clean and disinfect effectively.

6.2.2 For feeding on the net rack, it should be use the bottom net of wooden, bamboo or plastic products, it is appropriate for the mesh diameter to be 1.5cm~1.8cm. The net surface should be divided into several small zones, it is appropriate for the number of hens in each small zone to be about 300 or so.

6.2.3 Feeding in the large cage should meet the needs of the chicken activities, the bottom area of each cage is not less than 3.6m^2 , the front height of the cage is not less than 56cm, the rear height of the cage is not less than 46cm. The area of each hen is not less than 660cm^2 .

6.3 Lighting

6.3.1 The poultry house shall introduce the natural light and be equipped with adequate lighting facilities to ensure adequate and uniform light.

6.3.2 Feeding in the house, provide lighting time longer than or equal to 8 hours for laying hens every day, the cumulative lighting time is longer than or equal to 16 hours.

6.3.3 Except the egg-laying area and habitat area, the artificial supplemented lighting intensity shall be between $10\text{lx} \sim 15\text{lx}$. The opening and closing of the artificial light source shall be carried out in a gradual manner to ensure that the adaptation time of flocks is longer than or equal to 15 minutes.

6.4 Temperature, humidity and ventilation

6.4.1 The temperature shall be controlled and adjusted according to different growth stages of the hens. The temperature for laying hens should not exceed $30\text{ }^{\circ}\text{C}$ in summer, the temperature should not be lower than $13\text{ }^{\circ}\text{C}$ in winter, sudden change in temperature shall be avoided.

6.4.2 The poultry house shall be effectively ventilated, relative humidity should be controlled between 50% and 70%.

6.4.3 Shall keep the good quality of air in the poultry house, the harmful ingredients comply with regulations in NY / T 388.

6.5 Egg -laying nest box

6.5.1 An egg production position shall be set for every 4 to 6 hens, or at least 1m^2 of egg-laying space for every 120 hens.

6.5.2 The entrance and bottom of the egg-laying box shall be equipped with appropriate curtain and nest pad, the nest pad shall be soft, comfortable, hygienic, easy to clean and disinfect.

6.5.3 The slope of the egg rolling type box bottom net shall be controlled at $9^{\circ} \sim 11^{\circ}$. The skipping rack shall be set in front of the entrance for the multi-layer egg box, the parallel dislocation setting shall be implemented for the upper and lower-layer skipping rack.

6.6 Feeding density

6.6.1 The laying hens shall be provide sufficient space, the area within the house shall ensure that the flocks live and sleep at the same time and they have necessary movement space.

6.6.2 The maximum feeding density in the laying period is shown in Table 1.

Table 1 Maximum feeding density of egg laying hens in laying period

Feeding mode	Maximum feeding density in the house
Free-range farming	≤ 6 hens per square meter (≥ 1500 square centimeters for each hen)
Feeding on the net rack	≤ 9 hens per square meter (≥ 1100 square centimeters for each hen)
Feeding in the large cage	≤ 15 hens per square meter (≥ 660 square centimeters for each hen)

6.7 Yard outside the poultry house

6.7.1 The free-range farming shall have the yard with enough space outside the poultry house, its minimum area should be bigger than or equal 2 square meters for each chicken.

6.7.2 Attention shall be paid to the safety and sanitation of the yard outside the poultry house, keep dry, and good drainage measures should be taken.

6.7.3 Within the range of 20m around the poultry house, the shed or artificial shelter area shall not less than 8m^2 for every 1000 chickens should be provided for chickens, and the layout shall be reasonable.

6.7.4 For a flock of 600 chickens, at least 2 entrances and exits shall be set, the height shall not be less than 45cm and the width shall not be less than 50 cm.

6.7.5 If there are steps at the base of the entrance and exit, the ramp shall be set so that the chickens can get in or out easily.

6.7.6 The entrance and exit shall be closed at night to prevent the invasion of animals.

6.8 Environment enrichment

6.8.1 Environmental enriched materials, such as perches (roost), sand bath, pecking food (wooden blocks, suspended and knotted ropes), toys, brassicas -like vegetables or non-toxic plants, shall be provided.

6.8.2 The number of sand baths shall be up to 1 per 500 chickens

6.8.3 The perches shall ensure that the hens can stand normally, the total length of

the perch shall ensure at least 20% of the laying hen flock inhabit freely, each hen shall have at least 15cm of habitat, the spacing among several rows of perches is at least 30cm, the distance between the perch parallel to the wall and the wall is at least 20cm, the vertical height of the roost is 30cm~40cm. The perches shall not be placed above the water trough and feed trough.

7 Feeding management

7.1 Personnel requirements

The farm management personnel shall be trained about animal welfare knowledge and master basic knowledge of animal health and welfare, through training and guidance, the feeders shall have the ability to identify potential welfare problems, for the general disease symptoms, they can find the cause and respond correctly.

7.2 Catching chickens

Chickens shall be caught in low light or at night, catch the wings or feet of the chicken, shall not grasp the head, gently grasp and put down, the action is mild so as to reduce its fear and stress response.

7.3 Collecting eggs

For free-range feeding and feeding on the net rack, the number of times of collecting eggs should not be less than 3, the hens laying eggs shall not be disturbed in collecting of eggs.

7.4 Daily management

7.4.1 Daily management of flocks shall adopt the mild manner, and all activities must be slow and careful so as to reduce the fear, damage and unnecessary scare of the flock.

7.4.2 The poultry house shall be cleaned every day, including drinking water, feeding facilities and the floors.

7.4.3 Iron wire, plastic cloth, wire and other debris that may be eaten by the flocks mistakenly in the poultry house and the surrounding environment shall be removed at any time.

7.4.4 The equipments in the poultry house shall be checked every day, such as waterline, feed line, temperature control device, ventilation equipment, dung cleaning system, etc. If the faults are found, solve the problems immediately.

7.4.5 Minimize the implementation time of beak cutting, beak repairing, immunization, treatment (such as injection), weighing, loading and transportation.

7.4.6 The flocks shall be checked every day, if the poor health or injury and other

welfare problems are found, promptly identify the reasons and take measures of isolation, elimination and others to properly dispose.

7.4.7 The contents of the routine inspection shall be record and save.

7.4.8 The elimination plan of laying hens shall be developed in advance and implemented effectively.

8 Health plan

8.1 Producers must develop veterinary health and welfare plan compliance with legal and regulatory requirements and standardization, at least including:

- biosecurity;
- disease prevention;
- drug use and residual control;
- treatment of dead chickens and waste;
- other measures related to animal welfare and health.

8.2 The chicken farm shall check implementing situation of health plan regularly, renew and amend it in time.

9 Transport

9.1 Management

9.1.1 The transport party shall meet the requirements of relevant national laws, regulations and standards when laying hens are eliminated, and shall formulate measures for transport contingency plan.

9.1.2 The personnel (drivers and escort personnel) catching, handling and transporting laying hens shall be guided and trained to understand the basic knowledge of veterinary and animal welfare, and can do the work.

9.2 Catching

9.2.1 Catching of laying hens when they are eliminated shall be carried out in dark or blue light, adopt appropriate barriers to prevent crowding or trampling of the flocks. For multi-layer fed flocks in large cages, shall prevent flocks from falling from high altitude in catching. Shall be quiet to get close to flocks, try to reduce noise, dust and confusion, and avoid tension and fear of flocks.

9.2.2 The capture can adopt single hand method (grasp the feet) and two –hand method (cling to the chest and hold the wings). Shall not grasp the head of the chicken, the operation shall be gentle and careful to avoid congestion, bleeding or fracture of thighs, shanks and wings of chicken.

9.3 Transport

9.3.1 All surfaces of transport vehicles, cages, loading ramp and guardrail contacting with flocks shall not have sharp edges or protrusions, they must be thoroughly cleaned and disinfected before and after use. When the cages are cleaned, live chickens are not allowed to be in them.

9.3.2 The standard transport cage shall be used, the cage height shall not be less than 28cm. Loading density (calculate according to the cage bottom area): greater than or equal to 400cm² for each hen.

9.3.3 Laying hens shall be avoided transport in extreme weather, in case of bad weather, there are protective measures (wind board and canvas). When the temperature is higher than 25 °C (humidity is greater than 75%) or lower than 5 °C, appropriate measures shall be taken to reduce the stress response of flocks caused by too high or too low temperature.

9.3.4 The drivers shall drive smoothly and reduce the noise during transport, and the transport time shall be controlled within 2 hours. Escort personnel during transport shall pay attention to observe the situation of laying hens to avoid their death.

10 Slaughtering

According to the requirements of T/CAS 267-2017 in the tenth chapter.

11 Record and traceability

11.1 Besides the usual farming management records, the welfare-related content of the whole process of farming, transportation and slaughter of hens shall be recorded and traceable.

11.2 Records may be electronic, papery or other feasible modes.

11.3 Relevant records of the whole process of farming, transportation and slaughter of hens shall be kept for at least three years.

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