
Day old chicks — Basic requirements



Table of contents

1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Requirements and inspection methods	2
5	Guidance on Good Agricultural Practices for chicken breeder farm	5
	Annex A (normative) Guidance on good agricultural practices for chicken breeder farm	6
	Bibliography	13

Foreword

The African Organization for Standardization (ARSO) is an African intergovernmental organization established by the United Nations Economic Commission for Africa (UNECA) and the Organization of African Unity (AU) in 1977. One of the fundamental mandates of ARSO is to develop and harmonize African Standards (ARS) for the purpose of enhancing Africa's internal trading capacity, increase Africa's product and service competitiveness globally and uplift the welfare of African communities. The work of preparing African Standards is normally carried out through ARSO technical committees. Each Member State interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, Regional Economic Communities (RECs), governmental and non-governmental organizations, in liaison with ARSO, also take part in the work.

ARSO Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare ARSO Standards. Draft ARSO Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an ARSO Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ARSO shall not be held responsible for identifying any or all such patent rights.

This African Standard was prepared by ARSO Technical Committee ARSO/TC 23, *Live animals*.

© African Organisation for Standardisation 2025 — All rights reserved*

ARSO Central Secretariat
International House 3rd Floor
P. O. Box 57363 — 00200 City Square
NAIROBI, KENYA

Tel. +254-20-2224561, +254-20-3311641, +254-20-3311608

E-mail: arso@arso-aran.org

Web: www.arso-aran.org

* © 2025 ARSO — All rights of exploitation reserved worldwide for African Member States' NSBs.

Copyright notice

This ARSO document is copyright-protected by ARSO. While the reproduction of this document by participants in the ARSO standards development process is permitted without prior permission from ARSO, neither this document nor any extract from it may be reproduced, stored or transmitted in any form for any other purpose without prior written permission from ARSO.

Requests for permission to reproduce this document for the purpose of selling it should be addressed as shown below or to ARSO's member body in the country of the requester:

© African Organisation for Standardisation 2025 — All rights reserved

ARSO Central Secretariat
International House 3rd Floor
P.O. Box 57363 — 00200 City Square
NAIROBI, KENYA

Tel: +254-20-2224561, +254-20-3311641, +254-20-3311608

E-mail: arso@arso-oran.org
Web: www.arso-oran.org

Reproduction for sales purposes may be subject to royalty payments or a licensing agreement. Violators may be prosecuted.

Day old chicks — Basic requirements

1 Scope

This Committee Draft African Standard specifies farm management for one day old chicken, requirements areas on feed and feeding, watering, health, animal welfare, environment and record keeping for the good quality production of chicken breeder.

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.

CAC/RCP 054, *Code of practice on good animal feeding*

3 Terms and definitions

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

3.1

GAPs

practices aimed at improving the quality, safety and sustainability of food and agricultural products while maintaining environmental economic and social sustainability, it should be based on:

- a) risk assessment management;
- b) preventing problems before occurring;
- c) food safety commitment at all levels;
- d) mandatory educational training for operational employs;
- e) chain wide communication;
- f) integrated best management;
- g) field and equipment sanitation;
- h) third-party audits for verification;
- i) oversight and enforcement; and
- j) environmental conditions during incubation (e.g. the temperature, humidity and ventilation rate (CO₂ concentration)).

3.2

GAP standard

designed for every step of farming, ranging from choosing the right plot for your agriculture practice, testing water quality, designed of the farm, to the farm maintenance and workers education, health, safety, characteristics of the incubating eggs, the egg holding condition, the incubation condition and the condition that exist between hatching and placement at the farm and their interaction may affect chick quality

3.3**chicken breeder**

grandparent stock or parent stock which can produce eggs for the production of good quality of broiler or layer

3.4**chicken breeder farm**

premises for commercial chicken breeder rearing including breeder house, feed storage and egg culling and storage, and area for carcass disposal

3.5**breeder house**

area used for rearing breeder which includes both controlled and uncontrolled environment

4 Requirements and inspection methods

Requirements and inspection methods shall be as in Table 1.

Table 1 — Requirements and inspection methods

Items	Requirement	Inspection method
1. Components of farm 1.1 Location	1.1 Farm is located in an environment with minimal risk from any contamination of physical, chemical and biological hazards.	1.1 Visual inspection of farm location.
1.2 Layout	1.2.1 Farm shall have sufficient size, suitable for rearing and does not pose any problem to environment. 1.2.2 Layout of the farm shall be orderly separated according to farm activities such as: rearing, feed storage, equipment storage, carcass disposal, worker accommodation, egg culling and storage room.	1.2.1 Visual inspection of farm size and environment. 1.2.2 Examine farm layout and visual inspection of operating areas.
1.3 Housing	1.3.1 House shall be strong, hygienic, easily cleaned and maintained and well ventilated. 1.3.2 Area in breeder house is adequate for hygienic chicken breeder rearing.	1.3.1 Visual inspection of breeder house construction. 1.3.2 Visual inspection of breeder rearing area.
2. Feed	2.1 Feed quality shall be complied with the Feed Quality Control Act, relevant laws and regulations. 2.2 All breeders can access to feed. 2.3 Feed shall be stored in an area to prevent contamination and deterioration.	2.1 Check the record on feed analysis or record on feed source. 2.2. Visual inspection of number, size and position of feeding trough and feeding. 2.3 Visual inspection of feed storage

Items	Requirement	Inspection method
3. Watering	3.1 Water source shall be located in an area safe from contamination of hazardous substances. 3.2 Water used shall be cleaned. 3.3 All breeders can access to water.	3.1 Visual inspection of water source. 3.2 Check record of water analysis. 3.3 Visual inspection of number and size of water container.
4. Farm management 4.1 Farm management manual	4.1 Availability of manual demonstrating the details of the important farm operations e.g. rearing system, recording system, animal welfare and health management. Poultry farm shall be authorized by the competent authorities of Member State.	4.1 Inspection of manual and related documents.
4.2 Personnel	4.2.1 Operator who takes care of chicken rearing shall be skilful and trained. 4.2.2 Availability of licensed veterinarian to supervise chicken breeder farm and animal health. 4.2.3 Operators shall have good personal hygiene to prevent the spread of contagious disease.	4.2.1 Check training record. 4.2.2 Check veterinary license and poultry farm veterinary supervisor license issued by the Department of Livestock Development. 4.2.3 Visual inspection of personal hygiene, and check personnel health records including annual health checkup.
4.3 Cleaning and maintenance	4.3.1 House and equipment shall be cleaned and maintained in a good and hygienic manners. 4.3.2 Cleaning and disinfection of house and equipment shall be done after all chicken breeder have been removed; and its effectiveness can be examined by swabbing onto the chicken rearing area for microbial culture. The house shall be vacated according to the notification of the Department of Livestock Development.	4.3.1 Check cleanliness of housing and equipment and check cleaning records. 4.3.2 Check the record of cleaning, disinfection, the vacation period of the house, and the result of microbial culture.

Items	Requirement	Inspection method
	4.3.3 House litter and nest box litter materials shall be clean and dry.	4.3.3 Visual inspection of house litter and nest box litter materials.
4.4 Egg management	4.4 Availability of hygienic cleaning and handling of eggs to be properly collected and stored.	4.4 Visual inspection of the frequency of egg collection and egg cleaning.
5. Animal Health 5.1 Disease prevention and control	5.1.1 Prevention and disinfection of pathogen for vehicles, equipment and personnel shall be provided before entering into the farm including the record on entry and exit for inspection. 5.1.2 Disease surveillance programme shall be provided in order to effectively control and eradicated. 5.1.3 Randomly check the immunity of the major diseases to monitor the current immunity status and to make use of such information for an appropriate disease prevention plan. 5.1.4 If there is an outbreak or suspicion of disease outbreak, follow the practices complied with the laws and regulations on animal epidemic disease and the recommendation of the Department of Livestock Development.	5.1.1 Visual inspection of the prevention and disinfection of pathogen before entering into the farm. 5.1.2 Check disease surveillance programme. 5.1.3 Check record of vaccination and result of immunity check of chicken breeder. 5.1.4 Check record on the operational action according to the laws and regulations.
5.2 Treatment	5.2 Recommended treatments by farm veterinarian shall be followed.	5.2 Check records of treatments and prescription and visual inspection of operational action.
6. Animal welfare	6. Care shall be taken for the welfare of animals. In case of injury, sickness or deformity, breeders shall be appropriately treated to avoid suffering.	6. Visual inspection and check treatment document.
7. Environment	7.1 Appropriate disposal of refuse and waste such as manure, discarded carcasses shall be practiced, including waste management surrounding the house, to prevent odour and pathogens.	7.1 Check record on waste management.

Items	Requirement	Inspection method
	7.2 Prevention of litter scattering after depopulation shall be practiced.	7.2 Inspection of preventive method.
8. Record keeping	8.1 Important operations on farm management that affect animal health and disease control shall be recorded. 8.2 Records shall be kept for at least 3 years for inspection.	8.1 Check records. 8.2 Check documentation.

5 Guidance on Good Agricultural Practices for chicken breeder farm

Guidance on Good Agricultural Practices for Chicken Breeder Farm is intended to provide farm practices on chicken breeder farm. The details are described in Annex A.

Annex A
(normative)

Guidance on good agricultural practices for chicken breeder farm

A.1 Components of farm

A.1.1 Location

A.1.1.1 Farm is located in an appropriate area for good breeder rearing, such as the area convenient to transportation, well-drained land, sufficient supply of cl.

A.1.1.1 Farm is located in an appropriate area for good breeder rearing, such as the area convenient to transportation, well-drained land, sufficient supply of clean water for bird, open space and good air flow.

A.1.1.2 Farm is located in an environment with minimal risk from any contamination of physical, chemical and biological hazards which may adversely affect to breeder hygiene, such as not in the vicinity of industrial area or waste disposal site.

A.1.1.3 Distance between the breeder farm and other poultry unit or live poultry market shall be maintained in order to prevent disease transmission.

A.1.2 Layout

A.1.2.1 The farm shall have a good layout and sufficient size convenient for farm operations. Layout of the farm shall be orderly separated according to farm activities such as rearing area, housing location, egg selection and storage room, feed mixing and storage, equipment storage, carcass disposal area, office and accommodation space, farm entrance and exit, road, waste disposal area, water source and storage. The accommodation shall be separated and distanced away from the rearing area, and egg selection and storage, in order to prevent and control disease within the farm.

A.1.2.2 The farm shall have an area in line with the number of houses and does not pose any problem to environment and animal health.

A.1.2.3 The poultry farm shall be fenced and have only one entrance and exit equipped with a disinfection system.

A.1.2.4 The farm road shall be paved with durable materials, appropriate condition for use and wide enough for transporting equipment, feed and birds in and out of the farm.

A.1.3 Housing

A.1.3.1 Poultry house shall be well constructed using durable materials that are easily cleaned, maintained, and well ventilated; shall have a roof to shield from sunlight and rain. The house shall not have sharp edges that can injure chicken. Materials shall be of those that can be cleaned and disinfected.

A.1.3.2 Poultry house shall have appropriate environment and size corresponding to the number of breeders for hygienic rearing, and naturally move around. There shall be appropriate distance between the houses. At the entrance of each house, there shall be a disinfectant basin for boots dipping prior to entering and exiting the house.

A.1.3.3 Breeder rearing area as below:

A.1.3.3.1 Open system means the poultry house where breeder conditions are variable according to the external environment.

The maximum stocking density for non-productive chicken shall not exceed 10 birds per m². The maximum stocking density for productive chicken shall not exceed 5 birds per m².

A.1.3.3.2 Close system means the breeder house where its environmental conditions for example, temperature, humidity, ventilation and lighting, are controlled and suitable for the breeders.

The maximum stocking density for non-productive chicken shall not exceed ten birds per m². The maximum stocking density for productive period chicken shall not exceed seven birds per m².

A.1.3.4 Air circulation, dust, temperature, moisture and gases in the close system shall not exceed the following standard levels, otherwise may be harmful to the breeders:

- a) rate of air exchange inside the house shall be corresponding to the weight, ages of chicken breeders and the outside temperature;
- b) dust shall not exceed 15 mg/m³ (air volume);
- c) temperature for incubation period shall be between 28 °C to 35 °C and non-productive and productive period 20 °C to 32 °C;
- d) relative humidity shall be between 50 % to 80 %;
- e) ammonia shall not exceed 20 ppm. Carbon monoxide shall not exceed 50 ppm. Carbon dioxide not exceed 5 000 ppm; and
- f) lighting for both open and close systems, the average levels of light intensity at the height of chicken shall be at a minimum of 10 lux and have dark period for resting at least 1 h per day.

A.1.3.5 Surrounding area of the house shall not have weeds. Area adjacent to the house shall be paved with cement or other similar materials to prevent harbouring of disease carrier animals and other birds.

A.2 Feed

A.2.1 Source of feed shall be as below.

A.2.1.1 Feed shall be sourced from suppliers licensed by relevant authorities.

A.2.1.2 In case of farm mixing feed, the quality of feed shall be in accordance with CAC/RCP 054.

A.2.2 The use of veterinary drugs in feed shall be under the supervision of the farm veterinarian.

A.2.3 Feed storage area shall be provided with clean, dry, free from insects and disease carrier animals, and well ventilated. The feed storage shall be able to prevent the contamination and deterioration.

A.2.4 Feed bags shall be placed on pallets to allow good ventilation and prevention of moisture. In case of vitamins used in feed, they shall be kept in an air-conditioned room.

A.2.5 Feed shall provide appropriate nutritional requirements corresponding to ages and breeds.

A.2.6 Feed containers shall be clean, dry and moisture proof. The container has not been used for containing hazardous substances, fertilizers or any other materials that may be harmful to birds and has no contaminants that may contaminate animal feed. If the inner surface of the container is coated, such materials shall not be harmful to birds.

A.2.7 Appropriate feeder shall be provided, properly placed, in order to prevent contamination and be accessible to all breeders.

CD-ARS 11220:2025(E)

A.2.8 Number and size of feeder shall be corresponding to numbers, ages, sex and breeds of chicken.

A.2.9 Trucks and loading sections for feed transported shall be dry, clean, and appropriate for feed handling.

A.2.10 Feed quality and contaminants shall be regularly tested by sending the samples to a reliable laboratory and the test results shall be kept for at least three years.

A.3 Watering

A.3.1 The water source shall be located in an area safe from contamination by manure or wastewater from poultry houses or residential areas. Furthermore, the water source shall be far from slaughterhouses or industrial factories. If water is sourced from underground, the artesian well shall be completely covered.

A.3.2 The water supply for animal drinking and use on farm shall be clean and sufficient. Water shall be regularly analyzed for mineral and hazardous substances at least once a year, including microbial detection.

A.3.3 The numbers and sizes of drinkers shall be corresponding to the numbers, ages, sex and breeds of chicken.

A.4 Farm management

A.4.1 Farm management manual

The manual shall encompass the rearing system, record keeping, disease prevention and control, animal welfare and health management, including farm sanitation in order to be used as guidance as follows:

- a) housing preparation;
- b) chick brooding;
- c) caring of non-productive period of chicken breeders;
- d) caring of productive period of chicken breeders;
- e) hatching and culling of egg management;
- f) feed and water management;
- g) cleaning and maintenance;
- h) animal health management, including vaccination programme, animal treatment (use of veterinary drugs), surveillance of diseases and immunity, sick and dead chicken management;
- i) pest and disease carrier animal controls;
- j) sanitation and environmental management including lighting, temperatures, moisture, air circulation and waste disposal; and
- k) animal welfare management.

A.4.2 Personnel

A.4.2.1 Operators shall be sufficient and corresponding to the numbers of breeders, including:

— Operator:

- O Open system: not exceeding 10 000 birds per one keeper; and
- O Close system: not exceeding 20 000 birds per one keeper;
- Animal husbandry not exceeding 200 000 birds per one bird husbandry person; and
- Veterinarian not exceeding 1 500 000 birds per one veterinarian.

A.4.2.2 Personnel responsibility should be clearly assigned, including:

- a) Keeper is a trained person taking care of chicken rearing. Animal husbandry person is a supervisor for chicken rearing with a degree in animal husbandry/animal science or related fields; and
- b) Veterinarian is a person who supervises animal health and hygienic farm operation as well as animal welfare. Veterinarian is the one who holds both the veterinary license and the poultry farm veterinary supervisor license.

A.4.2.3 Operators who take care of chicken rearing shall be skilful and trained continuously on chicken breeder rearing. Training shall be recorded as personal file.

A.4.2.4 Operators shall have good personal hygiene and at least yearly health check-up. Sick or injured operators, such as diarrhoea, vomit, sore throat and fever, shall not be allowed to work in the poultry house. Such sick or injured persons shall inform the farm manager as well.

A.4.3 Cleaning and maintenance

A.4.3.1 Equipment used for rearing, such as feeders, drinkers as well as poultry house shall be thoroughly and properly cleaned prior to placement.

A.4.3.2 Breeder house and equipment shall be well maintained for the safety of both breeders and operators.

A.4.3.3 Automatic equipment used for rearing that is essential for animal welfare shall be daily checked. If defected equipment is found, it shall be immediately fixed and replaced by back-up equipment. Alarm system shall be installed to alert any defects and shall be regularly checked.

A.4.3.4 Effective cleaning and disinfection systems for the poultry house and equipment shall be in place. The house shall be vacated for a downtime period after depopulation for not less than 14 days or as recommended by the competent authorities.

A.4.3.5 After depopulation, manure and litter shall be removed and the house shall be cleaned. Effective cleaning shall be checked by swab test for *Salmonella* spp. culture.

A.4.3.6 Litter and nest box litter such as husk, sand, straw, wood shavings or saw dust, shall be dry and clean. Litter thickness shall not be less than 3 cm. The floor shall be strictly kept for its condition appropriate for chicken breeders. If the litter is wet, it shall be changed.

A.4.4 Egg management

A.4.4.1 Eggs in the pen shall not be delayed for collection. Eggs shall be collected at a minimum of four times per day. Collected eggs shall be hygienically cleaned and appropriately handled. Collected eggs shall be stored in a cold place without dust. If eggs are stored for several days, they shall be kept with controlled temperature between 15 °C and 18 °C and relative humidity between 75 % to 85 % for freshness. In addition, egg storage shall be cleaned and disinfected regularly.

A.4.4.2 Dirty, broken, cracked or deformed eggs shall be removed.

A.5 Animal health

A.5.1 Disease prevention and control

A.5.1.1 Chicken breeders within the same poultry house shall be of the same type and breed, with all in all out system.

A.5.1.2 Preventive measures before entering into the farm shall be in place by using appropriate disinfection methods. Especially at the farm entrance, vehicles shall pass through the disinfectant spraying facilities. Farm gates shall be closed at all times and subject to be opened only by authorized persons. Visitor and vehicle entry and exit shall be recorded and kept for checking.

A.5.1.3 Wheel dip shall have appropriate depth with slope to allow all types of vehicles for conveniently passing through. Materials used for wheel dip shall be durable. The wheel dip may be either separated from or attached to disinfectant spraying facilities.

Disinfectants shall be prepared according to the dosage as indicated on the accompanied document of the manufacturer and changed regularly.

A.5.1.4 Vehicles entering farm shall pass through the disinfectant spraying facilities which is located at the farm entrance. The mist from the spraying equipment shall be able to cover the whole vehicle. The disinfectants shall not be corrosive and used at proper concentrations. Vehicle used inside and outside farm shall not be commonly used.

A.5.1.5 Spit, chewing or eating inside the poultry house are prohibited.

A.5.1.6 Personnel who enter into the rearing area shall pass through the procedures of disinfection, and change into clothing provided by the farm.

A.5.1.7 Disinfecting and shower room shall consist of:

- a) changing clothes before entering the disinfecting room;
- b) disinfecting room provided with sufficient space, non-slippery floor and non-irritant disinfectants;
- c) shower room after passing disinfecting room; and
- d) changing clothes before entering the poultry house.

Every compartment shall be clearly separated and installed with workable equipment. The facilities shall be cleaned at all time. Clothes and shoes used in the farm shall be cleaned after each use.

A.5.1.8 Equipment used in each poultry house shall be separated to prevent contamination. Disinfection methods used for cleaning equipment shall follow technical recommendations before introducing to the rearing area in order to prevent pathogen contamination.

A.5.1.9 Farm sanitary shall be controlled to prevent pathogen accumulation, especially in the rearing area. Moreover, there shall be portable disinfectant sprayers or equipment for effective use at various spots within the farm. Number of sprayers shall be corresponding to the farm size.

A.5.1.10 The poultry house shall be provided with preventive measures against the entry of avian or disease carrier animals. Control programme of disease carrier animal both outside and inside the poultry house shall be planned and monitored continuously.

A.5.1.11 The farm shall have disease surveillance plan.

A.5.1.12 Every breeder shall be vaccinated according to the vaccination programme established by the farm veterinary supervisor.

A.5.1.13 Randomly check the immunity of major diseases to monitor the current immunity status and to make use of such information for an appropriate disease prevention plan in grandparent and parent stocks of broilers and layers.

A.5.1.14 If there is high mortality rate, authorized personnel shall be informed to collect the sample for diagnosis within 12 h.

A.5.1.15 In case of an outbreak or suspicion of disease outbreak, action shall be taken in recommendations made by the relevant authorities.

A.5.2 Treatment

Recommendations made by farm veterinarian shall be followed.

A.6 Animal welfare

A.6.1 Animal welfare shall comply with the *Terrestrial Animal Health Code (OIE TAHE)*.

A.6.2 Flock shall be checked for at least twice a day at appropriate interval.

A.6.3 Randomly check for breeder weight and control feed intake to the desired weight.

A.6.4 In case of beak cutting, beak shall be cut off not more than 1/3 of beak length at the age of not exceeding 10 days old.

A.6.5 Poultry house shall be appropriately managed so as to make breeder live naturally and comfortably.

A.6.6 Care shall be appropriately taken for injured, ill or deformed breeder to avoid suffering.

A.7 Environment

A.7.1 Waste shall be collected and kept in the bin tightly covered with lid, and destroyed properly to minimize the impact to environment.

A.7.2 Carcass shall be immediately removed by putting in waterproof plastic bags, tightly closed, and placed in the tightly covered bin to prevent disease carrying animals before burying or incinerating. There shall be a designated area for carcass disposal. This area shall be separated from other poultry houses. There are two methods for carcass disposal:

- a) by burying, the area shall be sufficient, located in an area not subject to floods and away from water source. Carcass shall be buried at least 50 cm depth from the ground, covered with limestone or poured with disinfectants before covering the hole with soil to prevent animal digging; and
- b) by incinerating, whereby incineration shall be performed in an appropriate area and the carcass shall be completely burned.

A.7.3 After depopulation, disinfectants shall be sprayed onto the litter to eliminate germs and dispersal of germs. Litter shall not be reused. Vehicle used shall be covered to prevent material falling.

A.7.4 Surrounding area for at least 3 m in radius of the poultry houses shall be cleaned and no waste accumulation to prevent the build-up of odour, pathogen, and disease carrier animals.

A.7.5 Wastewater from farm shall be treated before discharging into public water resource.

A.8 Record keeping

A.8.1 Records on the important operations on farm management that may affect the health of breeders and the disease control shall be taken, such as:

CD-ARS 11220:2025(E)

- a) information on farm management;
- b) information on production management, such as data of bird, feeding and watering, egg laying rate; and
- c) record of control, prevention and treatment of diseases, namely veterinary drug prescription and use, chemicals and vaccine by indicating name of the product, type, lot and date.

A.8.2 Records shall be kept for at least three years for inspection.

Bibliography

- [1] Terrestrial Animal Health Code OIE CODE
- [2] Code of practice for the care and handling of hatching eggs, breeds, chicken turkeys electronic book available from Canada
- [3] Environmental code of practice for poultry farm in Western Australia, MAY 2004
- [4] Genesis -GAP – Chicken production technical requirement (Genesis Standard) version 3-02
- [5] Basic management of poultry in developing communities – Book by: Jon Moyle, PhD
- [6] Poultry Training Manual for extension workers in Uganda (Ministry of Agriculture, Animal Industry and Fisheries, Uganda)
- [7] ISO/TS 34700, Animal welfare management — General requirements and guidance for organizations in the food supply chain
- [8] Research gate. net / publication / 233876764 Assessment of biosecurity practice of small Scale – broiler – producers – in – central – Egypt
- [9] Biosecurity Practices on Australian Commercial Layer and (Research Article)
- [10] Thai Agricultural Standard (TAS 6903 – 2003) For Chicken Breeder Farm

