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Handling processing, quality evaluation and storage of poultry

PUBLIC REVIEW DRAFT



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The Executive Director
Uganda National Bureau of Standards
P.O. Box 6329
Kampala
Uganda
Tel: +256 417 333 250/1/2
Fax: +256 41 286 123
E-mail: info@unbs.go.ug
Web: www.unbs.go.ug

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This Draft Uganda Standard, DUS DARS 1218:2022, *Handling processing, quality evaluation and storage of poultry*, is identical with and is being reproduced from an African Standard, DARS 1218:2022, *Handling processing, quality evaluation and storage of poultry*, and is proposed for adoption as a Uganda Standard.

The committee responsible for this document is Technical Committee UNBS/ TC 214, *Poultry and poultry products*.

Wherever the words, "African Standard" appear, they should be replaced by "Uganda Standard".

Handling, processing, quality evaluation, storage, and transportation of poultry and poultry products — Code of practice



Table of contents

1	Scope	1
2	Normative references	1
3	Definitions	1
4	Transport of poultry	1
5	Dressing plant and facilities.....	1
6	Ante-mortem and post-mortem inspection of poultry	2
7	Handling and processing	2
8	Grading	3
9	Quality evaluation	4
10	Packing	4
11	Storage	4
	Annex A (normative) Evaluation card for numerical scoring for overall quality and acceptance of dressed poultry.....	5
	Bibliography	6

Foreword

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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

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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

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Introduction

With the installation of several poultry dressing plants in the region where a sizeable number of birds is handled and processed daily, it is necessary to have a comprehensive code on scientific handling, processing, quality evaluation and storage of poultry for providing wholesome dressed poultry for human consumption. Besides, the code will also enable the authorities in exercising due control on wastage of various valuable poultry products, many a time lost due to faulty handling and will also help in systematic ante-mortem and post-mortem inspection of poultry. This standard includes a quality evaluation card for dressed poultry (Annex A).

In the preparation of this African Standard, references made to international Standard and national experts are all acknowledged

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Handling, processing, quality evaluation, storage and transportation of poultry and poultry products — Code of practice

1 Scope

This code lays down guidelines for efficient handling, processing, quality evaluation, cold storage and transportation of poultry and poultry products.

2 Normative references

The following referenced documents are indispensable for the application 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.

WHO – Guidelines for drinking water quality

DARS 1219, Poultry — Glossary of terms

Codex Stan 108, General Standard for Bottled/ packaged Drinking Water

DARS 1214, Code of hygienic practice for poultry

DARS 1217, Ante-mortem, post-mortem inspection and quality evaluation of poultry

3 Terms and Definitions

For the purpose of this standard the terms and definitions in DARS 1219 shall apply:

4 Transport of poultry

4.1 Poultry of various species are usually transported from the farms to the poultry processing plants in cages, coops and crates. In some instances, specially built trucks are used. Care shall be taken in collecting and loading the live poultry at the farm and in unloading at the poultry processing plant so that the poultry shall not be bruised or injured.

4.2 Special attention shall be directed to the humane transport of live poultry to prevent overcrowding and suffocation, exposure to extremes of temperature and transport over long distances without feed and water [**ARSO/TC 23 on Live Animals**]. The cages, coops, crates and vehicles should be disinfected before leaving the poultry processing plant, in order to reduce the possibility of the spread of poultry diseases.

4.3 Poultry in cages on arrival to plants, shall be showered with potable water with disinfectant of non-concentration to minimize bacteria contaminations.

5 Dressing plant and facilities

5.1 Slaughter, evisceration and packing of poultry should be conducted in such a manner that will result in hygienic processing, proper inspection and preservation for the production of clean and wholesome poultry and poultry products and should comply with requirements in national regulations

5.2 Separate rooms should be provided for the following operations.

DARS 1218:2022

5.2.1 Live poultry receiving and holding. Facilities should be provided for washing and disinfection of coops. There should also be a facility for watering of birds at the holding area if birds are to be retained for 8 hours or more.

5.2.2 Slaughter and bleeding.

5.2.3 Feather removal.

5.2.4 Evisceration, chilling and packing. Adequate facility that demarcates evisceration of slaughtered poultry, for chilling and packing for should be provided.

5.2.5 Inedible and rejected products such as feathers and concerned poultry carcasses should have adequate storage facilities prior to transport to rendering plant for the preparation of inedible fats and animal food.

5.3 Water supply — Particular attention should be paid to water supply to the poultry dressing plant. The quality of water used should satisfy the requirements for good drinking water in accordance to WHO guidelines for Drinking Water Quality and General Standard for Bottled/ packaged Drinking Water-Codex Stan 108.

5.4 Ventilation and Illumination — Particular attention should also be given to ventilation and illumination. Illumination should be sufficiently strong, properly situated and should not cause glare.

5.5 Personnel hygiene — Personnel shall wear special working clothes including head gear of washable material, and the personnel shall be guided so that each individual carries out his particular work as correctly, effectively and hygienically as possible. In this connection, the supervisor shall explain the necessity of frequent hand washing and disinfection during work and specially after visiting the toilet. Omission of such principles in the processing of the poultry can result in transmission of infection from bird to bird and from human being to slaughtered poultry, WD-ARS 1214-2021, Code of hygienic practice for poultry

5.6 Waste shall properly be disposed to prevent contamination during pre and post processing of poultry and poultry products.

6 Ante-mortem and post-mortem inspection of poultry

Poultry shall be subjected to an ante-mortem and post-mortem inspection as stated in the DARS 1217.

7 Handling and processing

7.1 Stunning — Birds may preferably be stunned into a state of unconsciousness in a manner avoiding death. In that case the poultry may be hung on shackles attached to chains running on an overhead track and made unconscious with one blow on the head. In large establishments poultry may be stunned by efficient electrical stunners.

7.2 Bleeding — Birds should be bled by giving a cut on the jugular veins below the earlobe and slid along the line while being bled-out, towards the scald bath. In small processing plants, the operation may be done manually. The bleeding time should preferably be not less than 90 seconds for smaller birds and up to 180 for larger sized birds. The bleeding process should continue until no more blood is oozing from the poultry.

7.3 Scalding

7.3.1 Scalding shall be done after all movements (reflexes) have ceased. The temperature of the scald water shall be maintained at about 60 °C, and the poultry should be kept in it for about 2 minutes.

7.3.2 Scalding vessels should be supplied with continues overflow of water at 60°C to maintain the bacteria counts of not more than 10,000 counts.

NOTE Scalding in hot water at 60 °C gives the easiest feather-plucking, but may result in the flesh becoming tough. In that case a lower temperature 55 to 57 °C may be used.

7.3.3 Scald container shall be thoroughly cleaned daily.

7.3.4 Scald water shall be changed continuously.

7.4 Plucking — Immediately after scalding, the plucking of poultry shall be done by machine.

7.5 Removal of feet — From hygiene point of view, removal of the feet at the tarsometatarsal joint shall be done at this stage, as this would make it possible to avoid dirt and dirty water from the feet and legs running down the body, after opening the abdominal cavity.

7.6 Evisceration and chilling — First the oil gland shall be removed. The abdominal cavity should then be opened by means of a transverse cut. A circular cut should be made around the vent so that the intestines and organs can be removed. This procedure shall be followed very carefully, without any damage to the intestine by cuts or tearing.

NOTE It has been estimated that 1 g of faecal matter contains more than 2.5×10^9 bacteria and there is enormous contamination which can take place in the abdominal cavity, the thoracic cavity and on the surface of the bird. Furthermore, as poultry is the most significant reservoir for *Salmonella* organism, it is important to remove the organs, and proper veterinary control holds back such contaminated birds for washing and cleaning out, before the poultry can be allowed to continue for further processing.

7.7 At this point of the slaughter line the veterinary evaluation of the poultry as discussed [ARSO/TC 23 on Live Animals].

7.7.1 Shower water should be provided on the poultry line after plucking and at each working point on the line of evisceration.

7.7.2 Sanitary hot water boxes at 82°C for sanitizing knives should be provided all over the processing line.

7.8 After the inspection has been carried out, the poultry shall be given a washing with water. The intestines and the organs shall be removed, washed and collected. The neck and head shall be removed. Gizzard, Liver and heart shall be separated, washed and collected. The poultry shall then be once more sprayed with water after which the lungs and the kidneys shall be removed by vacuum or by means of a suitably constructed fork. The poultry should be given a further spray with water after the removal of lungs and kidneys to ensure that the bird entering the spin-chiller is as clean as possible.

7.8.1 Poultry thus processed shall then be cooled in running water containing 2 to 5 ppm chlorine in a spin-chiller or in other types of chiller.

NOTE 1 Although the bird has been sprayed, its inner and outer surfaces are heavily contaminated. In spin-chiller with water at a temperature of 5 to 7°C most of the bacterial flora will stop growing and the number of bacteria on the surfaces of the body will be decimated by the continuous movement in water and by the addition of fresh water. The amount of water which is necessary for cooling is about 6 litres per bird.

NOTE 2 Poultry flesh contains little or no bacteria. The most important contamination comes from outside, that is, from air, water, food and faecal matter during its passage along the slaughter line; and also by means of knives, hands, clothes, and equipment. Some of those bacteria which are found on the poultry skin are *Pseudomonas*, *Achromobacter*, *Flavobacteria*, *micrococci*, *coliform Alkaligene*; *Proteus* and *Bacillus*. As the growth of these bacteria causes putrefaction of the poultry, first on the free surfaces and thereafter in the flesh itself, it is necessary to stop their growth as rapidly as possible and keep the poultry cooled. Lowering the temperature reduces the rate of bacterial growth considerably.

7.9 Draining — After evisceration and cleaning, the birds shall be drained effectively since an undrained dripping bird when packed and frozen tends to be coated diffusely with irregularly formed ice layers which mar the uniformity in appearance of the carcass.

8 Grading

8.1 The poultry shall be graded on the basis of the characteristics given in 8.1.1 to 8.1.4.

DARS 1218:2022

8.1.1 Dressed mass (with and without giblet and neck).

8.1.2 Degree of fleshing (to be determined by using breast angle-meter).

8.1.3 Knee bone length (to be determined with the help of vernier calipers).

8.1.4 Dressing percentage = $\frac{\text{Dressed mass after washing}}{\text{Live mass}} \times 100$

9 Quality evaluation

Birds shall be steam-cooked at 0.70 to 1.05 kg/cm² pressure for 10 to 15 minutes respectively. The processed birds shall be evaluated for quality as per the evaluation card given in Annex A.

10 Packing

10.1 Before packing, the gizzard should be gotten rid of the internal contents and mucosal layer, the heart after removal of pericardium while the liver and the neck should be placed into the abdominal cavity of the carcass enclosed in a food grade container (Biodegradable). The carcass should be dressed by folding back the wings and introducing the legs through the abdominal opening out through the vent opening.

10.2 Drained and dressed birds shall be packed into suitable food grade container (Biodegradable bags) (50-micron gauge) or other suitable packing media. Before final sealing, the packs shall be immersed into vats containing water to expel the content of air between the carcass and the bag, taking care that no water is introduced in the pack. Alternatively, vacuum packing or shrink wrapping of the packs may be adopted. After the air inside is expelled, the bag shall be sealed in a sealer or shall be knotted using rubber bands.

11 Storage

11.1 Bulk quantities of processed poultry intended for freezing must be frozen immediately after wiping using proper equipment (freezing tunnel or deep freezing) according to prescription of National regulations.

11.1.1 Poultry should be stored under refrigeration at 0 to 4°C. The period of storage under refrigeration shall not exceed 7 days.

11.1.2 Poultry may be frozen at -18 °C, and may be stored to 9 months.

Annex A
(normative)

Evaluation card for numerical scoring for overall quality and acceptance of dressed poultry

Name _____ Date _____

Product _____ Time _____

A.1 Overall quality

Please rate these samples for overall quality according to the following grade descriptions and scoring:

Quality grade description	Score
Excellent	9-10
Good	6-8
Fair	4-5
Poor	1-3

Code No.	Colour	Texture	Taste	Odour	Overall Quality
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—

A.2 Acceptance score sheet

	Points
Like very much	7
Like moderately	6
Like slightly	5
Neither like nor dislike	4
Dislike slightly	3
Dislike moderately	2
Dislike very much	1

Please encircle the point at which you rate the quality (use reverse side for additional remarks).

Bibliography

Codex Alimentarius website : http://www.codexalimentarius.net/mrls/vetdrugs/jsp/vetd_q-e.jsp

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KS 2304:2011 Kenya Standard — Handling, processing, quality evaluation and storage of poultry — Code of practice

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Working Group to identify and acknowledge useful literature used in the preparation of this standard.

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