



**WORKSHOP
ON
SUPPLY UTILIZATION ACCOUNTS
AND
FOOD BALANCE SHEETS**

**FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
(FAO)**

AGRICULTURE UNIT, GOSKOMSTAT

**Dushanbe, Tajikistan
7 – 9 May 2007**

**LIVESTOCK STATISTICS
CONCEPTS, DEFINITIONS AND CLASSIFICATION**

The paper discusses concepts, definitions and standards underlying statistics of livestock, products from slaughtered and from live animals, together with their classification. It also describes the related international recommendations prepared by FAO in consultation with international statistical bodies intended for application by government agencies concerned in order to enhance international comparability of such statistics.

LIVESTOCK STATISTICS

CONCEPTS, DEFINITIONS AND CLASSIFICATION

I. INTRODUCTION

The importance of collecting and publishing countries' agricultural statistics and the difficulties encountered in assembling them according to the maximum possible degree of international comparability as regards concepts, definitions and classifications, have been illustrated in Chapter I of the paper dealing with crop statistics.

II. LIVESTOCK NUMBERS

1. Importance of Livestock

Domestic animals are very important to mankind. They furnish precious food products (meat, milk, eggs, honey) and valuable non-food-industrial products (wool, hair, silk, hides, skins, furs, wax, feathers, bones, horns, etc.). Quadrupeds are widely used, particularly in developing countries, as beasts of burden and for draught or are used for commuting to and from agricultural holdings. Some are used also for recreation purposes (horse riding), and most of them are a source of organic/natural fertilizers and fuel.

2. Definition. The terms "livestock" and "poultry" are used in a very broad sense, covering all domestic animals irrespective of their age and location or the purpose of their breeding. Non-domestic animals are excluded from the terms unless they are kept or raised in captivity, in or outside agricultural holdings, including holdings without land.

Cattle, buffaloes, camels, sheep, goats, pigs, horses, mules, asses and chickens are raised and enumerated in many countries. Some countries raise and enumerate ducks, geese, turkeys and beehives, whereas rabbits, guinea fowl, pigeons, silkworm cocoons, fur animals, reindeer and various kinds of camelids are limited to far fewer countries.

Many factors are known to affect the comparability of statistics of livestock numbers between countries. The main ones relate to the coverage of data, the date and frequency of enumeration and the classification of animals.

3. Classification. Livestock is generally classified by countries by genera, sub-divided in a few cases by species. More frequently, individuals of various genera or families are being aggregated into a single group, e.g., the term "poultry" covers domestic fowls, guinea fowl, ducks, geese and turkeys.

It is recommended that countries enumerate, when applicable, at least the animals listed below, classified according to this list. :

Group	Code	Name	Code	Name
Live animals	0102_a	Cattle	SUA	SUA
Live animals	0102_b	Buffaloes		
Live animals	0101_a	Horses		
Live animals	0101_b	Asses, mules or hinnies		
Live animals	0103	Pigs		
Live animals	0104.10	Sheep		
Live animals	0104.20	Goats		
Live animals	0106.1_a	Camels		
Live animals	0105_a	Chickens		
Live animals	0105_b	Turkeys		
Live animals	0105ca	Ducks		
Live animals	0105cb	Geese and guinea fowls		
Live animals	0106.1_c	Rabbits and hares		
Live animals	0106.90_a	Beehives		

CATTLE, total: Includes various species of Bos, mainly bovis, taurus, indicus, grunniens, gaurus, frontalis and sondaicus (ox,zebu,yak,gaur,gayal,banteng). Calorie production coming from cattle-meat, offal, fat and milk, cover about 39% of total calories of animal origin,excluding fish.

a) Females

i) cows

- mainly for milk production: Milking animals are those which in the course of the reference period have been milked. This concept is in relation to one applied for production of milk which excludes the milk sucked by the young animals. If, for example, the whole milk of a cow is sucked by the calf, this cow is not considered to be a "milking animal".

ii) heifers (including in calf)

b) Males

- mainly for meat production (including spent)

BUFFALOES, total: Includes various species of Bubalus, mainly bubalus, arni, depressicornis, nanus (buffalo, Indian buffalo, water buffalo, carabao, Pigmi buffalo) and also

Syncerus caffer, African buffaloes, Bison spp. American and European. Calorie production coming from Buffaloes, meat, offal, fat and milk, cover about 6.7 % of total calories of animal origin, excluding fish.

Buffalo cows

- mainly for milk production: Milking animals are those which in the course of the reference period have been milked. This concept is in relation to one applied for production of milk

which excludes the milk sucked by the young animals. If, for example, the whole milk of a cow is sucked by the calf, this cow is not considered to be a "milking animal".

SHEEP, total: Includes various species of Ovis, mainly aries, orientalis, ammon, canadiensis (sheep, uriel, argali, bighorn, karakul, Astrakhan). Calorie production coming from Sheep-meat, offal, fat-and milk-, cover about 2.6% of total calories of animal origin, excluding fish.

A. Lambs under 1 year of age

B. Sheep, 1 year of age and over

Females

- intended for breeding
- intended for slaughter

GOATS, total: Includes various species of Capra mainly hircus, ibex, nubiana, Pyrenaica, Tibetana, kashmir, Angora. Calorie production coming from Goats - meat, offal, fat, and milk- cover about 1.5% of total calories of animal origin, excluding fish.

A. Goats under 1 year of age

B. Goats, 1 year of age and over

- Females

PIGS, total: Includes various species of Sus, mainly scropha, domesticus, ferus, vittatus, mediterraneus, indicus. Calorie production coming from Pig-meat, offal, fat, covers about 33.5% of total calories of animal origin, excluding fish.

A. Young pigs, less than 50 kg

B. Pigs for breeding, 50 kg and over

- Gilts

- gilts in pig

- Sows

- sows in pig

C. Pigs for fattening, 50 kg and over

a) 50 kg and less than 80

b) 80 kg and over

HORSES, total: Equus caballus. Including Ponies.

A. Horses for agricultural production or use

B. Other horses

ASSES, Mules or Hinnies, total: Equus asinus . Incl. hinnies. Mule is the offspring of a he-ass and mare; hinny is the offspring of she-ass and stallion. Both are sterile.

CHICKENS (domestic fowl), total: Including Gallus gallus or domesticus. May include also Numida meleagris, Guinea fowl. Fowls has generally the same meaning of chickens. Calorie production coming from Chickens, Meat and eggs, cover about 13.8% of total calories of animal origin, excluding fish. Reported figures should include day-old Chicks.

A. Chickens for breeding and egg production

- Laying hens and pullets: Data refer to the number of animals which in any moment of the year have laid eggs.

B. Chickens for meat production (slaughter)

- Broilers

- Other (capons, etc.)

C. Other chickens (multi-purpose mixed stock)

- Laying hens and pullets: Data refer to the number of animals which in any moment of the year have laid eggs.

TURKEYS, total: Meleagris gallopavo

DUCKS, total: Ducks include various species of Anas, mainly platyrhynchos.

GEESE and GUINEA FOWL, total: Geese, Various species of Anser mainly anser, albifrons and arvensis.

CAMELS: Including both Camelus ferus or bactrianus and dromedarius.

RABBITS, total: Oryctolagus cuniculus. May include hares (Lepus spp).

BEEHIVES, total: Beehive is an artificial habitation for bees: *Apis mellifica*, *dorsata*, *florea*, *indica*.

4. **Date and Frequency of Enumeration.** The livestock population is subject to marked seasonal fluctuations, resulting in periods of maximum and minimum numbers within the course of the year. These periods are different for various species of livestock and are, also, different from country to country.

While recognizing the need for estimating livestock numbers more than once a year, particularly pigs and poultry, it is recommended that at least one enumeration should be made towards the end of the year.

5. **Coverage of the Data.** All domestic animals should be taken into account in an enumeration, irrespective of their age or purpose of breeding.

In areas where nomadism and transhumance are practised, livestock may be enumerated twice, or may not be enumerated at all if enumerators fail to pay sufficient attention to these livestock-rearing practices. Nomadic animals are those without any fixed installation which continually or periodically shift from place to place. The seasonal migration of livestock from pastures on plains and lowlands (autumn-winter) to pastures on mountain-sides (in spring and summer) and vice versa is known as transhumance. The phenomenon of nomadism exists in Africa and in the Near East. The transhumance, including alpine pasture, is no longer as important as it was at one time in Spain, Italy and other European countries, but it is still widely practised in some other countries.

III. ELEMENTS APPLICABLE TO ALL OR MAIN SPECIES OF LIVESTOCK

Total Stocks (Animal numbers). Total stocks of Animals refers to the number of animals of the species present in the country at the time of enumeration. Annual figures on livestock numbers relate to live animals enumerated through census/sample survey. In a given period of the year, it includes animals raised either for draft purposes or for meat and dairy production or kept for breeding. Live animals in captivity for fur or skin such as foxes, minks, etc., are not included; if more than one enumeration of animal stocks is available, please report the one closest to the beginning of the calendar year. For FAO, figures for the year N relate to animals enumerated by the country any day between October of the year N-1 and September of the year N. Livestock data are reported in number of heads (units) except for poultry, rabbits and hares which are reported in thousand units ('000).

Number of animals slaughtered. Figures relate to the number of animals slaughtered within national boundaries, irrespective of their origin.

IV. CONCEPTS, DEFINITIONS, COVERAGE AND RECOMMENDATIONS PERTINENT TO LIVESTOCK PRODUCTS FROM SLAUGHTERED ANIMALS

1. Slaughterings and Meat Production

1.1 Definition. Meat can be defined as the flesh of animals, particularly the muscular part, used for human food. In our case, the word animals excludes fish, whales and other cetaceous but includes poultry and small animals such as rabbits and domestic rodents. Game meat is also included. In statistical terminology, unless otherwise stated, meat is intended to be bone-in and to exclude meat unfit for human consumption. The term meat excludes also edible offal and slaughter fats, whereas butcher fats, i.e. unrendered fats obtained from the excess fat trimmed or removed from the wholesale and retail cuts during butchering, are

included under this category. The nutrient contents of meat are proteins – of high quality – and fat.

Meat data covers all animals of local and foreign origin slaughtered within the national boundaries. Production data should be reported in terms of dressed carcass weight (for Beef and Veal, Buffalo meat, Mutton and Lamb, Goat meat and Camel meat), i.e. excluding offal and slaughter fats. Dressed carcass weight for Pigmear includes also the head, the feet and the skin as well as back-fat, bacon and ham in fresh equivalent. Chicken and Poultry meat should be expressed in terms of dressed weight, i.e. including the carcass, the edible offal and the slaughter fats or ready-to-cook including giblets. "Meat, n.e.c." includes all other meats not elsewhere classified (n.e.c) in this group.

Cattle meat: Production data are given in terms of dressed carcass weight, excluding edible offal and slaughter fats.

Buffalo meat: Production data are given in terms of dressed carcass weight, excluding edible offal and slaughter fats.

Sheep meat: All data are given in terms of dressed carcass weight.

Goat meat: All data are given in terms of dressed carcass weight.

Pig meat: Production data are given in terms of dressed carcass weight, excluding edible offal and slaughter fats.

Chicken meat: Production data should be given in terms of ready-to-cook, including giblets.

Duck meat: Production data should be given in terms of ready-to-cook, including giblets.

Goose and guinea fowl meat: Production data should be given in terms of ready-to-cook, including giblets.

Turkey meat: Production data should be given in terms of ready-to-cook, including giblets.

Bird meat, nec (incl. pigeon meat): Production data should be given in terms of ready-to-cook, including giblets.

Horse meat: All data are given in terms of dressed carcass weight.

Equine meat, nec: All data are given in terms of dressed carcass weight.

Camel meat: Data are given in terms of dressed carcass weight.

Rabbit meat: Data are given in terms of dressed carcass weight or ready-to-cook, as applicable.

Game meat: Data are given in terms of dressed carcass weight or ready-to-cook, as applicable.

Meat, nec: Data are given in terms of dressed carcass weight or ready-to-cook, as applicable.

- 1.2 Concept of production. Data relate to total meat production from both commercial and farm slaughter. Data are given in terms of dressed carcass weight, i.e., excluding offals and slaughter fats. Production of beef and buffalo meat includes veal; mutton and goat meat includes meat from lambs and kids, respectively; pig meat includes bacon and ham in fresh equivalent. Poultry meat includes meat from all domestic birds and refers, wherever possible, to ready-to-cook weight.

Group	Code	Name	Code SUA	Name SUA
Meat	0201.10_a	Cattle meat	0201.10	Bovine meat
Meat	0201.10_b	Buffalo meat	0201.10	Bovine meat
Meat	0205.00_a	Horse meat	0205.00	Equine meat
Meat	0205.00_b	Equine meat, nec	0205.00	Equine meat
Meat	0203.11	Pig meat	0203.11	Pig meat
Meat	0204.21_a	Sheep meat	0204	Sheep and goat meat
Meat	0204.50	Goat meat	0204	Sheep and goat meat
Meat	0208.90aa	Camel meat	0208.90_a	Meat, nec (incl. camel and game meat)
Meat	0207.11	Chicken meat	0207.11	Chicken meat
Meat	0207.24	Turkey meat	0207.24	Turkey meat
Meat	0207.32_a	Duck meat	0207.32	Duck, goose or guinea fowl meat
Meat	0207.32_b	Goose and guinea fowl meat	0207.32	Duck, goose or guinea fowl meat
Meat	0208.10	Rabbit meat	0208.10	Rabbit meat
Meat	0208.90ac	Bird meat, nec (incl. pigeon meat)	0208.90_a	Meat, nec (incl. camel and game meat)
Meat	0208.90ab	Game meat	0208.90_a	Meat, nec (incl. camel and game meat)
Meat	0208.90ad	Meat, nec	0208.90_a	Meat, nec (incl. camel and game meat)

Data on meat production are usually reported according to one or more of the following concepts:

1.2.1 Live weight of animals intended for slaughter is the weight taken immediately before slaughter. It is assumed that animals intended for slaughter are kept in the slaughterhouse premises for 12 hours and are not fed or watered during this time.

1.2.2 Killed weight is the gross weight of the carcass including the hide or skin, head, feet and internal organs, but excluding the part of the blood which is not collected in the course of slaughter.

1.2.3 Dressed carcass weight is the weight of the carcass after removal of the parts indicated for each of the livestock species listed below:

Cattle, Buffaloes, Horses, Mules, Asses, Camels;

- the hide or skin
- the head where it joins the spine
- the fore feet at the knee joint, and the hind feet at the hock joint
- the large blood vessels of the abdomen and thorax
- the genito-urinary organs (other than the kidneys)
- the offals (edible and inedible)
- the tail
- the slaughter fats other than kidney fats

Sheep and Goats:

- the skin
- the offals (edible and inedible)
- the genito-urinary organs (other than the kidneys)
- the feet
- the slaughter fats other than kidney fats

Pigs

- the offals (edible and inedible)
- the genito-urinary organs (other than the kidneys)
- the slaughter fats other than kidney fats and back fat which are butchering fats)

1.2.4 Carcass weight is the weight of the carcass as defined above, including slaughter fats.

1.2.5 Data on production of meat for minor animals (poultry, rabbits, game, etc.), are usually reported according to one or the other of the following concepts:

a = Thighs + Wings + Breast + Ribs + Back = Ready-to-cook (oven ready)

b = a + Heart + Liver + Gizzard + Neck = Ready-to-cook (incl. giblets)

c = b + Feet + Head = Eviscerated weight

d = c + Viscera (inedible offals) = Dressed weight

e = d + Blood + Feathers + Skins (when applicable) = Live weight

The concept of meat production changes with the coverage of production as follows:

1.2.6 Production from slaughtered animals (SP): all animals of indigenous and foreign origin, slaughtered within the national boundaries.

1.2.7 Production from indigenous animals (GIP): indigenous animals slaughtered plus the exported live animals of indigenous origin.

1.2.8 Total indigenous production (TIP) or biological production: indigenous animals slaughtered, plus the exported live animals of indigenous origin and net additions (plus/minus) to the stock during the reference period. If it is expressed in weight, this measure should take into account also the change in the total live weight of all the animals.

1.2.9 In calculating indigenous production, it should be noted that as imports and exports of live animals are generally recorded in numbers, not weight, it is important to know what kinds of animals (large or small) are imported and exported. For example, the meat equivalent of two million chicks can vary by 80 to 250 tons, while the meat equivalent of two million adult chickens can vary by 2000 to 4000 tons.

1.3 Coverage of production. Most countries distinguish in their statistics between controlled or inspected or commercial slaughterings and other slaughterings, called variously, farm or private, non-commercial or uncontrolled slaughterings.

Under the first category, slaughterings in public and industrial slaughterhouses, meat processing plants and major poultry farms are usually included. Statistics on those slaughterings, and corresponding meat production, are easy to obtain from the administrative records of the establishments concerned. They report normally on a monthly basis; in some countries, weekly.

Under the second category are included slaughterings in small slaughterhouses, butchers' shops and on farms, mainly for the farmers own consumption. Statistics on non-commercial slaughterings, which can be derived from various sources, are essentially rough estimates and should be established once a year.

1.4 Recommendations

1.4.1 On the different possibilities of measuring the production of meat, it is recommended that countries collect and publish data primarily in terms of dressed carcass weight. However, in view of the fact that national practices regarding the definition of carcass weight are still far from homogeneous, each country should clearly indicate which parts of the animal are included in or excluded from its carcass weight concept. It would be desirable if countries would provide conversion factors from carcass weight to live weight or *vice versa*.

1.4.2 Countries not reporting according to the dressed carcass weight concept should clearly indicate which concepts they use when reporting production figures. They should provide appropriate conversion factors to convert their production into carcass weight equivalent, indicating also which parts or organs of the animal are excluded for the conversion to dressed carcass weight.

1.4.3 Production of meat of small animals should be reported, preferably according to the concept "ready-to-cook", specifying whether giblets are included or excluded. It is important that whatever concept is used be clearly explained.

1.4.4 It is recommended that all countries collect and report meat production data and corresponding numbers of slaughterings according to the concept of slaughtered production and indigenous production, both in line with FAO definitions, (see 1.2.9 above). In all cases, production should cover only that "approved for human consumption".

1.4.5 It is also recommended that countries which report edible offals and fats together with meat production in one figure provide the approximate percentage of edible offals and fats in the aggregated meat figures.

1.4.6 It is recommended that countries report at least annual figures covering all slaughterings, commercial and non-commercial, and corresponding meat production, for the following livestock species as applicable: cattle, buffaloes, sheep, goats, pigs, horses, chickens, turkeys, ducks, geese, guinea fowl, rabbits, other.

1.4.7 Countries reporting commercial figures only should indicate this limitation in a note or footnote and furnish, at least from time to time, estimates on non-commercial production. In general, separate figures should be reported for commercial and non-commercial production, particularly when the estimates of the last category are considered to be weak.

1.4.8 It is recommended that slaughterings data be reported in terms of both numbers slaughtered and meat production. In case any country collects and publishes statistics only in terms of one or the other, appropriate conversion factors should be provided, i.e., average carcass weight figures. If possible, countries should report, in addition to annual data, also monthly or quarterly data, at least for commercial slaughterings and production.

1.4.9 It is recommended that figures for cattle slaughterings be shown separately for calves and adult cattle, a suggested borderline between the two being 220 kg, live weight. Other animals, for which a breakdown of the total slaughterings between young and adult animals are considered to be useful, are: sheep, goats and pigs.

1.5.0 It is suggested that countries collect and release also statistics on meat production from non-domestic animals, such as game meat, etc.

2. Edible Offals

2.1 Edible offals are those edible parts or organs of the animals, other than fats, which are usually separated in the course of the preparation of the carcasses at slaughterhouses. Which of these organs or parts are considered edible offals varies from country to country, depending on the definition of "dressed carcass weight" adopted by the countries in reporting meat production data as well as on the countries' habits. Some countries calculate edible offals as a percent of the carcass weight, the percentage varying from 3 to 10 percent according to various classes of animals.

2.2 In view of the above remarks, it is recommended that countries report separately production figures of what they consider edible offals, which, logically, should not be included in meat production figures. Below is a list of items which are considered edible offals in most countries:

Head or head meat	Throat bread	Thick skirt
Tongue	Sweet bread	Genital organs
Brains	Lungs	Udder
Feet (cleaned)	Liver	Stomach or tripes
Tail meat	Spleen	Blood
Heart	Diaphragm	

2.3 See 1.4.5 above.

Fats

3.1 Under this heading, national sources report production data which include one or more of such fats as slaughter fats, butchering fats, rendered fats (lard, tallow), etc., giving rise to the following concepts:

- a) Total unrendered fat: slaughter fats and butchering fats (edible and inedible).
- b) Total unrendered edible fats: edible slaughter fats and edible butchering fats.
- c) Slaughter fats: edible and inedible unrendered fats which fall in the course of dressing the carcasses and are recovered from discarded and fallen animals, guts, sweepings, hide trimmings, etc. This is the concept actually used in FOSTAT.
- d) Edible slaughter fats (loose fats): unrendered fats which fall in the course of dressing the carcasses, such as fats in abdominal and thoracic cavities.
- e) Inedible slaughter fats: unrendered fats from discarded and fallen animals, guts, sweepings, hide trimmings, etc.
- f) Butchering fats: unrendered fats obtained from the excess fat trimmed or removed from the wholesale and retail cuts during butchering. Kidney fats and pig-back fat are also included in this definition.
- g) Processed fat: rendered fats such as lard, tallow, etc., obtained by melting or processing slaughter and butchering fats.

3.2 The coverage of slaughter fats differs from country to country, depending on the definition of "dressed carcass weight" adopted by each country in reporting meat production data.

3.3 It is recommended that countries report separately production data at least for slaughter fats as defined above, preferably broken down into edible and inedible. Countries reporting slaughter fats together with meat production in one figure should indicate the approximate percentage of slaughter fats on the aggregated meat/fats figures.

3.4 As for processed fats, production data should be collected for lard and tallow (preferably in product weight basis rather than in fat content), as well as data on utilization of these products for food, feed and industrial uses.

4. Hides and Skins

4.1 It is suggested that all countries collect and release production data for hides, skins and fur skins. Data should be given in terms of weight (fresh or green), except for fur skins which should be reported in numbers.

4.2 Countries reporting production in numbers or expressed in dry, cured or salted weight, should provide appropriate conversion factors to green weight.

4.3 Production figures for hides and skins may include also those coming from fallen animals, in addition to those from slaughtered animals.

V. CONCEPTS, DEFINITIONS, COVERAGE AND RECOMMENDATIONS PERTINENT TO LIVESTOCK PRODUCTS FROM LIVE ANIMALS

1. Milking animals and milk production

1.1 Concepts, Definitions and Coverage

1.1.1 Milk : In spite of its high water content, from 80 to 88%, milk is still considered one of the most complete and healthy aliments. In fact, milk contains, fairly well balanced, the three nutrient elements in various degrees, according to the genera and species of our domestic animals and the feed we give them. Protein content, mainly casein, moves between 3.2 and 6% of the whole milk, as milked; fat content, ranges from 3.5 to 9%. Main component, saturated fatty acids, constitute about two thirds of the total, of which palmitic acid is the most important. Sugar content, lactose principally, moves between 4.5 and 5.5%. The definition of milking animals varies considerably among countries, from those which include all females in reproductive age to those which include only dairy females bred especially for milk production which were actually milked during the year.

1.1.2 On the other hand, estimates of milk production given by countries may refer to one or more of the following concepts: Milk production relates to total production of whole

fresh milk, excluding the milk sucked by young animals but including amounts fed to livestock. Milk production figures refer to the Net Production (Milk actually milked - milk sucked by young animals + the amount of milk fed to livestock). They should be reported in terms of whole milk and in weight rather than in capacity measures.

Cow milk, whole, fresh: In most countries, the quantities of raw (crude, whole) milk used as such for human consumption are very small. The bulk undergoes more or less complex processes to obtain either products which are still liquid (standardized milk, pasteurized milk, sterilized milk, skimmed and partly skimmed milk, etc.) or products which are not anymore liquid milk (cream, butter, cheese, evaporated and condensed milk, milk powder, casein, yogurt, ice cream, etc.). In the processing of milk into dairy products, a certain number of by-products are also obtained, such as skim milk, buttermilk and whey, which in turn are either sent back to farms for feed or are used in the manufacture of dairy products,

often in combination with whole milk. The caloric content of cow milk (crude, whole), moves between 610 and 700 calories per kg, depending largely on the fat content of the milk,

which can be as low as 33 grams per kg of milk or as high as 42 grams. Protein content moves between 31 and 36 grams per kg and sugar between 46 and 49 grams per kg. The main protein of milk is casein, but there are over 20 individual amino acids in the milk proteins, including essential amino acids, such as lysine. Lactose, the milk sugar, is a disaccharide, i.e. two monosaccharides, glucose and galactose in combination. The dominant fats of milk are saturated fatty acids, about 65% of total, the main one being palmitic acid. Whole milk contains also macrominerals, mainly calcium and potassium, and vitamins.

Buffalo milk, whole, fresh: (cf. 1.1.1). About 75% of buffalo milk production is processed into butter and ghee, and, in a few countries, also into cheese (mozzarella). Whole buffalo milk has a much higher fat content than whole cow milk, from 70 to 85 grams per kg. So the nutrient content is much higher, moving between 970 and 1150 calories per kg.

Sheep milk, whole, fresh: (cf. 1.1.1). About 45% of the sheep milk production is processed into cheese, principally in European countries and some Middle East countries and China. Whole sheep milk has a much higher fat content than cow milk, from 60 to 75 grams per kg of milk. Protein content too is higher. Nutrient content moving between 940 and 1050 calories per kg.

Goat milk, whole, fresh: (cf. 1.1.1). Less than 25% of the goat milk produced is processed into cheese in European and Near East countries. Whole goat milk has a little more fat content than cow milk, about 42 grams per kg. Consequently, nutrient content moves between 650 and 750 calories per kg.

Camel milk, whole, fresh: Camel milk has a fat content similar to that of goat milk; so the nutrient content is also similar: about 720 calories per kg.

1.1.3 The FAO concept relates to net milk production as defined above, and, as regards milking animals, to all the animals which have contributed to produce that milk.

1.1.4 **Milking animals:** Milking animals are those which in the course of the reference period have been milked. This concept is in relation to one applied for production of milk which excludes the milk sucked by the young animals. If, for example, the whole

Milk	0401.20_a	Cow milk, whole, fresh	0401.20	Milk, whole, fresh
Milk	0401.20_c	Sheep milk, whole, fresh	0401.20	Milk, whole, fresh
Milk	0401.20_b	Goat milk, whole, fresh	0401.20	Milk, whole, fresh
Milk	0401.20_d	Buffalo milk, whole, fresh	0401.20	Milk, whole, fresh
Milk	0401.20_e	Camel milk, whole, fresh	0401.20	Milk, whole, fresh

milk of a cow is sucked by the calf, this cow is not considered to be a "milking animal".

1.1.5 Data on production delivered to dairies are easily obtained from the dairy plants.

Estimates for the balance of the production may be obtained from various sources, such as *ad hoc* surveys or subjective estimates.

Group	Code	Name	Code SUA	Name SUA
-------	------	------	----------	----------

1.2 Recommendations

1.2.1 In view of the differences identified above, it is recommended that countries report the number of milking animals along with milk production, and also that countries at least ensure that the concept of milking animals adopted is in line with the estimated average milk yield per animal.

Countries are encouraged to refine their concept of milking animals to gradually approach to the concept of animals actually milked during the year, keeping, when possible,

separate records for dairy females bred especially for milk production and for other females milked.

1.2.2 Countries reporting on a different basis should indicate the concept behind their figures.

2. Layers and Egg Production. Statistics of Hatcheries

2.1 Concepts, definitions and coverage

Eggs: This category covers eggs of poultry or other birds, including eggs for hatching. Production data are reported in terms of both egg number and weight, in the shell.

Hen eggs, with shell: Hen eggs are on the top of the list of food stuffs ranked by their biological value, i.e. attending to the content of amino acids of high quality, including essential ones. Eggs contain, in about the same measure, protein and fat. Sugar content, irrelevant, water content about 74%. Caloric content of hen eggs in the shell is about 1425 calories per kg. Eggs are rich in minerals and vitamins.

Other bird eggs, with shell: Eggs included here are mainly those of duck and geese. Caloric content of these eggs is somewhat higher than that of hen eggs, because they have higher fat content and lower water content.

2.1.1 The definition of layers is not yet uniform among countries. Under this term, some countries recognize all females in laying age, whether laying or not, while in other countries

the term is much more limited, covering only those females of egg-type breeds which have laid eggs during the year.

Laying animals: Data refer to the number of animals which in any moment of the year have laid eggs.

2.1.2 Female layers are classified by breed according to dominant production characteristics. There are egg-type females, as well as meat-type and mixed-type. They may also be classified according to the agricultural sector in which they are bred: the traditional sector (widely scattered and individually-owned small flocks in farms and backyards), and the modern sector (large scale, semi-intensive and intensive commercial poultry farms).

2.1.3 On the other hand, egg production is generally reported by countries as total or gross production, i.e., production from all types of females and from females kept in all agricultural sectors. Few countries report net production, i.e., gross production minus eggs used for hatching. Certain countries report data for both categories.

2.1.4 Several countries also report figures for commercial production, i.e., the part of the net production which enters into commercial channels. Data on commercial production are easily obtained from the modern sector where most, if not practically all, of the commercial production is produced. Data on the traditional sector are rather weak in certain countries as they are based on assumptions of the number of females and/or rates of egg laying, or are rough estimates based on food consumption surveys and similar indirect sources.

2.1.5 The FAO concept of egg production: Egg production refers to the total production of eggs in the shell, and covers also eggs intended to be used for hatching but excludes waste on farms. Production data should be reported both in thousands and weight.

Group	Code	Name	Code SUA	Name SUA
Eggs	0407.00a	Hen eggs, with shell	0407.00	Bird eggs (incl. hen eggs)
Eggs	0407.00b	Other bird eggs, with shell	0407.00	Bird eggs (incl. hen eggs)

2.2 Recommendations

2.2.1 In line with the FAO concept, it is recommended that countries report at least annually on layer numbers and egg production. Layers of all types and from all sectors which have laid eggs during the year should be included.

Whenever possible, a distinction should be made between layers of the traditional sector and those of the semi-intensive and intensive sectors.

2.2.2 It is recommended that all countries report, at least annually, both total production of eggs, excluding only waste on farms, as defined by FAO, and production available for consumption, i.e., total production excluding hatching eggs and all types of waste. Countries reporting on different basis should indicate how their data differ from the recommended coverage.

2.2.3 It is further recommended that in reporting production data, countries should use both numbers and weight, or, at least, provide a conversion factor from one unit of measurement to the other.

In addition to annual figures, countries should release also monthly or quarterly data, at least for commercial production.

It is suggested that countries report production figures separately for the traditional sector and for the modern sector, particularly when the data of the traditional sector have a certain importance and are much less reliable than those of the modern sector.

2.2.4 In all cases, it is recommended that separate data be collected and released by countries according to various kinds of domestic birds: hens, ducks, goose, turkeys, etc.

2.3 Statistics of Hatcheries

Considerable changes have taken place in the poultry sector (eggs and meat) during the last two decades in most countries, resulting in the rapid growth of a modern and specialized sector alongside the traditional sector.

An important role in the development of the poultry sector is played by commercial hatcheries. In fact, several countries collect and publish monthly data on various hatcheries' operations, e.g. number of eggs placed, chicks hatched and chick placements.

It is recommended, therefore, that all countries collect data (monthly, if possible) on the number of eggs placed in incubators, chicks hatched and chicks placed, separately for chickens, ducks, geese, turkeys and guinea fowl. Figures for chickens should be divided into, at least, two categories: eggs/chicks for the laying stock and eggs/chicks for the meat stock.

3. Honey and Beeswax

Honey: Natural honey is the sweet, viscid fluid, collected from the nectar of flowers and transformed into food by certain insects, especially the honey-bee. Flavour and colour of honey depend largely on the plants from which the nectar is gathered.

Group	Code	Name	Code SUA	Name SUA
Honey	0409.00	Natural honey	0409.00	Natural honey

Beehives: Beehive is an artificial habitation for bees: *Apis mellifica*, *dorsata*, *floreana*, *indica*.

Group	Code	Name	Code SUA	Name SUA
Live animals	0106.90_a	Beehives		

Bees store honey in honeycombs prepared by them, consisting in hexagonal wax cells. Beeswax is obtained by melting honeycombs with boiling water (yellow wax). White wax is yellow wax bleached. Beeswax is used for candles, cosmetics and other non-food use.

In principle, honey and beeswax production data should cover production recorded from beekeepers operating commercially, as well as any other honey produced or collected.

4. Wool, greasy

Wool, greasy: Natural fibres grown by sheep and lambs. Greasy wool is wool not yet washed or otherwise cleaned, therefore containing impurities and impregnated with wool grease. Data include fleece-washed wool. Most production comes from shorn wool but also from pulled/slipe wool (from slaughtered animals). Wool degreased, scoured, clean is the same greasy wool which has been treated with solutions. The conversion factor from greasy wool to clean wool can be as low as 40% and as high as 80%. World average, nearly 60%. Wool is the most important fibre of animal origin. Today Australia and New Zealand produce nearly 40% of the world production of greasy wool.

It is recommended that wool production data should be collected and released by all countries, including both shearing wool and pulled wool i.e. that recovered from skins.

Wool production figures should be reported on both a greasy basis and a clean or scoured basis. When reported in one way only, appropriate conversion factors should be included.

Countries producing significant quantities of fine hair or wool, such as cashmere and mohair, should report relevant production figures separate from common wool figures.

Group	Code	Name	Code SUA	Name SUA
Fibres, animal origin	5101.1	Wool, greasy	5101.1	Wool, greasy

5. Silk-worm cocoons, suitable for reeling

Silky protective bag spun by salivary secretions of larva of silkworm. Data included here relates to silkworm cocoons suitable for reeling. Sericulture is a kind of animal husbandry: caterpillars feed on leaves of mulberry trees to produce cocoons which supply the valuable natural silk. This is a very old industry now concentrated in China, India and Vietnam.

In countries where sericulture is an important activity, data should be collected on the annual cocoon crop as well as on production of natural raw silk, including waste. The cocoons are those suitable for reeling.

Group	Code	Name	Code SUA	Name SUA
Fibres, animal origin	5001.00	Silk-worm cocoons, suitable for reeling	5001.00	Silk-worm cocoons, suitable for reeling