



Livestock statistics

Concepts, definitions and classifications

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.

Feeds of animal origin are also important, e.g. meat meal, bone meal, blood meal, tankage, etc. These are produced from slaughtered animals rejected at the sanitary inspection, from inedible offals, from residues of meat scraps and trimming after the fat has been extracted, from tannery by-products, from poultry by-products (particularly from those processed into ready-to-cook), from hatcheries by-products (infertile eggs and other refuse), from eggshells, etc.

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. All the items underlined have been recommended, while those items not underlined are suggested on an optional basis:
 - CATTLE, total
 - A. Calves and young stock under 1 year of age
 - B. Young stock, 1 year of age and under 2 years
 - C. Cattle, 2 years of age and over
 - a) Females
 - i) cows - mainly for milk production
 - ii) heifers (including in calf)
 - b) Males - mainly for meat production (including spent)
 - BUFFALOES, total
 - A. Buffaloes under 3 years of age
 - B. Buffaloes, 3 years of age and over Buffalo cows - mainly for milk production
 - SHEEP, total
 - A. Lambs under 1 year of age
 - B. Sheep, 1 year of age and over Females - intended for breeding - intended for slaughter
 - GOATS, total
 - A. Goats under 1 year of age
 - B. Goats, 1 year of age and over - Females

- PIGS, total
 - 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
 - A. Horses for agricultural production or use
 - B. Other horses
- MULES, total
- ASSES, total
- CHICKENS (domestic fowl), total
 - A. Chickens for breeding and egg production - Laying hens and pullets
 - B. Chickens for meat production (slaughter) - Broilers - Other (capons, etc.)
 - C. Other chickens (multi-purpose mixed stock) - Laying hens and pullets
- TURKEYS, total
- DUCKS, total
- GEESE, total
- GUINEA FOWL, total
- RABBITS, total
- BEEHIVES, total

It is suggested that countries collect data on births and natural losses of various livestock categories, as well as further sub-divisions, according to age and/or utilization. These data are important indicators of productivity of the livestock herd and are used for the construction of herd balances and herd models.

In the poultry sector, considerable changes have taken place over the last twenty years in many countries, particularly with regard to the growth of a modern specialized and intensive sector alongside the traditional sector. It is, therefore, desirable to collect and publish, whenever possible, poultry data for the modern sector separate from the traditional sector. For the modern sector, several countries conduct monthly enumerations to collect data on poultry numbers, as well as on closely related items, such as number of eggs put in incubators, chicks hatched and chicks placed, all separately for laying hens and for broiler production.

It is recommended that countries collect and publish this information which is usually available from commercial hatcheries.

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 practiced, 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 practiced in some other countries.

III. ELEMENTS APPLICABLE TO ALL OR MAIN SPECIES OF LIVESTOCK

- Total numbers. Animals enumerated in a given day, or in few consecutive days of the year.
- Females in reproductive age. This includes females of 3 years of age and over for horses and buffaloes; 2 years of age and over for cattle; one year of age and over for sheep and goats; and six months of age and over for pigs.
- Females actually reproducing during the year. The number of females which have had offspring during the year. In the case of species which can have more than one offspring during the year, the breeding female has to be included for each litter.
- Birth rate. The number of animals born alive as a percentage of number of females actually reproducing.
- Number born. The number of animals born alive during the year.
- Natural deaths. The number of animals which died during the year because of any natural event.

- Number of animals slaughtered. Includes all animals slaughtered during the year, of both indigenous and foreign origin, within the national boundaries.
- Take off rate. The percentage of all animals of the species which are taken from the national herd during the year, for slaughter in the country or in other countries.

IV. LIVESTOCK PRODUCTS FROM SLAUGHTERED ANIMALS.

1. Primary products. Those products, coming directly from the slaughtered animals, including meat, offals, raw fats, fresh hides and skins.

2. Processed products. These are derived from the processing of primary products and include sausages, lard and salted hides.

V. 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 used for food". In the statistical language, meat is intended to be with bone-in, unless otherwise stated, and to exclude meat unfit for human consumption. From the term "meat" are to be excluded edible offals and slaughtered fats.

1.2 Concept of production. 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.

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