

ANNEX 5: Animals and Animal products

In general, the calculation of the values of animals is the quantity multiplied by average prices. For cattle, pigs and other animals the calculation of the value is:

Slaughtering + export + use at farm - the dead animals

Quantities of animals used for unit value calculation = slaughtering registered multiplied by average weight on groups of animals.

Values of animals = total weight on groups of animals multiplied by average prices plus bonus minus deductions.

The quantities of slaughtered animals are converting into the slaughtered weight for several different categories of animals and the unit prices at farm gate are added.

The use at the holdings is estimated.

The export and import of living animals is included in the calculation of the value, where it is significant.

The cost of deductions of dead animals is only included in the value if it is of significance.

Trade between the holdings with breeding animals is not included in the value.

In general, the calculation of the values of animal output is the quantity multiplied by average prices used.

The prices for animal and animal products are the prices at farm gate, for fur the auction price.

All values for items 2.16 to 2.23 are final at the time for EAA-delivery to Eurostat, apart from data on fur and game. At the time for the first AII, monthly information on quantities and prices is available for 9-10 months of the year.

The data quality is very good under these items.

The change in value of livestock (changes in stock) and the investment in livestock are calculated every quarter for cattle and pigs and once a year for the other categories (horses, sheep and furred animal). Under item 6.1.1 a more detailed description of the calculations is given.

Current prices are used. The prices are the slaughtered price for all livestock, except the heifer in calf, cows, sows to farrow for first time and furred animal.

These prices are coming from The Danish Bacon and Meat Council (pigs), The Danish Livestock, Meat Board (cattle, sheep and horses) and the Danish Fur Breeders Association cooperative (furred animal). The numbers of animals are coming from the cattle survey, pig survey, the farm structure survey and the furred survey.

2.16 Cattle

This item covers all kinds of cattle (calves, young cattle, heifers, cows and bullocks).

The value of cattle consists of the total number of cattle slaughtered in Denmark, both at slaughterhouses and at holdings, and the number of exported live cattle for slaughtering and breeding. Trade between the holdings with breeding cattle is not included in the value.

The price is at farm gate.

The number of slaughtering at slaughterhouses is registered by the Danish Veterinary and Food Administration (DVFA), which is part of the Ministry of Food, Agriculture and Fisheries.

The number of cattle slaughtering at producer holdings is estimated.

The number of imported and exported live animals is registered in the foreign trade by Statistics Denmark, and this information is supplemented with information from the agricultural fund of levy on slaughtered and exported animals (agricultural tax fund on production).

The Association of The Danish Livestock and Meat Board (DMA) cover 95 per cent of all slaughtering of cattle. DMA records/calculates for these the grouping of animals, weights, prices, bonuses and deductions of cattle for slaughtering.

The registration in groups, weights and values for all cattle slaughtered is undertaken by Statistics Denmark.

The quantities of cattle used for value calculation is the number of registered slaughtered cattle and the exported live animals multiplied by average weight on the groups of cattle (7 groups).

The value of the cattle is for each group, the total weight multiplied by average price for the group.

For cattle production there have been some premiums stated. By the new CAP from 2005, some premiums/subsidies have been terminated (nurse cow subsidy, slaughter subsidy and national allotment). The special premium for male cattle is the only one that still exists. The Premiums stated are Premiums paid corresponding to the production in the respective year, based on pay out information from The Danish Plant Directorate, which is part of the Ministry of Food, Agriculture and Fisheries. The data is adjusted to the production time, following the accrual principle.

Finally, the value of cattle is minus the costs for deductions, where an average value is used.

The change in value of livestock (changes in stock) and the investment in livestock are calculated by 4 yearly censuses, current prices for slaughter and breeding animals are used.

The data quality is very high. The value for cattle is final at the time for EAA-delivery to Eurostat. At the time for the first AII, monthly information on quantities and prices is available for 9-10 months of the year.

2.17 Pigs

This item covers all kinds of pigs.

The value of pigs consists of the total number of pigs slaughtered in Denmark, both at slaughterhouses and at holdings, and the number of exported live pigs for slaughtering and breeding.

Trade between the holdings with breeding pigs is not included in the value.

The price is farm gate.

The Veterinary and Food Administration registers total slaughtering at slaughterhouses. The number of pigs slaughter at producers is estimated.

The number of imported and exported live pigs is registered in the foreign trade by Statistics Denmark, and this information is supplemented with information from the agricultural fund of levy on slaughtered and exported animals (agricultural tax fund on production).

The Association of The Danish Pork Branch covers 96 per cent of all slaughtering of pigs. For these, the grouping of pigs, weights and prices plus bonus minus deductions is calculated.

The registration in groups, weights and values for all pigs slaughtered is undertaken by Statistics Denmark.

The quantities of pigs used for value calculation is the number of registered slaughtered pigs and the exported live animals multiplied by average weight on the groups of pigs (9 groups). The value of the pigs is for each group, the total weight multiplied by average price for the group.

The change in value of livestock (changes in stock) and the investment in livestock are calculated by means of 4 surveys per year, current prices for slaughtered and breeding animals are used.

The data quality is very good under these items.

2.18 Poultry

The item covers all kinds of poultry (chickens, hens, ducks, geese and turkeys).

The value of poultry consists of the total number of poultry slaughtered in Denmark, both at slaughterhouses and at holdings, and the number of exported live poultry for slaughtering and breeding.

Trade between the holdings with poultry is not included in the value.

The price is farm gate.

The Veterinary and Food Administration registers total slaughtering at slaughterhouses and Danish Meat Association registers also the total slaughtering at slaughterhouses. The number of slaughtering at producers is estimated.

The number of imported and exported live poultry is registered in the foreign trade by Statistics Denmark, and this information is supplemented with information from the agricultural fund of levy on slaughtered and exported animals (agricultural tax fund on production).

The average prices are based on information from one poultry slaughterhouse which covers 50 per cent of all slaughtering. The average price is plus bonus minus deductions.

The registration in groups, weights and values for all poultry slaughtered is undertaken by Statistics Denmark

The numbers of import and export of day-old chickens are registered in groups, weights and values by Statistics Denmark.

The change in value of livestock (changes in stock) and the investment in livestock are calculated by means of 1 yearly census, current prices for slaughtered and breeding animals are used.

2.19 Sheep and goats

The item covers sheep (ewes and lambs), but not goats. The number of goats is significantly low in Denmark.

The Veterinary and Food Administration registers total slaughtering at slaughterhouses. The Danish Meat Association registers the slaughtering in groupings of animals and weights. The prices are from a quotation for lambs.

The numbers of imported and exported live animals are registered in the foreign trade by Statistics Denmark. The registration in groups, weights and values is undertaken by Statistics Denmark.

The change in value of livestock (changes in stock) and the investment in livestock are calculated once a year and current prices for slaughtered and breeding animals are used.

The premiums stated, are the premiums that have been paid out in the year concerned according to the pay out survey from The Directorate for Food and Agri Business. The data is adjusted to the production time, following the accrual principle.

2.20 Equines, other animals

The Veterinary and Food Administration registers total slaughtering at slaughterhouses. The value is calculated by a quotation for horses for slaughter.

The numbers of imported and exported live animals are registered in the foreign trade by Statistics Denmark. The registration in groups, weights and values is undertaken by Statistics Denmark.

At end of a period minus the beginning of a period gives the number of changes in animals. The number is multiplied with the average weight per live animal and with the average price for slaughtered kg.

The change in value of livestock (changes in stock) and the investment in livestock are calculated once a year and current prices for slaughtered animals are used.

2.21 Milk

In Denmark, the Danish Dairy Board registers the total milk delivered to dairies, and this information is passed on to Statistics Denmark. The use at producers is estimated. The total milk production is the sum of milk delivered to dairies and the milk used at producers.

The value is calculated by an average price, covering all milk in Denmark. The average price is calculated by the Danish Dairy Board regulated for fat and protein content, deducted for costs.

Potential tax goes beyond the milk quota is calculated according to statement from The Danish Dairy Board.

A specific “milk premium” in 2004, which was introduced as a step towards the Single Farm Payment regime, is recorded as a subsidy under this item.

The data quality is very good under this item.

2.22 Eggs

The Danish Veterinary and Food Administration registers the total weigh of eggs delivered to the egg packing stations in Denmark. The eggs delivered are spilt up into different kinds of production forms (eggs from battery hens, eggs from free-range hens, barn eggs and organic eggs). Statistics Denmark receives this information.

The use and sale at producers is estimated.

The total production is the eggs delivered to the egg packing stations and the estimated use and sale at producers.

The value is calculated by prices, which is based on information from the Danish Poultry Council, which covers 30 per cent of all eggs, calculated on all production forms of eggs by the Danish Poultry Council.

2.23 Other animal products

The item other animal products consist of fur, game, rabbit, wool, honey, renting of bees and export of eggs for hatching.

The value comes mostly from fur (about 4 billion DKK.) Nearly all furs are sold by the Danish Fur Breeders Association cooperative. They report information about quantities (number and categories of furs sold) and sales values (average price for fur and prices for different categories of furs) at auctions.

The value of changes in livestock for fur is calculated by means of 1 yearly census, and the prices used are sales prices at auctions. The number of animals is from the yearly Fur surveys.

The data quality is very good under this item.

6.1.1 Gross fixed capital formation (GFCF) in animals

The change in value of livestock (changes in stock) and the investment in livestock are calculated every quarter for cattle and pigs and once a year for the other categories (horses, sheep and furred animals). The calculation of GFCF for livestock was revised in 2008 and the estimation for cattle and pigs were change back to 1995.

Current prices are used. The prices are the slaughtered price for all livestock, except the heifer in calf, cows, sows to farrow for the first time and furred animals.

These prices are coming from The Danish Bacon and Meat Council (pigs), The Danish Livestock, Meat Board (cattle, sheep and horses) and the Danish Fur Breeders Association cooperative (furred animals).

The numbers of animals are coming from the cattle survey, the pig survey, the farm structure survey and the furred survey.

The values for imported and exported animals are coming from the external trade.

The calculation in Denmark of GFCF in livestock is compiled for the following categories:

- **Cattle (all animals over 2 years):**
 - Bulls and bullocks over 2 years
 - Heifers over 2 years
 - Cows
- **Pigs (all breeding animals):**
 - Boars for service
 - Sows to farrow for the first time
 - Other sows to farrow
 - Sows with litters
 - Barren sows
- **Horses**
- **Sheep**
- **Furred animals (which is other animals)**

The calculation of the investment in horses and sheep is the same as the calculation of changes in the value of stocks. This is the number of animals at the end of a period - minus the number of animal at the start of period (change in the population) multiplied with an average weight (kg) and a price per unit (kg).

The calculation of the investment in cattle and pigs is estimated as:

The number of cows/sows leaving the population multiplied by a price per unit + the number of “new” cows/sows entering the population multiplied by a price per unit
= Investment in breeding stock

Cows/sows leaving the population are:

- Animals for slaughter. The unit price is the slaughtered price
- Dead animals. The unit price is zero or the price the farmer has to pay for destruction
- Animals for export. The value of the exported animals is used.

Cows/sows entering the population are:

- New breeding animals (coming from heifers/gilts). The unit price for heifers is the price for a prima Holstein heifer with calf. The unit price for gilts is the price for a SPF (Specific Pathogens Free) gilt mate for the first time.
- Imported cows/sows. The value of the imported animals is used.

Example of calculation of investment in cattle:

Table 1 shows an example of the calculation of investment in cattle for the first quarter 2007. The total investment in cattle for the year 2007 is a sum of the four quarters. (The same metode is used in 2016).

The population of cattle is coming from the quarterly cattle survey.

Table 1: First quarter 2007 Cattle (current prices)

Categories	Population		Change	Average weight (1) kg/head	Change tons	Price (2) DKK/unit	Value mill DKK	Investment
	31-12-2006	31-03-2007						
Bulls and bullocks more than 2 years	10	9	-1	275	-275	19,45	-5.3	-5.3
Heifers more than 2 years	81	78	-3			7 988	-24.8	-24.8
Cows (see table 2)	654	648	-6			5 828	-35.0	187.8
Investment in cattle								158.5

(1) It is the slaughtered weight and before 2007 it was the live weight.

(2) The price is for bulls and bullocks more than 2 years the prices for kg slaughtered weight; for heifers more than 2 years the price for a prima Holstein heifer with calf; for cows a total value is used, see explanation below.

Bulls and bullocks more than 2 years

The number of bulls and bullocks more than 2 years is from the cattle survey.

Any clear prices for bulls for breeding cannot be found and therefore the price for slaughtered bulls is used. The slaughtered price is the average price for prima bulls. The average slaughtered weight is 275 kilos. The investment is the changes in the number of bulls multiplied by 275 kilos and multiplied by the slaughtered price. In the example, the value is minus 5.3 million DKK.

Before 2007 the price used per bull was the price per live weight, but because of changes in the quotation the prices for slaughtered weight is now used.

Heifers more than 2 years

The number of heifers more than 2 years is from the cattle survey.

In Denmark, almost every female animal at this age is a breeder. Therefore, the investment is the changes in the number of heifers multiplied by the price of a heifer, which is the price for a prima Holstein heifer with calf. In the example, the value is (3,000 heads multiply by 7988 DKK) minus 24.8 million DKK.

Cows

To calculate the investment in cows (dairy cows and cows kept for suckling), the cycle for the cow population is used, see figure 1 and table 2. The output of the cow population is slaughtered, dead and exported cows. The input to the cow population is new cows (heifers,

which got calves, and imported cows). But, for the last years the import of cows is not of significance and therefore the value is 0. In the calculation, attention is also paid to the change in stocks during the period.

Figure 1: The cycle for the cow population (dairy cows and cows kept for suckling)

	The total number of cows 1/1- 2007		The total number of cows 1/4- 2007	
Cows, which stay in the population		→		
<u>Output from the cow population:</u>				<u>Input to the cow population:</u>
- slaughtered				- "new cows" (heifers)
- dead				- import
- export				

**Table 2: First quarter 2007
Investment in cows (current prices)**

Cows	First quarter 2007	
	Number (1) 1000 heads	Value mill DKK
Destruction/dead	3	
Slaughtered + export	55	
Output	58	223.9
Change (Import)	-6 0	
"New cows"	52	411.7
Investment cows		187.8
Gross change	109	635.6
"Cow price"	5 828	DKK

(1) Figures are rounded off

The calculation (see table 2) of the investment in cows is the difference between the value of slaughtered, dead and exported cows (output) and the value of "new cows" and imported cows (input).

The value for the output is 223.9 million DKK in the example, which is an income.

The number of imported cows is 0 and therefore the value is 0.

The number of "new cows" is calculated as the number of slaughtered, dead and exported cows +/- the change in the population of cows. The changes of stock of cows in the population are the number of cows at the last period (1/4-2007) minus the number of cows at the first period (1/1-2007). In the example, it is 6,000 cows.

Therefore, the number of "new cows" is (58,000 – 6,000 heads) 52,000 heads. The unit price for "new cows" is the average price for a prima Holstein heifer with calf.

So the value of the “new cows” is 411.7 million DKK, which is an expense.

In the example, the investment in cows is $(411.7 - 223.9)$ 187.8 million DKK.

Cow price

An estimated “cow price” is used, see table 2 for an example.

First, the number and value of cows leaving the population is summed up; this is the number and value of slaughtered, exported and dead cows. Second, the number and value of “new cows” is estimated. This is “new cows” coming to the population, which is estimated as the number of leaving cows +/- the changes in the stock of cows. The changes in the stock of cows are coming from the surveys of cattle, where the number of cows at the beginning of the period and at the end of the period was used.

To calculate the value of “new cows” the price of the “new cows” is the price of a prima Holstein heifer with calf.

The gross flows are estimated as “output” + “new cows”. In the example, this results in 109,000 heads of cows and a value of 635.6 million DDK $(223.9 + 411.7)$ million DKK).

A “cow price” is now calculated as $635.6/109$, which is 5,828 DKK. This price is used in the estimation of the calculation of the stock of cows.

The gross flows of value can be seen as the total decrease in the population and the necessary supply to the population. Therefore, the price of the decrease in cows is set to the average slaughtered price for cows and the price for the supply of cows is set to the average price for heifers. This gives an approximate price which is the average of the average slaughtered price and the price for heifers.

Pigs

The population of pigs is coming from the quarterly pig survey. The value is calculated for all groups of animals which appear in the breeding. The prices used are average quotations for sows, boars and breeders. The total investment in pigs for the year 2007 is a sum of the four quarters.

Table 3: First quarter 2007 Pigs (current prices)

Categories	1-01-2007	Population	Change	Average	Change	Price	Value
		1-04-2007		weight			
		1,000 heads		kg/head	tons	DKK/unit	mill DKK
Boars for service	17	16	-1			1 860	-1.9
Gilts	215	218	3			2 332	7.0
Other gestating sows	655	672	17			2 432	41.3
Sows with litters	234	247	13			1 924	25.0
Dry/barren sows	42	46	4			1 924	7.7
Sows and boars taken out for slaughter	9	10	1	160	160	6,48	1.0
Total change			37				80.2

**Table 4: First quarter 2007
Investment in pigs (current prices)**

Pigs	First quarter 2007	
	Number 1,000 heads	Value mill DKK
Destruction/dead	42,6	-2
Slaughtered	107,3	131,6
Export	37,8	50,1
Output	187,7	179,8
Change (Import)	37	80,2
"New pigs" Gilts	224,7	524,1
Investment		344,3

The calculation (see table 4) of the investment in pigs is the difference between the value of destroyed (dead), slaughtered and exported pigs (output) and the value of "new pigs" and imported pigs (input). In the example, the output is 187,700 pigs at a value of 179.800.000 DKK.

The number of "new pigs" is calculated as the number of slaughtered, dead and exported cows +/- the changes in the population of pigs. The changes in the stock of pigs in the population are the number of pigs at the last period (1/4-2007) minus the number of pigs at the first period (1/1-2007). See the example in table 3, where the change in stock is 37,000 pigs or a value of 80.200.000 DKK.

Therefore, the number of "new pigs" is 224,700 heads. The unit price for "new pigs" is the average price for a SPF (Specific Pathogene Free) gilt mate for the first time. In the example, the unit price is 2,332 DKK; and therefore the value of the "new pigs" is 524,100,000 DKK.

In the example, the investment in pigs is $(524,1 - 179,8)$ 344,3 million DKK.

Horses and sheep

The number of horses and sheep is coming from the yearly farm structure surveys. The changes are the population at the beginning of the year plus the animals coming and minus the animals leaving during the period. The value of the animal is calculated as the average sales value for slaughtered animals.

Furred animals

The investment in furred animals is estimated on the basis of the number of furred animals for breeding and the price of furred. The price of one furred animals for breeding is twice as much as the price of the furred. The estimation of the investment is calculated as the value of the breeding furred supply to the population minus the value of the breeding furred which leave the population. For live furred animals the prices for the furred and for new breeding furred are used (going into the breeding population) and the double price for the furred is used.

6.3 Changes in stocks

The animals serving as stocks are animals produced during the current or a previous period which are kept in order to be sold or used for other production purposes at a later date. These include animals reared for their meat such as animals for slaughter and poultry.

The changes in the stock of livestock are calculated every quarter for cattle and pigs. See item 6.1.1 for description of data and data sources.

The calculation of the change in the stock of livestock is the number of animal in each category of animal at the end of a period - minus the number of animal at the beginning of a period (change in the population) multiplied by an average weight (kg) and the average price per unit (kg) or head observed over the reference period.

Changes in stocks for cattle

Table 1 shows the calculation for cattle. For bulls and steers and heifers until 2 years the average weight and price for slaughtered animals are used. For heifers over 2 years the price is per unit and it is the price for a prima Holstein heifer with calf. For cows an estimated "cow price" is used, which is described below.

Table 1: Example: First quarter 2007 Cattle (current prices)

Categories	Population		Change	Average weight (1) kg/head	Change tons	Price (2) DKK/unit	Value mill DKK
	31-12-2006	31-03-2007					
Bulls- and steer-calves under ½ year	134	122	-12	50	-600	19,45	-11,7
Bulls- and steer-calves ½ - 1 year	113	105	-8	150	-1 200	19,45	-23.3
Bulls- and bullocks 1-2 years	34	39	5	250	1 250	19,45	24.3
Heifer-calves under ½ year	145	142	-3	45	-135	18,66	-2.5
Heifer-calves ½ - 1 year	144	143	-1	100	-100	18,66	-1.9
Heifers 1 -2 years	264	262	-2	200	-400	18,66	-7.5
Change in stock of cattle							<u>-22.6</u>

(1) It is the slaughtered weight and before 2007 it was the live weight.

(2) The prices of kg slaughtered weight.

Pigs

The population of pigs is coming from the quarterly pig surveys. The value is calculated for all categories of pigs which do not appear in the breeding. Prices used are average prices for weaners.

Table 3: First quarter 2007 Pigs (current prices)

Categories	Population			Average weight kg/head	Change tons	Price DKK/unit	Value mill DKK
	1-01-2007	1-04-2007 1,000 heads	Change				
Sows and boars taken out for slaughter	9	10	1	160	160	6,48	1.0
Pigs (> 50 kg) for breeding	268	254	-14			1 266	-17.7
Piglets	2 512	2 702	190				
Weaners < 50 kg	5 768	5 849	81			314	25,4
Weaners, 50 kg and over	3 893	3 584	-309	50	-15 450	8,10	-125.1
Change in stock for pigs exc. breeding animals (use in EAA)							-116.4

Poultry

For poultry an examination of the significance of the item (the value of the item) has been conducted and it is not significant, and therefore figures for poultry are not being produced.