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IFCN Beef Report 2002

Status and Prospects of
Typical Beef Farms World-Wide

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* For references on the Beef Report use: Deblitz et al. (2002): IFCN Beef Report 2002. IFCN/FAL, Braunschweig

** For references on special studies and country reports use for example: Ostrowski B (2002): Conventional vs. organic beef farming in Argentina. In: Deblitz et al. (2002): IFCN Beef Report 2002. IFCN/FAL, Braunschweig, p 70-71

Table of contents

How do we define the beef fattening enterprise?

The beef fattening enterprise (also called beef enterprise) starts

- when calves or feeder cattle are bought from outside the farm,
- when beef calves are transferred from the beef enterprise to the beef fattening enterprise,
- when cow-calf weaned calves are transferred to the beef fattening enterprise.

This means that beef fattening can include a backgrounding phase of fattening between weaning and finishing in a feedlot if the feedlot costs are allocated to the backgrounding activity (see also remarks on feedlot).

Which animal categories are compared?

When starting the exercise in 2001, it was necessary to define what type of animal should be compared. After some discussions with the partners, it was concluded to compare in the first year:

(a) Animals whose meat goes to export, could go there potentially or can substitute beef imports from other countries.

(b) Final products, i.e. finished fat animals that go to slaughter. Intermediate products like weaners and feeders are usually not traded on international scale.

(c) Heavy male animals (bulls or steers) as these categories can be compared better than male with female or even calves.

What is the product/output of the beef fattening enterprise?

The product or output of the beef fattening enterprise is defined as follows:

- Animals of different categories that are exclusively reared to go to slaughter: bulls, steers, heifers, calves, cows
- NOT: cull cows, cull heifers, cull bulls from beef or cow-calf enterprise

1 Some remarks on comparison of beef production

Feedlots in the US and Australia

All farms presented in this report produce the final product meat. As regards the US, the typical farm data are based on a Montana cow-calf ranch with an output of 500 weaner calves per year and a small-size Kansas feedlot of 5,000 head capacity. To present results for the final product, the calculation was done for the feedlot only. The data for the cow-calf farm are available but in this year's report it was not possible to include a detailed cost calculation for the weaner production. Thus, the 'intermediate product' weaner, coming from the cow-calf ranch, entered with its sale price into the calculation. The total costs of the feedlot are then allocated to the 225 male animals finished coming from the Montana cow-calf ranch. A similar situation was found in Australia with the difference that the typical farm does some backgrounding, i.e. part of the fattening period. As consequence, the finishing costs of the feedlot could be added to the backgrounding costs in terms of custom feeding.

How representative are the typical farms?

To achieve comparability and data availability on a world-wide scale, IFCN builds up its own data base for farm analysis. For further details on the general concept see Annex A.6: 20 questions and answers on IFCN.

It should be clear that a typical farm can not be representative for all farms in one country, in particular in big countries and/or at presence of a wide variation of natural conditions. As a consequence, the readers of the Beef Report should be aware of the following points:

- Typical farms stand for a defined size and production system on **regional** level.
- Over time, the number of typical farms will be increased to cover a higher share of farming systems and farm sizes in a country. For analysis on national level, there are no limits doing so. For international comparison, in agreement with the partners only a sub-sample of 2-3 typical farms per country will be taken into consideration to maintain readability.
- For simplicity reasons and better readability, reference is often made to a country and not to the typical farm(s) analysed.
- For definition of typical farms, farm statistics on structural data and data sets on economic performance of farms (like FADN-data in the EU) as well as expert assessments are used.

Number of beef cattle sold per year

'Beef cattle sold' comprises all animals from the beef fattening enterprise. Most of these animals are heavy male animals (bulls/steers) but in some cases other type of animals are also included:

- DE-190 sells 70 feeders and 120 bulls per year
- PL-234 sells 100 heifers and 134 bulls per year
- AR-2700 sells 650 heifers and 2,050 steers per year
- AU-1106 sells 184 heifers and 922 steers per year
- NA-124 sells 40 heifers and 84 steers per year

Stocking rate (livestock units per ha forage area)

The stocking rate levels vary with the degree of intensification of the production systems and can be ranked as follows:

- **High around 3 LU/ha** on the German and French farms with their intensive production system
- **Medium 1-2 LU/ha** in Hungary and Argentina
- **Low < 1 LU/ha** in the Czech Republic, Poland, Brazil, Uruguay and Australia
- **Extremely low 0.1 LU/ha** (or 10 ha per LU) in Namibia

The stocking rate of the US-feedlot is not mentioned here because land can not be considered as a production factor.

Land use in the beef enterprise

This chart shows the use of the land for production of home-grown feed. Purchased feed is not included. In most cases, however, the land use reflects the different types of production systems:

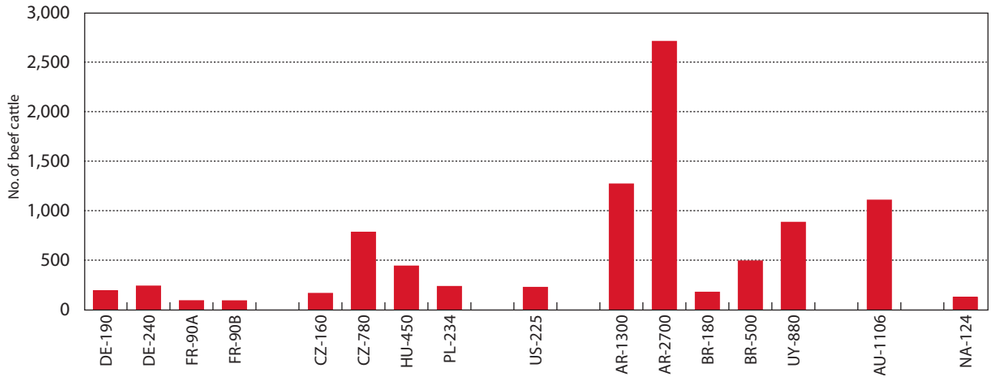
- Pasture based systems in Poland, South America, Australia and Namibia
- Pasture based with maize stubble, alfalfa and grass hay in AR-2700
- Grass silage in CZ-160 and Hungary
- Maize/silage/grain/soybean based systems in Germany, France and Hungary

For the US-feedlot no values are shown because it has no own feed production. All feed is purchased from outside the feedlot, consisting of corn, alfalfa, hay and supplements.

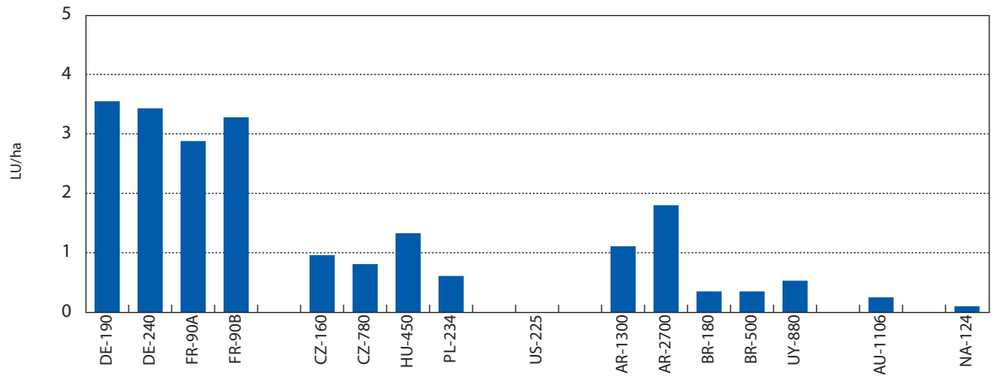
Explanation of variables

Stocking rates: *Livestock units (1 LU = 500 kg live weight) per ha forage area based on annual average livestock inventory.*
Land use in the beef enterprise: *The relative proportion of land use by the beef enterprise. The total amount of land used for feed production on the farm is 100%. Please note that purchased feed is not included.*

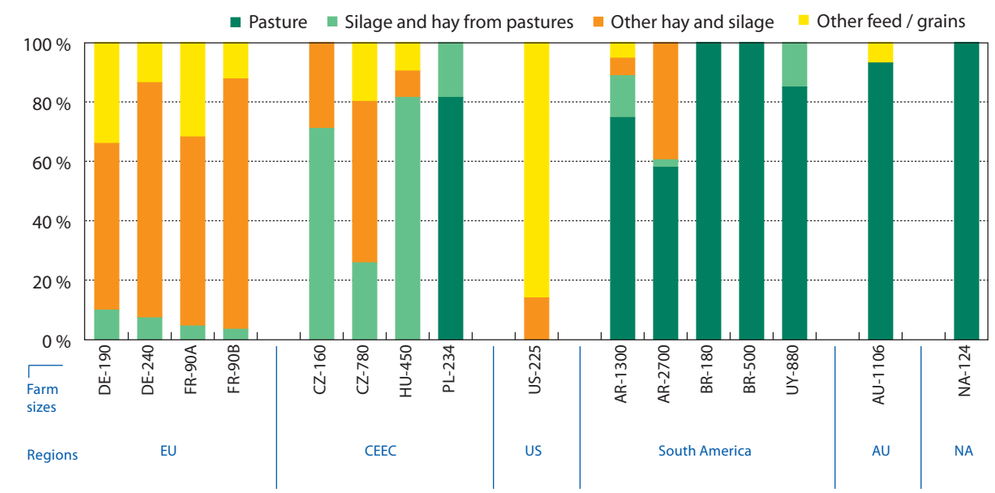
No. of beef cattle sold per year



Stocking rate (livestock units per ha forage area)



Land use in the beef enterprise (home-grown feed only, no purchased feed)



Ronald D. Knutson

Typical farms in the country

The typical farm data is based on a Montana cow-calf ranch with an output of 500 weaner calves per year and a small-size Kansas feedlot with 5,000 head capacity and 7,250 head annual production. Montana is one of the regions that supplies cattle for finishing to other states such as Kansas. In this year's report it was not possible to include a detailed cost calculation for the weaner production. Thus, the 'intermediate product' weaner is entered with its sale price into the calculation. The total cost of the feedlot was then allocated to the 225 animals coming from the cow-calf ranch.

Production systems

Approximately half of the weight of a finished animal is gained on a ranch prior to entering the feedlot, where it receives concentrate feed. The only main exception is cull cows and bulls. Cattle are put on feed at around 340 kg and are fed up to slaughter weight of about 545 kg. For practical purposes, all cattle slaughtered in the U.S. are fed in feedlots (other than cull animals and veal calves). A typical ration is composed of 83% maize, 14% alfalfa hay and 3% supplements and minerals.

The feedlot sector is made up of two main parts: farmer-feeders and large feedlots with different levels of productivity. Farmer-feeders generally feed small lots of cattle. The large commercial cattle feeding sector has grown in importance over time, accounting for more than 97% of the cattle fed.

Framework conditions and policy

The profitability of the US-beef industry is heavily influenced by the so-called cattle cycle (ups and downs in cattle inventories which last about 10 years). Currently the cattle cycle is in the liquidation phase. Recent profitable calf prices should foster expansion but drought has furthered liquidation. Cattle inventory has gone down substantially in the last 30 years but has been compensated for by higher beef production per cow. Beef production in the US has totalled about 12 million tons per year over the past few years.

The feedlot sector faced heavy financial losses in recent years due to fewer feeder cattle (thus high feeder prices), unrealistically high price expectations for finished cattle, lower fed cattle prices than expected due to export difficulties, large beef production and competing meat supplies (pork and poultry).

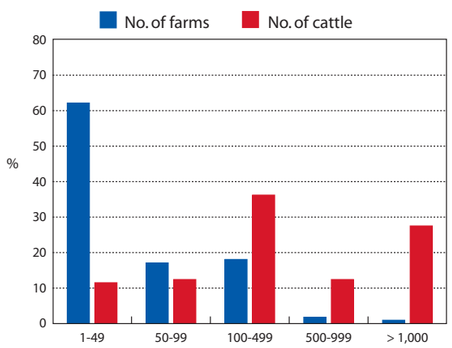
Beef is graded in several major categories including Prime, Choice, and Select. Prime beef is about 1 percent of beef production. The majority of production is made up by Choice (2/3) and Select (1/3) categories. Complete trace-back systems are not in place in the industry, although the industry is moving in that direction. Beef cattle ranching is fragmented with many small cow-calf producers. Contracts between ranchers and feedlots are limited in number. The number of contractual ties between feedlots and packers is rising, but much less than in pork and poultry. These facts make it more difficult to move to a traceable system.

Beef sector data 2001

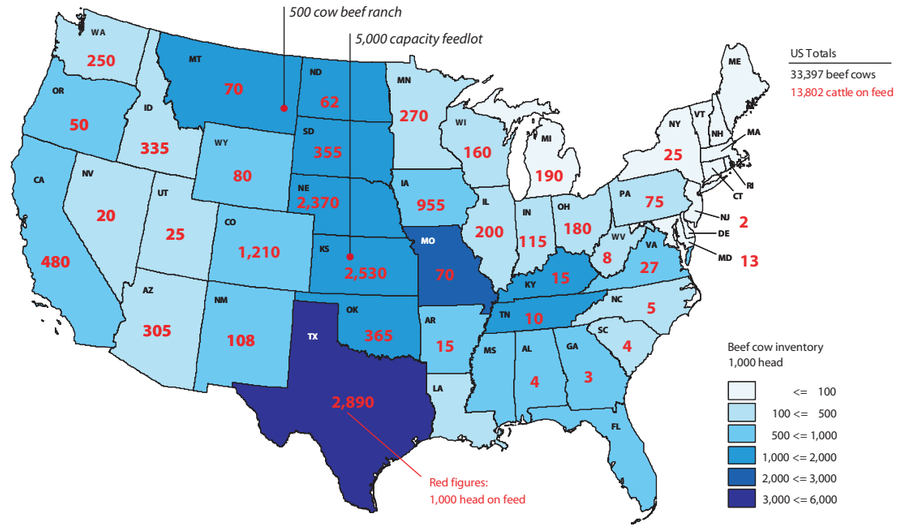
Number of farms (with cattle and calves)	1,050,910
Number of cattle and calves	96,704,000
Average number of animals per farm	92
Total annual beef meat production 1,000 t	11,980
Total beef exports (1,000 US$)	3,837,074
Total beef imports (1,000 US$)	2,637,649

Explanation: Cattle defined as all cattle and calves
Source: NASS Agricultural Statistics 2002; FAO Statistical databases

Farm structure 2001



Number of beef cows (2001) and cattle on feed (Jan 2002) in the US



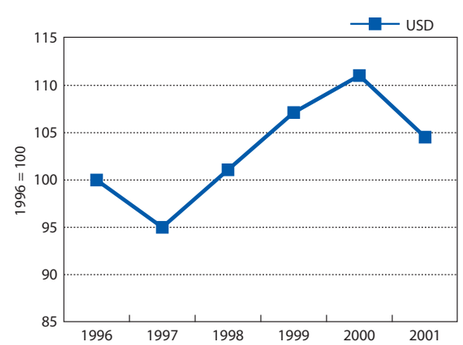
Source: NASS Agricultural Statistics 2002

Future prospects

Despite near-term difficulties it appears that beef production in the US will increase over the next decade. The underlying beef demand appears good. Exports are expected to expand with continued large imports. Production has increased due to structural and technological changes. The beef cow herd reduction is likely to continue but final finishing weights from feedlots are increasing.

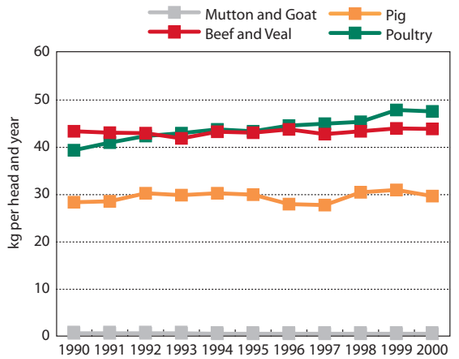
The cattle feeding industry is undergoing major structural changes at this time. Economies of size are moving production to much larger feedlots. Large feedlots produce cattle for much lower production costs. This change will probably continue in the future.

Beef price development 1996-2001



Explanation: Choice slaughter steer prices (per kg CW)
Source: NASS, Agricultural Statistics 2002

Meat use 1990-2000



Explanation: Meat use includes consumption, feed, industrial use, losses. Products are aggregated or standardized to their primary equivalent.
Source: FAO Statistical Databases

Claus Deblitz, Bernardo Ostrowski and IFCN partners

For the cost and income calculation of the typical farms, live weight related figures were converted into carcass weight related figures. The conversion factor used is the 'dressing percentage', sometimes also called 'carcass yield'. It is defined as follows:

Dressing percentage
= Carcass weight/live weight in percent

Calculation of dressing percentage

To make sure that this percentage is calculated in the same way in all countries under comparison, a short survey was conducted by all partners. The result is that with the exception of very few – and largely irrelevant – differences, the carcass weight is calculated as follows:

Live weight on the farm

- Transport losses farm to slaughter plant (0-7%)

= **Live weight at slaughter**

Animal slaughtered and bled
= **Warm weight after slaughter**
- Skin
- Head
- Legs
- Organs of thoracic and abdominal cavity
- Kidneys
- Kidney and pelvic fat
- Diaphragm and its pillar
- Tail
- Spinal cord
- Sexual organs and attached muscles
- Udder and mammary fat
- Throat vein and related fat
- Drainage loss (2%)

= **Carcass weight cold**

The right side shows a more detailed example for Argentina with percentages for each body part of the cattle. It should be noted that (a) percentage composition of the carcass may vary according to breed, final weight and status of the individual animal and (b) the grouping of carcass items follows the Argentinan standard and might vary in other countries.

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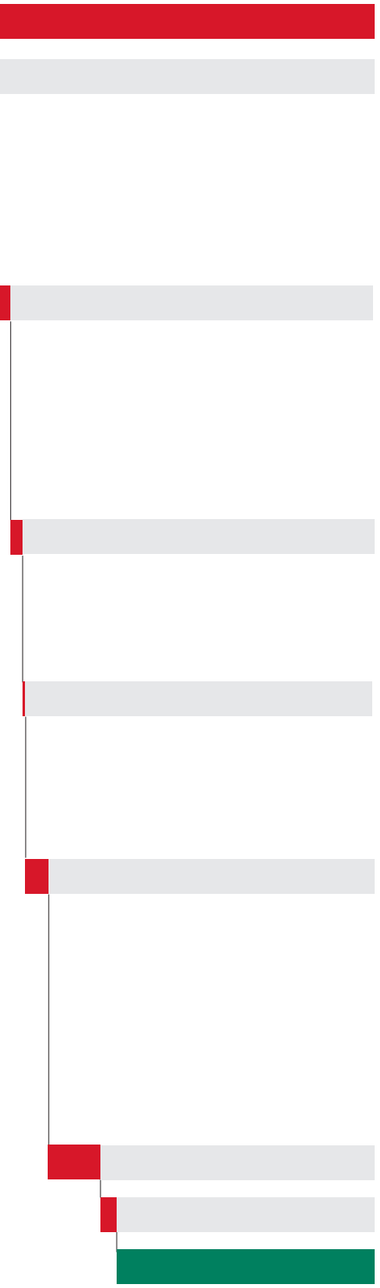
Brazil: Portaria nº 5, de 8 de novembro de 1988, da Secretaria de Inspeção de Produto Animal (SIPA), do Ministério da Agricultura
Brazil: Secretaria Nacional de Defesa Agropecuária. Secretaria de Inspeção de Produto Animal. Padronização de cortes de carne bovina. Brasília: MA/SNAD/SIPA, 1990. 98 p.
Polish Norm PN-91/A-82001/A2
Argentina: Junta Nacional de Carnes

Example Argentina: detailed calculation of dressing percentage

Live weight at slaughter				**100.00 %**
– By-products				**16.41 %**
Nerves	0.30		Blood	3.42
Skin	7.33		Bile	0.09
Tail hair	0.04		Fur	0.39
Ear hair	0.01		Head bone	1.48
Leg bones	1.12		Jaw bone	0.40
Horns	0.29		Industrial fat	1.36
Hoofs	0.18			
– Offals				**3.79 %**
Tongue without epithelium	0.37		Liver	1.16
Brain	0.09		Kidneys	0.20
Jaws	0.32		Tail	0.17
Lungs	0.49		Middle diaphragm	0.19
Heart	0.37		Medulla	0.03
Salivary glands	0.02		Small meats	0.36
Thymus	0.02			
– Viscera				**2.53 %**
Spleen	0.18		Small intestine	0.06
Forestomach	0.75		Large intestine	1.09
Omasum	0.18		Bladder	0.04
Abomasum	0.23			
– Organo-therapeutic use				**0.28 %**
Hypophysis	0.0020		Suprarenal	0.0200
Pineal	0.0002		Epithelium	0.0100
Hypothalamus	0.0006		Pancreas	0.1800
Parathyroids	0.0006		Prostate	0.0500
Thyroid	0.0166			
– Edible fat				**5.21 %**
Forestomach wastage	0.02		Large intestine fat	0.67
Head fat	0.32		Liver fat	0.04
Lung fat	0.17		Middle diaphragm fat	0.02
Thymus fat	0.03		Suprarenal fat	0.05
Neck fat	0.13		Heart fat	0.12
Forestomach fat	0.14		Omentum fat	0.89
Small meat fat	0.09		Kidney fat	1.31
Pancreas fat	0.03		Pelvic fat	0.31
Sternum (breastbone) fat	0.51		Castration (testicles)	0.36
– Dung				**11.04 %**
– Process loss				**3.51 %**
= Dressing percentage				**57.23 %**



Source: Junta Nacional de Carnes