



Beef and Sheep Network

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**A new dimension for
the analysis of the
beef sector**

Working Paper 2011/1 – Part 2

Measuring competitiveness of beef production by comparative analysis: 'Our core competence'

Introduction

In the first part of this contribution, activities, methods and some network results, such as world beef production and trade, have been presented. In this part, we will finish the results, showing farm comparative analysis and some examples of special studies. Also, the future prospects of the network will be reviewed in the light of expansion to other meat sectors.

4.3 Comparative analysis

The core competence of the network is the comparative analysis. Every year numerous questionnaires are sent out to the *agri benchmark* partners all over the world in order to collect information from typical farms. *agri benchmark* operates an analysis unit doing intensive cross-checks of the information and data quality received as well as subsequent data analysis. The expansion, maintenance and permanent improvement of the database is a year-round activity, supported by intensive communication between all participants. The result is a unique, comparable database for the analysis of farm economics.

The annual comparative analysis is performed for both parts of the primary production chain: cow-calf farms and beef finishing farms.

Incomes, costs of production, as well as margins and profits in the short and long term are compared. Cash flow and capital analysis is also performed. The cost analysis covers total cost, including non-cash costs like depreciation and opportunity costs, thus enabling the comparison of family and commercial farms.

Most of the enterprise calculations are done on a per unit basis; mainly per 100 kg of live weight 'sold' for cow-calf systems and per 100 kg of beef (carcase weight) sold for beef finishing farms. The main reason for using these units is that, contrary to per head figures, they reflect different productivities between a wide range of production systems. Furthermore, it is usually beef and not (live) cattle that is traded internationally. A series of other technical and economic variables are calculated in order to have a detailed analysis of some other components that could determine efficiency and/or competitiveness. Examples are physical and economic labour productivity, beef price/animal purchase cost ratio and feed cost ratios.

As an example and based on the 2009 information, a comparison of cow-calf production is shown in Figure 1.

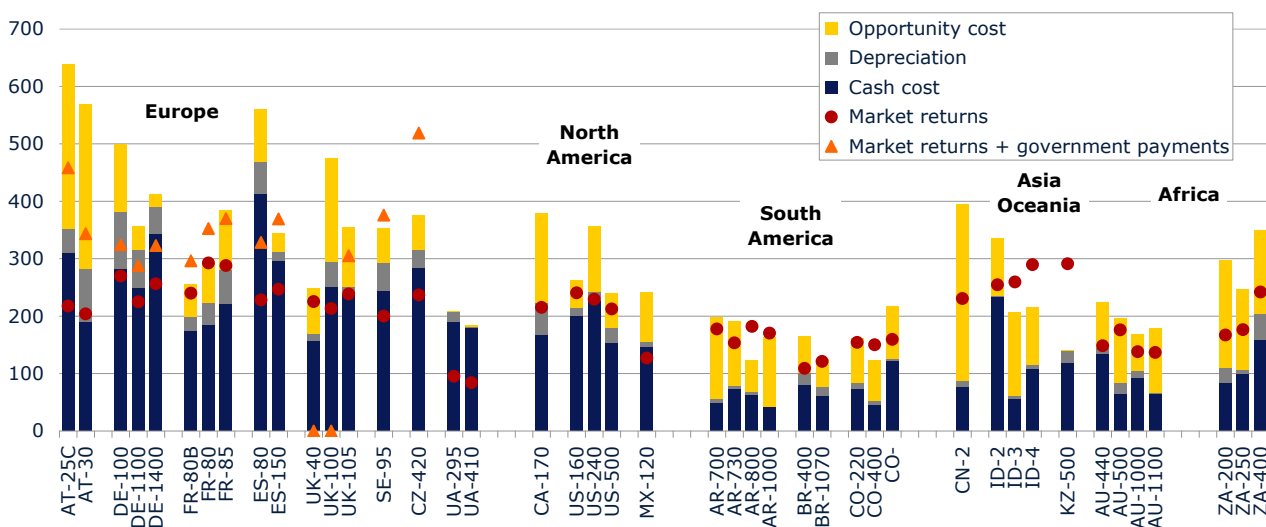
Cow-calf farms

The typical farms have been grouped by world regions. The farms' names stand for: 2 letters for country acronyms, followed by the number of cows. Figure 1 shows the returns and costs of typical farms in each country.

- The first difference which can easily be seen is the presence of direct payments in the structure of income for farms in the EU.
- Higher costs can be observed mainly in European and in some of the North American farms.

- Farms with low level costs can be observed (<USD 145 /100 kg LW) in South America (Argentina, Brazil, and Colombia), Australia and the Ukraine.
- Farms with high level of costs (>USD 350/100 kg LW) are exclusively from Europe.
- Opportunity costs are particularly important and consist mainly of labour and land costs.
- Long-term profitability (ie coverage of total costs) is rarely achieved and if it is, only with the help of direct payments. The only exceptions are some farms in Indonesia where beef shortages drive prices up.

Fig 1. Total costs and returns of typical cow-calf enterprises 2010
(USD per 100 kg liver weight)

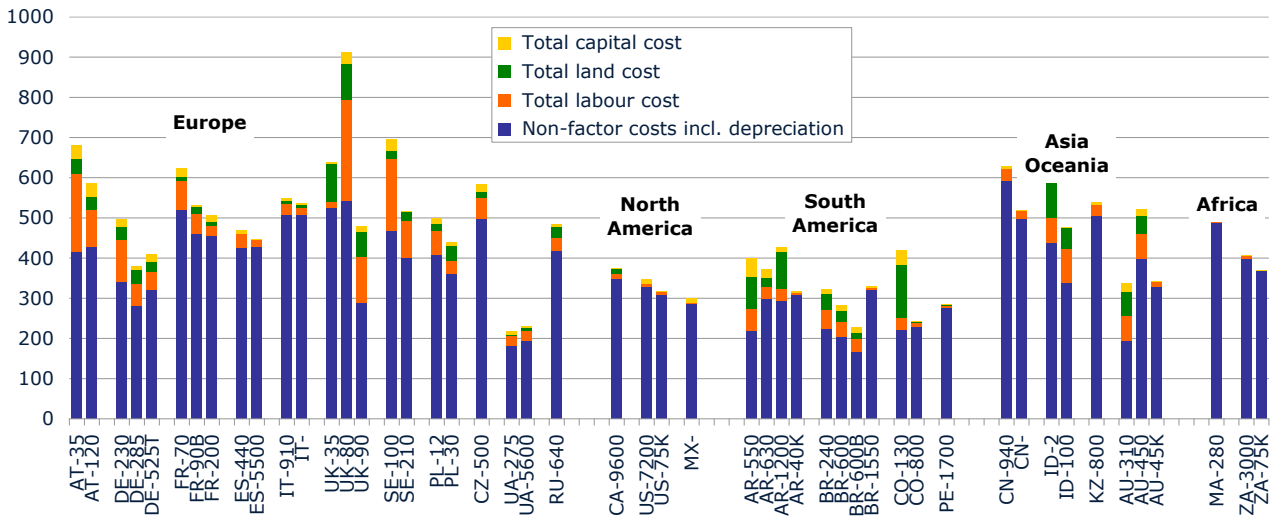


Beef finishing farms

The beef finishing comparison is presented for selected farms in Figure 2 by region and by production system in Figure 3, in order to have both views ('where' and 'how'). From the results, some findings can be highlighted:

- The EU farms show a high level of costs (USD 500-600 per 100 kg carcass weight), except the Ukrainian farms.
- In the North American feedlots, costs are between USD 250 and 300 /100 kg CW.
- Comparing Asia, Africa and Oceania, the Indonesian and Chinese farms show a higher cost structure (USD 450-500 /100 kg CW) compared with South African and Australian farms (USD 300-350 /100 kg CW).
- Lowest costs are found in South America and Ukraine (around and below USD 200 /100 kg CW).
- Time series analysis of identical farms shows that the cost difference between the EU on the one side and Argentina and Brazil on the other has narrowed in the last five years, due to exchange rate developments and rising land prices in South America.

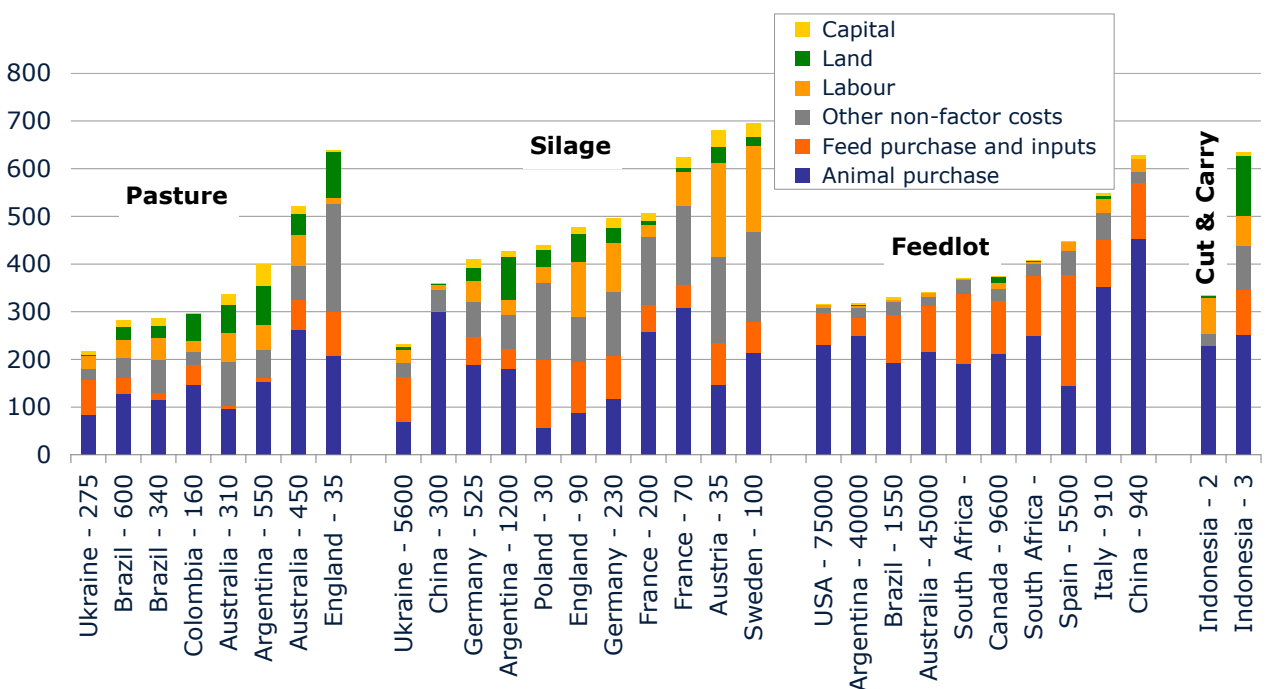
Fig 2. Total costs of beef finishing 2010
Selection of agri benchmark sample (USD per 100 kg carcass weight)



agri benchmark differentiates enterprises into four different production systems (pasture, silage, feedlot and cut and carry) according to the dry matter feed composition, the housing and management system and the extent of purchased feed.

Figure 3 shows a selection of farms arranged by production system and cost level. At first sight, it appears that pasture and feedlot systems have lower costs than silage systems. However, there are high and low cost producers in all systems. This suggests that the costs are driven by regional or national price levels and relationships of inputs and production factors rather than by production systems. The fact that all Argentinean farms with different production systems belong to the low cost producers support this view.

Fig 3. Total costs of beef finishing by production systems 2010
Selection of agri benchmark sample (USD per 100 kg carcass weight)



We therefore cannot conclude that a specific production system is superior to any other. It rather seems that certain production systems develop under certain price relations and market conditions (for example, a pasture system would not be found in locations with high land prices).

4.4 Special studies

agri benchmark develops a set of special studies every year with the aim of improving the understanding of the beef production at world level.

The majority of these studies are done using some tools developed by the network. Many of these tools are designed mainly for simulation. Policy scenarios and farms strategies can be introduced in the models designed; their impact at farm level can be simulated. Other tools, such as benchmarking analysis or ranking tools, are also used for these studies. Some examples of these studies are listed in the following table.

Type of analyses	Examples
Policy analysis	<i>"Analysis of the decoupled payments in the EU"</i>
Competitiveness analysis	<i>"Beef production by feedlots system: a comparative analysis at world level"</i> <i>"International competitiveness of organic beef production"</i> <i>"Benchmarking feedlots in the US and Australia"</i>
Farm strategies analysis	<i>"Adjustment strategies at farm level to trade liberalisation"</i>
Chain analysis	<i>"Benchmarking the beef supply chain in Eastern Indonesia"</i> <i>"The beef supply chain in the US: Status, development and perspectives"</i>
Methodological issues	<i>"Calculating national cost share structures based on agri benchmark typical farms"</i>

With the aim of having a short look in one of those studies, the feedlot comparison study will be briefly explained.

Feedlot comparative analysis

In some countries the final period of beef production is done in feedlot systems. The network has many of these farms as typical farms, representing an important proportion of world beef production. In North America, Australia, South Africa and in some other countries, finishing cattle in feedlots forms an integral part of beef production.

Typically, animals enter the feedlots as backgrounders, stay between 90 and 150 days on a high energy ration using grain, roughages (hay, silage) and supplements and are then sent to slaughter.

As Figure 4 indicates, total returns and total costs show a very similar pattern and are relatively similar in many cases. The Spanish feedlot stands out at the high end of costs and prices and the Argentinean feedlot on the low end. Most of the feedlots are

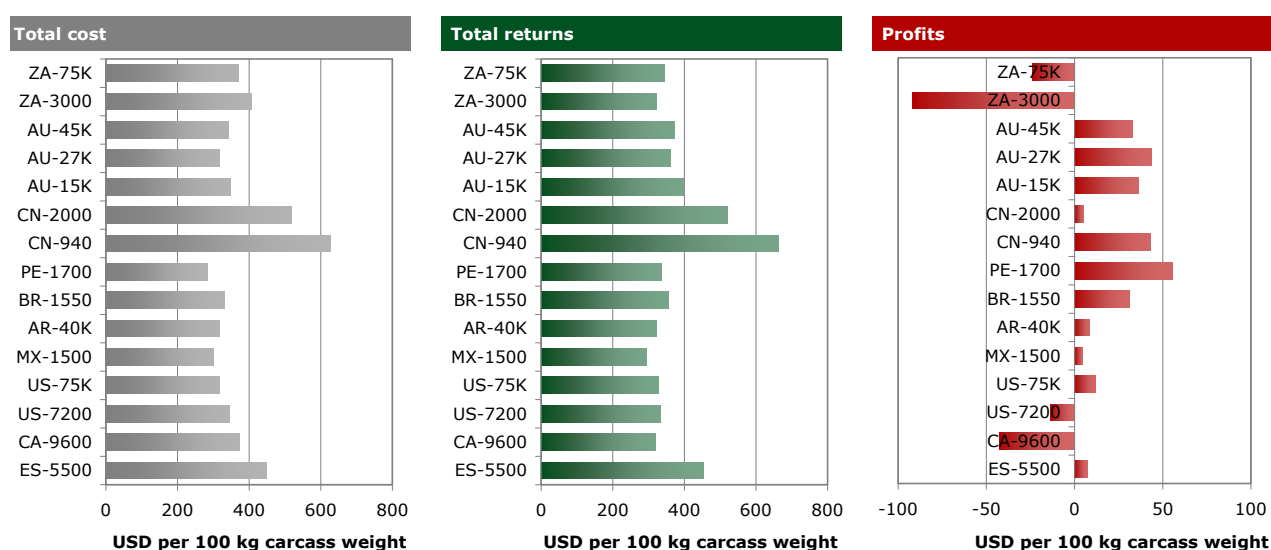
landless systems buying all of their feed but some have crop areas for producing some own-feed.

It should be mentioned that the Argentine feedlot receives a grain subsidy of USD 25 per 100 kg CW, which is equivalent to 15 percent of total costs and accounted for in the total returns.

Approximately 90 percent and more of their total costs consists of animal purchase and purchased feed costs, exposing them to the (increasing) variability of livestock and feed prices.

With rising crop prices, land becoming scarcer and grassland previously used for beef production turned into crops, feedlotting may become a standard, even in the traditional 'pasture countries' like Argentina and Brazil.

Fig 4. Feedlot costs, return and profitability in 2010
Selected countries and operations (USD per 100 kg carcass weight)



5 Future network perspectives

There are many perspectives and applications for *agri benchmark* on the horizon, some of which are listed below.

Environmental analysis: The network is running an analysis with regard to CO₂ emissions which is fully integrated to our database of typical farms and production systems. Greenhouse gas emissions from enteric fermentation, manure handling and storage and feed production are reflected, as well as carbon sequestration on grassland and offsetting mineral fertiliser by manure. Some results on this issue are being reviewed for its publication.

Indexing beef production costs, prices and margins: This activity was begun in 2011 and aims at updating cost of production on a quarterly and monthly basis, with the aim of having a more frequent analysis to better inform stakeholders. At present, the project is in a test phase.

Expansion to sheep analysis: First steps on lamb and sheep analysis were undertaken in 2008. In 2009, the first approach was taken to the international level. In 2010, five countries were involved in the sheep analysis: Spain, UK, France, South Africa and

Australia. In 2011, the extension of the analysis towards wool and sheep milk (in relevant countries) is on the programme. A separate paper on the results of the sheep analysis is published on the *agri benchmark* website.

Expansion to pig and poultry analysis was started in 2011. A conceptual approach, methods, tools, standard operating procedures and a standard product are being developed in order to have first outcomes by the end of 2011. We encourage agribusiness to join us in the further development of this activity.

Expansion to developing countries: Future growth in agricultural production can be expected, particularly in developing and transitional countries, which are often characterised by a high importance of smallholder farms. Quantity and quality of data and information on production systems and the economic situation of farms in these countries is usually rudimentary and not comparable. *agri benchmark* aims at improving this situation by implementing a monitoring system including smallholder farms as well as commercial farms, by providing capacity-building of local experts and linking them with the international network activities.

Value chain analysis: Farm level analysis is a crucial starting point for value chain analysis. Based on the outstanding global farm-level experience of *agri benchmark*, the analysis will be gradually extended into other areas of the value chain. First project experiences were made and a supply chain mapping for beef in participating countries is underway and will serve as a starting point in the 2011 season.

All these activities have one underlying philosophy: "We are passionate about facts" and we will stick to it whatever we do.