



Beef and Sheep Network

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

Working Paper 2011/1 – Part 1

A global network for the exchange of information, knowledge and expertise generating sustainable, comparable, quantifiable information about farming systems, their economics, their framework conditions and perspectives worldwide

1 Introduction

agri benchmark Beef and Sheep is a global network of farm economists, advisors and farmers, representing more than 24 countries and 71 percent of the world's beef production and trade (Figure 1). The main purpose of *agri benchmark* is to create a global platform for the beef sector analysis through the exchange of information, knowledge and expertise. To achieve this, the network generates sustainable, comparable and quantifiable information about farming systems, their economics, framework conditions and perspectives worldwide.

Many expert profiles are represented within the network. Farm producers and advisors, agribusiness companies, academic and scientific institutions, trade experts, processing industries, and policy and marketing organisations are just some of them.

agri benchmark has established a sustainable co-operation between the participating countries, providing capacity-building, developing robust methods and tools for a worldwide analysis of information and offering relevant sector information for its partners. "You put your country in and get the world back," stated one of *agri benchmark's* partners.

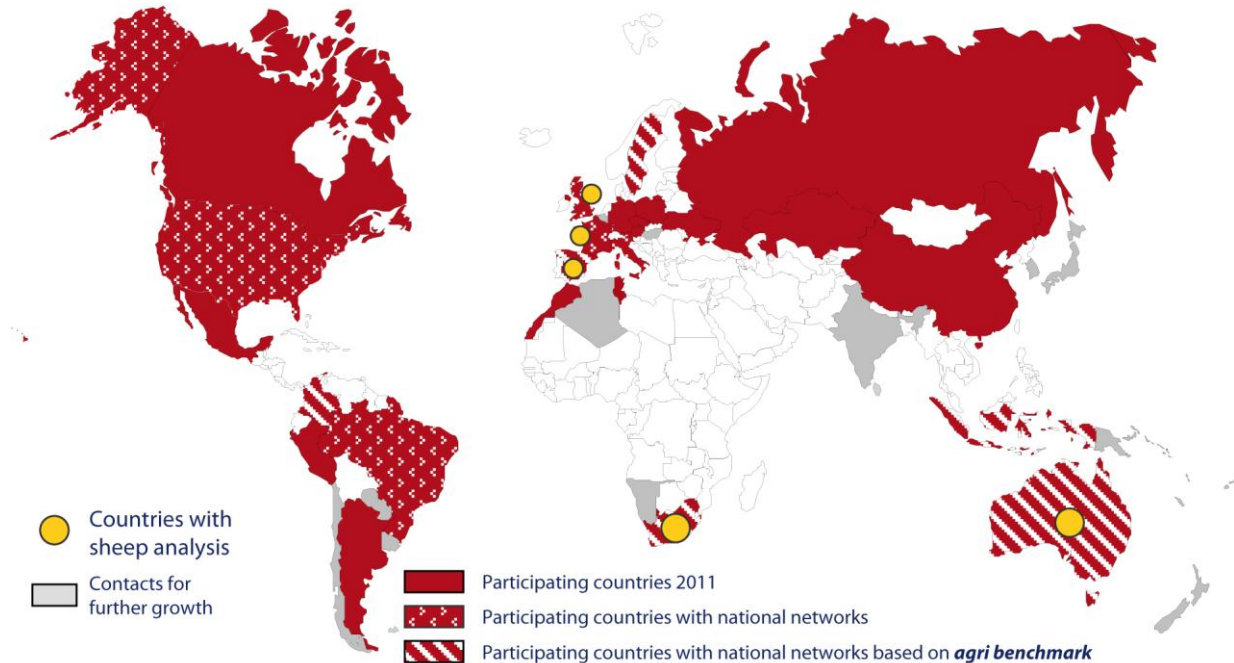
agri benchmark is a non-political and non-profit activity. Rules and values of the network are developed by mutual agreement. The co-ordination of the network is shared by the Institute of Farm Economics at Johann Heinrich von Thünen-Institut (vTI – Federal Agricultural Research) and the German Agricultural Society (DLG), both located in Germany.

2 Activities

- *agri benchmark* collects information on two levels from every country on an annual basis: farm and country sector.
- The analysis of the economic performance of typical farms, based on typical production systems in typical regions, is the core competence of the network. Sector information on trade, policy and market conditions is also collected and analysed.
- The information is gathered and managed by the co-ordination centre in order to produce farm-level result databases for beef and cow-calf farms. A beef and sheep sector analysis for each country, time series data for beef and livestock prices and world maps figures with aggregated information are also produced.
- Results are presented and discussed at the annual Beef and Sheep Conference which rotates between the member countries. Recently, it was held in Brazil, France and Australia. The 2011 conference will take place in Austria.
- This information is organised, packaged and presented in the Beef and Sheep Report, an annual publication containing the main findings of the sector, emphasising the comparative analysis of the competitiveness of the production of beef, among the participating countries.

- A set of special studies is also carried out by the network. Recently, the comparison of feedlot production systems at worldwide level and the analysis of the beef chain in Indonesia are some examples.

Fig 1. *agri benchmark Beef and Sheep Network Participating countries in 2011*



3 Methods

The information compiled by the network has to be standardised and fully harmonised in order to produce meaningful and comparable results; this is done throughout methodologies and standard operating procedures that are permanently challenged and improved by the *agri benchmark* partners and the public in general. Among the main methods and tools developed are:

- A standard questionnaire that is used to collect the data from each of the participating countries.
- Models and tools for production systems, costs, policy impact and farm strategy analysis.
- A typical farm approach for farm-level analysis. A Standard Operating Procedure (SOP) to define typical farms is in place to ensure comparability between countries.
- Farm-level result databases for beef and cow-calf with around 300 variables each.
- Harmonised methods of accounting and cost allocation from whole-farm level to enterprise level, as well as for cost analysis, are applied.
- Tools for further analysis of the resulting data base (benchmarking tool, time series tools) and for beef trade analysis and time series data for beef and livestock prices.

4 Results

agri benchmark is continually producing results which are analysed according to partners' needs and sector developments. These are delivered to the main sector stakeholders (members of the network); some of these results have free access to the public. The following provides some examples, organised in different levels:

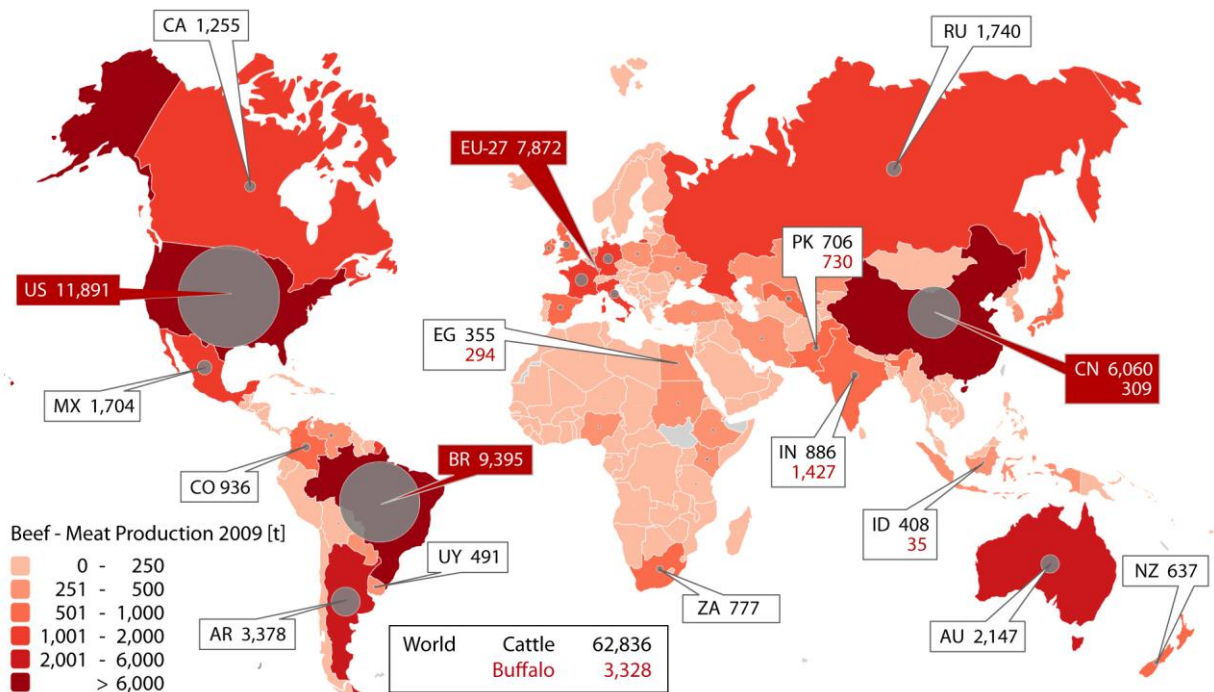
1. World beef production analysis
2. Beef trade analysis
3. Farm level comparative analysis
4. Special studies

4.1 World beef production analysis

The main outcome is the generation of aggregated and mapped information, showing mainly time series developments, spatial distributions and trade flows between countries. Some examples in relation to world beef production are shown below (figure 2).

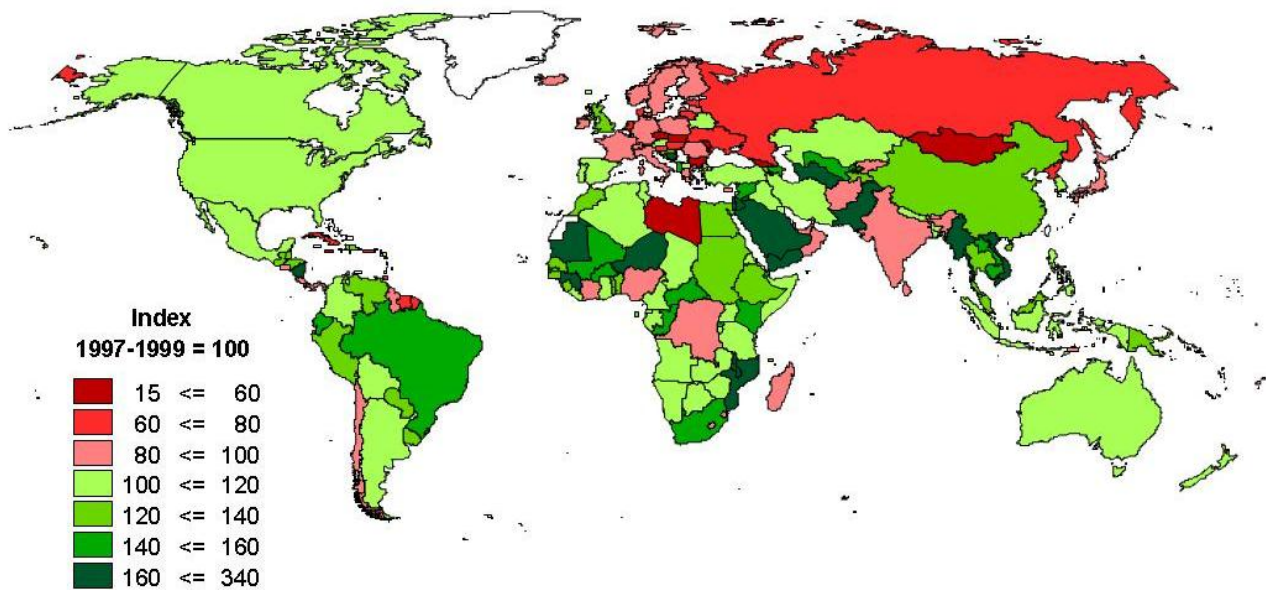
The U.S. remains the world's biggest beef producer, followed by Brazil, the EU-27, China, Argentina and Australia, producing together approximately two thirds of the world beef. All other countries are well below 2 millions tonnes of annual production. World buffalo production is clearly dominated by India, China, Pakistan and Egypt, producing together two-thirds of the world's total.

Fig 2. Global production of beef and buffalo meat 2009 ('000 tonnes carcass weight)



Source: FAOStat

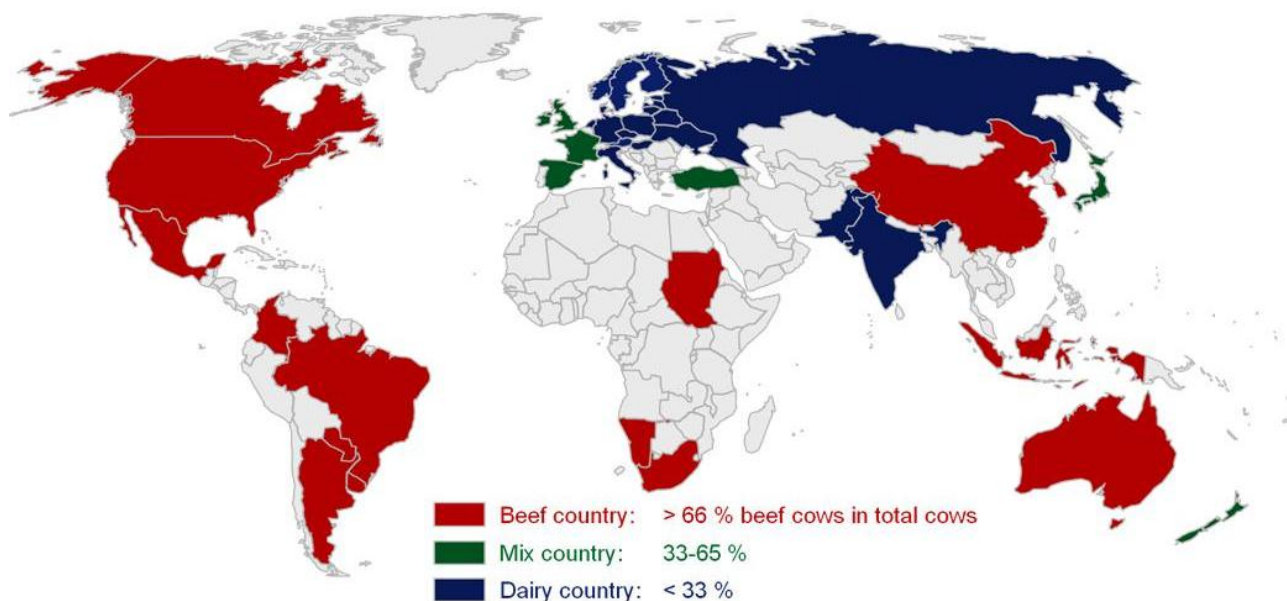
Fig 3. Change of beef production
 (Index of comparing the average of the years 2006-2008 vs 1997-1999)



Source: FAOStat

Looking at the evolution of beef production during the last few years, many changes have taken place (Figure 3). In the period considered, production in the US, the EU countries and the former Soviet Union have declined. Other countries such as Canada, Brazil, Saudi Arabia, China, India, Pakistan, Australia and New Zealand managed to increase beef production. Remarkable changes took place in some African countries but coming from a lower base.

Fig 4. Share of suckler cows in total cows



Source: National statistics

Other analysis can be made regarding the origin of the animals used for producing beef (Figure 4). In most of the big producing and exporting countries, beef originates from cow-calf (suckler-cow) systems. There are some mixed countries in the EU (such as Spain, France and United Kingdom) and New Zealand also belongs to this group. In other countries like Germany, Italy and the Baltic states, the majority of beef comes from dairy cows. This also applies to India and Pakistan but there, buffalo meat production is more prevalent.

There are several implications regarding the origin of animals, such as a limitation for producing premium quality beef and the interdependence with the dairy sector in terms of inventories and/or policies, which may have an impact on the performance and perspectives of the beef sector (e.g., the quota system in the EU countries).

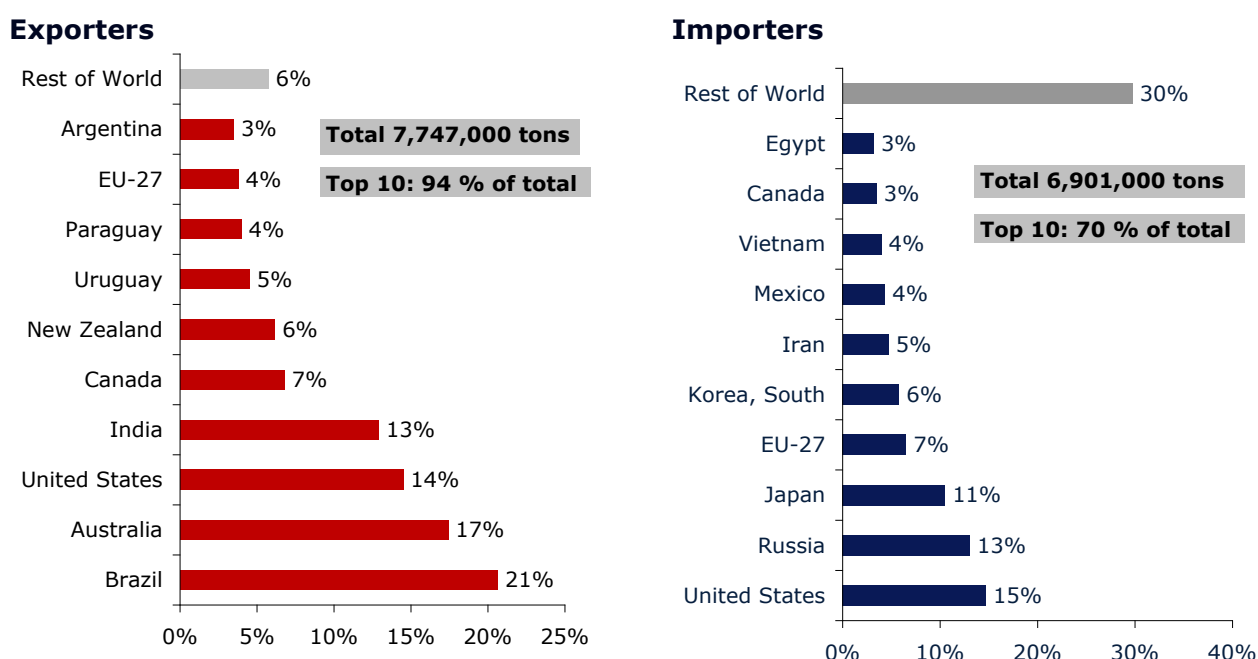
4.2 Beef trade analysis

Regarding beef trade, *agri benchmark* does special analysis of the main beef trade databases, mainly from UNComtrade. Time series analysis of beef exports and imports, bilateral trade flows by country and composition of exports and imports by type of meat are some examples of the analyses possible.

Like production, the development of the beef trade has changed in the recent years. Control of animal diseases, growth in demand, economic crisis, higher feed and oil prices, as well as environmental issues, have significantly impacted the production balance and therefore the profile of the importing and exporting countries. Nowadays, Brazil in South America, Russia in Europe, China and India in Asia, are playing a dominant role in the beef trade.

With regard to the top 10 beef traders, Figure 5 shows how Brazil and Australia have taken first and second places as exporters. This happened when the first BSE cases occurred in the US in 2003. Another important case is Argentina, losing places since the export restriction was imposed in 2006.

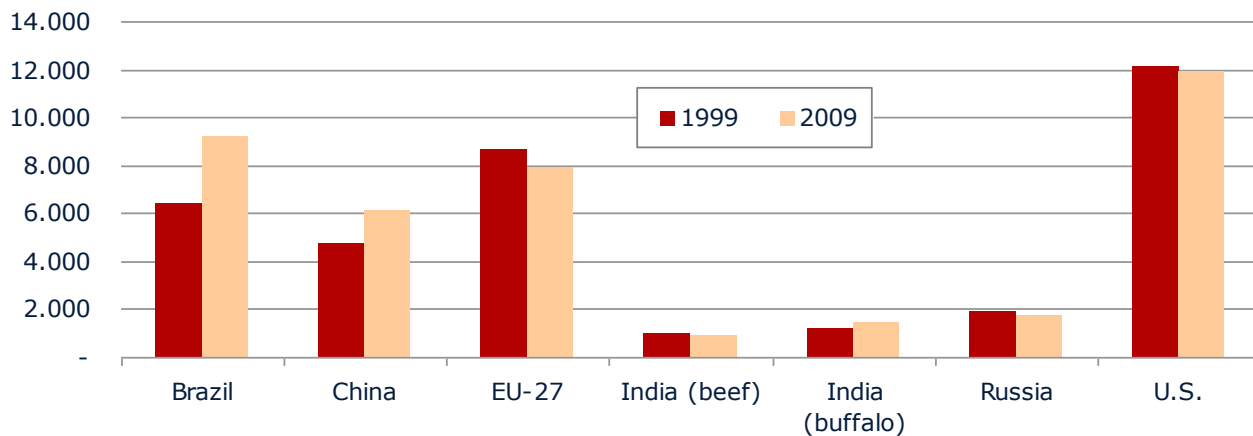
Fig 5. Top 10 beef exporters and importers 2010 (percentage of global trade)



Source: USDA FAS-PSD online, estimation

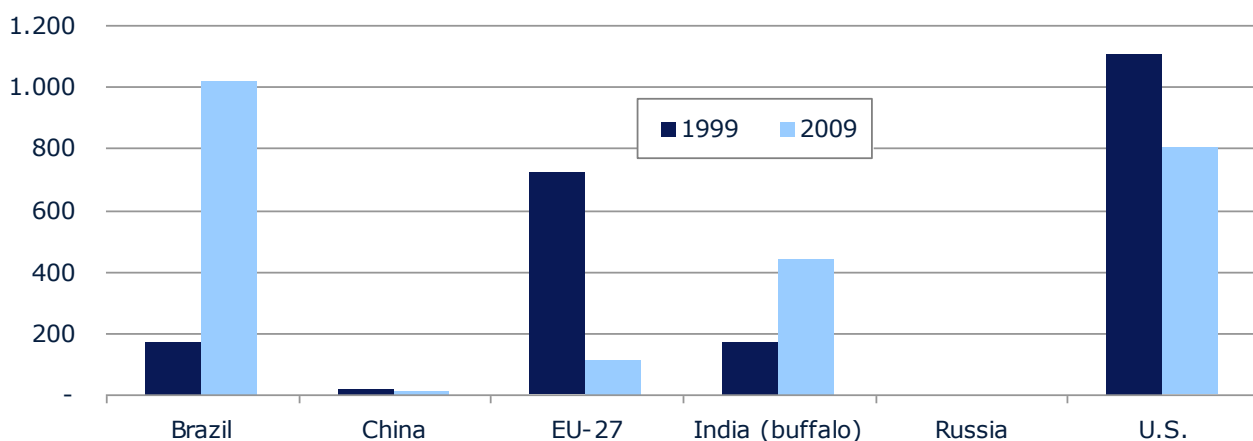
Fig 6. Changes of production and trade in major beef countries 2009 vs 1999 ('000 tonnes carcass weight)

Production



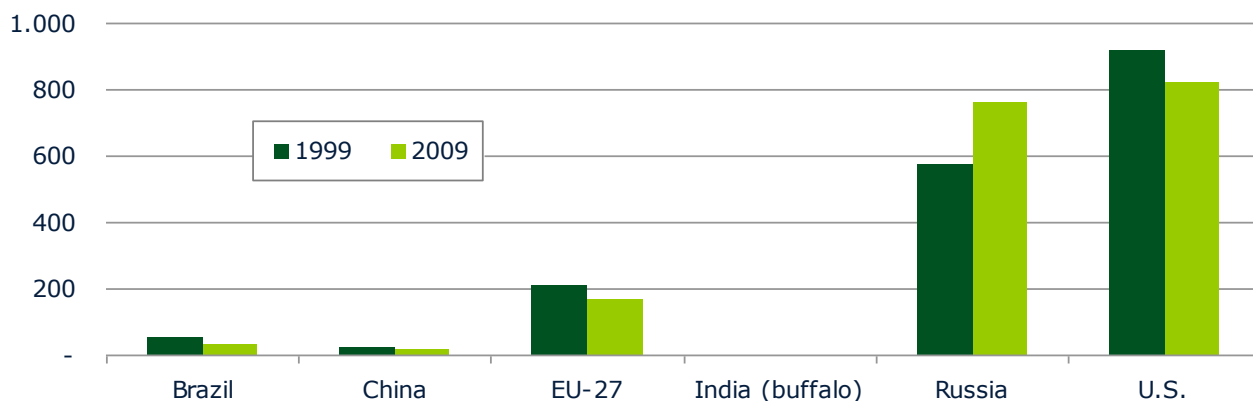
Source: FAOStat

Exports



Source: UNComtrade

Imports



Source: UNComtrade

India now appears as an important exporter, the product mainly consisting of buffalo meat. The top 10 share of total exports is close to 96 percent. The intra-EU trade is not reflected in this chart but it should be mentioned that it would represent one third of the world's trade if counted, demonstrating its enormous importance. In contrast, the extra-EU exports have diminished around 150,000 tonnes annually.

On the other hand, as importers, the US, Japan and Russia are leading the list. The US being the largest importer has not changed in the last few years. The US exports are mainly high quality beef cuts, whereas most imports are beef of lower quality. Russia's imports have grown significantly to around one million tonnes over the last few years.

With the top 10 importers having a 73 percent share in the total, imports are slightly less concentrated than exports.

When looking at both trade and production figures, only the US and Brazil have an important share of production and a major export share; on the other hand the EU still has a significant share in production but the extra-EU exports have decreased.

China has reached a "fragile" trade balance and seems to have become a net importer, driven by increases in beef consumption while production can't keep pace.

When comparing the evolution of production and trade (Figure 5) in the last 10 years (1999 vs 2009), important changes become evident for the "BRIC" countries, the US and the EU:

- Enormous production growth in some countries. Brazil and China have increased their production by 43 and 30 percent, respectively.
- Some countries have lost production capacity. EU-27 production went down by 8 percent; India, Russia and the US have decreased their production between 2 and 11 percent.
- Brazilian exports have grown at high annual rates, heading towards two million tonnes.
- The EU has significantly decreased its participation in the external EU market and the US has decreased around 27 percent.
- Regarding imports, Russia has experienced a significant growth of more than 30 percent.

The information presented here are some examples of the analyses performed by the network in terms of beef production and trade at world level.

In the second part of this contribution, farm comparative analysis and some special studies will be presented. For more information on the project and selected results, please visit the *agri benchmark* web page at www.agribenchmark.org.