4 Options and tools for further analysis

Introduction

This chapter is to highlight options and tools for additional analysis, results and tools provided to scientific partners, branch partners, and sponsors. Access to these items is via the member section of the website. Most of the tools are in Excel and/or Power Point format.

Result Data Base

The Result Data Base for beef finishing and cow-calf production systems is the core result of the farm comparison activity and provides the data basis for further analysis tools described hereafter. In the 2006 exercise, the Result Data Base comprises more than 350 variables for beef finishing and more than 320 variables for cow-calf for each farm.

Percentage and per head figures

The result charts of the *agri benchmark* standard analysis are mostly expressed on a weight basis (for example US$ per 100 kg beef sold). Percentage as well as per head figures help the user to crosscheck the data and to improve understanding of the results. They form part of the Result Data Base.

Benchmark tool

The benchmark tool is linked with the Result Data Base. It enables the user to select any set of variables from the Result Data Base and run a direct comparison of these variables between a user defined set of farms. There are different ways to select farms:

— One farm vs. one farm
— One farm vs. *n* farms (*n* comparisons)
— One farm vs. average of *n* farms
— Average of *n* farms vs. average of *n* farms

Ranking farms and correlate variables

The ranking tool is linked with the Result Data Base. It has two features:

— Select any variable from the data base, rank it in ascending order and show it in an instructive chart to get a quick overview about the relation between farms with respect to the variable selected.

— Select a second variable and confront it with the first variable in an X/Y diagram to get an idea about possible correlations between them.

Price time series

Price time series data start in 1996 and are updated annually. With an easy-to-handle tool, charts with price time series for the countries selected can be generated in both national currencies and in US$-terms.

Farm simulation reflecting risk

The model environment used within the *agri benchmark* allows the projection of farm data sets for a period of 10 years into the future. Analysis can be done in a deterministic mode as well as in a stochastic mode using the SIMETAR© Excel add-in developed at Texas A&M University. The stochastic mode allows the inclusion of production, weather and market risk in policy and farm strategy analysis.

Country pages

Country pages contain specific sector and time series information about the countries participating in *agri benchmark*. Usually, the country pages are updated every year with new topics for all participating countries and displayed on one page per country. Examples are time series production data, trade data as well as country maps highlighting beef and cow-calf related characteristics.

World, regional and country maps

Numerous maps are available to generate a worldwide overview of the beef sector in an easily accessible way. The maps are mainly related to production, trade as well as to policy and comprise status quo analysis, changes over time and projections into the future. Most of the maps are provided in animated Power Point slides to integrate into own presentations.

4.2 Result Data Base

Introduction

The Result Data Base for beef finishing and cow-calf production systems is the core result of the farm comparison activity and provides the data basis for further analysis tools described hereafter. In the 2006 exercise, the Result Data Base comprises more than 350 variables (beef finishing) and more than 320 variables (cow-calf), respectively.

Overview tables of typical farms

These parts of the Result Data Base were presented in Chapters 2 and 3 and provide a) a general **overview** of the typical farms and b) information and key data describing the **main indicators** of the production systems.

Structure of the Result Data Base

The Result Data Base has **seven parts**. Each set of variables is provided in absolute terms and in **percentage composition**, if reasonable. Breakdowns of costs and returns are **summarised** into subtotals or totals. The data base presently covers:

1. Economic situation on whole farm level
2. The beef and cow-calf production system, respectively
3. Prices and returns of the beef and cow-calf enterprise, respectively
4. Cost figures
5. Profitability figures
6. Additional variables
   (Price ratios and per head figures)
7. Break-even and sensitivity analysis on major prices and cost components

Figure 4.2.1 shows a **very small part** of the Result Data Base to provide an idea about the structure and the content for selected variables and farms.

Standard and individual charts

The vast majority of the result variables are displayed automatically in a list of **standard charts** to facilitate quick comparison. A selection of the standard charts is presented in Chapters 2 and 3 of this Report. Additionally, each variable can be chosen individually by the user and displayed in an **individual chart**, including the additional variables which are not included in the standard charts.

Language, exchange rates and reference units

The standard language is English, values are expressed in US$-terms. The following features are provided:

— Each recipient of the Result Data Base can translate the variable list into any other **language** and then choose between English and the new language. Charts are displayed in the language chosen.

— Any **exchange rate** to the US$ can be inserted by the user and charts are recalculated to the new exchange rate.

— Further, **reference units** for the results can be changed into per head figures (number of animals finished or number of suckler-cows).

Strengths and weaknesses

This summary table provides an overview of the main return, cost and productivity indicators of the farms analysed for selected farms and variables. Result data are classified to provide information about the **strengths and weaknesses** of the farms. Figure 4.2.2 shows the results for the standard variables and for a few **selected** farms.

Users can define **percentiles** of the distribution of the indicators in the sample, for example top 33 percent, mean 34-66 percent, bottom 33 percent. Figures in the top 33 percent are then shown in **green** colour, the mean figures in **yellow** and the bottom figures in **red**. With little extra effort, indicators as well as percentile can be changed.

4.2.1 Structure of the Result Data Base (**selected** farms and data)

Farm	AT-35	FR-70	IT-2760	US-7200	BR-240	CN-940
1. Economic situation on whole farm level						
Return structure - absolute values ('000 US$)						
Beef finishing	63	135	5.105	7.560	96	642
Cash crops						
Cow calf		110				
Other farm enterprises		2				
2. The beef production system						
No. beef cattle sold p.a.	**35**	**73**	**2.758**	**7.195**	**245**	**934**
Daily weight gain (g/day)	1.253	1.273	1.518	1.444	452	944
3. Prices and returns of the beef enterprise						
Beef price (US$ per 100 kg CW)	**441**	**409**	**427**	**302**	**148**	**244**
Calf and feeder prices per 100 kg LW						
Calf price	644					
Weaner price		350	309	250	80	
Backgrounder price						128
4. Cost figures (US$ per 100 kg CW)						
Total cost	**637**	**542**	**475**	**296**	**161**	**296**
Non-factor costs	355	452	445	288	112	271
Total labour cost	214	59	15	6	20	15
Total land cost	35	9	4		21	0
Total capital cost	33	23	11	1	9	10
5. Profitability figures (US$ per 100 kg CW)						
Cash and non-cash cost, returns and profitability - situation 2005 ff.						
Cash cost	311	420	464	294	104	286
Depreciation	50	42	6	2	13	5
Opportunity cost	276	80	5	0	43	5
Total returns	432	524	427	302	148	244
7. Break-even and sensitivity analysis (US$ per 100 kg CW)						
Short and mid-term profitability						
Short-term	121	104	-37	8	44	-41
Medium-term	71	62	-43	7	31	-47
Economic labour productivity	2,2	8,9	27,9	47,4	7,5	16,6

4.2.2 Summary table of strengths and weaknesses (**selected** farms and data)

Farm	Returns — Total	Returns — Market	Returns — Gov't payments	Cost — Total	Cost — Cash	Cost — Depreciation	Cost — Opportunity	Labour — Price	Labour — Productivity	Labour — Cost	Land — Price	Land — Productivity	Land — Cost	Capital — Price	Capital — Productivity	Capital — Cost
AT-25F	548	441	107	878	463	128	287	15	8	184	322	498	65	3%	62	45
DE-800	494	385	108	775	692	66	17	13	13	98	155	294	53	4%	114	39
FR-90A	464	385	79	531	416	54	60	12	23	52	187	1.504	12	4%	270	14
ES-780	486	374	112	454	415	17	23	11	54	22	87		0	7%	574	5
UK-50	362	351	11	843	548	28	267	19	12	162	427	251	145	5%	167	23
PL-12	267	267		395	305	23	67	1	2	51	47	241	12	3%	161	19
US-7200	302	302		296	294	2	0	11	172	6				6%	4.217	1
BR-600	145	145		148	111	8	29	4	25	16	26	177	15	6%	341	9
CN-300	191	191		152	149	1	2	0	2	6	27	726	4	4%	16.210	0

Colours: Bottom 33 %: **Red**   Medium 33-66 %: **Yellow**   Top 34 %: **Green**

4.3 Benchmark tool

Introduction

This tool is linked with the Result Data Base. It enables the user to select any set of variables from the Result Data Base and run a direct comparison of these variables between farms to be chosen by the user. Figure 4.3.1 shows an example and the sections below provide the explanation.

Selection of farms and farm averages

There are different ways to select farms which are then displayed on two different sides of the chart.

1. One farm vs. one farm
2. One farm vs. **n** farms (**n** comparisons)
3. One farm vs. average of **n** farms
4. Average of **n** farms vs. average of **n** farms

Values are expressed in relative terms

When comparing for example two farms, for each variable the result of the comparison is expressed in relative terms by setting the left hand side (LHS) to 1 and calculating a factor for the farm on the right hand side (RHS).

Example: Total returns for the farm on the LHS are US$ 100,000 and for the farm on the RHS US$ 120,000. The factor calculated for the RHS is then 1.2 which means that the returns of the RHS farm is 1.2 times higher then the returns on the LHS farm.

Number of comparisons

The selection of farms has an influence on the amount and detail of information.

1. Comparing **one farm** on the LHS with **one other farm** on the RHS, one gets one value (comparison factor) for each variable.
2. Comparing **one farm** on the LHS with **n farms** on the RHS, one gets **n** values for each variable, i.e. for each comparison of the LHS farm with each of the RHS farms, one gets one result value (factor). As it is not possible to display all single values an average is calculated and displayed as well as the minimum and maximum values of the comparison.
3. Comparing **one farm** on the LHS with an **average of n farms** on the RHS, one gets one value for each variable.
4. Comparing an **average of n farms** on the LHS with an **average of n farms** on the RHS, one gets one value for each variable.

Illustration of the results

There are two main issues to understand the result of the comparisons:

— Values appearing on the LHS mean that they are greater for the LHS than on the RHS. Values appearing on the RHS mean that they are greater than on the LHS (or the LHS values are smaller than the RHS values).

— Further, the average values calculated when comparing single farms or groups/averages of farms are displayed in **coloured bars**. Green colour means an advantage for the LHS farm(s), red colour means an advantage for RHS farm(s) (or a disadvantage for the LHS farm(s). The size of the bars reflect the average values of the factors calculated, i.e., the bigger the bars, the greater the average difference between the farm(s).
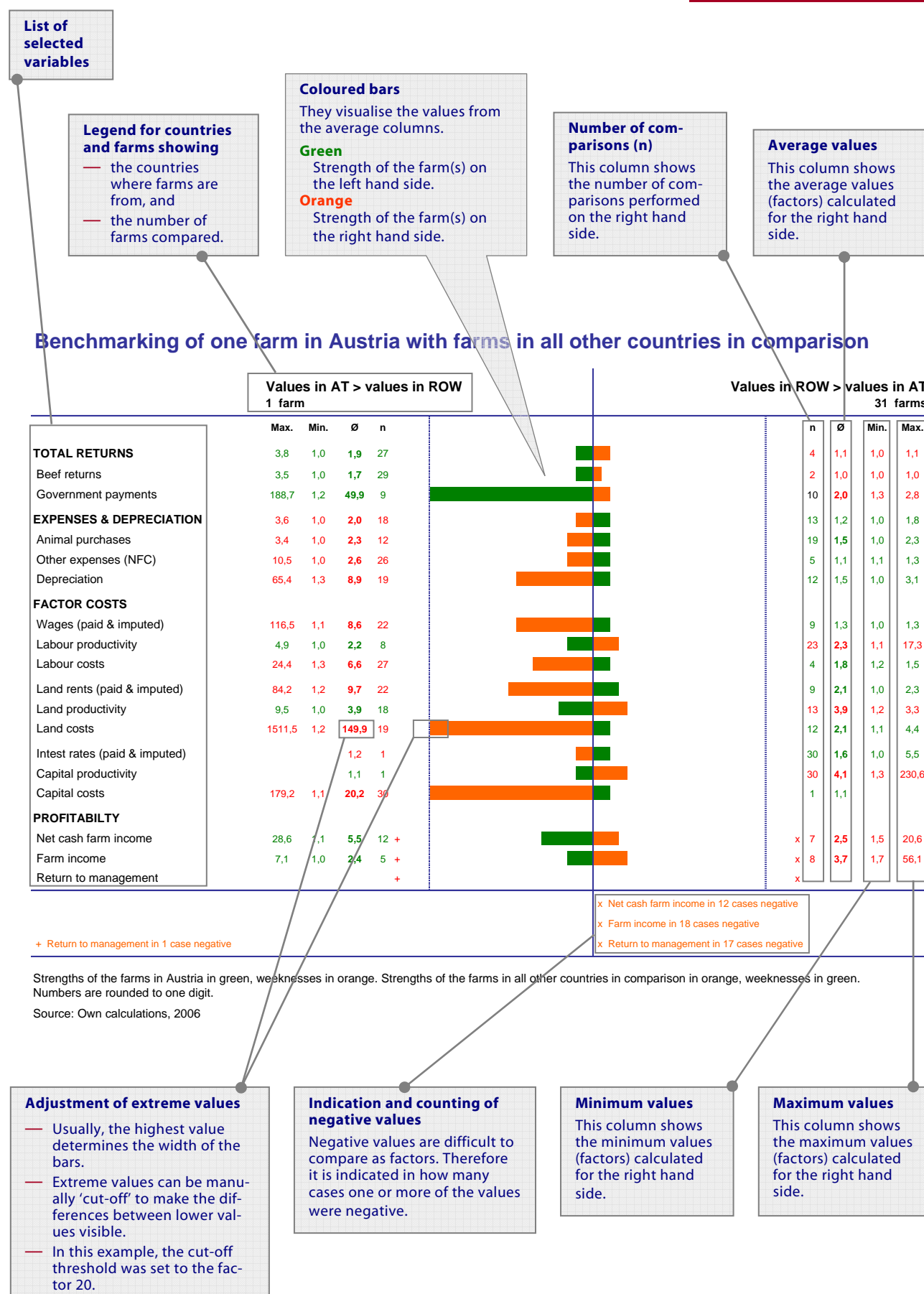
Example

Taking **labour productivity** as an example, the figure can be explained as follows:

— In eight cases the labour productivity is on average 2.2 times higher on the Austrian farm than in the rest of the farms (ROW), with a minimum value of 1.0 and a maximum value of 4.9.

— In 23 cases the labour productivity is on average 2.3 times higher in the rest of the farms (ROW) than in the Austrian farm, with a minimum value of 1.1 and a maximum value of 17.3.

Main benefits of the tool

The tool allows deeper analysis far beyond the cross-country comparisons as provided in Chapters 2 and 3.

— Selected variables can be compared between selected farms and reasons for differences in cost, return, and productivity become **transparent** and are **quantified**.

— **Strengths and weaknesses** of farms compared with others can be observed and compensating or boosting factors for return and cost levels can be identified, for example prices and productivities.

— When comparing one farm on the LHS with **n** farms on the right hand side, one gets much more differentiated results than comparing one farm with an average. The illustration allows a look at **how many cases** the values on the LHS were bigger/smaller than on the RHS and vice versa and **how big the difference** for both cases were on average.

List of selected variables

Legend for countries and farms showing
— the countries where farms are from, and
— the number of farms compared.

Coloured bars
They visualise the values from the average columns.
Green
Strength of the farm(s) on the left hand side.
Orange
Strength of the farm(s) on the right hand side.

Number of comparisons (n)
This column shows the number of comparisons performed on the right hand side.

Average values
This column shows the average values (factors) calculated for the right hand side.

Benchmarking of one farm in Austria with farms in all other countries in comparison

	Values in AT > values in ROW 1 farm									Values in ROW > values in AT 31 farms			
	Max.	Min.	Ø	n						n	Ø	Min.	Max.
TOTAL RETURNS	3,8	1,0	**1,9**	27						4	1,1	1,0	1,1
Beef returns	3,5	1,0	**1,7**	29						2	1,0	1,0	1,0
Government payments	188,7	1,2	**49,9**	9						10	**2,0**	1,3	2,8
EXPENSES & DEPRECIATION	3,6	1,0	**2,0**	18						13	1,2	1,0	1,8
Animal purchases	3,4	1,0	**2,3**	12						19	**1,5**	1,0	2,3
Other expenses (NFC)	10,5	1,0	**2,6**	26						5	1,1	1,1	1,3
Depreciation	65,4	1,3	**8,9**	19						12	1,5	1,0	3,1
FACTOR COSTS													
Wages (paid & imputed)	116,5	1,1	**8,6**	22						9	1,3	1,0	1,3
Labour productivity	4,9	1,0	**2,2**	8						23	**2,3**	1,1	17,3
Labour costs	24,4	1,3	**6,6**	27						4	**1,8**	1,2	1,5
Land rents (paid & imputed)	84,2	1,2	**9,7**	22						9	**2,1**	1,0	2,3
Land productivity	9,5	1,0	**3,9**	18						13	**3,9**	1,2	3,3
Land costs	1511,5	1,2	**149,9**	19						12	**2,1**	1,1	4,4
Intest rates (paid & imputed)			1,2	1						30	**1,6**	1,0	5,5
Capital productivity			1,1	1						30	**4,1**	1,3	230,6
Capital costs	179,2	1,1	**20,2**	30						1	1,1		
PROFITABILTY													
Net cash farm income	28,6	1,1	**5,5**	12 +						x 7	**2,5**	1,5	20,6
Farm income	7,1	1,0	**2,4**	5 +						x 8	**3,7**	1,7	56,1
Return to management				+						x			

x Net cash farm income in 12 cases negative
x Farm income in 18 cases negative
x Return to management in 17 cases negative

+ Return to management in 1 case negative

Strengths of the farms in Austria in green, weeknesses in orange. Strengths of the farms in all other countries in comparison in orange, weeknesses in green. Numbers are rounded to one digit.

Source: Own calculations, 2006

Adjustment of extreme values
— Usually, the highest value determines the width of the bars.
— Extreme values can be manually 'cut-off' to make the differences between lower values visible.
— In this example, the cut-off threshold was set to the factor 20.

Indication and counting of negative values
Negative values are difficult to compare as factors. Therefore it is indicated in how many cases one or more of the values were negative.

Minimum values
This column shows the minimum values (factors) calculated for the right hand side.

Maximum values
This column shows the maximum values (factors) calculated for the right hand side.

4.4   Ranking farms and correlating variables

Introduction

This tool is linked with the Result Data Base. It can rank the farms in the comparison by any variable in the Result Data Base and it can correlate two variables from the Result Data Base.

Ranking farms

With this tool any variable from the Result Data Base can be selected. It is then ranked in ascending order and shown in a table (Figure 4.4.1) as well as in a chart (Figure 4.4.2) to get a quick overview about the relation between farms with respect to the variable selected. The examples shows the ranking of the farms by beef prices in ascending order.

Correlating variables

A second variable can be selected and confronted/combined with the first variable in an **X/Y diagram**. This allows one to get an idea about possible correlations between the variables.

One should, however, be aware that the comparison is performed across countries and across production systems. This means that there is usually more than just one variable influencing on any other variable. It is therefore recommended to run a number of combinations or to reduce the farm selection to farms with comparable production systems and framework conditions before drawing a conclusion.

The example shows the correlation between **farm size** and **total labour cost.** There seems to be a certain correlation indicating lower labour cost with increasing farm size.

However, the figure also reveals the interaction between labour productivity and wage levels, the result of which is the labour cost. The outlier of the Polish farms is the result of low labour productivity and very low wages and opportunity cost for labour.

4.4.1   Ranking farms by beef prices

Selected variable:		Unit:
Beef price		US$ per 100 kg CW sold

No.	Farm	Value
1	AR-2200	127
2	BR-140	129
3	BR-340	129
4	AR-800	141
5	BR-600	145
6	BR-240	148
7	CN-300	191
8	CN-940	244
9	PL-30	254
10	CA-9600	258
11	PL-12	267
12	IE-80	300
13	US-7200	302
14	UK-90	305
15	SE-230	326
16	DE-260	341
17	UK-50	351
18	FR-90B	354
19	DE-280	364
20	SE-140	365
21	ES-780	374
22	DE-230	375
23	FR-45	382
24	ES-6950	385
25	FR-90A	385
26	DE-800	385
27	FR-70	409
28	IT-890	415
29	IT-2760	427
30	ES-990	429
31	AT-25F	441
32	AT-35	441
33	AT-120	441

4.4.2 Ranking of farms by beef prices

Beef price (US$ / 100 kg CW sold)

Farm name
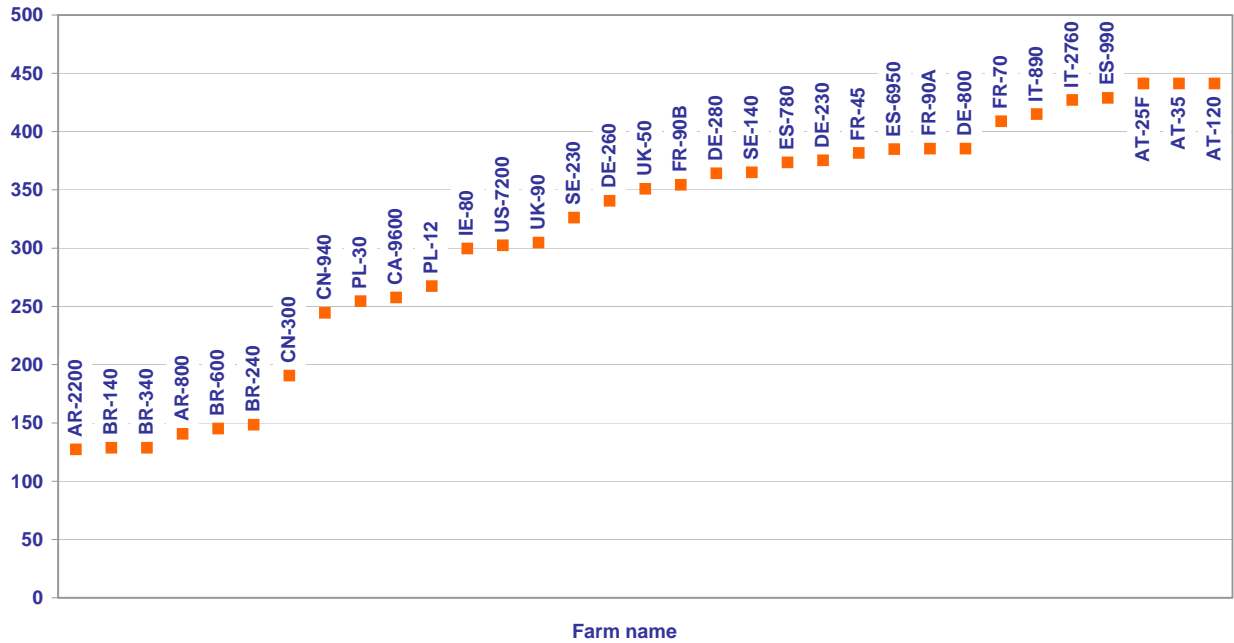
4.4.3 Correlating size of farms with total labour cost

Total labour cost (US$ / 100 kg CW sold)

No. of beef cattle sold per year (Number) and Farm name
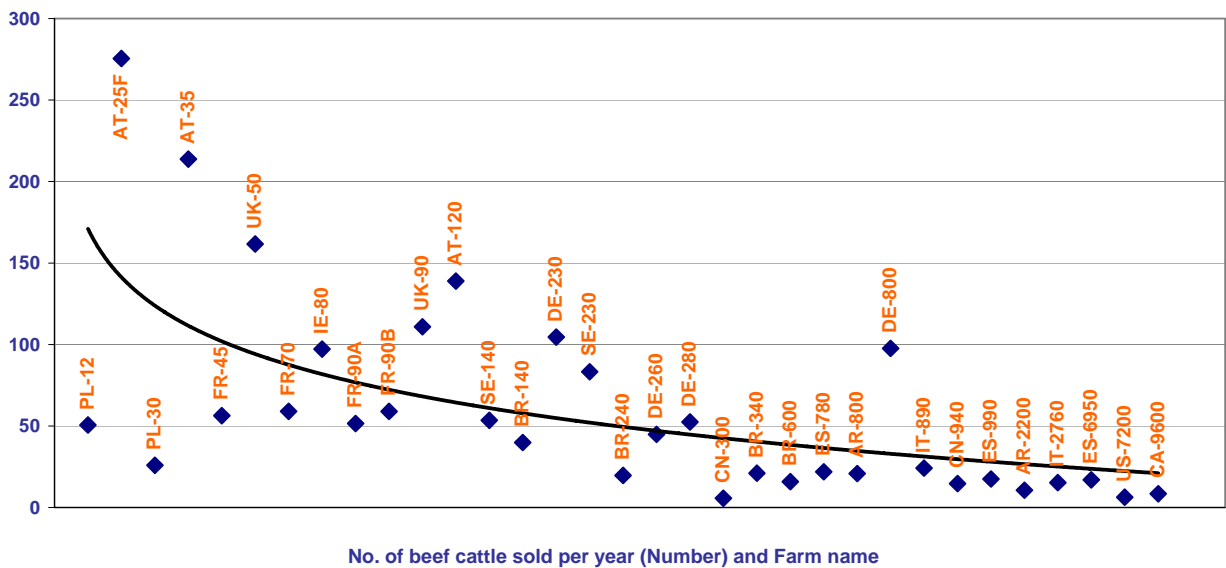
4.5   Price time series

Introduction

Since 2004, prices for beef and livestock are collected for the countries participating in *agri benchmark*. They start in 1996 and are updated annually. With an easy-to-handle tool charts with price time series for the countries selected can be generated in both national currencies and in US$-terms. An extra tool allows deflation of the nominal prices to real prices on the national and international level.

Different animal categories in different currency

Figure 4.5.1 provides an example from **Spain** showing the animal categories that are available in the data set, all of which are relevant for the typical farms. In most countries data sets for beef and livestock prices comprise more than one animal category, for example, bull, heifer and steer prices as well as livestock prices for dairy calves, weaner, backgrounder or specific breeds.

Figures 4.5.2 and 4.5.3 provide an **overview** of the developments of key beef and livestock prices relevant for animals kept on the typical farms analysed in this Report. Four EU-countries and the American countries in the comparison were selected. For each country, only one category of beef and livestock prices was chosen to maintain visibility.

Increasing price volatility

Beef prices both in national as well as in US$-terms show some significant movement in the period displayed in the figures. With some exceptions, 2005 prices for both beef and livestock equalled or exceeded 1996-prices in US$-terms in most of the countries shown.

Driving factors of the changes in beef prices were:

— **Animal disease outbreaks** like BSE, FMD (and avian influenza). These were followed by drastic import restrictions and bans, resulting in severe supply and demand changes as well as price variations.

— **Exchange rate** movements, particularly a) the revaluation of the US$ from the mid nineties to the turn of the century and its devaluation starting in 2002 and b) the dramatic devaluations of the Brazilian Real in 1999 and the Argentinean Peso in 2002.

— **Demand** increases, mainly in Asia and in the U.S., the former driven by the positive economic development, the latter driven by low-carb diets.

— Increases in **export quantities**, mainly coming from Brazil.

4.5.1   Beef and livestock prices for different animal categories in Spain (Indices, 1996=100)

Beef prices in EURO
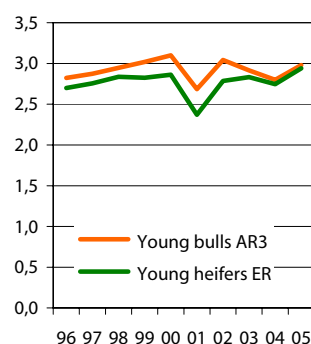
Beef prices in US$

Type of animal
— Young bulls AR3, EUR per Kg CW
— Young heifers ER, EUR per Kg CW

Exchange rate
US$ per EURO
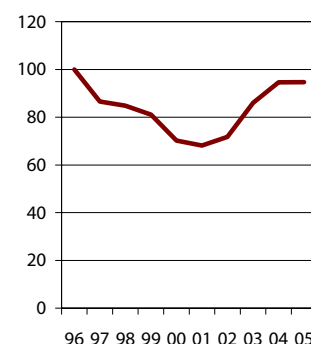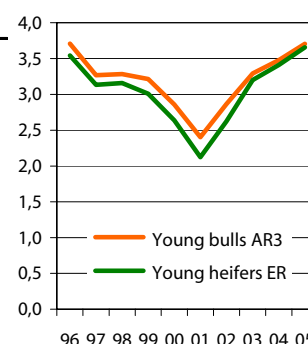
Livestock prices in EURO

Livestock prices in US$
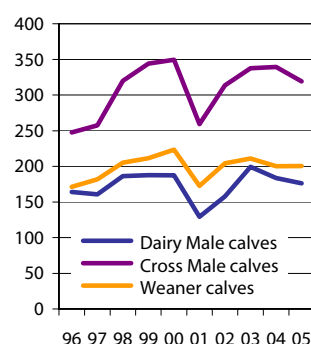
Type of animal
— Dairy Male calves (<1 month), EUR per head
— Cross Male calves (<1 month), EUR per head
— Weaner calves (6 to 12 months), EUR per 100 Kg LW
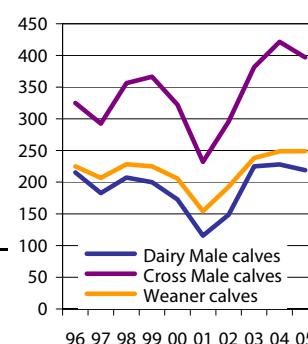
4.5.2   Beef and livestock prices in selected EU-countries (Indices, 1996=100)

Beef prices national currency (Index)
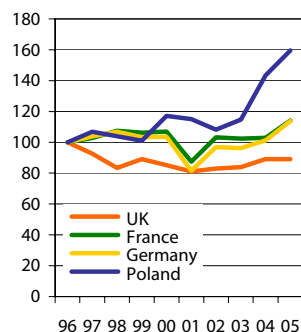
Type of animal

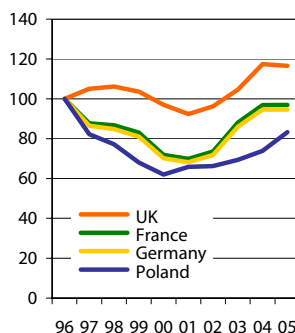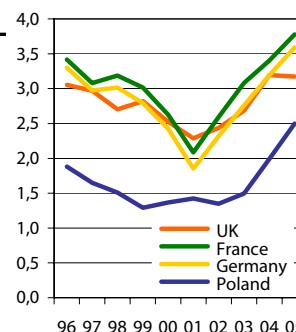|	
UK	Bulls per kg CW
France	Bulls R3 per kg CW
Germany	Bulls R3 per kg CW
Poland	Bulls per kg CW

Beef prices US$

Exchange rate

US$ per national currency

Livestock prices nat. currency (Index)

Type of animal

UK	Male Holstein calves per head
France	Holstein calves per head
Germany	Holstein calves per head
Poland	Holstein calves per head

Livestock prices US$
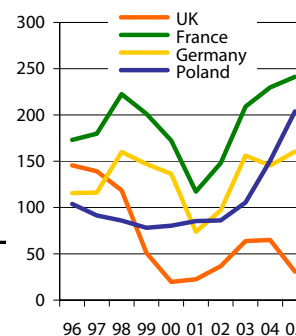
4.5.3   Beef and livestock prices in the Americas (Indices, 1996=100)

Beef prices national currency (Index)
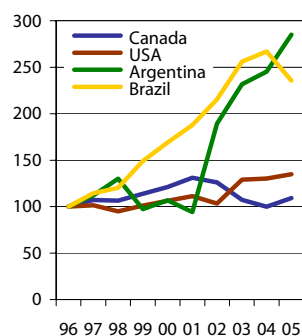
Type of animal

Canada	Steers per kg LW
USA	Steers per kg LW
Argentina	Steers per kg LW
Brazil	Steers per kg LW

Exchange rate

US$ per national currency
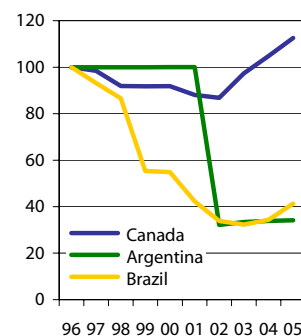
Beef prices US$
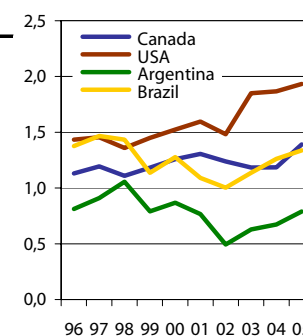
Livestock prices nat. currency (Index)
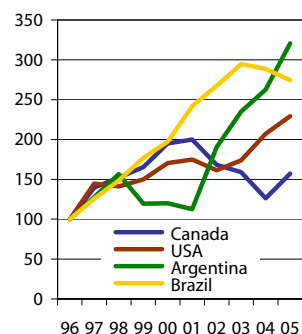
Type of animal

Canada	Weaner per kg LW
USA	Weaner per kg LW
Argentina	Angus weaner per kg LW
Brazil	Nelore weaner per kg LW

Livestock prices US$
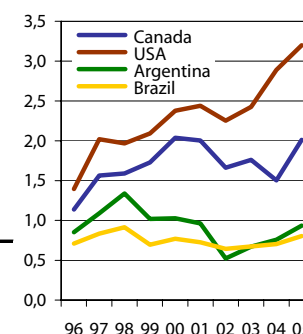
4.6   Farm simulation reflecting risk

Introduction

The analysis tools used in *agri benchmark* allow the simulation of the typical (and any other) farm data over a period of ten years. Typically, simulation is done when policy and farm strategy analysis is performed. This can be done in a **deterministic** and in a **stochastic** mode, the latter reflecting production, weather and market risk. Risk was included by using the Excel Add-in Simetar© developed at Texas A&M University.

Changes in framework conditions …

Market and **policy** changes alter the framework for farming. In the example shown here, the impact of the new CAP-reform in the EU on intensive bull finishing farms in the West of Germany was analysed compared with the old policy, termed Agenda 2000. The latter was used as the reference system (or baseline) for the new policy and income effects were analysed (Figure 4.6.1).

Farm income is defined as total returns (incl. decoupled government payments) less cash costs less depreciation.

… require farm adjustments and strategies

As the policy analysis shows negative income effects on the farms, there is need for **adjustments** to maintain or improve the income compared with the situation before the change. For this purpose, farm strategies were defined and specified in **close cooperation with advisors and farmers**. Their impact on the farm income was then simulated using the new policy without farm adjustments as the reference. Strategies defined were:

1. Continuation without adjustments
2. Stop farming
3. Moderate growth with small investment
4. Strong growth with large investment
5. Like 4, but with increase of daily weight gains

All these calculations were done in a **deterministic** way. This means that the modeller determines the projections of prices and physical variables over time, for example by assuming that the beef prices from 2005 to 2013 will increase by 0.5 percent annually.

Reflecting risk

To reflect risk in the analysis, the following steps are performed. They can be modified according to the data situation and the assumptions about their development in future.

— **Stochastic key input variables** (KIVs) are defined. For variables with a significant influence on the farm income 10 years historic data are collected. Examples are: beef price, calf, price, death rate, daily weight gain, forage yields and qualities.

— **Regressions** to estimate trends as well as **statistical tests** are performed to check the significance and correlation of the variables.

— **Empirical distribution functions** are estimated to grasp the variation of each KIV.

— The model then runs at least **100 iterations** for each strategy, each time generating a separate random value for each KIV combining the deterministic forecast with the distribution function.

— For each **key output variable** (for example farm income) a set of at least 100 output values is generated which again can be captured in a distribution function.

The results are presented in different output formats, such as fan-charts (4.6.2), cumulated density functions (4.6.3) and stoplight charts.

Benefits and costs of risk analysis

In general, the less distinct the results of the deterministic analysis are, the more advantageous the risk analysis is. Main benefits are:

— One can draw further conclusions about the impact and benefits of strategies (and policies) such as variation of results, probability of a loss.

— One can draw further conclusions about the benefits of different strategies with different developments of KIVs, for example with increasing volatility compared with the past.

— Strategies which appear very similar when analysed without risk may look very different when risk is included.

The main 'cost' of the risk analysis is the availability and collection of 10 years historical data for individual farms or typical farms. However, if this appears to be unfeasible, it is possible to make an assumption about the variability and hence the variation of KIVs.
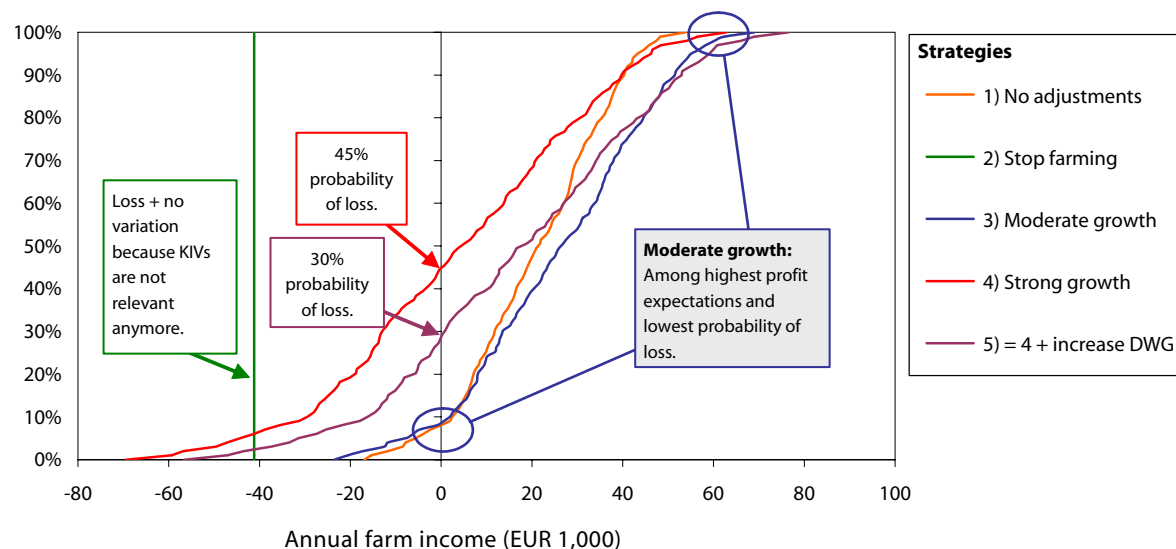
4.6.1 Farm income of a German bull finisher producing 260 bulls p.a. (EUR 1000 farm income)
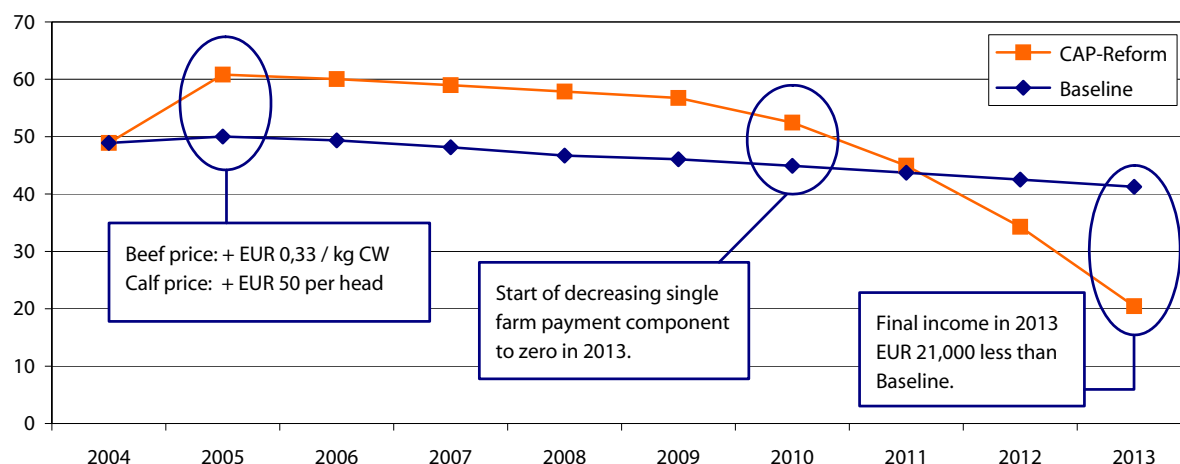
4.6.2 Strategy Strong growth + increase of Daily Weight Gain (EUR 1000 farm income)
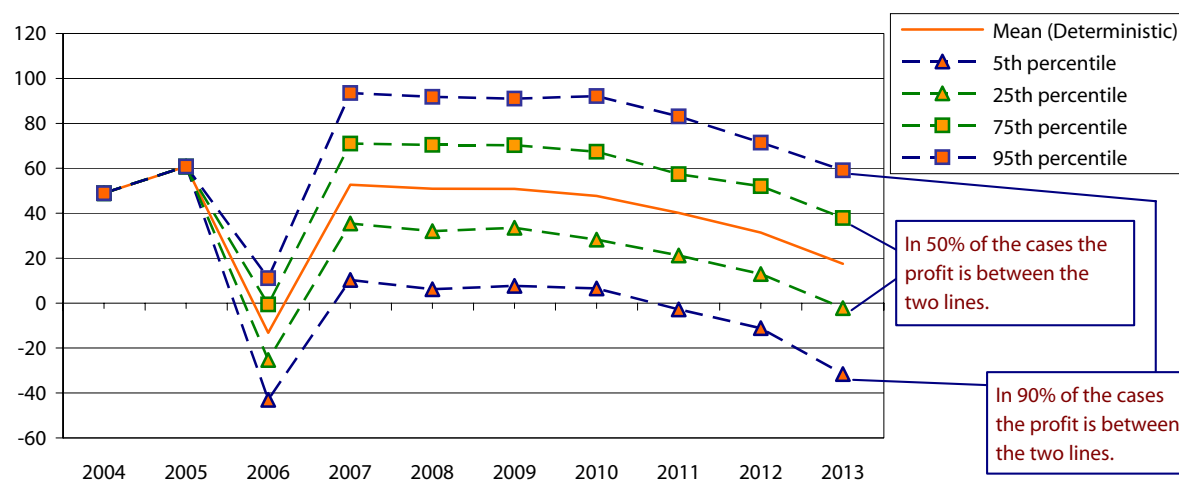
4.6.3 Cumulated density functions of farm income for different strategies, year 2013

4.7 Country pages and time series information

Introduction

Analysis in the *agri benchmark* goes beyond the farm level. To learn more about the framework conditions of beef and cow-calf production, country specific data containing sector and time series information about the countries participating in *agri benchmark* are generated and provided on the *agri benchmark* website.

Usually, the country pages are updated with new topics every year for all participating countries and displayed on one page per country. Examples are time series production data, trade data as well as country maps highlighting beef and cow-calf related issues.

Bilateral trade flows

A tool has been built that allows analysis of secondary data on **bilateral trade flows** available on the internet. One feature of the tool is to produce a time series of the **top five export destinations** or import origins for any country in the data bank. Usually, more than five countries are shown because the top five countries may change between years.

Two examples are provided in Figures 4.7.1 and 4.7.2.

The figure for **Brazil** shows the impressive increase of exports, growing almost tenfold from 1995 to 2004 and reaching more than US$ 2 billion export value in 2004. It also shows that in 2004 only half of the exports can be explained with the top five producers, i.e. there seems to be a trend towards diversifying exports.

Top five destinations in 2004 were Russia, the Netherlands (with re-exports to other EU-countries), Chile, Egypt and Italy.

The data for the **U.S.** illustrates the constantly high level of exports and the growing importance of Japan and South Korea with some setback in 2001 and 2002 due to the consumer reaction to BSE-cases in the Asian countries and in Europe.

Contrary to Brazil, the top five destinations continue to explain the vast majority of U.S. beef exports. The figure also shows the impact which the detection of a BSE case in the U.S. had: coming from one of the highest levels ever of US$ 3.5 billion in 2004, exports almost collapsed to zero in 2004 (and stayed there in 2005) due to import bans issued by the main countries of destination.

2006 page focuses on time series

The **2006 country** page is shown in Figure 4.7.3 and comes with three parts:

— **Upper part**: a short description of each country's main issues in the beef sector of the year 2005, a ranking of the country for key indicators in a world-wide comparison, and maps showing the spatial distribution of beef finishing and cow-calf production.

— **Centre part**: Time series data on inventories, production, consumption and trade.

— **Bottom part**: Time series data on the top five beef export destinations and beef import origins in value terms.

4.7.1 Brazil: top 5 export destinations
(million US$ 1995-2004)
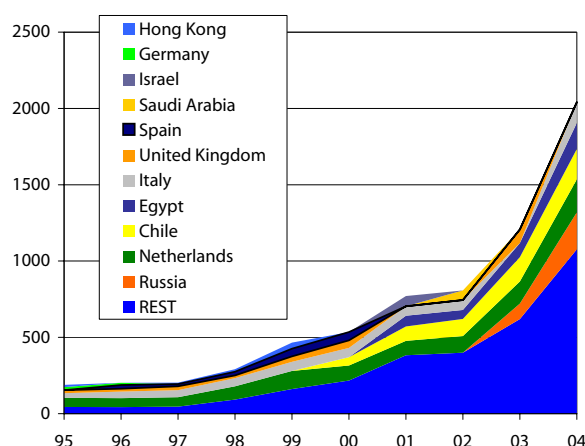
4.7.2 USA: top 5 export destinations
(million US$ 1995-2004)
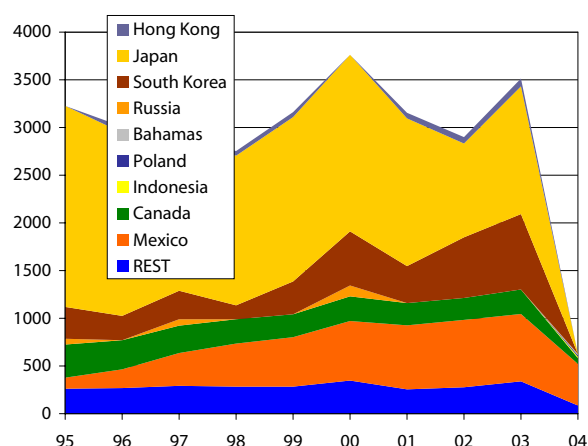
4.7.3 Country page for Ireland

World ranking (ø 2002-2005)

| Number	**34**	in cattle inventory
Number	**19**	in beef production
Number	**8**	in beef exports (t)
Number	**8**	in beef exports (US$)
Number	**45**	in beef imports (t)
Number	**36**	in beef imports (US$)

Country facts

1. Direct payments decoupled since 2005.
2. Strong beef prices in EU-25 triggered exports of beef (+6.1%) and live cattle (+40%) compared with 2004.
3. Cattle number down by 15,000 while cattle values went up 18.5 million EUR.
4. Export remain strong as EU-market remains in deficit.
5. Main export destinations are the UK (50% of production = 260,000 t), France, Netherlands and Italy (40% of exports to continental Europe)

**Male cattle 1-2 years per hectare agricultural area 2005**
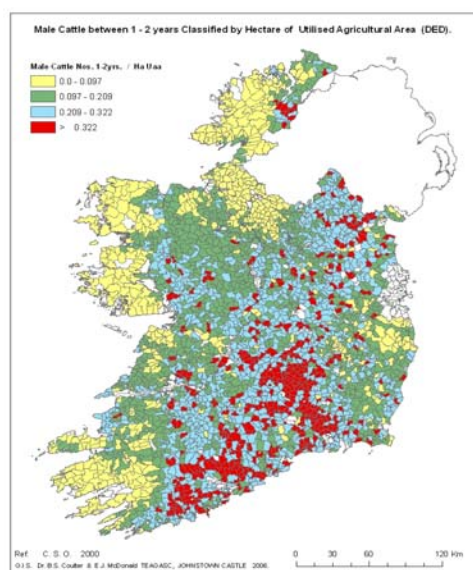
**No. of suckler cows per hectare agricultural area 2005**
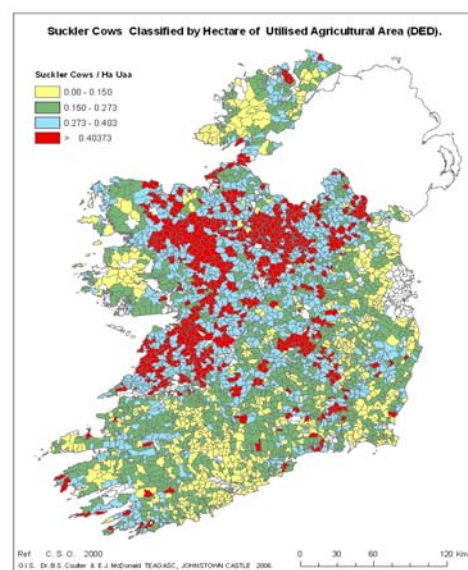
Time series		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	'04 vs. '00	'04 vs. '95
Total cattle	'000 head	6.410	6.451	6.661	6.882	6.952	7.037	7.050	6.992	6.999	7.016	- 0 %	+ 9 %
Dairy cows	'000 head	1.256	1.266	1.316	1.308	1.284	1.178	1.183	1.164	1.156	1.156	- 2 %	- 8 %
Suckler cows	'000 head	1.039	1.113	1.177	1.217	1.183	1.187	1.197	1.154	1.187	1.207	+ 2 %	+ 16 %
Beef production	'000 t	477	535	568	594	644	577	579	540	568	563	- 2 %	+ 18 %
Beef consumption	'000 t	57	185	210	220	155	180	364	230	223	245	+ 36 %	+ 330 %
Surplus/Deficit	'000 t	420	350	357	373	489	396	215	310	345	318	- 20 %	- 24 %
Beef consumption	kg/cap./year	14,6	13,0	17,3	17,3	16,5	16,3	17,1	17,5				
Beef exports	'000 t	441	360	363	380	494	403	229	321	356	336	- 16 %	- 24 %
Beef exports	'million US$	1.295	975	932	972	1.195	915	616	849	1.149	1.360	+ 49 %	+ 5 %
Beef imports	'000 t	21	10	5	7	5	7	14	10	11	18	+ 171 %	- 14 %
Beef imports	'million US$	65	24	12	19	14	17	26	25	36	58	+ 242 %	- 10 %
Export/dom. prod.	%	92%	67%	64%	64%	77%	70%	40%	59%	63%	60%	- 15 %	- 35 %
Import/dom. supply	%	36%	5%	3%	3%	3%	4%	4%	5%	5%	7%	+ 100 %	- 80 %

Top 5 beef export destinations 1995-2004 (million US$)
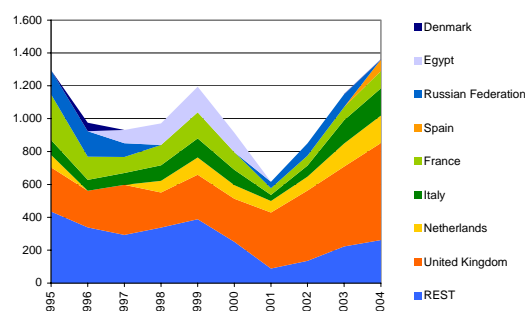
Top 5 beef import origins 1995-2004 (million US$)
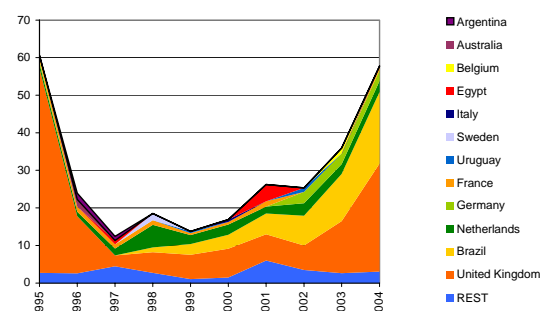
Sources: FAOSTAT data, 2006; UNComtrade data, 2006; National statistics (various years)

4.8   World, regional and country maps

Introduction

Maps are useful tools to provide an international, regional and national overview of livestock inventories, densities, production and trade figures.

Main data sources are the data banks available on the websites of the FAO and UN-Comtrade. They are completed by data from USDA, the EU-Commission and various regional and national data sources.

Maps are provided as pie chart maps (Figures 4.8.1, 4.8.2 and 4.8.4) and area maps (Figure 4.8.3). The latter are mainly used for information about density and changes over time.
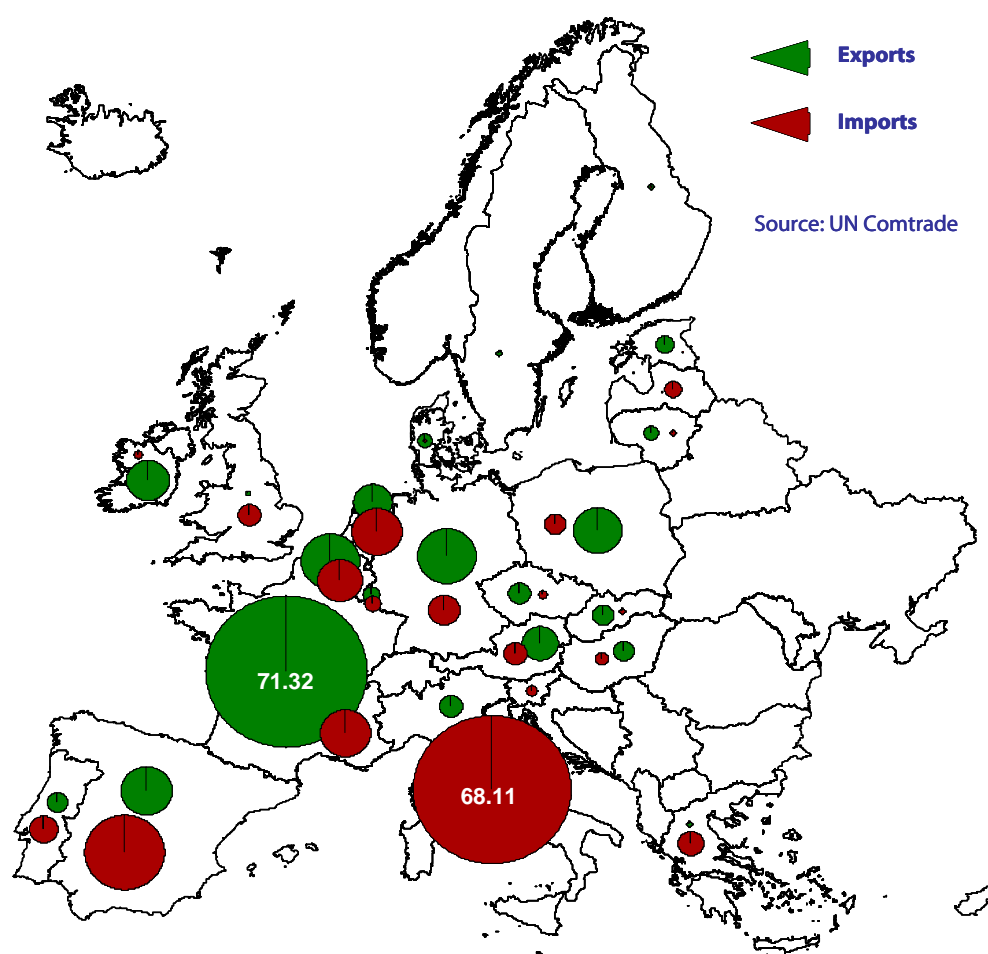
Available maps

Examples for available maps are:
— **Inventories** of cattle and buffalo and their development over time.
— **Production** of beef and buffalo meat and its development over time.
— **Density** of inventories and production per 100 ha total land or agricultural land.
— **Trade** of beef & buffalo meat as well as live cattle trade per country (quantities and values)
— **Trade values** per ton.
— **Bilateral trade flows** of beef & buffalo meat as well as live cattle (animated arrow charts).
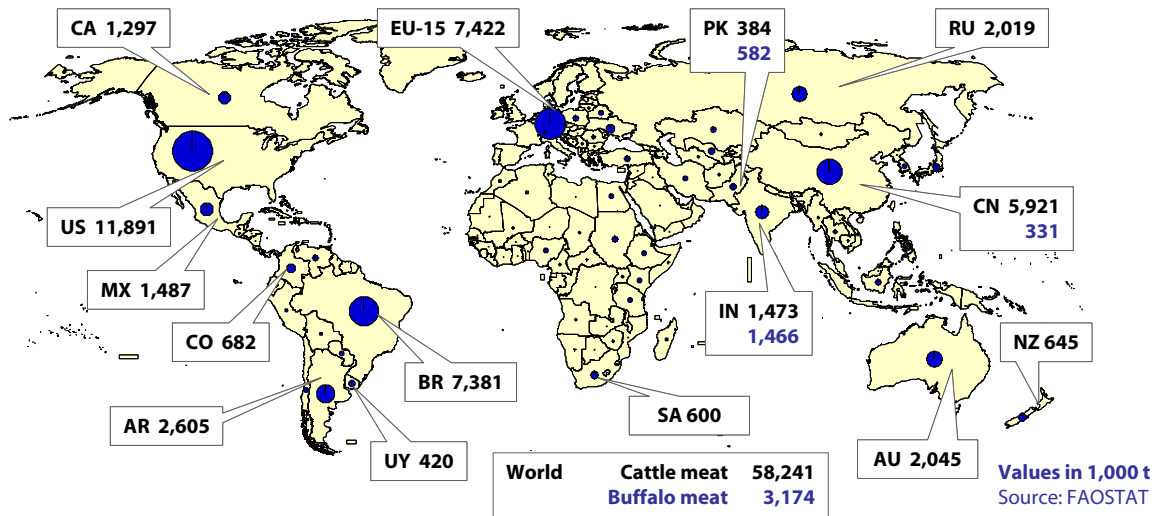— **Policy** related maps (trade policy, EU-CAP).

In the future maps showing **trends** and **regional shifts** of the indicators mentioned above will be developed.

4.8.1   Cattle live trade values in the EU-25 (average of the years 2001-2003, million EURO)
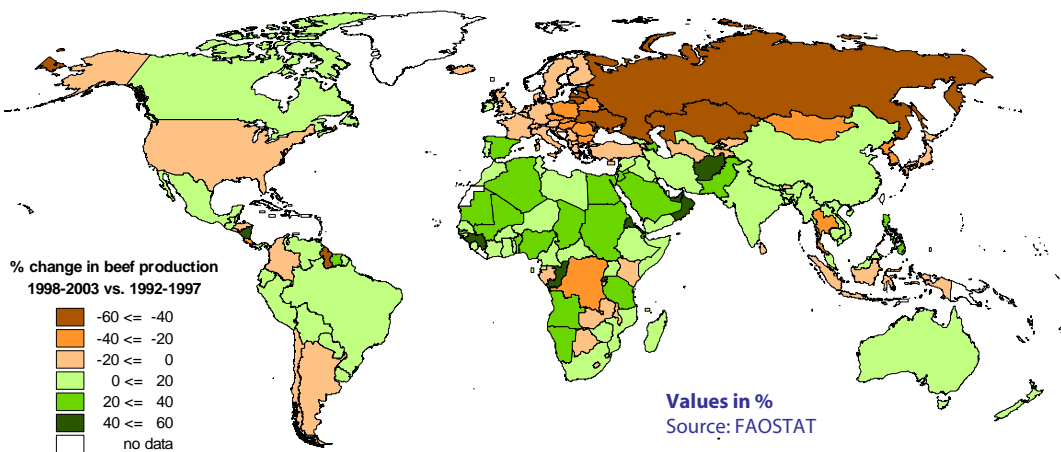
4.8.2   World production of beef and buffalo meat (average of the years 2002-2004)

CA 1,297
EU-15 7,422
PK 384
582
RU 2,019
US 11,891
MX 1,487
CO 682
BR 7,381
AR 2,605
UY 420
CN 5,921
331
IN 1,473
1,466
NZ 645
SA 600
AU 2,045

World	Cattle meat	58,241
	Buffalo meat	**3,174**

Values in 1,000 t
Source: FAOSTAT

4.8.3   Percentage change of beef production (Average of the years 1998-2003 vs. 1992-1997)

**% change in beef production
1998-2003 vs. 1992-1997**

-60 <= -40
-40 <= -20
-20 <=   0
  0 <= 20
 20 <= 40
 40 <= 60
no data

Values in %
Source: FAOSTAT

4.8.4   World trade of beef and buffalo meat in US$ (average of the years 2002-2004)

Exports

Imports

Values in 1,000 US$
Source: FAOSTAT