



Swedish University of
Agricultural Sciences

Horses in Europe

By Carolina Liljenstolpe



Photo: Roland Thunholm



Horses in Europe
By PhD Carolina Liljenstolpe
Department of Economics

Edited by Dr. Cecilia Lönnell
Department of Equine Studies

Swedish University of Agricultural Sciences (SLU), 2009

This report aims to provide an overall picture of the horse industry in Europe and its economic importance. The purpose is to describe different characteristics of the horse industry in the European countries and to illustrate both similarities and differences. The report consists of four sections discussing the economic role of the horse, the impacts of the CAP (EU Common Agricultural Policy) on the horse industry, the breeding industry as well as the role of the horse in the civil society.

The information used for this report is based upon official statistics from Eurostat, FAOStat, UET, IFHA and FEI. Moreover, as statistics of the horse sector is sometimes limited, questionnaires concerning the horse industry as a whole, the trotting as well as the thoroughbred racing industry have been sent to representatives of the countries in the European Union. The representatives were selected from the register of COPA-delegates, from the respective ministries of agriculture or from the local UET and IFHA organizations.

It should however be noted that the results in this study are based on individual responses to questionnaires sometimes based on own approximations made by individuals involved in the industry. Hence, the information provided here should to some extent be regarded more as an indication of how the status of the sector has changed and provide a general view of development trends. A general conclusion from this report is that statistics regarding the horse industry within the European countries is rather limited and much has to be done in this respect in order to provide an accurate picture of the industry. Hereby it should be stressed that future research into equine sciences also should include studies on information systems and international harmonization of data.

Carolina Liljenstolpe, Agr Dr (author)
Professor Hans Andersson (project coordinator)

The project has been financed by the Swedish Horse Council Foundation, Swedish Board of Agriculture and SLU.

The editorial assistance of Dr Cecilia Lönnell, DVM, is gratefully acknowledged

1 Introduction

The horse industry in the European Union is of economic importance to all countries. The European Union today consist of 27 member states and the total number of horses in the region is estimated to exceed 5 million. In the past horses were vital in industry, agriculture, transport and the military. Horses today can represent a leisure or sporting activity, a way of life, a working companion or food.

Horses in Europe represent a part of our common history. In different parts of Europe different breeds have evolved depending on environmental conditions and the intended use of the breed. In modern time, the national borders between the European countries have become less important also in the horse world. At least on the surface we are homogenous as you can see the same type of horse activities and breeds represented all over the continent. However, while there are similarities there are also many differences, including favourite choice of horse sports, how the betting on horses is organized and the degree of state involvement in the horse industry. Thus the horse industry of Europe is more varied than maybe expected at a first glance.

Prior to the Equus 2001 meeting, a project was initiated by The Swedish Horse Council Foundation which resulted in the report "The Horse Industry in the European Union". This report was produced in cooperation between The Swedish Horse Council Foundation and the Department of Economics, The Swedish College of Agricultural Sciences (SLU). Now Sweden will host the "EU Equus 2009" conference during autumn 2009, in connection with its EU Presidency. The aim of this report is to give an updated presentation of the horse industry in the European Union of today and to provide some information on how the sector has evolved during the last ten years.

A major change since the "Equus 2001" report was written is the new member countries of the European Union. In May 2004, eight Eastern European (EU-8) countries joined the European Union. Among the new member states that have a considerable horse industry counts Hungary, Poland, Slovenia and Czech Republic. As the European Union has expanded, so has the total number of horses.

Germany and Great Britain have the largest horse populations in the European Union. However Sweden has the highest number of horses per capita, and Belgium and the Netherlands the highest density of horses per 1 000 ha land.

The number of horses per capita has remained relatively constant in Europe during the past decade. Even though the exact numbers of horse related enterprises are yet not available in National statistics, an impression from questionnaires for this report is that the diversity of horse related enterprises has increased over time. In the future there will most likely be a trend towards further diversification into new markets in the horse industry. The business innovations and opportunities in terms of provided services and equipment for horse owners as well as for horses seem vast. The economic importance of the horse is not expected to diminish in the future.

Table 1.1. Total number of horses in some European countries

Member state	Total number of horses (2007)	Population (2006)**	Horses/1000 persons	Horses/1000 ha
Austria	100 000	8 265 925	12.1	11.9
Belgium	300 000	10 511 382	28.5	98.3
Czech Republic	64 126	10 188 000	6.3	8.1
Denmark	150 000*	5 427 459	27.6	34.8
Estonia	4 900*	1 339 000	3.7	1.1
Finland	77 000*	5 266 000	14.6	2.3
France	900 000	62 998 773	14.3	16.3
Germany	1 000 000	82 437 995	12.1	28.0
Great Britain	1 000 000	60 393 044	16.6	41.0
Greece	27 000*	11 122 000	2.4	2.0
Hungary	60 000*	10 058 000	6.0	6.4
Ireland	80 000*	4 221 000	19.0	11.4
Italy	300 000*	58 778 000	5.1	10.0
Latvia	13 600*	2 289 000	5.9	2.1
Luxembourg	4 490*	461 000	9.7	17.3
Netherlands	400 000	16 334 210	24.5	96.3
Norway	45 000 ¹	4 668 000	9.6	1.4
Poland	320 000	38 157 055	8.4	10.2
Serbia	35 000*	2 003 358	17.5	3.4
Slovakia	8 000*	5 388 000	1.5	1.6
Slovenia	22 000*	2 000 000	11.0	10.9
Spain	559 598	43 886 000	12.8	11.1
Sweden	280 000	9 047 752	30.9	6.2
TOTAL	5 750 714	455 240 953		

Source: Own questionnaires, * FAO (2009) and ** Eurostat (2009).

Meanwhile the mobility of horses between the European countries has also increased, both for sport, import/export and slaughter. Every year about 100 000 horses for slaughter are transported over long distances within Europe². In sport the International Equestrian Federation (FEI) organizes about 250 international competitions annually, which involve extensive sport horse transport within EU³. In Germany the horse movements due to competitions have been estimated to be over 1.5 millions a year⁴. For food safety related issues with consumption of horse meat and to keep control of the movements of horses and the number of horses, a regulation of equine passport registration has been initiated. From 2009, all horses in the EU are required to have a passport. Furthermore, it is also strongly recommended that individual horses should be chip marked, in order to improve breeding evaluation as well as traceability of horses⁵.

¹ Committee on Farm Animal Genetic Resources (2002)

² European Parliament (2008)

³ See Appendix A

⁴ Lindner (2000)

⁵ European Commission No 504/2008

2 The horse as a source of income

The horse industry plays an important part in the national economy and agriculture in many European countries. Business opportunities for entrepreneurs include feed, equipment, livery stables, training of horses and riders in equestrian sport, and various veterinary and other equine health care services. The biggest turnover meanwhile is in the horse racing industry including betting on horses, that in turn affects the whole society as tax income from betting finance other sectors of the economy.

The overall economic importance of the horse industry in terms of total economic impact, interaction effects with other sectors and employments effects as well as explanatory factors behind the number of horses is presented in this chapter. Further, some sectors with a specific economic importance in the horse industry are identified: the goods and services provided through the entrepreneurs, the racing and betting industry and the agricultural sector.

2.1 Explanatory factors behind the number of horses

An interesting aspect of the number of horses is if there are any economic indicators associated with the differences between countries. In economics one often labels goods that experience an increased consumption with higher disposable income level “normal goods”. A reasonable assumption for modern horse industry would be that the number of horses increases with higher income or education level in a country. In order to examine this issue, an estimation of the number of horses per capita as a function of mean consumption expenditure (disposable income), education participation and unemployment was performed. The respective variables in the regression are presented in Table 2.1 below.

Results from a correlation analysis indicate that the number of horses per capita is positively correlated to the mean consumption level as well as the education level with coefficients of 0.48 and 0.28 respectively. The unemployment rate have a negative relation to the number of horses per capita, with a correlation coefficient of -0.40, which indicates that a high unemployment tends to affect the number of horses per capita negatively. These results supports the findings in the report prepared for EU Equus 2001, where a correlation of 0.6 was found between number of horses per capita and mean consumption level.⁶

When investigating the parameters non-parametrically some interesting features could be noted. The dependent variable, horses per capita, seems to be linearly related to education level as well as the unemployment level and quadratically related to the consumption level.

However, regarding unemployment effect, it could be noted that the unemployment rate is contributing to a lower number of horses per capita when the mean household consumption level is at lower values.

This finding could indicate that unemployment has a larger negative effect in the relatively weaker economies, i.e. the poorer countries, whilst unemployment has no obvious negative effects (almost positive) for richer countries.

⁶ SLU, HNS (2001)

Table 2.1. Number of horses per 1000 individuals, mean household consumption, education participation and unemployment in European countries⁷

Member state	Horses/1000 individuals	Mean household consumption (EUR/year)	Participation in education (% of 15-24 year olds)	Unemployment (%)
Austria	12.1	30 428	53.7	3.8
Belgium	28.5	31 521	69.4	7.1
Czech Republic	6.3	7 146	60.9	4.4
Denmark	27.6	33 241	66.7	3.5
Estonia	3.7	6 936	63	6
Finland	14.6	29 705	71	6.4
France	14.3	29 632	59.4	7.7
Germany	12.1	29 232	65.4	7.3
Great Britain	16.6	34 859	46.8	5.3
Greece	2.4	27 081	66.8	8.3
Hungary	6.0	6 715	62.6	7.9
Ireland	19.0	44 909	57.4	6.3
Italy	5.1	28 053	56.2	6.1
Latvia	5.9	5 981	64.4	7.3
Luxembourg	9.7	52 754	44.5	4.4
Netherlands	24.5	30 360	66.3	2.8
Norway ⁸	9.6	40 328	65.3	2.6
Poland	8.4	6 428	70	7.1
Slovakia	1.5	5 952	55	9.6
Slovenia	11.0	17 738	69.7	4.5
Spain	12.8	23 682	55.1	11.3
Sweden	30.9	29 885	68.1	6.2

2.2 Horses in the EU economy

Several studies have investigated the economic importance of the horse industry. A German study showed that the annual total expenses in the German horse sector are approximated to EUR 2.6 billion and the total sales within the sector are nearly EUR 5 billions. Furthermore, 3-4 horses in Germany create one fulltime job⁹. A survey in the UK by DEFRA¹⁰, reports a direct employment in the horse sector of 50 000 people. Total employment in the UK due to indirect effects of the horse industry is estimated to 150 000-200 000. These figures correspond to 5-7 horses per fulltime job.

A few European studies have used a so called input-output analysis approach to measure the economic impact of the horse industry. The input-output analysis is an analytical tool frequently adopted in economic studies to investigate the economic impact of different sectors in an economy. The general idea of the input output analysis is that the goods and services provided by the horse sector generate a demand for goods and services produced by other sectors, and so on.

⁷ Eurostat (2009)

⁸ Committee on Farm Animal Genetic Resources. (2002)

⁹ IPSOS, German Riding Association (2005)

¹⁰ DEFRA (2004)

In the United States the input output analysis has been frequently adopted in order to measure the economics of the horse industry. In a study of the horse sector in Pennsylvania, the results indicated that the multiplier effect in terms of employment, output and value added productions are 1.36, 1.75 and 1.86 respectively¹¹. Hence every job in the equine industry yield 0.36 jobs in the rest of the state economy and that every dollar spent on horses create output and value added production of 0.75 and 0.86 dollar of in the rest of the economy.

Table 2.2. The results from input output studies in Austria and Sweden

Country	Austria	Sweden
Year	2005	2004
Author	Schneider and Mahlberg	Johansson, Hedberg and Andersson
Overall economic impact	Horses generate a production valued to EUR 1.19 to 1.26 billion. The value added activities generates EUR 634-674 millions	The turn-over of the horse sector is EUR 2 billions
Overall employment	14 500 to 15 400 full time employments	9 466 full time employments
Multiplier effects		
Economic impact	Every additional horse generates an additional production value of EUR 12 000- 14 800 and a value added of EUR 6 300-7 900	An increase in the turnover of the horse sector with 1% generates a: 1.5% increase in overall turnover of the economy due to the direct and indirect effects. 2.1% increase in overall turnover of the economy due to the direct, indirect and induced effects.
Production	3-4 horses create one workplace in the national economy	10 horses create one workplace in the national economy

The economic importance of the horse industry has been analysed with input-output analysis for some European countries. The results from these indicate that the horse sector may have a considerable impact on the overall economy.

2.3 The institutional influence of the horse industry

European countries differ in the historical background of their horse industry, which probably influence and explain differences in today's organizational structure and government involvement. In order to investigate what institutions assessed to be of importance and of less importance to the horse industry, the respondents of the questionnaire was given the opportunity to grade factors and institutions after importance.

Horse councils overall were rated as having low level of importance for the horse industry, as did the military. In contrast EU-directives, breeding authorities including studbooks and the national horse federations were considered important. Not surprisingly riders and the horse owners are also regarded as important for the industry. The findings were similar between all

¹¹ Swinker et al. (2003)

countries. Some national differences can be seen for the assessed importance of national heritage as well as for the importance of private enterprises and horse entrepreneurs.

2.4 Horse businesses

Type of businesses related to the horse industry varies extensively. Based on the questionnaire for this report the most important horse businesses in Europe are training, feed production and breeding, plus livery.

Table 2.3 Purchase and stabling costs in different European countries

Country	Cost of a horse* (EUR)	Monthly stabling cost (EUR)
Austria	8-10 000	250-400
Belgium	10 000	350
Serbia	1 500	150-200
Czech Republic		250
Finland	5 000	400-750
France	7 500	300-350
Germany		500
Great Britain	4-7 000	500-700
Hungary	5-6 000	250
Ireland	6-7 000	280
Netherlands	10 000	250
Poland	5 000	250
Spain	7 500	400-600
Sweden	6-7 000	250-600

* prices refer to horses used for leisure riding or sport below elite professional level

As an example of alternative use of agricultural land a horse livery yard has often originally been part of a traditional agricultural enterprise, and later developed for equine use. Standards of horse livery vary, as do prices, based on location and service. Many yards offering livery also provide training of horses and riders.

Apart from livery stables horse enterprises are generally involved in one or more of the following specializations:

- Production and selling horse feed or riding surface materials
- Training of sport horses, race horses or trotters
- Trekking
- Riding camps
- Equipment sales
- Riding schools
- Equine transport
- Equine therapists, for example horse massage, laser treatments

The large interest in horses has also influenced the tourist sector. Horse tourism is especially well established in Ireland and Iceland.

Horse enterprises and their activities are still relatively unknown to the authorities and often run on part time basis. In order to promote small scale businesses so called “horse councils” have been created in different countries within the European Union. They offer horse owners, breeders, horse enterprises, infrastructure planners and equine education a common network and possibilities to advertise their business. Also, a common organization is often necessary in order to emphasize the economical importance of the horse sector. In France especially, horse councils has evolved rapidly. In 2006 there were in total 20 horse councils that organized horses businesses and organisations within different regions in France.¹²

2.5 Racing and betting

The history of horse racing with jockeys or chariots goes back to Ancient Greece, with horse races part of the Olympic Games.

2.5.1 The trotting industry

Harness racing or standardbred trotting is available in at least 21 of the 27 European countries. There are Eighteen member countries of the European trotting organization called UET (Union Europeenne du Trot). The UET was founded in 1973 with the purpose of protect coordinate and harmonize the rules of trotting racing. The leading country of harness racing in Europe with respect to the number of organized races is Italy, followed by France and Sweden.¹³

Table 2.4 Statistics of harness racing in European countries for 2008¹⁴

Country	Number of races	Horses racing	Foreign horses	Price money/race (EUR)	Warm (<i>cold</i>) blood foals born (% of the total)
Austria	959	903	181	1 954	0,8
Belgium	991	1 548	693	2 224	1.64
Czech Republic	252	258	156	1 059	0.19
Denmark	2 464	3 067	1 042	2 489	3.24
Finland	6 377*	8 545*	1705*	3 473	6.95 (50.36)
France	11 000	15 286	329	19 458	43.94
Germany	2 500	3 643	561	2 084	2.08
Italy	13 601	10 933	126	5 249	0.46
Netherlands	1 335	1 405	514	2 060	17.29
Norway	4 652*	5 836*	1 743*	6 355	3.12 (32.32)
Spain	1 964	1 713	776	356	1.05
Sweden	9 051*	13 468*	2 135*	8 638	13.15(17.32)
TOTAL Mean	55146	66 605	9 961	4617	100(100)

*Figure includes the warmbloods and coldbloods

Based on the number distributed price money and number of born foals, France can be ranked to be the leading harness racing nation in Europe, followed by Sweden¹⁵. Cold blood trotting can be found in Finland, Norway and Sweden.

¹² www.chevaux-normandie.com

¹³ UET (2008)

¹⁴ UET (2008)

¹⁵ UET (2008)

2.5.2 Thoroughbred horse racing

Thoroughbred horse racing is a worldwide sport that involves the racing of thoroughbred horses ridden by jockeys. There are two forms of the sport: flat racing and jump racing. The jump racing is by far most popular in Great Britain and Ireland; in Ireland the jump races even outnumber the flat races.

Great Britain is a major thoroughbred racing nation, which in 2007 had 5 559 races. France and Italy are also a strong thoroughbred racing nations with 4 633 and 5 550 flat races. The thoroughbred breeding industry with respect to the number of born foals is by far largest in Ireland, followed by Britain and France.

Table 2.5 Statistics for thoroughbred racing from 2007¹⁶

Country	Number of flat races	Number of jump races	Number of societies organizing flat races	Average price money/race (EUR)	Thoroughbred Births
Austria ¹⁷	148	2	1	8450	37
Belgium ¹⁸	173	4	2	2860	43
Czech Republic	348	168	1	2 700	311
Denmark ¹⁷	300	0	1	6280	140
France	4 633	2197	151	21570	5 393
Germany	1670	66	40	8360	1 278
Great Britain	5 659	3218	1	15 210	5 948
Greece	1 000	0	1	12530	274
Hungary ¹⁸	342	5	1	2100	217
Ireland	958	1439	2	32460	12 633
Italy ¹⁸	5 550	272	19	11300	1 545
Netherlands	101	0	1	2920	16
Norway	260	9	1	11120	49
Portugal ¹⁹	16	0	1	17	5
Slovakia	140	23	1	3570	64
Spain	509	0	11	9950	232
Sweden	607	20	5	9150	313
TOTAL Mean	22 414	7423	240	9 444	28 498

2.5.3 Betting on horses

Betting on horses is important in both harness racing and thoroughbred racing. In many European countries betting is organized in such a way that a share of the returns is paid to the government as tax. Some of these tax payments are redistributed to the horse industry via subsidies or support of various activities. In addition, some returns from betting reach the racing industry directly via payments to winning breeders and owners and cost coverage and maintenances of the racing tracks. One important example is France, where the economic interest group PMU (Pari Mutuel Urbain) together with Pari Mutuel Hipodrom (PMI), have a

¹⁶ IFHA (2010)

¹⁷ From 2005

¹⁸ From 2006

¹⁹ From 2004

betting monopoly and is the largest totalizator organization in Europe. For the French horse industry the income from racehorse betting is an important source of income. In Great Britain on the other hand, the organization of the betting market is very different from that in the other European countries. Only 4% of the gambling is from totalizator betting, the rest of the market is organized by private bookmakers.²⁰

Table 2.6. Betting statistics for horse racing in 2008²¹

Country	Betting in total (EUR)	On track (%)	Off track (%)
Austria ²²	5 339 753	100	0
Belgium ²³	33 790 672	16	84
Czech Republic	1 455 836	100	0
Denmark ¹⁹	82 314 561	12	88
Finland ¹⁹	268 800 000	9	91
France	9 464 595 877	2	98
Germany	119 776 869	52	48
Great Britain	11 071 225 724	27	73
Greece	296 754 820	9	91
Hungary	3 560 266	55	45
Ireland	3 904 692 094	87	13
Italy	2 274 598 789	4	96
Netherlands	31 761 743	24	76
Norway	378 426 222	7	93
Slovakia	156 256	100	0
Spain ²⁴	26 509 945	32	68
Sweden	1 089 443 000	8	92
Switzerland ²¹	69 132 805	2	98
Total	29 116 995 479		

The turnover of the betting varies extensively between the different European countries (Table 2.6). Measured in total numbers, the betting turnover is highest in Great Britain, France, Ireland, Italy and Sweden. Except from Ireland, the betting is concentrated to off track.

2.6 Horses in agriculture

Horses today provide an important opportunity for alternative land use and business in agriculture. In for example many areas of Sweden horses now outnumber cows.

The land area required to produce horse feed varies extensively between different member states (Table 2.7). The yield of the grazing is assumed to vary with the geographical location²⁵ and climate. The land required to keep a warmblood horse is between 0.75 in Ireland and 2.21 ha/horse in Greece. Assuming that all horse feed is produced within the country the share of the total agricultural land needed to feed a horse varies between 1% and 20% of the total agricultural land. However it is important to keep in mind that the total number of horses is

²⁰ Gren (2006)

²¹ IFHA (2010)

²² UET (2010)

²³ From 2005

²⁴ From 2007

²⁵ See HNS,SLU (2000)

Table 2.7 Agricultural land and feed production of the horses (based on assumption that that the horse is in normal training with the energy requirement of 84MJ per day and has a stabling period of 270 days and a grazing period of 95 days. The feeding plan contains 5.2 kg hay 3 kg straw and 1.5 kg oats.²⁶ Yields of the hay oats and straw are based on statistics from the respective countries in the FAO (2007).

Country	Agricultural land (1000 ha) ²⁷	Permanent grazing land (1000 ha)	Area needed to produce horse feed(ha/horse)	Agricultural area utilized to produce horse feed (%)
Austria	3 263	1 810	139	4.3
Belgium	1 386	519	090	19.4
Czech Republic	4 259	974	149	2.2
Denmark	2 589	345	111	6.4
Estonia	834	231	164	1.0
Finland	2 266	26	135	4.6
France	29 569	9 934	105	1.6
Germany	17 030	4 929	099	5.8
Greece	8 359	4 600	221	10.4
Great Britain	16 956	11 180	087	0.4
Hungary	5 864	1 057	187	1.9
Ireland	4 227	3 010	075	1.4
Italy	14 694	4 411	178	3.6
Latvia	1 734	629	200	1.6
Luxembourg	129	67	120	4.2
Netherlands	1 921	980	104	21.6
Norway ²⁸	1 036	169	137	6.0
Poland	15 906	3 387	166	3.3
Serbia	5 590	1 768	202	1.3
Slovenia	508	305	200	3.1
Slovakia	1 941	524	167	1.9
Spain	29 030	10 400	173	1.5
Sweden	3 219	513	118	10.3

based on estimates and that in many of the countries far from all feed is produced within the country.

2.7 The horse and the environment

The horse has other positive effects on environment than just biodiversity and alternative use of land. Horse power is presently used on a trial basis in order to reduce the emission of carbon dioxide in some countries. In France more than 70 towns have introduced horse-drawn carriages to replace petrol- and diesel-powered vehicles for local tasks such as collecting rubbish street-cleaning and taking children to school. And at least 30 more are set to join this in 2008.²⁹

However the horse also constitutes a certain amount of environmental burden. A horse produces about 20 kg of manure every day which may contribute to a run off of nutrients (mainly Nitrogen and Phosphorous). According to own calculations based on the number of horses in the respective countries the manure from horses in Europe reach nearly 100 000

²⁶ Agriwise (2009)

²⁷ FAO (2007)

²⁸ Norway country report on farm animal genetic resources

²⁹ Reuters (2007)

tons. Far from all manure is used as fertilizer. Manure from stables in urban areas is instead often sent to waste deposal or combustion plants. Therefore in order to develop an environmentally sustainable horse industry this problem remains to be solved. There could for example be a potential to use manure in the production of bio energy fuels.³⁰

³⁰ ATL (2006)

3 Horse breeding in Europe

Many nations in Europe are due to traditions and favourable climate outstanding horse countries. European breeding associations run selection programmes and keep stud books. Sport and race horses bred in Europe are highly successful in international competition and races. The best individuals command very high prices (millions of Euros per horse). As for cattle the use of semen instead of natural matings in warmblood and harness racing breeds has increased the exchange of breeding stock, and enabled improved genetic qualities of the horses. AI is not allowed in Thoroughbred breeding.

3.1 The history of horse breeding

A tremendous change has taken place in direction of horse breeds for sport and leisure in the past 3-4 decades in Europe.

Agricultural draft horses crossed with Thoroughbreds have been the basis for the modern warmblood breeds in central Europe, whereas light cavalry horses have been the basis for sport horse breeding in other countries. These breeds, often named by geographical area of origin or breeding, have largely the same breeding goals, i.e. to produce horses for the Olympic sports disciplines dressage, show jumping and eventing. Trotters are of two kinds, warmblood horses primarily descendants of American standardbred trotters and French Normand horses, and coldblood trotters in the Scandinavian countries. Many countries have a range of pony breeds, under 148 cm, that today are used as pure- or crossbreds mainly for children and teenagers. Iceland has its own breed of small horses that originate from horses brought by Norwegian and British immigrants to Iceland 1000 years ago³¹.

Table 3.1. State studs in member countries in European countries

Country	Number of state studs	Financed by
Austria	1	Private institution
Belgium	0	
Check Republic	3	Government
France	19	Government
Finland	1	Government
Germany	10	Government
Great Britain	1	Private institution
Hungary	6	Government
Ireland	1	Government
Netherlands	0	
Poland	28	Government
Serbia	5	Private institution (3) Government(2)
Slovenia	1	Government
Spain	7	Private/Government
Sweden	1	Private institution

Source: Own questionnaire (2009)

³¹ Sundqvist (2001)

National studs aiming at improvement and support of the national horse populations were established in many European countries hundreds of years ago. Some of the old National stud farms in Europe today have been converted to private institutions, whereas many still are state owned and financially supported by tax money. In England, France and Ireland the National studs still play an important role by providing stallions for breeding quality race horses.

In the European countries the state stud farms are of varied importance. For instance, in France there are presently 19 public stud farms, Germany has 10 state stud farms of which the Stud of Celle is the largest one, and in Poland there are 28 state stud farms, in which the famous Polish Arabians are bred. In the Czech Republic, Hungary, Slovenia, Austria and Romania Lipizzaner horses are bred on state stud farms. In Sweden, the former state stud Flyinge was privatized in 1983, and has since then been run by a private foundation.

3.2 Studbook organisations

The administration of breeding activities is run by national studbooks for each breed. The studbook organisations are approved by EU through the national agricultural authorities and are responsible for breeding objectives, registration, identification and issuing of passports for all horses of respective breeds. For transboundary breeds the studbook of origin determines the rules for registration and evaluation of horses according to the EU directives. Most warmblood registries within the European Union accept breeding stock from other similar studbooks and do not consider their own horses to be a discrete "breed".

Among the countries investigated for this study, Great Britain has by far the largest number of studbooks, in total 69, for a wide range of breeds including native ponies and Thoroughbreds. The breeding organizations are also of varying size with up to 240 000 registered mares (Weatherbys's in Great Britain).

3.3 Trade of breeding stock and use of artificial insemination (AI)

Breeding stock for production of harness horses has been dominated by imports from North America, but more recently French and Swedish horses are used to a larger extent in foreign countries, not least by use of transportation of fresh (chilled) and frozen semen. Thoroughbred breeding is dominated by the Irish, British, French and North-American populations.

The largest Warm blood breeds for equestrian sports are found in Germany, France, the Netherlands and Ireland. German and also Dutch stallions and semen have been widely exported in Europe and also to North-America. AI has been rapidly adopted as the main reproduction technology in several countries and breeds. For example in Sweden more than 90% of warm blood as well as trotter mares are inseminated. The development of AI has provided an opportunity for many breeders across Europe to breed their mares with top stallions independent of location of stallions and mares. This new development does however call for increased transparency across countries and studbooks as regards the genetic quality of stallions marketed for international use, as has been proposed by the EAAP-working group Interstallion. It is the experience that such important information as fertility results of stallions used with different reproduction methods is difficult to obtain in many countries.

3.4 Breeding goals and methods

Depending on studbook and breed many different traits are selected for, both performance and non performance related. In a review of breeding goals among European Warmblood studbooks it was shown that all of them select for jumping horses and the majority also for dressage traits within the same populations. However, a trend towards more specialised breeding of horses for these two disciplines can be noted. Eventing horses are primarily produced by crossing with thoroughbreds.

Studbooks provide different genetic estimates about their breeding stock, primarily of stallions. However there is no European agreement on methods for testing and estimation of breeding values³². As a consequence, the information is not always easily interpreted for breeders across countries. For instance, several countries test stallions for at least 70 days at age 3-4 years, whereas much shorter tests, which have proven to be as effective, are applied in some countries. Genetic evaluation systems are advanced in many countries, but due to differences in evaluation systems or statistical models applied (definition of base populations, and scales used for publication) results are difficult to apply across countries. The relatively low transparency between the different systems is hindering an efficient selection and trade of breeding stock between EU countries. Methods for improvements have been advised in two recent PhD studies run in collaboration with the Interstallion committee.

3.5 Endangered breeds

The number of endangered horse breeds has increased in Europe. Overall, 10% of domesticated breeds have been lost in the last century, and a further 20% are at risk of extinction. UN and the FAO has described the situation as alarming and is calling for better utilization of genetic resources and a Global Plan of Action for Animal Genetic Resources has been adopted by the international community. Some horse breeds are more threatened than others and in Table 3.2 the horse breeds announced to be at a critical level are presented.

Table 3.2. Horse breeds at a global critical level in Europe.³³

Country	Critical breeds at global level
Czech Republic	Starokladubsky Belorus
Estonia	Eesti raskeveohobune
Finland	Finnish Riding Pony
France	Poney Landais
Germany	Aegidienberger, Alt-Württemberger, Arenberg-Nordkirchner, Criollo, Curly Horse, Dülmener, Fox-Trotter, Freiburger, Lehmkuhlener Pony, Maremmano, Pfalz-Ardenner Kaltblut, Polopferd Polopony, Pony of America, Rottaler, Sarvar, Senner, Tarpan, Tölter, Warmblutschecken
Greece	Skyros Pony
Italy	Asino Baio Lucano, Avelignese Tradizionale, Cavallino di Monterufoli, Napoletano, Persano, Samolaco
Portugal	Sorraia
Romania	Romanian Draft, Romanian Sport horse
Serbia	Domaci Hladnokrvan
Slovakia	Slovenský Sportový Pony
Slovenia	Ljutomerski kasac
Spain	Cavall Mallorquí

³² Koenen et al. (2004)

³³ FAO, DAD-IS (Domestic Animal Diversity Information System) 2009

Among the European breeds on the critical list of extinction we have the Dales pony in England and the French Poney Landais. The Dartmoor pony, Hackney and Lipizzaner horse is also endangered. Also the Swedish Gotland pony and the Shire horse are threatened breeds. However, it should be noted here that the concept of threatened is not equivalent to the global critical level.

In the EU there have been attempts to pursue the demand from the UN by the 'Agenda 2000' and EU Regulations 1257/99 and 1750/99 on support to Rural Development Plans (RDPs). These EU regulations make provisions and set general guidelines and goals under which member countries can implement voluntary management agreements for the provision of livestock biodiversity services. This specific measure provides for payments to farmers, in the form of cost sharing or incentive payments, in return for maintaining local, traditional and native breeds including horse breeds at risk of extinction.

4 The horse in society

The majority of horses in Europe today are used for leisure riding. However there are still some interesting differences in the cultural assessment of the horse across European countries. This become very obvious when you discuss the horse in terms of food the consumption of horse meat.

4.1 A changing role of horses

The number of horses has steadily increased in Europe during the last 20 years especially in urban areas. A general finding in this study is that the horse industry has changed direction from being mainly a part of traditional agriculture to a leisure activity including for city dwellers. However statistics of horses kept in urban areas (i.e. within the suburban areas) are very poor. From the questionnaires major differences between those who responded to this question where found. This could indicate either true differences that this information is not known or that definitions of urban areas varies.

For many people horses have turned into a lifestyle and represent a high quality of living. Interests in equestrian properties have also increased including “villages” which offer houses or cottages in combination with stabling. You can find these establishments for example in Germany the Czeck Republic Poland Serbia and Sweden³⁴.

4.2 Leisure riding and equestrian sport

Riding for leisure and equestrian sport attracts people of all ages. Riding can be performed whether you are young or old among disabled persons and with equal prerequisites for men and women. This makes riding unique as a sport. Equestrian disciplines are in general approved by the Federation Equestre Internationale (FEI). The FEI was founded in 1921 and has 135 affiliated member countries with their own national federations.³⁵

The number of international events has more than tripled over the last 10 years! In 2006 there were 1951 international competitions compared with 536 events in 1996.

Disciplines:

Show jumping The most popular discipline in competitions and by far the most well known of the FEI disciplines. The horse and the rider are required to jump a course of fences within an arena. The most successful EU countries in jumping include Germany Netherlands and France.

Dressage translated from French does actually mean training. Dressage can be traced back to the ancient Greeks. The purpose with dressage is to develop through standardized progressive training methods a horse's natural athletic ability. In the last four Olympic games since 1992 the top three positions have been held by German and Dutch riders.

³⁴ Own questionnaire (2009)

³⁵ www.FEI.org

Eventing was developed by the military. Modern eventing is an equestrian triathlon which includes dressage show jumping and cross country jumping at speed.

Horse driving is the oldest of the equestrian sports as horses were driven long before they were ridden. The FEI driving competitions consist of three phases: dressage marathon and obstacle driving with one two or four horses.

Endurance riding involves long distances with a time factor and requires the horse to be in a very good condition.

Vaulting is gymnastic movements on horseback on the lunge. Vaulting is especially popular in Germany where it is often practiced as part of basic equestrian training.

Reining The original purpose of the sport is to show the athletic ability of a cattle horse in a confined show area.

Para-equestrian sports include both dressage and driving is available and is practiced by riders with various disabilities.

Riding as a hobby is today in many countries the western world strongly associated with women and especially young women. When asking for the proportion of women and men in riding school an average proportion of 75% women and 25% men was revealed. Further a majority of the riders were at the ages between 13 and 18 years old.

Table 4.1. Statistics of number of riding clubs and costs of a riding lesson³⁶

Country	Opportunity for disabled persons to ride	Number of riding schools	Average fee of a 1 hour riding lesson (EUR)
Austria	Yes	1 400	15
Belgium	Yes	1 310	10
Czech republic	Yes		10-20
Finland	Yes	800	30
France	Yes	4 038	12
Germany	Yes	7 500	15
Great Britain	Yes	600	45
Hungary	Yes		15
Ireland	Yes	130	25
Latvia	Yes	0	-
Montenegro	No	0	-
Netherlands	Yes	400	20-30
Serbia	No	0	-
Slovenia	Yes	71	12-25
Spain	Yes	592	15-30
Sweden	Yes	1 000	14

³⁶ Own questionnaire (2009)

In almost all countries of the European Union it is possible to learn riding at riding schools. The number of riding schools or riding clubs in countries investigated is nearly 15000 where Germany has a considerable share as can be seen in Table 4.1. The riding schools of today provide a valuable opportunity for youths to interact with horses. Studies show that children who regularly handle horses mature faster. Also the riding school in itself can act as a place for young girls to develop and strengthen their identity. Being with a horse promotes skills such as courage and initiative.³⁷

As noted from the figures in Table 4.1 the cost of a riding lesson varies extensively across the European countries. In Great Britain the costs are by far the highest at EUR 45 for a one hour lesson whilst a majority of the member countries has a cost of about EUR 15 for a lesson.

4.3 Horses and formal education

The importance of the horse industry in Europe has produced a renewed need for education and training of equine professionals. Most European countries offer formal education programmes on many different aspects of the horse such as teaching riding horse breeding and nutrition management business health and welfare tourism etc. There are also courses provided in practical skills such as riding and driving the horse.

Respondents from various European countries were asked about the possibilities to obtain a formal education in equine science in their nation. The question was divided into 3 parts which consisted in the number of upper secondary schools (i.e. 16-18 years old) higher education (i.e. university) and equine research centres. The result is presented in Table 4.2.

Table 4.2 The formal education system in equine sciences (Own questionnaire 2009)

Country	Upper secondary school	Higher education programmes	Research centres dedicated to horses
Austria	5	1	1
Belgium	4	0	4
Czech Republic	1	1	0
Finland	9	3	1
France	400	30-40	5
Germany	0	5	0
Great Britain	350	90	8
Hungary	5	1	0
Ireland	2	0	1
Latvia	1	1	1
Montenegro	2	1	0
Netherlands	4	0	0
Poland	100	300 ¹	9
Serbia	25	4	0
Slovenia ²	2	2	0
Spain	0		
Sweden	30	3	1

¹This refers to the number of courses within the higher education programmes

²Education mainly in animal and partly in equine science

³⁷ Forsberg (2007)

As can be seen in Table 4.2 the number of education programs offered by the different nations varies widely. It must also be taken into consideration that also the structure of programs varies between and within countries.

Many countries are presently in the process of establishing higher education programmes and courses. Great Britain France and Poland have a very extensive equine education system with many schools universities and research centres dedicated to horses. Within the organisation of European Association of Animal Research (EAAP) there is an ongoing work to find a way to provide an international Master in Equine Science Education to be available for most of the European countries.

4.4 Trade with horses and horse meat

Horse meat is commonly eaten in many of the countries in the European Union. There is a clear cultural difference in using horse as food however there is no clear explanation to these apparent differences. Great Britain and Ireland has no market for horse meat according to statistics. Italy on the other hand is the leading horse meat consumer within the European Union. The yearly consumption in Italy is about 1 kg per capita and in France about 0.5 kg/capita.³⁸

Table 4.3. Trade with horses within Europe³⁹

EU(27)	1998	2002	2005
Imported quantity (tonne)	182	186	138
Imported value (1 000 EUR)	566 340 (518 460)	894 009 (397 683)	950 446 (433 929)
Exported quantity (tonne)	225	166	156
Exported value (1 000 EUR)	547 949(501 624)	911 024 (405 252)	959 528 (438 076)
Imported value (EUR/tonne)	3 113 (2 848)	4 810 (2 139)	6 873 (3138)
Exported value (EUR/tonne)	2 435 (2 229)	5 504 (2 448)	6 162 (2813)

As mentioned previously Italy has the highest level of horse consumption within the EU. Italy imports 61% of the total quantity of horses marketed in the EU. However the value is 75% of the total marketed value which illustrate that it is mainly low value horses imported into Italy. The transport distance of live horses to Italy before slaughter is often very long. Substandard transports of slaughter horses have been shown to involve serious welfare problems. In the EU this problem has been recognized and there is a demand for a harmonization of the transport practices between EU countries.

³⁸ FAOStat (2009)

³⁹ FAOStat (2009)

5 The horse and the Rural Development Programme

The horse is a part of the rural community in terms of employment and use of land. This has implied increased importance of the horse also in a policy context. The common agricultural policy (CAP) has for many years been subject to a continuous reform with decoupling, where the production subsidies have been replaced with direct payments and rural development schemes. Over the years the rural policy has not affected the horse industry directly as support payments have been traditionally oriented towards cattle sheep and goats⁴⁰.

The major policy changes affecting the horse industry can be recognized with the new rural development scheme within the second pillar for the period 2007-2013. The primary aim with the new rural development scheme is to enhance a financially organically and socially sustainable rural development. This includes aspects such as improved competitiveness of the sector environmental issues land management quality of life in rural areas and economic diversification in rural areas which has a potential to affect the horse sector in many ways.

The EU rural development budget for the period 2007-2013 is supposed to be distributed between four axes⁴¹. The EU rural development policy is flexible in the sense that each member state decides the sectorial distribution between the different axes. However the distribution has to correspond to the core objectives stated in the Council regulation 2005⁴². Hence the payments distribution within the axis varies between regions within and between the individual EU-countries.

The four axis within the rural development programme are each oriented towards different aspects of rural development;

- 1) Competitiveness
- 2) Land and environment improvements
- 3) Diversification and improving living conditions in agricultural areas
- 4) "The Leader axis" that is intended for funding of local development projects.

The measures within Axis 1 are intended for investment projects within farms in order to modernize or to rationalize production. Within Axis 2 the payments are intended to rationalize the land use within farms in order to ensure that the overall environmental goals of sustainability and services are fulfilled. The third axis aims to improve the quality of life in rural areas and encourage diversification of economic activity and the fourth axis aims to improve the local development in order to improve the implementation of the first three axes. Also the fourth axis the Leader Axis has a potential to nourish the growing industry in the countryside by the financing of specific local development projects in order to make the implementation of the rural development scheme more efficient.⁴³

⁴⁰ Swedish Board of Agriculture (2005)

⁴¹ European Commission (2008)

⁴² European Council (2006)

⁴³ European Commission (2008)

The minimum requirement is that at least 10% of the total budget in the program should be devoted to Axis 1 25% to Axis 2 and 10% to Axis 3 and minimum 5% should be reserved to the Leader Axis. Moreover some financial means are supposed to support and assist implementation.⁴⁴

So what implication does the rural development program have for the European horse industry? It is hard to provide a general answer to this question as there is a certain degree of flexibility in the financial distribution between the different axes and nations. However it can be stated that for the horse sector the first axis “competitiveness” have the potential to improve the competitiveness of the horse enterprises in European countries. The second axis within the rural development scheme is oriented towards land and environmental improvements. Along with the Mid Term Review in 2005 also the farm support scheme was implemented. The decoupling within pillar 1 implied that also production of hay was included in the support scheme. Hence the horse gained importance within the agricultural sector. The farm support scheme also implied that grazing land was supported which implies that the horse could be used also for this purpose. However the compensation payment within the second axis is still coupled to cattle sheep and goat animal units. Moreover payments intended for the preservation of grazing land are also included within the second axis. Hence the horse has achieved a more important role within this axis in preserving the open landscape.

Regarding the diversification of the rural community and improving living conditions in agricultural regions the horse related enterprises has an important role. Horse businesses dealing with tourist activities such as trekking stabling or riding schools are often situated in the country side and can often make advantage of payments within the third and fourth axis intended for small enterprises (micro-enterprises) with less than ten employees. Thus within these axes of the rural development program many horse enterprises have the possibility to achieve specific project and enterprise support.

The rural development program within the second pillar of the CAP should provide an important source of income for the different actors within the horse sector and therefore contribute to the growth of the sector. For instance in Sweden horse oriented enterprises are included in the payment schemes intended to enhance grazing and production of hay and also have possibility to achieve investment supports and project supports⁴⁵. The decoupled support payments have definitely improved the profitability of horse feed production in Sweden. As decoupled direct area payments were introduced in 2005 a substantial increase in area supported land within pillar 1 could be observed which to some extent may be addressed to the grazing and production of hay intended for horses⁴⁶. Hence a considerable economical growth and further diversification of the European horse sector could be expected from payments from the first third and the Leader Axis. In particular these measures have the potential to provide an improved investment climate and enhanced growth for horse related enterprises in the country side.

⁴⁴ European Commission (2008)

⁴⁵ European Commission (2006)

⁴⁶ Nordgren (2009)

6 Conclusions and discussion

The horse is an important part of Europe and has been for a long time. The horse industry of today is a product of various environmental economic institutional and historical factors.

As society has modernized the relation between the horse and the human being has changed. The horse today is used for competition in equestrian sport including the Olympic disciplines show jumping, dressage and eventing and has an important role in the betting industry. The use of the horse however does not only concern competition and sports. The horse engages many people of all ages as a leisure activity where a majority is women.

The economic turnover generated by the horse sector is often regarded as an important topic of research. Different kinds of economic estimations have been performed in order to assess the overall sized of the sector. For Sweden and Austria the direct economic turnover of the horse sector reach nearly EUR 2 billions. Accounting for the indirect and induced economic effects this sum will be even higher. Thus the horse industry is of importance today also in a policy context. It is an important source of income in agriculture and plays an important part in the rural community. The common agricultural policy has during many years been subject to a continuous reformation with decoupling, where the support of production has been replaced with direct payments and rural development schemes. CAP consists of two pillars where pillar 1 includes the direct supports and pillar 2 consists of the four axes in the rural development programme. The horse industry is most likely to be affected by policies within the second and third axes within the rural development programme concerning environment land management quality of life in rural areas and economic diversification in rural areas.

The organization and structure of the horse industry differs between countries. Hence in order to make use of the full potential of the horse when designing the economic and political agenda an understanding of the sector is essential. For all European countries included in this study a positive association was found between the number of horses per capita consumption level and education level. A negative association was found between unemployment and the number of horses. These findings are in accordance with traditional economic theory where consumption of a good has a positive association with for example income level and are also supported by results in the previous Equus study SLU (2001).

However there are still some differences in the organization of the horse sector which may have profound effects on the economic behaviour for example optimal policy formulation. The state has for example more or less influence on the industry and the size and the organization of the betting industry vary between countries. EU-directives breeding authorities and the national horse federations are by many countries considered as having important influence on the horse industry. A vital issue for future research within the horse industry is to investigate associations between the size and economic importance of the industry and different organizational and institutional factors.

So how will the horse industry evolve in the future? For the past 10 years the development of the horse industry seems to have been oriented towards diversification rather than growth in size in terms of number of horses apart from the increase brought by new member countries. Thus a continued development into diversification could be expected. So what could be challenges to solve in order to promote the horse industry of the future? Work on this report

demonstrated an overall low quality of statistics or sometimes even lack of statistics on horses in Europe. A primary need is to improve facts and statistics that measure the size and importance of the horse sector.

7 Reference list

Committee on Farm Animal Genetic Resources. (2002). Norway country report on farm animal genetic resources. Editor: Nina H. Sæter.

Craig D. 1982. Horse-Racing – The breeding of thoroughbreds and a short history of the English turf. J. A. Allen & Co Storbritannien.

Elfman L. Brännström J. and Smedje G. (2008). Detection of horse allergen around a stable. International Archives of Allergy and Immunology 145 269-276.

Emenius G. Merritt A.S. and Härfast B. (2009). Dispersion of horse allergen from stables and areas with horses into homes. International Archives of Allergy and Immunology forthcoming.

European Commission (2006) Rural Development in the European Union - Statistical and Economic Information. Report 2006.

European Commission (2008). Rural Development in the European Union - Statistical and Economic Information. Report 2008.

European Council (2006). Community strategic guidelines for rural development (programming period 2007 to 2013). Official Journal of the European Union. Council Regulation (EC) No 2006/144.

European Council (2009). Modifications to the Common Agricultural Policy. Official Journal of the European Union. Council Regulation (EC) No 72/2009.

Furugren B. (1992). Från Vildhäst till Sporthäst: Om hästens historia från istid till nutid. Hippologiska Högskoleutbildningen Sveriges Lantbruksuniversitet.

DEFRA (2004). A report of research on the horse industry in Great Britain. Report March 2004 by Henley centre. Department of Environment Food and Rural Affairs The British Horse Industry Confederation National assembly for Wales and the Scottish Executive.

European Parliament (2008). Written declaration on transportation of horses for slaughter within the European Union. Written declaration pursuant to Rule 116 0099/2008 European Parliament.

European Commission No 504/2008. Methods of identification of equidae. Commission regulation (EC).

Forsberg L. (2007). Att utveckla handlingskraft: Om flickors identitetsskapande processer Licentiate Thesis 2007:43. Luleå University of Technology.

Greiff M. and Hedenborg S. (2005). Jag är nog lite som en mamma till mina passhästar och skämmer bort dem.” Om manligt och kvinnligt inom trav- och galoppsporterna. Idrottsforum.org/artiklar 8 mars 2005 Malmö University.

- Gren I. (2006). Översyn över hästspelsmarknaden i Europa. ATG och HNS.
- Hartley Edwards E. (1994). Bonniers Stora Hästlexikon. Alberts Bonniers Förlag Stockholm.
- Hedenborg S. (2007). The popular horse: from army and agriculture to leisure. Idrottsforum.org/artiklar 21 November 2007 Malmö University.
- Hedenborg S. (2008). Arbete på stallbacken: Nittonhundralets svenska galoppsport ur genus- och generationsperspektiv. Idrottsforum.
- Huggins M. Horseracing and the British 1919-39 Manchester.
- Hoff L. and Gudmundsson E. (2007). Jakten på den perfekta hästen: En bok om avel och uppfödare. Perfectbook Stockholm.
- IPSOS, German Riding Association (2005). Horse in Germany.
- Johansson D. Andersson H. and Hedberg A. (2004). Hästens samhällsekonomiska betydelse. Institutionen för ekonomi SLU.
- Johansson J. (2008). Mina hästar är som mina barn: - En studie om killar inom ridsporten C-uppsats Växjö universitet/Institutionen för pedagogik
- Koenen E.P.C. Aldridge L.I. and Philipsson J. (2004). An overview of breeding objectives for warmblood sport horses. Livestock Production Science 88 77-84.
- Lindner A. (2000). Transport von Pferden. Arbeitsgruppe Pferd.
- Martuzzi F. Catalano A.L. and Sussi C. (2001). Characteristics of horse meat consumption and production in Italy.
- Miller E. and Blair P. (1985). Input-Output Analysis: Foundations and Extensions. Prentice Hall Englewood Cliffs N.J.
- Miller-Auwerda P. and Otto D. (2006). Economic importance of Iowa's horse industry. Department of Animal Science and Department of Economics Iowa State University.
- Musser W.N. Commer Jr M. Wallace N. Teichner S. Sheriff G. and Rhodes W. (1999). Economic impact of horse racing in Maryland. Report Prepared for the Maryland General Assembly by the College of Agriculture and Natural Resources University of Maryland College Park.
- Schneider H.W. and Mahlberg B. (2005). The economic role of the horses in Austria. Pferd Austria and Industriewissenschaftliches Institut Vienna.
- SLU and HNS (2001). The horse Industry in the European Union. Final report. EU Equus 2001 Skara and Solvalla Sweden.
- Ståhlberg. U. (1999). Den svenska ridskolan 50 år 1948-1998. [Swedish riding school during 50 years 1948-1998]. (Unpublished)

Sundkvist A. (2001). Hästarnas land. Aristokratisk hästhållning och ridkonst i Svealands yngre järnålder. Occasional Papers in Archaeology 28. Uppsala.

Swedish Board of Agriculture (2005). Kartläggning och analys över hästverksamheten i Sverige. Rapport 2005:5.

Swinker A. Tozer P.R. Shields M. L. and Landis E.R. (2003). Pennsylvania's Equine industry Inventory Basic Economic and Demographic Characteristics. The Pennsylvania State University.

Thorén Hellsten E. Viklund Å. Koenen E.P.C. Ricard A. Bruns E. and Philipsson J. 2006. Review of genetic parameters estimated at stallion and young horse performance tests and their correlations with later results in dressage and show-jumping competition. Livestock Science 103 1-12.

The Raqwort Control Act (2003) Chapter 40 and Office of Public Sector Information (OPSI)

Databases

Dutch Council for the Rural Area RLG (2009). <http://www.rlg.nl/cap/>

Eurostat(2009).http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1090300706821090_33076576&_dad=portal&_schema=PORTAL. Accessed 2009-02-25.

FAOStat (2009) <http://faostat.fao.org/default.aspx>. Accessed 2009-02-25.

FAO DAD-IS Domestic Animal Diversity Information System. (2009). <http://dad.fao.org/> Accessed 2009-02-25.

Webpages

ATL (2008). www.atl.nu/Article.jsp?article=3795

Chevaux-normandie (2009). www.chevaux-normandie.com/horses/competitiveness_cluster)

FEI (2008). www.FEI.org

IFHA (2008). www.IFHA.org

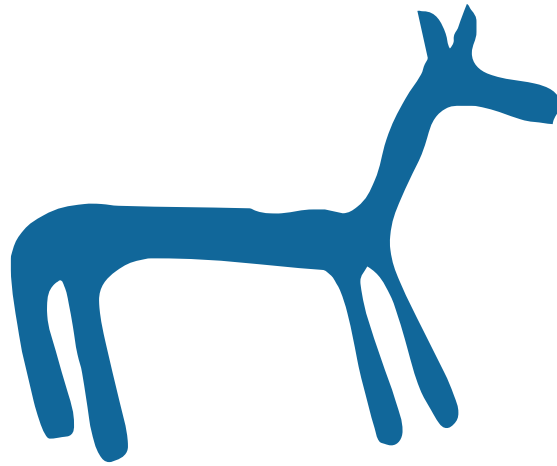
IPSOS and the German Equestrian Association (2005). www.pferd-aktuell.de/Doc-.29700/doc.htm

Reuters (2007). www.reuters.com/article/environmentNews/idUSL1665984020071121?feedType=RSS&feedName=environmentNews&rpc=22&sp=true

UET (2008). www.UET.org

Personal communication

Nordgren M. (2009). Swedish Board of Agriculture (2009-05-18).



EU Equus 2009

This report is funded by the Swedish Horse Council Foundation, the Swedish Board of Agriculture and the Swedish University of Agricultural Sciences for EU Equus 2009.

EU Equus 2009 is a conference during the Swedish EU Presidency, concerning the future competitiveness, development and social benefit of the European Horse Sector. The conference is organized by the Federation of Swedish Farmers, the Swedish Horse Council Foundation, the Swedish Board of Agriculture and the Swedish University of Agricultural Sciences.

