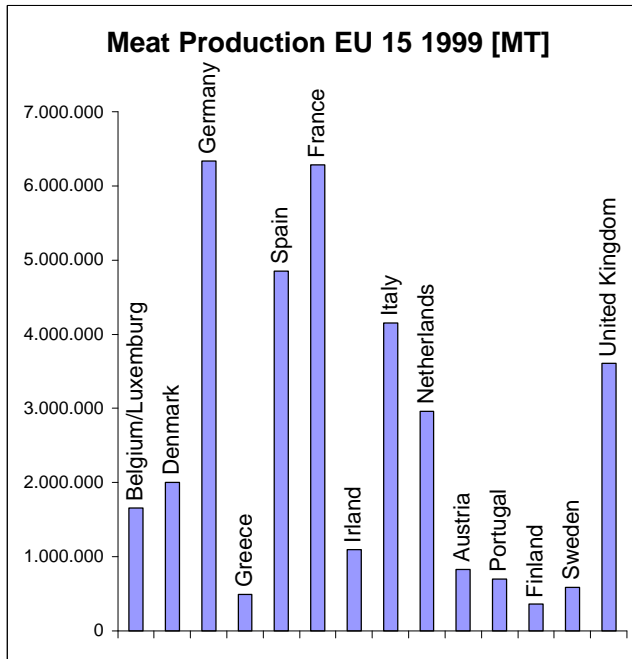


ANIMAL PRODUCTION AND FEED BY SPECIES



Market Size

In 1999, the total amount of the livestock production (meat) in the EU was 35,908,258 MT with France and Germany representing the largest markets, followed by Spain, Italy, and the UK.¹

Feed - the crop cycle

In the EU as a whole, nearly 3/4 of agricultural land was used to produce animal feed in 1996, including grassland. Intensification means more animals per hectare and that fewer animals are fed on locally-grown forage crops as part of mixed farming regimes.

According to the EU Commission, between 1975 and 1990 over 4 million hectares of

meadowland was brought into intensive production - much of it for high-yield fodder crops such as maize.² However, the EU imports 70% of its feed protein and almost all of its soya.³

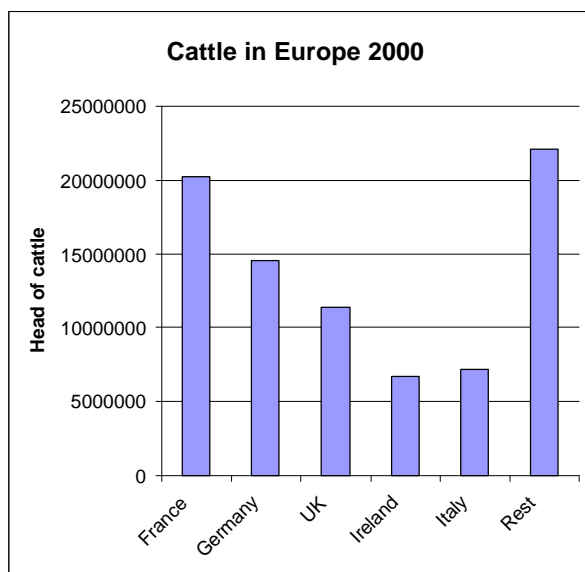
Antibiotics: Antibiotics have three uses in factory farming: as 'growth promoters' - to increase growth or productivity, 'prophylactic' - to prevent disease, and 'therapeutic' - to restore sick animals to health.⁴ Most compounded feeds for growing pigs, veal calves, and broiler chickens are supplemented with antibiotics.⁵

According to the World Health Organisation (WHO) more than half the global production of antibiotics is used on farm animals.⁶

A growing body of scientific evidence is finding links between antibiotics in the food chain and the development of resistance to those antibiotics in humans. Recent reports by the EU Scientific Steering Committee and the UK Advisory Committee on the Microbial Safety of Food express 'great concern' about the threat to human health of antibiotic resistance.⁷ The WHO strongly recommends that antibiotics used to treat humans should not be used to promote animal growth.⁹ Sweden, which bans antibiotics in farming, has shown such farming practices lower resistance to antibiotics in medicine.¹⁰ Recently, the EU has banned four antibiotics used as growth promoters from feedstuffs.¹¹

Consumption

People in developed countries obtain an average of 27 percent of their calories and 56 percent of their protein from animal food products.¹² Total meat consumption per person per year in the EU was 87,2 kg - meat consumption in Spain was the greatest (107,5 kg) and lowest in Finland (64,5 kg) and Sweden (68,0 kg).¹³



BEEF

Population

In 2000 there were 82,2 million cattle in the EU, of which 20 million were dairy. The largest herds were France (20,2 million), Germany (14,6 million), the UK (11,4 million), Italy (7,2 million), and Ireland (6,7 million).¹⁴

Market value

Milk production is the single most financially important sector representing 34% of EU livestock production¹⁵ with a total value of 38.2 bn ECU.¹⁶ For Scandinavian countries and Switzerland, it can represent up to 50% of the

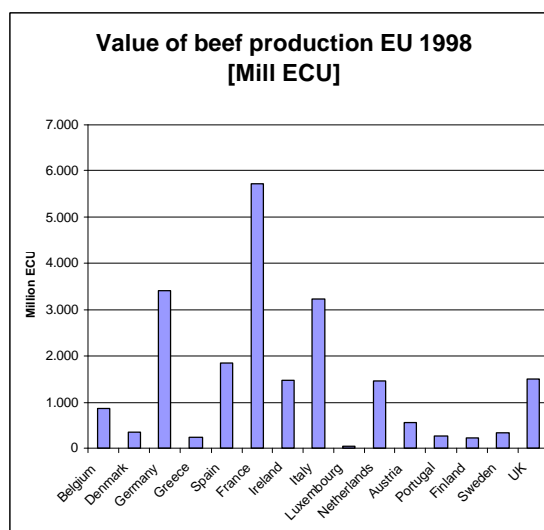
value of domestic livestock production.¹⁷

The beef industry represents 19% of the livestock industry value,¹⁸ or 21.4 bn ECU.¹⁹ The industry is most financially critical in Ireland, which has a huge beef export industry.

The 'crop cycle'

Dairy herds have become increasingly concentrated and intensive. A dairy cow is now expected to produce up to 50 litres a day at the beginning of the lactation period (more than 5400 litres a year, up from 3750 in 1970), requiring selective breeding to produce large udders and large quantities of feedstuff to fuel this continuous pregnancy and lactation cycle. Soya is the least costly of these feedstuffs.

Veal production is a consequence of the dairy industry. Welfare concerns with white veal production are well-known. This system can only be sustained by the regular use of in-feed antibiotics.²⁰



Intensification of the beef industry has led to intensive management of grass and grazing land - at serious environmental and wildlife cost - and meant that increasing numbers of cattle are being fattened on nutrient-rich feed.

Most beef cattle are wintered indoors, and some are housed year round.²¹

The feed

A dairy cow may eat 4700kg of forage and 1600kg of concentrated feed a year.²²

Cattle consume large quantities of field maize, and maize gluten feed can make up to 25% of their feed mix. Citrus pulp and palm expellers are other major ingredients, with smaller portions of soya hulls, beet pulp, and grain also used.²³

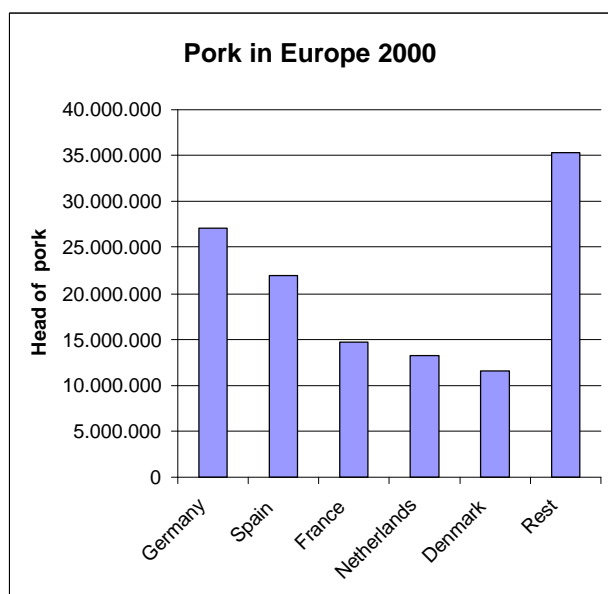
Most cattle are fed antibiotics routinely throughout their lives, in replacement milk powders, compounded feed and feed blocks. Beef cattle may be given growth promoters, dairy cows routinely receive antibiotics to prevent mastitis.²⁴ In the US, rBGH - a GE hormone to increase milk production - is given to 30% dairy cattle according to Monsanto (the manufacturer),²⁵ and hormones used in 90% beef production.²⁶

Efficiency of 'protein conversion' - i.e. how many kilos of feed = one kilo of animal

One kilo of beef (liveweight) requires 7kg of high-protein feedstuffs.²⁷

Consumption

Average beef consumption across Europe is 19 kg per person per year. The French eat rather more (26,7 kg) while Germany (14,5 kg) Spain (13,8 kg) consume less per person.²⁸



PORK

Population

In 2000 there were nearly 123,5 million pigs in the EU. The largest producers were Germany (27,0 million), Spain (21,9 million), France (14,6 million), Netherlands (13,1 million) and Denmark (11,6 million).²⁹

Market value

In 1998 the pigmeat market was worth 21.3 bn ECU, and represents about 21,9 % of the value of EU livestock* production.³⁰ It has the largest value in Germany although they are not self-sufficient. Denmark and the Netherlands are important exporters.

*Livestock production includes beef/veal, milk, pigmeat, eggs and poultrymeat

The 'crop cycle'

The majority of pigs are factory farmed. In some areas of Brittany, there are between 500-1000 pigs per hectare and over 1000 per hectare in areas of Belgium and the Netherlands.³¹

High performing breeding sows produce about 25 piglets a year. They are usually weaned at four weeks. The piglets (growers) live in a crowded barren environment until they are slaughtered at six months and/or 100kg. Many pigs are given no straw, but are kept on bare concrete or slatted floors. Severe overcrowding prevents pigs performing their natural behaviour such as rooting, foraging, and exploring. Some pigs are kept in damp, poorly ventilated buildings - making respiratory diseases a serious threat. Death rates count for 15-20% of pigs from birth to slaughter.³² Abattoirs may slaughter 300 or more pigs an hour.

The sow stall and tether system is the dominant system in Europe (banned in the UK), tethers are to be phased out by 2006.

The feed

Pig feed is up to 15% soya bean meal, rapeseed is another significant portion. Tapioca is the main ingredient in Europe, and there are smaller percentages of wheat, feed peas, soya hulls, palm expellers, bonemeal and animal fat.³³

Antibiotic use is routine - both as growth promoters and routine therapeutic doses to guard against the diseases of stressed and intensive rearing. The Soil Association says pigs may receive up to 10 different antibiotics, by injection, in water and in feed.³⁴

Efficiency of 'protein conversion'

Four kg of grain fed to pigs produce one kg of pork liveweight.³⁵

Consumption

Average pork consumption per person per year in the EU is 40,8 kg. The big consumers are Spain (58,7 kg), Denmark (57,1 kg) and Austria (55,4 kg). The UK eats only 23,3 kg per person per year. In Greece 24,8 kg of pigmeat are eaten annually per capita.³⁶

FISH

Fish for feed

After 1994, when nearly 32 million tonnes of fish (representing nearly 30 percent of the total world fisheries production) were used for feed, there was a decrease in this usage in 1995. As a consequence of the El Niño phenomenon, the stocks of small pelagics in the Eastern Pacific are expected to shrink and the volumes landed in the course of 1998 may consequently be several million tonnes below those recorded in 1996.³⁷

Population

Aquaculture provided 23,1 percent of global fisheries production (and 31,9 percent of food fish) in 1996.³⁸ World wide, fish farming has been growing at the rate of 11,6 % per year since 1990. By 2015, according to World Watch, it could overtake beef output.³⁹ In 1996, inland aquaculture production accounted for 251,000 tonnes of fish (1,6 % of world production) and marine production accounted for 907,000 tonnes (8,4 % of world production).⁴⁰ The major EU producers are Norway and France, followed by the UK and Ireland.

The 'crop cycle'

In the EU, two species of fish are farmed predominantly: salmon and rainbow trout. Stocking density is typically 15kg fish/m³. These conditions predispose farmed fish to attack from disease and parasitic infestation.⁴¹

The feed

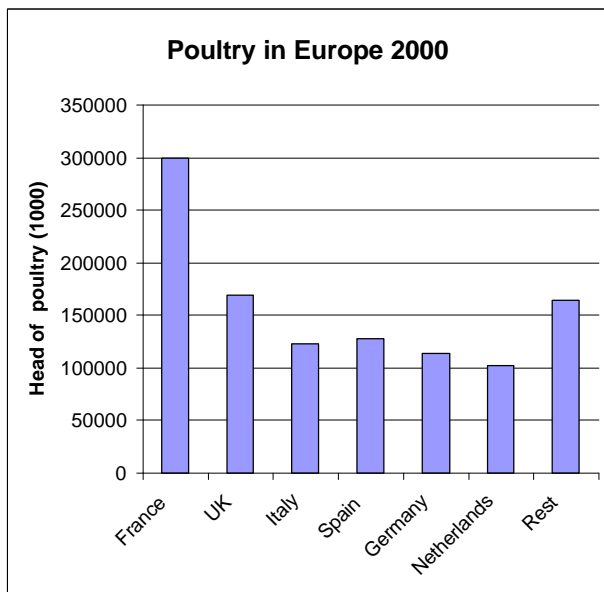
Farmed salmon feed can be 43% protein, 35% oil, farmed trout feed can be 32% protein 6% oil. - soya and maize are major components.⁴² Artificial colourants are used to give their fish a healthy pink colour. Fish farming also employs antibiotics, most of which escapes into the environment without being ingested by the fish.⁴³ The use of antibiotics and vermicides causes immense environmental damage and damage to wild fish.⁴⁴

Efficiency of 'protein conversion'

Less than 2kg feed per kilo live weight.⁴⁵

Consumption

Worldwide people eat more fish than any other type of animal protein. It is estimated that between 15% and 20 % of all animal proteins come from aquatic animals:⁴⁶ 7,4 % in North and Central America and 9,2 % in Europe, in Asia fish represented 26,2 % of animal protein intake.⁴⁷



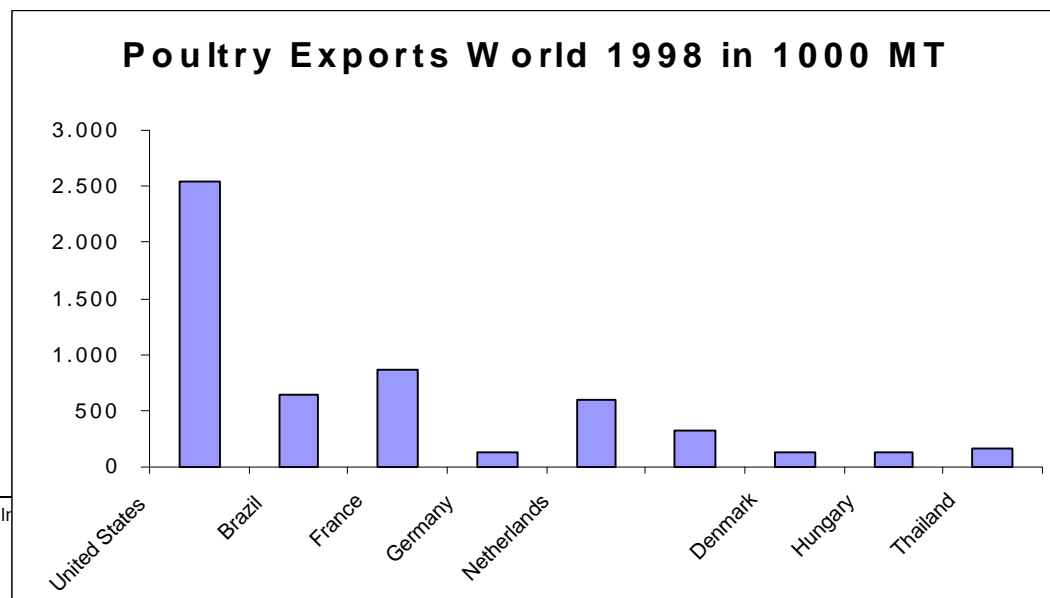
POULTRY

Population

The World:

In 1999, preliminary figures for poultry production are 55.6m tonnes. The US is the world's largest producer and exporter of poultry meat,⁴⁸ and together with China accounts for roughly half the world output.⁴⁹ The EU produces 7.4m tonnes of poultry of which France accounts for 2.3m tonnes and the UK 1.5m tonnes.⁵⁰

In 1998, the US exported 42,700 tonnes of poultry to Germany and Greece alone, with a value of 27.6m dollars.⁵¹ Belgium is another



importer of US poultry.⁵² However recently the principle non-EU importers include Thailand (which exported 285,000 tonnes world-wide in 1998) and Brazil (631,000 tonnes in 1998, 724,000 predicted for 1999).⁵³ Brazilian output has increased dramatically in 1999 with exports predicted to expand by 15% in 1999 and 2000,⁵⁴ the largest growth being in exports to Europe and Asia. It is worth noting that some EU supermarkets see Brazil as a source of GE-free poultry.

The EU:

There is a total of 1.101.115.000 poultry in the EU. The main part of all the poultry stock are chicken with a total number of 970.061.000.⁵⁵

The total yearly production of broilers in the EU is about 4 billion.⁵⁶ France is the largest poultry producer (240 million birds) in the EU, followed by the UK (152 million), Italy (130 million), Spain (127 million), Germany (103 million), and Netherlands (100 million).

In 1998, France produced nearly 1.2 million tonnes of chicken meat and 730,000 tonnes of turkey. About 45% of French poultry production takes place in Brittany with Pays-de-la-Loire representing about 22%.⁵⁷

EU trade. Within the EU, there is a large trade in poultry - 1.5 million tonnes in 1998.⁵⁸ More than 40% of French poultry meat (505,000 tonnes)⁵⁹ is normally exported mainly within the EU. Germany is the main importer within the EU, importing roughly 380,000 tonnes⁶⁰ - of which one-third comes from France alone - ⁶¹ followed by the UK.⁶²

Market value

Within the EU, poultry and egg production counts in 1998 for about 15,7 % of the value of the livestock industry. Counted with egg production, the overall value is 16.6 bn ECU. In terms of percentage of national livestock industries, poultry is most significant in the UK (23,8 %), followed by Italy (20,9 %) and France (20,2 %). However, the French market is the most valuable (44.5 bn ECU in 1997).⁶³

The 'crop cycle'

Poultry production is primarily a large-scale industrial activity. Eighty-five percent of French poultry production takes place in establishments producing more than 2.5 million birds.⁶⁴ In 1998, three French producers represented nearly 50% of French production.⁶⁵ The UK market is also dominated by a few very large players.

Most birds are permanently confined to sheds, often without natural light or ventilation. Over 84% of laying hens are kept in battery cages, with up to 90,000 laying hens per barn. The laying hen lives 72 weeks, 52 weeks of which are spent caged with four other hens each allocated a space the size of an A4 sheet of paper. Around 30% of battery hens arrive at the slaughterhouse with fresh bone breaks as a result of brittle bones. The battery system will be phased out by 2012.

Stocking densities for broilers can be 150 chickens/10m² - although there is no legally binding maximum density. Broilers are fattened from one day old to around 2 kg in weight: an eight week 'crop cycle' - twice as fast as 30 years ago. Only at this point are their sheds cleaned, prior to restocking.

Breeder turkeys cannot mate naturally as they are too broad breasted. Male turkeys have to be milked for semen, females endure a rather crude insemination by syringe or tube. Turkeys are normally slaughtered at 9 to 21 weeks. The majority of turkeys are raised in windowless buildings of up to 25,000 birds. Stocking densities in the UK often exceed the advised maximum by 50%. The frustration can lead to outbreaks of aggression and cannibalism; this is sometimes controlled through debeaking the birds. About 7% of a flock dies in the sheds before slaughter.

Poultry meat is a significant route of transmission for such illnesses as salmonella and campylobacter. Abattoirs may slaughter 8,000-10,000 birds an hour. This is one place E. coli spreads as there is ample opportunity for cross contamination at various stages of slaughter and processing.

The feed

Soya meal is approximately 20% of poultry feed - in turkeys, soya can represent up to 30%.- which also contains soya hulls and maize gluten, animal fat and bonemeal.⁶⁶ Maize fed broilers are a specialist market.

Laying birds (battery hens) are not normally given growth promoters, but may well receive therapeutic doses of antibiotics. Routine use of antibiotics is the norm in broiler production. Even so, about 10% of the birds killed in the UK are contaminated with salmonella. In 1996 a government report said 44% were contaminated with campylobacter.⁶⁷

Efficiency of 'protein conversion' - i.e. how many kilos of feed = one kilo of animal

In six weeks, a broiler chick needs just over 2 kg of feed to achieve 1 kg liveweight.⁶⁸

Consumption

In the EU, poultry consumption is 23,7 % of total meat consumption, but this varies dramatically country to country. Ireland leads EU poultry consumption at 31,9 kilos - nearly three times Swedish consumption (9,3 kg).⁶⁹ In the US, per capita poultry consumption is predicted to be 49.5 kilos this year.⁷⁰

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