

# Present and future of the cereals market

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**SUMMARY** – This paper presents an overview of the cereal world production, consumption and trade as well as of the current political orientation of the world market.

**Key words:** Cereals, production, consumption, trade.

**RESUME** – *"Présent et futur du marché des céréales". Cet article présente une vue d'ensemble de la production, la consommation et le commerce mondiaux des céréales ainsi que l'orientation politique actuelle du marché international.*

**Mots-clés :** *Céréales, production, consommation, commerce.*

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## Introduction

As a public undertaking or as a means to this end, according to its definition, any market can be large. But the cereals market is without doubt the biggest, the oldest and the most important one, because it strengthens the trading of the really necessary gold, the green gold, from which other golds are mined, for example, the black, the yellow and the silicon gold. The name "cereal" comes from Ceres, the Roman goddess of agriculture and the main virtue of cereals is that they are the main source of nourishment of the human race, whether via direct consumption or through the animals which have been fed with them. Their natural potential is due in part to the fact that they are self-fertilising. It is also helpful that their initial distribution is produced by the wind. Now that manual techniques are being replaced, the cereals market is bigger than 1,500 million tonnes per year.

## World balance

### Production

Production graphs (Figs 1-9) show a significant growth up to date and a 13.5% rise forecast up to the year 2005 (200 million tonnes approx.). This is without considering potential policy changes and future natural vicissitudes. Only the production of barley, oats and rye is now decreasing. The reasons for this fall are basically the lack of cost-effectiveness of these crops, which are very resistant and rustic but with a low profit margin. When talking about barley we should also consider the use of Thai and Indonesian tapiocas from the 90s on. Europe is nowadays importing 7 million tonnes. In Figs 10-17 we can see the distribution of this production. It is important in this introduction to stress storage questions and the need to raise the storage capacity to avoid the 1999 problems that occurred in France, India and the USA (they reached nearly 490 million tonnes). It was an alarming situation. Storage must be one more step in the production chain and not an opportunity for the speculator.

### Consumption

Graphs of animal and human consumption (Figs 18-20) show that despite alterations in supplies, consumption has been increasing in the last decade from 1,350 million tonnes to 1,500 million tonnes. If we take a look at all the cereals (Fig. 21) we can observe a rise of wheat and maize in comparison with secondary cereals. The growth in world consumption of cereals forecast up to the year 2005 is estimated to be 225 million tonnes in relation with the growth in production commented before.

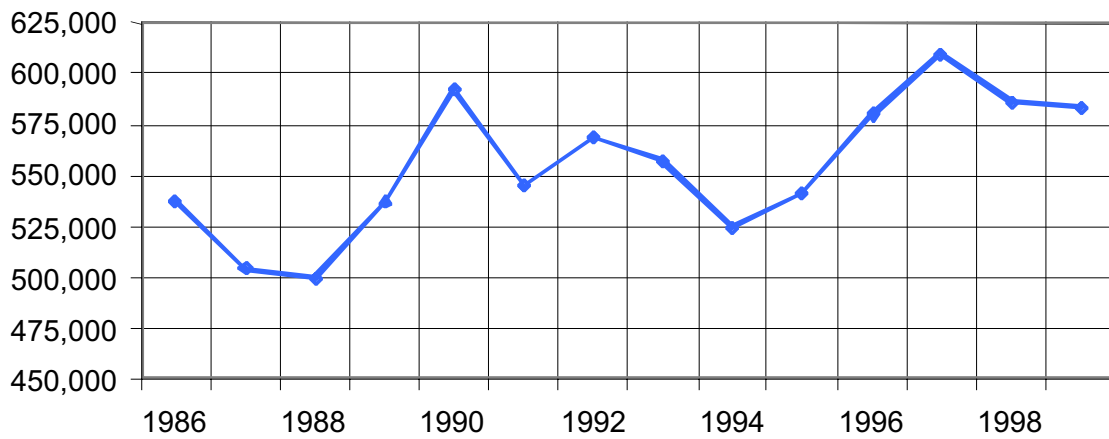


Fig. 1. Wheat world production 1986-1999 (MT).

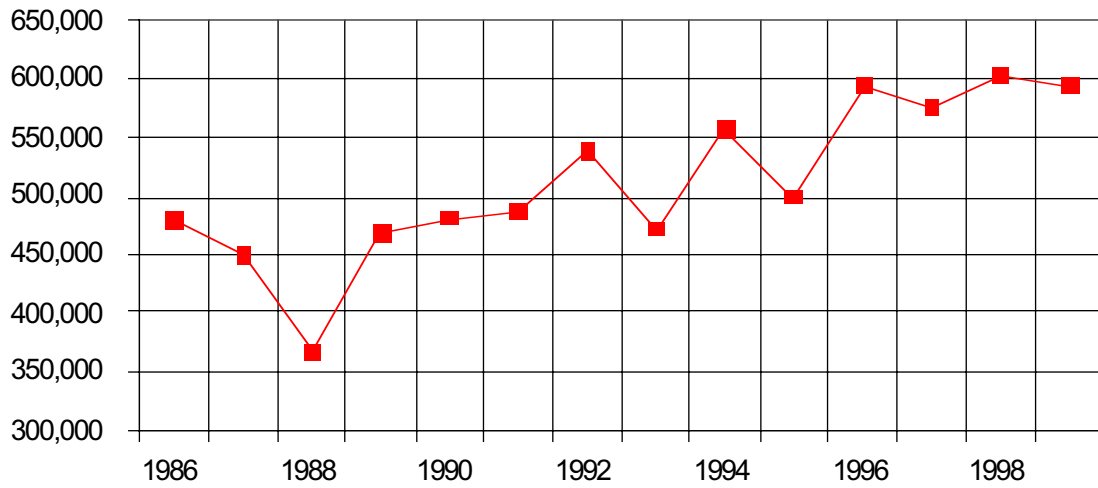


Fig. 2. Corn world production 1986-1999 (MT).

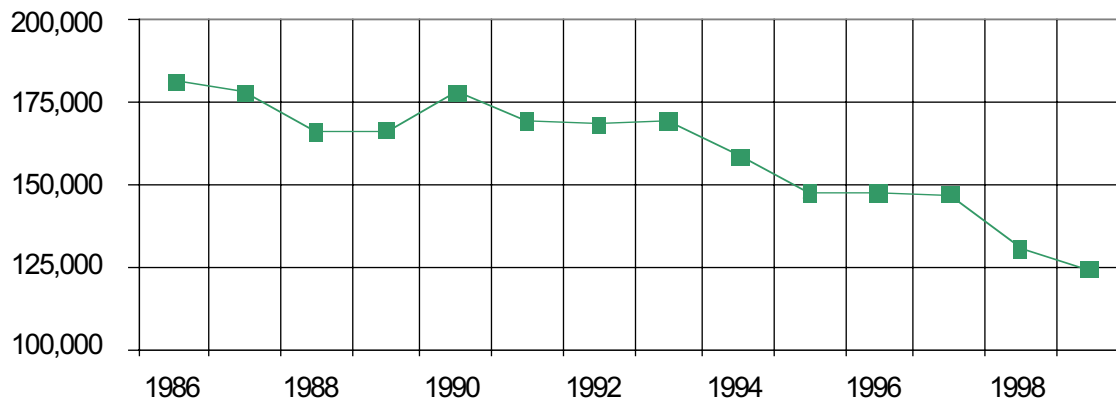


Fig. 3. Barley world production 1986-1999 (MT).

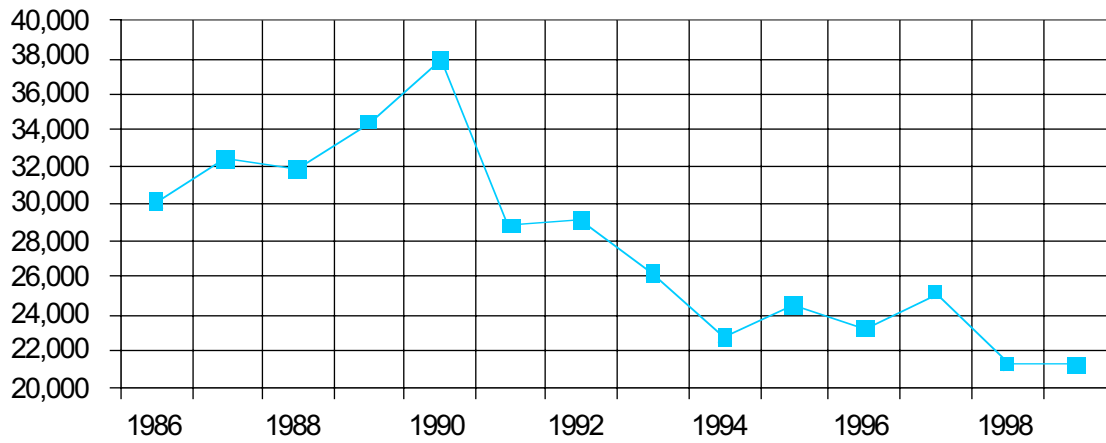


Fig. 4. Rye world production 1986-1999 (MT).

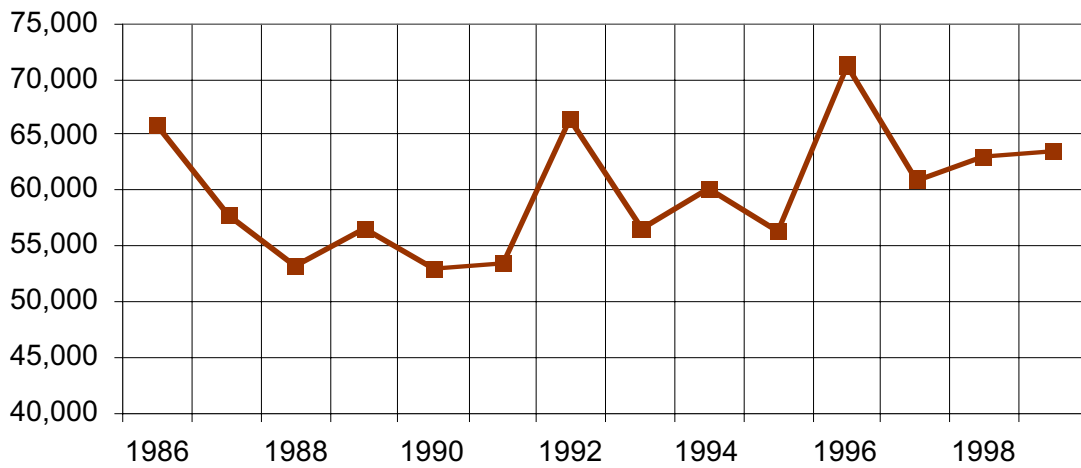


Fig. 5. Oats world production 1986-1999 (MT).

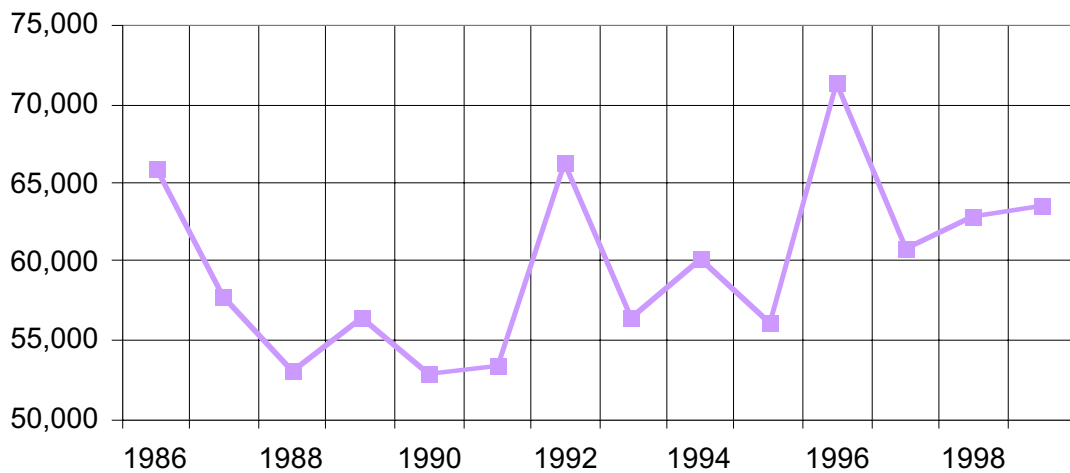


Fig. 6. Sorghum world production 1986-1999 (MT).

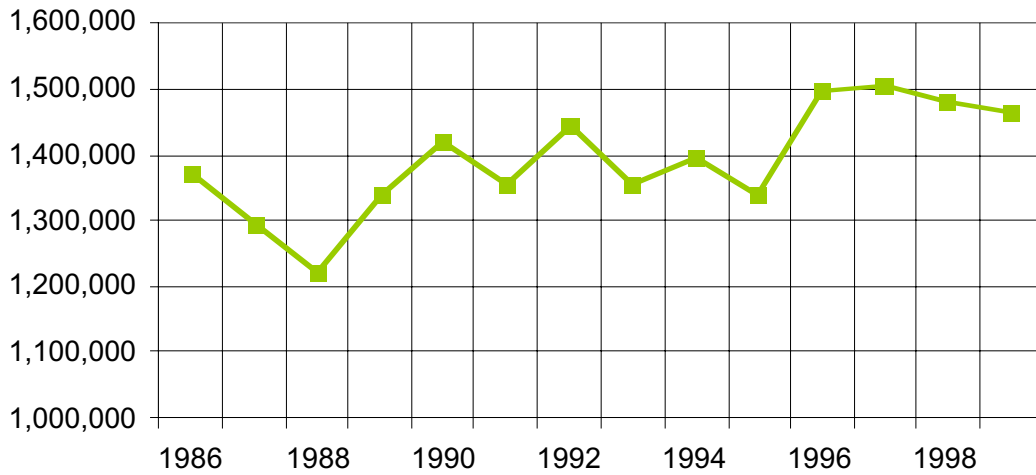


Fig. 7. Wheat and coarse grain world production 1986-1999 (MT).

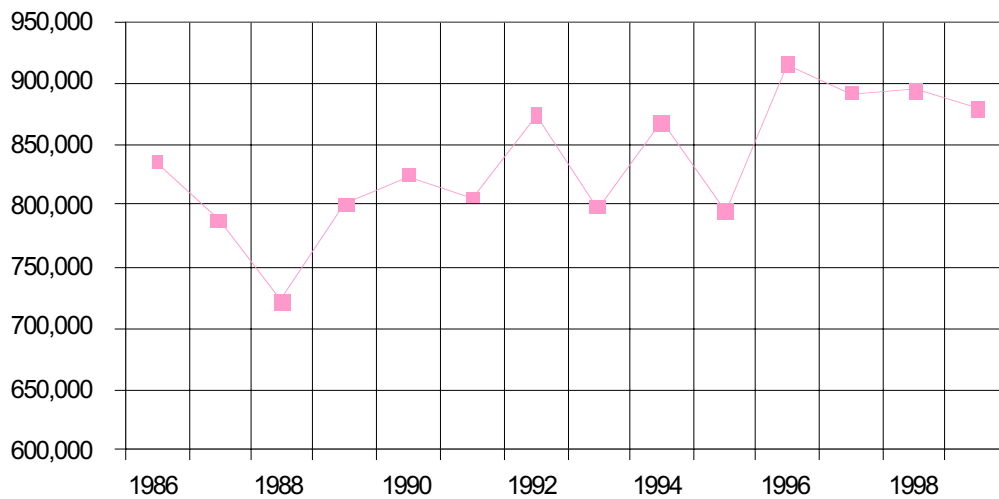


Fig. 8. Coarse grain world production 1986-1999 (MT).

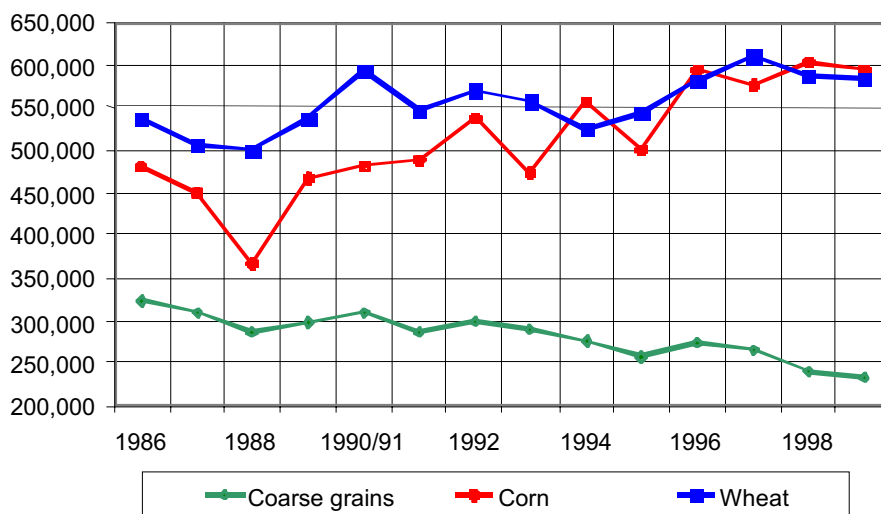


Fig. 9. Wheat, corn and coarse grains 1986-1999 (MT).

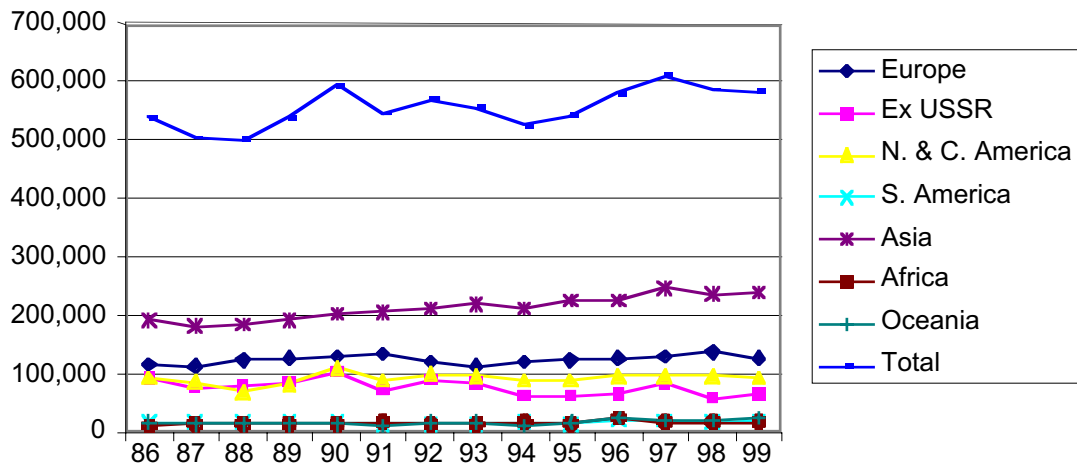


Fig. 10. Wheat world production 1986-1999 (MT).

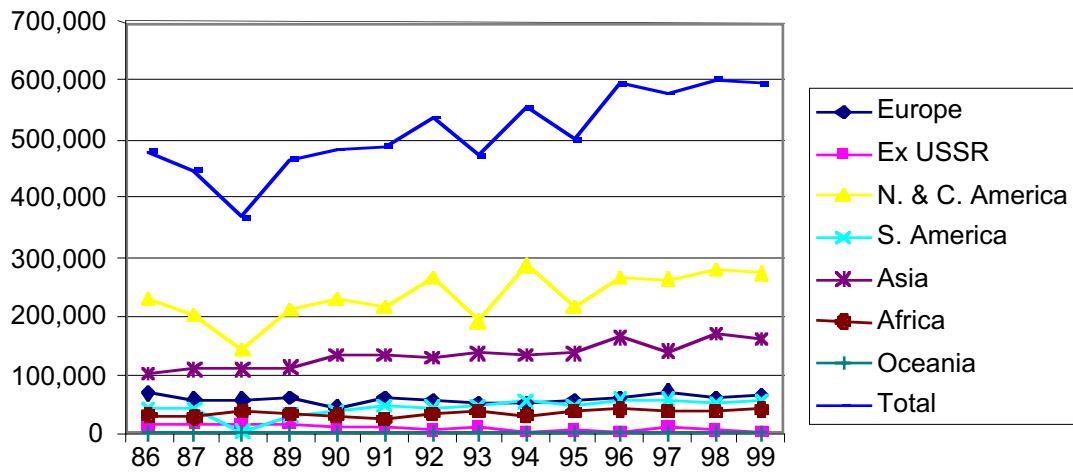


Fig. 11. Corn world production 1986-1999 (MT).

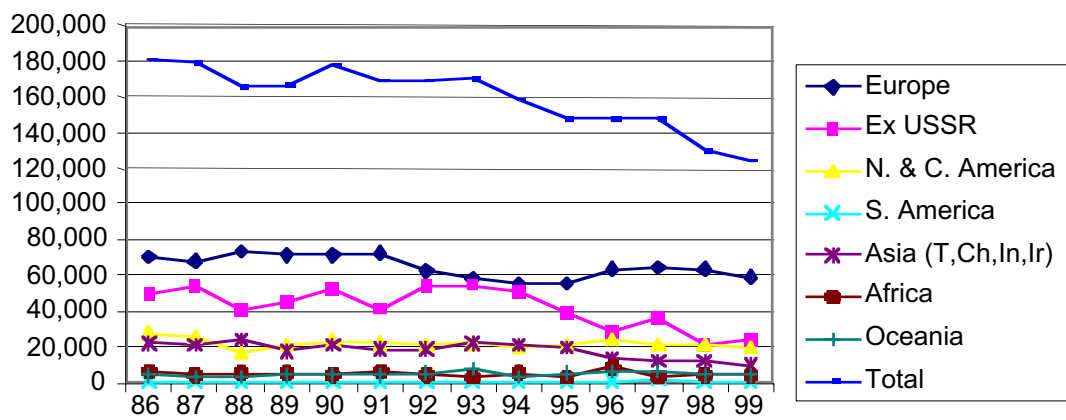


Fig. 12. Barley world production 1986-1999 (MT).

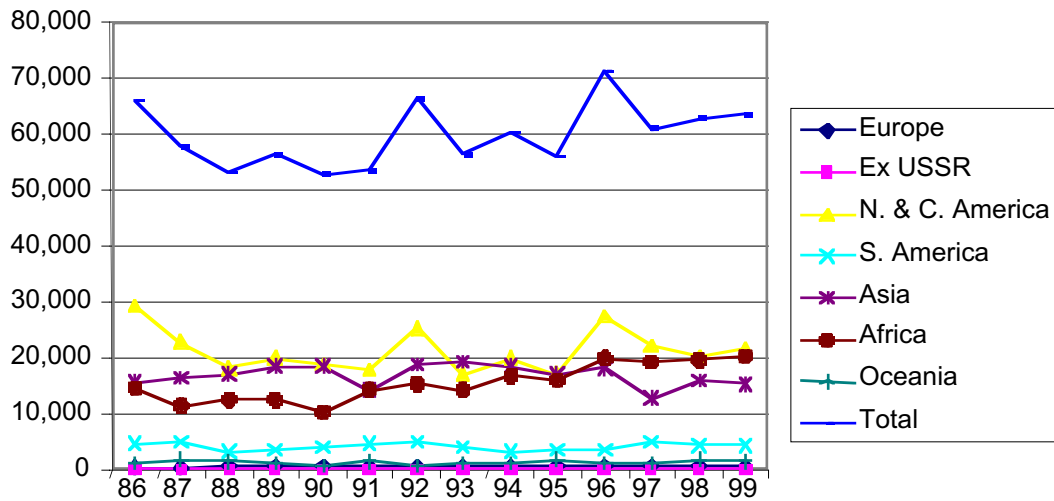


Fig. 13. Sorghum world production 1986-1999 (MT).

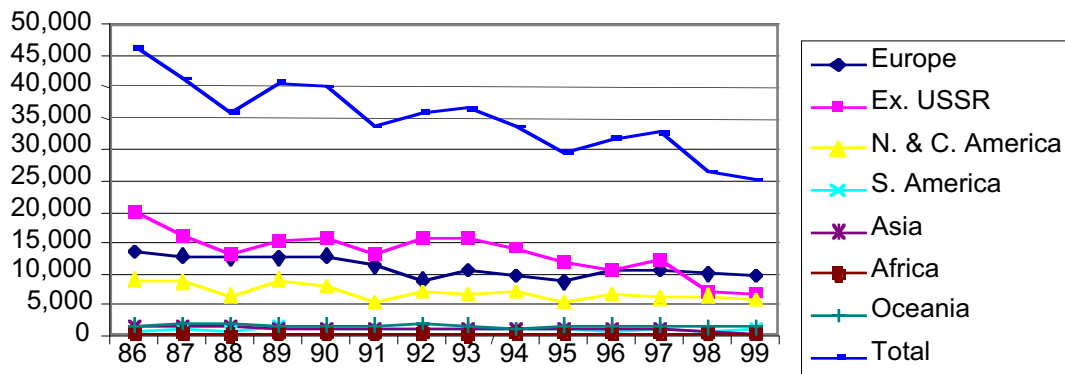


Fig. 14. Oats world production 1986-1999 (MT).

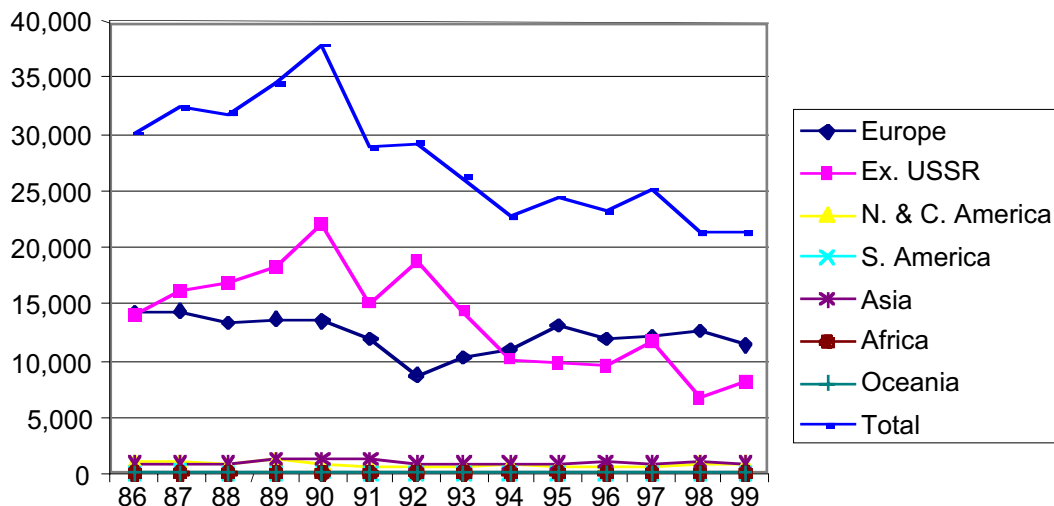


Fig. 15. Rye world production 1986-1999 (MT).

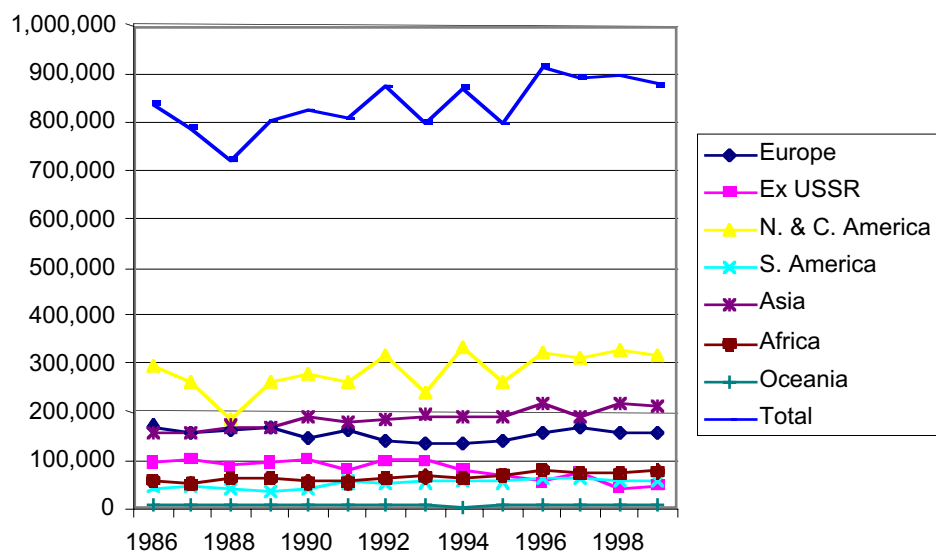


Fig. 16. Coarse grain world production 1986-1999 (MT) (including corn, barley, oats, rye, millet, triticale, sorghum).

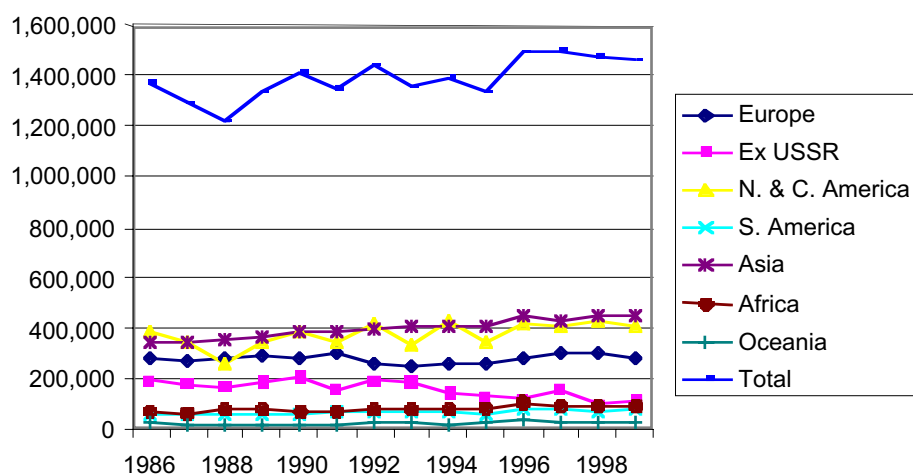


Fig. 17. Wheat and coarse grains world production 1986-1999 (MT).

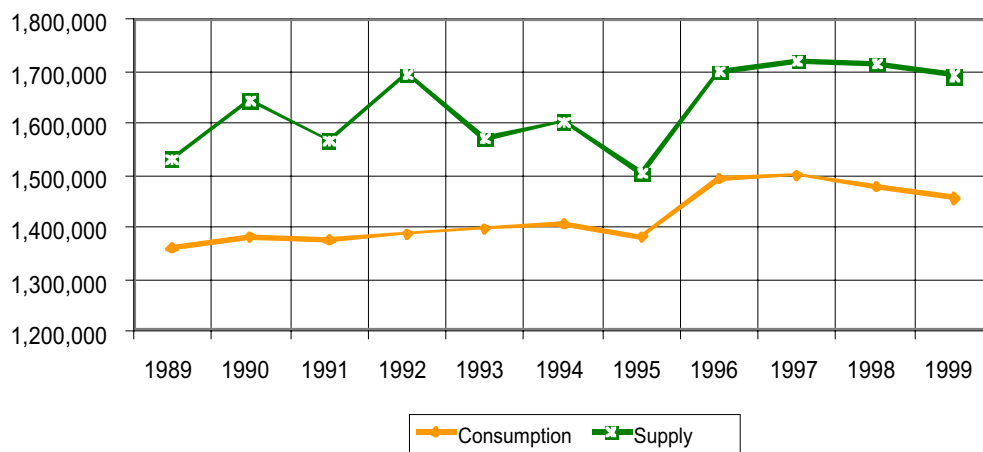


Fig. 18. Supply/consumption 1989-1999 (MT).

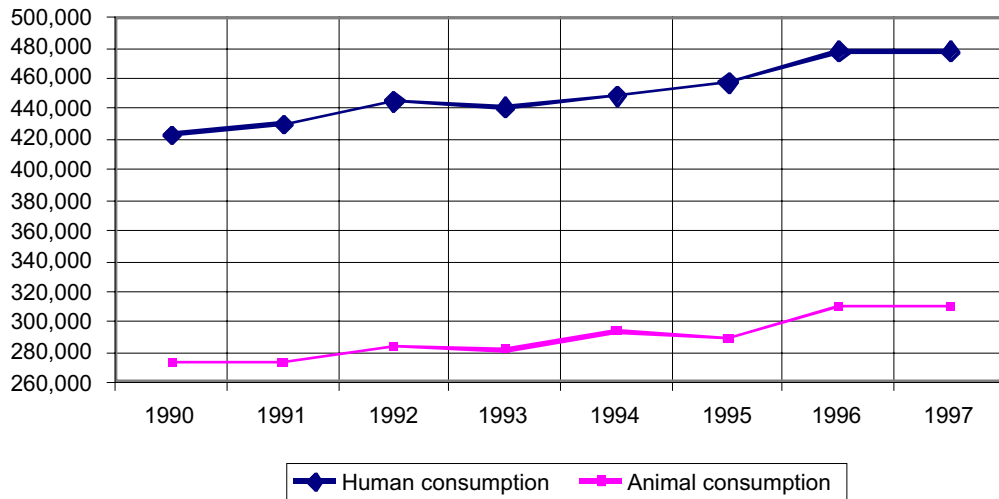


Fig. 19. Human and animal cereal consumption 1990-1997 (MT).

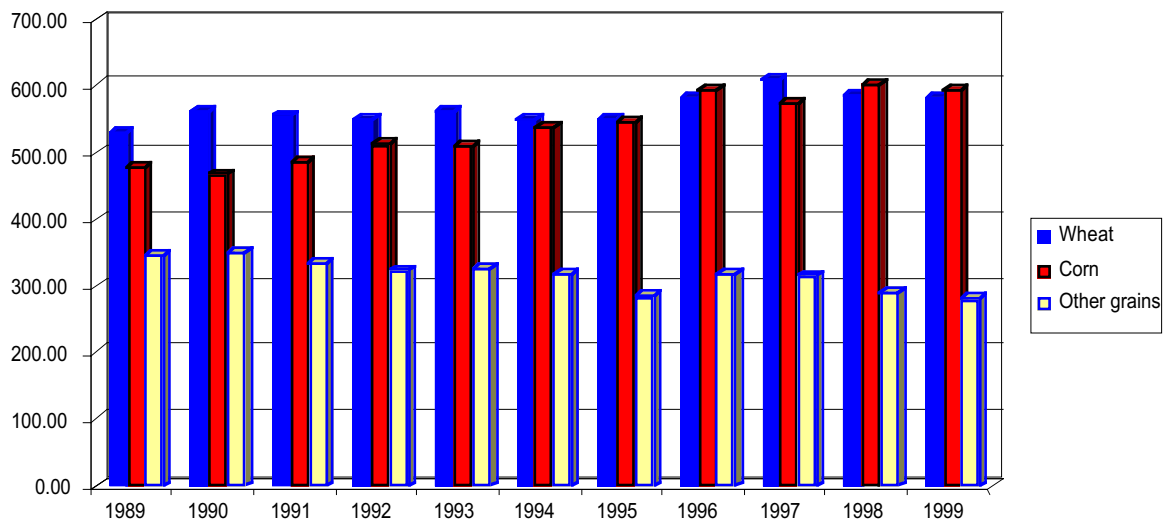


Fig. 20. Development of cereal consumption 1989-1999 (000 MT).

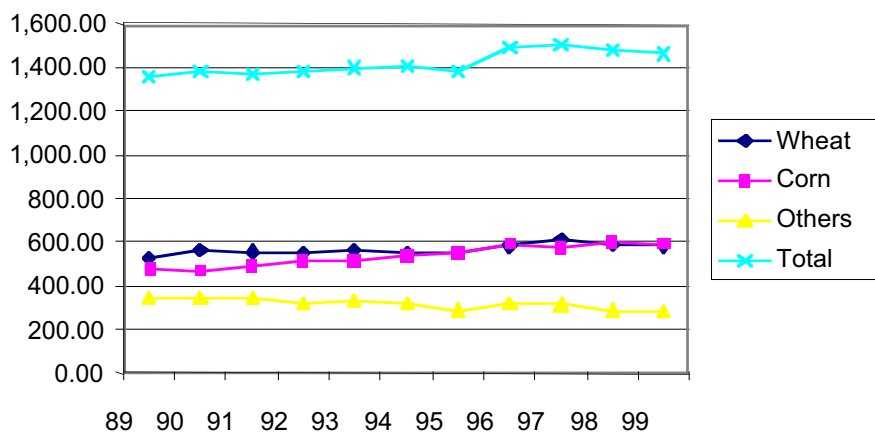


Fig. 21. World cereals consumption 1989-1999 July/June (000 MT).

## Trade

By looking at Figs 22 and 23 we can verify a gradual rise in imports since 1993. The oscillations of these imports correspond to the production. Despite the increase of production in regular importing countries, an expansion of trade has been predicted. This expansion is due to a series of factors included in its own development, such as rising incomes, more suitable nourishment with more calories per person, population growth, more livestock of the different species, etc.

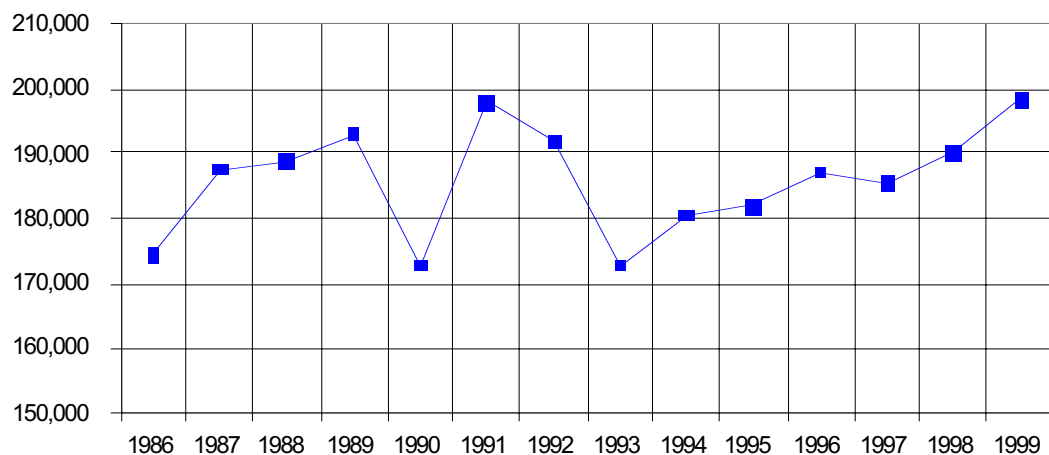


Fig. 22. World cereal imports 1989-1999 (MT).

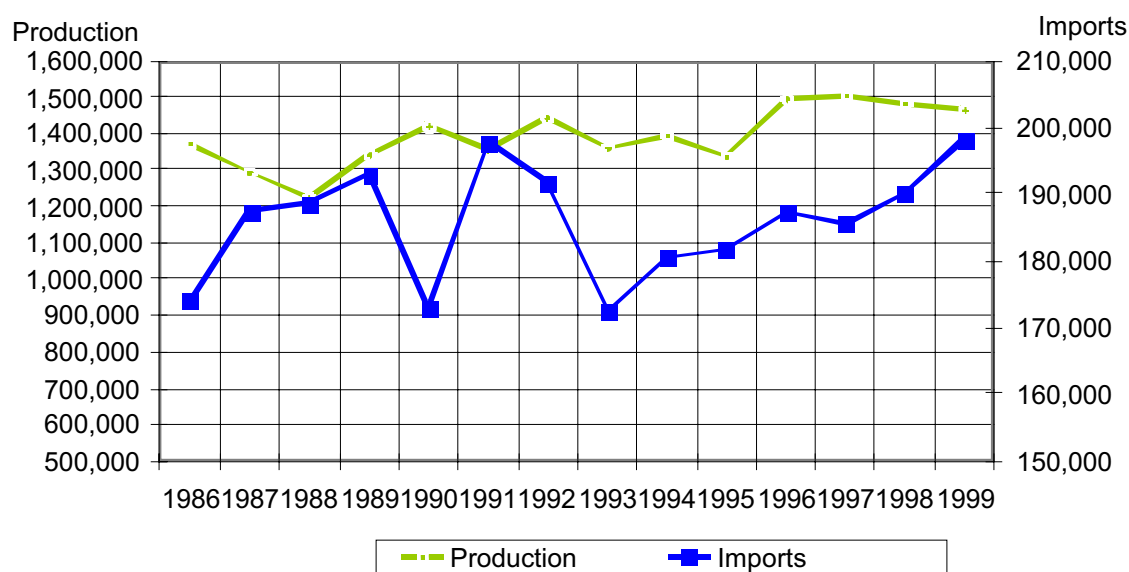


Fig. 23. Production versus imports 1989-1999 (MT).

## Production

The basis of the development of production is the surface dedicated to it. According to FAO data, in the last ten years the surface dedicated to the growth of cereals was around 520 million hectares, distributed as follows: wheat 230 million, barley 76 million, maize 135 million, others 80 million.

Growth has been maintained, although the percentage has risen in the so-called developing countries, and the total extension used by developed countries has decreased, due to different policies applied to achieve the balance designed by international agreements. However, at the

moment, in these countries the extension of land set aside is not very noticeable due to the rise in production.

We should also point out that countries such as Bangladesh, India and Ukraine, with a total surface area of 4.2 million km<sup>2</sup> and over 67%, 59% and 57% of cultivated land, respectively, are among the countries with the highest rate of malnutrition. On the other hand, there are countries like Brazil, with a total surface area of 8.5 million km<sup>2</sup> and perfect geographic conditions for cultivation that only use 7.7% of its extension for this purpose. The reasons for this are quite obvious if we take into account the important deficiencies in its production processes, such as the lack of infrastructures, adequate machinery, fertilisation, seeds, etc. In this area it is important to remember the importance of the final agreements which will be achieved in the next WTO/Uruguay Round meeting. The production increase in these terms should not imply many problems if, as research shows, agriculture tends towards an integration by using its own resources in a more efficient way (e.g. converting wastes of a component into contributions for another component, etc.).

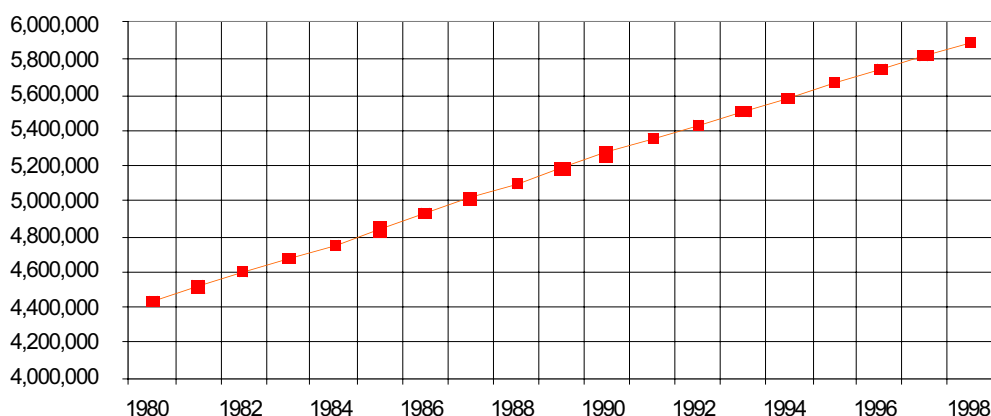
Biotechnology with genetically modified seeds has been maybe the most outstanding point in the production processes. A significant growth in yield has been obtained due to higher resistance to pests, the diminution of water needs, the fixing of atmospheric nitrogen, the lower use of fertilisers, etc. Nevertheless, like any other contribution of science, this technology has detractors and defenders. We are still waiting for clear legislation on the matter, which does not imply serious problems for the commercialisation.

As regards the climatic aspects, we should only point out what already seems evident: that it is not possible to predict weather conditions early enough to determine the kind of crop that should be grown. Amongst those phenomena already known, we must refer to the well-known El Niño and La Niña. Since 1983 they have been monitored and a lot of money has been invested in order to be able to predict them earlier enough so as to calibrate grain and fuel reserves or to try to arrange water reserves, designing irrigation programmes in accordance with the available supplies. These phenomena are especially important because they affect the Pacific Ocean water temperature: El Niño heats it up producing rains and La Niña cools it producing the opposite effect. During its last appearance, in December 1998, it left its mark on the whole world's agricultural production. Apart from other catastrophic meteorological phenomena, rainfall, El Niño and La Niña have been mostly studied because of their impact on future and spot markets. In fact, there are cycles in markets during the year, known as weather markets.

## Consumption

Taking a look at the graphs, we can conclude, speaking generally and without considering the nutritional shortages of 14% of the world population, that the supply and demand are balanced and that the world stocks have recovered by 16% since the dreadful end of the 1995 season (from 190 million to 230 million tonnes) (Fig. 18).

There have been decisive factors in the rise of production and consumption, such as an improvement of agricultural incomes in the main productive countries, a demand maintained by the continuous population rise (Fig. 24) and an increase in the animal census (Fig. 25).



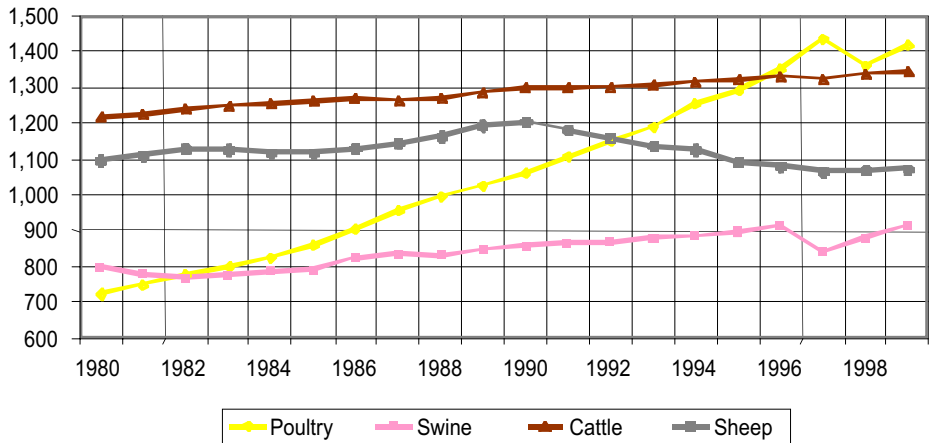


Fig. 24. Population increase.

Fig. 25. World livestock census 1980-1999.

Especially in Europe, cereal consumption by the feed industry has increased considerably (Fig. 26) from 35 million tonnes in 1990 to 51 million tonnes in 1998. From my point of view, the reasons for this growth have been the decrease not only of prices but also of transformation and quality indexes (Fig. 27).

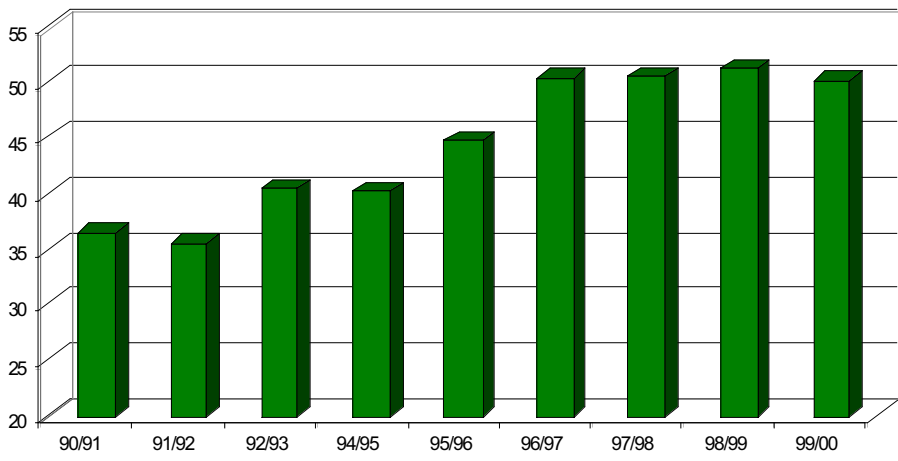


Fig. 26. Increase of cereals in compound feed, CEE 1990/1999 (MT).

The rise in the number of imports (Figs 28 and 29) of the Pacific Ring member countries (Indonesia, Philippines, Malaysia, Vietnam, Japan, Korea, etc.) and of some African countries has also contributed to the maintenance of consumption. It has been a rise not only of quantity but also of quality helped by important financial programmes and by their own development. So we can conclude that with an annual rise of 40 million people and with the commitment to reduce that 14%, consumption will keep an increasing trend in the long term. Even so, we must try to maintain the supply/demand balance with the tools offered by the agricultural and livestock progress. We should also try to advance towards the objective of palliating the problem of hunger without forgetting the positive and negative dynamism of our ecosystem. In addition to the traditional consumption of cereals by humans and animals and other industrial uses, other new uses are appearing, such as that for manufacturing biodegradable fuels or plastics made up of maize. It is estimated for this year that only in the United States there will be a consumption of 14 million tonnes of maize in the manufacture of ethanol. This is included in the programmes promoting the development of alternative sources of energy. Some changes have also been observed concerning the consumption of the industries which transform starches and isoglucoses. These changes have affected products from maize and wheat, or at the beginning, all this was due to

the consumers' rejection of products containing genetically modified materials.

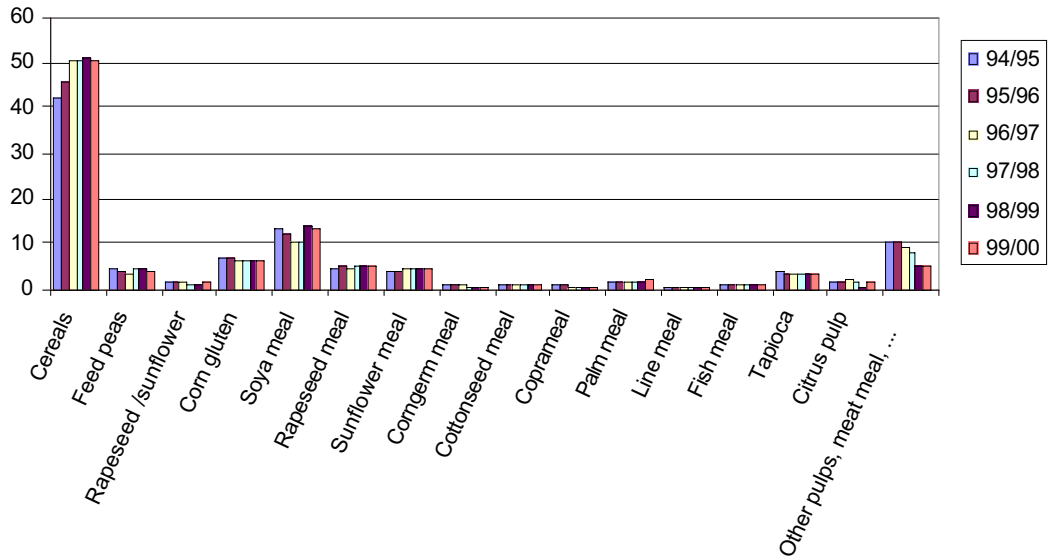


Fig. 27. Composition of compound feeds, CEE 1995-1999 (000 MT).

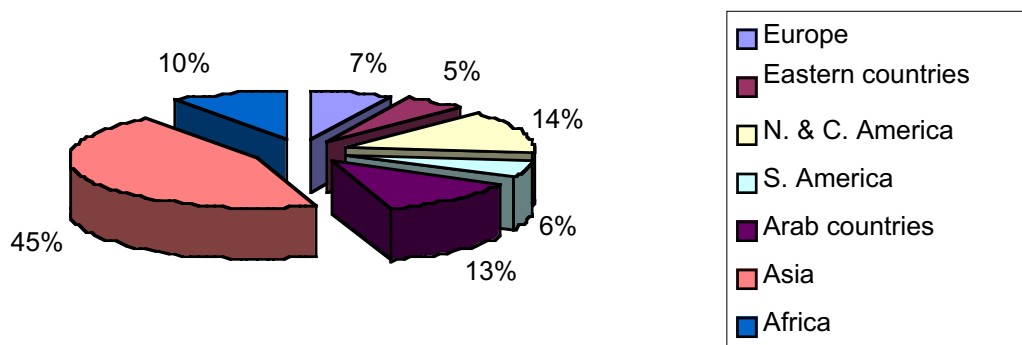


Fig. 28. Wheat importers 1990/1999.

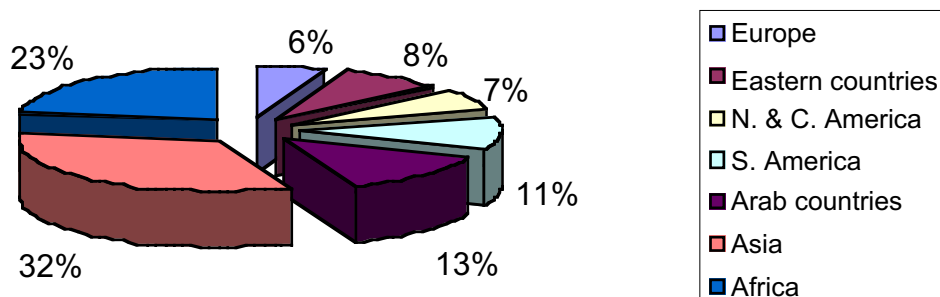


Fig. 29. Coarse grain importers 1990/1999.

In this section we should stress the evolution of the most important livestock species in intensive production, observing the data included in Table 1.

Table 1. Evolution of the most important livestock species in intensive production

Species	1995	2000	Variation
Goats	659,663,000	714,174,000	8%
Pigs	891,400,000	904,672,000	1.6%
Rabbits	461,250,000	474,668,000	2.8%
Sheep	1,090,650,000	1,060,194,000	-2.7%
Bovine	1,320,120,000	1,331,137,000	0.8%
Chickens/Hens	12,891,135,000	14,321,168,000	11%

These figures show an increasing trend although within a slow-down framework due to the decreasing consumption of some species. As an example of the human consumption of meat and despite the enormous differences depending on who is compared, we could use USA consumption in pounds per year and per capita: pigs 52.4, bovine 69.6, chicken 7.5, and eggs 258 units.

## Trade

In my opinion, cereal trade is a model of mature trading. My opinion is based on the fact that it demonstrates a capacity of taking decisions when confronting the complexities it has to face. Also, because it is able to manage in different latitudes and because of its sensitivity to any political, social, economic and environmental change. The contractual frameworks of the cereal trade (e.g. GAFTA from 1876) are very good and they offer appropriate options in order to solve any possible problem. This resolution capacity, previous to the ordinary law, gives it a dynamism not frequent in other areas.

Cargoes are an important part of this trade, which in a short period of time, has turned from being a local trade to being a national one and from national to international. Who could have imagined, not so long ago, that the diets of our pigs could include French wheat, Canadian sweet peas, Australian lupines, English oats. Shipments of grain have increased in the past years (Figs 30 and 31), and forecasts indicate that this growth will continue in the near future. (Let us hope that the famous barrel allows it, by reducing the current price of 28\$ by half a dozen dollars. These transport vessels consume from 32 to 36 tonnes of fuel a day.)

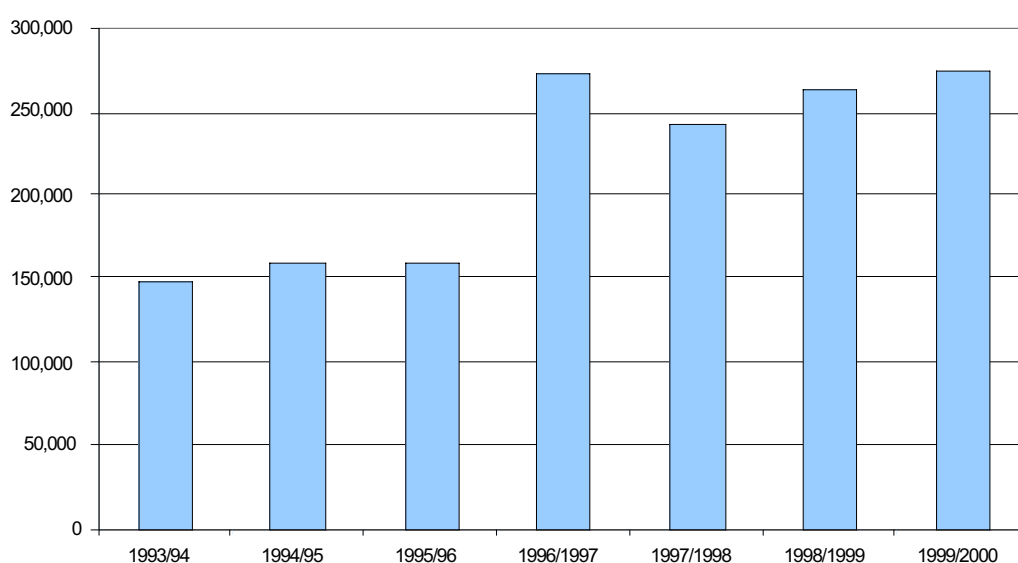


Fig. 30. Yearly shipments of grains 1993/2000 (MT).

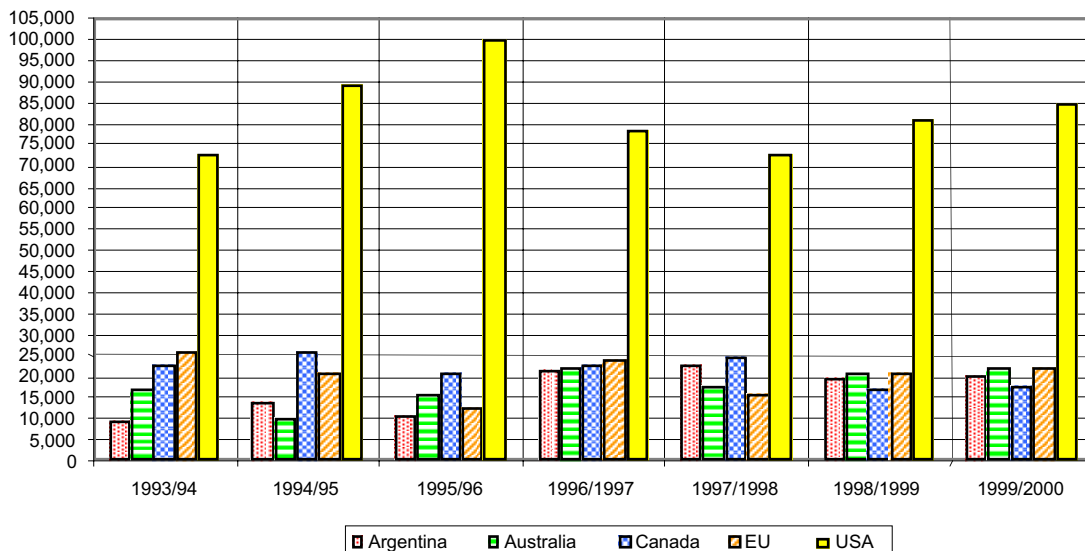


Fig. 31. Yearly grain shipments by origin July/June (MT).

Prices have evolved on different levels as a result of the political measures taken on an international basis and by the EU, due to commercial agreements; and as a result of supply and demand.

In the framework of the community political measures, defined by the CAP in 1992, a higher level of equilibrium has been achieved. This has meant a fall of prices, an increase in animal consumption and higher competitiveness in other markets. Between 1973 and 1988, the EU volume of agricultural production rose a 2% on an annual basis while internal consumption only grew 0.5%. This evolution resulted in an expensive stock accumulation and as a consequence it is necessary to promote EU exports, causing tensions between the EU and other exporters. The access to other markets has been possible basically through the reduction of land in which the farmer receives direct help, and by the progressive decrease of price intervention. In order to maintain the income of farmers, the intervention price reductions also involve farmers support.

These prices are established at the beginning of every season (from July the 1<sup>st</sup> to June the 30<sup>th</sup> of the following year). There are three different basic prices: the *intervention price* guaranteed for the farmer in the moment of selling, the *indication price*, based on production evolution and the *entry price*, which establishes a price on the imported cereals. A regulating right is also fixed everyday in order to put the imported product price and the same product within the EU on the same level. Concerning exports, the *restitutions* (subsidies) are also fixed depending on the prices of the international markets. Thanks to this design, we are able to adjust to international prices and consequently, we have more options.

In addition to these price systems, the buyer or seller also have a powerful tool to avoid fluctuations. I am talking about the futures market for agricultural raw material. The best known is the Chicago futures market established in 1848. Since 1865, it has set up standard agreements called future contracts where quality, quantity, date and delivery place are defined. Afterwards a margins guarantees system based on prices was established to avoid possible breaches. Nowadays, we can also find these stock markets in London and Paris and their business volume is increasing acquiring a higher liquidity. It can also imply some concrete deviations such as the one we are suffering nowadays. A trend of stable prices, even tending to decrease, changed up from the second week of January 2000 reaching the present prices which are very difficult to understand. The only reason for this is the behaviour of the protein queen, soya, within this futures market where funds have been especially active due to the high output offered. All this is despite a production of 154 million tonnes near the 98/99 record of 159 million tonnes and very distant from the average from 1990 to 1995 which was from 125 to 130 million tonnes. Nevertheless, its nature allows you to avoid these situations if you are not interested in speculating and offers the possibility of cover.

Fob Argentina Up River delivery May 00:

	November 99	March 00
Soya meal 44%	147\$/T	167\$/T

## Political orientation of the world market

The present and future orientation of the cereals market has been established since the signature in 1947 of the GATT (General Agreement on Tariffs and Trade). The main achievement of this agreement was the establishment of an international forum aimed to promote the increase of multilateral trade and to solve international trade conflicts. In the beginning, it was formed by 23 countries and progressively other countries joined it, reaching the present 132 members. Its basic objective is the abolition of the non-tariff protective barriers, the control of the production or exportation subsidy systems and the avoiding of trading discrimination among the member countries. Since it started, there have been eight conferences. The last one was the so-called Uruguay Round which started at the end of 1986 and ended in 1994. In this last conference an agreement was reached which included the substitution of GATT by the World Trade Organisation (WTO). In addition to this, in 1992 the North American Free Trade Agreement (NAFTA) was signed by Mexico, Canada and the United States and it established the gradual suppression of tariffs and other barriers to free trade.

## Global nourishment situation

The so-called sustainable development is as necessary as any other stage of this market. This expression is applied to the economic development which allows us to face present needs without risking future generations. That is why we cannot ignore a very important issue: the one concerning the problem of hunger in the world.

Today, almost 800 million people are suffering from hunger. The distribution is as follows: sub-Saharan Africa 180, India 204, China 164, Latin America and Caribbean 53, other Asian and Pacific regions 157, Near East and North of Africa 33.

The reduction of these figures is slow - 40 million 1990/1997 - and that makes me think that, all of us who have something to do with this market, should try to reach the target proposed in the 1996 World Food Summit: to reduce the total number to around 400 million by the year 2015. That is why I did not want to finish my speech without mentioning this fact and I am sure that improving this situation concerns all of us in one way or another.

## Conclusion

I think of the rise in the production as the best route to follow for the benefit of everybody, always within a certain order. Reviewing the history and trying to avoid utopian suggestions, I think that any restrictive or interventionist policy is very complicated and very rarely achieves a balanced result. We could compare it to a crossroads where not all of the drivers respect the rules the same way. That is why the traffic light instead of regulating the flow in an impartial way, sometimes produces the opposite effect.

I cannot remember when I heard it or read it, but this is a quote from Victor Hugo, the French nineteenth century author: "In the future, there will be no other battle fields but the one of the markets opening to trade and the spirits to ideas".