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16-18 October 2002

GLOBAL TRADE OF NPK COMPOUNDS :

CURRENT SITUATION AND TRENDS

by

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Agenda

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- Development of the Complex Fertilizer Market in Western Europe
- Complex Fertilizers - Production & Consumption around the World
- World Trade of NPKs
- China - the Future Complex Fertilizer Market
- Summary

Global Trade of NPK Compounds
Current Situation and Trends

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Topic of Interest

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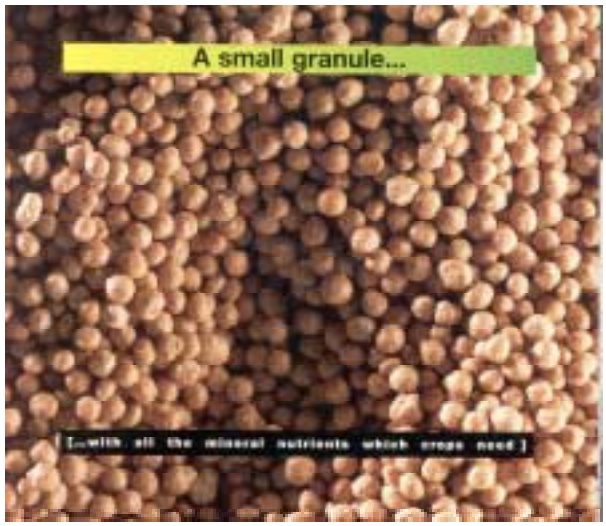
Complex Fertilizers:

„All nutrients in one grain“



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The following presentation deals with the global trade of NPK complex fertilizers.

In this case we are talking about chemically produced NPKs (all nutrients in one grain).

Although it is not always possible to find statistical data showing NPK without mixed and blended NPKs we nevertheless limit the presentation to this type.

Development of the Complex Fertilizer Market in Western Europe

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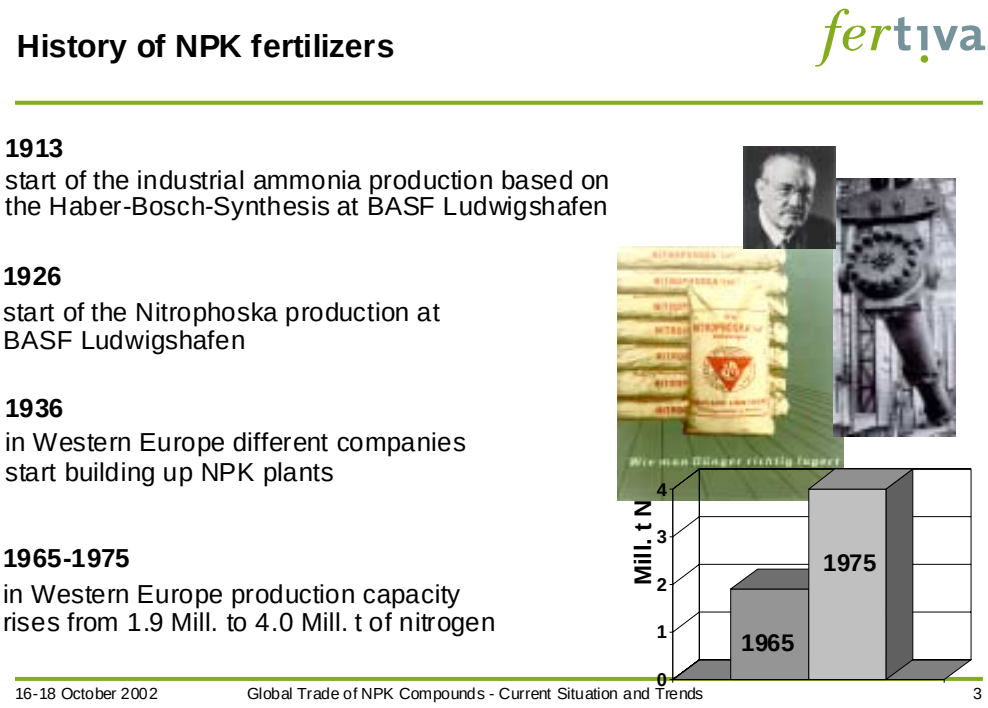

The history of complex fertilizers actually started in 1913 when the Haber-Bosch-Synthesis was developed at BASF in Ludwigshafen. This technology made it possible to implement a production process for NPK fertilizers. In 1926 Nitrophoska was born.

The farmers had a great many advantages due to such a fertilizer. Until then nutrients had to be mixed together. This was always risky, because not all nutrients fit together and mistakes occurred. Besides, the farmers could now save on labour and transportation costs. Another very important improvement was the nutrient content being much higher than in previously mixed fertilizers.

During the second world war other European companies started to built up NPK-Plants. After 1965 the capacities went up from 1.9 million tonnes to 4.0 million tonnes of Nitrogen in 10 years.

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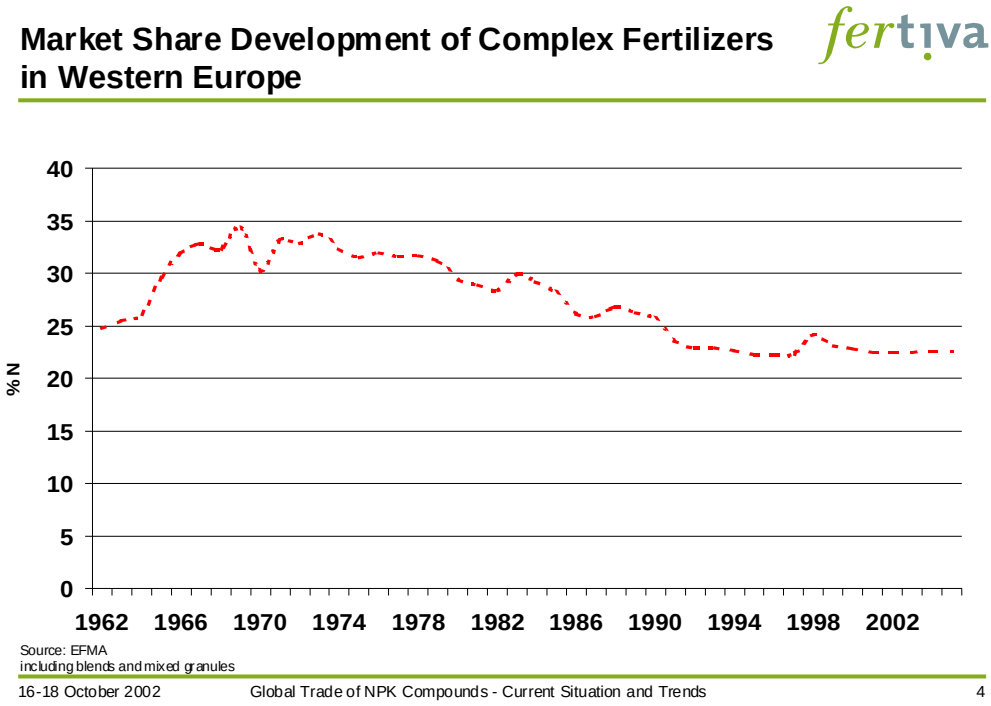

Until then compound fertilizers in Western Europe had a high market share, approximately 30-35% of all Nitrogen used for fertilization.

At the end of the 1970ies the difficulties in agriculture, as for example the negative income development of the farmers, and simultaneously a good supply of the soil with nutrients - especially phosphate - made it more difficult to sell compound fertilizers. For these reasons demand went down.

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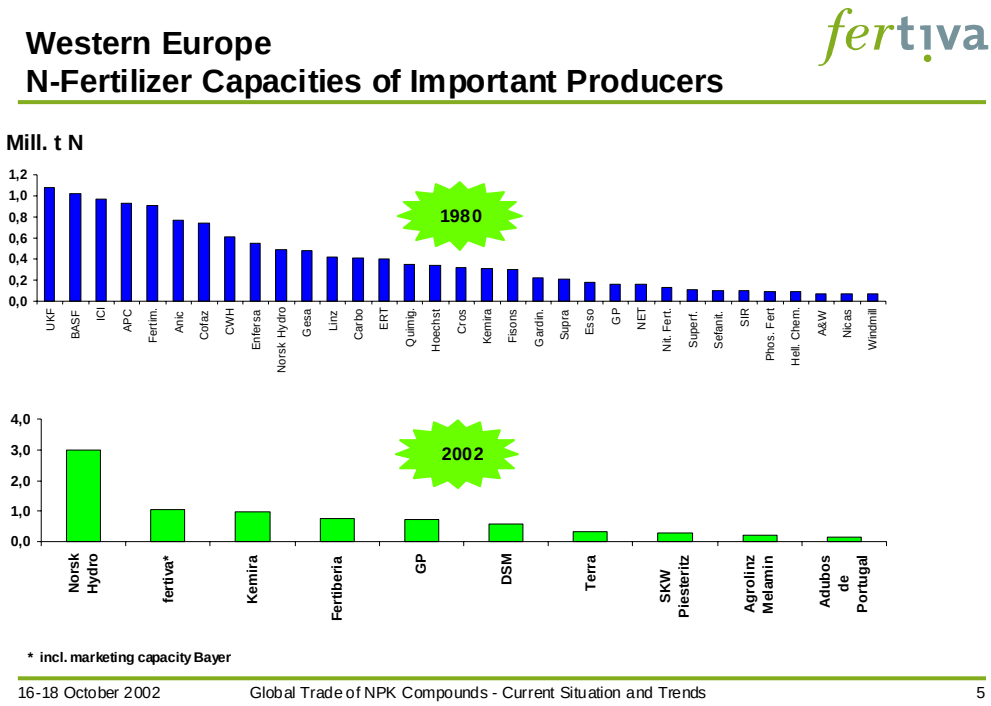

Western European companies started to shut down NPK plants at the end of the 1980ies.

In the 1990ies the imports from Eastern European countries further accelerated this process.

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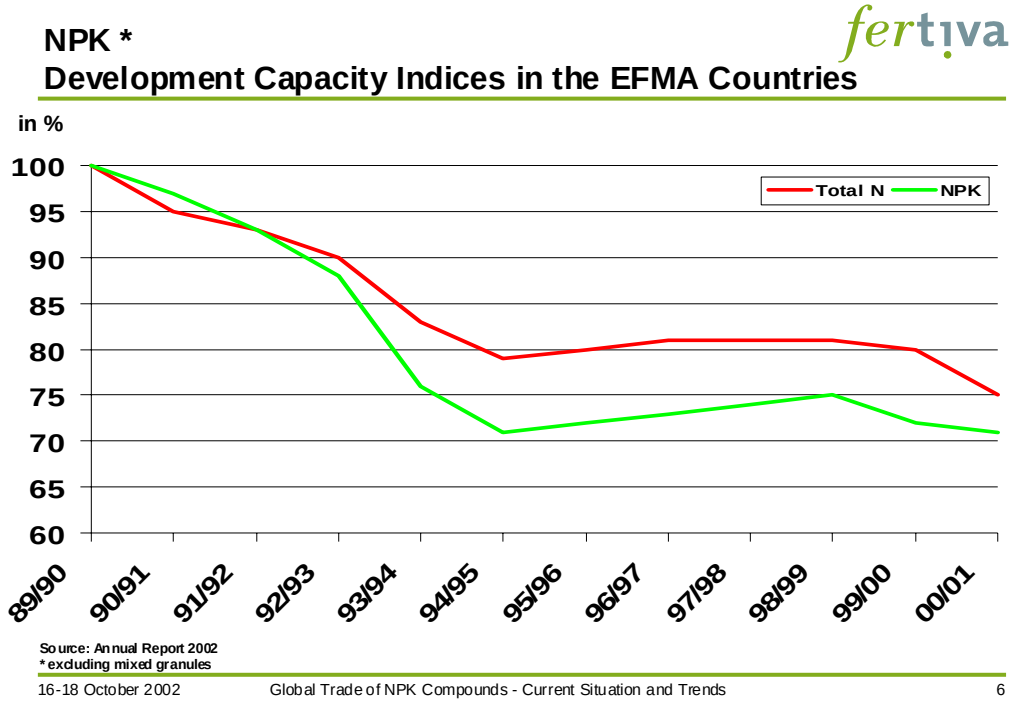

From 1989/90 onwards a large number of fertilizer plants were shut down. Especially NPK production plants suffered.

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Changes in the Western European Complex Fertilizer Market

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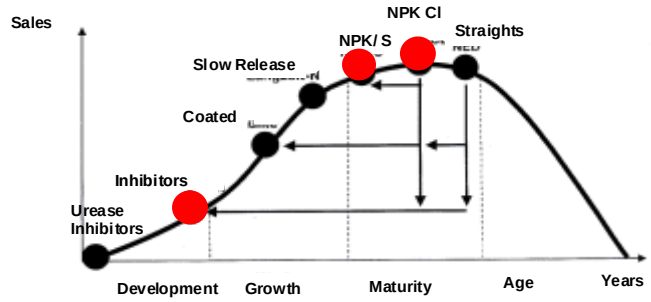

- **Increasing amount of different formulas**
  - **Low content of P_2O_5**
  - **Increasing demand for sulfate**
  - **availability of special trace elements as Se**
- **High Tech Complex Fertilizers as for example** ENTEC

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The process of NPK capacities‘ reduction in Europe is probably moving on but the life cycle of NPK fertilizers is not at its end.

The variety of the product gives the possibility to continuously produce new formulas.

On the one hand there is simply the increasing amount of formulas in order to help the customers to differentiate themselves from their competitors. Low P_2O_5 formulas are getting more important and also formulas with a certain amount of trace elements such as Selenium are of a certain interest.

On the other hand the development of „High-Tech NPKs“ as for example ENTEC (a nitrification inhibitor) is increasing.

Complex Fertilizers - Production & Consumption around the world

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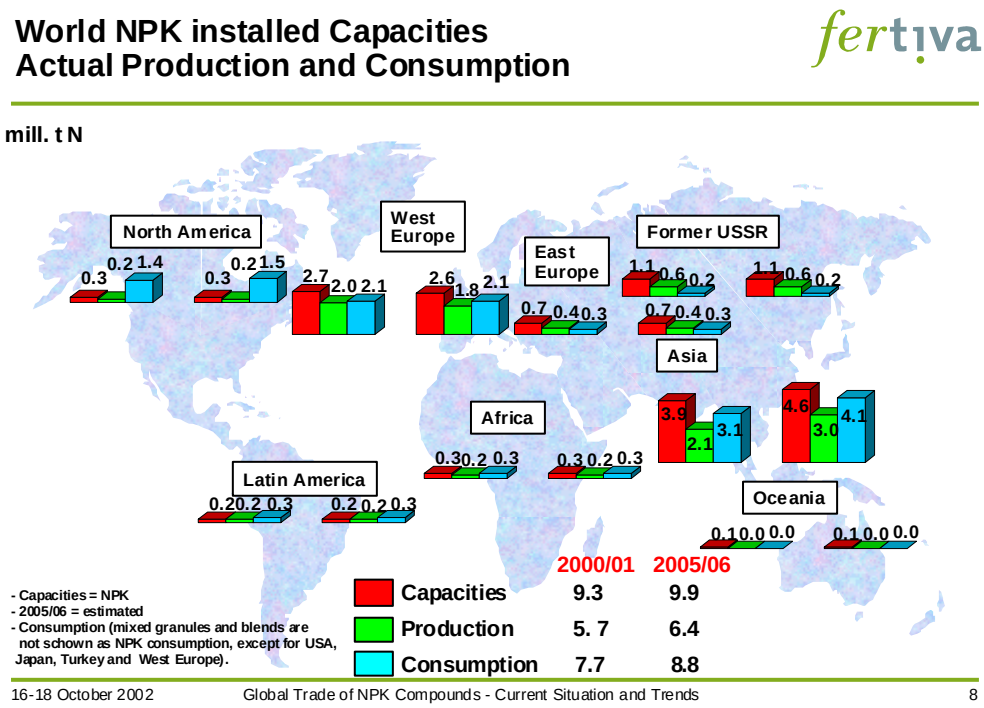

While the installed capacities for the production of complex fertilizers are still going down in Western Europe the installation of capacities is in steady increase in Asia. The production capacity is expected to stay rather stable in the rest of the world.

The shown production figures contain besides NPK products also NP and NK whereas the capacities‘ statistic shows NPK fertilizers only. So, the real use of capacities (production) is only about 50% worldwide. While the actual production is expected to further decrease in Western Europe and to stay stable in the rest of the world, a significant increase is expected in Asia.

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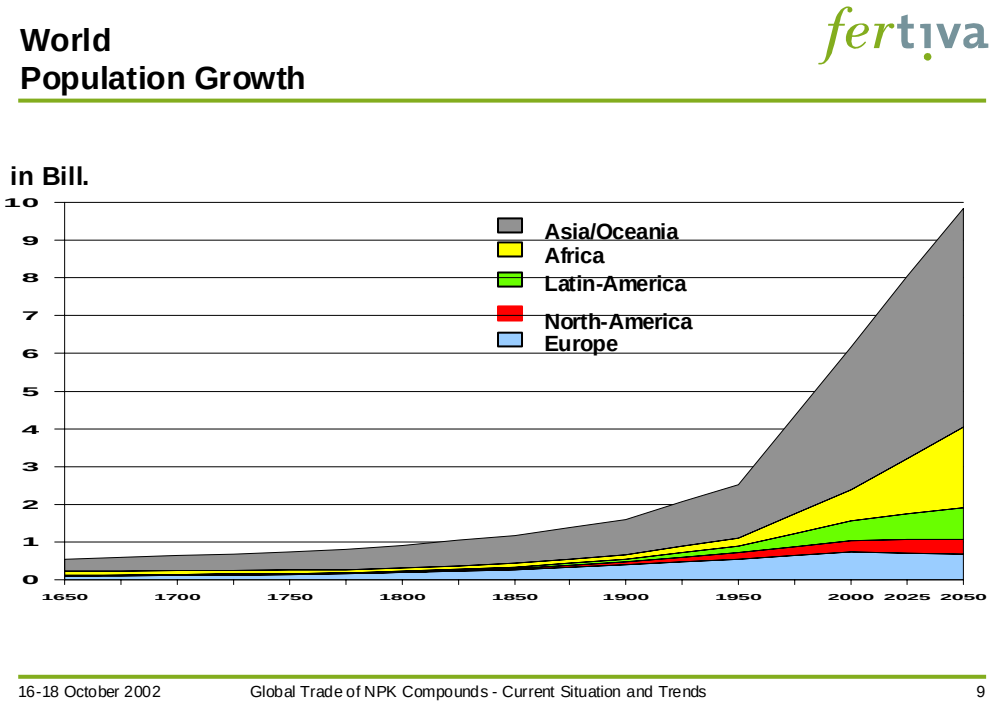

This correlates with the development of the population since population growth leads to a more intensive agriculture.

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The statistical data material shows differences between some regions in the consumption figures. In Western Europe and in the USA mixed and blended granules are included in the consumption figures. This is why the consumption figure in the US is so much higher than the production figure. In the main significant countries of Asia they are excluded.

In any case differences between the Western regions and Asia concerning consumption become obvious. There is no further decrease expected in the Western regions, but no increase either. In Asia an increase of 1 million tonnes of N in form of NPK fertilizers is predicted. This leads to the conclusion that Asia will be of increasing interest as future NPK market.

It has to be mentioned that the US market is a blend market and of minor importance for complex fertilizers.

The South American market has a very low price level and the actual economic circumstances are leading to an even more difficult trade situation.

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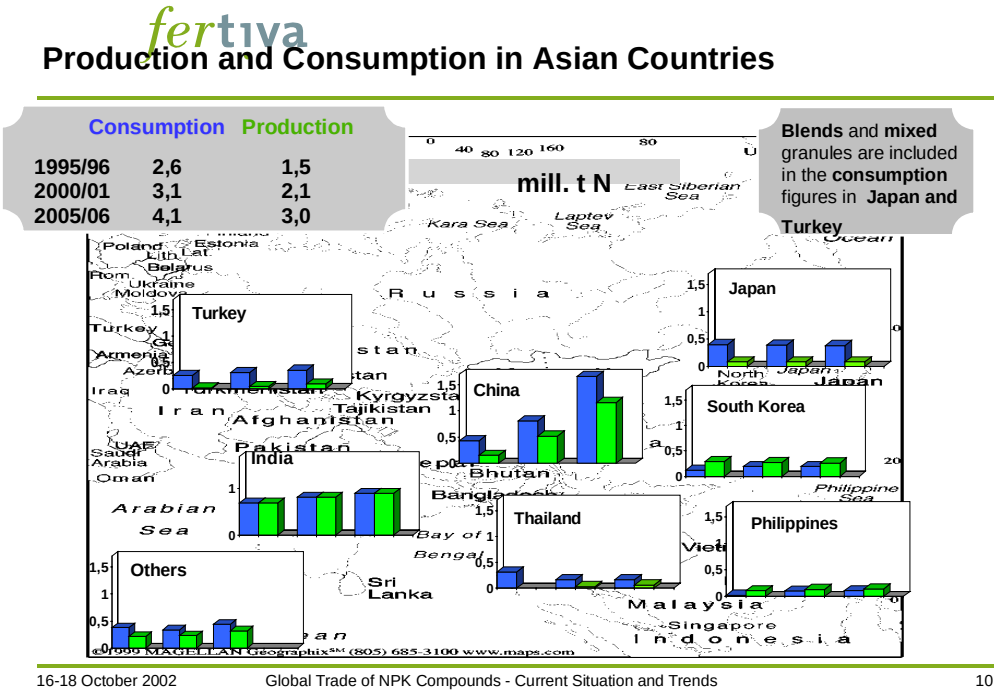

If the biggest Asian markets are taken into consideration, China as the most important future market is clearly identifiable. Consumption is much higher than production. In the ongoing presentation we will come back to this topic.

World Trade of NPKs

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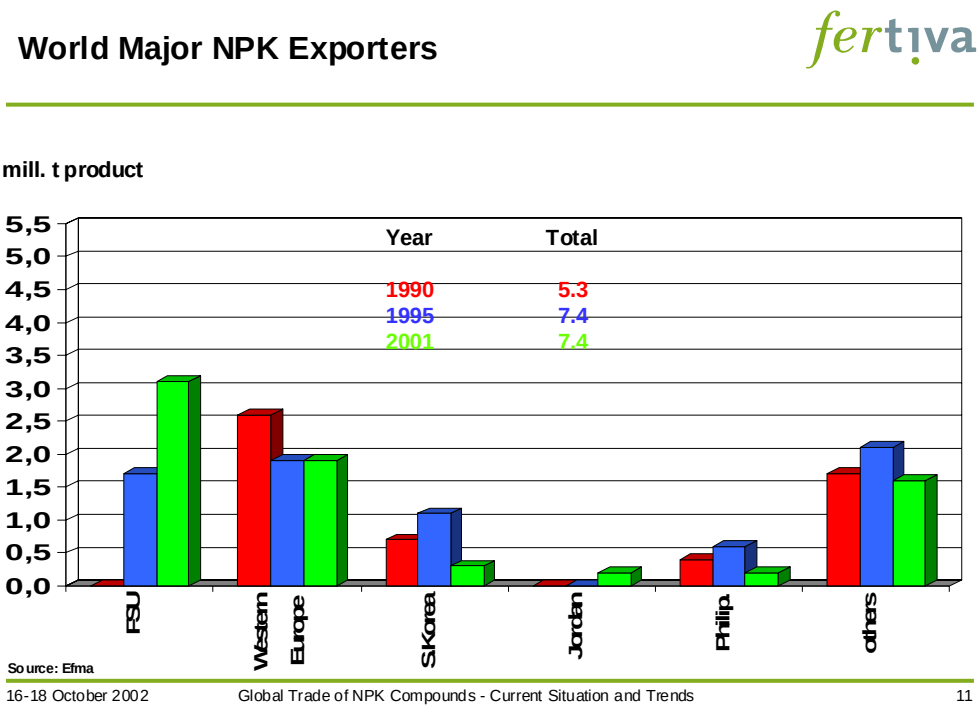

The major players for exports of NPK fertilizers are the FSU and Western Europe. While the export rate of the FSU is increasing, the Western European situation is inverted. The FSU is gaining market share, while Europe is decreasing.

The reason is easy to explain.

While the FSU profits from
- low energy costs
- low raw material costs
- its interest in gaining hard currencies
- in some cases low transportation costs

Europe finds it more and more difficult to compete with standard NPKs.

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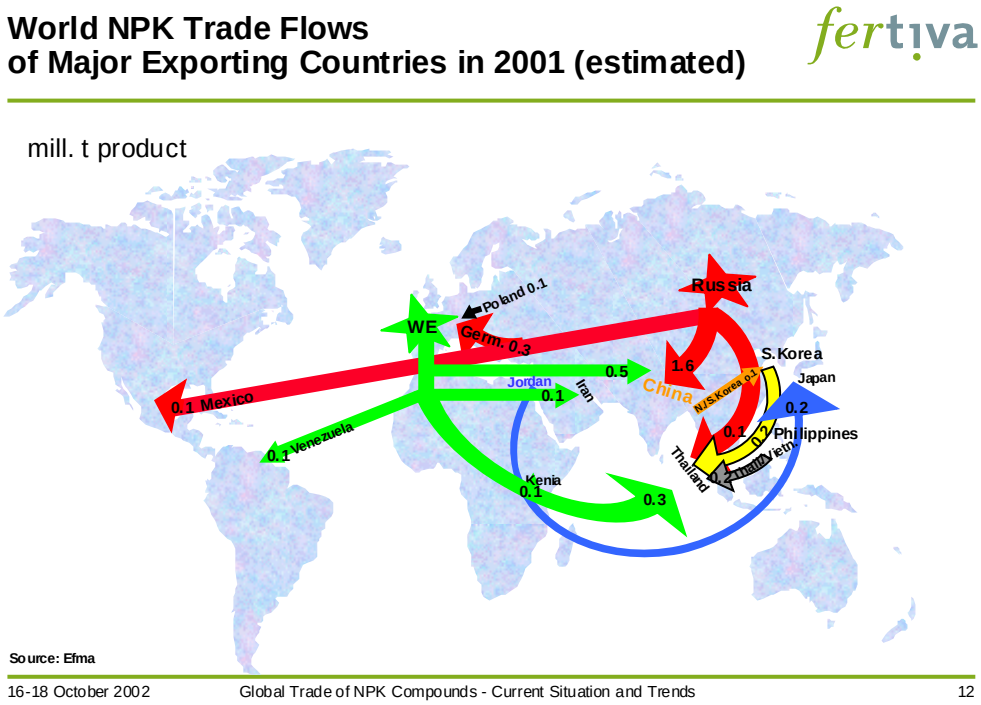

Russia also exports NPK fertilizers to Western Europe though the main market is China.

The most important market for Europe is China as well. In the second place Europe exports to Thailand.

It has to be mentioned that these figures do not include the internal trade within Western Europe which is about 5.9 million tonnes of product.

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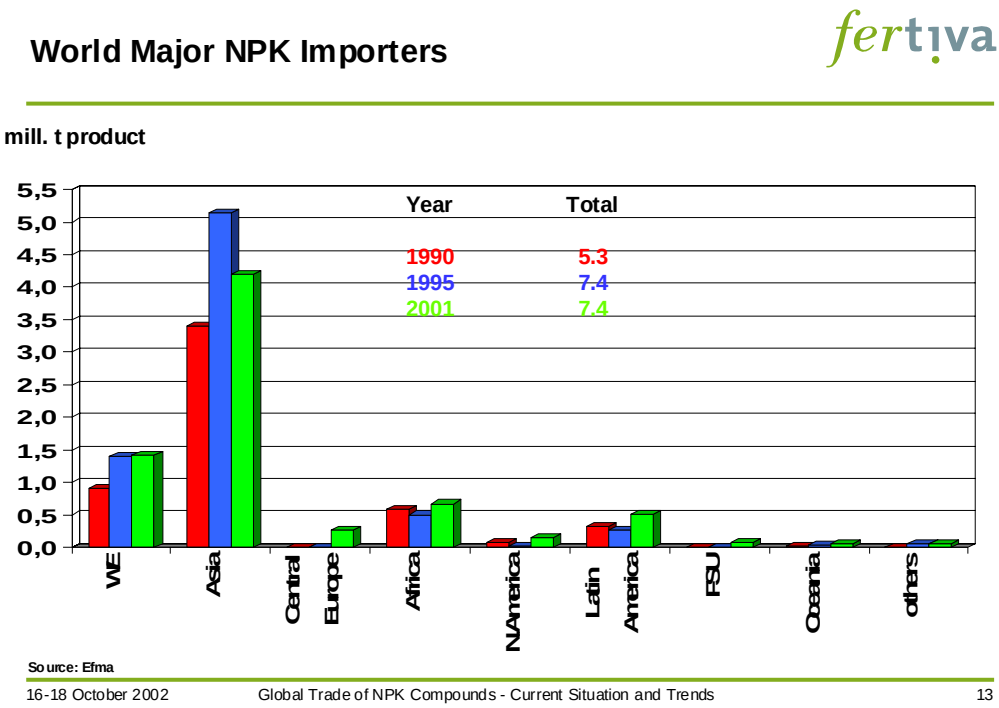

The import statistic shows Asia as the largest importer of NPK fertilizers. As we have seen before Asia's own production is still not sufficient to supply the whole region. Import demand is expected to go down though in future because of increasing capacities. As mentioned earlier, Western Europe is the second largest NPK importer. This could seem paradox since capacities are being closed down and at the same time Western Europe is importing 1.4 million tonnes of product. The incoming material is mostly brought in from the FSU and Eastern European countries which are offering the product at low prices because of the above mentioned cost situation.

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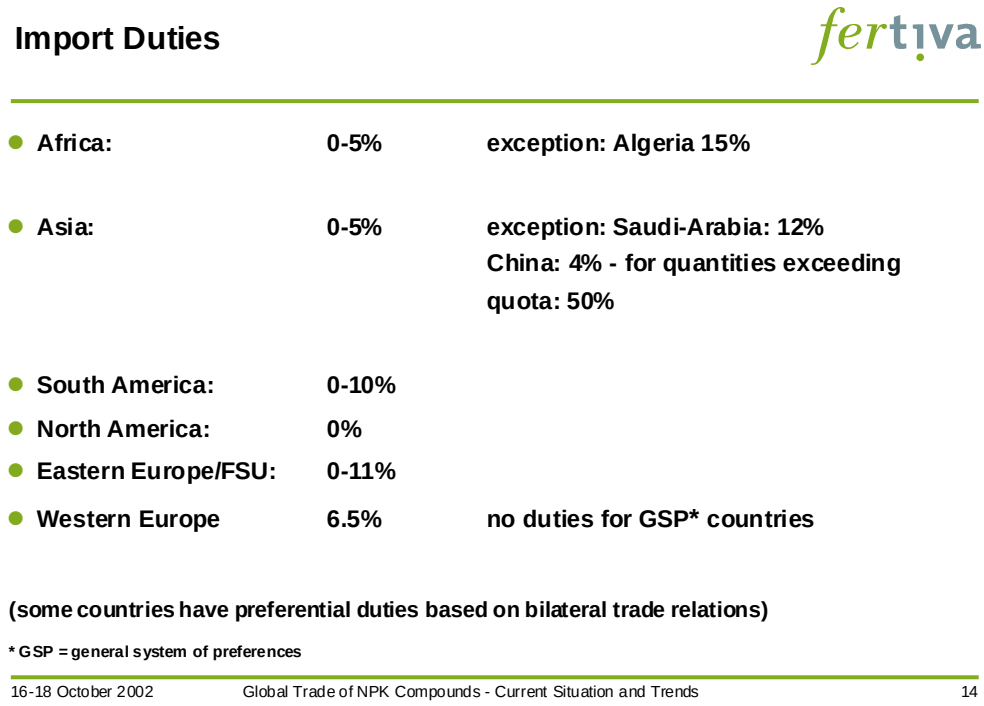
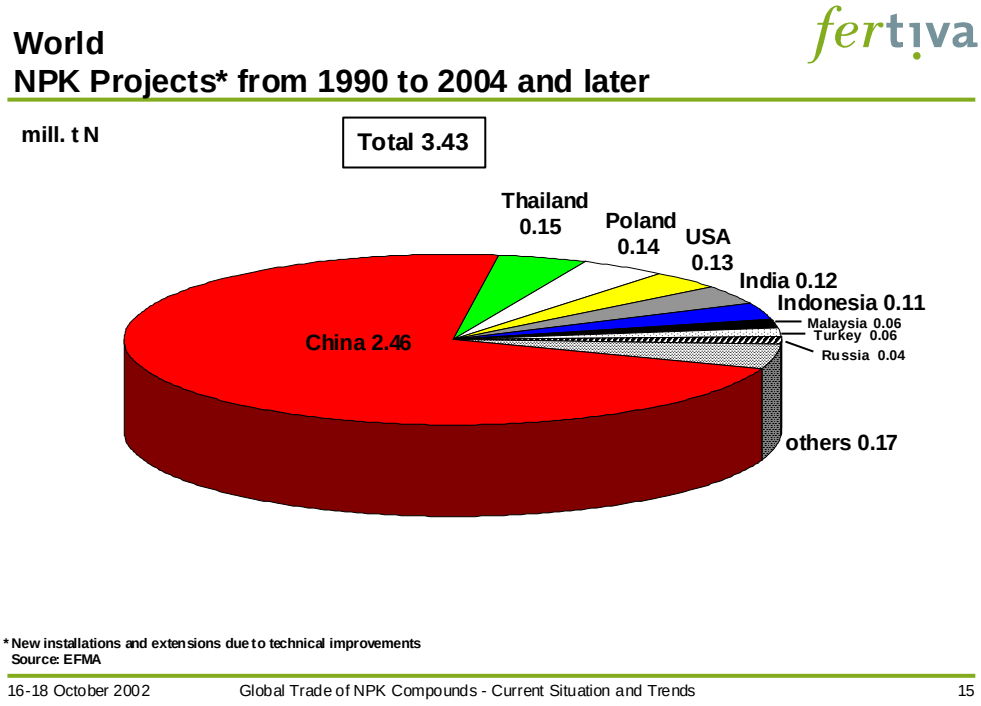


Import duties for NPKs compared to other product groups are quite low. But there are many countries with hidden subsidizations of own industries, raw materials etc. which can not be determined.

China – the future NPK market

Slide 15



As we saw before China is -The Asian NPK Market-. There is no other Asian country expected to have such a high increase of consumption. China will be importing less though due to a large amount of NPK Projects which are ongoing or planned in China.

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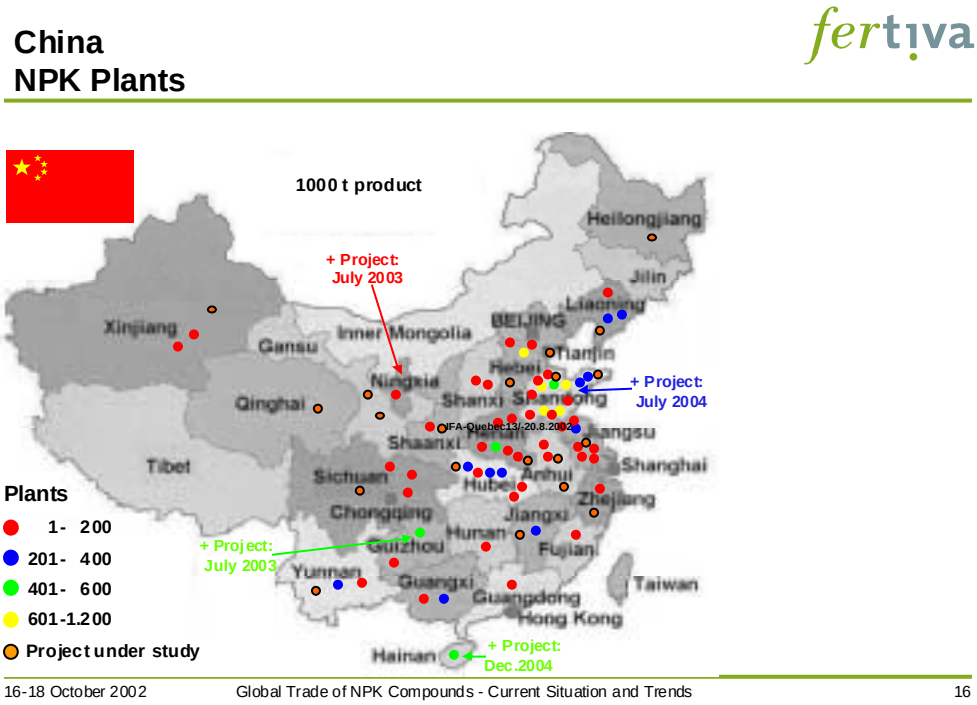

Most of the ongoing projects are situated in the East of China. Most plants can only produce less than 200 kt of product. Nearly all of them are on the base of potassium sulfate. There are some projects under study. A few of them are in the Western part of China. This region still holds a lot of unexploited potential for fertilizer use.

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China - Reasons for Higher Complex Fertilizer Use

China National Chemical Information Center: Consumption of chemically produced NPK will increase annually of an amount of 20% (June 2001)

⇧ due to the constant expansion of Cash Crop areas

⇦ due to higher income, farmers tend to use more and high valuable fertilizers

⇧ due to high unexploited potential of fertilizer use in the west of China

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The „China National Chemical Information Center“ (2001) expects the consumption of chemically produced NPK to increase annually of an amount of 20% in the next few years.

Reasons for this can be found in the increasing amount of cash crops which are cultivated in China. This also leads to a better income for the farmers and also extends the possibilities for them to consume high valuable fertilizers for high valuable crops. The West of China is also expected to gain more importance in the future.

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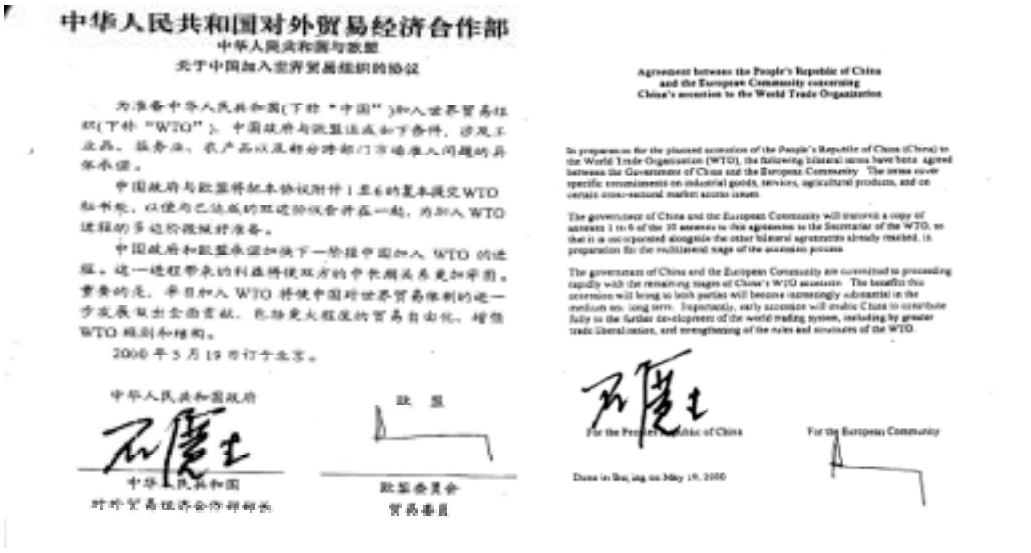
WTO Agreement - Liberalisation of Trade



中华人民共和国对外贸易经济合作部

中华人民共和国与欧盟

关于中国加入世界贸易组织的协议

Agreement between the People's Republic of China and the European Community concerning China's accession to the World Trade Organization

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For the exporting countries right now there is a big chance to participate in this developing market. The WTO contracts give a good foundation to this.

Summary

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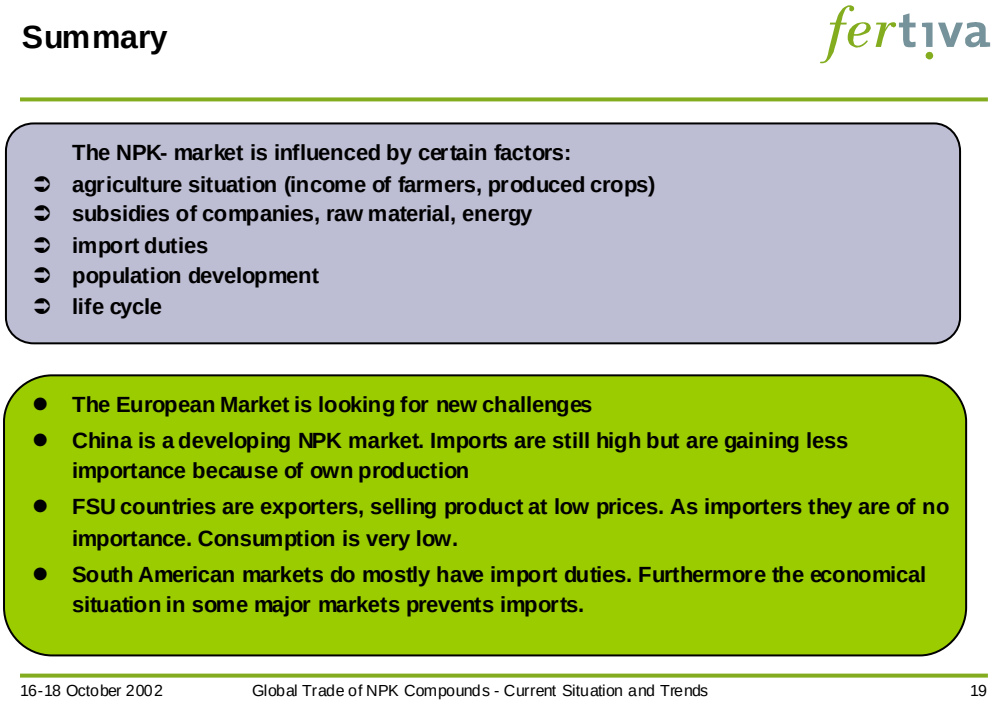

In principal trade of complex fertilizers is possible. But the market is influenced by certain factors :

One is the situation of agriculture. A higher income and the cultivation of high-value crops lead to the use of a high-value fertilizer.

Another factor influencing the world trade are subsidizations of for example energy, raw materials or even companies in certain countries.

This can only be balanced by implementing import duties. But in general it can be said that import duties for NPKs are low.

As shown the population development has an impact in the way that a high population growth leads to a more intensive agriculture.

Another point is the product life cycle. In Europe NPKs have been existing for 76 years and have reached maturity. In Asia the product is still in the stage of growth. This means new markets can be developed.

Generally speaking, the European market is looking for new challenges concerning the NPK product.

China is the major Asian market with a high import rate. But imports are going down because of the development of own production.

FSU countries are major exporters. As importers they are of no importance because consumption is very low.