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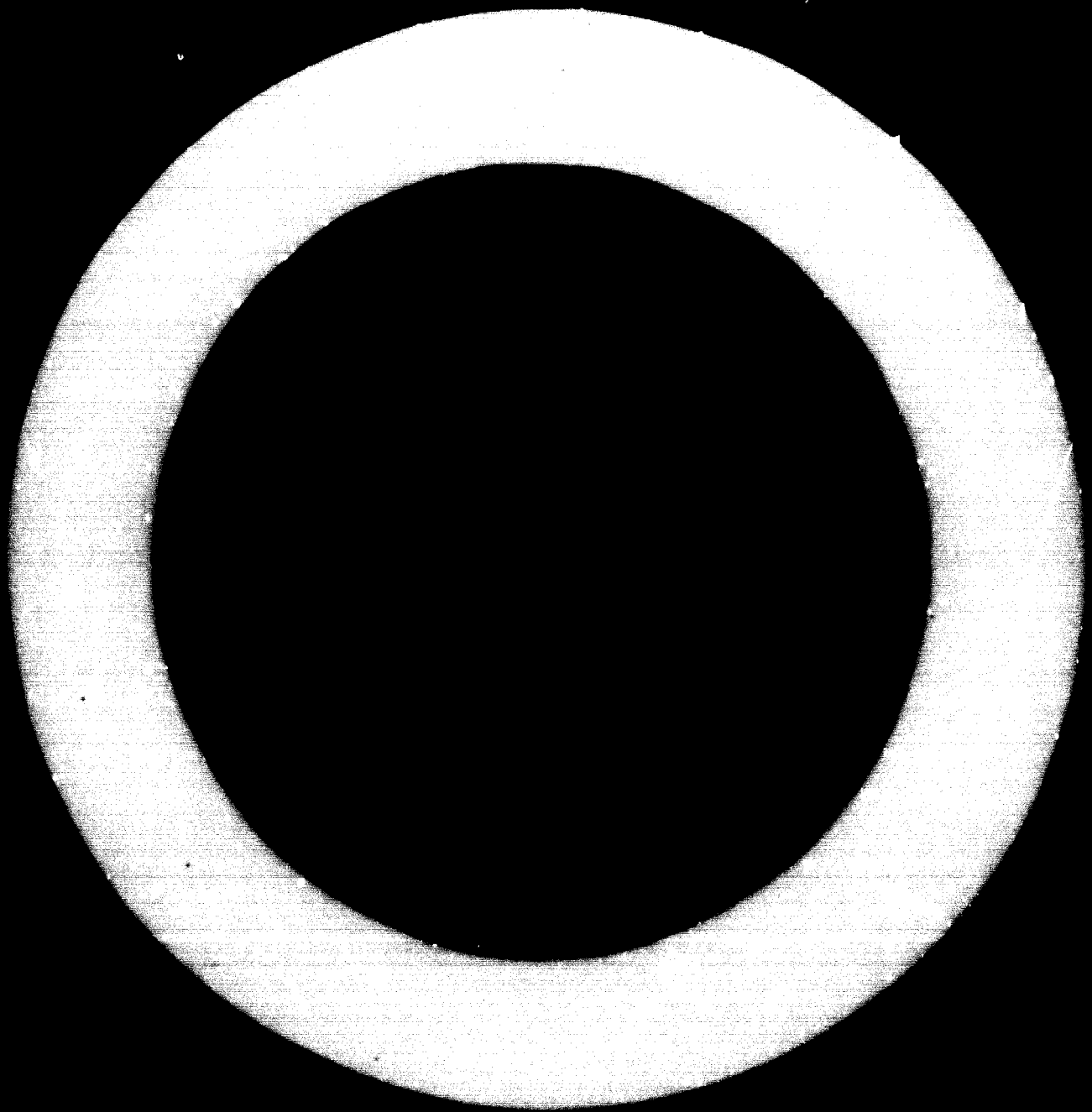
THE FERTILIZER INDUSTRY OF YUGOSLAVIA

by

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The real development of the fertilizer industry in Yugoslavia has taken place in the last five years, during the period between the two Fertilizer Symposia in Kiev.

Five years ago, fertilizer production in our country totaled about 100,000 tons N/year, and about 200,000 tons P_2O_5 /year, with the main products being calcium ammonium nitrate and normal superphosphate. Of NPK fertilizers only low concentrations of mixed grades were produced, e.g. about 600,000 tons/year. During this period, Yugoslavia was a significant importer of nitrogen fertilizers, as the consumption was about 200,000 tons N/year.

The last five years saw a revolution in the Yugoslave fertilizer industry. There were built large single train capacities of ammonia and nitric acid, the production of urea was introduced, the concentration of nutrients in NPK was increased, and the proportion of NPK in total fertilizer production was increased also. Liquid ammonia started to be used for NPK production instead of ammonium sulphate.

On the side of phosphoric fertilizers, large sulphuric plants were built to use off-gases from existing and new copper, zinc and lead smelters. The sulphidic ores represented only a part of the raw material for H_2SO_4 production. H_3PO_4 production is being introduced, large quantities of triple superphosphate are produced, and DAP is finalized in the form of concentrated NPK fertilizers.

The main raw material for nitrogen plants is domestic natural gas, but there exist, too, plants based on coke oven gas, coupled with coke plants, and plants producing nitrogen on the basis of coal, coupled with production of heating gas for steel works.

As starting material for P_2O_5 imported rock phosphate is used. We can mention, too, that there is under study the exploitation of a domestic rock phosphate.

Potassium salt is entirely imported.

Among the capacities in operation, we have in Yugoslavia two ammonia single train units as large as 650 tons/day, with corresponding nitric acid plants, all up to date. Production of urea takes place in two plants, each with capacity of 100,00 tons/year.

The single capacities of phosphoric acid are 50,000 - 100,000 tons/year P_2O_5 .

For production of NPK fertilizers there are in operation several large units with a total capacity of 1,400,000 ~~tons/year~~ **tons/year with water solubility of P_2O_5** varying from very low to very high.

In production of NPK, producers with H_2SO_4 plants use the ammonium phosphate route and the nitrogen producers use the nitrate phosphate route.

Today the production capacities reach about 500,000 tons N/year, and about 300,000 tons P_2O_5 /year. The domestic consumption in 1971 is estimated to be about 300,000 tons N/year and 220,000 tons P_2O_5 /year.

These figures show that there exists a positive difference between capacities and consumption, and it is now possible to export some fertilizers. Yugoslavia's export in 1971 is expected to reach about one half million tons of fertilizers.

According to classification given in paper by Mr. Swell, Yugoslave consumption per capita is high, and consumption per hectare moderate. Besides of these rather positive notes, we could point out that our country became a fertilizer exporter, and stopped being a food importer, too. That is of great importance for our national economy.

Further development of the fertilizer industry will be a function of the growth of domestic needs. Several plants are in different stages of construction, and they will balance out the moderate growing needs of agriculture till 1975.

At the end of this paper, I want, in the name of the Yugoslav participants, to thank UNIDO very much for organizing this fine Symposium, and we are sure that the informations we get in Kiev and New Delhi will be of great help in our future work





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