

# RADIO FREE EUROPE

*Research*

## COMMUNIST AREA

• Bloc agriculture

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### FERTILIZER USE: KEYSTONE TO AGRICULTURAL DEVELOPMENT

The demand for more and better food along with the rapid increase in the world's population raises serious problems of food supply in the communist bloc regimes and in the under-developed countries of Africa, South America and Asia. In the developed industrialized countries of western Europe and north America, where it has taken about a century to bring agriculture to the present high level of production through technological innovations, the assurance of adequate food supplies for the future is not an urgent problem. In these countries the main reliance has been an intensification of production rather than on increasing the area of cultivated land.

The expanded use of chemical fertilizer will be one of the primary factors in raising farm output in the food deficit countries. As an example, the experience of the United States in doubling its crop output from 1940 to 1955 stands out as a beacon: fertilizer alone is credited with nearly half of the increase in the national crop yields. The immense possibilities for sustained crop production increases which can be realized through the use of fertilizers has also been amply demonstrated in many countries in all parts of the world. Rice in Japan, pastures in New Zealand and cotton in Egypt are notable illustrations. Thus it is in the less developed countries, or those with food deficits, that there is now the greatest potentiality for the fuller use of fertilizers.

In the East European bloc countries and the Soviet Union, agricultural production is so comparatively low that it tends to restrict general economic development and prevents an improvement in nutrition levels. Accordingly, the regimes have reevaluated their agricultural policies in the light of technological developments and set out programs for increased fertilizer production and consumption.

Fertilizer use in relation to arable land and population density; East Europe and USSR 1960/61

	<u>kilograms per hectare net nutrients</u>	<u>population per hectare</u>
GDR	197	3.4
CSR	100	2.5
Bulgaria	50	1.7
Poland	42	1.8
Hungary	32	1.8
Yugoslavia	28	2.2
USSR	10	0.9
Romania	8	1.8

FAO, The State of Food and Agriculture, 1963, p. 226  
FAO Yearbook, 1962, pp. 3, 13, 257-263

Both East Germany and the CSR inherited well established fertilizer industries from the previous regimes, which account for the high consumption rate; both countries follow the western world pattern that high fertilizer use is correlated with high population density. In Europe, the heaviest user of fertilizer, although the average consumption in relation to arable land is high, there are great inequalities within the continent. The greatest intensity of application is shown by the Netherlands with a consumption of 456 kg per hectare, (11.6 population per hectare) compared with 266 kg in the German Federated Republic and only 10 kg in the Soviet Union (0.9). Thus the lowest average use is in the communist European bloc countries which are, not by accident, characterized by chronic food shortages.

During the 1950's, Eastern Europe and the USSR raised chemical fertilizer use from 2.4 to 5.0 million tons, an annual increment of 7.7 percent. In view of the plans to accelerate plant food output, the rate of increase in fertilizer use will be considerably high over the next ten years for the bloc countries. The U.S. Department of Agriculture estimates that the average increment in consumption of fertilizer may not be more than 12 percent from 1960 to 1970 and will be considerably lower, possibly 5 percent between 1970 and 1980 (see table below). This would mean the use of 15.5 million tons in 1970 and 25.3 million tons in 1980 in the communist bloc, subject, of course, to the long-term fulfillment of the construction plans for the chemical industry. Achieving such an increase would be a formi-



dable undertaking, costly of capital and other resources and will require time for development so the effect on boosting yields will not be felt for several years to come. Nonetheless, the indicated expansion of fertilizers is crucially essential if the bloc countries are to improve their food supplies, provide for the needs of an increasing population, and contribute to overall economic development.

The dynamics of fertilizer consumption and prospective demand in the three areas of the world with differentiated economic development shape up accordingly.

Fertilizer consumption in 1960, and estimated consumption in 1970 and 1980, three selected areas of the world

Area	1960 consumption million metric tons	Compounded rate of increase		Estimated consumption	
		1960-70	1970-80	1970	1980
Developed countries	20.0	3.0	3.0	26.9	36.1
Eastern Europe and USSR	5.0	12.0	5.0	15.5	25.3
Developing countries	2.7	15.0	10.0	10.9	28.3

Foreign Agriculture, USDA, 11 May 1964, p. 4

Developed countries include: United States, Canada, Western Europe, Oceania, and Japan.

Developing countries are those of Latin America, Near East, Far East, and Africa.

All fertilizer data in tables and text are in terms of net nutrients.

The problem in the developing countries is not urgent; until now most of the consumption of fertilizers has been in the western world. In fact, 75 percent of the world's supply of all fertilizers has been utilized by these nations with only 27 percent of the world's population. Here, too, economic and social conditions were favorable to intensified agricultural development. In view of the current high levels of nutrition in the west and the comparatively low rate of population growth, an average annual increase in fertilizer consumption of only 3 percent is indicated for the next 20 years. The task in these countries is merely to keep abreast with the growth in population, as a number are faced with surplus production. Among the three areas listed in the table, these nations will have no difficulty in reaching their 1970 and 1980 goals in fertilizer output that will insure a continued and improved level of living. At that, 40 percent of the estimated world output of fertilizer will be consumed by the developed nations in 1980.

It is in the underdeveloped countries of Asia, south America, and Africa that there is the greatest need and potentiality for a fuller use of fertilizer. It is, of course, in these countries that populations are growing the fastest, while hunger and malnutrition are wide-spread and a large part of the people is ill-clad and badly housed. In the economic development plans of these countries, the creation of a fertilizer base has been one of the basic policy considerations by the local governments as well as foreign sponsoring agencies. All things considered, fertilizer consumption in the developing countries is expected to increase at very rapid rates over the next 20 years. Successful efforts have been made to attract investment by the chemical and fertilizer industries of the more developed nations. During the decade from 1960 to 1970 the annual rate of increase in fertilizer consumption is expected to reach the highest rate among the three areas - 15 percent. By 1980, the total consumption is expected to reach the second highest among the areas, about 28 million tons. Whether these levels will be attained depends on the determination and actions of governments and people in the developing countries.

It is in the intermediate group - the communist bloc countries - where agricultural output has been stagnant in recent years that the problem of greatly expanding fertilizer consumption is complicated by economic and social institutional conditions not existing in either the developed or underdeveloped countries. High nutritional levels and standards of living have heretofore been associated with high fertilizer consumption in countries where the social and economic systems were favorable to rural development. Implementing a fertilizer



program will require enlightened and determined leadership of a kind that can be supplied best by governments which have the overall national interest of the farm population at heart.

In the struggle to improve food supplies and the health of the people, fertilizers are powerful weapons in the hands of a government, but fertilizer plants per se are not enough, as the history of abundance in the west fully documents; there must exist the basic economic and social conditions to enable farmers to want to make full use of them.

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It is in the underdeveloped countries of Asia, South America, and Africa that there is the greatest need and potential for a wider use of fertilizer. It is, of course, in these countries that population is growing the fastest, while hunger and malnutrition are widespread and a large part of the people are ill-fed and badly housed. In the economic development plans of these countries, the question of fertilizer has been one of the basic policy considerations by the local governments as well as foreign sponsoring agencies. All things considered, fertilizer consumption in the developing countries is expected to increase at very rapid rates over the next 20 years. Successful efforts have been made to attract investment by the chemical and fertilizer industries of the more developed nations. During the decade from 1960 to 1970 the annual rate of increase in fertilizer consumption is expected to reach the highest rate among the three areas - 15 percent. By 1980, the total consumption is expected to reach the second highest among the areas, about 28 million tons. Whether these levels will be attained depends on the determination and actions of governments and people in the developing countries.

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