

Opening Address by Dr. I. Pál:

On behalf of the Ministry of Agriculture and Food it is my privilege to greet the participants at today's meeting. We are particularly pleased to welcome the well-known Indian representatives of soil science, as a sign of the broadening of our international relations.

The subject of the present seminar is closely connected with the question of mankind's food supply.

Parallel to the rapid growth of human population, food production represents an increasingly important part of man's productive labour. At present there are two fundamental obstacles to supplying the world population with an adequate amount of food:

- the extremely uneven distribution of the food produced on earth among various population groups;
- natural and technical factors which limit a rise in food production.

Overcoming the first problem falls primarily within the political sphere, while solving the questions which remain open in the second topic is chiefly a task for the scientists.

Among the natural factors which restrict the growth of food production, the present seminar deals with a problem of international proportions, that of alkali soils.

It is generally acknowledged that the soil is the basis of food production and is likely to remain so for the foreseeable future. The fertility and extent of arable land fundamentally determine the qualitative and quantitative limits to plant production and, indirectly, those of animal husbandry, too.

Alkalinity is an important limiting factor of soil fertility, both in Hungary and elsewhere. Alkaline soils make up more than 10% of the total 8.3 million ha of arable land of Hungary, and the figure rises to 15% if only the 6.6 million ha of cultivated land are considered.

The elimination or substantial reduction of factors which limit soil fertility, and the consequent increase in productivity on an area of this size is by no means a matter of indifference for Hungarian agriculture. And if we take a look into the past, we will find that this is not a new problem.

SÁMUEL TESSEDIK, the renowned agriculturist and scientist, recognized the necessity and possibility of improving alkaline soils more than 200 years ago and was the first to utilize and popularize liming as a method of amelioration. TESSEDIK is considered to be the founder of Hungarian soil science. The success he achieved in improving alkaline soils and increasing their fertility is well-known, and it was due to his achievements that Hungarian soil amelioration received international recognition as early as the 18th century. TESSEDIK has been followed by numerous Hungarian researchers working in the field of al-

kaline soils and their amelioration. At least two of them should be mentioned here. Aided by his co-workers, PÉTER TREITZ surveyed the alkaline soils of the Great Hungarian Plain in order to obtain some idea of the location and extent of alkaline areas in Hungary, and to determine what proportion of these areas could be improved by liming. ELEK 'SIGMOND, another outstanding scientist, won international acclaim for his research on alkali soils, particularly with respect to exchangeable sodium and salt accumulation.

As is well-known, noteworthy results in alkalinity research and amelioration are being achieved by the Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences and the Research Institute of the Debrecen University of Agriculture at Karcag. A new feature of the research, both in theory and practice, is the extension of amelioration to include the B horizon of the soils; the results attained in this field are very promising.

It can generally be said that as the result of Hungarian soil research, particularly work on alkaline soils, land improvement has taken the form of large-scale complex amelioration, involving land management, water management, soil improvement and soil protection. In our opinion this is the only way to ensure an efficient improvement in the fertility of Hungarian soils, particularly the alkaline soils, and to maintain this state of amelioration for a long period.

The interdisciplinary nature of the research necessitates cooperation between representatives of related sciences at both domestic and international level (soil science, agrochemistry, water management, plant physiology, meteorology, physics, etc.).

In Hungary, despite the internationally recognized results achieved in this field, still much remains to be done. There are large areas of potential alkali soil, most of which owe their origin to ill-advised irrigation, the construction of reservoirs and the consequent rise in the groundwater level. It is a matter of functional importance to prevent the further spread of secondary salinization and alkalization.

Approximately 250,000 ha of alkali soil have so far been ameliorated in Hungary. It is important to maintain the fertility of these soils and to improve it wherever possible using suitable agrotechnical methods. Surveys show that an area many times larger than this still requires amelioration, while there are around 100,000 ha of alkali soil which cannot be economically improved at the present level of knowledge and technical development.

Hungary is a small country, so the cultivation of ameliorated alkali soils is of great significance for food production. Despite the restricted financial resources, intense efforts are being made to accelerate this work. During the sixth five-year planning period, which began this year, approximately one and a half times as much will be spent on soil improvement, primarily on complex amelioration, than in the previous five years. This will make it possible to speed up the improvement of alkali soils in the coming years. This clearly proves that the governing bodies attach great importance to increasing soil fertility and, in this way, to developing food production.

It is our belief that international cooperation, the exchange of scientific results and the knowledge of each other's problems significantly contribute to the economic development of individual nations. Although Hungary and India are geographically distant from each other, in many fields they have to solve similar or identical problems. In both countries food production is a basic

long-term strategic problem and there is a common need to improve the fertility of alkali soils. I feel that the cooperation which has already developed in this field should be further widened; the present seminar is also designed to serve this worthy purpose. At the same time, may this cooperation lead to a better mutual knowledge of our peoples and our problems.

I wish all participants a very successful meeting, leading to practical results which will benefit both countries.

Thank you.