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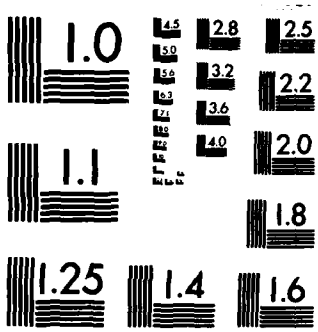

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by

M. Molga

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METEOROLOGY AND FOOD PRODUCTION - THE THEME OF THE XVI METEOROLOGY DAY

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On 23 March 1961, following the resolution of the III /3*
Congress of the World Meterorological Organization(WMO), all the countries that are members of WMO solemnly celebrated for the first time Meteorology Day.

In Poland that day was also celebrated very solemnly. It provided an occasion to review our achievements in all areas of meteorology. The importance of meteorology in various fields of economic life was explained to school children, the rural population, working crews of industrial plants, and the whole society through a series of special suitable radio and television programs, and by organizing lectures and placing suitable articles and information in the press. (Translations).

Meteorology is a science with broad interests and with a wide range of practical applications. Hence, to deepen the information about the importance of this science, the Executive Committee of WMO has decided to limit the themes of the World Meteorology Days each year to one basic problem.

The first such specific Meteorology Day was celebrated in 1962 under the theme "Meteorology and Feeding population". It is not accidental that the World Meteorological Organization put in the problem of feeding the world population in the forefront of celebrations of Meteorology, and also it is not accidental that the same theme was taken again after 14 years as the theme of the XVI World Meteorology Day this year.

*Numbers in the margin indicate foreign pagination.

It is a frightening fact that hundreds of millions of people on this globe suffer hunger - particularly in years of poorharvests. The situation worsens at a frightening rate. The dizzy rate of the increase of world population (at present about 60 million each year), coupled with the development of industry and an increase in building construction, hence the removal of large areas of land from agricultural use, may lead in the near future to the catastophe of hunger on our planet.

In this situation it is understandable that various scientific and social institutions make efforts to utilize all the achievements of science and technology, leading to an increase of yields of cultivated areas, to broadening the range of cultivated crops, to introduction of new crops and unused plants rich in fats, proteins, mineral salts and vitamins, and in general the highest intensification of agricultural production.

Meteorolgical conditions constitute one of the most important factors affecting the quantity and quality of the plant and animal production, both in countries with a high level of agriculture and in areas with poor standards of agriculture and economy. Hence, rational utilization of meteorological conditions, their improvement, and the development of any kind of advantageous interaction in various fields concerning agricultural production, is the order of the day for all the meteorological services of the world.

In our country, in accordance with plans and resolutions of the Government, the discovery and introduction of reserves for further economic development of our State is an absolute necessity. An increase of agricultural production occupies the front position in this endeavor. Hence, the theme of this year's Meteorology Day is a theme of particular relevance to

Polish meteorologists. In practice, the theme "meteorology and food production" defines the role of meteorology in agricultural production, that is, it defines the aims and tasks of agrometeorology.

On the basis of this short introduction to the topic of agrometeorology, we wish to acquaint the readers of Gazeta Obserwatora IMGW with the aims and practical tasks of this branch of science.

Agrometeorology is defined as a science concerned with the study of meteorological, climatic and hydrological conditions of importance to agriculture, and with mutual interaction of these conditions with processes and features of agricultural production. These mutual interactions of the mentioned conditions with processes and phenomena in agriculture puts this science on the border of meteorology and hydrology with biological sciences. Hence, it makes it a complex discipline of a natural character, with the initial accent of studies on areas of atmospheric physics and soil physics.

The space unit of agrometeorological studies is the ecological environment, i.e., the space composed of the collection of plants and groups of animals, of the air filling this space and being subjected to continuous physical processes, and of the soil together with organisms living in it which play a role in physical and chemical changes of the earth. All these factors are connected with each other in an ecological whole, having their own characteristic structure and defined path of development. If the environment is considered only from the point of view of its composition of abiotic components, then it is called an ecotope or habitat ("siedlisko"). Hence, habitat is a complex of atmospheric and soil conditions of the environment.

The basic agrometeorological research stations are experimental environments (sites) of species which interest us. In Polish agrometeorology, these stations used to be called "Pola Ustalone" (Fixed Fields). In the organization of our Institute, the stations with fixed fields have been eliminated lately, but the results of measurements obtained over many years at these outposts are now providing Polish agrometeorologists with many revealing facts for their present scientific work.

Two basic groups of agrometeorological investigations, having basic importance in agricultural production, are connected with the concept of the environment. The first group concerns a study of the climate of the near-ground layer of air and of soil. The second group involves studies of the effect of habitat conditions on the course of vegetation growth and harvesting of plants.

This research approach is the starting point for many various agrometeorological topics, connected directly with agricultural economy and food production.

The base of intensification of agricultural economy is the maximum utilization of production capabilities of agricultural sites. This problem is complex, including the question of broadening crop areas, the most suitable - from a natural viewpoint - choice of plants, improvement of habitat conditions for more-demanding plants, etc., in order to obtain the best results in agroeconomy.

The knowledge of habitat conditions and climatic requirements of plants presents, therefore, the necessary condition for all the activities intended to achieve intensification of agriculture. Without this knowledge, agriculture would become an exploitation of natural environments, an exploitation which is noneconomical and worsens, as a rule, the condition of the habitats.

The discussed agrometeorological studies make it possible to select the most suitable - from the natural viewpoint - localization of various cultivated crops. If, in addition, such localization considers the economic reasons and is consistent with the general agricultural planning of the State, then it becomes agricultural-climatic regionalization. Agricultural-climatic regionalization is one of the important tasks required from agrometeorology by agricultural practice.

The problem of agricultural-climatic regionalization comprises also a task of adaptation of some agricultural sites (habitats) to the planned crop cultivation. This adaptation consists of developing (growing) suitable variations of plants (hybrids) and suitable improvements of site conditions. The first route lies in the area of agricultural sciences, while the second one belongs primarily to agrometeorology.

We come, therefore, to the second important task of agrometeorology, i.e., *amelioration of agricultural habitats.*

The amelioration of habitat conditions is carried out by appropriate agrotechnical measures, such as, for instance, irrigation, draining of terrain, suitable tilling of soil, application of fertilizers, the use of various measures to fight atmospheric /5
and soil conditions harmful to vegetation, making plants more resistant to these harmful conditions, etc. On a larger scale, these measures include even the changes of landscape by, for instance, growing protective forest belts, placing water cisterns, etc.

An important area of agrometeorologists consists also of forecasting, warning and information service for agricultural economy. The prognostic service of agrometeorology concerns, generally speaking, the future state of crops, occurrence of diseases and pests of plants, and changes in local habitat

conditions, exerting an influence on the state of crops. The prognoses in the area of plant protection and in the area of the formation of habitat factors, which are not dealt with by weather forecasts, are particularly valuable to farmers and serve as important guides in their agricultural work.

In addition to forecasting, the agrometeorological service is concerned with issuing periodically information bulletins and warning communiques. This work brings much help to agriculture in the mobilization and distribution of equipment and the working force, and in anticipation of the periods of intense field work in the planned agricultural economy.

It is difficult, in this very general presentation of the aims and tasks of agrometeorology in agriculture, to give particular examples of the great share of this science in the process of intensification of agricultural production. However, even from this sketch of the problems of agrometeorology, one can reach the conclusion that the role of agrometeorology is today of enormous importance and has relevance to the problem of feeding the world population. Agrometeorology, in cooperation with other natural sciences and technology, studies possibilities of reaching the highest effects of agricultural economy. Its main aim is to increase food production for continually growing human masses on this planet. This great practical importance of agrometeorology is generally acknowledged. Hence one can observe the growth of research and service in the area of agricultural meteorology in nearly all countries of the world. We wish that also in the Polish Meteorological Service agrometeorology gains its deserved position.

The World Meteorological Organization, and together with it the Polish agrometeorologists, dedicate the 23 March 1976, the sixteenth Meteorology Day, to stressing the great importance of agricultural meteorology and to popularizing it in society.

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