



CENTRAL BOARD OF IRRIGATION AND POWER

**Symposium
On
Optimum Requirements and
Utilisation of Water for
Irrigated Crops**

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FOREWORD

Since the introduction of canal irrigation, there has always been an attempt to evolve methods for judicious and timely application of water to the various crops for its optimum utilisation for ensuing best yield. With the growing population, the present day activity in the field of irrigated agriculture has increased manifold. With widely differing soils and climatic conditions, the water requirements of crops also vary from region to region. There are, thus, three basic questions related to problems of irrigated agriculture, *viz.* (i) How to irrigate ? (ii) When to irrigate ? (iii) How much to irrigate ?

Considerable laboratory and field experimental work on water requirements of crops has been done in the country over the past two decades both by the Irrigation and Agriculture Engineers. Yet, diverse approaches and techniques have been adopted for the application of water to various crops, resulting in widely varying yields. There is need for standardising the techniques on an all-India basis. Simultaneously, dissemination of the knowledge, gained through researches, to the cultivator is of urgent necessity.

The Central Board of Irrigation and Power organised a Symposium on 'Optimum Requirements and Utilisation of Water for Irrigated Crops' at the time of its Annual Meeting held at New Delhi in November 1963, with a view to provide a forum to both Irrigation and Agriculture Engineers and Scientists to discuss the subject in detail, and to pool the progress made on the subject for the benefit of both. Twenty-eight research papers covering aspects of (i) water requirements of crops, (ii) cropping patterns, (iii) relationship between water requirements, evaporation and rainfall, (iv) soil and soil moisture studies, and (v) optimum water use, were presented. The Symposium was largely attended by State Irrigation Chief Engineers, Directors of State Irrigation Research Stations, Experts and Scientists of Agriculture Research Stations, and other engineers.

Under the first aspect, namely, 'Water requirements of crops' the studies reported pertained to rice, wheat, sugar-cane, gram, potato and cotton. The large variation in the water requirements of some of these crops in various regions of the country was brought out. The soil moisture deficit and climatological approaches were proposed for evaluating water requirements of various crops. It was suggested that economics of water utilisation should also be taken into consideration in these studies. Under the 'Cropping patterns', it was felt that the combination of rice followed by maize was worth trying. During discussion on the 'Relationship between water requirements, evaporation and rainfall', it was noted that no large scale experimental work had been carried out in India on the subject. It was felt that more climatological data were needed for planning irrigation and agriculture on a scientific basis. A resolution urging the Govt. of India to fill up the lacunae in the existing network of self recording raingauges and evaporation measuring stations was adopted. The need for conducting extensive soil and soil moisture studies was emphasised and it was suggested that pre-irrigation soil surveys should necessarily be carried out in all irrigation projects.

(ii)

This publication contains papers, general report and discussions held at the Symposium. The Central Board of Irrigation and Power is grateful to the authors of the papers, and participants who largely contributed to the success of the Symposium. Special mention is made of Dr. Mukhtar Singh, Indian Agricultural Research Institute, New Delhi who prepared the General Report and initiated the discussions. It is hoped that the publication will be of great utility to the profession.

NEW DELHI
March 1969

S. N. GUPTA
Secretary
Central Board of Irrigation and Power

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