

Fertigation Proceedings: Selected Papers  
of the IPI-NATESC-CAU-CAAS  
International Symposium on Fertigation  
Beijing/China, 20-24 September 2005

**Fertigation:**  
**Optimizing the Utilization of Water  
and Nutrients**



**International Potash Institute**  
**Horgen/Switzerland**  
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*Optimizing the utilization of water and nutrients*

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Edited by: Dr. Patricia Imas  
IPI Technical Secretariat  
ICL Fertilizers  
Potash House, P.O. Box 75  
Beer Sheva 84100, Israel

M. Ron Price  
15, Rav'on St.  
Giv'at Savion 55900, Israel



International Potash Institute  
P.O. Box 569  
CH-8810 Horgen  
Switzerland

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Baumgärtlistrasse 17  
P.O. Box 569  
CH-8810 Horgen, Switzerland  
Tel.: +41 43 810 49 22  
Fax: +41 43 810 49 25  
E-mail: [ipi@ipipotash.org](mailto:ipi@ipipotash.org)  
[www.ipipotash.org](http://www.ipipotash.org)  
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## Foreword

The International Symposium on Fertigation under the theme “Optimizing the Utilization of Water and Nutrients” was held in Beijing, 20-24 September 2005, Beijing Conference Center.

Fertigation receives a great deal of interest in China because of the potential to save water and nutrients, while at the same time, increase agricultural productivity. In the late 1990s, the Chinese National Agro-technical Extension and Service Centre (NATESC) and the International Potash Institute (IPI) responded to this need by initiating a series of activities at farm and extension level to demonstrate the benefits of fertigation through publications, field experiments, training courses and farmers’ days. These efforts are yielding a wide acceptance of fertigation by scientists, extension officers and policy makers in China.

Jointly organized by IPI and NATESC, and assisted by the Chinese Agriculture University (CAU) and the Chinese Academy of Agricultural Sciences (CAAS), the symposium presented the first international meeting dedicated to the topic of fertigation to be conducted in China.

The use of fertigation with micro-irrigation systems is one of the critical measures required to meet the mounting demands on water resources and the acute need for the efficient use of nutrients in China. Yet, development of fertigation is dependent on government policy to assist in the required financial investment, on industry to supply competitive solutions of technology and fertilizers, and above all, on farmers’ deep understanding and knowledge of how to apply this technique to various crops growing in different agro-climatic zones.

The papers in these proceedings demonstrate the many uses of fertigation and highlight the opportunities created by effectively managing water and nutrients. We hope that the proceedings provide a modest contribution to enhancing knowledge for the development of fertigation in China, and can be drawn on to improve water and nutrient use efficiency in Chinese agriculture.

Hillel Magen  
Director, IPI

Tian Youguo  
Division Chief, NATESC

## **Preface**

Irrigation is a crucial component in the production of food crops. While various types of flood irrigation have been practiced for thousands of years, water scarcity in more recent years has stretched the innovative nature of man and since the early years of the 60s trickle and other micro-irrigation systems have been rapidly developed. Now at the onset of the 21<sup>st</sup> century, the growing demand on water resources by the agricultural, urban and industrial sectors is, creating even more opportunities for the use of advanced irrigation technologies.

Fertigation - the incorporation of soluble fertilizers into irrigation lines enabled - for the first time - harmonization and integration between the application of water and plant nutrients. This was a natural development to meet the requirement of limited root zone development with micro-irrigation systems. Fertigation also enables the productive use of saline and marginal soils, sand dunes and mountain slopes bringing them into agriculturally productive soils; it also enables efficient use of nutrients, saving of labor, reduction of weed growth and herbicide usage as well as the use of low quality water.

The tremendous potential of fertigation in saving water and fertilizers without compromising the yield and the quality of food and fibre crops, along with the reduction of nutrient losses to the environment makes it an attractive system to which governments should consider assisting farmers in their initial investment requirements. The flexibility of this technique enables its use in small scale farming as well as in large industrial field crops and plantation production systems.

The papers in these proceedings describe various issues relating to fertigation in different cropping systems and agro environments. These data can be used as a starting point for the expansion of scientific knowledge and the practical use of fertigation, to meet more and more site specific needs and demands arising from water scarcity and ecological intensification of crop production and the resources needed. The 16 papers presented in these proceedings demonstrate the introduction of intensive field and theoretical efforts of very high scientific knowledge in solving a wide range of practical problems. These studies are wide ranging covering agricultural and horticultural production from vegetable to orchard crops and hydroponics as well as the interactions of nutrients with salinity in plant development.

It is my hope that this symposium and its proceedings will serve as a significant step in the development and dissemination of fertigation in the fast growing agriculture of China. Using this technology, scientists, extension officers and farmers have provision for a stable and sustainable production of food for all.

Uzi Kafkafi  
Faculty of Agriculture  
The Hebrew University of Jerusalem