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Understanding and applying drip irrigation for sustainable agriculture

*Compréhension et application de l'irrigation goutte à goutte pour
l'agriculture durable*



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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Global environmental changes	2
4.1 Water scarcity.....	2
4.2 Food scarcity and prices.....	4
4.3 Land degradation.....	4
5 Irrigation	5
5.1 General.....	5
5.2 Common irrigation methods.....	5
6 Advantages of drip irrigation	6
6.1 Crop production.....	6
6.2 Water distribution in the field and irrigation efficiency.....	8
6.3 Water evaporation from soil surface.....	9
6.4 Dry harvest.....	10
6.5 Irrigation as a delivery system.....	10
6.6 Water infiltration, water budget and the environment.....	11
6.7 Soil and water salinity.....	12
6.8 Soil and land conservation.....	13
6.9 Energy saving.....	14
6.10 Treated wastewater irrigation.....	15
6.11 Labour savings.....	15
7 Drip irrigation limitations	16
Annex A (informative) Role of governments: National investment as a driver of growth	17
Annex B (informative) Drip Irrigation implementation	19
Annex C (informative) Used material disposal and recycling	21
Annex D (informative) Impact of drip irrigation on sustainability	22
Annex E (informative) Subjects for which detailed standards could be prepared	26
Annex F (informative) Workshop contributors	27
Bibliography	28

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

International Workshop Agreement IWA 20 was approved at a workshop hosted by the Swedish Standards Institute (SIS), in association with the Standards Institution of Israel (SII), held in Stockholm, Sweden, in August/September 2016.

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Introduction

Dwindling vital natural resources, such as land and water, and rising world population pose a constant threat that could develop into a future food and water crisis. Given the limited availability of water and land resources, the amount of food grown today needs to be increased to meet the demands of tomorrow. Reduction of available water for human consumption needs to be addressed. As direct consumption of fresh water by populations cannot be decreased, the amount of water consumed by agricultural uses needs to be reduced and allocated for domestic or industrial use.

Drip irrigation addresses water scarcity and other environmental considerations. Its use can save large amounts of water (over 50 % of water can be saved for certain crop types), and can increase yields.

Drip irrigation not only addresses the need to reduce water consumption and increase yield, but also requires less labour and energy for operation, leading to lower costs to farmers due to reduced usage of labour, fertilizers and other chemicals.

Drip irrigation relates to sustainability agriculture issues, and can be used in dry areas, in saline soil with saline water, and in steep-sloped topographies, where other irrigation methods cannot be practiced.

Drip irrigation is easy to handle and operate once installed. It is suited for automation and remote operation by computer or mobile phone. The system's simplicity makes it easy to install, operate, maintain and repair.

Other than irrigation, the drip irrigation method is used as a delivery system for fertilizers and other agrochemicals. Drip's advantage as a delivery system is its ability to optimize fertilizer usage, and distribute it exactly where needed, in the root zone, while minimizing its release to the environment.

Adoption of drip irrigation can help achieve sufficient fresh water availability for domestic use and sufficient food quantity and quality for reasonable pricing, while increasing farmers' income with yield increment and cost reduction, and ensuring food security.

The purpose of this document is to review the benefits of the drip irrigation method in relation to other practiced irrigation methods, and to outline a future standardization roadmap.