

ISO 24120-1:2022-06 (E)

Agricultural irrigation equipment - Guideline on the implementation of pressurized irrigation systems - Part 1: General principles of irrigation

Contents		Page
Foreword		iv
1 Scope	1	1
2 Normative references		1
3 Terms and definitions		1
4 Water management		1
4.1 Soil-water relationship		1
4.1.1 General		1
4.1.2 Solid particles and porosity		1
4.1.3 Soil water		2
4.1.4 Determination of amount of water in a soil layer		3
4.1.5 Water retention in soils		3
4.1.6 Soil water potential and movement of water in the soil		4
4.1.7 Water distribution in the soil		5
4.1.8 Distribution of salts in the irrigated volume		11
4.1.9 Salt concentration as a function of soil water content		16
4.1.10 Nutrients distribution		16
4.1.11 Root distribution		17
4.2 Water sources		17
4.2.1 Sources		17
4.2.2 Effects on soil and crops main parameters in relation to chemical/ biological quality of the irrigation water		17
4.2.3 Effects on filters and irrigation emitters in relation to chemical and physical parameters	18	18
4.3 Water distribution network: main, sub-main, distribution pipes		18
5 Pressurized irrigation design		19
5.1 General		19
5.2 Data collection		19
5.2.1 Soil characteristics		19
5.2.2 Surface topography		19
5.2.3 Climate		19
5.2.4 Water source and quality		19
5.2.5 Crops characteristics (orchards, field crops, vegetables)		19
5.2.6 Local water use regulations		19
6 Calculating irrigation scheduling		19
6.1 General		19
6.2 Soil -- Water reservoir		19
6.2.1 General		19
6.2.2 Calculation of water available for the crop in the root zone		20
6.2.3 Calculation of the management allowable deficit		20
6.2.4 Net irrigation depth (NID)		20
6.2.5 Gross irrigation depth (GID)		20
6.2.6 Leaching		21
6.3 Crop water requirements		21
6.4 Irrigation interval		22
Annex A (informative) Example of soil data		23

Annex B (informative) Methods for the determination of the wetted volume (bulb) dimensions	24
Annex C (informative) Salt tolerance of selected crops	27
Bibliography	28