

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
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
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