Research Paper :

Development of software design of drip irrigation system

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ABSTRACT

Drip irrigation is the application of controlled quantity of water and nutrients in the vicinity of each plant such that the crop water and nutrients needs are almost matched with irrigation water supplies. There are large number of consideration, which must be taken into account in the design of micro irrigation system including field topography, soil type, crop to be grown, weather condition, availability of labour, energy, available technology and financial resources. Drip irrigating software provides interaction at all stages of the design process and a solution based on individuals own capabilities and the information base available within the software. The individual not only can suit to his requirements but can also compare his design with several other alternate designs resulting from the application of the software with different possible inputs. This software will provide tools that can help farmers, industrialist, marketing executive, extension specialist and researchers who design drip irrigation system. The software has been tested at developer's level. Results obtained using software was compared with on-paper calculation and the results were found satisfactory.

Key words : Design, Drip irrigation system, Software

Water is a precious natural resource, a basic human need and a prime national asset. The extent to which water is plentiful or scarce, clean or polluted, beneficial or destructive, profoundly influence the extent and quality of human life. Rapid development of human civilization and advances of scientific and technological innovations are changing the condition of life on earth, giving rise to basic transformations of the environment. The relentless increase in population and the resulting spurt in the demand for water require careful planning and management of the limited water resources. In India, the growth of population is about 2% per year. It is essential that food production should increase about 2.5% per year to provide a better food intake.

Drip irrigation is one of the latest methods of irrigation, which is becoming increasingly popular in areas having water scarcity and moderate salt problems. In micro irrigation, water is directly applied to the root zone of plants and it permits the irrigator to apply the volume of water closely matching the consumptive use of plant. Design of micro irrigation system depends on several parameter including topography, soil type, crop to be irrigated, weather conditions, technological and financial resources. Different criteria are available for designing the drip irrigation system for widely spaced row crops

such as orchard and vegetables for supplying the water to individual plants with the help of a single or a set of dripper based on their rooting pattern and canopy area. In this situation, there is no need to apply water to the entire land area and laterals are generally spaced along the plant rows. For closely spaced field crops, the entire land area needs to be wetted and the drip irrigation system needs to be designed on the basis of meeting the water requirement of the total cultivated area. To overcome this problem the project of development of software for drip irrigation system was carried out.

METHODOLOGY

This chapter deals with the methodology used to design drip irrigation system. It includes different formulae and theoretical consideration those are used while developing the software. It also encapsulates the configuration of the system and information about the language used to develop software.

Configuration of the systems:

Notebook System
Intel® Centrino Duo®, 1.66GHz
512 MB DDR SD- RAM
TOSHIBA® 60 GB &@)) rpm Hard disk